The Swantek Site: Late Prehistoric Oneota Expansion and Ethnogenesis

by

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For Christina, my true north

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ABSTRACT

The Swantek Site: Late Prehistoric Oneota Expansion and Ethnogenesis

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Chair: John M O'Shea

Excavations at the Swantek Site near Genoa, Nebraska reveal a substantial settlement dating to the 13th and 14th centuries AD. The materials at the site show clear influence from Oneota culture, which was not previously believed to have significant presence in the Central Plains. Investigation of the materials and information from other sites in the region suggest that Oneota people migrated into the region during the Developmental Horizon, displacing indigenous Central Plains tradition populations. Understanding this process requires an examination of tribal social boundaries and the limits of tribal flexibility. By delving into current models of tribal organization and ethnographic case studies, a two-part model of ethnogenesis – the processes by which entirely new tribal societies are formed – is constructed.

Chapter 1

Introduction

Archaeology and the Problem of Cultural Identification

Through the many perspectives and fads that have gone in and out of style in archaeology, one goal that has remained central is an interest in piecing together narrative histories of the past. Vital to crafting these narratives has been the idea that archaeologists can connect ethnographically known cultures and prehistoric societies. The assumption that directly traceable lineages exist, however, is faulty and thus the models for how societies form, merge, and split apart deserve scrutiny.

In this study, I deal with the issue of how novel social networks, specifically new tribes, come into being. I expand on archaeology's current understandings of tribal societies to include a focus on long-term transformations caused by major changes to the social and physical environments. This focus on long-term processes has significant implications for the ways that archaeologists identify relationships between past cultures. In particular it highlights some problems with the tendency to search for direct historical connections between historic societies and prehistoric ones.

The tendency to search for evidence of prehistoric relationships through similarities in historic material culture is the foundation of the Direct Historical Approach (DHA). Although the DHA is no longer a popular method for identifying culture-historic relationships, its foundational assumptions are still very much alive. Research that relies on the basic principles of the DHA is problematic at a theoretical level and its fundamental flaws often hamper our ability to understand the processes at work in the archaeological record.

These problems of tracing historic links between past societies are of great importance to prehistorians who wish to create narratives of the past, but assumptions of direct lineage between historic societies and prehistoric ones also carry political and legal implications necessitated by modern repatriation laws. The ongoing battles over rights to materials from archaeological burials in North America focus in large part on identifying "cultural affiliation." The need to identify these relationships leads scholars to seek connections between modern Native American tribes and the societies of the continent's past.

The assumption of the DHA that cultural connections can be measured simply by tallying similarities in the material culture repertoires of historic and prehistoric cultures presents major problems for a discipline interested in long term change. Even a passing familiarity with the worldwide ethnographic record belies the notion that cultural patrimony is as simple as drawing straight lines to connect cultural dots through time. Cultures and societies adapt to the world around them changing considerably in the process. In many cases this causes fission into separate communities that take on independent historical trajectories, and in other cases aggregation into newly coherent units. Rapid transformation and movement of people across social boundaries is not the unique province of the complex state societies of the modern Western world, quite the opposite of what some writers would have us believe (e.g. Ferguson and Whitehead 1992),. To the contrary, the fluidity of social boundaries in non-state societies, especially those commonly known as tribes, creates conditions under which this kind of rapid reorganization of the cultural landscape is common.

Tribal Archaeology

The archaeology of tribal societies has gone through something of a renaissance over the past two decades with many archaeologists coming to realize that the fundamental characteristic of the social type is this fluidity (e.g. Fowles 1999; Abrams 2009; papers in Parkinson 2002). Tribal societies are now understood by many as large groups of people within a geographic region operating together under a complex set of organizational principles. These organizational principles are flexible and allow the society to reorganize efficiently by distributing authority among various units and reacting quickly to changes in the social and natural environments. This fluidity allows tribes to endure as distinct social units even when faced with extreme uncertainty and change. With this acknowledgement of the fluidity inherent in tribal social structures, several robust models of tribal social organization have come to the fore that describe these flexible organizational principles as adaptive responses to uncertainty.

Bolstered by a critical mass of ethnographic and archaeological studies demonstrating its explanatory and descriptive potential, this phenomenon sometimes referred to as pose-shifting (Gearing 1958) has become the standard paradigm for understanding tribes. However, in the interest of describing the basic mechanics of tribal societies as dynamic social forms, most of these studies have focused on short- to middle-term processes. The lesson from these projects time and again is that tribal organization is uniquely durable, gaining strength from flexibility.

This acceptance of strength through durability, however, opens up a new problem for anthropologists and archaeologists interested in tribal societies: if tribal societies are so resilient to major changes, what are the conditions under which this characteristic durability breaks down? What conditions overwhelm the logic of pose-shifting and force adaptations that go beyond the normal functioning of tribal integration? Ultimately the question that must be answered by this investigation is how some tribal societies cease to exist and completely new tribal organizations come into being.

Tribal Ethnogenesis

In this study I address these general questions. I particularly focus on the long-term processes through which tribal societies are forced to move beyond their normal parameters of flexibility and through which new sets of principles for organizing discrete populations in space are established. This phenomenon may be thought of as *ethnogenesis* – the creation of new organizational systems for connecting people in space in predictable ways in response to extreme environmental unpredictability. Ultimately this study attempts to use the existing theories of tribal societies that understand them as enduring social forms. In the process, however, it moves away from perspectives such as the DHA that seek direct meaningful connections between each archaeological culture and individual historical ones.

Moore (1994) has observed the problems of mapping historic societies directly onto prehistoric ones, arguing that archaeologists and anthropologists should abandon dendritic models of cultural relationships. Dendritic models place societies in historical relationships that mimic the branching of trees similar to the way that biologists classify species. Instead, Moore suggests what he calls rhizotic models (see also Bellwood 1995 for more on rhizotic models in anthropology) that predict that social groups will split apart and join together through time similar to the ways that the channels of a braided stream wind through the landscape. To employ such models requires a perspective that encompasses a considerable amount of time as well as a large geographic region. At the same time, individual- and community-level processes have been recognized as the key loci of social action in tribal societies and thus a rhizotic model must modulate between these levels.

By investigating an apparent archaeological example of tribal ethnogenesis, I hope to outline and describe some of the basic conditions and processes at work in tribal ethnogenesis. Particularly I am interested in understanding the processes through which newly discrete societies can emerge from integrated networks. An opposite but related phenomenon, the creation of new coherent social organizations through the coalescence of previously-independent communities, has also been an important part of history and prehistory. It deserves full study, but likely will require its own set of models and theories and as such will not be dealt with in this dissertation.

Case Study

To investigate the problem of tribal ethnogenesis, I use an archaeological case focusing on the population movements and reorganizations that took place on the Central Plains of North America in the Late Prehistoric Period. Between AD 1200 and 1400, societies in the region (and much of the rest of the continent) went through considerable changes including migration, war, and territorial reorganization. Major climatic change including drought has often been cited as the probable explanation for this (Bryson and Baerreis 1968; Bryson et al. 1970), especially in the Central Plains where the previously indigenous Central Plains tradition (CPt) people apparently vacated all but very small portions of the region.

It has been known for some time, however, that the Central Plains were not totally abandoned during this period as evidence for vestigial CPt and non-CPt cultures can be found in some areas (Rusco 1960). The White Rock area of north-central Kansas includes sites dating to this period with material culture suggesting a connection to Oneota communities in the Midwest. My recent excavations at the Swantek Site in Central Nebraska have renewed the importance of this debate because they uncovered further evidence for the presence of Oneota ceramics in Central Plains sites. This insight opens up the possibility that Oneota use of the Plains was more extensive and intensive than previously thought, but brings again to the fore the various models that have been used to explain Oneota materials in the White Rock area. A range of models and possibilities will be evaluated including 1) emulation of Oneota ceramic traditions by CPt people, 2) sporadic and short-term use of the Plains by Oneota people exclusively for resource extraction, and 3) migration of Oneota people into the Central Plains and establishment of long-term settlements.

New evidence including data from this study supports the third model, and this raises another set of questions. Namely we must come to terms with the specific processes that led to the establishment of new communities of Oneota ancestry in the Central Plains. The Swantek Site therefore presents the opportunity to investigate theoretical issues around tribal ethnogenesis as well as lingering problems of Central Plains Culture history.

Organization of the Dissertation

The remainder of this thesis is dedicated to investigating the culture-history of the Swantek site and other apparently Oneota sites with the primary goal of evaluating the problems of tribal ethnogenesis. In the following chapter I lay out a brief history of understanding tribal societies in anthropology and archaeology and identify the major variables that are part of the current paradigm of tribal archaeology. After that I use elements of the existing models to develop an anthropological model for tribal ethnogenesis. This model is created done by first coming to terms with an archaeologically useful theory of ethnicity that can be used to identify tribal social boundaries. After that has been accomplished, the basic elements of tribal archaeology are used to define the conditions under which a new tribal boundary is likely to emerge. These are the conditions that must be investigated for understanding the processes of tribal ethnogenesis. Finally I use this model and examples from the ethnographic record to identify two separate types of ethnogenesis. In one form, which can be thought of as *active ethnogenesis*, the logic of social interaction is reworked to create multiple discrete communities where previously there had been one. In the other form, which I term *passive ethnogenesis*, practical limitations impede the continued functioning of a community as a single tribe and a process of drift leads to the emergence of discrete social networks. These two forms of ethnogenesis are described at length using the logic of existing tribal theory.

Chapter 3 returns to the anthropological model of tribal ethnogenesis and builds a middle-range theory for detecting it archaeologically. This begins with a discussion of identifying prehistoric social boundaries, and then deals with the problem of separating emulation by an indigenous population from migration as alternate explanations for the sudden appearance of cultural material in a region with extralocal antecedents. Finally, an archaeological model is created for discriminating between the two types of ethnogenesis outlined in Chapter 2. By describing the unique fingerprints of the various processes involved in ethnogenesis, a stepwise framework for investigation can be constructed that allows archaeologists to identify situations in which ethnogenesis can be identified and also allows them to separate the major kinds of ethnogenesis outlined in Chapter 2.

In Chapter 4, I lay out the cultural and environmental setting in which this study takes place. I describe the culture-histories of the Central Plains and Midwest regions as they are currently understood for the Late Prehistoric period, paying special attention to the apparent population movements on the Central Plains and the models that have been used to explain them. I highlight the current state of understanding Oneota sites on the Great Plains, particularly in the White Rock region. Two major models have been presented by other researchers to explain the presence of Oneota materials in this region and they are described here.

In Chapter 5, the specific expectations of the various models explaining the presence of Oneota materials in the Central Plains are laid out, and set of expectations for testing these problems are tabulated. The materials recovered from the Swantek Site are analyzed to investigate the models of social boundaries and ethnogenesis. Data from other excavated sites are also included to provide comparative examples and determine possible historical relationships between Western and Plains Oneota communities.

Chapter 6 comprises a discussion of the findings in Chapter 5 in light of the theoretical and culture-historic considerations in the previous chapters. An effort is made to identify results of particular salience for Archaeologists working in the Late Prehistoric midcontinent as well as archaeologists and anthropologists interested more broadly in ethnogenesis and tribal societies.

Chapter 2

Flux and Transformation in Tribal Societies

Flux and Transformation

Social evolutionary perspectives have gone in and out of style in anthropology and many attempts have been made to discard or drastically overhaul them (e.g. Yoffee 1993; see Feinman 2000 and Shennan 2008 for lengthier reviews of evolutionary theory in archaeology). But one of the few truisms in anthropology is that societies change over time. Thus a systematic study of the social processes must at some point come to a clear understanding of the processes underlying change and transformation. Archaeological anthropologists interested in culture historical trajectories have developed a number of sophisticated frameworks for dealing with social change and many have turned recently to the patterns of flux and transformation as the focal characteristic of theory (e.g. papers in Parkinson 2002; Abrams and Freter 2005; Abrams 2009). Complex unstratified societies, commonly referred to as tribes, in particular have been observed to go through a great deal of flux and this is understood by some researchers as their defining characteristic (e.g. Parkinson 2002, 2006; Fowles 1999, 2002). "The very malleability of social boundaries in such contexts over time is what many archaeologists have found to be most characteristic of the tribal type" (Fowles 2002 :19 citing Fowles and Parkinson 1999).

Given this characteristic flexibility, defining and identifying tribes has historically been quite difficult (e.g. Sahlins 1968, 1972; Fried 1968, 1975; Hayden 1995). However, contrary to early criticisms (e.g. Fried 1968), this characteristic malleability does not mean that the social boundaries defining membership in tribal societies cannot be identified. Rather it highlights a need to develop a processual model of social boundaries that understands them as an outcome of various types of interaction rather than pre-existing lines to which social actors respond. Implementing this model will allow a comprehensive understanding of the historical nature of social boundaries, from which we can move to a better understanding of the evolutionary processes of transformation and the creation of entirely new social boundaries.

A productive model for understanding the processes that form new social boundaries can be constructed from the elements currently in place in evolutionary theory, but first an adequate model for identifying the social boundaries that define existing tribal societies and the processes that underlie regular social transformation and flux must be laid out. What exactly is meant by such basic terms as tribe and society? What constitutes a social unit? Can we identify boundaries around tribes and other social units?

Models of Tribal Society

Classifying Societies/ Identifying Tribes

Segmentation has been considered an important element in classifying societies since the 19th century (Morgan 1877), gaining its clearest description with Sahlins (1968) who built on the tradition of Durkheim's (1984[1893]) mechanical solidarity. The idea of segmentation holds that most societies, essentially all but bands, are subdivided by a number of equivalent structural groups (segments) such as clans and moieties. These segments act as categories existing within the social structure and are filled by individuals. An individual in a segmented society thus maintains many identities simultaneously through membership in these segments and these identities structure social life influencing relations with other members of the group and throughout time. As Sahlins (1968) argues, these segments exist at many levels of integration within a given society and function to tie structural elements and individuals together in a variety of ways. Evans Pritchard (1969) describes how these can be nested, creating a multi-layered system of identities that are drawn upon for different kinds of social action.

Egalitarianism is sometimes used as a feature that can be evaluated in determining social types. Social inequalities exist in all societies, even non-segmented societies traditionally considered to be very egalitarian. Thus they must be considered as a quantitative variable varying in degree among societies, rather than a qualitative one that is simply present or absent in any given society. For example, age and sex are sometimes used to divide members of society and afford distinct social statuses even in very egalitarian societies such as the Paiute and !Kung San (Steward 1933; Lee 1979). In those very small band societies, however, there is very little division of society into other segments such as clans, moieties, and ritual societies. In societies typically considered ranked, these segments operate within a permanent hierarchy in which certain groups and the people within them maintain authority in all circumstances, but in segmented societies considered unranked the organization of these social divisions is fluid and no single person or segment maintains authority in all situations. This type of social organization in the middle range between non-segmented bands and hierarchically ranked societies is what is commonly identified as a tribe (Service 1958, 1971; Sahlins 1961, 1968).

Tribal Flux

The ability of a single society to transform the organization of its segments relative to each other in a relatively short period was considered problematic for early tribal theories that sought a static list of traits that would determine a society's organizational type empirically and were thus not equipped to deal with transformation in either the long- or short-term (e.g. Sahlins's changing list of societies in the tribal group 1961 *versus* 1968; Fried 1968). However, more archaeologically-informed tribal theory takes a longer-term perspective and calls on historic continuity with earlier organizational forms in articulation with emerging conditions to explain the diversity of tribal forms encountered by anthropologists (e.g. papers in Parkinson ed 2002; Howey and O'Shea 2006). Ultimately, this diversity of organizational units and the ability of them to be reconfigured means that segmented tribal societies display a great diversity of organizational schemes (cf. Fowles 2002: 20).

More recently, researchers have focused on approaching tribal societies as systems of organizational logic that allow coordination of people in space in the absence of hierarchical control or coercion (e.g. Mchale-Milner and O'Shea 2002; Parkinson 2002; Abrams 2009). This current tribal theory is particularly interested in the ways that those systems of principles allow unranked segmented organizations to adaptively respond to change and uncertainty in the environment by shuffling the arrangement of segments and the people that fill them. This tendency of tribal societies to reorganize segments and personnel constitutes a tribal *flux* that is characteristic of this type of society. This approach overcomes some of the pitfalls of tribal theory from the mid-20th century such as unnecessarily rigid classificatory schemes, contradictory groupings as in Sahlins's (1968, 1972) variable lists of tribes, and non-processual trait-list approaches (*cf.* Fried 1968).

In this perspective, the organization of segments in a tribal society is understood to be characteristically fluid and able to transform quickly in response to predictable environmental change such as seasonality as well as to less-predictable risks in the environment. This is seen as an adaptive response to uncertainty, allowing the underlying social structure to remain intact while momentary arrangements shift. In addition to social organization, many aspects of tribal societies are uncentralized and non-hierarchical. Decision-making tends to be situational and distributed among segments with final authority seldom emanating from a single individual or lineage. Ultimately this means that no single individual or segment within a tribe is in control of all of a tribe's cultural knowledge or authority and these societies exist as the sum of many social segments that are often redundant or competing. All of this flexibility and distribution is an organizational adaptation to uncertainty or foreseen circumstances requiring temporary change. The outcome of this perspective is an understanding that tribal societies are very difficult to describe with a single list of ubiquitous traits that all anthropologists can agree on (cf. Fried 1968), but that they are a very real social form that is constituted by a large socio-political-economic network organized in space with a social connection that is recognizable to participants and outside observers alike.

Tribal Boundaries and Generative Processual Theories

A perennial problem in dealing with tribal societies and issues around community identification is the very basic question of what constitutes a tribal social unit. In light of the characteristic fluidity, what marks continuity and discreteness?

Some insights can be gleaned from the work of Frederick Barth (1969, 1994), who offers a framework that argues for ethnic identity as an emergent property (what he terms a generative quality) in dealing with similar problems of discreteness for concepts of ethnicity. The concept of ethnicity is not applicable wholesale to tribal studies because of its reliance on self-ascription, but some important ideas can be borrowed.

Barth describes an ethnic community as being constituted by the effect of the interactions among a group of people. Thus it is a practical reality before it is a conceptual one. This sort of approach is essentially what Weber (1930) was calling for when he cautioned against seeking a general theory for the objective existence of ethnicity and instead sought a grounded theory (*cf*. Holy 1987: 8). Dealing specifically with the problem of identifying salient boundaries for tribal societies, Fowles echoes Barth and states that in the study of tribal societies we must seek actual interaction and the processual effects of long-term interaction rather than an *a priori* cultural unit to which people naturally and exclusively belong; "tribal is as tribal does" (2002: 18). These boundaries, which define social units as products of interaction, are emergent properties. Similarly Vermeulen and Govers (1994: 4) describe ethnic identities as the product of "regulated interaction" that has the effect of creating identifiable social boundaries.

Ascription: A Problem in Ethnicity Theory

Although Barth's emphasis on interaction is very useful for understanding prehistoric societies, some elements of the theories of ethnicity following his work are not productive for use in archaeological models. Barth relies heavily on an element of ascription and self-ascription for the conceptual reality of ethnicity. That is self-recognition of belonging to an ethnic community and the recognition of other people within that community, which is quite difficult for archaeologists to operationalize. This inclusion of ascription as an element of ethnicity has led many post-modern ethnicity researchers to conclude that ethnicities, as something residing in the minds of individuals, are multivocal. Some clear statements of this come from Wilson "a central assumption here is that there is no objective basis for ethnic classification, since 'Ethnic boundaries are between whoever people think they are between' (1993: endnote 2 quoting Fardon 1987: 176) and "The ethnic group is an aggregate of selves, each of whom produces ethnicity for itself" (*ibid*; see also Cohen 1978).

Such a fluid emic framework that privileges the psychology of the individual is of little use to archaeologists, but Barth's generative approach provides a way to operationalize his broader model. Instead of interrogating cultural agents, archaeologists can ask what actions constitute participation within a social group and seek the patterns of regulated interaction (following Vermeulen and Govers 1994) that are the observable products of social identity in this model. Ultimately a processual approach to social boundaries excludes elements of psychology and seeks behavioral patterns that are consequent of them.

Tribal Boundaries and Interaction

Identifying community boundaries that define social units is especially problematic in dealing with tribes because, following the distributed nature of tribal authority, there is no gold-standard of tribal cohesion nor centralized regulator of interaction (*cf*. Moore 1994). Rather these societies exist on a continuum from a "smear" of soft-sided identity groups interacting loosely and sometimes including multi-ethnic communities or "hybrid bands" (Moore 1994: 68-70) to discretely-bounded self-isolating groups that fit a more traditional model of "tribe" (*cf*. Snow 2002). This is further problematized by the diachronic perspective of archaeologists who seldom seek simply to understand a momentary social posture, but rather deal in historical trajectories. Even cultural anthropologists revisiting communities years after initial work have found that social boundaries can change dramatically within a generation, leading researchers separated by time to identify different boundaries and combinations of social groups within communities (e.g. Sharrock 1974; Moore 1994). "With respect to the problem of tribal society, we therefore stand to profit from an analytic framework that … [focuses primarily on] what happens over time in tribal contexts" (Fowles 2002: 19).

Taking this diachronic perspective, Moore (1994) argues that a productive understanding of the processes underlying social boundaries, and ultimately ethnogenesis, should abandon cladistic models that assume discreteness and independence of social groups in favor of what he calls a "rhizotic" model that assumes oscillation and a long-term fission-fusion cycle analogous to the separation and remerging of a braided stream (Moore 1994: Figure 4). Combining this with the generative Barthian paradigm that identifies social groups as constituted by the actions of members, we can understand tribal societies as long-term groups of segments and people that are tied together in a social logic of patterned interaction. The results of this patterned interaction cause the reality of the tribe to be recognizable to participants and outsiders, including archaeologists, alike.

There is also a clear territorial component in tribal societies as these interactional communities exist within a recognized territory, often defined by local resources to which segments of a society claim rights. The continued exploitation of these resources and the need to efficiently regulate control and distribution creates a territorial linkage and ensures that groups have a common economic interest and a finite space within which to operate. Social logic then provides a set of rules akin to a syntax that allows for multiple kinds of patterned interactions within a territory including the movement or crossing of momentary social boundaries according to set rules. Following this, social boundaries can usefully be sought through an empirical observation of interaction and the behavioral patterns that result in generation of boundaries in social action. This is identified by attention to actual practice, the patterns and limits of shuffling and interacting that people undertake.

A theory of tribal organization such as this that relies on the processes of interaction that actively constitute a social group lends itself particularly well to archaeology and historically-oriented anthropology. The culture-historic problems of identifying tribal societies and understanding the processes that have constituted them, as well as such theoretical problems as the formation and transformation of tribal groups, can best be dealt with in the long-term perspective of the archaeological record.

Flux and the Tribal Syntax

As an organizational strategy using distributed hierarchy and organizational flux, individual tribes adopt organizational postures to react to situational needs while efficiently organizing considerable population densities in sometimes large territories without a permanent centralized authority. Thus tribal societies may adopt a very wide range of organizational schemes, but the ability to transform is not unlimited (Gearing 1958). Rather, the range of organizational postures that a tribe may adopt is provided by a set of rules embedded in culture as a logic of social organization.

This social logic constitutes the community norms that guide individuals in patterned interaction (Barth 1969; 1994; Vermeulen and Govers 1994) and it is largely codified in important stories such as myth, folklore, and accounts of origin (*cf.* Leach 1954; Malinowski 1926). Social logic interacts with history and environmental conditions to provide for the organizational possibilities of a group of social segments, while disallowing others. The range of potential organizational configurations provided under this model can be thought of as a conceptual *syntax* for tribal organizations. As with syntax in language, the conceptual understanding of a tribal society can be thought of as a set of rules for the potential relationships between social segments. Within the logic of the syntax, a large range of possible organizations is possible including some that are rarely operationalized, but there are also logical limits or potential arrangements that are disallowed by the rules of combination.

Participation in these fluctuations, actively engaging with them, then is the patterned interaction, 'regulated' of Vermeulen and Govers (1994:4), that generates the practical reality of a social boundary. This organizational syntax structures the actions constituting the generative processes of a tribal society. Thus a single tribe includes all the people who regularly interact within this system, though they need not interact with all members on a face to face basis, but have the potential to move throughout the system as allowed by the rules and their individual identities.

Practically speaking this predicts that tribal societies occupy a very diverse variety of organizational postures within the course of normal operation. As new conditions emerge in the physical and social environments, a tribal society will adapt by shuffling people in space and reorganizing its structural units (*cf.* Gearing 1958), allowing the underlying organizational syntax to remain intact. The particular posture that a tribe takes at any given historical moment is a product of previous organization, environmental situation, and the possibilities provided by social syntax (cf. Howey and O'Shea 2006).

Environmental Uncertainty and Regular Transformation

Tribal societies use this capacity for organizational flux to adapt to changes in the environment, meant here in the broadest sense including physical, social, and historical environments. Regular cycles in environmental stresses mean that many organizational transformations are predictable. Normal responses often involve moving people physically throughout the territory to respond to demographic pressures, localized ecological and social stresses, seasonal fluctuations, and the ritual cycle.

One situation in which tribes undergo predictable shifts is during annual cycles. The historic Pawnee for example followed a regular cycle in which they alternated between sedentary village life including large multi-family earthlodge households and a mobile hunting phase in which they moved together as a group but broke down into nuclear family tipi households (Weltfish 1965; Hyde 1973; O'Shea 1989). The kinds of economic, ritual, and political work that happened in these two phases of the annual cycle were quite different in response to vastly different conditions, yet the tribe maintained internal cohesion and integrity throughout the year according to a shared logic of how social segments and individuals interrelated at differing levels of abstraction. During these very different modes of Pawnee life, the groups were organized differently and at differing scales in what Gearing (1958) called “social poses,” but the core logic of potential relationships maintained a coherent social identity in a prime example of a tribal social syntax.

Transformation need not involve the physical movement of people, the logical organization of segments can also be shuffled. In Papua New Guinea’s Big Man societies such as the Mae Enga, traditional authority famously is a point of negotiation as individual men compete for status through deeds of generosity and courage (Wiessner and Tumu 1998, 2002; Johnson 1982: 403-404). Although individual big men can gain great influence in particular areas, this only extends so far as they are able to demonstrate superiority in certain fields. In addition to the nexus of authority shifting among big men and the families they represent, different aspects of social life are led by different big men. Thus the kin group acting as the primary leader of an Enga village during feasts is different than during agricultural or military activities.

Pueblo societies similarly move very little across the landscape, being essentially tethered to their large villages and agricultural fields, but the annual cycle of Pueblo life is one of frequent organizational flux with different moieties, clans, and societies taking precedence at different times of the year to coordinate particular kinds of activities (e.g. Ortiz 1969; Roscoe 1991).

In other cases people move physically around the landscape in response to changing political configurations. The Grand Valley Dani (Heider 1997) for example traditionally participated in a perpetual cycle of ritual warfare that involved shifting alliances among residential communities that relocated within the Grand Valley in order to maintain proximity to allies and create buffers between enemy communities. This was done in a systematic way according to strict rules of segment relationships and ritual obligations. Heider argues that it was also linked to a "ritual ecology" that had the effect of cycling agricultural fields, hunting grounds, and buffer zones in such a way as to avoid local ecological depletion.

All of these are examples of regular and predictable organizational transformation within the existing logic of tribal systems. They are possible insofar as these changing organizational postures are provided for by the local syntaxes of social logic and none of them contradict the ideals embedded in culture such as impermanent social hierarchy and complementarity of social units.

Extreme Adaptations

Extreme novel circumstances are also handled by organizational flux according to the social syntax within tribal societies. In the case of severe environmental stress such as drought, war, or colonialism, tribal societies turn to the same rules in these syntaxes of social logic to reorganize themselves by moving people, reorganizing the relationships of social units within the society, or frequently both. Although the adaptations to severe stress may appear novel, they are not random. A tribe's logic of social organization provides avenues for transformation to happen in predictable ways even in extreme circumstances. Thus the social syntax provides the tools for an extremely wide array of organizational responses to the environment, but not an unlimited or random set as long as the stress does not go beyond the limits to which the social system can adequately respond.

For example, a very egalitarian society like the early historic Paiute would not be expected to immediately adopt a stratified organization as a response to sedentism and population density. This is because transforming the prior social norms of extreme egalitarianism would be difficult on such a short time frame. In fact the rapid changes of reservation and allotment life for late 19^{th} century Paiute were very difficult to tolerate precisely because of a lack of existing social institutions for dealing with large community aggregations (Kehoe 1989; Hittman 1997). The newly aggregated community went through significant and painful transitions including the Ghost Dance revitalization movement in the process of hammering out a new cultural logic of social relations as an alternative to complete social collapse and atomization of the population (Kehoe 1989). The Ghost Dance and other social institutions that the Paiute created during this process were novel, but not random. They accorded to existing Paiute ideas of community wherever possible while making necessary adaptations to the new situation through a syncretic process of borrowing from surrounding Mormon and mainstream American cultures.

Returning to the Pawnee example once more, the unforeseeable extreme effects of the colonial period caused a less chaotic reorganization of Pawnee people. As Pawnee territory became more restricted, populations shrank, and their ability to range freely across the Central plains was curtailed, they slowly aggregated into larger groups than were likely ever active during the prehistoric period (Weltfish 1965; Hyde 1973). First the various villages of the four major Pawnee bands aggregated into individual villages, later into two communities reflecting the distinction between the Skidi and the southern bands, then finally into a single large village with four distinct residential areas representing the bands. In this case, the social syntax offered the Pawnee an immediate understanding of potential relationships of aggregation that had never existed before but reduced the chaos and friction that came with this drastic change to social life.

Thus it can be seen that adaptation to extreme or unpredictable circumstances is simply a more extreme version of normal transformation in which the syntax of social organization articulates with environmental and historical circumstances to create an arrangement that balances logic, population density, and efficiency with situational conditions. The pre-colonial social logic for the Paiute did not allow for tribal organization because they were not simply dispersed tribal communities, they were non-tribal band societies. Tribal societies such as the Pawnee on the other hand turned to existing social tools to deal with these new conditions.

In some extreme circumstances, adaptations may include moving groups of people outside the regular parameters of geography or social relationships normally used. Given a relatively short duration for these extreme circumstances, a tribal society will generally return to its normal range of flux as quickly as possible and thus continue as a historically and culturally coherent social group after the extreme circumstances have abated. Although tribal societies are characterized by a high degree of flexibility, this serves as a conservative force, allowing communities to adapt to emergent situations without radically transforming broader understandings of the social world. Ultimately this creates an organizational inertia that serves to keep interactional (generative) communities together, and tribal systems tend to bring themselves back into the regular parameters of flux as quickly as possible after a temporary hardship has abated.

Long-Term Change and Historical Continuity

Since the organizational syntax that provides the avenues along which a tribal society will organize itself is an element of culture, it is subject to change itself. Like any other element of cultural knowledge, it is impossible to speak of a single system of cultural logic that rests with all members in a Saussurean sense, and this is not the goal here. Nor is the goal to individualize the tribal syntax to the extent that has become popular with some postmodern ethnicity researchers (e.g. Wilson 1993; Fardon 1987). Rather social logic is meant to indicate a set of general parameters around the tendencies for flux that are practicable within the social situation and environmental circumstances. Over time the operation of these variables has the effect of transforming the broad parameters that outline an organizational syntax and indeed the parameters of the organizational syntax will change gradually in a process of evolutionary adaptation.

Since the social syntax is embedded in cultural knowledge, its maintenance is a historical process and the general rules at any given moment are the product of previous conditions and emergent situations (*cf*. Howey and O'Shea 2006). As tribal societies change through time they also maintain elements of older traditions and demonstrate historical continuity. Any given state is thus influenced by prior states and elements of previous organizations influence future. For this reason, a historic perspective is crucial for an adequate understanding of long-term changes or for predictions of future states.

Thus a tribal system can adapt to gradual environmental changes by incrementally shifting the parameters of normal flux to account for changing normative conditions. In the long-term, a society can transform into something quite unique without disrupting cohesion or continuity. As long as the tribe's situation does not change too rapidly for the organizational syntax to adapt, the inherent flexibility of organizational logic allows the society to keep pace through gradual adaptation and transformation with external pressures and avoid disintegration.

This process of parameter shifting over time adds another layer of resiliency and flexibility to tribal societies (e.g. Wiessner 2002; Kelly 1985). Turning back to the Paiute example above, continued colonial pressure eventually did affect the parameters of the organizational syntax by forcing them to include much more integration and the development of a more complex organization as a general feature of social life (Kehoe 1989; Hittman 1997).

Rapid Transformation

In some cases, especially where extreme circumstances lead to extreme adaptations, these transformations can be incorporated into the standard syntax very quickly. The Great Plains Sioux tribes present an interesting case study in this process. Before the arrival of European settlers in the Great Lakes region, Siouan groups such as Lakota, Yankton, and Santee lived near Minnesota's shoreline in sedentary villages similar to those of Menominee, Winnebago, and other familiar Great Lakes tribes (Gibbon 2003; Walker 1982). The Sioux were displaced by westward advancing Ojibwe and Iroquois as the political, economic, and military processes of European commerce brought complicated new elements to socal life on the Great Lakes (Gibbon 2003; Walker 1982). In response the Siouan tribes moved westward onto the prairies of the Northern Plains, and by 1750 they were the dominant military and political force in the region. Adapting to the dry prairie environment meant developing a nomadic way of life and turning to big game hunting as a primary economic exploit. The introduction of horses and guns spurred the development of the famous Siouan "Horse Culture" (Holden 1974) and the now-Plains Siouan groups quickly adopted raiding and horse trading as additional avenues to economic security and power.

Several Siouan speaking groups in the Upper Midwest went through similar changes at this time, experiencing increased population densities and introduction of European technologies and economies. For some this was a relatively minor adaptation to prior situations that already included some prairie adaptations. However for others, notably the Lakota, this adaptation involved a major transformation from almost exclusively sedentary to fully nomadic hunting-gathering lifestyle (Gibbon 2003; Walker 1982). Those who moved into the environs of the Upper Missouri River from the Prairie Peninsula adapted to a semi-sendentary Plains village lifestyle without the extreme nomadism of the Lakota. This suggests that the particularly extreme environmental transition from Great Lakes to Prairie that Lakota experienced spurred a particularly extreme transformation.

The Lakota went through this entire process from semi-sedentary farmers and wild rice harvesters on the shore of the Great Lakes to mounted, nomadic, Great Plains bison hunters and raiders in a matter of decades. Their migration entailed major transformations in the physical and social conditions of Siouan life – they were now surrounded by vastly different resources and different populations as well as new technologies by virtue of colonial contact. These changes put extreme pressure on the parameters of regular Lakota flux and the organizational syntax was quickly reorganized to exclude the kind of sedentary lifestyle they had lived for the preceding century. In addition to economic adaptations, this included rapidly developed social ideologies, territorial claims, and ritual practices.

Similarly, Eggan (1941, 1954, 1963) describes the transformations that Spanish and American colonialism brought to traditional Kalinga communities of the Philippines. The major social and technological transformations that came to Kalinga life in the century following Spanish contact were previously viewed simply as traits added to Kalinga life by virtue of contact with the West or migration of other native communities into the region. Eggan however suggests that they in fact represent unique Kalinga adaptations to the particular environmental pressures they were facing. “Changes which on the surface seemed to be the results of Spanish or American contacts turned out on closer inspection to be native cultural changes” (Eggan 1941:13). Increased nucleation, introduction of wards to social organization, and other social transformations are thus understood by Eggan as localized responses, what he terms “specializations” (1954) based on indigenous traditions reacting to the new situation. In reacting to the new situation, Kalinga culture adapted by combining familiar cultural elements with the new situation as well as elements of the Spanish colonial culture with which they were now interacting regularly.

These cases exemplify tribes doing exactly what they are best at – rapidly transforming their organization to deal with unexpected situations and simultaneously adapting the rules of social logic. The rapid changes of colonialism brought major transformations to indigenous communities throughout the world, but the only way to adequately explain the diversity of adaptations recorded in the ethnographic and ethnohistoric records is to view them as the systematic adaptations of local systems of social logic to drastic transformations in their social and natural environment (*contra* Ferguson and Whitehead 1992). These examples outline a general model for the kinds of changes a tribal community can be expected to undertake as part of a strategy for continuity in the face of dramatic transformations and in some cases migration into entirely new environments.

Disintegration as a Regular Part of Tribal Flux

Although tribal flux is viewed as an adaptive response to uncertainty that allows the maintenance of cohesion and historical continuity in the face of uncertainty, its regular operation involves forces of apparent disintegration as well as integration. That is to say that the normal functioning of tribal flux involves fission and independent operation of segments just the same as coalescence and active integration. This is sometimes discussed in terms of disintegration and framed in opposition to complementarity and solidarity, but a longer-term perspective suggests that fission and dispersal are in fact normal parts of tribal adaptations. Studies of disintegration highlight a balance that is struck within tribal organizations between centripetal and centrifugal social forces. This focus on balancing social forces is useful in understanding tribal flux, but it must be viewed against the backdrop of the economic factors that are ultimately the driving force of tribal cohesion and the territorial factors that anchor tribal societies as geographic entities.

The internal tensions caused by the simultaneous presence of multiple authority hierarchies that unequally distribute status in certain conditions (Johnson 1982) have been studied for their contributions to long-term disintegration. Among the frameworks for understanding the internal pressures of conflicting hierarchical schemes are theories of heterarchy (Crumley 1979, 1995) and hierocracy (Fowles 2002, 2005). Fowles's work on hierocracy suggests that organizational tensions caused by historically-rooted status distinctions place disintegrative pressure on societies that may spur transformations including permanent community fission and creation of distinct, exclusive organizational syntaxes. In other words, Fowles argues that the distributed situational nature of tribal authority that is so often credited with providing resilience can itself exert a disintegrative pressure. However, in the logic of tribal flux as an adaptive strategy for promoting low population density balanced with efficiency, that disintegrative tendency is *predicted* and *functional* itself insofar as it is a mechanism for the maintenance of the demographic parameters of effective tribal organization. Rather than exerting internal pressure for disintegration, it may be more productive to view the role of these segmentary boundaries as providing natural lines of cleavage that allow dispersal and fission to happen in efficient and predictable ways when necessary. Leach (1954: 264-278) makes a similar argument specifically for the role of myth, which he notes can serve a simultaneously integrative and disintegrative function on social structure and that both are central elements of dynamic social organization.

Specifically Fowles (2005) argues that the moiety system of the Northern Rio Grande Pueblos, which has long been seen as a tool of social complementarity and cohesion, has its roots in ancient ethnic differences. Thus, although this system plays an integral role in the normal integration and functioning of the Pueblos, the distinctions that it maintains create internal social tensions that can pull clans and villages apart. Fowles suggests that this was the ultimate driving force behind the early 20th century split of the

Oraibi Pueblo (2005; Titiev 1944) and then takes this as a model for the prehistoric split at Pot Creek Pueblo that resulted in fission and the establishment of the Taos and Picuris Pueblos. Similarly, Benn (1989) has suggested that the historically-observed pattern of social division into upper and lower or sky and water among some Oneota tribes of the upper Midwest is a relatively recent phenomenon in practice, but that it derives from ancient social divisions with material traces apparent even in the Late Prehistoric period.

This discussion of inherent disintegrative pressures demonstrates that tribes use existing relationships and logic to adapt to internal pressures as well as external ones. Adaptations to internal social pressures often include fission and disintegration. Although this is an important facet of tribal dynamics, a purely internal perspective would be incomplete in that it ignores the environmental conditions that led to coalescence in the first place and assumes disentigration to contradict the basic model of tribal organization and flux.

In a longer-term view, the presence of structural conflict suggests that tribal societies perform a complex social calculus to balance disintegrative pressures of sub-cultural differences, such as competing segments, with advantages of cohesion in particular environmental circumstances. All internal distinctions within tribal societies can and do exert dispersive pressures, but aggregated postures are taken because the advantages of integration often outweigh the disintegrative pressures. The economic benefits of aggregation can be viewed productively as the fundamental reason for the existence of tribal societies; efficient organization of territory and resource management drives solidarity and outweighs the costs of social friction. In particular, aggregated Pueblo communities are successful because the economic advantages of having a large organized group outweigh the political and social stresses of maintaining high population densities. The disintegrative pressures highlighted in Fowles's (2004) study were particularly strong, but had been overcome historically by the benefits of early Pueblo coalescence. What his study describes is the result of changing environmental conditions in which their divisive power again became stronger than the drive to maintain unity. This in itself is not a departure from the model of tribal flux presented above.

The Oraibi case is unique because the disintegration involved was more than the regular fission of a tribal society seeking to balance population density with organizational efficiency. It was a complete collapse of the tribal social structure. In this case, the fission involved a major transformation not just of organization, but also of the organizational syntax itself and the establishment of a new separate system. This case demonstrates that tribal societies are not infinitely malleable and there are limits to the kinds of transformations that can be endured while maintaining cohesion within a single organizational syntax. Thus it needs to be understood in different terms than regular cycling, it must be understood in terms of the limiting parameters of tribal flux.

Limitations to Tribal Flux

Demographic and Geographic Limitations

In addition to the organizational syntax provided by social logic, the range of possible tribal postures for a given society is also restricted by a set of demographic parameters. Wobst (1974) and Johnson (1982) have argued that population densities are a driving force behind the origins of segmentary organization and ultimately behind rank. As more people are brought into regular interaction, more complex systems of organization emerge to organize them efficiently. Very high populations are not sustainable under tribal organization (Bandy 2004; Johnson 1982; Rappaport 1967), but they can be a common strategy for minimizing risk and in some cases for maximizing economic efficiency. Thus tribes tend to seek organizational postures that minimize population densities to avoid the scalar stresses behind rank while minimizing risk and maintaining organizational efficiency.

Geographic space is also an element in this organizational logic. A tribal system is a regional system and must work effectively to organize members and structural units throughout its territory. Thus a single tribal system cannot expand beyond a given geographic distance (Wobst 1974), that distance being variable among different economic, cultural, and technological situations. This balance between low population density and restricted geographic territory is at play in tribal flux. All facets of cultural life influence these parameters, as do variables associated with the territory, physical resources, and geography. Thus, the unique character of a tribal society at a given moment is a product of its history and its present, even the inherent potential for transformation is subject to the influence of many variables and tribal organizations are predictable sums of a wide variety of social, ecological, and historical factors and not random or independent.

Other Constraints on Tribal Flux

In addition to being bound by existing social logic, demography, and geography, the ability of a social entity to transform or pose-shift (Gearing 1958) is affected by variables such as technology and culture-historical situation. For example, the Pawnee cycle of long-distance hunting discussed above was impacted by colonialism through the introduction of technologies such as horses and guns, population decline due to epidemic disease, then by the introduction of economies such as horse raiding that offered new avenues to economic wealth and status, and also by the spatial constraints that came with Lakota intrusion into the Central Plains and later reservation life (O'Shea 1989; Hyde 1973; Weltfish 1965). This susceptibility to outside influence and the correlate need to adapt to environmental change suggest that the parameters for fluctuating forms are themselves dynamic products of history and the material and social worlds.

Ethnographic Models of Ethnogenesis

Transformation and Ethnogenesis

The discussion of tribal flux above suggests several sources of flexibility for tribal societies and illuminates this unique form of organization as a strategy for long-term continuity in an unpredictable world. The focus on transformation and organizational resiliency that has been at the center of recent tribal theory leads us to ask now about longer term transformations and the processes through which social boundaries can be created that define new communities tied together in a generative tribal syntax of the sort described above. Understanding tribal boundaries brings us back again to the need for an interaction-based theory of community (following earlier discussion of Barth 1969, 1994; Vermeulen and Govers 1994; Holy 1987; Wilson 1993).

Following his attempt to reconcile Barth (1969, 1994) and Anderson (1983) with an archaeologically useful approach to identity by bringing in time-depth, Wilson (1993:122) writes "Anderson's… ideas on the 'imagined community' furnish a more grounded, historical and discursive approach to identity." In his attempt to add an historical dimension to ethnology, Wilson argues that ethnicity is formed over time by historical processes based on pre-existing elements of community and culture; it is tied to an ‘imagined community’ of a shared past and common future. Thus, as argued above, a model of ethnogenesis that is rooted in a similar generative understanding of social boundaries must be at its core historical, understanding the formation of new systems for generating social boundaries in terms of prior states in articulation with the changing environmental situations that drive ethnogenesis. “A historical perspective is vital to understanding new identities, since ideas of history and tradition play such an important part in their construction. For a new imagined community to be established, there need to be fundamental changes in prior modes of apprehending the world which make it possible to ‘think’ the nation” (Wilson 1993). Although the model outlined in this chapter explicitly moves away from mentalist notions of “thinking” a community, ethnogenesis similarly is a predictable systematic phenomenon that is deeply influenced by prior historical experience.

Although some elements of nationalism and ethnicity theory are useful to a model of tribal ethnogenesis that is practical for archaeological anthropology, issues of ascription must be dropped. Archaeologically we make no pretense of accessing the “shared ideas” of cultural actors. In tribal organization, there is no nation to “think” but there is a community constituted by participation within the organizational syntax. Ultimately the practical existence of a community is formed by interaction and it is evidence for that interaction that archaeologists deal with. Thus the problem of dealing with apparently new communities archaeologically ultimately comes to a study of newly emergent patterns of interaction and their long-term effects on cultural behavior. We must come to a systematic understanding of the ways that all of the cohesion and resilience afforded to tribal communities by their fluid organizations can be overcome in some situations resulting in the creation of newly discrete patterns of interaction.

Modes of Tribal Ethnogenesis

Based on the model of tribal organization outlined in the previous section and data from the ethnographic and ethnohistoric records, two basic processes of ethnogenesis can be identified. The basic element of any tribal ethnogenesis is the movement of a social unit or a group of social units (and their constituent people) outside the boundaries of normal oscillation set in the organizational syntax of social logic, creating an independent set of boundaries maintained by discrete patterns of regular interaction, and the naturalization of this divergence. There are essentially two ways that this can happen. In one, which will be termed "active ethnogenesis," the organizational syntax of social logic is transformed in such a way as to define one or more new communities of regular interaction. This is brought on by major changes in the social or natural environment, but ultimately facilitated and justified by existing lines of social cleavage, which are amplified and given greater significance than before. Active ethnogenesis can happen either by excluding some segments of an existing tribal society from organizational schemes for regular interaction (one into many) or by crystallizing existing communities into a new organizational system involving regular interaction where it had not been logically possible before (many into one). The many into one form of ethnogenesis will not be discussed here, but deserves evaluation elsewhere in the future.

In the other type of ethnogenesis, which will be termed "passive ethnogenesis," changing conditions make it logistically impossible for certain segments or groups of people to continue participating in the organizational syntax of social interaction. Over time this practical inability to continue interacting leads to social drift and the gradual emergence of distinct cultural patterns. The outcome of both of these models of ethnogenesis is the establishment of two or more discrete tribal systems where previously there had been one. The processes involved in these types of ethnogenesis are distinct and a generalized model can be created that will be useful for identifying them archaeologically. These processes are related and some elements of each occur in any given case of tribal ethnogenesis, but this two-fold model serves as a heuristic for understanding different processes that can be observed in the ethnographic record. The different variables of time, space, and social action involved in these types of ethnogenesis ultimately lend themselves to archaeological analysis.

Active Ethnogenesis

The active form of ethnogenesis is a process through which the existing organizational syntax of social interaction created by social logic transforms so as to effectively redefine the boundaries around a tribal organization to exclude some segments of a tribal organization. As discussed above, this organizational syntax provides a set of rules and principles that allow tribal societies to reorganize themselves in response to environmental situations while maintaining social connectedness and historical continuity among a large group of people in a territory. It ultimately defines who interacts and how they do so. A basic element of those principles is membership, what social segments and people within a given geographic space are included in the tribal system and are considered related as part of the organization of personnel on the landscape. As discussed above, the organizational syntax and its constituent principles are open for contestation and negotiation and are indeed in a constant state of flux themselves as elements of culture. In certain cases, the membership parameters can be adjusted to exclude groups of people who were previously considered part of the society, with the presence of social segments providing natural lines of cleavage or cohesion.

As discussed in the section on disintegration and dispersal, segments tend to represent equivalent but distinct economic units as well as various other types of horizontal status differentiation, and thus they provide natural break points along which a tribe may cleave when going through fission (*cf.* Fowles 2004; Benn 1989). Tribal structures must frequently overcome those dispersive forces, and more fundamentally the logistical problems of high population density, so that the community may maintain coherence for purposes such as economic work or defense. When the benefits of aggregation are outweighed by the problems of high population density, fission is a likely outcome. Significant changes to the social or physical environment drive this, but often the immediate rationale is framed in terms of fundamental cultural disputes.

In some extreme circumstances, the dispersive tendency of tribal systems can truly become disintegrative, causing fission to be reified into newly discrete communities of interaction. In these cases, substantial changes to the social or natural environment calling for novel strategies for survival can aggravate typical dispersive tensions and cause them to gain focus in longer-term fission. This process of permanent fission is often discussed by participants in terms of the internal tensions themselves and they are used as a rationale for the complete fracture and establishment of separate societies. The end product of this sort of active ethnogenesis is that the organizational syntax is reworked to form two discrete communities of patterned interaction and a new, more impermeable social boundary usually formed along an old line of internal social distinction. Ultimately this new set of patterned interactions is useful in adapting to the new circumstances, but the cultural logic justifies and explains the culture history in terms of internal dispute and disintegration. Active ethnogenesis is thus a fairly rapid process involving active effort to establish and demarcate distinct social systems with independent membership in the pool of people being organized by tribal systems.

The historic split of the Oraibi Pueblo discussed previously provides a clear case of this form of ethnogenesis. As social conditions changed rapidly throughout the American Southwest and continuation of traditional life became difficult at best, disagreements emerged within Pueblo societies regarding the appropriate responses. Within the Oraibi pueblo, this justified the factionalization of society into two groups commonly referred to as “traditionalists” and “progressives” (Fowles 2005; Titiev 1944). These factions crystallized along moiety lines and eventually resulted in a fission characterized by two different understandings of the social organization and resulting in unique relationships with outside cultures. Those different views of the community’s future were understood to be too divergent to reconcile in the context of overwhelming changes throughout the region, and thus they provided an immediate avenue for reorganizing the community into mutually exclusive communities with exclusive organizational syntaxes. This allowed the divergence of the people within them into distinct societies that became Hotavilla and Bacavi villages.

This process of forming divergent organizational syntaxes that are eventually operationalized into independent social systems and normalized is much more than the occasional fission involved in normal tribal flux. Thus it can be seen that the Oraibi example is more than a simple case of historic ethnic distinctions exerting disintegrative pressure on a tribal society as Fowles argues (2004, 2005), but a larger process driven by changes in the environmental and historical situation.

A similar case of active ethnogenesis has been suggested for the separation of the Ponca as a distinct tribe from the Omaha (O'Shea and Ludwickson 1992: 20; Fletcher and La Flesche 1911). As the Omaha moved westward toward the Great Plains, internal tensions and a complex authority and kinship structure led to frequent fission and establishment of new communities led by ambitious chiefs seeking independence from the broader tribe. Time and again, economic and military necessity brought these splinter groups back into the fold of Omaha society and in fact the Omaha oral tradition explicitly describes changes to social organization designed to keep the people together (Fletcher and La Flesche 1911). Despite the efforts to maintain solidarity, sometime after 1714 the Ponca, probably an Omaha clan previously, separated and established an independent community on the Niobrara River. Again, the establishment of the Ponca as an independent tribe operationalized along ancient internal segmentary distinctions, but it was ultimately the arrival in the relatively safe Missouri River valley that allowed this clan to permanently break free of the larger society rather than continue the fission-fusion cycle that previously characterized Omaha clan rivalries.

Passive Ethnogenesis

In the passive form of ethnogenesis, divergence occurs when conditions make continued participation in a system of regular interaction impractical for some social segments *before* the organizational syntax itself is logically reworked to exclude them. As discussed in the section above on extreme adaptations, if the duration of this organizational separation is relatively short, separation may be reversed bringing those excluded groups back into the normative system of interaction. In some cases, however, extreme adaptations are normalized making those distinctions permanent. If extreme adaptations including exclusive organizational postures are normalized, these create distinct syntaxes of social organization and effectively separate social systems. Over time, these newly distinct societies will develop into socially and historically unique traditions. When this occurs, the larger tribal society no longer shares a coherent syntax of possible organizational schemes and they cease to participate in the normal patterned interactions of tribal life. Thus two distinct culture-historical trajectories emerge. When groups are no longer conceptually tied together such that they are not part of the same system of regular interaction and possible organizational schemes, this can be thought of as the passive form of tribal ethnogenesis.

In this situation, a *de-facto* ethnogenesis takes place that is not a conscious drive to create distinction, but rather the effective creation of distinction through exclusivity. It can be thought of as a form of social differentiation through drift. Any organizational syntax laid out by social logic for possible organizational postures requires interaction by constituent social units, and in the passive form of ethnogenesis that interaction is reduced and eventually ended due to conditions in the social or physical environment.

The oral traditions of many Plains societies include stories of the gradual social drift of constituent groups in the context of migration. A case study from the northern Siouan groups that migrated into the Great Plains in the historic period is laid out in the following section.

Drift as a Mechanism of Passive Ethnogenesis

The process of passive ethnogenesis is largely driven by drift in which the effects of time and exclusive operation of regimes of regulated interaction lead to a gradual divergence of traditions that is not a conscious effort to mark community boundaries but rather a practical result. Sapir (1921), building on his own idea of linguistic drift, describes cultural drift as a separate phenomenon that is ultimately one of distinct historical trajectories. “The drift of culture, another way of saying history, is a complex series of changes in society’s selected inventory – additions, losses, changes of emphasis and relation” (Sapir 1921: 253). Kroeber and Kluckholm (1952: 189) similarly describe a “momentum quality” to culture change, noting that historical trajectories are ultimately rooted in prior situations. “The performance of a culturally patterned activity appears to carry with it implications for its own change which is by no means altogether random” (Kroeber and Kluckholm 1952: 189357). This follows Eggan’s (1941, 1954) ideas developed in the context of cultural changes in Kalinga communities during Spanish colonialism. He noted that proximity to colonial influence combined with an adequate understanding of native culture history provides a predictive model for the kinds of culture change observed. In this Eggan emphasized again that a tribal society experiencing colonial encounters goes through non-random changes, and adapts to a new situation systematically by blending traditional ideas with the kind and scope of new environmental situations.

Koerper and Stickel (1980) have sought to clarify the use of this concept for archaeologists by emphasizing that simple culture change with time is not an adequate analog to genetic drift when it does not involve randomness as in the biological formulation of drift. Rather they argue that cultural drift is ultimately a random process of cultural transformation that results from undirected transmission of some cultural traits through generations and loss of others. Other biological analogies such as mutation may be useful in describing the particular kinds of trajectories observed by many archaeological studies of culture change where the population remains continuous and changing conditions drive the development of cultural traits. Still the underlying analogy of drift seems appropriate for this phenomenon – two or more communities for where previously there had been one creating a situation in which novel changes (mutations?) in one population are not blended into the other population and historical trajectories cannot be synchronized. Over time this leads to compounding divergence.

For the kind of drift observed in ethnogenesis, which involves division of a single population into multiple independent groups, the most suitable biological analogy may be a founder effect (Mayr 1954) that establishes a new historical trajectory with a limited sample of the elements of tradition in a complete prior social group (*cf.* Koerper and Stickel 1980: 268). The new environmental situation and historical experiences of these divergent populations then cause their cultures to develop independently and create distinct trajectories analogous to separated biological populations creating divergent evolutionary trajectories.

The issue of randomness that is so important to Koerper and Stickel's modern synthesis of cultural drift can be misleading. They are emphasizing the implications of the biological analogy which suggest that the cultural trajectory of a community is sometimes guided by processes of random sampling bias rather than novelty or adaptive advantage. In such cases, the selection of some traits for transmission and others for loss is essentially a random process because it is not the result of differential fitness, but the trajectory is still non-random insofar as it relies on prior states and will thus show resemblance to earlier generations.

For the founder effect analogy proposed here in which two communities diverge from a single one, the trajectories of both are heavily influenced by the prior state of the community, the random effects of sample selection that occur during divergence and isolation, the random effects of drift that occur after divergence, and ultimately the non-random effects of environmental influence. The traits that diverge may be random, but their transformations are the non-random result of differential selective pressures in the two separate environmental situations. Ultimately the founder effect analogy emphasizes that future trajectories are rooted in a non-random way to the situation of the first generation of exclusive communities but continued isolation allows for the processes of drift to create divergence.

This concept of drift and a founder effect is important for an archaeologically-useful model of ethnogenesis because it emphasizes the different kinds of social changes that occur in the two models. In the passive form of ethnogenesis, much of the historical divergence in trajectories can be attributed to drift and founder effect. As communities split apart and establish distinct historical traditions, the kinds of divergences that are observed are almost entirely attributable to the effects of sampling on the first generation community that are passed down through the generations in the historically rooted process of normal culture change and the different environmental stimuli which they face. On the other hand, in the active model of ethnogenesis the divergent traditions are the result of non-random social processes specifically marking distinction between the previously integrated communities and the divergence involves a discrete non-random subset of the original population.

Active Resistance to Drift

A central distinction in the passive model of ethnogenesis is that social effort is not consciously directed at creating artificial social distance, rather increased social distance is the practical effect of geographic or logistical distance. Thus there is little if any effort to create newly discrete boundaries. In fact there is often effort to maintain solidarity. Thus the divergent groups will continue to use essentially the full set of socially significant symbols that they had previously used as a single tribe and may emphasize symbols of cohesion in an attempt to maintain solidarity in the face of divergent social pressures. This can be thought of as resistance to the effects of drift in an attempt to stave off passive ethnogensis.

For tribes experiencing passive ethnogenesis, emblematic style (Wiessner 1983) may become an important tool for marking solidarity and become more pronounced as effort is put into using it to blur practical boundaries. In the passive model, unlike the active form of ethnogenesis, socially significant symbols are not used to mark community distinctions among diverging segments, yet through processes of drift and the realities of two different social and physical situations, isochrestic (Sackett 1985) changes will take place even in the use of emblematic style. Over time, different material environments combined with the practical inability to continue interacting and participating in the interaction allowed by the organizational syntax and the consequent drift will result in the development of distinct historical, technological, economic, and symbolic traditions.

A perspective relying on historical trajectories is important because it affords an understanding of the long-term processes involved in a particular case of culture change. Through the founder effect and a process of cultural drift the separate societies will develop visibly distinct lifeways that eventually become naturalized as separate tribes. This can be a very long-term process and does not involve any single moment of separation at which it can easily be said that one society has become two. Rather it is a processual divergence that is identified by actual interaction.

Time

There are a number of ways that this practical divergence may occur, and identifying true passive ethnogenesis rather than the kind of temporary separation described in the section above on extreme adaptations may require consideration of a long period of time. Some environmental stresses that are solved through extreme adaptations may cause small groups within a tribal society to move outside the normal parameters of organization provided by the existing syntax of social logic. External circumstances leading to this include physical movement of people, changes in the physical environment that make continued interaction practically impossible such as floods, and changes in the social environment such as the presence of hostile outsiders. In these situations, external changes to the social or physical environment spur an extreme organizational adaptation that involves the cessation of patterned interaction among some portion of a tribal society, and if it is sustained and normalized then passive ethnogenesis may occur. As noted above, the important element of historically-oriented anthropology and archaeology is a perspective on trajectories and long-term practice.

In other cases, passive ethnogenesis can be driven by the normal processes of tribal flux and the gradual transformation of the geographic and demographic situation in such a way that puts the tribal population beyond the scope that the organizational scheme is capable of organizing. This process involves internal changes exerting pressure on the functioning of the tribal organization from within. Through normal tribal processes of fission and population movement designed to deal with the scalar pressures of high population densities, tribal segments may expand tribal territory to an unsustainable extent.

The movement of a group outside the territory that can be effectively organized through a tribal system is a common way that slow passive ethnogenesis occurs. External changes leading to circumscription can also limit the effectiveness of tribal organization without necessarily changing the geographic spread of people. Environmental or social factors that break up a coherent tribal territory and disallow continued interaction among communities disrupts the continued participation of geographically discrete populations in the normal interactions of a tribal community. Due to the cessation of regular interaction, historic continuity among social segments is truncated and over time drift may create divergent traditions.

Relatively small geographic distances can also be complicated by the effects of local changes in the physical environment. A local group finding itself in a situation of extreme plenty for example no longer has the need to participate in the risk buffering processes of a tribal organization. Divergent material conditions change the ability or desire of a local group to participate in a larger system. Although heterogeneity may be sought in tribal systems, unexpected heterogeneity can exert a disintegrative force as well.

Accounts of the origins of Lakota divisions highlight a profound distinction between the passive and active models of ethnogenesis. John Blunt recounted oral traditions to James Walker of the divergence of the seven council fires from one original tribe (Walker 1982: 13)

> *Long ago the Lakotas made but one council fire. Then they were all like brothers and made their winter camp on Ble Wakan [Sacred Lake], and this was called Ble Wakan Tonwan [Sacred Lake Village]. Then some wandered so far in the summertime that they did not return to the winter camp, which was made in the place of the pines. These people made their winter camp where the leaves fall in the winter and some made it upon the tinte or plains. Then others made their winter camp on Ble Isan, or Knife Lake [The Santees]. Then some stayed at the lake in the summer-time and ate fish all the time and they stank like fish so they were called Sin-Sin [Sisseton]. So there were four council fires.*
>
> *Then there was war with other Indians and the Lakotas all came together to help each other fight, but there were four council fires.*

A division that anthropologists recognize as more profound is also recounted (p. 14):

> *Then some who went to the plains went far away and would not come to help in war. They spoke to the messengers in a rough voice so that the Lakotas called them Ho He, or Rough Voiced [the Assiniboins]. But some came to help at council and they placed their camps one on the north side and one on the south side of the entrance to the circle, but they made their council fire on both sides of the entrance. So they were called Ihank Tonwan [End Village] and Ihank Tonwanla [Little End Village]. Ever since that time there have been seven council fires that would not be extinguished.*

And elsewhere (p. 18):

> *When the Lakotas came from the middle of the world they were one as a people and made but one winter camp and kept but one council fire. After a time some did not return to the winter camp and when they did associate with the original camp they maintained their council fire so they were called tonwan [village] because they thought they had power sufficient to be independent. Then others did so until there were seven tonwan, or seven council fires, when the people all*

> *associated . While these people were independent of each other, they were friends, so they called themselves Dakoda, or friends (Lakola [sic] in the Teton dialect), and they were allies against all others of mankind.*

These oral histories indicate the kinds of processes described above as passive ethnogenesis. Rather than any ideological split in the community, new divisions were created when small groups fissioned, possibly in response to population pressures, and established new territories in which they developed slightly different economies, material traditions, and dialects. At times, conditions required social action at the tribal or super-tribal level and these new divisions came back into a pose that included the larger communities and other divisions. This type of ethnogenetic process is one of increasing social distance, not one of establishing impervious social boundaries around independent traditions as in active ethnogenesis. Thus the new boundaries are mercurial and identifying them or even a solid terminology to describe them can be elusive.

The more significant division of Assiniboine was driven by time, distance, and repetition of an independent lifeway and it would be impossible to identify a single point in history at which they became a distinct group. It is thus expected that social boundaries will be dynamic, and flux is expected in the short-term within a given tribal territory. Only when a contingent group undertakes these processes on a scale outside the boundaries of normal flux and thus ceases to be a participant in tribal life with the larger group for a long period does the normal functioning of dynamic tribal society become ethnogenesis. In fact the passive model of ethnogenesis describes a long process of accumulating change, groups within a single community transforming themselves slowly in accord with broader community standards over time that may appear to create harder lines given adequate historical depth. Extreme transformations are a regular feature of tribal society, it is their greatest tool for dealing with extreme circumstances in the environments, but when those extreme transformations are normalized through repetition and endurance, new social boundaries can crystallize that make it quite impossible for these social divisions to be overcome again. Like so much else in tribal studies, the social lines that can be drawn have to do with particular events and questions and will appear differently at different historical moments.

It is also notable in this example that greater social distance seems to result from emmigrant communities adopting new economic routines and going through relatively rapid drift. Fish eaters, with their new and independent socio-economic system, became "stinky" and were more readily distinguishable from the rest of the group. Thus the material and economic evidence of the archaeological record may be an adequate partial indicator of social distance in these processes.

Contrary to this example, the active model of ethnogenesis suggests a rapid separation and conscious creation of artificially hard boundaries between previously-related communities. In that model, it is unlikely that new communities would continue to aggregate for economic or ritual purposes or to continue fighting as allies against all outsiders. Apparent exceptions to this can be found in such Historic events as is the Pueblo Revolt of 1680, Pontiac's Rebellion, Tecumseh's organizing, and various alliances of the Indian Wars during which numerous communities, including those who had gone through ideological rifts, fought in unison against the colonial forces (Preucel 2007; Liebmann and Preucel 2007; White 1991; Dowd 1992). These are not exceptions, however, as they were extreme responses to unique circumstance in which the outside forces of expansionist colonial powers exerted extreme pressures against native people as a group and overcame the tribal level distinctions. Further, since these aggregated groups did not act as integrated societies beyond military alliance, these examples do not qualify as cases of ethnogenesis.

As Ferguson, Whitehead, and others (e.g. Ferguson and Whitehead 1992) have suggested, the pressures of colonialism created situations in the ‘tribal zone’ under which many communities drew together and crystallized into larger pan-tribal social forms that had not been active in the past, but drew on earlier traditions of an historical relationship. The Pawnee for example aggregated into large band communities and later into a single village representing all four bands, a formation that was likely never seen in prehistory but accorded to generations of social logic tying these communities together more closely than with any other society in the region (Weltfish 1965; Hyde 1973).

Many tribal zone aggregations such as those involved in the Pueblo Revolt and Tecumseh’s Rebellion, however, were unstable and did not have the power to remain intact. This was due to the lack of an organizational syntax such as those seen in naturalized tribal societies like the Pawnee. In short, they were super-tribal alliances caused by the overwhelming external pressures of colonialism that temporarily overcame dispersive forces, not proper tribal formations.

Elements of the Models of Ethnogenesis

These distinct processes of ethnogenesis involve the normal functioning of tribal organizational syntaxes as dynamic sets of rules for organization existing within a cultural setting. As the social units and rules adapt to changing circumstances, ethnogenesis occurs when segments of society are precluded from continued participation in the dynamics of interaction and flux either by being logically or practically excluded from continued participation in organizational adaptations. Thus these models describe differing levels of social integration and the patterns of interaction that would result from them. The models are not always mutually exclusive and it is probable that some of both are present in most actual cases of ethnogenesis, but they serve as a heuristic for understanding the reasons and ways that non-centralized non-hierarchical societies can develop into new systems through similar sets of processes as those that keep them in solidarity in other cases.

The major elements that distinguish these forms of ethnogenesis are time, interaction, social division, and use of socially significant symbols. Passive ethnogenesis is a long-term process that has no definite moment of occurrence but rather represents the cumulative effects of historical circumstances, while active ethnogenesis is relatively rapid and occurs through conscious decisions on the part of social actors. The social action involved in the passive form is not directed at creating divergent societies and it may even involve efforts to maintain coherence and resist divergence. Active ethnogenesis is a specific kind of social action aimed at marking and reifying social distinctions that existed previously but were overcome by integrational pressures. Thus the passive form may involve social action aimed at obscuring social difference including the use of emblematic style to create the illusion of solidarity while isochrestic elements diverge and the active form will involve effort to signal new distinctions through emblematic style. Thus the key variables for an archaeological model that will be useful in distinguishing the forms of ethnogensis are interaction – practically possible but absent in the active form, practically difficult or impossible in the passive form – and use of socially significant symbols – discrete in the active form and overlapping in the passive form. Chapter 3 takes up these variables and lays out an archaeological model for investigating these different processes.

Chapter 3

Toward an Archaeology of Ethnogenesis

Identifying Ethnogenesis in Archaeological Data

As discussed in the previous chapter, tribal societies are bounded social entities created through the practical effects of regular interaction. Thus the creation of new tribes is a process of forming new communities of interaction defined by new social boundaries. A central question for archaeologists interested in social evolution is therefore how to identify social boundaries and further to separate out the boundaries that define tribal groups. Without systematic identification of tribal boundaries, it is impossible to discuss continuity or discreteness. Following a systematic understanding of how to identify tribal boundaries in the archaeological record, it is necessary to understand the processes that may lead to creation of new tribal boundaries. Using the model described in Chapter 2, a set of archaeological tools can be described to do just that.

The archaeology of ethnogenesis is dealt with in two parts. First, the model of social integration laid out in Chapter 2 is used to create a set of tools for identifying social boundaries archaeologically. Following that, the problem of identifying processes behind the creation of social boundaries is dealt with by returning to the various parameters involved in social boundary formation such as geography, technology, and socially significant symbols. Each of these parameters works differently in the various processes that may result in the creation new social boundaries allowing a set of guidelines to be drawn up for identifying them archaeologically.

Identifying Tribal Boundaries in Archaeological Data

The first question that must be addressed in an archaeology of ethnogenesis is what social boundaries can be identified to have defined discrete communities of integration through interaction. To do this, we return to the definition of tribal society outlined in Chapter 2 – a tribal society is a non-hierarchical group of people organized in space and integrated through the effects of regular interaction that is patterned by a flexible logic of social organization that can be through of as an organizational syntax. Thus an archaeology of tribal boundaries must begin by identifying material correlates of behaviors related to patterned interaction and then move on to examine whether any identifiable interaction served an integrational function.

Interaction

The archaeological study of interaction is a well-trod path (reviews in Hegmon 2000; Lightfoot and Martinez 1995; Oka and Kusimba 2008; Wilmsen 1972). Many frameworks exist for identifying various patterns of interaction and honing in on those patterns that serve to maintain social solidarity as described in the Barthian paradigm of regular interaction outlined in the previous chapter. Ultimately an archaeological theory of integration through interaction must identify unique behaviors involved in this sort of interaction and then move on to the marks that these behaviors leave in the archaeological record. These material indicators of integrational behavior are the lines of evidence that archaeologists can use to study social boundary maintenance. Some useful avenues of investigation are described below.

Exchange and Interaction

Exchange has often been used to investigate interaction between communities over large geographic areas (reviews in Hegmon ed. 2000; Odess 1998; Wilmsen 1972). In general, exchange-based perspectives deal with one of the most visible of human activities, transfer of material through space, and also seek to understand the effects on social life that come from the simultaneous exchange of information. Archaeological studies of exchange have often taken an explicitly structuralist approach (Wilmsen 1972), trying to understand exchange as a forum in which people use patterned interaction to maintain social networks. Others have sought to view exchange as ancillary to other kinds of interaction and encouraged archaeologists to shift focus away from the purely economic (Oka and Kusimba 2008). Lightfoot and Martinez (1995) provide a thorough review of the assumptions, techniques, and problems behind various approaches to interaction.

Following the insights and cautions found in these various studies, exchange remains a central avenue for identifying regular interaction in the archaeological record. Regardless of the justifications that people use to facilitate exchange, it is an important mode of human behavior that involves the transfer of materials between individuals, groups, and geographic areas. Thus when it involves non-perishable materials, exchange creates a supremely useful material indicator of regular human behavior and may provide information on many dimensions of interaction.

Sourced Materials

Distributions of geographically restricted and sourceable materials are often used to investigate frequency and intensity of social interaction. The basic assumption is that if communities control spatially discrete resources then they will exchange them in characteristic ways, and evidence of exchange can offer insights into the intensity and nature of social relationships. Lightfoot and Martinez (1995:471) warn that social boundaries are not always apparent through simple source distribution analysis, noting that several studies (Ericson and Meighan 1984; Shennan 1989; DeAtley 1984) of ethnohistoric trade produce ambiguous or even contradictory results when compared with the social boundaries identified through ethnohistoric research. What they take away from this is that patterns identified through very low resolution analyses of large regional systems may be obscured by the fact that tribal relations are maintained at the village and individual level.

Following the model of tribal society as a practical reality driven by regular interaction, however, those individual and village level interactions are understood to *form* the patterns that are relevant for understanding social boundaries (Chapter 2). Thus it is patterns of behavior that occur at the village and individual level that create material patterns of relevance for archaeological investigations of generative social boundaries. For archaeological analyses, these patterns of behavior should be prioritized over ethnolinguistic frontiers and other ascriptive boundaries that are of interest to ethnohistorians. Thus, since exchange is a direct indicator of interaction, material evidence for it can be useful in identifying social boundaries through their effects on the movement of spatially discrete resources.

Statistical analysis of raw resource distribution is based on the principle that the quantities of spatially discrete resources that move between communities correlate with the intensity of interaction (in the form of exchange) among them, resulting in characteristic distributions of material frequency in space. The null model for this sort of source analysis assumes that without active social boundaries blocking exchange, or conversely avenues being maintained to facilitate exchange, sites will exhibit distributions of non-local resources that roughly follow a down-the-line or distance-decay model (e.g. Ericson and Meighan 1984; Findlow and Bolognese 1984; Hughes and Bettinger 1984), with ubiquity of non-local materials dropping off steadily as a function of distance from source. Divergent observations in the form material frequencies that are lower or higher than predicted by geography alone may suggest the presence of social boundaries or integrative structures respectively mediating interactional behavior. In many cases, the identification of social boundaries is best undertaken from a comparative perspective. Within a large region, differential access to spatially discrete resources suggests differential relationships with the communities controlling those resources.

Following the notion that spatial distributions of sourceable materials are informative about prehistoric behaviors linked to interaction, particular patterns can be used productively to gauge intensity of interaction (Odess 1998). For example, a simple down-the-line model of exchange in which distributions of raw materials decrease with distance from their source – a direct correlative relationship between distance from source and ubiquity – suggests a casual connection between a population and the people living near a discrete resource. In other words, the down-the-line model suggests that individuals and communities participated in exchange on an ad hoc basis and did not attempt to artificially limit interaction or to set up avenues to facilitate additional interaction.

A statistical deviation from this down-the-line model, however, suggests a different type of relationship. For example a society living very close to a lithic source, but not using any material from that source can be thought to actively avoid the source area and any people living in it. Such a divergence from an expected down-the-line model provides little evidence of interaction and may indicate a social boundary because it indicates patterns of interaction that are lower than would be expected without a social boundary. Alternately, a divergence from down the line distribution that favors an exotic material – a community apparently favoring lithic or other materials from a non-local source – suggests that that community was actively focusing on those materials and likely maintained a social relationship with the people controlling them or another community with access to those materials. This in itself does not necessarily indicate social integration, but it is a signal of economic orientation and some sustained interaction with a neighbor group, or in the case of an embedded strategy, it indicates a territoriality that involves movement into an area where those materials can be easily acquired.

Criticisms of Exchange Based Approaches

Oka and Kusimba (2008) recently have criticized many of these exchange-based perspectives on interaction, seeking to blur the lines between economic exchange and other kinds of social processes. This social role of exchange that they are emphasizing is in fact well known to the evolutionary archaeologists that Oka and Kusimba criticize. Such early economic anthropologists as Herskovits (1952) and Sahlins (1974) noted that in pre-market economies the flow of goods is often of secondary or tertiary importance after social functions such as information transfer, social network maintenance, and sharing of cultural ideas. Later, Halstead and O’Shea (1989) describe exchange as part of a process of “social storage” in which redundant economic exchange and non-subsistence economic trade are used as tools in buffering unpredictable economic stress over long time-spans. More recently Seeman (1995 following Caldwell 1964 and Struever 1964) has continued this tradition in the archaeology of North America, arguing convincingly that the well-known Hopewell Interaction Sphere, whatever it may have been, operated primarily as a way to circulate cultural and ideological elements, using economic exchange as the avenue for doing so or conversely that the religiously integrating elements operated to facilitate economic transactions (*cf* Blakeslee 1975). All of these studies consider economic exchange as only part of the larger social, political, and ritual interactions among societies, but they still return to the premise that patterned behavior derived from regular interaction is at the heart of both social integration and differentiation. Thus regardless of the intent or justification of actors, exchange involves the transfer or material goods and that is a behavior that creates a material record readily available to archaeologists making investigation of economic exchange an excellent indicator of interaction.

Interaction Spheres and Exchange Spheres

Beyond simply measuring frequency of exchange, it is useful to understand different modes of exchange interaction. Tribal societies are ultimately economic and territorial units that maintain their integration for purposes of economic productivity (Chapter 2). Flannery (1968a) and Renfrew (1975) note that archaeological models of exchange are equipped to identify different scales of interaction. Thus to understand different types of interaction and economic exchange, it is useful to consider various ways that people use exchange for maintaining relationships across space.

Presence and ubiquity of exotic materials are useful for identifying contact between distant communities because they indicate contact between communities with access to spatially discrete resources (*cf*. Earle and Ericson 1977). Similarly, the notion of an interaction sphere (Caldwell1964; Struever 1964) is an idea that has been used to model large geographic regions incorporating many distinct communities into an economic network that also involves some transfer of cultural ideas. Interaction sphere models identify object types that are believed to have been meaningful in a cultural context and track their distributions within and among regions as an index of both economic and cultural interaction.

Some authors have added to the notion of an interaction sphere by setting it in opposition to "exchange spheres," which require only materials being exchanged without necessary cultural exchange or intensive integrative mechanisms (Parkinson 1999: 71-73, 84; Flannery 1968b). Thus exchange spheres involve less culturally-intensive interaction and little integrational effect. In both of these interaction and exchange spheres, materials pass regularly from one community to another, suggesting at least regular interaction and in the case of interaction spheres, also some amount of cultural transfer. In short, the investigation of tribal boundaries must investigate interaction and integration as separate dimensions of tribal life (Parkinson 1999).

While it has become popular to dismiss interaction sphere and exchange sphere models as vestiges of diffusionist thinking (e.g. Oka and Kusimba 2008: 342), there remains some utility in the basic models. The notions that culturally significant material objects circulate within communities that regularly interact and that the type of interactions may affect the nature of material distribution remains solid. Thus we can salvage this basic tenet of interaction sphere theories and apply it to an archaeology of social boundaries.

Expectations for Exchange-Based Investigation of Social Boundaries

Following this long tradition of investigating social interaction through exchange of spatially discrete resources, a useful way to begin identifying tribal boundaries is to investigate raw material distributions. Spatially distinct communities that participated in the patterned interaction of a tribal society are expected to engage in some amount of economic exchange in order to facilitate network maintenance and also as a circumstance of other kinds of social interaction. Thus archaeological communities that were part of a single system of patterned interaction should share material resources in frequencies beyond what would be expected in a strict down-the-line trade model. This alone is not sufficient to identify tribal integration, but it should be taken as a likely precondition for archaeological analysis of an integrated tribal community.

Conversely, evidence for conspicuous avoidance of economic exchange manifest in the form of a notable absence of non-local materials from a particular area may be an indication that two communities were actively avoiding each other and not integrated. That is, a distribution of non-local materials that is lower than predicted in a down-the-line model may suggest an active social boundary. Even in the case of migrants colonizing a territory with existing indigenous inhabitants, studies of obsidian distribution in California suggest that some material exchange among colonizers and existing populations is expected (Lightfoot and Martinez 1995: 479 Summarizing works of Ericson and Meighan 1984, Hughes and Bettinger 1984). Thus complete absence of evidence for exchange among nearby communities is as significant a deviation from down-the-line models as is heavy focus on non-local sources.

Redundant exchange may be an indicator of communities participating in an exchange relationship for purposes other than immediate satisfaction of material needs and rather probably indicates the maintenance of social networks for other purposes including social interactions such as inter-marriage, social storage, information exchange, or ritual participation (Sahlins 1974; Halstead and O'Shea 1989; Seeman 1995). In cases where redundant exchange is carried out across definite social boundaries, such as in the case of Plains-Pueblo mutualism (Spielmann 1991), the use of other social mechanisms for differentiation become more important. Thus social boundaries that are permeated by significant interaction tend to be marked by highly visible use of socially-significant symbols for clearly marking the continuing social boundary.

Material exchange alone is insufficient to investigate tribal boundaries because integrated societies may use other forms of patterned interaction to maintain their communities while more distantly related groups may find some level of material exchange instrumental for keeping social relations active across social boundaries. The effect of this can be a pattern of similar material culture that serves to obscure active social boundaries for the purpose of facilitating economic interaction and creating a problem of equifinality. Thus it is necessary to couple investigations of material exchange with other means of identifying integration.

Integration

Although interaction is the necessary mechanism of integration in a Barthian paradigm of community, it is not sufficient evidence in itself to demonstrate integration.

Economic trade can be found occurring among communities without any integrated relationship and even between communities that consider themselves quite distinct (e.g. Spielmann ed. 1991). Thus, while it is expected that a tribal community will participate in some amount of trade, this can only be taken as a very basic assumption. In addition to economic exchange, archaeological evidence of other kinds of relationships is necessary for identifying tribal boundaries.

Ultimately the problem of identifying social boundaries is a question of integration in addition to interaction (Parkinson 1999). Following the model from Chapter 2, interactions among local communities operating as a tribe are patterned in ways that foster integration and maintain geographically distinct communities in an organizational syntax of tribal flux as a single system. Along with economic exchange as found in an exchange sphere, an archaeologically evident tribal society should show evidence for significant *cultural* exchange including sharing of technological, stylistic, and ritual elements. In particular, inter-marriage and cooperation is predicted to encourage a relatively great degree of stylistic homogeneity and a shared repertoire of cultural symbols. This is the basic nature of integration and suggests a very different social relationship than in cases where materials alone are exchanged.

Style and Socially-Significant Symbols

There are many cases of regular economic interaction among communities that cannot reasonably be considered to be integrated as tribal networks. Plains-Pueblo mutualism (Spielmann 1991) and the Plains Interband Trade System (Blakeslee 1975) for example are well-documented cases of economic exchange involving both complementary and redundant exchange embedded in social systems that serve to maintain uniqueness and discrete identities. Thus once a case of regular patterned economic interaction can be identified archaeologically, we must next seek indicators of cultural exchange that can be argued to serve purposes of integration or to represent the effects of integrated behavior.

Style and Integration

Style has an extremely long and complex history in archaeological theory, but Braun and Plog (1982) identify two major approaches. They label the first approach *interaction theory*, which approaches style as a set of attributes shared among intensely interacting groups but assumes style to be a passive phenomenon of social life that is imprinted into the minds of actors. The second approach is called *information exchange theory*, and it understands style as resulting from decisions that are made in the act of creating material objects and thus carrying visible information about the maker or owner. The interaction theory approach has been widely criticized for its assumption that style is passive and separate from other aspects of socio-technological life and will not be discussed at length here.

The information exchange approach is much better supported by information from the ethnographic record (Conkey 1978; Hodder 1979) and some elements of this approach are very useful for an archaeology of social boundaries. In fact, archaeologists interested in stylistic indicators of social boundaries have found it fruitful to merge certain elements of the interaction approach into a generalized information exchange framework (e.g. Sackett 1985; Wiessner 1983; Hegmon 1995), noting that style happens at multiple levels including conscious use to mark distinction or solidarity. For example Wiessner's (1983) *emblematic* and *assertive* style, can be partnered with some kinds of style style that are unconscious, such as Sackett's *isochrestic* style (Sackett 1985; see also Deetz 1965), and thus lend themselves to very different kinds of analyses,.

Both emblematic and isochrestic style are useful in identifying archaeological tribal boundaries. Emblematic style involves the use of symbols that are loaded with cultural significance, and serves to mark affiliation with particular social groups. National flags and religious symbols are prime examples of elements of emblematic style. Thus emblematic frontiers tend to be very visible archaeologically in the form of abrupt changes in use of highly visible elements of style. In cases where exchange and material analysis suggests regular interaction, discrete traditions of emblematic style may signal that the interaction was not necessarily integrational in nature and that participants were actively maintaining discreteness. Mutualistic trade (papers in Spielmann 1991) would likely create an identifiable archaeological signature, showing high levels of patterned economic interaction but clear emblematic distinctions between interacting communities. Evidence for similar use of emblematic style in spatially discrete communities on the other hand suggests a sense of cultural connection, or at least effort to maintain the appearance of connection and little effort to maintain social discreteness through outward markers.

Wobst (1977) provides a set of useful predictions for the sorts of artifacts and contexts in which archaeologists are likely to find emblematic style used for the purposes of delineating social boundaries. His information-exchange perspective understands style as an efficient means of coding simple messages relevant to individual identity and group affiliation. Thus it is expected that stylistic elements relevant to inter-group social boundaries should be found in contexts where they will be visible to many people on both sides of the social boundary such as outer layers of clothing, architecture, and vessels used in serving. Wobst also predicts that stylistic elements used in social boundary maintenance will tend to be highly repetitive and standardized in order to increase their efficiency and ease of interpretation. Not every artifact that is visible to outsiders has a role in marking social boundaries of course and Wobst notes that those used in this kind of symboling tend to show discrete patterns of similarity within group and dissimilarity among groups as opposed to less-significant symbols that may show clinal or little variation at all among groups. Following these predictions, archaeologists should expect to find socially significant symbols in the form of discrete patterns of highly repetitive and stylized elements that appear in contexts that would be visible to a large number of people.

Isochrestic aspects of material variation can also be useful in forming a case for integration. As discussed above, some cases of regular interaction among discrete communities not only involve similar uses of emblematic style, but can be argued to require it (e.g. Blakeslee 1975, 1981) as a mechanism for allowing interaction among people who otherwise would consider themselves distinct. In cases such as this, underlying distinctions are expected to be found in the form of isochrestic variation that are not immediately visible to casual observers because they result in similar outward appearances. Raw material choices, ceramic temper, coiling versus paddle-forming vessels, placement of emblematic symbols, and other technical choices in the implementation of symbols of coherence are likely to demonstrate subtle distinctions in technological traditions when investigated closely.

Some degree of variation in all of these areas is likely even within an integrated community. The broad patterns are expected to be clinal, especially distribution of exchanged materials. However Wiessner suggests that certain elements of the material world that can be characterized as emblematic style will not vary continuously with geography, but will be relatively homogenous within a given culture's area, broken by discontinuity at social boundaries. Similarly, Parkinson (1999:83-84) following Voss and Young (1995) and Carr (1995) suggests focusing on distribution and visibility as separate attributes of stylistic behavior for the purposes of separating emblematic from isochrestic uses of style. It is expected that emblematic style will be used in highly visible ways, since it is employed to transmit social information and to signal social differentiation or solidarity, and isochrestic variation will be less visible.

Expectations for the Use of Style in Investigating Social Boundaries

Taken together, these models of stylistic behavior suggest that socially significant symbols used to signal affiliation should be sought in highly visible aspects of material culture such as decorative treatments, while actual interaction, the stuff of social boundaries, will be apparent in less visible aspects such as manufacture technique. Wiessner (1983), Hodder (1979), and Wobst (1977) all suggest that discontinuities in material variation, including emblematic as well as isochrestic variation, are good indicators of boundaries between self-identifying social groups. I would add that the interaction-based model proposed above, which does not rely on self-identification or ascription, makes an even stronger case for stylistic and material discontinuities as indicators of social boundaries.

The specific expectation is that stylistic frontiers can be identified through statistical analysis of geographic distributions of elements that were relevant to social identity. Much like the study of exchange through sourceable material distributions, a stylistic study of social boundaries should seek discontinuities in the distribution of stylistic elements in space, particularly focusing on the most visible symbols. Clinal distributions would suggest little in the way of active social boundaries on a landscape, but abrupt differences in stylistic behavior that do not correlate well with geographic distance would suggest the presence of discretely integrated communities, social boundaries.

Identifying Tribal Boundaries, A Synthesis

A tribal boundary is a significant social boundary defining a group of people within a territory who participate in the regular interactions allowed by an organizational syntax of regular interaction and shifting social poses. Thus identifying tribal boundaries is best done through a combination of geographic, exchange, and stylistic analyses. Interaction is the foundation for the model of tribal society laid out in chapter 2 and analysis of spatially discrete resources therefore offers a useful window into social interaction. Social boundaries are suggested by resource distribution patterns that significantly diverge from the predictions of geographic distance alone and tribal boundaries should also include visible indicators of social distinction.

It is possible to have interaction and exchange across significant social boundaries, as in cases of mutualism. Thus it is instructive to couple resource analyses with analyses of socially significant symbols that may indicate integrational activities. Again, symbols apparently linked to ritual and integration can in some cases be used to blur social boundaries and provide patterned focus to interactions facilitating exchange (Blakeslee 1975, 1981), thus these analyses must be coupled with studies of isochrestic variation in order to identify shared pools of technological and stylistic knowledge that may add to understandings of social boundaries taken from patterns of exchange alone. Ultimately, tribal units are identified archaeologically through geographic definition of territories in which significant groups maintain social coherence by combining all of these activities in regular and predictable ways.

Origins of Social Boundaries

Once tribal boundaries have been identified, we may move on to investigating their origins. By invoking archaeological evidence for a variety of parameters, a set of guidelines is drawn out below that will allow archaeologists to discriminate between several sources of social boundaries. In particular, the present study will consider models for 1) emulation, 2) migration and passive ethnogenesis, and 3) active ethnogenesis followed by migration.

Emulation

The first distinction that must be made when considering the nature of a social boundary that, to archaeologists, appears suddenly at a point in prehistory regards culture-historical connections. Specifically, we must determine what, if any, historical relationships exist between societies on opposing sides of the social boundary in order to determine whether the appearance of similar material culture patterns on both sides of the boundary are the result of emulation by an indigenous population adopting select elements of a neighboring tradition or of migration and establishment of an entirely new social boundary.

The Direct Historical Approach

The process of linking distinct archaeological communities in culture-historical relationships is one that is often quite inferential and little-discussed. In general, the technique has been to compare material culture patterns and infer historical connections through similarity and analogy, taking into account that certain similarities are likely related to environmental conditions while others may be more tightly linked to social identity or even the vagaries of history.

Bandy (2004: 324-325) writes briefly on this topic in his attempt at an archaeological model of village fission, but his recommendations are unsatisfying for a general model of historical connections. Bandy suggests using “direct” evidence in the form of unique cultural practices such as ceramic manufacture that exist in both parent and proposed daughter communities to indicate a direct historical connection. This is a major problem in the context of investigating emulation as the presence of a small number of “unique” practices such as ceramic design is equivocal and expected in both of these models. Bandy’s suggestion for dealing with this is to use “indirect” evidence in the form of population size and rates of population growth at parent and daughter communities. This approach may be useful in particular situations such as the Titicaca basin where he works, but in a context where assumptions of steady population growth, complete knowledge of contemporary sites, and the possible presence other populations cannot be controlled, it is of little use. Thus we are restricted to investigating patterns of material culture and must seek to do so using more than a single similar material tradition such as the ceramic similarities that Bandy suggests.

A long-standing technique for doing this, with particular prominence in the Great Plains and Midwest regions, is the Direct Historical Approach (DHA). Popularized by Waldo Wedel's (1938; also Strong 1953) studies of the Pawnee and Late Prehistoric Plains archaeological cultures, the Direct Historical Approach has been used in various forms for the better part of a century.

The Direct Historical Approach is certainly dated, having its origins before Wedel himself used it and reflecting a bygone era of trait-list archaeology. The method has been rightly criticized among other things for being vague and undefined (Lyman and O'Brien 2001), for lacking a processual theoretical foundation (Mitchell 2006, 2007), and even credited with preventing Plains anthropologists from developing modern theoretical Frameworks (Mitchell 2006, 2007). However, even considering those criticisms, the basic assumptions of DHA are still very much part of the inferential process of identifying historical continuity, and indeed this is the process that Bandy (2004) proposes for dealing with "direct" evidence of historical relationships. As Roper (2007) points out, it is not the DHA alone that has resulted in largely a-theoretical Plains archaeology, but the combined reliance of DHA and ethnographic analogy for answering questions beyond simple culture-historic connections.

At its root, the DHA begins with the basic evolutionary premise that historically related cultures share practices, and therefore the material remains that archaeologists find bear the marks of similar patterns of behavior and cultural activity. This comes from a yet-earlier observation by Sapir (1921) that cultural transmission through time is generally conservative, resulting in similar patterns of behavior through successive generations (see also discussion of Sapir and cultural drift in Chapter 2). Lyman and

O'Brien (2001) put this in a biological analogy, stating that related cultures tend to share behavioral and material similarities through a process of homology, the biological phenomenon through which related species share similar biological characteristics. Thus DHA ultimately draws on the same reasoning behind the Darwinian proposition of directed transmission – change over time is not random, but results in related species or cultures sharing many characteristics.

Further, Lyman and O'Brien (2001:318, drawing on Sapir 1916) note that historically significant analogies must draw on similarities that demonstrate multiple layers of significance, being simultaneously similar in areas that are stylistic, functional, and structural for example. This again follows very early ideas from Sapir who suggested that cultural traits that display "superficial" similarity may not signal an evolutionary relationship but rather suggest emulation or convergence, whereas traits showing "fundamental" similarities are more likely historically related (Sapir 1916: 37). This distinction between superficial and fundamental similarities is crucial and must be attended to in order to avoid the pitfalls of trait-list archaeology. Accordingly, it is discussed in more detail below.

The greatest shortcomings of this approach have resulted from poor application, where authors rely too heavily on DHA and ethnographic analogy and forsake further processual investigations. "Using a mode of inference that relies on historical analogy rather than theoretical perspectives, and using analogy to interpret the record rather than as only one source of alternative hypotheses for that interpretation, ignores equifinality and reifies rather than discovers" (Roper 2006:788). A similar problem can be seen in the assumption that modern tribes can be mapped directly onto archaeologically known cultures as discussed in Chapter 1 (see also O'Shea 2008).

The principle underlying the DHA, that similarities among societies suggest historic relationships where they can be demonstrated to have social significance, can be applied to studies of prehistoric cultures without necessary reference to ethnohistoric societies or the goal of linking historic cultural labels to archaeological remains. This again is the principle that Bandy (2004) suggests as "direct" evidence of historical continuity in an archaeology of fission. This sort of archaeological analogy shares much in common with the DHA, but is distinct in this absence of reference to historic cultures.

For purposes of identifying culture-historic connections, Sapir's distinction between structural and superficial cultural similarities is important and must be developed for each individual case by identifying symbols and practices that can be argued to have deep social significance. Here again a pairing of superficial similarity in emblematic style with deeper patterns in isochrestic style may be instructive.

Several processes may lead to outward similarities in patterns of material culture including very loaded elements such as religious imagery without necessarily signaling integration. For example, Blakeslee (1978, 1981) argues that the Calumet ceremony in the Great Plains evolved specifically to produce a cover of apparent similarity among distinct social groups in order to facilitate interaction and economic exchange. Likewise the Hopewell Interaction Sphere appears to represent a shared set of socio-religious symbols that spread through a very large region, providing the appearance of cultural homogeneity as a means of lubricating social interactions and facilitating an extremely large economic network among historically and socially distinct communities. That is to say that in both of these cases, elements of emblematic style, which Wiessner (1983) argues serve to indicate social solidarity and group identity, were used to mask actual social boundaries and allow for economic interaction. Looking more closely at elements of isochrestic style such as method of manufacture, stylistic boundaries among participant communities are likely to become visible, belying the façade of integration fostered through outward use of similar symbols.

Thus these similar patterns of emblematic style can be thought of as Sapir's superficial similarities as they do not indicate structural integration of the participating communities but rather serve to mask fundamental distinctions within a super-tribal organization. In each case where an argument of this type is made, the archaeologist must make the case for the fundamental significance of the particular patterns in use and further it is expected that the arcaeologist should be able to demonstrate significant structural similarities in a wide array of archaeological evidence.

This need for multiple lines of evidence for homology is especially apparent when considering that using material evidence for similar behaviors among communities creates a potential problem of false positives or equifinality (Roper 2007). It is possible to identify similar patterns of behavior and similar material cultures that are not related to actual homology but rather to convergent evolution, independent societies arriving at similar responses to similar problem, or emulation, communities adopting patterns of behavior that reflect similar practices observed in an unrelated community, especially in the realm of material style.

Understanding the ways that the emulation, migration, and independent invention leave different archaeological traces allows archaeologists to separate them using material evidence. Ritterbush and Logan (2000) take on just this task in their compelling argument that the White Rock sites of north-central Kansas represent a migration and settlement of Oneota people onto the Plains rather than temporary use of the area by Oneota people or emulation by Central Plains tradition populations. To do so, they draw heavily on the works of Rouse (1958) and Haury (1958), particularly Haury's position that:

> *A migration is the probable… explanation… 1) if there suddenly appears in a cultural continuum a constellation of traits readily identifiable as new, and without local prototypes, and 2) if the products of the immigrant group not only reflect borrowed elements from the host group, but also, as a lingering effect, preserve unmistakable elements from their own pattern.* (Haury 1958: 1; Ritterbush and Logan 2000: 258-259)

In other words, migration is apparent archaeologically not in the presence of a few characteristic patterns such as economic routine or ceramic form, but in the sudden appearance of an entire constellation of many traits that can be found outside of the local area. It is particularly expected that observed changes within an immigrant group will tend to reflect adaptation to new environmental conditions, while more fundamental (*cf.* Sapir 1921) characterics, those that reflect basic patterns of social life rather than simply technical choices, will tend to remain intact for longer. A case of emulation on the other hand would result in a society adding a limited set of new practices or modifying a limited set of existing practices while maintaining significant distinctions from neighbor communities in most aspects of cultural life.

Thus, returning to the principle of homology, a relevant culture-historic relationship can be inferred among two spatially discrete communities when those communities demonstrate a significant degree of similarity in many aspects of cultural life including both superficial and fundamental similarities. In the case of migration and ethnogenesis happening simultaneously, as in a new tribal community moving into a new territory, this will be apparent to archaeologists because the new society will share relatively little with indigenous groups in the area. That is to say that a migrant community arrives in a new territory with a *complete package* of cultural practices that are linked to its history and social logic but adapted to life in a new environment. Thus novel cultural practices in a region can be analyzed to investigate whether they are the product of cultural transmission/diffusion, independent variation, or whether they are truly the result of a new community migrating into a territory by investigating whether it is a limited number of practices that have changed or a complete package.

Strictly following the tradition of the DHA would require identification of culture-historic relationships between prehistoric archaeological sites through enumeration and comparison of similarities among discrete contemporary communities. This is precisely the sort of trait list approach that was discarded in the mid 20^{th} century and is unproductive for separating superficial and structural similarities. Rather, it is necessary to identify practices and symbols that can be argued to hold social significance of the sort Sapir refers to as fundamental. Examples of this include ritual practices such as burial or worship in cases where they clearly separate cultures, use of culturally-loaded symbols in decoration or cultured use of space, or community organization. An important unifying feature of these characteristics is that they are more than simple technological details and can be maintained even in changing environmental or technical circumstances. In a case of pure emmulation, a mimic commuity may adopt some symbols or traditions from a neighbor population, but is unlikely to adopt the 'whole package' of symbols, practices, and traditions represented in those archaeological communities.

Expectations for Emulation Model

Following the principles discussed above, the emulation model for dealing with the appearance of new material culture patterns with apparent antecedents elsewhere. Emulation can be considered a reasonable explanation for the appearance of new material patterns with extra-local antecedents if 1) the new patterns emerge in a context of little other change, and 2) the new patterns that emerge can be determined in an individual case to be more superficial than structural.

The first condition means that the emulation model predicts relatively few new patterns emerging while other lines of evidence point to insubstantial changes – the introduction of new ceramic traditions alongside architectural, economic, and ritual continuity with previous phases for example. If new patterns emerge simultaneous with other major transformations such as architecture, settlement, and ritual changes that also appear to have extra-local antecedents, then emulation is unlikely and migration is the most likely scenario.

The second condition enumerated above means that the emulation model predicts that any new patterns that archaeologists observe will be superficial and not tied to basic structural patterns in the prehistoric society. Superficial changes will tend to be elements of material life that are related to largely technical or aesthetic choices and do not have a substantial impact on the nature of patterned interactions.

Separating superficial and fundamental patterns of material culture will be specific to each context and a compelling argument should be argued for any given case before an archaeologist uses this condition to base an argument about the emulation model. Ethnohistoric accounts of socially-significant symbols related to fundamental ideas about cosmology or architectural styles related to principles of social authority for example might be taken as cases of structural patterns. If new material patterns in a given archaeological context can be demonstrated to 1) have extra-local antecedents, 2) involve a wide array of material patterns, and 3) have structural significance, then the emulation model should be discarded in favor of migration.

Identifying Types of Ethnogenesis

Having identified a significant social boundary archaeologically, and further that similarities in material culture found on opposing sides of the social boundary derive from a culture-historic connection with a migration event creating the territorial dimension of the social boundary rather than local emulation, a case for ethnogenesis has been made. Where there was once one discrete group of people interacting according to an organizational syntax, now there are two. At this point we may move on to investigate the particular processes at work in forming the new boundary and through it the newly discrete societies.

Was it an active process of reworking the organizational syntax to exclude previously integrated social segments? Or was it a passive process of drift driven by the impact of social, historical, or environmental changes that made it impractical for a previously integrated community to continue participating in regular interaction as a single community? The processes involved in these types of ethnogenesis are distinct in many aspects and therefore leave characteristic archaeological fingerprints. The important parameters that can be used to discriminate between these types of ethnogenesis are laid out below. The predictions of all models discussed in this chapter are tabulated in Table 3.1.

Space

The active model of ethnogenesis described in Chapter 2 operates on social distance alone so it makes no necessary predictions about geographic space. Since the process of active ethnogenesis operates through existing social fissures growing and becoming reified as boundaries to continued regular interaction, it can divide societies that are very proximal. During the process of social cleavage, communities experiencing active ethnogenesis generally move apart and create some amount of social distance. This can range from moving less than a kilometer up to long-distance migration. Thus active ethnogenesis should be considered a possibility when a social boundary is observed between two related communities regardless of geographic proximity.

Passive ethnogenesis on the other hand operates when continued participation in a regime of integration through interaction becomes impossible due to some practical limitation on continued interaction. The most common way that this can occur is migration that results in new geographic distance between communities and a resulting social drift. Sudden changes in the environment can also have this effect on communities without necessarily increasing geographic distance. These changes could be social, such as the sudden presence of a hostile community limiting inter-community travel, or physical, such as the destruction of bridges or changes to river courses. Unlike the active form of ethnogenesis, it is unlikely that passive ethnogenesis would occur in a case where two communities remain near and there are no observed changes to the environment that would prevent interaction. Thus the Passive form of ethnogenesis is expected to include a significant practical geographic distance between historically related communities.

Time

Both forms of ethnogenesis result from long-term social dynamics, but the archaeologically observable signatures may include different temporal characteristics. In the active form of ethnogenesis, community fission occurs swiftly and the physical separation of people generally occurs after a new social boundary has already begun to form. Thus discrete patterns of interaction and integration are in place immediately at the time that new geographic communities are founded. In cases where active ethnogenesis involves migration and the physical separation of previously-integrated communities, the emergence of discrete interaction and integrational mechanisms should be contemporaneous; there will be no time of physical separation and continued integrational behavior.

In the passive form of ethnogenesis, new social boundaries are created gradually through a process of social drift that is ultimately driven by practical difficulties in continued interaction and therefore integration. Thus this form of ethnogenesis may take much longer than the active form and it is likely to include a long period during which the societies are living geographically distant from each other but continuing to attempt to interact. As discussed in Chapter 2, some communities attempt to resist social drift by interacting to a greater degree than would be predicted by geographic distance alone or even emphasizing symbols of unity. Thus under this model of ethnogenesis, a period of geographic distance and continued appearance of integration is expected.

Interaction and Exchange

As discussed in the model of community integration laid out in Chapter 2, regular interaction is the primary mechanism of integration. Thus it is expected that active ethnogenesis, which operates by ceasing the regular interaction that integrates a tribal society, would be apparent archaeologically in the form of a conspicuous absence of evidence for integrational behavior such as exchange and intermarriage. Communities going through this form of ethnogenesis are expected to cut off regular interaction including exchange even where geographic circumstances would allow for it. Thus the active model predicts evidence for behaviors linked to peaceful community interaction lower than would be predicted by a strict down-the-line model. This should be apparent to archaeologists through statistical measures of interaction through exchange in the form of lower than predicted sharing of spatially discrete materials.

Under the passive model of ethnogenesis, geographic distance or other environmental factors create boundaries to continued participation in integrational patterns of interaction. Further it is predicted that some communities will attempt to resist cultural drift by interacting to a degree higher than is predicted by a down-the-line model. Thus it is expected that passive ethnogenesis will include evidence for behaviors linked to interaction at levels near or slightly higher than predicted by a strict down-the-line model. For archaeologists, this is likely to be apparent in statistical analyses of distributions of spatially discrete materials such as lithics. Given the effects of time in the passive model of ethnogenesis, high resolution analyses may also reveal a steadily decreasing participation in regular interaction with resistance to drift creating slightly higher than down-the-line patterns in the initial phase of separation settling into independent exchange patterns as the social boundary becomes normalized.

Socially Significant Symbols

Perhaps the most important area for distinguishing between these models of ethnogenesis is in patterns of using socially significant symbols. As discussed above, information exchange theories of style (Hegmon 1995; Wobst 1977) suggest that material style carries visible messages about social identity and thus provides a window into efforts to mark social distinctions. In particular, emblematic style is used to signal group solidarity and boundaries (Wiessner 1983) and thus is likely to be used in highly visible and standardized contexts during an active community split. In the Oraibi example, the clans and moieties that cleaved from one another over ideological differences began focusing on symbols related to these ancient ethnic differences such as clan totems (Fowles 2005). These are symbols that had previously been part of the regular cultural repertoire, not new symbols emerging from the split, but their particular salience was dramatically increased during this time of increasing the social distance among clans and other segments while not greatly increasing geographic distance. Thus archaeologically, the split at Oraibi would be apparent as a time during which use of totemic symbols related to clan identity increased in frequency and visibility and distributions of particular symbols became discrete.

As a general model for an archaeology of active ethnogenesis, this suggests that we should expect a highly visible increased use of emblematic style to mark boundaries between newly divergent tribal communities. The symbols being used by each community in a case of active ethnogenesis will derive from existing sets of symbols related to culture-history, but each community will use a discrete subset of the larger universe of socially-significant symbols or will use them in altered ways to symbol the new social division. Their frequency, intensity of display, and visibility, however, will increase (Wobst 1977) and their distributions should become more spatially discrete, signaling newly significant social boundaries.

In cases of passive ethnogenesis on the other hand, clear geographic breaks in the use of socially-significant symbols are not expected, but more subtle patterns are likely. As discussed in Chapter 2, one of the processes involved in passive ethnogenesis is cultural drift (Sapir 1921; Eggan 1941). When tribal societies split apart the founding members of the newly-discrete communities, as individuals with incomplete cultural knowledge, will take with them a subset of cultural knowledge and craft practices, resulting in something like a founders' effect for new stylistic traditions. Over time, divergent experiences and traditions will result in a drifting apart of stylistic and material practices among the groups. Thus it is expected that significant stylistic differences among societies that have gone through passive ethnogenesis will increase with time showing the effects of cultural and stylistic drift.

Use of socially significant symbols on a new social boundary created through passive ethnogenesis may in fact increase, but it is expected that increase in emblematic style will result from an attempt to resist drift as described above and in Chapter 2. A community attempting to overcome the practical problems that geographic distance (or other obstacles in the social and natural worlds) puts on regular interaction, may attempt to continue signaling its association with the parent group and distinction from other unrelated people in the area by emphasizing emblematic elements that signal cohesion and solidarity with the parent community. Thus a newly divergent community is expected to continue using stylistic elements, especially those related to religion, ritual, and social identity, representing the complete set from the prior situation, and possibly also to increase the frequency and visibility of their use.

Enduring Traditions and Adaptation

Many aspects of material culture are expected to be of little use in distinguishing between the models of ethnogenesis because both models predict that the majority of cultural practices and logic remain intact and only those directly involved in an active split would necessarily differentiate newly distinct groups. New environmental situations and discrete interaction networks, however, may drive certain changes in either model.

Construction techniques and village layouts, for example, are expected to continue representing shared ideas about social organization and village integration. However, local resource conditions and different environmental requirements such as different weather conditions and pests will result in slightly different behaviors. As in the examples of the Oraibi and Ponca splits, the new communities continued to use space in similar ways. Both pueblo villages continued with kiva and kachina religions as a general practice, and both continued using the same integrational units – female-led households, clans, large pueblo villages, societies, etc. Both Plains groups continued living in large centralized villages with semi-hereditary leadership.

Similarly diet is expected to similar for new communities under both models of ethnogenesis, but will necessarily adjust to meet new environmental conditions of food availability and other practical limitations to new diets. A society with strong food preferences such as vegetarianism or other strong taboos would seek out similar foods in a new environment, but generalized communities of hunter-gatherers are likely to continue seeking a generalized diet.

Archaeologically, this would be apparent in similar patterns of food refuse in midden contexts with a vegetarian community continuing to avoid meat and a generalized economy continuing to show evidence for broad-spectrum diet even while it adapts to the resources that are locally available. Migrants into new communities with drastically different environments than they are used to may seek out local microenvironments that are similar to the old ways as well, but ultimately food ways have to adjust to local availability.

Likewise, tool manufacture is expected under both models to reflect past traditions while adapting to local circumstances of material availability and environmental differences that result in different materials being processed with the tools. Other raw material use such as ceramic paste and temper are also expected to be adjusted to local availability in both situations with manufacture techniques also remaining similar to past traditions and gradually diverging through the effects of social drift.

Summary of Identifying Passive and Active Ethnogenesis

The active and passive models of tribal ethnogenesis predict clear differences in material behavior and are therefore identifiable and separable in the archaeological record. Evidence for interaction is expected to abruptly halt under the active model, resulting in patterns of sudden differences in frequencies of spatially discrete sourceable materials, but under the passive model, this is a much slower process resulting in a gradual reduction in sharing of resources, and the early phases may involve a noticeable focus on exchange between the communities if they are resisting drift. Over a long period, however, this exchange is likely to reduce or cease altogether. Emblematic style is expected to be used under the active model to clearly mark the new social boundaries, becoming suddenly bimodal in use of particular elements related to the significant social divisions and also to increase in frequency and visibility as the newly divergent communities seek to mark a newly salient social boundary. However under the passive model, both parent and daughter communities are expected to continue using the full repertoire of emblematic symbols and possibly also to increase the frequency and visibility of their use in cases where there is resistance to ethnogenesis. Other aspects of social life such as use of space and diet are expected in both cases to represent attempts to maintain traditions while adapting to local circumstances. Active ethnogenesis may take place among communities living very near to each other, even close enough that continued interaction is not impractical, but passive ethnogenesis is only likely to occur where there are barriers to continued interaction such as increased geographic distance or the sudden presence of other people limiting continued interaction. These key variables for an archaeological model of ethnogenesis are tabulated below.

Table 3.1. Predictions of archaeological models of ethnogenesis.

Model/Evidence	**Active Ethnogenesis**	**Passive Ethnogenesis**
Time	Rapid	Slow
Space	Variable	Distance or other environmental obstacles to continued interaction
Interaction and Exchange	Immediate reduction of interaction; Spatially discrete materials traded well below down-the-line predictions	Limited interaction; Spatially discrete materials traded near or slightly above predictions of down-the-line models
Socially Significant Symbols	Discrete sets of socially significant symbols; Increased visibility of unique socially significant symbols near new social boundary	Widely overlapping sets of socially-significant symbols; Possible increased visibility of shared socially significant symbols as resistance to drift

Chapter 4

Late Prehistoric Flux in the American Midcontinent

Culture Historic Setting

The Late Prehistoric period in the North American midcontinent provides an ideal case study for implementing the model laid out in prior chapters. The 13th and 14th centuries were a time of considerable reorganization of the people and societies that lived throughout the continent, and the contact area between the Great Plains and the Midwest particularly experienced major transformations. A central problem for this study is to gain a better understanding of these transformations and their impact on later societies of the region. Specifically, this study seeks to understand the presence of Oneota materials within the Central Plains in the context of these culture historic changes. Thus a brief overview of current models of Late Prehistoric culture history is laid out below.

As will become apparent, the presence of Oneota ceramics at the Swantek Site in central Nebraska adds to existing knowledge of an at least limited Oneota presence in the region. A full appraisal of this mounting evidence suggests that the Oneota presence may have been more substantial than previously accepted, and thus highlights some problems with the current models. In the final sections of this chapter, these problems will be identified and a plan for investigating them with the models of previous chapters will be laid out.

Major Archaeological Cultures

The two major prehistoric cultures that influence this study are the Oneota culture of the Midwest and the Central Plains tradition, which was indigenous to the Central

Plains immediately prior to the dates from the Swantek Site. Both cultures have been studied extensively and detailed models have been created to describe them and their interactions. These are laid out here.

The Central Plains tradition

During the time that Oneota culture was developing in the Midwest (ca. AD 1100-1400), the Central Plains was occupied by dispersed communities of hamlet farmers known to archaeologists as the Central Plains tradition (CPt). The precise origins of CPt people are still somewhat disputed; one theory argues that people moved from the Missouri River valley, especially the Glenwood and Steed-Kisker areas, westward into the Plains (Roper 1995). The most thorough analysis of available data on the matter proposes an *in situ* development from indigenous Plains Woodland societies (Krause 1995).

History of Investigations

The great bulk of work on CPt sites was carried out during the WPA projects of the 1930s and much of the material recovered during that time still remains unprocessed. However, those excavations built a strong outline of the basic archaeological patterns. In the 1950s the focus in CPt archaeology, as throughout the US, turned to typologies and cataloging of trait lists. This has largely remained the focus of CPt studies, with the many manifestations organized, reworked, and relabeled multiple times.

Temporal Divisions of CPt

The Central Plains tradition (CPt) is an archaeological unit representing sites along the lower valleys of large tributaries to the major river systems in Kansas and Nebraska. Sites identified with the Central Plains tradition appear in the region around

AD 1100 and there are no well-accepted temporal divisions within the tradition as a whole. Some researchers have sought to divide individual localities into early and late phases based on local transformations (e.g. Krause 1995) and it may be useful to extend this division to the tradition as a whole. Major transformations took place for most CPt people around AD 1250 including rapid reduction in the number of sites occupied and apparent abandonment of most CPt localities. The particular transformations and models that have been used to understand the sudden abandonment of most of the region are discussed at length below. It may be useful to think of this period of limited lingering CPt occupation as a late phase since the remnant communities, primarily represented by the Itaskari and St. Helena phases, apparently began adopting significantly different lifestyles and eventually disappear entirely from the record. The present discussion deals primarily with the early phase of CPt settlement as that represents the majority of CPt archaeology and the late phase is specifically dealt with in later sections.

Spatial Distinctions within CPt

Central Plains tradition sites are found throughout the region and are organized into small clusters of settlement along major waterways and tributaries, each with its own unique archaeological signature. These settlement clusters are usually identified by archaeologists as localities and treated as individual dispersed communities. Roper (2006) has reanalyzed Spaulding's original (1956) ceramic data to demonstrate that at least some CPt localities in Kansas demonstrate stylistic tendencies that cluster in discrete units around the major waterways, and the same patterns likely hold in Nebraska as well. This seems to indicate that the archaeological units we know as the individual CPt localities are in fact representative of self-identifying communities. Roper also argues that these units are in some cases focused around cemetery areas such as the Salina Burial Pit (14SA1) that served as places of both ritual reinforcement of community cohesiveness and markers of land tenure (1996).

Although most CPt localities are quite similar in their overall patterns of material culture, there is evidence for substantial variation including high Plains campsites (Roper 1990; Steinacher and Carlson 1998) that were apparently more ephemeral and hunting-focal than other localities, the Glenwood Locality, which is the only CPt locality east of the Missouri River is unique in its pattern of houses placed on blufftops (Zimmerman 1977; Billeck 1993; Pugh 2009), and the controversial Steed-Kisker locality of the Kansas City area, which includes shell-tempered pottery and other signs of Mississippian influence that cause some archaeologists to place them entirely outside of the tradition (e.g. Wedel 1943; O'Brien 1993).

CPt Settlement

CPt settlements are generally small clusters of habitations situated near bluff toes with evidence of unfortified hamlets or single houses, external features, and occasionally cemeteries. Although some arguments have been made that there is evidence for a village modality in the CPt (Gradwohl 1969; Perry 1998), the bulk of evidence seems to indicate that densities were almost always quite low and the communities dispersed.

Central Plains tradition settlements tend to consist of small hamlets of relatively permanent houses in singles or small clusters up to around four houses. Although several CPt localities have been identified that include dozens of domestic structures (Glenwood and St Helena predominant among these), the evidence suggests that these do not represent large villages, but rather palimpsests of superimposed houses each occupied for a very short period. Few CPt communities are fortified (the very late Crow Creek being the major exception) and the consensus is that these people were organized into small family farming settlements with limited interaction.

CPt houses themselves are earthlodge structures constructed by removing sod to create a shallow house basin, then creating a support structure of four large posts around a central hearth and several ancillary and wall posts that were finally covered with earth and sod. South- to east-facing entry ways are common and were also constructed of small poles covered with earth. These structures are quite substantial compared to earlier Plains cultures or the contemporary Oneota architecture in the Midwest, but quite small compared to later Lower Loup and Pawnee earthlodges. Subterranean storage pits are common inside CPt houses and many are found to have been filled with domestic refuse prior to abandonment. Each of these lodges is estimated to have been occupied for four to seven years (O'Shea 1978), after which adjacent structures were rebuilt or the locality was abandoned altogether. In some cases, fires have preserved daub and burned earth in house locations, but construction did not include firing earth for structural stability.

There is also limited evidence for small temporary camp sites left by CPt people in the High Plains region of western Kansas and Nebraska and there is yet to be consensus on whether these represent a separate CPt culture with a unique economy or possibly temporary logistical camps left by people of the Upper Republican or Itskari phase (Roper 1990; Steinacher and Carlson1998).

Economy

CPt economies were very generalized and opportunistic, based on limited agriculture of maize and other products and supplemented with locally available wild foods (Steinacher and Carlson 1998; Pugh 2009; Bozell 1991; Koch 1995). CPt settlement locations were apparently chosen for access to a maximal variety of resources with some apparent emphasis on wood and timber resources (Hotopp 1982; Pugh 2009).

The primary element of CPt adaptation that separates it from earlier Plains lifeways is the introduction of horticulture and limited corn gardening as a significant component of the diet (Adair 1988; Steinacher and Carlson 1998; Roper 2007). Blakeslee has recently reinterpreted the unique patterns at Glenwood in an attempt to demonstrate two questionable elements of a single model (2001). He argues that the CPt adaptation was basically one of a 'frontier swidden' cycle. As he sees it, CPt people were characterized by a slash and burn agricultural cycle that led them to rapidly deplete the soils in a locality, especially one as densely occupied as Glenwood, and left them with exhausted territory at the end of a couple of hundred years. This ultimately necessitated the colonization of a new area and beginning of the cycle again. He argues that this accounts for other patterns observed in the CPt record as well including an apparent bimodality in house size first documented by Wedel (1979).

Elsewhere I have refuted the swidden model for Glenwood (Pugh 2009) and I believe that my findings apply equally well to the entire Central Plains tradition. None of Blakeslee's lines of evidence are necessarily indications of a swidden cycle and in fact, the evidence suggests that opportunistic gardening on small plots of regularly recharged lowland soils such as alluvial fans would have provided ample garden land for CPt people. Cultigens apparently accounted for less than half of the CPt diet (Adair 1988) and the economic adaptation is best characterized by its flexibility and diversity. CPt people were apparently targeting wild resources in approximately the proportions that they were available and there is no reason to believe that economic shortfall or subsistence stress were often significant factors in CPt life anywhere but the most arid High Plains localities.

The flexibility and diversified opportunism of the CPt economy has also been amply demonstrated elsewhere on the Plains, including at the McIntosh Site in the very arid Sand Hills area (Koch 1995), at Hulme (Bozell 1991) in the general vicinity of Swantek, and elsewhere. The great quantity of riparian resources located in the sites excavated with more modern techniques such as water screening and flotation along with the generalized model and settlement focus on areas near water probably means that fish, fowl, amphibians, and riparian plants accounted for a greater portion of the CPt diet than previously documented.

Tools

The toolkit of CPt people reflects their generalized economy and includes a wide array of formal chipped stone tools for hunting, butchering, and processing game as well as bone tools for digging and gardening, especially scapula hoes, and a variety of groundstone tools such as axes and celts apparently used in wood working and lodge construction. CPt chipped stone tools tend to be very formal and regular with elaborate bifacial manufacture common and projectile points tend to be small but very formal with bifacial working and side notches, occasionally including basal notching. Toolstone in CPt assemblages tends to be locally available with distributions reflecting proximity to sources, and localities are often in places that maximize access to useful lithic resources such as Permian cherts in the Flint Hills and Cretaceous jaspers throughout central to western Kansas and Nebraska.

Raw Material Acquisition

CPt sites tend to be scattered throughout areas with high quality local toolstones and the focus is primarily on locally-available cherts. The materials used vary widely across CPt locales, largely because of the variations in available cherts. In the area of Nebraska where the Swantek Site is located, Upper Republican sites tend to show high quantities of locally-available Cretaceous cherts as well as material from glacial till and river gravels. One notable exception to this pattern is the Itskari (or Loup River) phase, which was a late CPt manifestation located in the immediate area of Swantek (Bleed 1974, 1978; Ludwickson 1975). During this later CPt phase, Itskari people seem to have forgone much of the nearby sources of cretaceous jasper in favor of materials from much farther west such as Flat Top Chalcedony (Logan 1998; Herman and Peterson 1996). Logan (1998) has suggested that this may reflect a sudden change in the social landscape that made continued use of these nearby resources less practical than long-distance acquisition of materials from the High Plains.

Some CPt burial sites, particularly The Salina Burial Pit (14SA1) and The Minneapolis Site are located near key resource areas. The Salina Burial Pit is located near a major chert deposit and Minneapolis near a source of sandstone used in abraders. The artifact assemblages of CPt sites near these locations show signs of intensified harvesting of those resources and production of commodities from them – blanks and abraders – in quantities significantly higher than anywhere else in the region and probably higher than could represent local consumption. Thus Roper (2006) argues that this indicates specialized production and restricted access by these dispersed communities and a system of relationships between the CPt locality communities that is best described as one of resource complementarity and exchange.

Ceramics

CPt ceramics vary considerably among localities, but share some common attributes. Most CPt vessels are sand, grog, or grit tempered or some combination of these, with shell and calcium tempering very rare except in the eastern Smoky Hill varieties and the contentious Steed-Kisker sites of the Kansas City area. CPt vessels tend to be large connoidal jars with open mouths and straight to thickened (sometimes called collared) rims and the vessels tend to be rather thick and heavy. Handles and appendages are uncommon in CPt ceramics except in the eastern varieties that also occasionally include shell and calcium temper, and these unusual attributes appear to be more common in later varieties. Surface treatment on CPt ceramics is usually cordmarking, often including complete coverage of cordmarking throughout a vessel body, and occasional partial smoothing of vessel exteriors. Decoration is limited to lip top or interior pinching or impression and trailed line decorations. Motifs typically include horizontal parallel lines along the upper rim. In some later vessels, particularly the eastern varieties, decoration also includes finger or tool trailed lines on vessel shoulders in linear or triangular motifs.

Due to the presence of shell tempering and other apparently Mississippian elements, Steed-Kisker is not universally considered to be part of the Central Plains tradition. Steed-Kisker, discussed more fully below, also diverges in terms of ceramic style.

Late CPt transformations

Around AD 1250 CPt settlements became far less common throughout the region. It has traditionally been argued that environmental shifts including a dry period caused economic hardship, most notably dispersals of bison herds from the area, and the CPt people abandoned the Central Plains in favor of more productive areas along the upper Missouri River. Localities along Nebraska's border with northern Iowa and South Dakota continue to show evidence of inhabitation during the period from AD 1250 to 1400 including the St. Helena Phase. The area around the interfluve of the Platte and Loup Rivers also continued to be occupied by CPt people during this time, although their orientation to the landscape went through a significant reconfiguration. Sites here were originally labeled the Loup River Aspect, but that aspect was later renamed the Itskari phase and it is represented by several sites in Nance and surrounding counties (Ludwickson 1975, 1978). Itskari represents an apparently resilient CPt manifestation that went through significant transformations around AD 1250 and may have had some contact with the Plains Oneota people of Swantek and similar sites. This is discussed in more detail below.

There appears to have been a general shift of Central Plains tradition people up the Missouri River into the area occupied by Initial Coalescent communities during this period of reorganization around 1250 AD. In the dominant models, CPt people merge fully with the Initial Coalescent within a hundred years. There is some evidence of violence on the Central Plains during this time including Crow Creek (Kivett and Jensen 1976; Willey 1990), a large fortified very late CPt village on the Missouri River in South Dakota that was apparently attacked and burned leaving an astonishing 500 people dead in the fortification ditches. Hollinger (2005) has made a compelling argument that violence was a common mode of social interaction during this time and that the movements of people up the Missouri River may have been at least partially spurred on by flight from a threat by Oneota people coming from the Midwest.

CPt Violence

General transformations in the settlement patterns of later CPt peoples include greater settlement nucleation, smaller house floors, increased proportion of cache pit features found outside of houses possibly to hide them (Ludwickson 1975), greater distances travelled for lithic materials (Logan 1998), and more defensive site locations (Kivett and Jensen 1976). These changes, discussed in more detail below, may be taken together with the skeletal data Hollinger (2005) reports to suggest a general increase in inter-social violence during this time and increased social integration.

Direct evidence of CPt violence is limited but present. The Crow Creek Site is the most famous example of violence at a CPt site, with nearly 500 bodies found burned and buried hastily in a ditch. This site is quite different from other CPt sites and represents a very late adaptation to changing conditions. Among other things, Crow Creek is found on the far northern edge of CPt territory in southern South Dakota and it is a much larger village than earlier settlements with evidence of defensive structures (Kivett and Jensen 1976). All of this taken together suggests that the CPt people at Crow Creek were aware of a significant threat of violence and that they actually experienced some violence.

Elsewhere, the Sargent Site Ossuary includes evidence of scalping and dismemberment, which O’Shea and Bridges (1989) take as evidence for battle death and hasty burial. Hollinger provides a detailed review of other evidence for CPt violence (2005) including decapitation, arrow points lodged in bone, defensive wounds, and possibly cannibalism. The traditional models of CPt life do not include violence as a common part of life, but there is clearly evidence that some CPt people experienced inter-community violence, at least late in the sequence.

There is also possible evidence of peaceful coexistence between CPt and Oneota people. In the White Rock area, Ritterbush and Logan have recently identified two CPt houses within less than a kilometer of the White Rock village (Ritterbush and Logan 2009), and Oneota occupation. The dates for all of these sites are statistically contemporaneous and they are all within eyesight and short walking distance of each other, with White Rock on the bluff top looking over the CPt houses on the low area near White Rock Creek. There is no immediately apparent evidence of violence here – no dead bodies, no fortifications, no burned houses – but it is not necessarily evident that all of these houses were occupied simultaneously. In fact, this is very close proximity for so many people to be living at it is very unlikely that they would have been occupied contemporaneously and yet left no evidence of interaction.

At the Leary site in southeastern Nebraska, there is also possible evidence of peaceful interaction. Houses at Leary include both CPt and Oneota pottery (Hill and Wedel 1936; Ritterbush 2002b) possibly suggesting peaceful interaction. However, the contemporaneity of these occupations is debatable at Leary as well (Ritterbush 2007), and this site includes some of the evidence for violence discussed above. An un-discussed possibility to explain the presence of CPt and Oneota ceramics on this site would be hostage-taking, which Hollinger (2005, 1995) has suggested explains the presence of both Mississippian and Oneota ceramics at sites on the Missouri River. Teasing out the processes at work at the Leary Site will be an important aspect of future work in the area.

The Itskari phase

Previously known as the Loup River phase (Ludwickson 1975), Itskari is the name given to a set of CPt sites in Central Nebraska near the confluence of the Loup and Platte Rivers. A total of 21 sites in Nebraska are listed as Itskari phase, but other CPt sites in the Nance County area are also affiliated with Itskari (Ludwickson 1975; Peterson and Holen 1996; Bleed 1974, 1978). Major Itskari sites include Davis Creek, Sweetwater, Coufal Ridge, Flat Rock, Schmidt, Tahaksu, and the Sondergaard Ossuary. This is the nearest CPt locality to the Swantek Site and appears to be one of the more resilient CPt Phases including very late occupation simultaneous with Swantek. Dates for this area are not as late as those for St Helena, but still mark a later period of CPt occupation from about AD 1100 – 1350 (Blakeslee 1994) and this can be considered to fall within the later phase of CPt occupation. Herman and Peterson (1996) have suggested that it may be possible to further divide Itskari sites into a chronological seriation based on changing lithic acquisition and subsistence strategies.

Ludwickson (1975) argues that Itskari (then known as the Loup River Phase) represents a late migration of Upper Republican people from the south and an “adaptive radiation” within the Loup River area accounts for this phase. Very little has been published about this phase (e.g. Ludwickson 1975; Peterson and Holen 1996) so it is difficult to be specific about its distinction from other CPt localities or Plains Oneota settlements. As in other late CPt localities, more houses are clustered together in Itskari sites than previously, lodges became more rounded in shape with a concurrent decrease in average floor area, and lodge superposition is common at Itskari sites while it is quite uncommon for CPt lodges to be superposed by other CPt lodges elsewhere (Steinacher and Carlson 1998: 256; Ludwickson 1975; Bleed 1974, 1978). Another divergence from

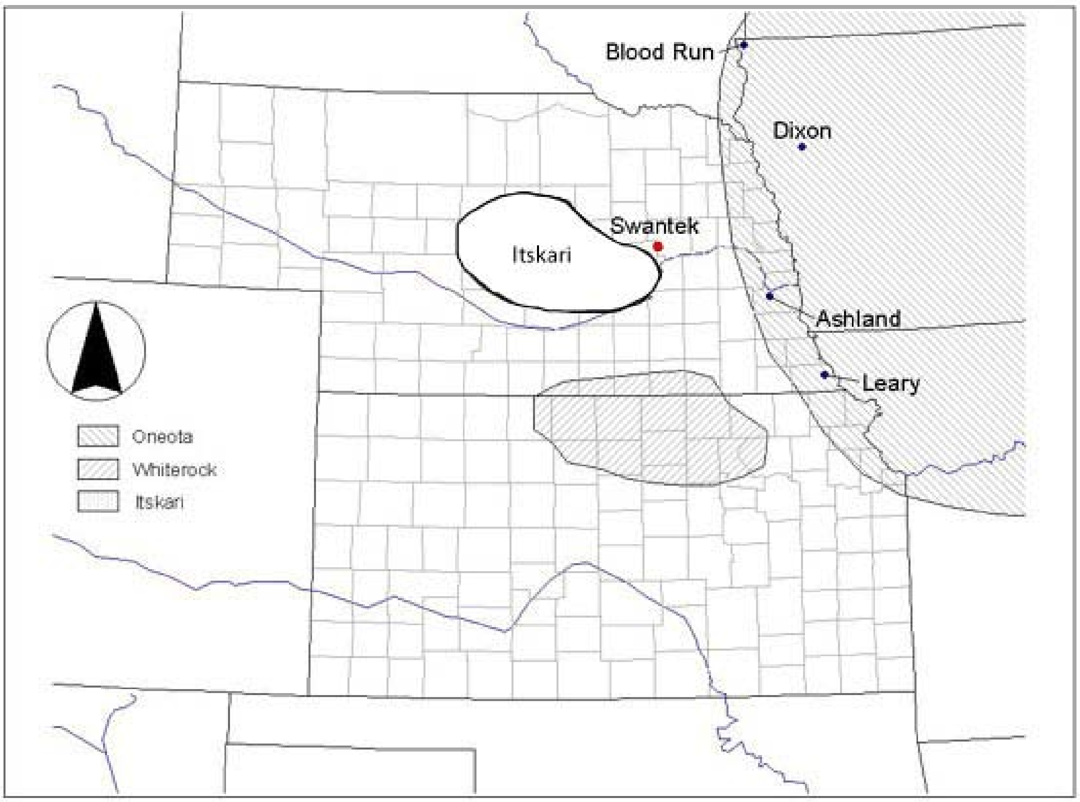


Figure 4.1. Itskari area in relation to traditional Oneota territories and major western Oneota sites.

earlier Upper Republican settlement patterns is the placement of Itskari sites on erosional remnant ridgetops (Ludwickson 1975).

In addition to the increased nucleation noted above here and below for the St Helena phase, Itskari people apparently went through a dramatic shift in lithic exploitation strategies. Quality cretaceous jasper along the lower Loup River and Beaver Creek, one of it's major tributaries in the vicinity of Genoa was the primary toolstone for early Itskari Sites as in other CPt localities, but later sites contain almost none of it. Instead Itskari people, began using Flat Top Chalcedony from western Nebraska and Eastern Colorado and Wyoming (Logan 1998: 263; Herman and Peterson 1996). As Logan notes, this shift is almost inexplicable in the absence of some great pressure keeping CPt people away from local jasper sources. However, the chronology for Itskari is not well controlled – it is "the most neglected of the Central Plains tradition phases" (Steinacher and Carlson 1998: 257), and this pattern of late lithic reorientation may not be so absolute (Ludwickson 2007 Personal Communication).

The apparent trends in Itskari settlement and lithic exploitation taken together seem to argue for influence from another unfriendly population. Ludwickson (1975: 102) offers two explanations for the placement of Itskari sites on ridge tops including flood protection and "2, ridge top settlements were so placed out of a desire for security from other people." This second explanation seems more likely to Ludwickson, and it also fits with Logan's explanation for the possible lithic reorientation, namely that Itskari people began using far western lithic resources because an unfriendly population that had not previously been identified was standing between them (Logan 1998). Add to this the direct evidence for increased violence during the late CPt as seen in increased skeletal trauma (Hollinger 2005; O'Shea and Bridges 1989), and it appears that much of the changes evidenced in Itskari settlement and economy seem to be related to a much more hostile social environment than had previously been experienced by CPt people. Ludwickson (1975, 1978) documents an unusually high level of ceramic heterogeneity in the Loup River area and suggests that this represents contact with a large number of outside groups including Mill Creek and Great Oasis. This social heterogeneity and increased 'cosmopolitanism' may be related to the apparent increase in inter-social violence (Ludwickson 1975, 2007 Personal Communication).

Oneota

Among the most significant developments of the Late Prehistoric period in the Midwest was the expansion of a large-scaled culture system commonly known as Oneota.

History of Investigations

The term Oneota was first applied by Keyes (1927) to sites in the LaCrosse Wisconsin area (now Orr phase) near the Iowa River, then known as the Oneota River. These sites apparently represent an autochthonous cultural evolution of Woodland societies into larger centralized agricultural villages that began forming a unique material tradition. Oneota patterns of settlement, economy, and material culture quickly spread through the Midwest and are now found throughout the entire region.

Dealing with Oneota in anthropological terms can be quite complicated, not least of all because the term refers to a massive archaeological unit representing sites spanning an area from Kansas to Michigan over a time span of about 1000 years. As an archaeological unit, Oneota is a classic example of a “ceramic culture” (e.g. Key 1983:107); sites display considerable diversity in terms of size, ecological setting, local integration, economic adaptation, artifact assemblage, and defensive posture. Yet similar ceramic traditions link them together throughout time and space.

Henning traces the earliest establishment of Oneota villages in the western Prairie Peninsula portion of Iowa to the Developmental Horizon as early as AD 1100 (1998b: 238). No clear antecedents to these early western sites are seen in the Midwest and they are considered to have developed autochthonously from indigenous Woodland peoples.

"The demise of the Hopewell Interaction Sphere... did not signal the dissolution of Woodland society nor wasting away of leadership roles, but rather, the reorganization of the processes for surplus production" (Benn 1989: 242).

Temporal Phases in Oneota

Sites identified by archaeologists as Oneota represent an extremely long period of time from the beginning of the last millennium until the Early Historic period. Four phases have been identified following the Willey and Phillips system (Hollinger 2005: Ch 3; Henning 1998a; Willey 1953; see Hollinger and Benn 1998 for a thorough discussion of the application of the Willey and Phillips classificatory system to Oneota) and these are generally used in discussions of the time dimension. These phases are very broad and they are linked to similarities in artifact style, ecological adaptation, and apparent social integration that are shared in a general sense throughout the Oneota world. While it is thought that the phase sequence represents a similar sequence of material and social transformations among Oneota communities, implying regional integration and shared developmental trajectory, the phase system is still heuristic and represents points along a continuous and sometimes non-linear arc.

Oneota occupations first appeared in the Missouri drainage around AD 900, apparently deriving from local Woodland populations (Henning 1998a; Yelton 1998; Benn 1995), and the expansion of Oneota probably represents some combination of migration and *in situ* development (Gibbon 1982). Early Oneota settlements appear to have had a general riparian-woodland adaptation including seasonal movement and considerable economic diversity, with a later increase in emphasis on grassland resources (Tiffany 1982; Gallagher and Stevenson 1982). Gibbon (1972) argues that the general trajectory of Oneota development represents broad changes in ecological adaptations over a long period. The particular form of Oneota development, however, was greatly affected by interactions with other communities, especially Mississippian (Gibbon 1972: 166). The changes that we see as archaeologists reflect local communities transforming themselves in response to their interactions with individual Mississippian or other neighboring communities (Gibbon 1972: 167), therefore the development of Oneota represents long-term ecological transformations articulated with very specific local social circumstances.

Among the implications of this model, linguistic homogeneity is extremely unlikely and the traditional view of Oneota as ancestral Chiwere or Dhegian speakers is set aside in favor of a network of polyglots. Indeed, multilingualism is quite common in situations of culture contact and a view of tribal development that favors local interactions driving the larger systems suggests a high degree of fluidity in linguistic boundaries (*cf*. Hymes 1967). Like other taxonomic systems, the phase designations were constructed and are used as archaeological tools to facilitate communication and comparison between disparate Oneota sites and localities; they offer a point from which to begin investigating more fine-grained anthropological questions about the people who created the sites.

Some concerns have been raised about the application of this broad classificatory scheme across the board to Oneota sites. These criticisms are based mostly on the grounds that the Oneota region is too large to fall neatly into a single scheme, absolute dating in some areas is not complete enough to allow confident temporal ordering, and that these are arbitrary archaeological units with little likely bearing on the anthropological realities so they could serve to obscure local variations in patterns (e.g. Wedel 1963; Fishel 1999). Because the archaeological phases likely track with significant social and anthropological transformations in the Oneota socio-political world, a solid understanding of both the archaeological markers and the anthropological processes they may represent is a necessary starting point in discussing Oneota development.

Emergent Horizon

The earliest Oneota Horizon is called the Emergent, dating to around AD 900 – 1150. The very earliest materials identified as Emergent Oneota are found in the Red Wing area of Minnesota and eastern Wisconsin. The community around Red Wing later developed into the LaCrosse, Wisconsin area and together, they represent one of the most stable Oneota population centers in the region. Oneota presence here seems to have been essentially continuous, with shorter phases within the broader period, until the Historic period, while the rest of the Midwest was experiencing significant local flux.

The ceramics from this period are characterized by the low, globular form with short rims that is the theme throughout the development of Oneota ceramics. The earliest vessels had no appendages and little decoration, restricted to shoulders, sometimes decoration was applied with cord impressions (Benn 1995; Hollinger 2005: 27). The earliest Oneota sites are small groups of semi-subterranean subrectangular houses, sometimes with palisades. There is evidence of early coexistence with Late Woodland cultures, from which some of Oneota likely developed (e.g. Overstreet 1995). Oneota settlements are restricted to the upper Midwest during this time and there seems to be a fairly low level of regional integration as would be indicated in evidence for shared trade routes, ritual connections and heavy ethnic symboling.

Developmental Horizon

The Developmental Horizon represents the span from about AD 1150 – 1400. This is the period of the most Oneota movement into new territories, notably into the Lower Illinois valley (Farnsworth and O'Gorman 1998), the American Bottom (Henning 1970), and it is the period of major westward Oneota movement into the Plains (Henning 1998b; Ritterbush 2002a). The ceramics marking this horizon have less curvilinear design elements and more panels of trailed lines with punctate borders than previously (Hollinger 1995). Lip decoration, loop handles, and shell temper become dominant in ceramic assemblages during this time. The regional ceramic assemblage is very heterogeneous overall, apparently reflecting a fluorescence of local variability as networks developed to integrate the region, while local autonomy still dominated the balance. Based on trends in the ceramic record, some archaeologists divide the developmental into an early and late phase (Boszhardt 1998; Henning 1995).

Houses during the developmental horizon are small, above ground structures with square to oval post patterns. They appear to be fairly unsubstantial and are placed in areas that optimize access to diverse resources. It is believed that settlements during this period were seasonal with an annual round taking Oneota people to other locations temporarily (Hollinger 1995; McKusick 1973). The Developmental Horizon is an important time for Oneota territoriality. For the first time there is solid evidence of defined burial areas in the form of both accretional burial mounds and fenced cemeteries (Gradwohl 1974; Hollinger 2005: 29). Also this is the period when Oneota people apparently became more expeditionary and began exploring new territories. This new expansionist tendency comes in the context of increased evidence for warfare in the form of fortified settlements and increased evidence for skeletal indications of inter-personal violence (Hollinger 2005; Milner et al. 1991). The dates for Plains Oneota – the White Rock Phase and the Swantek Site – fall solidly in the Developmental Horizon.

In general terms, the Developmental Horizon seems to be a period of great Oneota fluorescence. At once the tribal network is crystallizing into a coherent pan-regional system and expanding into new territories. As Mississippian influence in the region declined, Oneota gained a strong military and economic foothold (Hollinger 2005). Meanwhile, there is evidence for factionalization within the Oneota world as local communities and internal groups competed for power within the changing political economy (Farnsworth and O'Gorman 1998).

Tiffany (1997) disagrees with this model of the Developmental Horizon, arguing instead that the western Iowa Oneota presence was restricted to the late Developmental, postdating the Sterling phase at Cahokia, the period of major Mississippian decline. Thus, rather than a factionalization of existing communities in the late Developmental Horizon, this model suggests the intrusion of pre-factionalized communities into western Iowa after AD 1300. Tiffany also suggests that the traditional Horizon scheme dividing up distinct Oneota assemblages in chronological terms is faulty and should be exchanged for a paradigm that sees the patterns as representative of distinct ethnic groups.

Space

Sites from the Oneota tradition are also found across a vast expanse of space stretching from Kansas to Michigan. Local traditions have been identified through patterns of settlements focused on major waterways and tributaries in which similar economies and artifact styles can be identified. The amount of variation within the Oneota system is quite large and greater than that within the Central Plains tradition and it is likely that many independent societies are subsumed under this archaeological label. The western edge of the Oneota system has typically been thought of as the Missouri River trench with the westernmost sites in extreme eastern Nebraska and western Iowa or Missouri.

A handful of sites with clear Oneota influence have also been found in the Central Plains, particularly the White Rock region of north-central Kansas and south-central Nebraska, but debate continues as to whether these Plains Oneota communities should properly be thought of as part of the larger tradition. These issues are the focus of this study and are therefore discussed at length below. The Western Oneota sites found along the Missouri River, such as Leary, Utz, and Dixon represent the Oneota communities that most likely had interactions with Central Plains people, and indeed the Plains Oneota communities bear a number of resemblances to those sites. Therefore the overview of Oneota archaeology presented below focuses on Western Oneota patterns. For purposes of outlining current models of Oneota archaeology, Plains Oneota is dealt with later as a separate archaeological unit.

Currently our models for understanding Oneota society are incomplete (Gibbon 1982), but it is usually described as a large regionally integrated system made up of a variety of independent local groups rather than any definable or homogeneous culture unit (Henning 1970, 1998a, 1998b; Hollinger 2005; Harvey 1979; Berres 1991; Garnsworth and O’Gorman 1998). Benn (1989) makes a case that local Oneota communities were linked together by kinship ties based on local exogamy and some shared cosmological or religious elements, although direct material evidence to back this up is lacking. Peer-polity models have occasionally been used to describe the autonomous communities comprising Oneota (Berres 2001). Hollinger (2005) uses the 'historical processual' approach to portray much of the local diversity in time and space among Oneota communities. He provides a very thorough review of known Oneota archaeology in the Midwest and along the Mississippi River valley, which should be referred to as a complement to the Western Oneota overview presented below.

Some investigators have suggested that Oneota represents a regional integration of people ancestral to Chiwere Siouan groups of the Midwest as well as some Dheghian speakers on the western periphery (Henning 1970; Vehik 1993; Springer and Witkowski 1982; Key 1983), but these linguistic identifications are contentious and any connection that can be drawn is incomplete (Gibbon 1982; Key 1983; *cf*. Hymes 1967). Significant regional homogeneity of artifact style, subsistence, and settlement can be seen archaeologically, and this may represent some shared ideologies and life-ways, but the thoroughness of this homogeneity is sometimes exaggerated (Gibbon 1982).

While Oneota was regionally integrated and probably ethnically distinct from other contemporaneous tribal or chiefly systems such as the Mississippian groups, Central Plains tradition, and various Algonquin speaking communities, it is important to keep in mind that the system itself was made up of individual local communities of various sizes. These related to each other in locally developed terms creating soft-sided identity networks that likely shifted regularly and could present alterity just as easily as fraternity (Berres 2001). As Oneota populations grew, large villages were established and these were strongly fortified in some cases. Benn (1989) proposes that population density in these villages was higher than that previously seen in the region, and this allowed for significant division of labor. This would have allowed Oneota people simultaneously to tend gardens, hunt bison, and carry out raiding expeditions, which ultimately gave them an advantage when competing with neighboring populations.

Western Oneota

"From perhaps as early as AD 1100, a unique Oneota presence persisted in the western periphery" (Henning 1998b: 238). The westernmost edge of Oneota territory was always a very dynamic area. The Missouri River trench generally defines the western extent of Oneota dominance in all periods, but the particular posture of Oneota people along the Missouri with regard to other people in the Midwest, as well as those farther west, went through some significant changes. Indeed, it is now difficult to ignore the evidence that for a period during the 13th and 14th centuries Oneota territory was expanded significantly into the prairies, as far as central Kansas and Nebraska some 200 km from the Missouri River

A small number of significant Oneota sites are found along the major tributaries of the Missouri River, each belonging to a distinct local tradition, but sharing certain commonalities that distinguish them from sites deeper into the Midwest. These Western Oneota sites typically assume a more plains-like adaptation including greater focus on bison resources, and they are often described as the home villages of the people who created the farthest west Oneota sites in the White Rock and Swantek areas (e.g. Henning 1970; Fishel 1999). As will be argued below, we now consider many of those Plains Oneota sites to be village localities in and of themselves rather than hunting outposts from the Missouri River area (Ritterbush 2002, 2006; Ritterbush and Logan 2000). It remains probable, however, that the White Rock and Swantek people derived originally from these Missouri Trench areas and maintained social and cultural similarities with them.

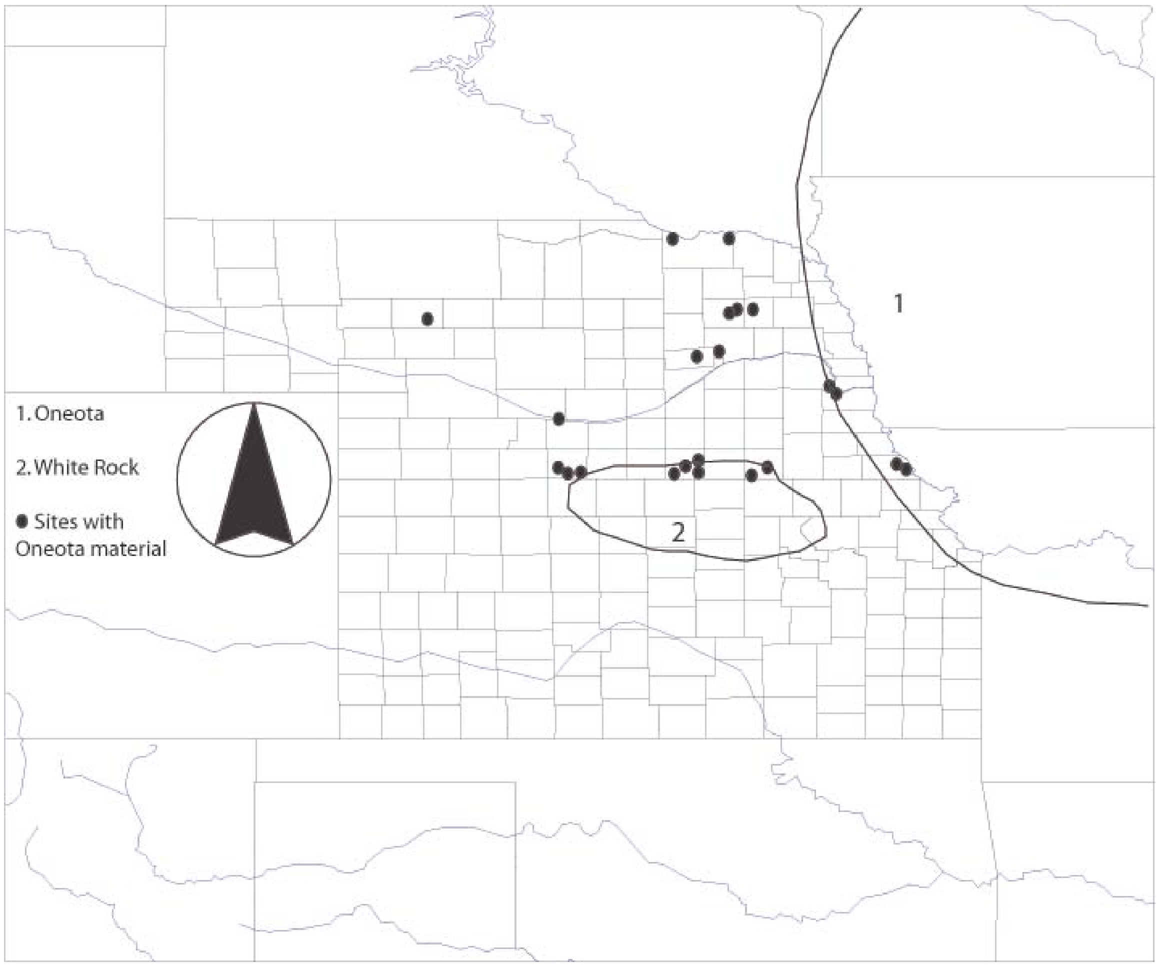


Figure 4.2. Significant western Oneota sites and all Oneota sites in Nebraska.

Oneota people were originally drawn to the prairie's edge by a number of enticements including access to bison resources (Henning 1998b: 239; Ritterbush 2002). Later bison products apparently became quite valuable in the Oneota economy while the declining state of the Mississippian political economy allowed for increased Oneota mobility and intensified inter-ethnic violence. Henning's (1998) list of factors drawing Oneota people westward include: "more readily available herds of bison, departure of prior residents, the development of amicable relationships with nearby western tribes, enhanced trade opportunities and, from the late 16th century, declining social conditions in the Mississippi River valley." This model assumes amicable relationships between Oneota people and the indigenous people of the Central Plains, which is not evidenced at all.

Henning's position is in accordance with the long-dominant theories that viewed Central Plains tradition people as peaceful and their abandonment of the plains around 1150 AD as environmentally driven. However, emerging data (Hollinger 2005; Ritterbush and Logan 2009) make a strong case that Oneota expansion was often violent and specifically that their movement into the prairies involved an aggressive dislocation of indigenous peoples. Further, Henning's model, like so many dominant models casts the farthest west Oneota sites in Kansas and Nebraska as specialized bison hunting camps rather than permanent villages. Ritterbush and Logan have been working for two decades (Logan 1995, 1998; Ritterbush 2002, 2007; Ritterbush and Logan 2000, 2009) to counter that idea with their model of permanent villages in the White Rock area.

The independent Plains Oneota model is now becoming accepted and the data from the Swantek site presented here indicate that permanent Oneota movements into the prairies were quite significant and spread across a wide area. There is also good evidence for some logistical hunting mobility among western Oneota people, but it was not necessarily on the extremely long-distance scale of hundreds of kilometers as seen in the historic period (Blakeslee 1999).

Settlement and Architecture

Oneota settlements tend to be larger than CPt sites, covering up to 90 acres and sometimes including fortifications. These villages were occupied by hundreds of people simultaneously for extended periods. There is a good degree of variability in site form and layout throughout the Oneota period and across its very broad territory, but the Western Oneota sites of the Developmental Horizon are closest to the Swantek Site in time and space so they are the focus here.

Oneota settlements moved away from woodland locations in the Emergent Horizon toward lower and more open settings in the Developmental, a move that many researchers interpret as a response to increasing importance of bison and other prairie goods in the Oneota economy during this time (Henning 1998b).

Although Oneota villages are larger and more formal than CPt settlements, Oneota houses tend to be less substantial structures in terms of structural constitution. Evidence for Oneota structures typically consists of scattered postmolds and shallow depressions with internal storage and fire features common at some sites. Many sites also include scattered external features. Because of the rarity of daub or other structural elements at most Oneota settlements, it is generally thought that they were covered with hides, mats, or other perishable materials.

Oneota settlement in the Midwest is understood to have sometimes involved regional centers and smaller affiliated settlements, all maintaining regular interaction (Tiffany 1998; Overstreet 1997; Henning 1970; 1998a). Disparate Oneota groups interacted together and even inhabited the same sites occasionally, as crosscutting relationships, likely predicated in kin terms (Benn 1989), tied people together among different villages (Tiffany 1997; Henning 1970; Ritterbush 2002). The majority of Oneota communities, however, appear to have been uncentralized groups of villages living within a geographic territory and sharing patterns of economic, ritual, and aesthetic behavior.

Economy

Early Oneota economies seem to have been based on the increased importance of corn agriculture. During the Developmental Horizon, Oneota economies continued to include large amounts of corn agriculture, but also shifted toward a new emphasis on bison products, notably including large quantities of scapula hoes and other tools of bison bone at many western Oneota sites. In addition to bison and corn, Oneota people consumed a wide array of locally available products, but with more emphasis on bison-focal hunting and corn agriculture than CPt economies.

Tools

The Oneota toolkit reflects the generalized economy with its focus on maize agriculture and bison hunting. Western Oneota lithics tend to be expedient and informal with many not easily fitting into formal tool categories. Formal tools that are present tend to represent hide-working activities as well as general cutting and chopping tools. Groundstone tools of many types are found at Western Oneota sites including grinding stones, axes, celts, mauls, and abraders. Aside from the informality, the types of tools found at Western Oneota sites do not vary dramatically from those at CPt sites.

Oneota projectile points tend to be very simple, much less formal than CPt or earlier Woodland points. Typically Oneota projectile points are small simple triangles on flakes with limited retouch along working edges. Notches and stems are extremely rare at Oneota sites and the general impression of the arrow points is that they were created with a minimum amount of effort and planning. Worked or utilized flakes are very common at Western Oneota sites as well, and represent another informal tool type that was created with a minimal amount of effort and planning to accomplish a task quickly.

Raw Material Acquisition

The western Oneota sites are located in the Missouri River trench and thus had local access to a wide range of lithic materials, especially including Pennsylvanian cherts and glacial till of varying quality. The locally available toolstones in the upper Missouri valley tend to be of mediocre quality and many Oneota assemblages include extralocal materials, especially from Cretaceous and Permian sources to the west or Mississippian sources to the east.

Ceramics

Ceramics have traditionally been thought of as the defining characteristic of Oneota archaeology and it is sometimes referred to as a “ceramic culture” (e.g. Key 1983:107; Wedel 1959: 111) indicating that it is primarily differentiated from other traditions by its characteristic pottery. Oneota pottery is almost exclusively shell- or calcium-tempered with very low frequencies of grit or sand temper present in some western sites. Vessels are small and globular with short direct or flaring unthickened rims. Decoration is present on lip top, rim exterior, and shoulder with decoration on rims and handles increasing through time. Fishel (1999:76) suggests that this increase in decorative treatment during the Developmental Horizon is indicative of increased culture contact and competition among Oneota groups and possibly between Oneota and other groups for territory and boundary marking. Strap handles also become more common with time in western Oneota assemblages and become attached higher on the rim.

Oneota ceramics are typically smoothed, although simple stamp impressions are occasionally apparent having only been partially smoothed. Exterior decoration is common and takes the form of finger or tool trailing, tool incising, and punctuates. Decoration tends to be located on shoulders or upper rims, and lips are commonly impressed with tools or fingernails. Oneota motifs include triangle and chevron patterns, some of which Benn (1989) and Link (1995) identify as elements of a bird-man motif linked to Mississippian and earlier eastern Woodland notions of religious authority and possibly warfare. Many motif elements such as the ubiquitous chevron design have antecedents in the local Woodland wares as well. Other Oneota motifs include geometric patterns of trailed lines, curvilinear decoration, fields of punctuates, and often combinations of punctuates with geometric decorations. Some researchers (e.g. Collins 1988) have noted a high degree of apparent homogeneity in Oneota ceramics and separating types has thus been quite difficult, but several unique types have been identified, particularly along the western edge of the territory.

The specific motifs and placements vary with time and space, but “a majority of the motifs represent less than a half-dozen subjects rendered in many design variations” (Benn 1989: 243). The dominant motifs are chevrons, nested triangles, fields and lines of punctates, and curvilinear motifs for a brief period. Some of this symbolic repertoire, especially the chevron and related motifs, are thought to relate to imagery of power such as Peregrine falcons and 'bird men' familiar in the Mississippian iconography (Benn 1989; Link 1995), but they have antecedents well before the Oneota period. Though the full symbolic package of the Southeastern Ceremonial Complex is not present, several design elements including the 'weeping eye' motif do appear in Oneota assemblages (Bray 1963).

Other Artifact Types

Other unique artifacts found at some western Oneota sites include small tablets made of Catlinite or red pipestone and incised with geometric designs or religious figures. Pipes at Oneota sites tend to be Catlinite or red pipestone disk or elbow pipes.

Mississippian Interaction

Some evidence suggests that there may have been alliances or some form of connections between Oneota people and Mississippian people on the eastern frontier (Henning 1970; Farnsworth and O'Gorman 1998). This interaction with the east facilitated the movement of exotic goods from existing trade networks and interaction spheres into the Oneota network, but apparently involved very little assimilation or ethnic mixing (Esaray and Conrad 1998). In some cases, there is evidence for considerable violence and raiding between Oneota, Mississippian, and other Midwestern groups (Boszhardt 1998; Lensink 1993).

An elaborate trade system moved products including lithics and, later, disk pipes throughout Oneota territory and often between the Oneota and Middle Mississippian systems (Henning 1970; Farnsworth and O'Gorman 1998). The importance of bison products in the Oneota network appears to have increased through time, particularly scapulae and other tool bones and the importance of dried meat for food probably increased by the Classic Horizon (Ritterbush 2002; Logan 1998; Ritterbush and Logan 2000). This increase in the Oneota system's consumption of bison products may be behind some of the Developmental and Classic Horizon Oneota settlement pattern in the west (Ritterbush 2002).

Contrary to the views that Oneota people sought partnerships with Mississippian communities, Hollinger's (1995; 2005) synthesis of evidence for Oneota violence suggests that warfare was a much more common mode of social interaction among Oneota communities and between Oneota and outside groups than previously considered. He has reinterpreted some of the evidence for peaceful inter-social processes on the eastern edge in more aggressive terms, even suggesting that the Ramey wares found on Oneota sites far upriver from Cahokia may be a result of female hostage taking by Oneota people during raids on Mississippian communities, including Cahokia itself (Hollinger 2005:163-171). This is drastically different than the traditional pictures that put Mississippian emissaries, trade partners, or alliance-forming spouses in northern Illinois Oneota sites. It is also a significant departure from the image of Cahokia commonly portrayed as a powerful Chiefly center with surrounding tribal societies cowed in the hinterlands (e.g. Pauketat and Emerson 1997; Emerson and Lewis 1991). Indeed it accounts for the repeated building and burning of palisades around Monks Mound in decidedly less flattering terms than the traditional models of *courvée* labor as a demonstration of chiefly power or public works projects intended to give the impression of military might on the part of the paramountcy.

Henning (1970) refers to the Utz site in the Lower Missouri Valley as an Oneota “melting pot” or cultural center that maintained contact with Oneota people from all over the region. However, it is not clear that the many Oneota traditions represented at Utz come from simultaneous occupation (Yelton 1998) and a pattern of reoccupying sites, including sites left by other culture groups, is present in other Oneota areas including the Great Plains (this is discussed in more detail below). Henning (1970) argues that the Utz site's placement in an environment with relatively low local environmental risk facilitated its development into a cultural node.

Esarey and Conrad (1998) note that although there is considerable co-presence of Mississippian and Oneota materials in Illinois Oneota villages, these people remained ethnically distinct and exhibit little cultural mixing. A similar model has been applied to the western Leary and Dixon sites, which were previously thought to represent the westernmost edges of Oneota occupation, along with sites such as Ashland and Blood Run (Fishel 1999; Ritterbush 2002b) along the Missouri River in Nebraska and western Iowa. These sites appear to have been occupied multiple times through the Oneota period of residence in the greater Missouri River trench, perhaps by different ethnic groups. They also appear to have been central sites for trade and communication while they were occupied, each producing large amounts of cultural material from a wide area.

The Mississippian system also went through considerable changes in the Late prehistoric period. It was a very powerful force during Oneota's early phases and may have been partially responsible for creating pressure to develop a regional system on the level of Oneota. However, by the 14^{th} century, many of the major Mississippian mound centers in contact with the Oneota world, Cahokia and Aztlan most notably, declined in power and became much less of an economic and military concern for Oneota (Boszhardt 1998; Henning 1970). This may have been due at least in part to aggressive actions by Oneota people that destabilized chiefly power (Hollinger 2005).

Environmental Change and Westward Oneota Migration

Baerreis and Bryson (1965) hypothesize that a significant amount of bison and bison-dependent Central Plains tradition (CPt) populations were driven out of the Plains by drastic environmental changes occurring *ca.* AD 1300 and most of the eastern Central Plains is believed to have been abandoned during this period of movement (Baerreis and Bryson 1965; Wood 1976; Steinacher and Carlson 1998). As discussed above, Oneota people during this time underwent a transition from generalized subsistence focused on woodland resources to a more prairie-focused pattern (Henning 1998b; Ritterbush 2002; Tiffany 1982). The increasingly arid conditions across much of the Central Plains may explain in part why Oneota people chose to populate the southern and western Prairie Peninsula – areas less affected by environmental stochasticity and providing refuge for Plains bison (Henning 1970).

However, Lensink (1993) and others have argued that there has been too much focus on environmental change to explain prehistoric population movement. Instead they suggest (after Speth and Scott 1989) that local resource depletion due to population density and aggregated settlements led to pressures, including Oneota aggression, that pushed existing CPt populations on the Plains-Woodland ecotone up the Missouri River (Tiffany 1982; Anderson 1969; Conrad and Koeppen 1972). I would add that the diminishing threat from Mississippian communities at this time (Gibbon 1982; Lensink 1993) likely relieved some of the pressures that Oneota populations felt to remain in stationary, defensible settlements. Thus they were given more freedom to move about, and were well organized to be expeditionary without sacrificing significant economic capacity. These issues are taken up in more detail in Chapter 6.

Although our models of Oneota society are quite detailed in most aspects pertaining to the eastern and southern populations, there remain some basic questions about the processes of western border maintenance and expansion. It seems probable that the presence of Bison and other large fauna in the western Prairie Peninsula or Plains-woodland ecotone drew Oneota people westward, or at least facilitated that movement (Ritterbush 2002). Ritterbush has argued that this involved a physical migration of Oneota populations, but there is still some disagreement among archaeologists trying to explain the nature of this expansion and the formation of a western social frontier, particularly the nature of Oneota's interaction with the CPt.

Logan (1998) has suggested a different model for the far-western periphery that he calls 'hegemonic." In Logan's model, the push of Oneota people into the Plains was far from friendly. Logan argues that the Oneota population expanded westward using military advantage (*cf.* Benn 1989; Lensink 1993; Hollinger 2005) gained through their population density and relatively complex internal organization. Others have taken similar approaches, suggesting that Oneota traits in areas not traditionally thought of as Oneota territory represent a border being moved through conquest and alliance formation (*e.g.* Gibbon 1995). Hollinger (1995, 2001, 2005) has argued that warfare was a critical method of Oneota expansion throughout the system. This view of expansion contrasts sharply with the opinion that the Oneota moved into territory previously occupied by trade and ceremonial partners that was recently abandoned in response to environmental change and herd movements.

Logan's model allows that the Oneota groups occupied territory crucial to their growing political economic system in the Midwest heartland while displacing existing

CPt people, or in some cases simply usurping their access to raw materials and territory. Under this model the fundamental characteristic of the relationships between expanding Oneota and resident CPt populations was hostility. Although other types of relationships may have occasionally been forged between communities, no long-term networks on the level of the historic Interband Trade System (ITS) were present, and the best possible relationship was likely one of uneasy truce.

This hypothesis is not supported by much direct evidence (Ritterbush 2002: 264); rather the strongest endorsement is that the CPt populations that remained in the area after about AD 1300 (Itskari) oriented their trade networks hundreds of kilometers to the west and did not utilize more-local resources (Herman and Peterson 1996; Logan 1998). "One explanation for this… is that a Siouan-speaking [Oneota] population located astride the routes to the Niobrarite and Permian sources, particularly one better organized socially for resource competition and conflict prevented access to them by [CPt] groups" (Logan 1998: 263). In addition to this evidence for changing resource strategies, the limited evidence of violence from the end of CPt occupation also suggests that their exit from the region may have had more motivation than simple climate change.

<u>Plains Oneota</u>

Until recently, sites west of the Missouri River trench showing Oneota influence were thought to be exclusively small temporary settlements, including seasonal extraction camps and a few small villages, and these were limited to the White Rock Phase sites of Jewell and Republic Counties, Kansas and Harlan County, Nebraska (Rusco 1960; Blakeslee 1993; Fishel 1999; Henning 1998a; Neuman 1963). Researchers making that argument refer to the Oneota sites in the Great Plains as "site unit intrusions" to indicate that they only represent anomalous sites and not a pattern of Oneota settlement, but the archaeologists working at those sites (e.g. Ritterbush and Logan 2000; Logan 1995) have also used the term to indicate that they represent entire Oneota sites rather than individual cultural elements present at sites with other affiliations. This terminological slippage can cause some confusion as it is related to different arguments.

Fishel presents the most recent form of the dominant model for these far-western Oneota sites. This model focuses on bison procurement that involves the temporary physical movement of a group from the Dixon site in northwest Iowa, to the Leary site in Southeast Nebraska, then from there into north-central Kansas to hunt in the White Rock area with no permanent occupation of the Central Plains (Fishel 1999). Logan and Ritterbush have been arguing for some time now (e.g. Logan 1994, 1995; Ritterbush 2002) that the Oneota movement into the prairies was much more significant, and data in support of that position is growing steadily.

The White Rock Aspect

A cluster of Plains Oneota sites is found far west of the Missouri River near the big bend of the Republican River in Jewel and Republic Counties, Kansas and Harlan County, Nebraska. When Rusco (1960) first identified the materials from north-central Kansas's White Rock area as something different than the local Central Plains tradition, the closest identifiable connection was Oneota. Considerable debate has occurred about the nature of White Rock and its particular cultural affiliation since that time. Some authors have argued that White Rock represents temporary extractive sites created by western Oneota people (e.g. Henning 1970; Fishel 1999:129), but Ritterbush and Logan (Ritterbush 2002; Logan 1995, 1998; Ritterbush and Logan 2000) have dealt with this extensively and have created a compelling argument that White Rock represents a unique, independent local culture with roots in the Oneota tradition and neither an indigenous CPt development through emulation of Oneota nor temporary camps left by Oneota people with home bases in the Midwest. These disagreeing models are discussed in more detail in later sections.

Settlement and Architecture

White Rock settlements include large permanent villages located in upland settings along major tributaries of the Republican River, with the majority found in the Lovewell area of White Rock Creek in Jewel and Republic Counties, Kansas. In addition to these are some smaller camps and extractive sites along the Solomon River (Blakeslee 1999, Rusco 1960) and tributaries including areas of southern Nebraska.

Evidence for White Rock habitation structures is quite limited, even at the larger village sites such as the Warne Site and the White Rock Site itself. House remains are limited to scattered post-mold patterns around internal hearth features with little to no other associated structural elements or formal features. Ritterbush and Logan (2000: 262) suggest that this is due to the semi-sedentary nature of White Rock life with the smaller extractive camps found elsewhere (e.g. Blakeslee 1999) representing a separate part of the annual cycle in which people with permanent villages in the White Rock area travelled as part of a bison-focal hunting economy.

A total of nine sites in north-central Kansas are classified as White Rock due to the presence of Oneota materials. Of these, only two are considered long-term villages (Ritterbush 2006:159). The Nebraska State Historical Society (NSHS) excavated three possible house floors, which were chaotic scatters of post holes around a central fireplace at the White Rock Site (14JW1) (Cooper 1936, Lamb 1937 cited in Ritterbush 2006; Rusco 1960) making it the only White Rock site with evidence of residential architecture. The Warne Site (14JW2, 8, and 24) is thought to be a permanent occupation due to the sheer quantity and variability in the materials and formal subsurface features found there.

Seasonal Mobility

Although the Glen Elder Site (14ML1), on the Solomon River south of the White Rock area, was originally interpreted as a village occupation, Blakeslee (2001) has recently reinterpreted this site as a hunting camp due to the paucity of formal features and the skewing of the artifact assemblage in favor of hunting and animal processing tools. Blakeslee's interpretation suggests seasonal movement from the White Rock villages to relatively permanent camps elsewhere in the nearby Central Plains. Unlike the historic model, Blakeslee argues that agricultural crops were grown at these outposts and tended by the Oneota people who stayed there during the summer months, a period focused on resource gathering on many fronts.

This seems to indicate that the first Oneota people in the Central Plains introduced the historically observed model of nucleated village settlements participating in logistical embedded procurement strategies on a seasonal round. While the scope and scale is quite different than in the historic period, this marks a qualitative shift away from the dispersed communities concentrated around drainage-defined localities interacting in some level redundant exchange and risk buffering that was discussed above for the CPt (Roper 2006; Spaulding 1956). It also indicates a much more extensive territoriality of Oneota people who maintained multiple distinct habitation and foraging locales unlike the locally-focused CPt people.

The remaining six White Rock sites are small sites, many of which are situated in the lowlands near Prairie Dog Creek in south-central Nebraska. These sites are less well-known than the three large White Rock sites, but they seem to have much more restricted variability in the artifact assemblages and only a few subsurface features. Thus at least two of them (Blue Stone and Greem Plum [25HN45; 25HN39 respectively]) are interpreted as temporary extractive camps (Rusco 1960) also the Meek (14CY5) and Intermill (14JW202) sites may be quite similar (Ritterbush 2006: 159). The remaining sites are of unknown type due to destruction and limited sampling.

Economy

The White Rock economy seems to have been quite locally-focused. While there is a certain amount of stylistic similarity with the Midwestern Oneota people and the nucleated logistical strategy is a departure from earlier strategies on the Plains, the inhabitants adapted house form and certain other elements to Plains life, most notably the bison-focal economy (Logan 1995; Ritterbush 2002). More strikingly, there is little evidence for contact with Midwestern Oneota groups in the artifact assemblages at White Rock sites. Exotic materials are sparse altogether at White Rock sites, but they appear to represent an orientation to the West and the Southwest much more than an orientation to the East. Among the exotic goods found at White Rock are Alibates from the Texas Panhandle, Jemez obsidian from New Mexico, and Malad obsidian from Idaho (Logan et al. 2001).

Interaction with CPt

Interaction between White Rock people and the Upper Republican Central Plains tradition people who were living along the White Rock Creek immediately before (or contemporaneously with) them is an intriguing problem, but not fully understood yet. The resolution of carbon dates in this area is not sufficient to tease out any details of the chronology; White Rock and CPt dates are statistically contemporaneous. Unlike elsewhere on the eastern and Central Plains, there is little evidence for superposition of Oneota houses or sites on top of CPt houses. However, the White Rock Site sits on a bluff top overlooking the Scott site, two Upper Republican houses, on the first terrace of White Rock Creek immediately below (Logan 2009). There is frustratingly no evidence of direct interaction between the people from these two sites – no violence, no misplaced ceramic types, no trade goods, and no spatial overlap.

While it is unclear whether these sites were occupied at exactly the same time, if the Oneota people came later, the remains of the Scott site would still have been quite obvious. Large house depressions from CPt sites were still glaring to historic observers hundreds of years later (Hotopp 1982; Sterns 1914; Proudfit 1881; Dean 1881; Cooper 1955; Orr 1963).

There is evidence for some Oneota interaction with other indigenous people in Kansas and the Great Plains farther west. Occasionally pots appear in assemblages from this time period as far away as southwest Kansas an the Texas and Oklahoma Panhandles. These generally co-occur with exotic materials such as obsidian, turquoise, and Alibates suggesting some level of trade – be it direct or down the line – between the farthest West Oneota settlements and farther-west Plains peoples.

Tools

White Rock tool assemblages are similar in many ways to CPt assemblages due to their similar economies. Both include large quantities of end scrapers, arrow points, scapula hoes, and cutting tools including beveled (or Harahey) knives. This latter form tends to be less common at White Rock sites and White Rock arrow points are small and triangular with no notching or stems and little formal shaping (Owada and Ritterbush 1999 cited in Logan and Ritterbush 2000). In this, White Rock arrow points are quite similar to the informal triangular flake points of Oneota.

This informality in the arrow points at White Rock sites extends to other tool types as well and this is one of the more notable differences between White Rock and CPt assemblages. “The overall impression one gets of White Rock phase chipped stone tools… is of preference for informal tools or those ‘with little or no effort expened in their production’ (Andrefsky 1994:22)” (Ritterbush and Logan 2000: 261).

Celts, bifaces, abraders, grinding slabs, anvils, hammerstones, and bone tools are also found on White Rock sites and often resemble western Oneota forms, although there is much overlap in these tool types with CPt as well. One of the few tool types that is found at White Rock sites, but not nearby CPt sites is grooved mauls (Ritterbush and Logan 2000:261).

Ceramics

White Rock ceramics share much in common with Oneota wares, typically being thin walled and shell-, sand-, or grit-tempered with smoothed surfaces that are occasionally also simple stamped or cord-marked with those surface treatments often being partially smoothed as well.

The dominant ceramic type at White Rock sites is known as Walnut Decorated Lip. These are small globular vessels with short out-flaring lips that are frequently decorated, usually on the top and slightly less often on the inner lip. Shoulders are often decorated with trailed lines and linear features of punctates around fields of trailed lines. Fields of punctates are evident in some White Rock assemblages (Ritterbush 2006: 160), but these collections have yet to be fully documented. Handles are not extremely common on White Rock pots, but they do exist and are usually strap handles attached at the lip. Temper in White Rock ceramics is most commonly sand or grog with shell in much higher frequencies than in CPt assemblages, but quite low for Oneota standards. Surface treatments separate White Rock ceramics from other Oneota assemblages in the presence of simple stamping (5% at White Rock Site and 14.8% at Glen Elder vs. almost totally absent in Midwest), while most Midwestern Oneota vessels have smoothed exteriors.

Although there is clear ceramic similarity between White Rock and western Oneota types, Logan (1995) claims that there is no evidence for contact between the two groups. Some evidence may exist at other sites such as Leary (Hill and Wedel 1936: 69-71), but more investigations will be required before the nature of the link between White Rock and Oneota can be determined with confidence (*cf* Logan 1995).

Raw Material Acquisition

White Rock Creek, the namesake of the White Rock culture, derives its name from the plentiful outcrops of white to light yellow/brown cretaceous chalk and limestone in the area. Embedded in these Cretaceous deposits are large quantities of high quality silicified chalk known by many names such as Smoky Hill Jasper or Niobrarite that are readily available as nodule or bed surface deposits. Accordingly, the White Rock lithic assemblages are dominated by this Cretaceous material. Limited quantities of extra-local materials, particularly Permian cherts from the Flint Hills and a very few pieces of

Alibates and Obsidian from farther west are also included in White Rock assemblages. In general, the White Rock lithic acquisition pattern is comparable to the White Rock tool production pattern in that is shows a focus on expedience rather than form.

White Rock as an "Intrusive Unit"

Based on these attributes, Ritterbush and Logan (2000) argue convincingly that White Rock represents an "intrusive unit" of Oneota migrants settling in the Central Plains and establishing themselves as a unique cultural unit in the area. Although White Rock does include elements of CPt culture such as similar tool kits, more grit and sand tempered ceramics than Oneota sites farther east, occasional cord marked sherds, and of course geographic setting, these represent technological responses to the shared environmental setting rather than deep cultural similarities. Other features that are likely to reflect cultural heritage more accurately – such as ceramic style, lithic production techniques, economic focus, and community layout – are much closer to Oneota norms and thus signal a group of people with Oneota heritage settling in a new physiographic territory.

Plains Oneota in Nebraska

A total of 23 documented sites in Nebraska include at least some Oneota material, these are listed in Table 4.2. These include CC1, SD 147 (Ashland), RH1 (Leary) and RH70 (a single basin-shaped pit with Oneota ceramics near Leary), sites from the Missouri River trench that have been studied at length by other archaeologists and fall within the westernmost territory of traditionally recognized Oneota territory. This also includes eight sites (NO4, NO11, NO29, NO30, HN39, HN45, HN74, and HO15) that fall within territory that is traditionally considered to be part of the White Rock Aspect.

The majority of the remaining sites include only limited evidence of Oneota presence and have not been documented in detail. The remaining two sites are 25ST1, the Stanton Site, which is discussed in detail in the next section and 25PT111, the Swantek Site which is the focus of this study.

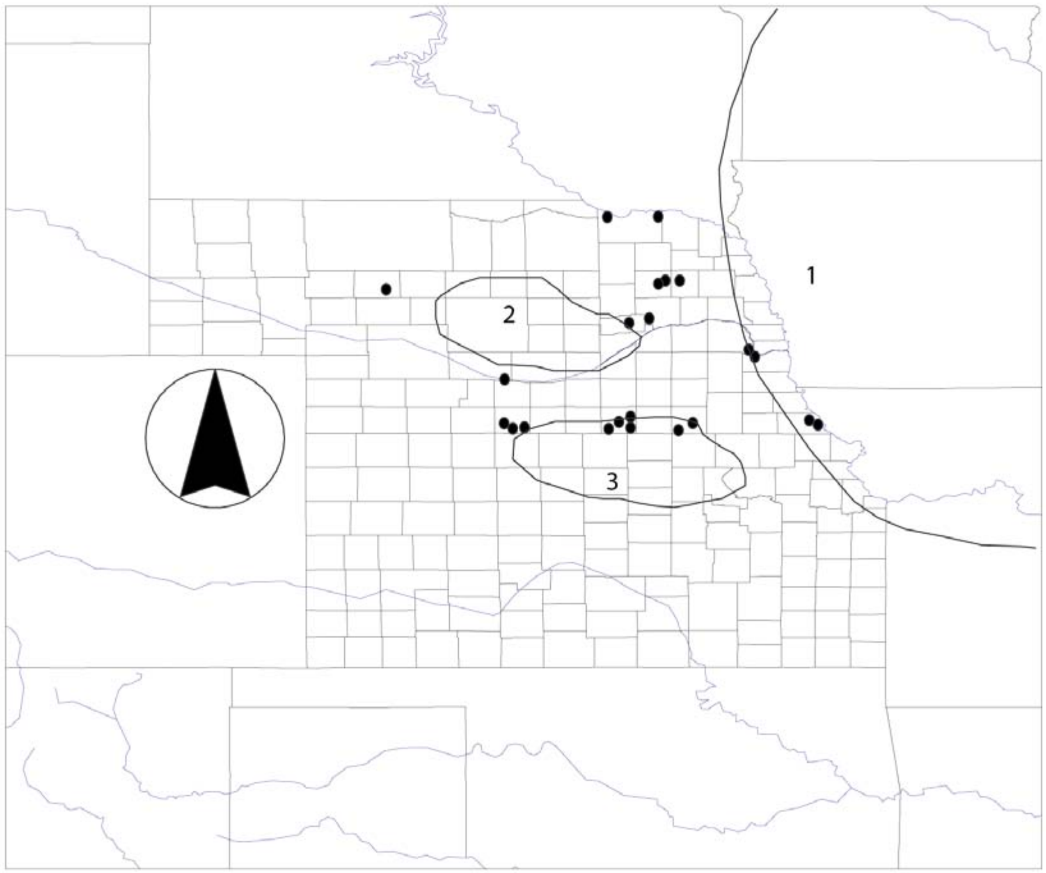


Figure 4.3. Sites in Nebraska and Kansas with known Oneota material.

Table 4.1. Nebraska sites with Oneota materials organized by geographic location. Information taken from Nebraska State Historical Society site files, additional references noted.

Site Number (Name)	County	Comments
RH1 (Leary)	Richardson	Missouri River Trench (Ritterbush 2002)
RH70	Richardson	Single pit with Oneota material; Near Leary; Missouri River Trench
CC1 & SD147 (Ashland)	Cass	Missouri River Trench (Pepperl 2000)
RO1 (Hedges)	Rock	Missouri River Trench
NO4	Nuckolls	White Rock site
NO11	Nuckolls	White Rock site
NO29	Nuckolls	White Rock site
NO30	Nuckolls	White Rock site
HN39	Harlan	White Rock site
HN45	Harlan	White Rock site
HN74	Harlan	White Rock site
HO15	Hooker	White Rock site
KX57	Knox	Mill Creek site with single Oneota sherd found in survey, unexcavated buried features (Blakeslee and O'Shea 1983)
KX9	Knox	Oneota and materials from other cultures (Blakeslee and O'Shea 1987)
DS18	Dawson	Few Oneota sherds, all sand tempered
MD4 & MD5	Madison	Likely one continuous site; Originally identified as Oneota during survey, recent work by Carlson (site file) identifies only CPt structures and materials
JF25	Jefferson	Surveyed, but not collected; Oneota sherds identified as well as house depressions, which may be unassociated
ST1	Stanton	Stanton Site; Omaha site with Oneota component (Gunnerson nd)
NC3	Nance	Wright-Umbarger Site, very large Pawnee village; shell-tempered sherds reported but no longer available; Near Swantek
PT111	Platte	Swantek Site

Stanton

The Stanton Site (25ST1) is a large multicomponent site on the Elkhorn River just west of Stanton Nebraska. Stanton was excavated in 1935 by WPA crews whose notes and collections were synthesized in an undefended masters' thesis by Dolores Gunnerson at the University of Nebraska in 1954. The site primarily represents an early historic Omaha village occupation as well as an earlier Oneota presence in a number of subsurface cache pits. A small amount of cord marked pottery probably representing a Nebraska Phase CPt occupation was also recovered at this site. Unfortunately, due to both soil disturbance and excavation problems, Gunnerson was not able to separate the occupations thoroughly enough to identify sequence of the earlier occupations or any details about the different occupations. A total of 186 cache pits were excavated of which 74 contained ceramics, 50 had ceramics indicating a probably Omaha rather than Oneota affiliation. Forty Five contain pottery definite Oneota pottery, 35 of which five contained shell tempered Oneota pottery as well as sherds that Gunnerson wasn't comfortable classifying as Oneota. Only three contained definite CPt pottery, and the remaining two had pottery that was too badly damaged to identify. Much of the unidentified pottery may well be Oneota given that other Oneota sites this far west of the Missouri River contain much more sand and grit tempered pottery than shell. Stylistically, the Oneota sherds seem to represent a late Developmental and early Classic Horizon occupation with relatively large outcurved lips plain, and decorated on the inside as well as a large quantity of Oneota sherds without shell temper. These attributes are suggestive of the ceramics found at Swantek and in the presence of loop handles and handles connected lower than the lip these sherds are reminiscent of the White Rock assemblage. It seems that this is generally a configuration of formal and stylistic elements characteristic of the Plains Oneota groups, distinct from the constellations of traits more common in the Midwestern Oneota heartland.

Gunnerson, following Wedel suggests that the most likely interpretation for the sequence of CPt and Oneota occupations at the Stanton site is that there was some cohabitation between people of these two groups. This is an intriguing possibility and indeed CPt-Oneota interaction on the western peripheries is one of the greatest unknowns for this time period. However, given the pattern of site reoccupation and reuse by Oneota people in the Central Plains, it seems much more likely that the occupations were sequential rather than simultaneous. There is limited evidence for other positive interactions in the Glenwood locality and also with extended Coalescent peoples on the South Dakota-Nebraska state line, but these are quite the exception rather than the norm. While the resolution at Stanton is unfortunately too poor to be sure of anything, it seems that there was a major Oneota occupation with a slightly earlier and possibly somewhat-overlapping CPt presence. While it is impossible to discern which non-ceramic artifacts are associated with the Oneota component, the quantity and formality of subsurface features suggests that Stanton was a significant long-term Oneota occupation site. It is impossible to say whether Stanton was a permanent village or a more special-purpose site, but a significant amount of energy was invested in it including storage features suggesting a long-term intended use and the quantity of ceramics deposited suggests that a significant occupation in fact happened here.

Wright-Umbarger Site

Stanton and the remaining two Nebraska Oneota sites are the best evidence of a significant independent population of prairie Oneota people in Nebraska similar to but distinct from the far-western Oneota people in the White Rock area. NC3 is the well known Pawnee site known as Wright or the Wright-Umbarger site. Covering at least 90 acres with intensive features including evidence for warfare, Wright-Umbarger is the largest excavated Pawnee site and a classic example for Pawnee archaeology. However, Oneota materials were identified during two separate field expeditions. George Lamb who did the initial excavations in 1936 mentions two separate features containing shell-tempered Oneota materials on the southern portion of the site, on land then owned by the Krcyzki family. Lamb seems to indicate that rather than isolated artifacts, there were features representing an earlier Oneota occupation. In 1957 (field notes NSHS), Marvin Kivett also excavated a pit feature that included "shell sherds" at Wright-Umbarger. These sherds could not be found at NSHS during my initial search, so it is not possible to state how they compare with other known Nebraska Oneota sites, but given the proximity to Swantek and the apparent presence of formal subsurface features, it is possible that the southern edge of NC3 was once part of the prairie Oneota settlement that left Swantek and possibly Stanton.

<u>The Swantek Site and Patterns in Nebraska Oneota Archaeology</u>

The final Oneota site identified in Nebraska is 25PT111, the Swantek Site of the old channel of Looking Glass Creek on the first and second terraces above the Loup River just east of Genoa. Full description of Swantek is the subject of this study and more detail is outlined in Appendix 3.

We are just beginning to understand the Oneota communities in Nebraska, but it is clear that there are at least three distinct communities represented – traditional western Oneota communities along the Missouri River Valley, White Rock prairie Oneota people in south-central Nebraska, particularly around the Harlan County Reservoir area, and another separate prairie Oneota population located around the Swantek site as well as possibly Stanton and the Oneota materials on the Kryczki portion of the Wright-Umbarger site. In addition, Oneota materials are found in nominal quantities at a number of other sites across the state indicating some amount of interaction with other Plains peoples during the later Developmental Horizon.

Chapter 5

Investigating Ethnogenesis at the Swantek Site

Models Explaining Oneota Presence in the Central Plains

As discussed in the previous chapter, traditional models of Central Plains culture history suggest that significant climatic changes around AD 1150 caused localized droughts and drove the bison herds into other regions (Bryson et al. 1970). The model further suggests that CPt populations followed them out of the area, effectively creating a period of cultural hiatus (Bryson and Baerreis 1968). As noted in the previous chapter however, the Central Plains were not completely abandoned during this period; Oneota materials have been observed in the White Rock Region since the 1950s (Rusco 1960; Marshall 1969; Neuman 1963), and a set of competing ideas have been put forth to explain that (e.g. Henning 1970; Fishel 1999; Ritterbush 2002, 2007; Ritterbush and Logan 2000). The presence of ceramics with clear Oneota influence at the Swantek Site brings those competing models back into focus.

CPt Emulation Model

One scenario that could explain the presence of Oneota materials in the Central Plains is emulation. This model suggests that lingering CPt people in the White Rock region simply adopted elements of Oneota ceramic manufacture and decoration and thus the apparent presence of Oneota populations in the region is illusory. This scenario is not widely considered plausible because the evidence for Oneota culture goes far deeper than simple ceramic similarities (Ritterbush and Logan 2000; *contra* Rusco 1960: 75) and it will not be considered here at length.

Oneota Hunting Territory Model

The remaining scenarios, however, are still under active consideration. The first model suggests that Oneota people took advantage of the vacant Central Plains during the Developmental Horizon, during which they were expanding into new areas throughout the Midwest and beginning to use prairie resources more extensively. During this time, they took advantage of the newly-vacant Plains as a hunting territory where they set up temporary extractive camps that were periodically visited by expeditions from home villages along the Missouri River such as the Dixon site. This model is particularly supported by Henning (1970), Fishell (1999), and other archaeologists with a focus on the Midwest. It is largely predicated on the suggested environmental change discussed above (Bryson et al. 1970) and therefore this model continues to cast the Central Plains as inhospitable to long-term settlement during the thirteenth and fourteenth centuries. Significantly, it also views the entry of Oneota people into the Plains as a peaceful event since the region would have been abandoned previously. Thus the Oneota hunting territory model does not predict significant interaction between CPt and Oneota people.

Oneota Migration and Settlement Model

Other archaeologists, particularly those whose focus is on the Central Plains region such as Ritterbush and Logan (Logan 1995; Ritterbush 2002, 2007; Ritterbush and Logan 2000), have disputed that model. Instead they suggest that the White Rock sites represent long-term settlement by Oneota people in the Central Plains and at least partial replacement of indigenous CPt communities by these Midwestern migrants. Logan

(1998) has further suggested that the evidence for violence during this period of transformation and the simultaneous changes to Itskari resource acquisition strategies may indicate that the abandonment of the region by CPt people was not entirely motivated by environmental change and economic stress. Instead they suggest that Oneota immigration may have been partially aggressive and this social factor may have influenced the CPt abandonment. This model of long-term settlement has gained acceptance in the past 15 years due largely to the work of Ritterbush and Logan (Logan 1995, 1998; Ritterbush 2007; Ritterbush and Logan 2002) and the evidence from the Swantek Site may further support this model.

If the Plains Oneota sites in fact represent long-term occupation by migrants from the east, the model outlined in Chapters 2 and 3 offers a way to further investigate the processes behind this migration. Using that model, the creation of Oneota communities in the White Rock and Swantek areas can be evaluated to determine whether they were created through a process of passive or active ethnogenesis.

Thus, four basic explanatory models for the presence of Oneota materials in the Central Plains will be examined in the coming chapters: 1) local emulation of Oneota material practices by resident CPt populations, 2) CPt hiatus followed by occasional Oneota forays into the region for extraction purposes, 3) migration and long-term settlement of Oneota people in the Central Plains and the establishment of new social networks through a process of *active* ethnogenesis, and 4) migration and long-term settlement of Oneota people in the Central Plains and the establishment of new social networks through a process of *passive* ethnogenesis.

Investigating the Models

The different uses of the Central Plains implied under the emulation, hunting camp, and settlement models allow for a basic formal analysis to discriminate between them. Further, in this study, we wish to move beyond these basic analyses and into a more fundamental question, if the Swantek Site represents a substantial long-term settlement of Oneota people in the Central Plains, what sort of processes drove this? Was one of the models of Ethnogenesis outlined in Chapter 2 responsible for the creation of a novel social network? The fundamentals of those models allow these questions to be investigated directly. When societies go through processes of migration and community formation, other important factors influence their material culture patterns. As laid out it Chapters 2 and 3, patterns of material similarity and difference are not random nor accidents of history. The particular patterns of similarity and difference can be analyzed to determine exactly what sort of historical relationship exists among prehistoric communities that can be demonstrated to share an historical link.

The unique predictions of each model considered here are tabulated in Table 5.1.

Settlement and Economy

The emulation model suggests that Plains sites with Oneota materials represent CPt communities that adopted select elements of Oneota stylistic behavior. Therefore, it predicts relatively few changes to the basic patterns of behavior. Such fundamental characteristics as community size and organization and subsistence economies are expected to remain similar to earlier patterns with very few archaeologically visible changes. Under the hunting camp model, the presence of Oneota people in the region would be quite temporary and task-oriented. Thus this model predicts that Plains Oneota sites like Swantek should include relatively small settlements with temporary features focused on only extractive activities. The settlement model, however suggests that these sites should be quite substantial, effectively representing a full-sized Midwestern Oneota community occupied with a wide array of pursuits and only minor modifications of settlement, architecture, and technology to adapt to the unique environmental conditions of the prairies.

Geography

The role of geography in the emulation and hunting models is minor. Under the emulation model, Plains Oneota sites represent vestigial CPt communities that have adopted superficial elements of Oneota stylistic behavior *in situ*. Thus it is simply predicted that these sites will be found in territory that continues to be part of CPt territory, which is already taken as a given. Under the Oneota hunting camp model, the role of geography is in expanding Oneota territory to include areas that were previously under the control of CPt people. Again, it is already known that these Plains Oneota sites are found within territory that was previously occupied by CPt people so there are no unique predictions of this model for this study.

The passive and active models of ethnogenesis, however, make distinct predictions about the dimension of space that should be involved in each. Under active ethnogenesis, the relevant process involves a sudden increase in the social distance between social units that were previously integrated and an emerging pattern of interaction that serves to maintain them as distinct groups. This can happen over any amount of geographic distance including very short distances since the important variable is social distance. Passive ethnogenesis on the other hand involves the accumulation of social distance created by drift that is ultimately driven by practical limitations to interaction and therefore it most often involves great geographic distance. Other factors such as sudden changes in the natural or social environments, the sudden invasion of a hostile population or a major flood for example, can also present barriers to continued interaction and the maintenance of a single organizational syntax, but in all of these cases, compelling evidence for a practical barrier is expected.

Thus in the case of models for ethnogenesis creating a new Plains Oneota community, it is expected that the passive case will be considered possible if there is significant distance between Plains and other Oneota communities on a scale that is great enough to have prevented continued regular interaction among the groups. Active ethnogenesis as the driving factor for Plains Oneota communities does not present any a priori prediction of distance and will be considered possible if a relatively short distance can be found between Plains and Western Oneota territories.

Interaction

After geographic distance, interaction provides the next area for distinguishing between these models. Under the emulation model, the fundamental elements of CPt life are expected to remain similar to earlier periods, meaning that CPt communities should show evidence for substantial interaction within localities and limited interaction among CPt localities. The CPt emulation model does not predict substantial interaction with non-CPt communities, although a limited amount of this might be a possible explanation for the emergence of non-CPt material patterns. Under the Oneota hunting camp model, it is expected that Plains Oneota sites will show evidence for interaction with people in the Midwest because they themselves are people from the Midwest under this model. In particular it is expected that non-local tool stone distributions will favor Midwestern sources with local materials, particularly Niobrarite, also being used expediently. It is not expected that Oneota hunters in the Plains would adopt lithic acquisition patterns that focus on materials substantially outside of their home territories or this new hunting territory in the Central Plains.

Under the active ethnogenesis model, community ties are actively broken through cessation of regulated interaction (central to the definition of community laid out in Chapter 2) regardless of physical distance between communities. Thus it would be expected that a case of active enthogenesis behind the origins of a Plains Oneota community would result in a conspicuous absence of evidence for trade between Plains and Midwestern Oneota communities. There should be no sharing of lithic materials, pipestone, or other geographically restricted items between the Plains and Midwestern groups.

The passive model of ethnogenesis also predicts a decreasing amount of interaction between Plains and Midwestern Oneota communities as this reduction of regular interaction is what allows for social drift to drive the societies apart. Under the passive model, however, it is not necessarily expected that interaction would cease entirely. In fact, it is possible that communities resisting the effects of drift would attempt to intensify interaction in order to stave it off. Thus under the passive model of ethnogenesis, it is expected that limited interaction between Plains and Midwestern Oneota communities would be observed at or slightly above levels predicted by geographic distance alone.

Socially Significant Symbols

Material symbols with deep social significance provide a potentially fruitful avenue for investigating these models. It has been argued elsewhere that certain Oneota ceramic motifs are stylized versions of social symbols related to widespread cultural traditions involving thunderbirds, serpents, and other mythological and natural creatures (e.g. Benn 1989; Link 1995). The particular form of these motifs and their consistent use at Oneota sites from a very large area and through a long span of time has been taken to mean that these were more than simple decoration and held important social meanings that related to enduring religious or cultural traditions. Benn (1989) has argued further that these symbols were related to internal social divisions or segmentation and that these symbols were important markers of emerging factions when Oneota populations went through major internal transformations leading to a moiety system and nascent rank system in the Protohistoric period. In addition to these arguments, Oneota ceramic motifs fit the predictions laid out by Wobst (1977) for elements of material style that are likely to be relevant in social boundary maintenance. These ceramic elements are standardized, simple allowing for quick interpretation, and highly visible. As will be discussed at more length below, Oneota ceramic motifs also appear to be used in discrete patterns among spatially discrete local communities and more evenly within them. Thus ceramic motifs provide an excellent window into social processes and boundaries in prehistoric Oneota archaeology.

Compared to Oneota ceramics, CPt assemblages provide relatively little iconography that has been argued to carry deep cultural significance. Particular artifact types such as CPt elbow pipes may be significant for ritual and large CPt cemeteries are likely related to community identity (Roper 1995), but CPt ceramics are not typically decorated with motifs thought to relate to internal social divisions or mythology as Oneota pots are (Benn 1989; Link 1995). Thus it is expected under a CPt emulation model that CPt patterns would continue with elbow pipes, group burials, and a lack of strong patterning in ceramic motifs. The Oneota influence in Plains ceramics within the White Rock area and at the Swantek Site may carry symbols that were significant for Oneota people, but if they were being emulated by CPt craftspeople, it is unlikely that they carried the same significance and thus would be expected to become generalized and demonstrate substantially different patterns than at Midwestern Oneota sites.

Under the Oneota hunting camp model, Plains sites with Oneota ceramics reflect communities with permanent homes in the Midwest that utilized the area for brief periods. Thus it is expected that the use of deeply significant symbols at these hunting camps should be very similar in pattern to the use at the home communities. The hunting camp model therefore predicts that Plains Oneota assemblages will be statistically similar to some Midwestern sites in terms of the diversity and frequency of these ceramic motifs.

One of the predictions of the active model of ethnogenesis is that people attempting to create a new social boundary will emphasize social distance by increasing the frequency and visibility of socially significant symbols. Given the apparent significance of ceramic decoration in Oneota society, this means that Oneota people going through active ethnogenesis would be expected to decorate pots more frequently and more visibly than they would under a situation of no ethnogenesis or passive ethnogenesis. Specifically, it is expected that a Plains Oneota community that was created through an active process of ethnogenesis would mark the emerging social boundary with a discrete set of socially significant ceramic motifs representing a subset of those present at Midwestern Oneota sites. It is therefore expected that if the active model accounts for the creation of the Swantek Site, Swantek's ceramics should include visible patterns of fewer overall motifs than Midwestern assemblages and there should be a more significant stylistic boundary between Plains and Midwestern Oneota communities than there are between individual Midwestern Oneota sites. If the particular social distinctions that were relevant in the historic period were already serving as lines of cleavage during the Developmental Horizon, this may be represented in the discrete usage of water (curvilinear) or thunderer (chevron and filled triangle) motifs within the new Plains Oneota assemblages. It is expected also that the particular motifs would represent a smaller overall group of elements than those employed in the larger group, reflecting the nature of the split as a splintering phenomenon. It is thus expected that statistical analysis of the frequency and diversity of motifs used by the migrant community would show increased use of a lower number of overall motifs under the active model.

Under the passive ethnogenesis model on the other hand, it is expected that the new community took with it a representative sample of the overall motif set used in other Western Oneota communities, but that over time these developed into a new local tradition. Thus it is predicted that a passive case of ethnogenesis would be detectable to archaeologists in the form of statistical similarity in both the frequency of decoration and also the diversity of motifs used when adjusted for assemblage size. It is expected that particular motif categories in the migrant community would show a large degree of overlap with the motifs used in the home area.

These predictions are tabulated in Table 5.1. They will be tested in the following chapter in order to determine which of the proposed scenarios most likely resulted in the presence of Oneota ceramics at the Swantek Site.

Table 5.1. Predictions of models explaining Oneota ceramics at Swantek Site.

Evidence/Model	CPt emulation	Oneota Hunting	Active Ethnogenesis	Passive Ethnogenesis
Architecture/ site layout	Earthlodges, small hamlet reflecting small communities; four centerpost lodges	Temporary structures, not CPt style; possibly limited types of features	Oneota style settlement – large, less substantial structures, scattered posts and features	Oneota style settlement - large, less substantial structures, scattered posts and features
Economy	CPt economy: gardening, local hunting	Restricted set of activities: hunting and processing only	Oneota economy: bison focal	Oneota economy: bison focal
Exchange	Limited and Plains focal	Very limited: materials represent local and Midwestern sources, what would be brought and what could be obtained locally	Materials from Midwestern sources conspicuously absent	Wide range of sources, including Midwestern
Ceramic Technology	CPt technology with superficial Oneota similarities	Oneota ceramics very similar to Midwestern communities	Oneota technology, possibly adapted to locally-available materials	Oneota technology; possibly adapted to local materials
Lithic Technology	CPt assemblage: corner notched points, long scrapers, beveled knives	Limited Oneota assemblage: triangular points and variable scrapers, emphasis on bison processing tools	Typical Oneota assemblage: triangular points and variable scrapers	Typical Oneota assemblage: triangular points and variable scrapers

Socially Significant Motif Presence	Unpatterned use of motifs devoid of social significance; lower total number of motifs than Midwestern Oneota assemblages and in unusual combinations	Reflect same set of motifs and patterns as Midwestern community from which they came	Limited set of motifs present in Swantek Site, statistically fewer overall motifs present than in Midwestern Oneota assemblages; Statistically distinct motif traditions	Wide array of motifs present, statistically similar to number of motifs found in Midwestern communities of similar size; statistically similar decorative traditions
Use of Socially Significant Motifs	Unpatterned frequency of motifs; unusal combinations and frequencies	Pattern similar to Midwestern sites	Frequent use of particular motifs that are significant to social division and absence of others at Swantek; A statistical break between motif frequency at Swantek compared to Midwestern sites, Swantek focusing disproportionately on some motifs	Pattern of motif frequency at Swantek similar to Midwestern sites; no statistical distinction between frequencies of particular motifs at Swantek and Midwestern sites

Identifying Social Boundaries

Following the models laid out in previous chapters, an archaeological investigation of ethnogenesis must begin by identifying relevant social boundaries through evidence of interaction and integration. For the Swantek Site, this means determining whether Swantek was participating in regular interaction for integrational purposes with other Oneota communities in the Midwest, CPt communities in the Plains, or independently of both of them.

Exchange

Sourceable lithic materials provide an easy avenue for investigating exchange in the American Midcontinent and the evidence at Swantek suggests limited interaction by its inhabitants with contemporary Midwestern Oneota groups or the scattered CPt populations remaining on the Plains at during the 13th and 14th centuries.

Raw material distributions at the Swantek site clearly point to local acquisition for most lithic toolstones. Out of 5,069 pieces of debitage collected, nearly 80% come from Cretaceous Niobrarite sources (Table 5.2). Outcrops of Niobrarite are available throughout the central Plains region, with the largest concentration in north-central Kansas near the White Rock sites (Figure 5.1). Outcrops are also available, however in Nance County very near the Swantek site, particularly on Beaver Creek just south of Genoa. The dark brown color that dominates the Swantek assemblage is the most common color of Niobrarite and does not allow definite sourcing of a resolution sufficient to characterize the collection as local or coming from the White Rock area, but qualitative analysis suggests that the Swantek assemblage is primarily of local origin. The materials in the Swantek collection are generally low quality with a high frequency of cortex and internal imperfections. This tendency for relatively low quality is also observed in the Niobrarite that can be found along Beaver Creek and other sources in Nance and Platte Counties. The sources in Republic and Jewel Counties Kansas (the White Rock area), on the other hand tend to be more pure and consistent in texture. This qualitative assessment along with the proximity of jasper sources is consistent with short-range acquisition rather than long-distance exchange.

Table 5.2. Raw material distributions for all tools and debitage

Raw Material	Tools N	Tools %	Debitage N	Debitage %	Tools and Debitage N	Tools and Debitage %
Niobrarite	251	63.4%	4036	79.6%	4287	78.4%
Permian	98	24.7%	300	5.9%	398	7.3%
Pennsylvanian	2	0.6%	135	2.7%	137	2.6%
Gravel	11	2.8%	159	3.1%	170	3.1%
Bijou Hills Quartzite	14	3.5%	300	5.9%	314	5.7%
Hartville	3	0.8%	4	0.1%	7	0.1%
Sioux Quartzite	2	0.5%	25	0.5%	27	0.5%
Plate Chalcedony	2	0.5%	0	0.0%	2	<0.1%
Petrified Wood	1	0.3%	0	0.0%	1	<0.1%
Basaltic Gravel	0	0.0%	25	0.5%	25	0.5%
Agate	2	0.3%	8	0.2%	10	0.2%
Indeterminate	11	2.8%	77	1.5%	88	1.6%
Total	397	100.0%	5069	100%	5466	100.0%

Figure 5.1. Source areas for major non-gravel toolstones found at the Swantek Site. A - Niobrarite; B - Permian; C - Bijou Hills Quartzite; D - Pennsylvanian; E - Sioux Quartzite; F - Hartville Chert. Location of Swantek Site marked with black dot. (adapted from Anderson 1978; Fishel 1999: Figure 4.1)

After Niobrarite, the next most frequent material type in the Swantek debitage assemblage is Permian cherts from the Flint Hills of central Kansas (n=300 5.9% total debitage). Bijou Hills quartzite debitage, sourced to the Dakotas and north-central Nebraska, is present in the same frequency as Permian cherts (n=300 5.9%). Bijou Hills quartzite is generally preferred for heavy chopping tools rather than sharp cutting tools for which the finer cherts are preferre. Since heavy chopping tools tend to be less common, lower overall frequencies of quartzite are expected and the quantity observed in this collection is significant.

Altogether, this suggests that raw materials were collected locally with some coming from the west and north as well. Large quantities of materials were not brought in from the Oneota heartland to the east where Pennsylvanian and Mississippian deposits are common; Pennsylvanian materials only account for 2.7% of debitage and less than 1% of tools, and Mississippian aged stones are not present at all in this assemblage. This suggests that any contact with the Midwest was limited to the western edge along the Missouri River trench in western Iowa where Pennsylvanian and quartzite sources are available. The distances from Swantek to these Permian, Pennsylvanian, and quartzite resource areas are roughly equivalent, so acquisition of them would be likely in the case of regular travel or contact with people from the resource areas.

Looking specifically at formal tools, similar patterns hold (Table 5.3). Here, Permian sources are slightly more common, accounting for 98 (24.7%) tools. Bijoux Hills quartzite is slightly less common with only 14 tools identified as this type of stone (3.5%). If the people at the Swantek site had contact with people at great distances in any direction, this did not result in significant movement of toolstones.

Table5.3. Raw material frequencies among tool types. Upper number is n, lower number is percentage of tool type.

	Agate	Bijoux Hills Quartzite	Gravel	Niobrarite	Hardville	Pennsylvanian	Permian	Petrified Wood	Chalcedony	Sioux Quartzite	Unknown	Total
Knife	0 0.0	1 5.3	1 5.3	12 63.2	1 5.3	0 0.0	4 21.1	0 0.0	0 0.0	0 0.0	0 0.0	**19** **5.5**
Retouched Flake	0 0.0	2 2.5	2 2.5	59 72.8	0 0.0	1 1.2	15 18.5	0 0.0	0 0.0	0 0.0	2 2.5	**81** **23.4**
Misc Biface	1 50.0	0 0.0	0 0.0	1 50.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**2** **0.6**
Burin	0 0.0	0 0.0	0 0.0	1 100	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**1** **0.3**
Core	0 0.0	0 0.0	1 10.0	6 60.0	0 0.0	0 0.0	2 20.0	0 0.0	1 10.0	0 0.0	0 0.0	**10** **2.9**
Drill	0 0.0	0 0.0	0 0.0	1 100	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**1** **0.3**
Scraper	0 0.0	2 2.3	8 9.2	41 47.1	2 2.3	0 0.0	31 35.6	0 0.0	1 1.1	0 0.0	2 2.3	**87** **25.1**
Misc Tool Fragment	1 3.3	3 10.0	2 6.7	16 53.3	0 0.0	0 0.0	6 20.0	0 0.0	0 0.0	1 3.3	1 3.3	**30** **8.7**
Point	0 0.0	0 0.0	1 2.0	35 71.4	0 0.0	0 0.0	10 20.4	1 2.0	0 0.0	0 0.0	2 4.1	**49** **14.2**
Utilized Flake	0 0.0	3 4.7	5 7.8	39 60.9	0 0.0	0 0.0	15 23.4	0 0.0	0 0.0	0 0.0	2 3.1	**64** **18.5**
Wedge	0 0.0	0 0.0	0 0.0	1 50.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 50.0	0 0.0	**2** **0.6**
Total	**2** **0.6**	**11** **3.2**	**20** **5.8**	**212** **61.3**	**3** **0.9**	**1** **0.3**	**83** **24.0**	**1** **0.3**	**2** **0.6**	**2** **0.6**	**9** **2.6**	**346** **100**

Niobrarite is more dominant among points than any other tool type, suggesting that these were usually manufactured locally. This means that the simple triangular style of these points reflects local manufacture almost without a doubt.

Knives show the same distribution as the overall assemblage with a heavy emphasis on local Niobrarite and a significant minority of toolstone coming from Permian sources to the south and west in the Flint Hills. Among bevelled or Harahey knives, however, the pattern is less local. Of the four beveled knives, only one could be definitely sourced and it is a cretaceous stone. Another is identified as either cretaceous or heavily silicified wood, and the remaining two are of unidentified brown materials. These characteristic Great Plains tools may have been traded into the site or transported from off site locations.

Scrapers are the only tool category that shows a significantly different raw material distribution with a much more heavy focus on Permian sources (38.3% of scrapers). Scrapers may have been brought to the Swantek Site from the Southwest, perhaps as part of an embedded hunting strategy. Still, the dominant material type for scrapers is local Niobrarite. This extra emphasis on Permian sources for scrapers was also found by Logan at the White Rock Site (1995: 70) as discussed in a previous chapter.

Cores and rough preforms are most commonly made of Niobrarite at the Swantek site, but four cores of other materials were collected. Core fragments were identified in Nehawka Chert (Pennsylvanian), Plate Chalcedony, and Permian cherts. The final core fragment is of an unidentified green chert with a highly weathered cortex that likely came from local gravel deposits. The non-local cores tend to be rather small, with the largest of them being the Nehawka core, weighing only 74.5 g. This suggests that small pieces of unworked stone were occasionally acquired non-locally, but only in small quantities. The main focus of lithic tool stone acquisition for the people at the Swantek Site was local deposits of Niobrarite and occasionally gravels.

In sum there is little evidence to suggest that the people at the Swantek Site were using lithic exchange as a regular mechanism for interaction with Midwestern Oneota people or local CPt populations. There is limited evidence for nonlocal toolstone acquisition including materials that came from within the Oneota homeland, but the greatest evidence for non-local acquisition points southwest to the White Rock area. If Swantek's inhabitants had regular trade relationships with any other contemporary group, the Plains Oneota White Rock societies are the most likely candidate.

Lithic Acquisition Contrast

Comparing the lithic acquisition pattern from Swantek with nearby CPt sites indicates a unique pattern. Herman and Peterson (1996) compare lithic source distributions from Itskari phase CPt sites in the Loup River drainage and find a surprising amount of material from sources far to the northwest including Hartville cherts and White River group silicates sourced to eastern Wyoming and western South Dakota. In addition to this pattern of using distant western lithic resources one Itskari site near Swantek, 25NC29, produced significantly more of this far western material than the very nearby Niobrarite. Herman and Peterson suggest that this may indicate a temporal trend toward more emphasis on non-local materials within the Itskari tradition (1996:103-104). Considering the unusual focus on non-local materials for Swantek's nearest CPt neighbors and the apparent increase in focus on western materials in later sites of the area, there seems to be evidence of avoidance by CPt people of Plains Oneota populations. This suggests a fairly firm social boundary and active avoidance of interaction between Itskari and Plains Oneota people.

Table 5.4. Raw material sources for nearby sites as percentage of total count including tools and debitage. Itskari data from Herman and Peterson 1996.

Site/Material Source	Swantek	25MK15	25NC29
Smoky Hill	78	29	13
Permian	7	8	5
Hartville	>1	10	2
White River Group	-	5	36
Cobble	4	<1	19
Other including unidentified	11	48	25

The hunting camp model presented by Henning (1970) and Fishell (1999) might predict expedient use of local toolstones, but it would also be likely that hunters from the east would bring with them some quantities of eastern cherts. The evidence from lithics alone is not enough to make final conclusions about this model but they do not provide immediate support to it.

Other information, however tends to support an understanding of the Swantek Site as a long-term settlement. The presence of architecture on the site may also be equivocal regarding the question, but it at least suggests a significant investment of energy in the site consistent with a long-term strategy of occupation and reuse. Western Oneota architecture is less substantial than CPt houses, but the presence of a post-mold pattern and artifact patterns indicating a differentiattion of interior and exterior space suggests the presence of a structure in the excavated portion of the Swantek Site. This is the most substantial evidence for architecture at any Plains Oneota site and indicates that Swantek was at least as permanent as the White Rock villages.

Ceramics

Ceramics have traditionally been used to identify the various archaeological cultures under investigation in this study and thus they are a useful artifact type to begin situating the Swantek Site. In total, 9,943 ceramic artifacts were recovered from the Swantek Site (Table 5.5) and they show significant Oneota influence.

Table 5.5. Ceramic type distribution

Ceramic Type	**n**	**%Total**
Analyzed Body Sherd	5899	59.3%
Unanalyzed Body Sherd	3787	38.1%
Rim	244	2.5%
Handle	13	0.1%
Total	**9943**	**100.0%**

As discussed in Chapter 4, Plains archaeologists typically consider shell temper to be an important sign of cultural connection with the Eastern Woodlands. More recent investigations (Roper et al. 2010) however suggest that it may also be related to technological factors such as availability of high-quality fuel for firing. Shell or other calcium tempering is present in approximately 10% of all analyzed sherds from the Swantek Site, making it similar to the White Rock collections as a whole (Logan 1995: 63-64) (Table 5.6). Grit and sand account are found in the vast majority of tempered sherds (over 89% of analyzed body sherds fall into these temper categories), with both grit and shell found in only three body sherds. Grog and other tempering agents are absent from the Swantek assemblage. This ratio of shell to sand or grit temper is significantly lower than traditional Oneota assemblages in the Midwest, higher than most CPt assemblages, and similar to Logan's ceramic analysis at White Rock (1995).

Table 5.6. Percent shell or calcium tempered sherds in assemblages near Swantek. White Rock number averaged from studies ranging 0-42%.*

Site	Culture	Percent Shell or Calcium Tempered Sherds	Reference
Swantek	-	10	Appendix 3
Dixon	Western Oneota	98	Fishel 1999: 64
White Rock	White Rock	5.7*	Logan 1995: 64; Rusco 1960; Neuman 1963
Patterson	Upper Republican CPt	6.5	Bozell and Ludwickson 1999:38
Tahaksu	Itskari CPt	0	Peterson 1996

Body sherds at the Swantek Site are typically smoothed, sometimes with traces of simple stamping present through the smoothing, and only ten sherds included indications of cordmarking. Non-lip decoration of the Swantek ceramics is most often found on the shoulders (n=805, 13.6% of analyzed body sherds include decoration), occasionally extending into the lower portion of the rim. Decorative motifs are typically formed by trailed linear motifs with punctates present on many sherds (n= 33, 4.1% of decorated body sherds include some kind of punctates). Common identifiable motifs include nested opposed triangles, chevrons, and groups of parallel or opposed straight lines. Curvilinear motifs are present but uncommon (n=2, 0.25%% of decorated sherds include curvilinear elements) (See appendix 1 for decorative motifs with counts). This pattern of smoothed surfaces with trailed decoration reflects the Oneota tradition of surface treatment rather than the CPt tradition of cord marking.

One vessel from the Swantek Assemblage was reconstructable to an extent that allowed the overall vessel form to be evaluated. It is a low globular vessel with two strap handles attached near the top of the low, flaring rim (Figure 5.2). Other sherds from the assemblage are from vessels of similar form, with no sherds from large connoidal vessels typical of the CPt and a few apparently coming from roughly made miniature vessels.

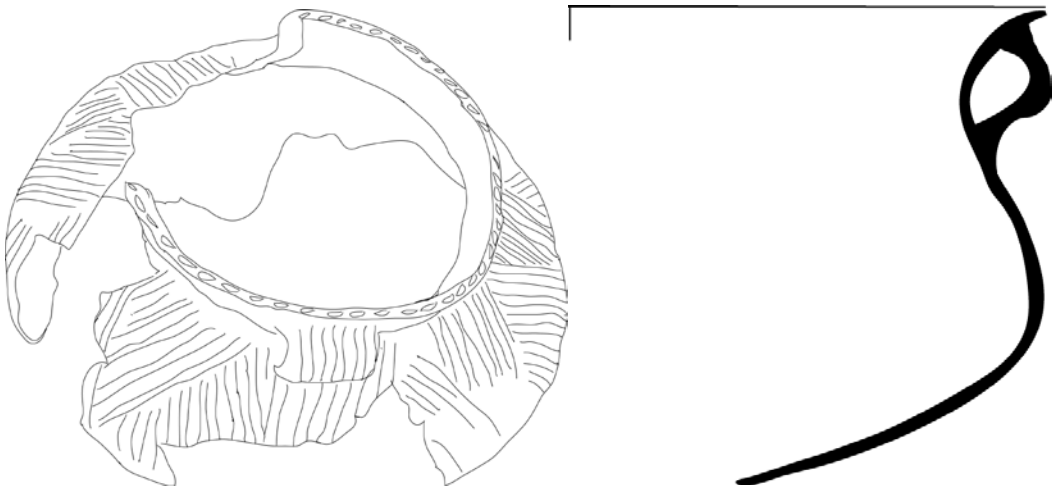


Figure 5.2. Line drawing and profile of partially reconstructed vessel. Top line of profile shows 7.5 cm radius (15 cm diameter).

All of the rim sherds present in the Swantek assemblage are from low, flaring to straight rims with no collared, braced, or cloistered rims represented at all (Figure 5.3). Lip decoration is most often found on the interior of vessel lips (n=161) and occasionally to the top of vessel lips (n=34). Rim exteriors are very rarely decorated (n=15) with trailed line or punctate motifs. These decorations often include portions of lip top decorations that have spilled over onto them. Lip decorations are typically punctates or short, deep trailed lines applied repeatedly at angles, forming a continuous ring of tool impressions around the vessel lip (see appendix 1 for lip decoration motifs and counts). Three sherds are highly polished and may include traces of slip, but pigment is otherwise absent. Lip form tends to be round with some vessel lips flat and very few beveled or flanged (Table 5.7).

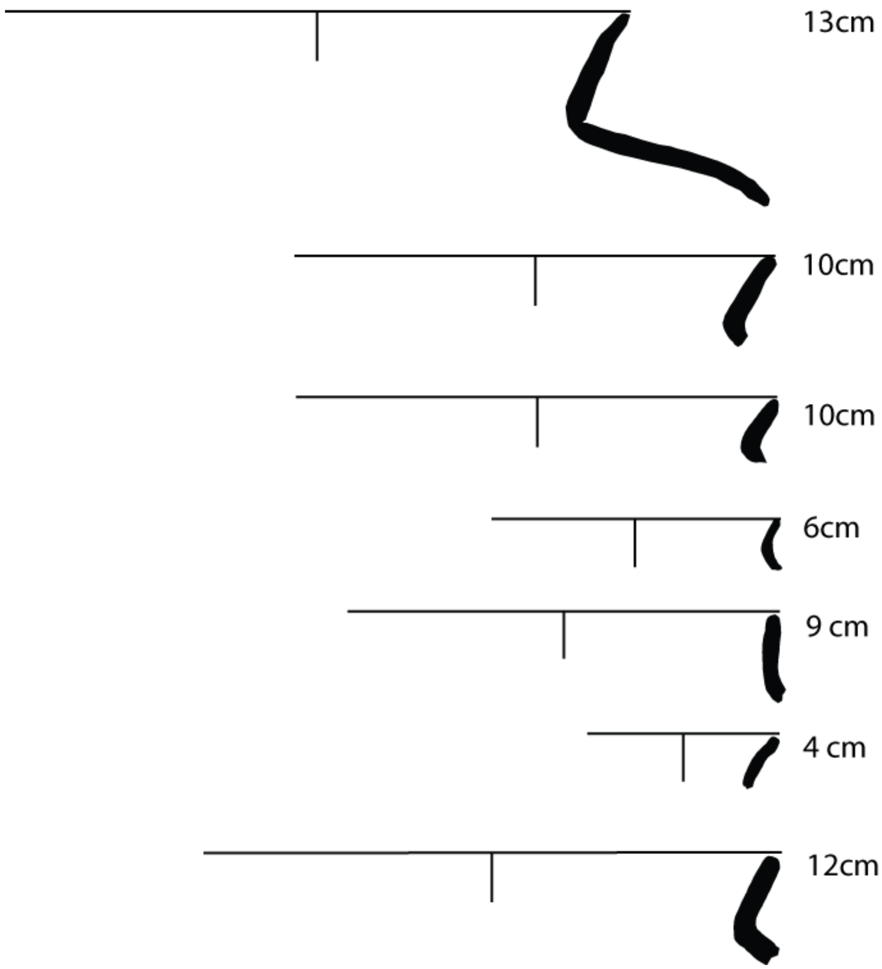


Figure 5.3. Selected rim profiles with diameter estimates.

Table 5.7. Lip form for all Rims

Form	**N**	**% of Total**
Beveled	2	0.8%
Flanged	1	0.4%
Flat	30	12.3%
Indeterminate	6	2.5%
Round	205	84.0%
Total	244	100.0%

Vessel size as measured by rim radius ranges from two to 15 cm with an average of 8.3 cm, suggesting that these tend to be relatively small vessels with some miniatures present at the lower end of the range (Figure 5.4). Rims are also fairly thin with an average rim thickness of only 5 mm (Figure 5.5). Rims are typically high and flaring, with an average angle between rim and neck of approximately 60 degrees (Figure 5.6) and average height of 17.2 mm (Figure 5.7). This degree of flaring is notably greater than that typical for the Walnut Decorated Lip type typical in White Rock assemblages (Rusco 1960).

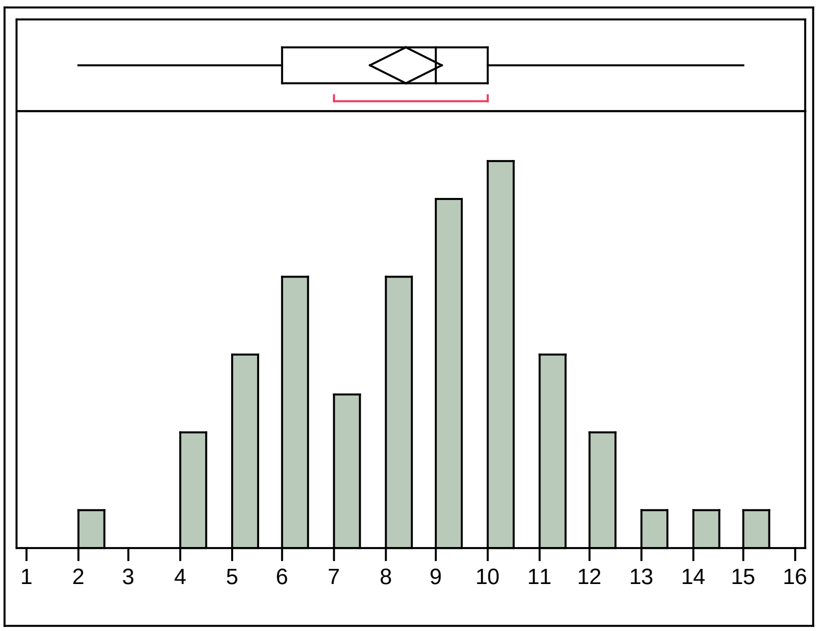


Figure 5.4. Rim radius for all rims

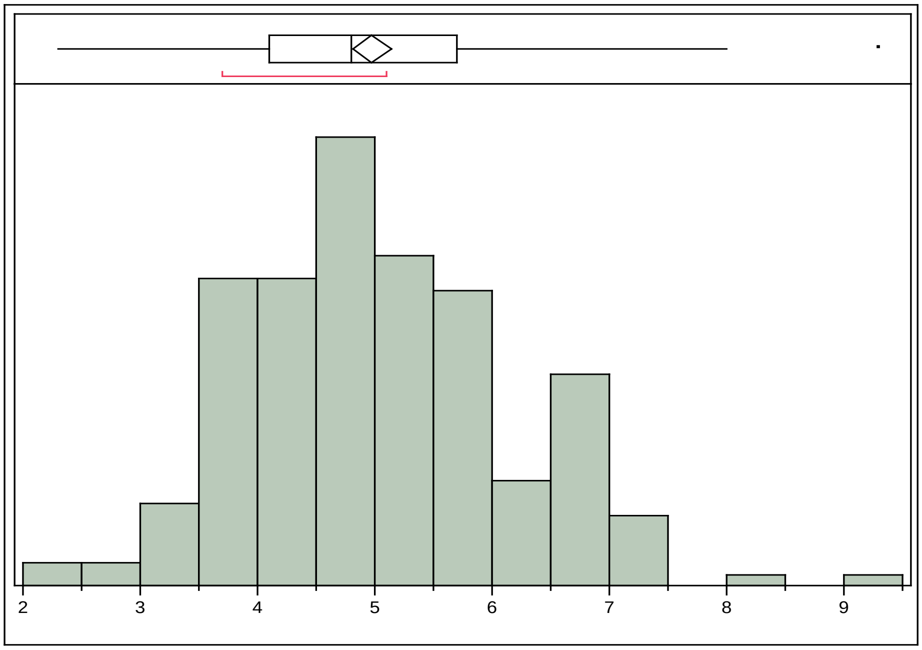


Figure 5.5. Rim thickness for all rims

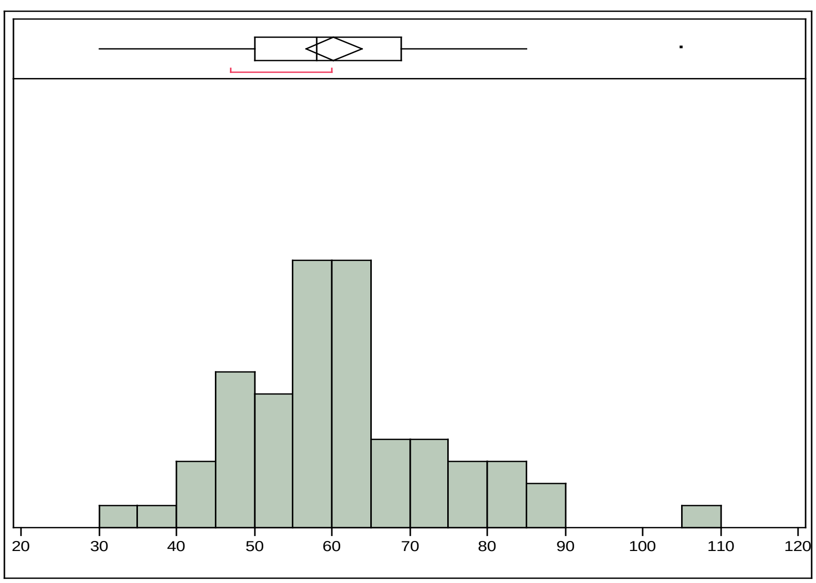


Figure 1.6. Rim angle for all rims

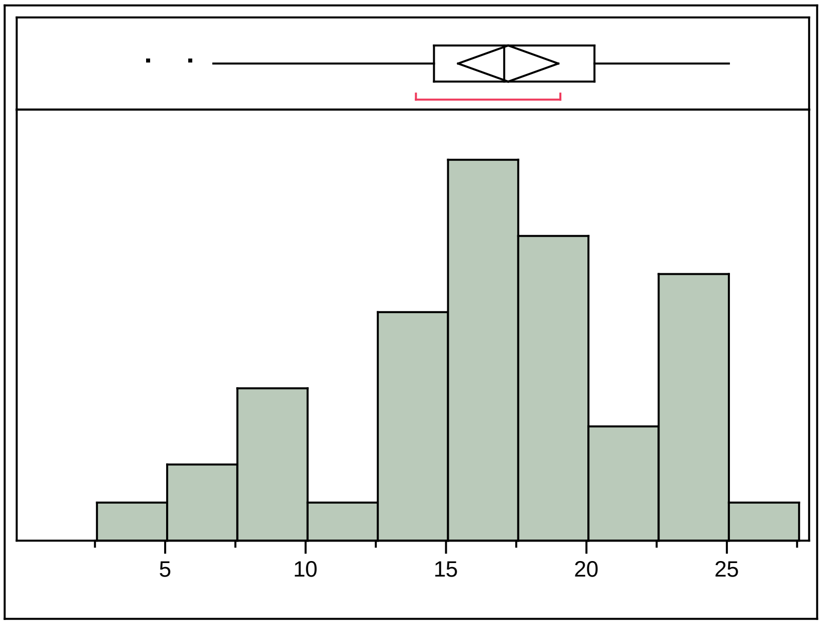


Figure 5.7. Rim height for all rims

Handles are fairly common among the Swantek sherds with approximately 1 handle for every 20 rim sherds (Table 5.5). These are all wide strap handles, many with parallel incised lines running longitudinally. On sherds where attachment can be determined, these strap handles attached just below the vessel lip, a trait that may signal early to middle Developmental Oneota horizon in Western Oneota contexts (e.g. Harvey 1979: 224).

Overall, these ceramics bear many similarities to the Walnut Decorated lip wares of the White Rock culture. The only area where the ceramics from Swantek bear similarities to CPt wares is in the dominant use of sand or grit rather than shell or calcium tempering, but even the low frequencies of calcium at Swantek are well above those in most CPt assemblages and roughly on par with White Rock ceramic assemblages. Clearly the Swantek ceramics share much in common with the western Oneota assemblages at sites like Dixon (Fishel 1999), but the lower proportion of shell tempering, fewer curvilinear decorations, and rim form separate it. There are also substantial differences between Swantek and the Walnut Decorated and Plain varieties typical of White Rock collections.

Rims at Swantek tend to be higher and more flared than those at White Rock sites. Shoulder decoration and strap handles are also slightly more common at the Swantek site than in Walnut Decorated Lip collections, and the presence of curvilinear and punctate motifs is also unique here among Plains Oneota assemblages, being absent in White Rock collections. This appears to be a unique ceramic tradition with influences from Oneota cultures in the Midwest, and closest in form to Walnut Decorated.

Taken together, the evidence of exchange and ceramic traditions indicate that the Swantek Site represents a unique social group, not well-integrated into either CPt or Western Oneota cultural systems.

Migration or Emulation

The analyses of exchange, architecture, and ceramics discussed above indicate that the people at the Swantek Site were not actively integrated into CPt or Midwestern Oneota social networks, but rather producing ceramics with clear Oneota influence at independent long-term communities within the Central Plains. Thus it is reasonable to conclude that a social boundary existed between Western Oneota communities and these Plains communities with Oneota influence. Having identified this prehistoric social boundary, the next task is the problem of discriminating Migration from emulation. Specifically the question that must be answered is whether the presence of Oneota ceramics at the Swantek Site resulted from a migration of Oneota people into the region from the Midwest and subsequent formation of a new social boundary or emulation by an autochthonous CPt population of Oneota pottery styles.

The evidence for active avoidance of interaction between Itskari and Plains Oneota populations (cf. Logan 1998; Peterson and Herman 1996) could indicate a case of active ethnogenesis resulting in a split and very short movement of Itskari or other CPt people who began a new ceramic tradition with Oneota influence. To distinguish between these possibilities, we must seek a pattern of continuities between the Plains Oneota sites and earlier CPt communities. Lacking that, the emulation model will likely become untenable.

The emulation model is widely disregarded by other researchers for the White Rock area due to the overwhelming preponderance of similarities between White Rock sites and Midwestern Oneota sites and the very limited similarities between White Rock and CPt sites (e.g. Ritterbush and Logan 2000). Likewise, the Swantek Site includes little evidence for an historic link with CPt culture. Architectural remains at Swantek include scattered post molds around an array of formal internal features and a very shallow basin floor. The ubiquitous CPt pattern of four center posts around a central hearth and a well-defined subrectangular housefloor is absent (Figure 5.8).

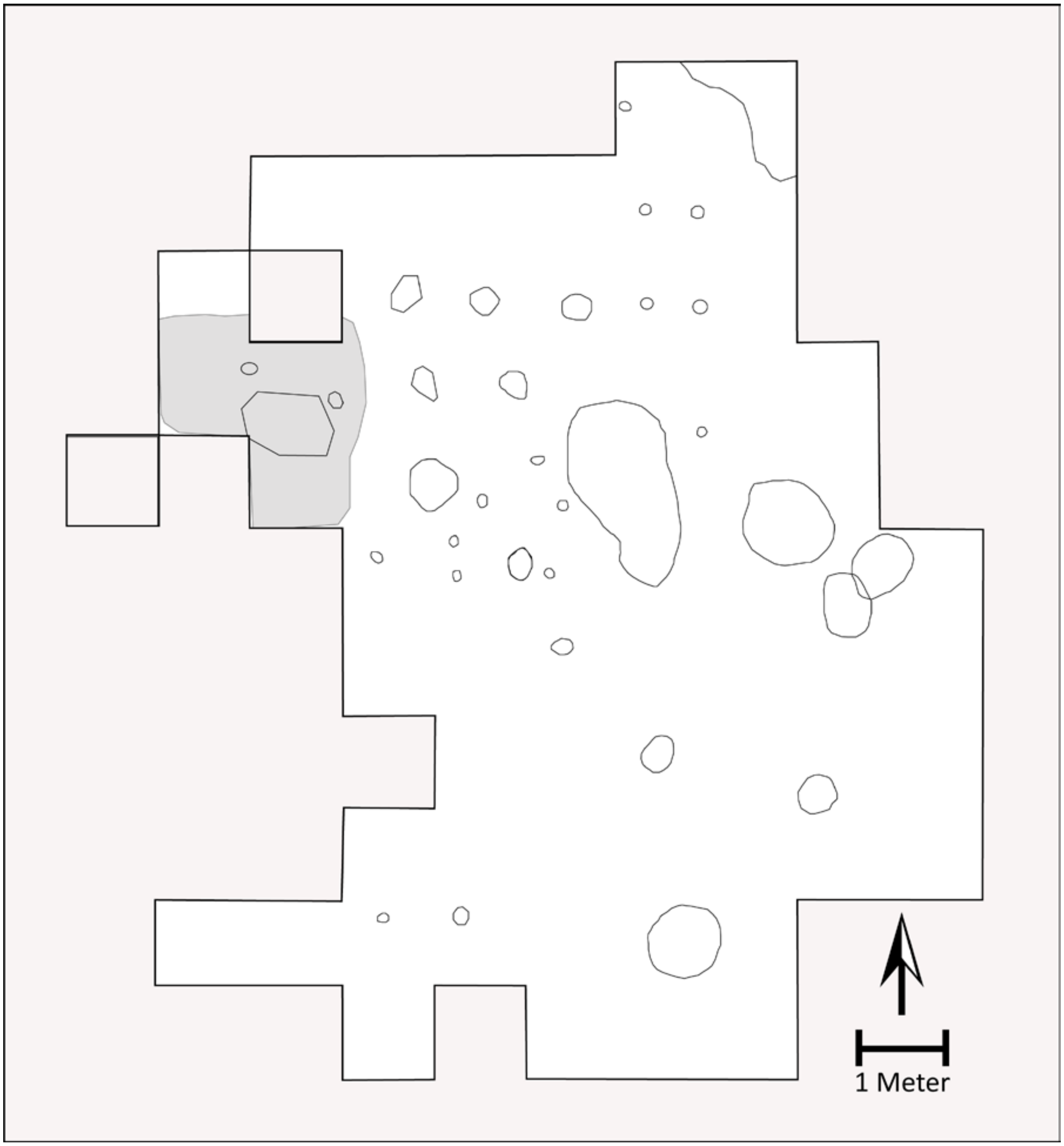


Figure 5.8. All postmolds and features excavated at the Swantek Site. Gray area denotes midden.

Likewise, tools at the Swantek Site (discussed in more length in Appendix 3) are manufactured in Oneota style with a variety of scraper forms, un-notched triangular arrow points (Figure 5.9), a high number of informal tools, and a general expedience apparent in the manufacture of formal tools. This general informality and expedience in tool manufacture was discussed in Chapter 4 as characteristic of Oneota technology and divergent from the highly regular form of most CPt tools which typically include notched bifacial points (cf. Andrefsky 1994).

Figure 5.9. Selection of projectile points from Swantek excavations.

Food refuse at the Swantek Site is dominated by bison remains that have in some cases been heavily processed. Other animals are represented in the faunal component including deer, medium to large birds, and smaller mammals, but only in limited quantites. Taken together, the picture of Swantek diet that emerges is one of bison-focal hunting supplemented with other wild game, some amount of corn agriculture, and limited wild gathering (discussed at more length in Appendix 3). CPt economies on the other hand are understood to have used very generalized hunting and gathering strategies with some amount of agriculture included (Bozell 1995; Koch 1995; Chapter 4 this volume; Pugh 2009), but this bison-focal strategy is characteristic of Developmental Horizon Oneota economies (Chapter 4). Interestingly, the late CPt Itskari phase shows evidence for some increased use of bison over other CPt traditions as well, suggesting a slight temporal trend toward more bison hunting in this late phase for the region as a whole (Table 5.8). Bozell's (1995) comparison of Plains hunting strategies likewise notes slightly greater focus on bison among CPt communities from later in the sequence and especially the McIntosh Site, which is located in Nebraska's Sand Hills. Even focusing on these CPt sites, which are closest in space and time to Swantek, Bozell's analyses reveal that CPt economies were very generalized and stand out as the least bison-focal of the prehistoric Plains societies.

Table 5.8. Bison or large mammal remains at various sites as percent of identified specimens.

Site Name	Culture and Phase	Bison or Large Mammal as % NISP	Reference
Swantek	-	72.7	Appendix 3
Patterson	Nebraska Phase CPt	3.5	Koch, Nelson, and Bozell 1999 in Bozell and Ludwickson 1999
Dixon	Western Oneota	38.7	Fishel 1999:79
McIntosh	Unassigned Late Phase Nebraska CPt	19.84	Koch 1995
Beaver Creek	Itskari CPt	7.0	Koch 2002
White Rock	White Rock	96.0	Logan 1995: 84; Logan 1998: 363

In sum, the evidence from the Swantek Site points to an Oneota origin. The limited similarities between the Swantek Site and assemblage when compared with CPt sites seem to be superficial adaptations to the local environmental differences experienced by Midwesterners who had migrated into the Great Plains. The emulation model has never gained support for White Rock assemblages and there does not appear to be any reason to consider it at length for Swantek. Rather, these analyses suggest that

Swantek, like White Rock, represents a community of Oneota people who migrated from the Midwest into the Central Plains during the Developmental Horizon and established a unique social network.

All of these lines of evidence, along with the compelling arguments of Ritterbush and Logan (2000) for the White Rock sites, suggest that Swantek and other Plains Oneota sites reflect a long-term settlement of people of Oneota extraction in the region rather than temporary extractive camps left by people with permanent homes in the Midwest. New craft traditions apparently emerged along with independent economic and lithic acquisition routines among these Plains Oneota communities. Thus a newly social network distinct from either Midwestern Oneota or CPt populations is indicated by the materials from Swantek and White Rock and this can productively be thought of as a unique Plains Oneota tradition separate from conventionally recognized archaeological traditions in the region.

Types of Ethnogenesis

Following the analyses discussed above, Swantek appears like White Rock to represent a community of people of Oneota descent who migrated onto the Great Plains as part of the Developmental Horizon Oneota fluorescence and expansion (see Hollinger 2005 for similar processes in the Mississippi Valley). Once there, the new migrants developed a unique set of material culture traditions and also a new set of social boundaries through regular and regulated interaction, creating new social organizations. That is to say that they went through a process of ethnogenesis.

Using the models outlined in previous chapters, we can investigate this ethnogenesis to determine what sort of processes may have led to the development of the unique material culture found at the Swantek Site and the new social boundaries around it. Attention is also paid to the materials from the White Rock area to determine if similar processes may have taken place there.

Settlement and Economy

The Swantek Site itself is over 100km from what has traditionally been thought of as the western edge of Oneota territory (roughly the Missouri River) so the possibility exists that the ethnogenetic process that led to the creation of the Swantek site was either passive or active. Both models allow for long distance migration, only short-distance movement is precluded under the passive form. Thus settlement analysis alone sheds little light on the type of ethnogenesis at work here. However, other types of analysis are informative.

Economically and socially, there is little evidence to suggest major breaks at the Swantek Site from Oneota traditions in the heartland. Architecture here, like at White Rock, maintains the Oneota pattern of large post structures with insubstantial coverings (Figure 5.8). If the rest of the site is contemporary then it is also likely similar in form to the White Rock village sites, which essentially preserve Oneota village organization but transport it onto the Plains. These Plains Oneota economies were bison-focal with supplemental dietary input from smaller game hunting, wild food gathering, and limited gardening. Again, this is all similar to the Oneota pattern in the Midwest and comes, perhaps importantly, at a time with Midwestern Oneota economies began to focus more heavily on bison than they had previously. It is possible that the focus of White Rock and Swantek economies on bison is not only related to Midwestern Oneota lifeways, but that there is a relationship between the migrations that brought these people into the region and the changing economy in the Midwest (Ritterbush 2002). If Plains Oneota people originally migrated into the Plains in search of bison for the growing bison economy in the Midwest, then this provides evidence of continued interaction among these communities.

Interaction

Following the expectations laid out in Chapters 3 and 4, the active form of ethnogenesis involves the creation of new social boundaries that serve to create or amplify social distance between communities. In practice this means that divergent communities suddenly cease interacting and new communities create new social networks that involve interaction with societies other than the one from which they diverged and acquire non-local resources from areas not inhabited by their ancestral relatives. Thus raw material distributions under this model should reflect a focus on areas not controlled by the community from which they split to a degree greater than would be expected simply by geographic distance. That is to say that distance from resource areas should be a poor predictor of raw material frequencies with materials from the previous homeland being totally absent or notably under-represented .

Under the passive model, on the other hand, there is no *a priori* prediction about preferred use of any particular resource area. The significant distance between a migrant community and its homeland, however, is necessarily great under this model as it is the cause for creation of new patterns of regular interaction, and therefore it is expected that interaction and exchange should also be infrequent or decreasing under this model. However, the passive model does not preclude interaction so some material from the old territory is likely to be present in migrant communities. Thus raw material distributions under the passive model are expected to reflect a generalized down-the-line model with frequencies reflecting geographic distance from the homeland.

The raw material distributions at the Swantek site (Table 5.9) clearly do not favor the Oneota heartland of the Midwest. Mississippian materials from Iowa and Missouri are totally absent from the Swantek collection. Other lithic sources such as Pennsylvanian cherts and Bijou and Sioux Quartzites, however, are present in significant quantities in the Swantek assemblage and the outcrop distributions from these sources include areas that were in fact inhabited by Oneota people in the Late Prehistoric period (Table 5.9, Figure 5.1). Specifically, western Oneota territories, such as the Correctionville Locality where Dixon is located, are very near these outcrops.

Table 5.9. Frequency:Distance index for major tool materials.

Material	Distance	n	Index
Pennsylvanian	130	137	1.053846
Sioux Quartzite	150	27	0.18
Bijou Quartzite	110	314	2.854545
Permian Chert	175	398	2.274286
Hartville	540	7	0.012963
Niobrarite	150	4287	28.58

To guage the extent to which distance was mediating resource acquisition, a frequency to distance ratio was calculated by dividing the number of artifacts from each lithic source by the distance from the Swantek site to that source (Table 5.9). The results of these analyses suggest that the occupants of the Swantek site were in fact favoring materials from the Great Plains over those from the Midwest even in quantities beyond what would be expected if acquisition were completely a function of geographic distance to source. Still, the presence of materials from the traditional Oneota homeland is not insignificant, suggesting that these Great Plains Oneota people did not completely cut ties to the Midwest and at least occasionally continued to interact with other Oneota people. There is little besides lithic materials in the Swantek assemblage to suggest any non-local interaction.

Ceramic Decoration

As discussed in Chapter 4, Oneota ceramic decoration is understood to have been important in marking community identities and further that certain Oneota motifs are understood to have been socially significant. Thus analysis of decorative traditions at a number of Oneota localities should be instructive as to prehistoric social organization.

Since the act of decorating ceramics itself is understood to have been used for marking social boundaries, it is expected that contested boundaries would involve relatively high frequencies of decoration (Chapter 3 and 4). A simple test of this is performed by quantifying decoration of ceramics as a proportion of total assemblage and comparing the results among sites.

Although there are numerous studies of Oneota ceramics and motif usage, only a handful include tabulated data regarding precise motif counts that can be compared among sites. In addition to the Swantek decorative data, information about motif usage was also gleaned from published reports and recoded into a single system of motif categories (Appendix 2 includes a table of re-coded motif elements). The sites that were re-coded are the Dixon Site (Fishel 1999) and the White Rock site (Logan 1995) discussed in Chapter 4 as possibly related to Swantek, and also two sites in the Blue Earth Locality of southern Minnesota dating to the early 13th century – the Vosburg and Humphrey Sites (Gibbon 1983), and Cribb's Crib (DeVore 1990) a later prehistoric site in central Iowa (Figure 5.10). The Blue Earth sites are quite distant geographically from the Central Plains, but Henning has noted that the area is very similar to the Correctionville Locality of Dixon and some authors have even used the term "Correctionville-Blue Earth Phase" to lump the two areas together and emphasize their similarity (Henning 1970; Gibbon 1983:3; but see Fishel 1999:120 for argument that the association is not close enough to warrant this conflation).

Figure 5.10. Sites used in comparative ceramic analyses. 1) Swantek; 2) White Rock; 3) Dixon; 4) Vosburg and Humphrey; 5) Cribb's Crib

These sites also share similarities with Swantek including an emphasis on bison hunting, heavy curation of bison scapulae, and relatively little obvious architecture or evidence for palisades (Gibbon 1983:3). Radiocarbon dates from these sites, however range from the mid 13th century to the very early 17th century, suggesting a very long occupation duration and presenting a possible problem of temporal contamination to this analysis. The Cribb's Crib site also does not fit chronologically with the others but was chosen due to the availability of good motif data and its proximity to Dixon and other Western Oneota sites. It is not expected that there is a direct connection between Cribb's

Crib and Swantek, but it is used to gauge chronological changes and it is expected that it should be more different from Swantek, Dixon, and White Rock than those sites are from each other. For example, if Dixon is more similar to Cribb's Crib, a later site in a different locality, than it is to Swantek, then this suggests that the social distance between Dixon and Swantek (by extension the Western and Plains Oneota) than expected under a passive model.

Ceramic Analyses

Assuming that fragmentation can be held constant among sites and between decorated and undecorated vessels, relative frequencies of decorated to undecorated sherds under a situation of active ethnogenesis should show relatively great proportions of decorated sherds. This pattern is not, however, borne out by the data available from the Swantek Site and published data from the sites used in these ceramic comparisons. In fact, the Plains Oneota sites show fairly low frequencies of decoration on body sherds with only 10.3% of sherds at Swantek decorated and 15.3% at White Rock (including data from both Rusco 1960 and Logan 1995) (Table 5.10). Dixon, the nearest Western Oneota site used in this analysis includes 17.1% decorated body sherds and the Blue Earth sites (Humphrey and Vosburg) present a surprisingly wide range of decoration frequencies with Vosburg the lowest of the comparative cases at 8.0% and sherds from Humphrey decorated more than three times more frequently than any other site, at 66.9%.

Table 5.11. Percent decorated and undecorated sherds in test assemblages. (Fishel 1999:178 Appendix V.4; Logan 1995: 56-63; Rusco 1960: 63-64; DeVore 1990: 56 Table 4; Gibbon 1983: 54 Table 1)

	Decorated	Undecorated	Percent Decorated
Swantek	551	5348	10.3%
Dixon	827	4842	17.1%
White Rock	552	3619	15.3%
Humphrey	176	263	66.9%
Vosburg	61	760	8.0%
Cribb's Crib	1515	7758	19.5%

There may be several problems in interpreting these data including differing coding methods, fragmentation of assemblages, and incomplete assemblages (particularly in the case of the Blue Earth Assemblages that were analyzed significantly later than they were excavated), so detailed interpretation would be problematic. However, it can be safely stated that Swantek and White Rock people did not decorate their ceramics to an inordinate degree. They apparently did so less than the potters of the Western Oneota Dixon site and certainly not in frequencies that might be expected of a population trying to mark a new social boundary with very visible use of socially-significant symbols. Thus there is little evidence for active ethnogenesis in simple frequencies of decorated and undecorated body sherds.

Socially Significant Symbols

As discussed above, the particular motifs used in decoration of Oneota ceramics were likely connected to important elements of religious and cultural tradition (Following Link 1995; Benn 1989). Thus, Oneota ceramics lend themselves to more detailed investigations than the simple decorated sherd frequency analysis described in the previous section.

In order to investigate these questions, motifs from the Swantek Site were coded for presence on individual body sherds and published data from the test sites used above (White Rock, Dixon, Vosburg, Humphrey, and Cribb's Crib) were re-coded to create a coherent set of data that can be used to compare motif usage at Plains and Western Oneota sites (Appendix 2 lists original codes and code for this analysis). Many typical Oneota motifs are complex designs made by combining several elements (chevrons, lines, and punctates for example), meaning that a full analysis of motifs would require a very high number of complete or nearly complete shoulder sherds.

Benn (1989: 243) argues that Oneota motifs generally do not cover entire vessels and sherds should therefore not be used in their analysis, but only whole pots. This is not possible at the Swantek Site since only one vessel was reconstructable enough to see the majority of the decorated portion. However, that vessel is decorated around 100% of the visible circumference and there are enough large sherds at Swantek to observe large portions of decorative motifs. Some complete motifs may be absent from this analysis, but there is enough to draw conclusions about motif use. Although Benn's recommendation would be ideal, it is simply not realistic as most Oneota collections are highly fragmented, especially those from White Rock and Swantek. To accommodate this problem, the present analysis was done by re-coding assemblages into number of sherds displaying various motif elements rather than complete motifs. It is probable that some of the elements represented in these data reflect small portions of larger motifs and this should be considered in interpreting the results. However, these data are still useful in gaining a basic understanding of ceramic similarities in that they reflect the basic elements that potters at each site were assembling into larger shoulder motifs.

Rim decoration was not included in this study since the Plains and Western Oneota communities typically did not use motifs such as trailed chevrons and concentric rings that are considered socially significant. During the period of occupation at the Swantek Site, lip and rim decoration was limited to tool impressions and fingernail pinching, motifs that have not been argued to carry particular social significance in the Oneota world.

In order to begin assessing similarity in usage of socially significant motifs among the test sites, a simple presence-absence analysis was performed. Under the most pure form of the active model of ethnogenesis, discrete decorative traditions are expected to emerge and this type of analysis will indicate the degree of overlap in motif sets at the sites. If there was a greater social distance between the Plains and Western Oneota sites than there is among Western Oneota sites, the related discrete decorative traditions may become apparent from this analysis.

A Jaccard coefficient was chosen for this analysis because it is designed to compare data sets that have been coded for presence and absence of qualitative variables and it ignores negative matches (those for which neither data set includes some category) in favor of measuring similarity of traits positively observed (Doran and Hodson 1975: 141-142). This coefficient is commonly used by archaeologists seeking to compare similarities of groups of traits present among lots or assemblages (refs in Doran and Hodson). Once the Jaccard coefficient had been calculated, it was further transformed into a Tanimoto distance to provide a useful statistic for comparing assemblages to one another (Doran and Hodson 1975: 141-142; Bordaz and Bordaz 1970). The value returned by the Tanimoto function represents the similarity between any two assemblages so site-wise comparisons were calculated for each of the 15 possible combinations used here.

Figure 5.11. Sites used in comparative ceramic analyses. 1) Swantek; 2) White Rock; 3) Dixon; 4) Vosburg and Humphrey; 5) Cribb's Crib

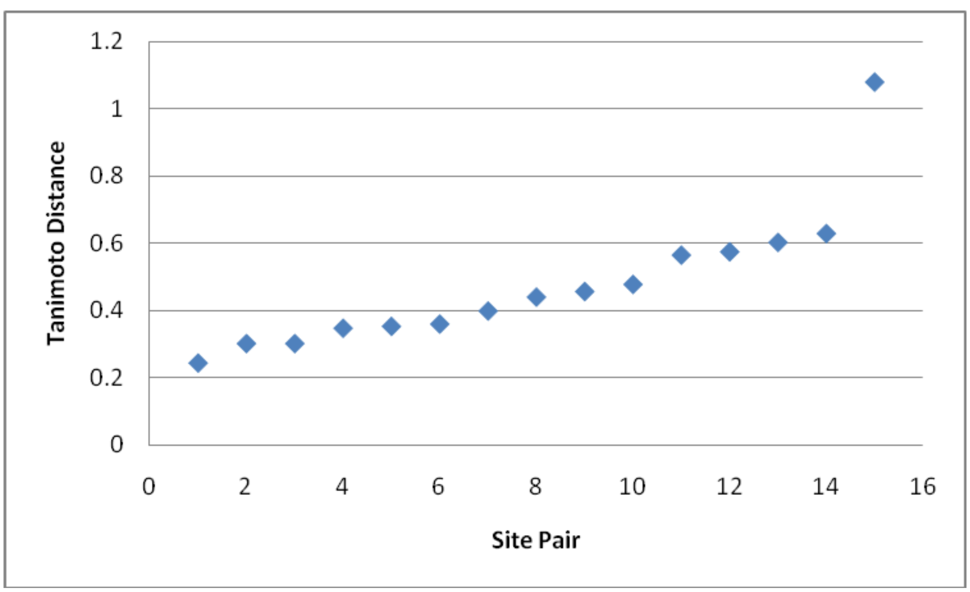


Figure 5.12. Scatterplot of Tanimoto distance values for all test pairs in rank order. Site pair labels can be found in following table.

Table 5.12. Jaccard and Tanimoto numbers for all site-wise pairs using minimal grouping - 22 categories, all redundant or non-present categories removed, "other" removed. Geographic Distance measures approximate straight-line distance in km. Distance between Blue Earth Sites is effectively 0. Site Pair Number corresponds to labels on following scatterplot.

Site Pair Number	**Site Pair**	**Jaccard's Coefficient**	**Tanimoto Distance**
1	Humphrey Cribbs	0.57	0.24
2	Dixon Humphrey	0.50	0.30
3	Voss Cribbs	0.50	0.30
4	Swantek Cribbs	0.45	0.35
5	Swantek Voss	0.44	0.35
6	Dixon Cribb's	0.44	0.36
7	Santek Dixon	0.40	0.40
8	WR Dixon	0.36	0.44
9	Swantek Humphrey	0.35	0.46
10	WR Cribb's	0.33	0.48
11	WR Humphrey	0.27	0.56
12	Voss Humphrey	0.27	0.57
13	Dixon Voss	0.25	0.60
14	Swantek WR	0.24	0.63
15	WR Voss	0.08	1.08

As the results in table 5.12 show, the Tanimoto distances among 14 of the site pairs compared here fall within a range of 0.24 to 0.63 with no apparent breaks or patterns linked to geography. The only outlier in the set is the White Rock to Vossburg comparison, which produced a distance of 1.08, well beyond any of the other pairs. The other White Rock comparisons are found in the upper half of the Tanimoto distances, but they are within the main cluster. As discussed earlier, White Rock includes the lowest total number of motifs so this is not a large surprise, but the divergence of White Rock pairs from the other Tanimoto distances suggests that this site may warrant further analyses to investigate whether the sorts of processes behind its creation differ from those at Swantek. Specifically, White Rock lacks curvilinear and punctuate motifs, which are present in all other assemblages analyzed here.

For its part, Swantek does not show significantly greater Tanimoto distances when compared to other Midwestern Oneota sites than any Midwestern site does. Thus these data provide no immediate suggestion that Swantek included a notably smaller motif set than those Midwestern Oneota sets and thus there is little reason at this point to assume that Swantek experienced the sort of motif bottleneck that would be associated with a strictly active model of ethnogenesis.

This measure of similarity is only preliminary, however, and it does not provide any information on the differential usage of similar motifs within these communities. Jaccard and Tanimoto utilize a data set that was coded for presence and absence and thus can mask potentially significant frequency patterns such as differential favoring of some motifs over others. Thus analyses of motif frequencies are performed below.

Frequency Analysis of Socially Significant Symbols

Marcus and Flannery (1996:93-96) and Plog (1976) make a similar case for the stylization and of “earth” and “sky” motifs in the first complex societies of Mesoamerica. They also argue that certain Zapotec motifs are stylized versions of signs of social distinction that were used as important markers of social identity and continuity through time. Plog (1976: 259-270) then compares the usage of these motifs at contemporaneous sites as a way to gauge interaction. Here, as with the Oneota case, certain stylized motifs were connected to important social ideas and therefore their archaeological distributions in space are informative about the spatial distribution of social groups and the presence or absence of social boundaries. Elsewhere Flannery argues that the geographic distribution of similar non-ceramic Olmec artifacts can be used to investigate the spread and interaction of emerging elite groups throughout Olmec territories (Flannery 1968: 106).

Plog's investigation (1976: 255-282) uses a gravity model to measure intensity of social interaction based on stylistic similarities. He quantifies occurrences of relevant design elements at various Zapotec sites and compares the apparent statistical effect of population and geographic distance on the relative frequencies of these design elements. The assumption with this sort of model is that interaction should be a function of distance and population where other factors are not affecting interaction. Thus motif usage will be more similar among sites from integrated groups than among sites from independent ones when distance and population are accounted for and where these predictions are not borne out by the data, other factors influencing interaction should be sought.

Population is not a variable that can be reliably determined for most Oneota sites, particularly not the Swantek Site, but an index of design similarity to distance can still be telling. It is expected that the design choices made by people in a migrant community will be effectively the same as they were in their previous home and that as predicted in the model of resistance to cultural drift, the similarities may even be statistically greater than predicted by distance alone.

Measuring Motif Diversity

In order to approach the question of ceramic motif diversity, two statistical measures of diversity were employed. The first is the Shannon Diversity Index (sometimes called the Shannon-Weaver or Shannon-Wiener Index) (Shannon 1949). The Shannon Index is often used by biologists to measure the species diversity of different habitats and has also been used by zooarchaeologists (e.g. Lyman and Ames 2004;

Lepofsky and Lertzman 2005). It is designed to measure the diversity of a set of categorical data such as counts of individual species within a habitat or diversity of species represented in an archaeological assemblage. The Shannon Index is particularly useful for comparing disparate data sets in that it takes into account both population evenness (the similarity of counts within each category) and number of unique categories. High Shannon values are returned for data sets in which there are many unique categories (species for a biologist, motifs for the present analysis) and the counts within each category are similar within a data set. Thus the Shannon Index responds to variables such as number of motifs present at each site, but accounts for disparate assemblage sizes. The Shannon Index provides a single numeric statistic for each assemblage, and these can be compared for similarity. To compare the usage of motifs at Plains and Western Oneota sites, Shannon Index values were calculated for each and these are tabulated in Table 5.13.

Table 5.13. Shannon and Simpson index values for test sites. Calculated using PAST statistical software.

	Swantek	White Rock	Dixon	Humphrey	Vosburg	Cribb's Crib
Shannon	1.220	1.160	1.296	1.994	1.922	2.375
Simpson	0.524	0.634	0.541	0.820	0.820	0.895

The Shannon statistics for the Swantek and Dixon sites are strikingly similar (1.22 and 1.296 respectively) indicating that each assemblage includes a similar amount of motif element diversity; neither site can be argued from these data to have used more or less ceramic motifs than the other. The White Rock data provide a slightly lower Shannon Index of 1.16 indicating slightly less diversity in the motifs used than at either Swantek or Dixon, but still quite similar. This is expected given the low total number of motif element categories coded for White Rock (n=5).

The more distant Blue Earth sites on the other hand are quite different from those sites (Vosburg = 1.922 Humphrey = 1.994). Those values are close to each other but quite different from the sites discussed earlier, suggesting that Blue Earth sites have a higher diversity of ceramic motifs and are more different from Dixon than Dixon is from either of the Plains Oneota sites. Considering the later phase Cribb's Crib site, we find by far the highest Shannon value of any of these sites (2.375) indicating that later phase Oneota communities in Iowa deployed a much greater diversity of ceramic motif elements than any of our Developmental Horizon test cases. This is predicted by current models of Oneota culture history, which suggest that later Oneota communities used the characteristic motifs to demarcate emerging moiety and possibly even rank divisions within communities (Benn 1989). As the social structure got more diverse, apparently the use of socially significant ceramic motifs got more diverse as well.

The second measure of diversity that was used to investigate ceramic similarities is the Simpson Index (Simpson 1949). This index is also commonly used by ecologists, biologists, and zooarchaeologists and is sometimes called the Species Diversity Index (e.g. Lyman and Ames 2004; Lepofsky and Lertzman 2005). Similar to the Shannon Index, the Simpson Index measures the diversity of categorical variables within a data set (usually species within a habitat or site, here used for motifs within an assemblage). The value returned by the Simpson Index represents the probability that two randomly selected individuals from within a population will belong to the same category (species or motif). Thus it is a measure of category dominance and indicates the degree to which one or a small number of categories dominate an assemblage. The result is presented as a probability statistic from zero to one where zero indicates that a single category dominates the assemblage and one indicates that all categories or taxa are equally present. As a note of caution, because it is a probability statistic and excludes categories with values of zero, this statistic does not take into account the effects of sample size or low overall diversity. Small data sets or data sets that include values for only a few categories may produce dubious results. Thus it is best to use these two measures, Shannon and Simpson, in conjunction to measure both evenness and diversity.

The results of the Simpson Index (Table 5.13) are very similar to the results from the Shannon Index with Dixon and Swantek clustering quite close together (.541 and .524 respectively) as the least evenly distributed assemblages, White Rock slightly more evenly distributed probably due to the low total number of motifs used here (.634), Humphrey and Vossburg more even than any of those but nearly identical to one another at approximately .82 each, and the highest evenness value (though not as much higher proportionally) at Cribb's Crib (.895). The most notable difference between these measures of motif diversity is at the White Rock site, which is the least diverse assemblage under the Shannon Index but is more diverse than Dixon or Swantek according to the Simpson Index. This difference probably is linked to the low number of categories present at the White Rock Site discussed above but a relatively even spread within those motif categories. Thus, it seems that White Rock was using a lower total diversity of motifs than any other site, but used these motifs more evenly than Swantek or Dixon.

In the interest of comparing the diversity of motifs used at these sites for purposes of understanding ethnogenesis, the Shannon Index is the more relevant measure as it indicates that Swantek and Dixon were using a similar number of motifs at a similar frequency and White Rock was using fewer total motifs, which could be a sign of active ethnogenesis. The degree of difference between White Rock and Dixon, however, is not large enough and the sample size at White Rock is not large enough to confidently make that conclusion. Rather, it seems most likely from diversity measures that these three sites are very similar and significantly different than other Western Oneota sites.

Measuring Similarity of Motif Usage

Measures of motif diversity are useful in estimating the degree to which communities used a wide range of socially significant motif elements, but they are not sufficient to make conclusions about historical relationships. It is theoretically possible to have similar diversity indexes among sites with different cultural connections and thus very different patterns of motif usage. For example, two sites that each use 15 separate motifs about evenly would show very high degree of similarity with diversity measures, but if the 15 motifs used at each site were mutually exclusive sets, this would mask potentially significant social distinctions. In fact in the active model of ethnogenesis, just such a scenario is likely.

In order to measure the degree of similarity between sites, a similarity coefficient is useful. The Brainerd-Robinson coefficient (sometimes also called the Brainerd or Robinson coefficient) was specifically designed for comparing archaeological ceramic collections (Robinson 1951; Shennan 1988: 233-234) and it has been used by lithic analysts to compare inter-site variability and make arguments for similar activities at different sites based on categorical data (lithic tool type frequencies for example) (e.g. Odell 2004). Other coefficients such as Pearson's r have also been used by archaeologists to measure similarity of categorical variables among sites, but Cowgill

(1990) argues convincingly that Brainerd-Robinson is more robust because it avoids problems of equifinality. Potential problems have been identified for the Brainerd-Robinson coefficient (McNutt 2005), including ambiguity of interpretation and problems of assemblage size, but the problem of ambiguity is partially offset by using this as a comparative statistic rather than a test of statistical significance and other analysts have found that using it with measures of diversity and evenness such as those calculated above can help offset the effects of assemblage size (Chatters 1987).

The Brainerd-Robinson coefficient uses percentages of categorical variables within data sets to compare similarities between two different assemblages that have been coded into the same categories. It uses the sum of difference between data sets for each category subtracted from 200 to arrive at a number that represents the cumulative difference between assemblages[1]. The end result is a number from zero to 200 where zero indicates no similarities between assemblages and 200 indicates two identical assemblages. Because this coefficient works with percentages, effects of differing sample sizes are not taken into consideration. The Brainerd-Robinson coefficient has also been used in conjunction with measures of distance and population in gravity models to measure the effect of these variables on population interaction as represented in similarity of ceramic assemblages (Plog 1976). Population measures are not available for the Oneota data, but correlations between Brainerd-Robinson values and distance are performed in the next section to gauge the effect of distance on assemblage similarity.

Of the 15 possible site pairs using the six test sites indicated above, the highest Brainerd-Robinson Coefficient value is for the comparison of Swantek with Dixon

[1] Brainerd Robinson Coefficient calculated as $\Sigma|Px-Py|$ where Px and Py represent corresponding values from each collection within a single category.

(152.709) indicating a substantial similarity not only in the diversity and evenness of motifs in these collections, but also in the use of specific motifs (Table 5.14).

Table 5.14. Brainerd-Robinson coefficient values for tested site pairs

	Swantek	White Rock	Dixon	Vosburg	Humphrey	Cribb's Crib
Swantek	-	122.686	152.709	45.009	96.426	66.567
White Rock	122.686	-	110.049	64.000	89.362	73.284
Dixon	152.709	110.049	-	28.899	102.555	65.992
Vosburg	45.009	64.000	28.899	-	55.972	102.802
Humphrey	96.426	89.362	102.555	55.972	-	120.437
Cribb's Crib	66.567	73.284	65.992	102.802	120.437	-

The comparison of Swantek with White Rock is the second tightest fit (122.686). This suggests that there is abundant overlap between motif element usage at the two Plains Oneota sites being compared here, but that Swantek is more similar to Dixon than it is to White Rock. The comparison of White Rock with Dixon is still greater than most of the comparisons done among all of these sites, but at only 110.049 it is not nearly as robust as the similarity between Swantek and Dixon, indicating less overlap in the use of socially significant motif elements at these sites.

It is noteworthy here that the comparison of Humphrey and Vosburg, both in the Blue Earth Locality, only produced a Brainerd-Robinson Coefficient of 55.972, the third lowest correlation of all 15 performed here. This was unexpected and suggests that there may be more inter-site variability than previously expected even within a single Locality. This discrepancy may also be related to a previously unrecognized social boundary between the two sites, as this is predicted under the active model in a case of short-term migration. The third, and perhaps more likely scenario, suggest that these sites are not precisely contemporaneous. No dates are available from Humphrey, and Vosburg has produced dates ranging from the 15th to 17th centuries (Gibbon 1983). It is possible that the ceramic assemblage from one of these sites reflects a later occupation. This particular scenario also seems to be supported by the unexpectedly tight fit between Humphrey and Cribb's Crib (Brainerd-Robinson Coefficient = 120.437) suggesting that Humphrey is more similar to the later-phase Cribb's Crib than it is to the geographically near Vosburg.

Given the problems of reconciling dates, geographic distance, and different coding procedures, these data raise as many questions as they answer. The comparisons of Swantek, White Rock, and Dixon do however shed some light on the processes involved in the creation of the Swantek Site. Given the very similar measures of evenness, diversity, and even particular motif usage (Simpson, Shannon, and Brainerd-Robinson methods respectively), the ceramic assemblages at Swantek and Dixon should be considered to be very similar. In fact these sites are more similar to each other than Swantek is to White Rock, which was not predicted by the lithic acquisition patterns at White Rock and Swantek. It appears that the people at the Swantek Site were interacting with other Great Plains people, but stylistically maintaining a Midwestern appearance. White Rock, from the limited available data, appears to have maintained less of a Midwestern appearance in its ceramics than Swantek, using fewer overall motifs and excluding some motifs present at Dixon altogether particularly punctate motifs.

Effects of Distance on Motif Difference

Comparisons of inter-site ceramic variability have often included a correction for geographic distance as a way of accounting for the impact of distance on interaction and therefore stylistic similarity. Geographic distance is somewhat problematic for these analyses since straight-line measures do not account for the actual distance experienced by people travelling along trails and waterways or diverted around natural obstacles, but as a rough measure of the impact of distance on similarity, straight-line distance will be used here (Table 5.15).

Table 5.15. Estimated straight-line distances between site pairs in kilometers. The Humphrey-Vosburg site pair was excluded due to distance less than one kilometer

	Swantek	White Rock	Dixon	Vosburg	Humphrey	Cribb's Crib
Swantek	-	175	180	380	380	350
White Rock	175	-	330	534	534	430
Dixon	180	330	-	205	205	220
Vosburg	380	535	205	-	-	255
Humphrey	380	535	205	-	-	255
Cribb's Crib	350	430	220	255	255	-

.

Plog (1976) discusses archaeological uses of the gravity model, which assumes that interaction is inversely correlated with geographic distance. Although there are several factors that can influence this model and create unexpected results, Plog argues that it can still be used as a baseline assumption for testing archaeological data. “The hypothesis would be that, if design similarities do measure community interaction, then *the similarity coefficients* [Brainerd-Robinson Coefficients in this analysis] *should vary directly with the populations of the communities and inversely with the distance between them”* (Plog 1976:259 emphasis original). He also notes (following Cook 1970:34, 47) that social boundaries can problematize the results of the gravity model, with relatively less interaction happening across social boundaries than within bounded groups, all other variables being equal.

The gravity model itself will not be used here because of its reliance on population size to create mass and affect gravity. No equivalent measure is available in the data at hand for investigating Oneota ethnogenesis, but a technique similar to the gravity model can be instructive for identifying social boundaries. If there were social boundaries between Western and Plains Oneota communities, such as those created in an active process of ethnogenesis, but not within the Correctionville Locality for example, then the results of gravity model tests within and across these areas should show divergent result.

Rough straight-line estimates were taken by plotting approximate site locations on a GIS coverage and measuring distance in kilometers between them. Rather than the gravity model, a simple analysis of correlation between Brainerd Robinson Coefficients and geographic distance was calculated for each site pair. This can be effectively used to investigate the interaction of geographic distance, social distance, and stylistic difference among these sites in a distance-decay analysis (Cowgill 1990; Shennan 1988: 222-227). The Humphrey-Vosburg pair was excluded from these analyses because of the very short geographic distance between them, leaving 14 site-pairs.

The overall dataset, excluding only the Humphrey-Vosburg pair, shows very little correlation between ceramic similarity and geographic distance (Figure 5.13) with an R^2 value of only 0.155. This indicates that geographic distance is not a good predictor of ceramic difference for the Western Oneota region as a whole. Rather, other factors such as social boundaries and chronology probably affected local motif choices.

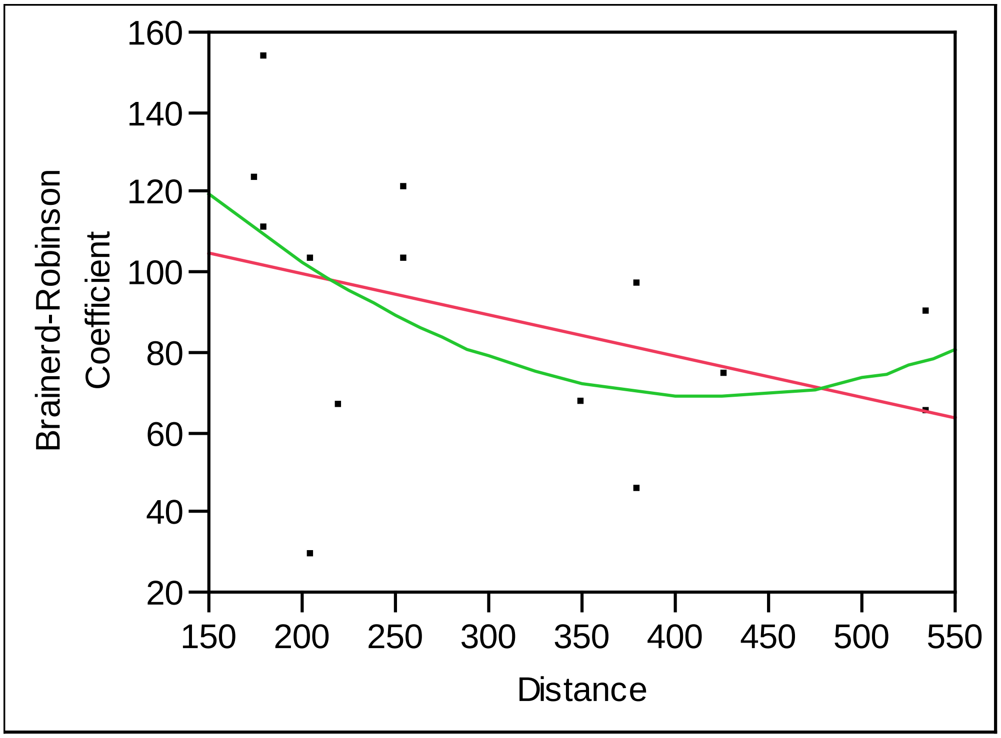


Figure 5.13. Correlation analysis of Brainerd-Robinson coefficients versus geographic distance for 14 used site pairs. R^2 *value = 0.155*

Excluding the Plains Oneota sites (Swantek and White Rock) from correlation analysis produces a slightly higher correlation (Figure 5.14) but the R^2 value is still far from significant at only 0.441. This higher degree of correlation within the Western Oneota territory excluding Plains Oneota sites may suggest that there was a real social boundary affecting motif choices somewhere near the Missouri River, but the sample size is quite small and it is difficult to determine confidently.

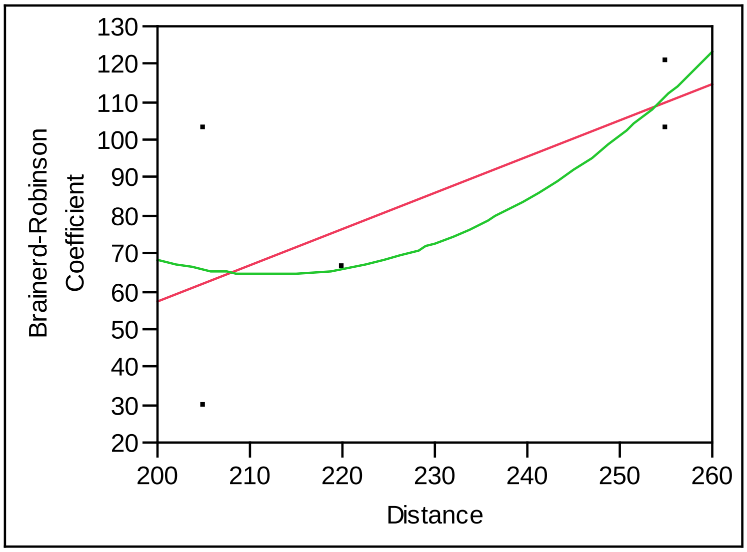


Figure 5.14. Correlations between Brainerd-Robinson coefficients and geographic distance for all site pairs excluding Swantek and White Rock. $R^2 = .441$

The correlation between Plains Oneota sites and all other sites is also moderate at .500 (Figure 5.15), suggesting that the ceramic difference of these sites is somewhat more predicted by geographic distance.

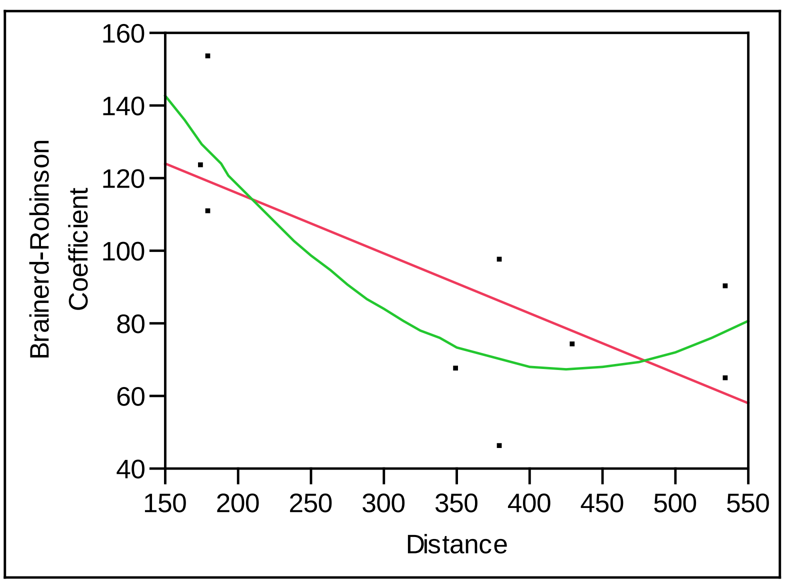


Figure 5.15. Correlations between Brainerd-Robinson coefficients and geographic distance for site pairs including Swantek and White Rock only. $R^2 = .500$

Comparing individual sites to all other sites, correlations are much stronger. The Swantek site itself produces a correlation coefficient of 0.733 when compared to all other sites, White Rock is correlated at R^2 value of 0.760 (0.800 without Cribb's), Dixon at 0.515 (0.543 without Cribb's (0.734 with cribb's without vosburg) (Table 5.16). These values suggest a low to moderate negative correlation between distance and ceramic similarity when considering the values for a single site, but the samples are quite small, making it impossible to draw final conclusions from these numbers.

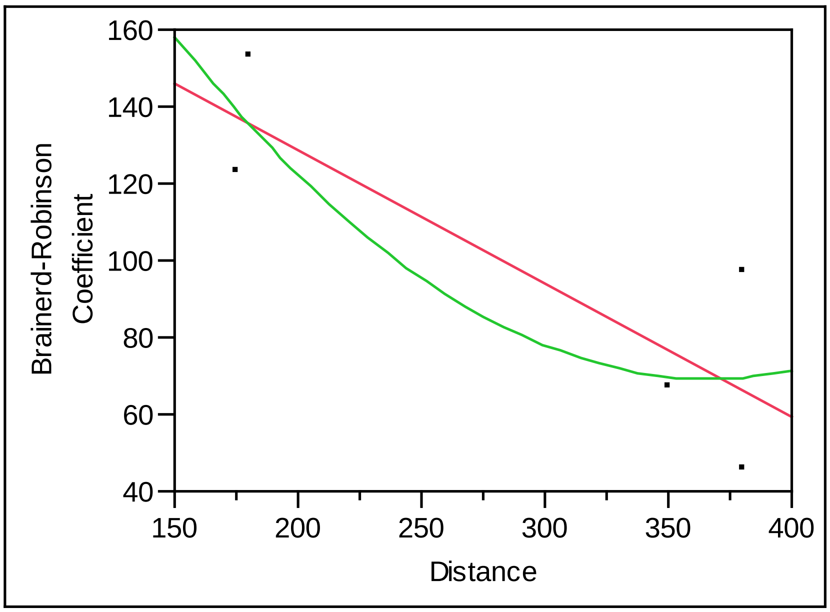


Figure 5.16. Correlations between Brainerd-Robinson coefficients and geographic distance for all site pairs including Swantek. R^2 = .733

Table5.16. R^2 values for correlations between Brainerd Robinson coefficients and geographic distance for individual sites.

	R^2
Swantek	0.733
White Rock	0.76
Dixon	0.515
Vosburg	0.003
Humphrey	0.544
Cribb's Crib	0.158

The Blue Earth sites show similarly high correlation coefficients at 0.544 for Humphrey but only 0.003 for Vosburg. This difference suggests the opposite of the diversity measures above. Those numbers suggested that Humphrey was significantly different than the rest of the Developmental Horizon sites considered here, but this analysis seems to show Vosburg lying outside the normal predictions of distance for the Developmental Horizon.

Interestingly, removing Cribb's Crib, the only site confidently dated to a later phase, has a minimal impact on most of the numbers. The correlation coefficient for the entire data set excluding site pairs that involve Cribb's Crib only produces an R^2 value of 0.158 (Figure 5.17).

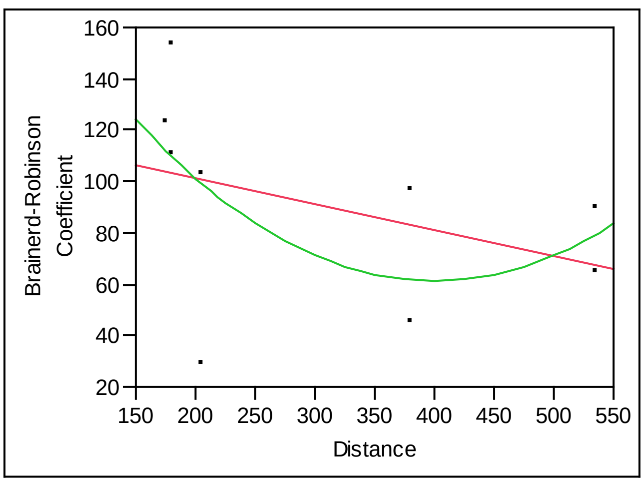


Figure 5.17. Correlation between Brainerd-Robinson coefficients and geographic distance for all site pairs excluding Cribb's Crib. R^2 *= .158*

The largest outlier from the Dixon site correlations is Vosburg. Removing Vosburg but leaving Cribb's in the Dixon correlation analysis, increases the site's R^2 value from 0.515 to 0.734, the most substantial increase observed within any single site comparisons with the removal of a single other site. If Dixon and Vosburg were truly contemporary, this greater than expected stylistic difference may signal an important social boundary, far more significant than the boundary between Dixon and any other site in this analysis. If this is true, it further calls into question the validity of the term Correctionville-Blue Earth Phase (Henning 1970) to describe these sites as part of a single cultural system (*cf*. Fishel 1999:120).

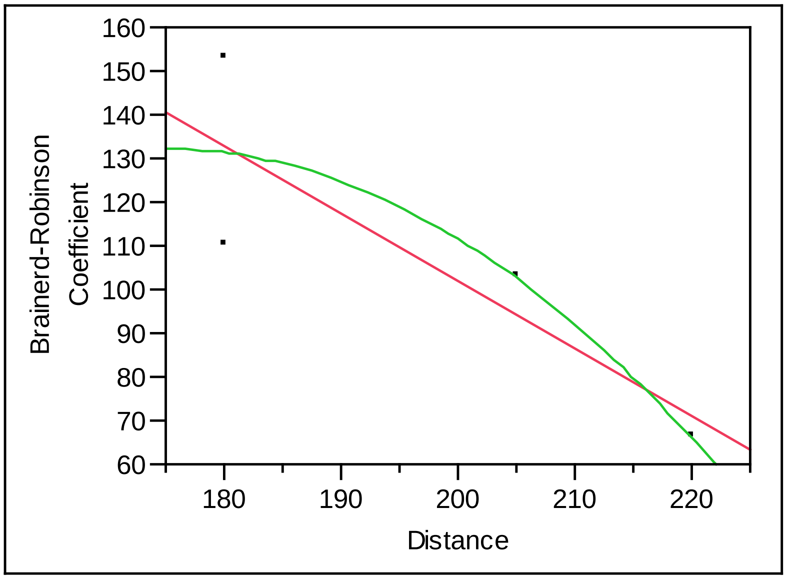


Figure 5.182. Correlations between Brainerd-Robinson coefficients and geographic distance for all site pairs involving Dixon except Dixon vs Vosburg. $R^2 = .734$

These analyses suggest that there is only the slightest negative correlation between geographic distance and ceramic similarity when considering the western half of Developmental Horizon Oneota territory. In other words, a strict down-the-line model is not adequate to describe the variation among use of socially significant motifs by various communities. Thus, factors other than geographic distance must be employed to explain differences in ceramic motif use among these sites. While the difference between experienced distance, following trails and waterways rather than straight-line distances, may account for some of this, it is more likely that the effects of social boundaries played an even greater role.

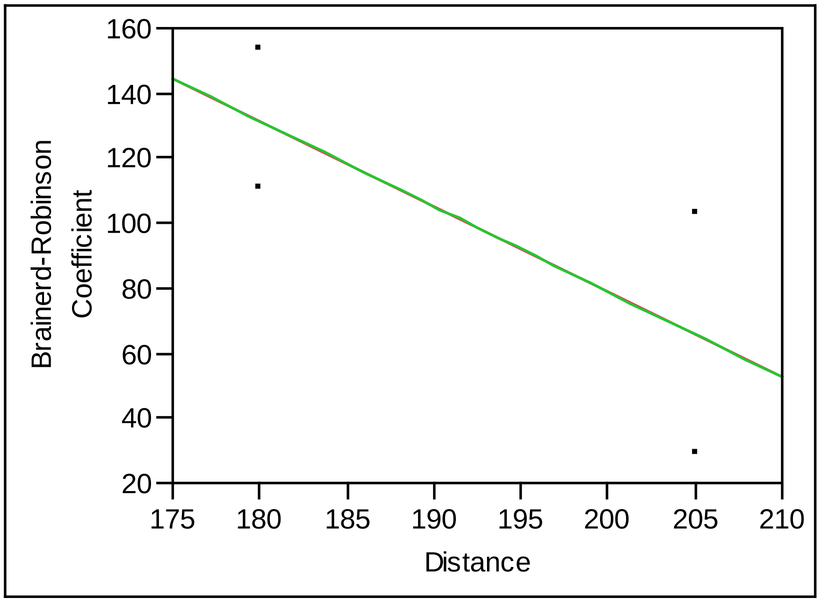


Figure 5.19. Correlations between Brainerd-Robinson coefficients and geographic distance for all site pairs involving Dixon except Dixon vs Cribb's Crib. $R^2 = .543$

Discussion of Ceramic Analyses

Disregarding geographic distance as a factor in ceramic similarity, the best method for comparing use of socially significant motifs among sites is a simple measure of similarity such as the Brainerd-Robinson coefficient. Following the results of those analyses, there is a good deal of similarity between Swantek and Dixon, greater than between any other pair of sites in this analysis and even greater than between Swantek and White Rock. This indicates that the people at the Swantek Site used presumed socially significant symbols in frequencies very similar to people at Dixon and were not clearly attempting to mark new social boundaries through them. The inclusion of distance as a factor in this analysis also presents less evidence for non-geographic factors affecting stylistic differences between Swantek and Dixon than other site pairs. Thus the active model of enthnogenesis must be disregarded for the Swantek Site and the passive model is best supported by these data. In fact, the relatively high degree of ceramic similarity and relatively great geographic distance suggests that Dixon ceramics decorations signal a connection with Dixon. This sort of behavior is predicted by the passive model in which a migrant community is experiencing resistance to drift.

Contrary to the evidence of ceramic similarity between Dixon and Swantek, the lithic data suggest infrequent interaction between the communities. This situation of infrequent social interaction and relatively high use of socially significant symbols is precisely what is predicted under the passive model of ethnogenesis involving a migrant community attempting to resist the drift effects of geographic distance, but finding the effects of geographic distance ultimately too great to maintain a single social system. If the societies that created these sites could be reliably tracked through subsequent periods of time, it is likely that they would exhibit ever greater cultural divergence as the effects of cultural drift compounded, amplifying the social differences created through passive ethnogenesis.

Other Social Boundary Markers

Although catlinite pipes have been found at White Rock sites (Rusco 1960:60), none were recovered at the Swantek Site. This may be a result of sample size, but no evidence exists that people at Swantek participated in the rituals associated with pipe smoking that are hypothesized to have developed during this period as a way of maintaining inter-social bonds. The presence of red pipestone pipes at White Rock as opposed to the ceramic elbow pipes of CPt cultures suggests that White Rock was participating, or at least attempting to participate, in activities intended to maintain and enforce social cohesion within the larger Oneota world. No indications exist that Swantek was participating in pipe-smoking rituals with any culture, but future finds of these artifacts would be very useful in further understanding Swantek's role in the region's major cultures.

Table 5.17. Matching between results of analyses and predictions made in Chapter 4. Predictions matching results are indicated with +, predictions not matching are indicated with -. Model numbers: 1 – CPt emulation; 2 – Oneota Hunting; 3 – Migration and Active Ethnogenesis; 4 – Migration and Passive Ethnogenesis.

Evidence/ Model	**1**	**2**	**3**	**4**	**Results of Analyses**
Architecture	-	-	+	+	Oneota Style architecture; Insubstantial structures, scattered posts and Features
Economy	-	-	+	+	Bison-focal economy
Exchange	-	+	-	+	Limited lithic material from east; Focus on Plains resources
Ceramics	-	-	-	+	Unique ceramic tradition with major Oneota influences
Technology	-	-	+	+	Informal tools typical of Oneota assemblages
Socially Significant Motif Presence	-	-	-	+	Stastical similarity in presence and diversity of motifs with other Oneota sites
Use of Socially Significant Motifs	-	-	-	+	No statistical distinction between Swantek motif Frequencies and Midwestern Oneota sites
Total Matches	0	1	3	**7**	**Migration and Passive Ethnogenesis best supported**

Chapter 6

Discussion and Conclusions

Ethnogenesis at the Swantek Site

The analyses presented in Chapter 5 and Appendix 3 indicate that the Swantek site was created by a group of people of Oneota heritage that migrated into the Central Plains during the Developmental Horizon and established a new, long-term community. Once there, the effects of geographic distance made it difficult for these migrants to continue interacting with their kin in the Oneota homeland of the Midwest. Instead, they engaged in a new network of interaction with other Plains Oneota people and possibly some of the region's indigenous populations. Over time, this new pattern of interaction resulted in cultural drift and the establishment of a social organization that had not previously existed. In other words, the people at the Swantek Site went through a process of passive ethnogenesis.

The predictions of the passive ethnogenesis model describe much of what can be observed in the Swantek collection – limited interaction with the homeland, continued use of basic Oneota technologies and cultural practices, and use of a wide array of socially-significant symbols in ceramic decoration from the larger Oneota tradition. Conversely, very little from the active model can be seen in this collection – no clear absence of socially-significant symbols, no complete cessation of interaction, no unambiguous signs of attempts to amplify social distance between Swantek and communities near the Missouri River.

One of the most obvious distinctions between Swantek and other Oneota sites is the relative paucity of shell tempered ceramics at Swantek. The role of shell-tempering has been much discussed in Plains archaeology, sometimes interpreted as a technological response to increased use of seed foods (e.g. Kay 2000; Bronitsky and Hamer 1986), vessel form (Braun 1983), and as a cultural trait with culture-historic or temporal significance (e.g. Steinacher 1976; Ritterbush and Logan 2000: 260). None of these arguments is convincing on its own, and if Swantek in fact represents a migrant community that experienced passive ethnogenesis, the most likely explanation would seem to be that the choice of temper has to do with geographic variation in the availability and quality of various tempering materials.

The most recent discussion of shell-tempering in the Central Plains approaches it as a response to differential availability of fuel for firing ceramics (Roper et al. 2010). Availability of fuel for firing may have had an impact and could be a partial explanation of the dramatic reduction in calcium tempering compared with other Oneota collections. The potters at the Swantek site opted to use sand or grit in the majority of cases and continued to use shell or other calcium sources in about 15% of their vessels. This is not a complete abandonment or continuation of shell tempering as might be expected if shell were seen as a socially significant trait, and if it were a socially-significant choice, then this would contradict the other evidence presented here and suggest an attempt to create larger differences between Swantek and other Oneota communities. If shell-temper is considered a technological choice and possibly an element of isochrestic style, however, the picture that emerges is one of potters accustomed to using shell in large quantities adapting to new situations of clay, temper, and fuel availability.

The economy of the Swantek site is also not significantly different than that at Western Oneota sites like Dixon (Fishel 1999). If anything, Swantek had a more bison-focal economy than Dixon. Thus it seems unlikely that there would be a correlation between shell temper and consumption of seed crops. Taken together, the most likely explanation for temper choice at the Swantek Site seems to be that shell was less available or lower quality relative to other tempering agents than it was at sites in the Midwest.

The limited evidence for interaction between Swantek and Western Oneota communities as represented in distributions of spatially-discrete resources suggests that these societies continued to interact at least occasionally. Tool stones from the Missouri River trench are found in notable, if not large, quantities within the Swantek assemblage as are stones from the Great Plains in the Dixon assemblage. This certainly indicates some interaction, but it does not provide evidence for substantial prolonged interaction. Both Western and Plains Oneota societies apparently preferred local toolstones and there is no evidence that they went out of their way to interact with each other regularly. Thus spatially discrete resources suggest that these communities did not create absolute social barriers between themselves, but did not attempt to maintain regular interaction.

An outstanding difference between Swantek and most other contemporary Oneota sites including White Rock is the complete absence of pipes or pipestone tablets at Swantek. These artifacts are considered characteristically Oneota and are very heavily invested with cultural significance, the pipes probably being part of rituals of social integration and the motifs inscribed on pipestone tablets often being complete representations of thunderbirds and other mythological beings stylized into the ceramic motifs discussed in the previous chapter. Pipestone is also a spatially restricted resource, cropping out inside of Western Oneota territory. The presence of these objects at the Swantek site would provide excellent evidence for continued participation in Oneota social networks or attempts to maintain important Oneota traditions as would be expected under the passive model of ethnogenesis. Yet not a single fragment of pipestone was recovered from excavations at Swantek. It is possible that these are in fact absent from Swantek and the other data have been misinterpreted here, but it is more likely a problem of sampling. The excavations at the Swantek Site represent a small fraction of the site area and pipestone pipe fragments are present in very limited quantities at the White Rock Site. It is expected that further investigations at Swantek would produce at least a small quantity of pipestone.

Other Plains Oneota Communities

The Swantek Site is not the first, nor the best known, Plains Oneota site. The White Rock area of north-central Kansas has been known to include substantial remains of Oneota-related people since the 1950s (Rusco 1960). Other Oneota materials were also previously known within Nebraska, including the Glen Elder Locality thought to be related to White Rock, and remains at the Leary Site in southeast Nebraska, the Stanton site in east-central Nebraska, and several occurrences recorded of features with “Oneota” or “Oneota-like” pottery in the vicinity of the Swantek Site (Wright-Umbarger especially).

What the evidence from the Swantek Site provides is documentation of a unique Oneota community in central Nebraska that has striking similarities to White Rock and Western Oneota sites like Dixon, but is clearly distinct. It seems from these analyses that White Rock and Swantek represent the effects of similar processes of migration and settlement by Oneota people followed by the development of unique cultural traditions. Further, it seems clear that White Rock and Swantek are separate from each other in terms of ceramic attributes. Swantek's pottery does not conform to the Walnut Decorated Lip variety or decorative patterns used at White Rock. The Swantek assemblage presents a unique set of stylistic and formal attributes. Given the similar economies but unique use of resources and unique ceramic wares, it is likely that they represent two separate Plains Oneota localities. If there are other sites like Swantek it its vicinity, and it seems likely that there are given the presence of pits with Oneota material at Burkett, Wright-Umbarger, and Stanton, then this likely represents a previously-unknown Plains Oneota locality.

The use of socially-significant symbols in the Swantek ceramics shows a different pattern than that of White Rock collections. In the White Rock area, there is a more clear divergence from Midwestern motif traditions including a lower overall number of motifs employed at White Rock. It is worth considering the possibility that Swantek and White Rock represent communities that experienced slightly different processes of differentiation from Midwestern Oneota traditions. While Swantek appears to show evidence of the passive form of ethnogenesis, it is possible that the people who created the White Rock site experienced a more active form of the process. This would account for the lower overall number of motifs in the White Rock ceramic assemblages and it presents an interesting avenue of future research.

Evidence for interaction between these two Plains Oneota communities is difficult to evaluate since both occupy territory including deposits of Niobrarite and both primarily used that stone. However, both also used other Plains resources such as Permian cherts from the Flint Hills and it seems reasonable to speculate that these communities interacted to some degree, and probably with each other more than with any other Oneota populations.

The presence of at least two distinct Plains Oneota localities, White Rock and Swantek, indicates that migration and settlement of Oneota people on the Plains may have been a fairly widespread phenomenon in the Developmental Horizon. Taken together, these sites indicate that the site-unit-intrusion model of Oneota settlement on the Central Plains is likely incorrect and rather Logan and Ritterbush's model of Onetoa people making permanent homes on the prairies is more likely. Going forward, archaeologists should consider this to have been Oneota territory during the 12^{th}-14^{th} centuries.

The territory occupied by the Central Plains tradition in previous centuries was apparently occupied by Plains Oneota people during this period, creating an expanded overall continental presence of Oneota people (Figure 6.1). Interestingly, Hollinger (1995: 198 Figure 32) predicted this in his study of Oneota expansion into the Mississippi Valley during this period. He speculated that as Oneota societies became expeditionary and engaged in a process of aggressive territorial expansion, they would also likely occupy new territory in the bison-rich but largely undefended Central Plains. The results of this analysis bear out Hollinger's hypothesis.

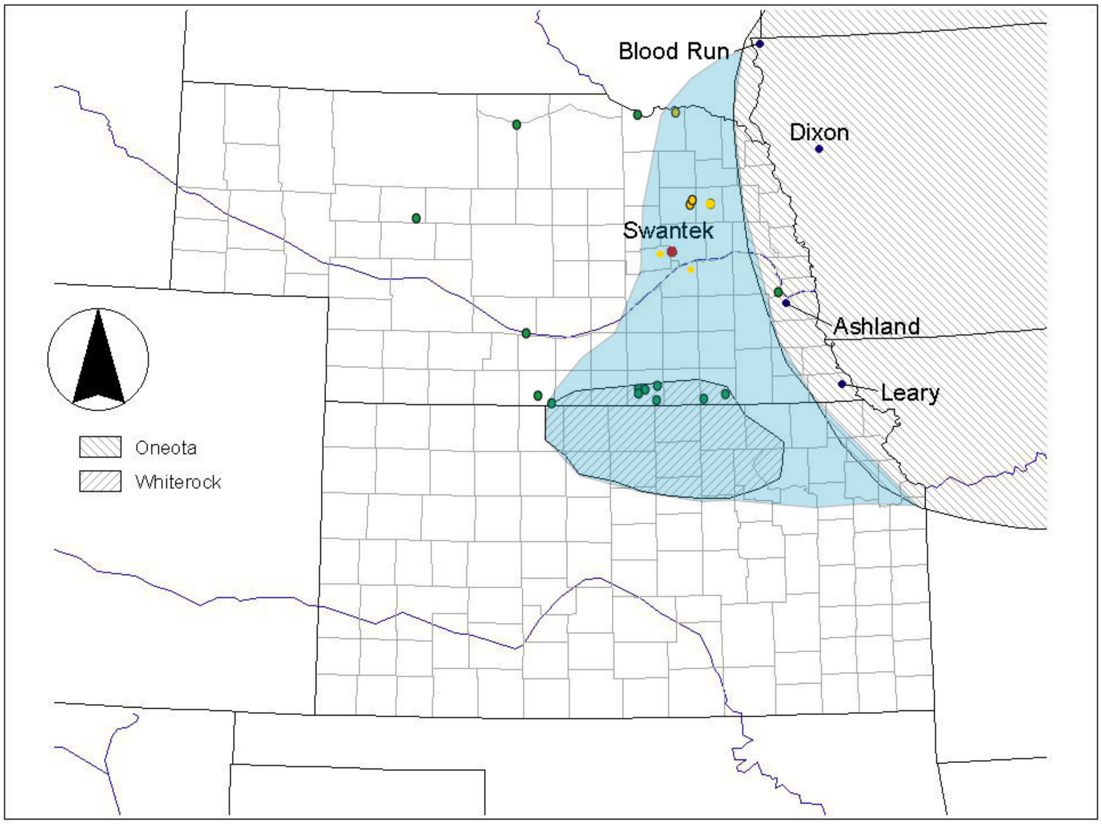


Figure 6.1. Proposed map of Developmental Horizon Oneota territory. Current models of Oneota territory indicated in cross-hatched areas, proposed addition indicated in shaded area. Plains sites with known Oneota materials marked with dots.

<u>Central Plains Culture History</u>

The implications of these findings for Central Plains culture history are substantial. The most obvious implication is that Oneota-derived groups constituted a significant cultural presence on the Central Plains during the Late Prehistoric period. This has a major impact on traditional models of Late Prehistoric population movements during this period. Current culture-history recognizes the period from 1150-1400 AD as a time of cultural hiatus during which the earlier Central Plains tradition populations seem to have left the region and migrated to other places such as the Upper Missouri River valley (Steinacher and Carlson 1998: 258). The dominant model for explaining this invokes localized droughts that drove bison herds out of the area and compelled CPt people to follow them (Baerreis and Bryson1965; Lehmer 1971; Wedel 1986). Blakeslee (1993) has alternately suggested that paleoclimatic analysis does not indicate coincidence of drought onset and abandonment, but that instead a swidden horticulture cycle among CPt farmers led to soil depletion and abandonment.

The evidence from Swantek and the White Rock sites, however, call both of these models into question. First, it is clear that the Central Plains were not abandoned during this period, but that CPt people were replaced with people of Oneota derivation. Following that understanding, the notion that these events were triggered by environmental change alone are called into question as well. The CPt economies are widely understood to have been characterized by corn agriculture supplemented with diversified opportunistic hunting and gathering (Steinacher and Carlson 1998; Pugh 2009). The Plains Oneota economies, on the other hand, were characterized by intensive bison-focal hunting supplemented with limited gardening and foraging of other wild foods (Logan 1995; Ritterbush 2002; Appendix 3 this volume) and the late CPt Itskari tradition likewise includes a greater focus on large mammal hunting than earlier CPt economies (Ludwickson 1978). If the territorial shifts of this period were brought on by environmental changes that drastically limited the number of bison available, it is extremely unlikely that the outgoing generalized opportunistic economy would be replaced by a bison-focal one. The possibility of a swidden cycle in the Central Plains tradition has been dealt with elsewhere (Pugh 2009) and the evidence doesn't seem to support this model either. Thus the most likely scenario seems to involve CPt abandonment of the territory as a reaction to some other external pressure, possibly a social one.

There is other evidence supporting the notion that the CPt abandonment was brought on by social rather than environmental changes as well. Logan (1998 and personal communication) and others (Peterson and Herman 1996) have noted that the Itskari populations that remained in the Central Plains after most other CPt people had left changed their lithic acquisition patterns significantly at this time. Instead of focusing on Niobrarite resources as earlier CPt communities in the area had and as Plains Oneota populations did, Itskari people began using larger quantities of materials from far west of the site, especially Flat Top Chalcedony from the Nebraska panhandle and eastern Wyoming (Logan 1998; Peterson and Herman 1996). Commenting on this drastic change, Logan suggested that a social change involving the sudden presence of White Rock people may have created a new boundary between Itskari people and the much closer Niobrarite outcrops, necessitating this much longer resource acquisition pattern (Logan 1998: 263-364). From the data presented here, Logan's theory that that social change was the incursion of Oneota people into the Central Plains, monopolizing Niobrarite resources is correct, but that it should be expanded to include multiple groups of Oneota migrants.

Evidence of CPt life before the Oneota migration bears no evidence of inter-community conflict in settlement or skeletal trauma. However, at least two later CPt sites include significant evidence of inter-community violence. The Sargent Site Ossuary in Custer County, Nebraska includes disarticulated skulls with evidence of scalping (O'Shea and Bridges 1989) that apparently reflects battle injuries and burial of war dead. O'Shea and Bridges (1989:19) suggest that evidence of warfare may be present in other CPt burials and current models of relative peace throughout the CPt occupation of the Central Plains should be reevaluated. The early 14th century Crow Creek Site in southern South Dakota (Gregg et al. 1981; Zimmerman 1985; Zimmerman and Bradley 1993) also includes significant evidence of warfare. This site differs from other CPt sites in its northern location, large size, and fortification. Most strikingly though, Crow Creek includes the remains of nearly 500 individuals apparently killed in a raid and interred into an *ad hoc* mass burial. Although this is an unusual site and differs from the CPt pattern in many respects, it suggests that this late CPt community not only experienced violence, but also expected it and took defensive measures in the form of a larger village distant from the CPt heartland with a fortification ditch.

Even in earlier contexts, there is sporadic evidence for inter-personal, and likely inter-community, violence in the CPt. Hollinger (2005:193-194) summarizes this evidence in the context of wider Developmental Horizon violence. Perhaps most significantly he notes evidence for projectile points lodged in bone, further evidence of scalping, and decapitation (Owsley and Bruwelheide 1997; Bass 1961; Hill and Wedel 1936). Hollinger also points to evidence for violence at the Leary site, an early Oneota site in Nebraska, which includes much of the evidence described above as well as a human bone carved with the Oneota thunderer motif, an image of war (2005:194). Clearly violence was a part of expansion for Developmental Horizon Oneota people and some amount of violence had become part of CPt life by at least the early 14th century.

Although this data set is limited, it suggests that CPt people who were present during the period of Oneota incursion into the Plains experienced significant inter-community violence for the first time, coincident with changes in lithic acquisition patterns and the abandonment of the region by most CPt people. These various lines of evidence all suggest that the migration of Oneota people into the Central Plains was not a completely peaceful movement of Midwesterners into territory suddenly left open by drought and outmigration, but an aggressive act of territorial expansion similar to the movements of Oneota people into the Mississippi River valley at the same time (Hollinger 1995). The reaction by CPt people may largely been one of avoidance as proposed by Logan (1998), but real violence was clearly also part of the process.

Going forward, it will be necessary to consider what role, if any, these Plains Oneota cultures may have had on later social processes in the Great Plains. The data considered in this analysis do not lend themselves to any interpretation of later processes, but it is possible that Oneota populations had a greater role in the Protohistoric development of the tribes known in the region historically than has previously been considered.

Developmental Horizon Oneota Expansion

Hollinger has recently described a similar process of Oneota expansion into the Mississippi River Valley during the Developmental Horizon (1995). He identifies a considerable amount of violence as part of the Oneota mode of expansion and suggests that Oneota people were militarized during earlier experiences with Mississippian societies and became expeditionary during this period, ultimately replacing Mississippian communities as the dominant social organizations in parts of the Midwest. Given the implications of the materials from the Swantek Site, it seems likely that this process of aggressive territorial expansion by Developmental Horizon Oneota communities occurred on the western edge as well as the eastern. Hollinger (1995:184-218) predicts this, and even produces maps of possible new western boundaries to Oneota territory similar to those produced here (Hollinger 2005:198 Figure 32).

Detecting Ethnogenesis Archaeologically

The predictions laid out in the models of ethnogenesis in previous chapters provide useful tools for archaeologists seeking to understand the processes behind the creation of new social organizations that can be applied in many contexts. The process for archaeologists involves first identifying a case where ethnogenesis has occurred by identifying apparently novel constellations of site attributes that have clear historic connections to known archaeological societies but are linked to new patterns of regular interaction. Doing this involves identifying familiar economic, material, and social practices in arrangements that indicate an historic relationship rather than simple emulation, as well as evidence for discrete patterns of regular interaction. Once a case of ethnogenesis has been identified following these guidelines, archaeologists can fruitfully move on to investigating what type of ethnogenesis occurred. The two basic types of ethnogenesis discussed here, active and passive involve very different processes and thus leave very different archaeological signatures.

In the active model, the basic process is one of consciously creating a new social boundary that serves to emphasize or amplify social distance and create mutually exclusive arenas of interaction. Thus this form of ethnogenesis may involve any amount of geographic distance, even very small distances, but will be evident by a complete cessation of peaceful interaction between communities. Other important archaeological signals of active ethnogenesis are likely to be stylistic. Communities attempting to create or amplify social distance will use socially-significant symbols in highly visible but distinct ways. Archaeologically this is likely to be evident in the form of individual communities suddenly using mutually exclusive subsets of a symbolic repertoire that was previously shared by a larger group. In cases where active ethnogenesis can be identified, further investigation of the specific meanings of these symbols, where possible, can be further illuminating as to the source of the original fission that drove the ethnogenesis.

Passive ethnogenesis on the other hand is unlikely to occur over very short geographic distances. The model outlined in Chapters 2 and 3 for passive ethnogenesis is predicated on the existence of some boundary to interaction existing between communities that were previously part of a single integrated society. Because of this boundary, regular interaction ceases and cultural drift pulls the societies apart, ultimately resulting in the formation of a new social boundary. Scenarios are possible for passive ethnogenesis to occur without great geographic distance – major changes to the physical or social environment making interaction across a short distance suddenly difficult – but most likely cases will involve migration and geographic distance limiting interaction. Thus archaeological cases of passive ethnogenesis are most likely to involve societies that have recently experienced migration and have become geographically distant. Since both passive and active ethnogenesis are possible among distant communities, it is necessary to investigate other evidence to make this distinction

In a case of passive ethnogenesis, there is no assumption of a total cessation of interaction, only a progressive reduction. Thus it is likely that a community undergoing passive ethnogenesis will continue to have limited contact with the community from which it split and archaeologists investigating it should expect to find limited evidence for interaction in the form of some quantities of spatially discrete resources being exchanged between the communities. The archaeological distinction between passive and active modes of ethnogenesis is likely to be most pronounced in stylistic variation. As discussed above, archaeologists should expect to find evidence of socially significant symbols being used in different ways in each community in order to mark a new social boundary. Under the passive model, exactly the opposite is predicted. Rather than emphasizing a social boundary, a migrant community undergoing passive ethnogenesis is likely to mask an emerging division by continuing to use a broad range of social symbols from the larger community. Thus this is likely to be represented archaeologically by a pronounced similarity in stylistic attributes among communities even as they show decreased amounts of interaction. It is further likely that communities undergoing passive ethnogenesis may resist this process and attempt to maintain the appearance of integration by using culturally-significant symbols more visibly and archaeologists may observe this with increased use of stylistic elements of a similar set along a social boundary forming through passive ethnogenesis.

A key element of distinguishing passive and active ethnogenesis for archaeologists is therefore stylistic analysis and artifacts such as ceramics, pipes, and other visible decorated objects lend themselves well to such investigations. Care must be taken, however, to consider only symbols that can adequately be argued to be socially significant. In both types of ethnogenesis, there are likely to be many similarities of social life and material culture between fissioned groups as they continue to do most things in the same ways that they had previously. Not all ceramic decorations will be significant to the social divisions at work and it is possible to have similar use of motifs even in an active case of ethnogenesis. In addition to the predictions laid out by Wobst (1977) and discussed in Chapter 3, evidence from ethnohistory or archaeology pertinent to each case is necessary to ensure that only socially-significant symbols are being investigated. The Oneota motifs used in this analysis have been linked to key social divisions within Oneota society in previous studies (e.g. Benn 1989; Link 1995).

Theoretical Implications

This dissertation was undertaken with two major goals – 1) to create a model of tribal ethnogenesis in order to better understand the limits of flux in these societies and 2) to apply that model to the Late Prehistoric period on the Central Plains in order to illuminate some of the shadier areas of current culture-history models.

By combining current models of tribal societies, which see them as dynamic structures that can reorganize quickly in response to uncertainty, with a Barthian paradigm of integration through regular interaction, the limitations of tribal flux become apparent. Certain situations cause tribal societies to adopt organizational postures outside the normal parameters of flux allowed for in the organizational syntax of social logic and when these conditions persist, new social systems can be formed.

These models of ethnogenesis build on existing bodies of social and tribal theory by understanding the mechanisms of tribal flux as regulated interaction and the limits of tribal flux therefore as deriving from problems of inter-personal and inter-community interaction. The discrete processes in these models also result in unique traces in the material world and are therefore accessible to archaeologists.

Directions for Future Research

This study presents several possible directions for future study both in terms of culture-history and theory. The Swantek Site itself merits further investigation to determine the precise size and layout of the site and whether the excavations described here are in fact representative of the entire site area. This study assumes that Swantek represents a large community in the style of Western Oneota and White Rock village sites. If that is true, then there should be similar features and evidence for architecture throughout the entire area of observed artifact scatter. These investigations should seek information on the exact size of the site but also evidence for spatial organization and different activities that may have been carried out on other parts of the site. Testing and excavation will be helpful in these investigations, but non-destructive techniques such as remote sensing of the site area for detection of feature patterns will also provide data on site size and layout at relatively low cost. Collections of artifacts from other areas of the site should be compared for formal and stylistic similarity and further radiocarbon dates should be gathered to determine conclusively whether this site represents a contemporary village in the Oneota style or a smear of superimposed small settlements as is the case for most large Central Plains tradition sites.

Culture-historically, this study suggests that current models of Late Prehistoric life on the Central Plains need to be fundamentally reconsidered. Since the Swantek Site appears to represent a unique cultural presence in the region, priority should be given to identifying other sites near it with similar material culture patterns to determine if it is alone or in fact represents a larger pattern of westward Oneota migration. If Swantek is a single site in a larger locality, as with the White Rock site, then other sites with similar artifacts and settlement layout should be located nearby. It will be important for archaeologists working in the immediate area of Genoa, Nebraska to be aware of this unique material culture for identification of previously unknown Oneota sites.

Reconsideration of already-known sites with Oneota materials is also important. Specifically the Stanton (ST1) (Gunnerson nd) and Wright-Umbarger (NC3) (Kivett 1958; Lamb 1936) are in the potential Swantek Locality and include features with materials that earlier researchers identified as Oneota. Detailed analyses of these collections will be informative in determining if they share similarities with Swantek and further excavation at Wright-Umbarger may be possible. The documentation for a number of other sites on file at the Nebraska State Historical society also includes incidental mention of Oneota material but little is available in the way of specific details. Where further excavations or reconstruction of feature patterns are not possible, as with the now-destroyed Stanton Site, ceramic analyses should be done with existing collections to determine if Swantek's unique pattern of formal and stylistic attributes is repeated. If more sites like Swantek can be identified, then the identification of this as a unique locality like the White Rock area will be warranted.

The White Rock settlement pattern also apparently includes hunting territories in southern Nebraska's Glen Elder locality away from the main village area. If the people at the Swantek Site shared a similar foraging strategy with White Rock, then it is possible that they also used hunting territory away from the main village sites. Thus known sites with Oneota-like ceramics more distant from Swantek should also be evaluated for the possibility that they reflect a different mode of Plains Oneota life. On this same note, the materials from Glen Elder warrant reanalysis and comparison with Swantek to investigate the possibility that they in fact represent hunters from the Swantek area or even the possibility of shared hunting territory and interaction between Swantek and White Rock people. Basic comparisons of artifact form and style will be illuminating for these questions.

Investigations of interaction between Swantek and White Rock themselves will be informative for understanding the nature of the new social organizations represented by these sites, but they will be difficult because of the nearby lithic sources for both sites and the similarities in the Niobrarite immediately available in each area. Thus more detailed analyses such as chemical analyses of toolstone sources in the different Plains Oneota areas could be useful.

The motif analyses performed in Chapter 5 were somewhat hampered by the lack of data describing motifs at various Oneota sites in a form that can be compared. Thus re-coding of existing collections and coding of new collections into a standardized motif key would be vastly useful. In particular other Western and Plains Oneota sites should be recoded specifically with the intent of comparing motif and motif element frequencies as was done in Chapter 5. Lauren Ritterbush has recently begun a reanalysis of the ceramics at the Leary Site of eastern Nebraska (2002 and personal communication) and this site will be an invaluable comparative sample form the area between Plains and Western Oneota communities.

Another informative step that could be taken would be a detailed motif analysis of collections from multiple sites within known Oneota localities following the procedure used here. Beginning with sites that are believed to have been part of a regularly interacting network within a community and comparing the similarity of motif usage within a locality then between sites within and outside the locality will be instructive in establishing a baseline data set for the amount of motif variation that should be expected within and between Oneota communities. It is expected that the effects of social boundaries will create a pattern in which integrated Oneota sites are significantly more similar to each other than they are to sites from other networks, even when accounting for geographic distance (following Plog 1976).

Although there are striking similarities between Swantek and White Rock archaeology, it does not necessarily follow that the people that created these sites and site clusters went through the same cultural processes. Thus re-analysis of the White Rock materials following the procedures in this study may be instructive for understanding potential differences. If White Rock in fact went through the same sort of passive ethnogenesis that Swantek appears to have experienced, then the materials there should show similar patterns of motif similarity and limited interaction that are apparent at Swantek. These tests should be repeated wherever possible with existing and future White Rock collections to investigate whether similar processes of ethnogenesis took place in each area.

A diachronic perspective on social transformation in the Central Plains will also be useful. The presence of a significant Oneota presence on the Central Plains in the Late Prehistoric period raises difficult questions for the ancestry of the Protohistoric and Historic tribes of the area. Re-evaluation of the known data from these periods with consideration of the possibility that some elements include Oneota derivation will be critical. Several of the ceramic types in Lower Loup (Protohistoric Pawnee) archaeology for example (Grange 1968) have at least superficial similarities with the Plains Oneota ceramics such as globular shape, slightly flared low rims, strap handles, frequent lip top decoration, and even use of certain motifs such as the nested triangle motif that is so common at Swantek. In some cases, Lower Loup ceramic types such as Nance Flared Decorated could be right at home in Plains Oneota collections. Specific investigation of ceramic and other artifact similarities in these areas may indicate an Oneota influence in these later societies, which would suggest major changes to the currently understood culture-histories for Plains tribes.

The model of ethnogenesis outlined in earlier chapters also bears further study. Fission and ethnogensis are documented ethnohistorically and cases where sites that resulted from identifiable cases of the various modes of ethnogenesis provide avenues for testing the assumptions of the models. For example, the early 18th century split between the Omaha and Ponca seems to have been a clear example of a conscious fission process over changing political organization that ultimately led to an active process of ethnogenesis resulting in the creation of the Ponca as a distinct tribe (O'Shea and Ludwickson 1992:20 following Fletcher and La Flesche 1911 and Howard 1965). Thus the material culture from these very early Ponca sites and contemporaneous Omaha sites should demonstrate a clear cessation of peaceful interaction and distinct use of socially significant symbols in each community.

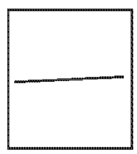
Cases of passive ethnogenesis are also well-documented in the Late Prehistoric and Protohistoric records of Midwestern and Great Plains tribes. The movement of the Lakota from Minnesota into the Dakotas is a prime example of this and involved migration and establishment of a number of new social groups in a new territory. Thus investigation of the changes in socially-significant symbolism coincident with massive changes in economic and technological routines of these Siouan people will be instructive for testing the assumptions of the passive model of ethnogenesis. Lakota material from the early to mid 18th century for example could be used to test the assumption that socially significant symbols are more resistant to transformation than technological practices under this type of ethnogenesis. At a time when these people who were previously sedentary horticulturalists became the classic mounted raiders of early American history, the passive model suggests that they would have retained symbolic practices similar to those used in their earlier phase of life.

As the database of cases of tribal ethnogenesis grows from archaeological research such as that described here, our understanding of broader tribal processes will be strengthened. Research on tribal cycling has been useful in understanding the durability of tribal forms and the nature of tribal society itself as a social form resistant to large scale flux (Parkinson 2002). The case of Oneota expansion and ethnogenesis, however, clearly demonstrates that there are limits to this flexibility. Over great geographic distances and differences in physical environments, the ability of a tribal society to integrate people in space is tested. Clearly for Oneota societies, the migration of people from the Midwest into the Central Plains surpassed the limits of tribal flexibility and ethnogenesis occurred. The result was a novel social form, a tribal organization made up of people from the Oneota heartland establishing new social and cultural patterns in the Great Plains. It will be informative to tribal theorists to gather more data on the extent to which tribal societies can be spread under differing conditions and the subsequent relationships between groups related in deeper history for understanding the nature of tribes more generally.

An important aspect of tribal transformation that has not been dealt with in this study, but that is very relevant to tribal studies generally and Great Plains culture history specifically is the sort of processes behind fusion ethnogenesis. In this study, only ethnogenesis resulting from splitting of existing tribes (one into many) has been discussed, but the processes that took place in the American colonial period were often the opposite, involving the merging of previously autonomous societies into newly coalesced ones (many into one). Examples from North America include the merger of the Skidi Pawnee with the Southern bands, the formation of the Commanche tribe or the 19^{th} century merger of the Mandan, Hidatsa, and Arikara. This was a common form of adaptation to extreme demographic, political, and social changes that came with the colonial period and requires serious consideration so that archaeologists can understand these processes as well.

Appendix 1

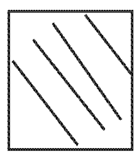
Ceramic Motif Element Coding Key



Decoration Number 1

Description: Single trailed line evident; decorated area of sherd too small to show other elements

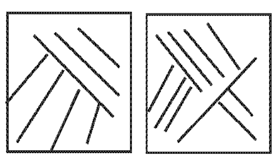
n=145



Decoration Number 2

Description: Multiple parallel trailed lines; no other elements evident; indicate number of lines in notes field

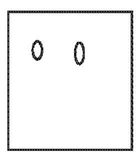
n=367



Decoration Number 3

Description: Opposed fields of paralllel trailed lines

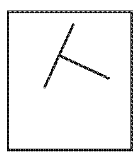
n=83



Decoration Number 4

Description: Punctates; no other elements apparent; indicate number of punctates present in notes field

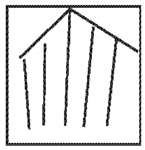
n=4



Decoration Number 5

Description: Opposed trailed lines; one in each direction; no other elements present

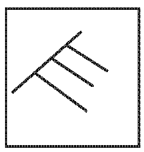
n=8



Decoration Number 6

Description: Field of parallel trailed lines within a trailed chevron

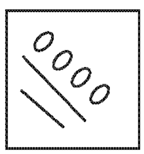
n=1



Decoration Number 7

Description: Parallel trailed lines opposed to a single trailed line; possibly motif #3 but sherd is too small to see entire design

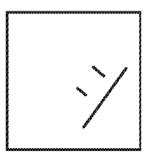
n=32



Decoration Number 8

Description: Parallel trailed lines bordered by parallel line of punctates

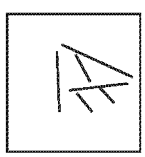
n=9



Decoration Number 9

Description: Very short parallel trailed lines opposed to single trailed line

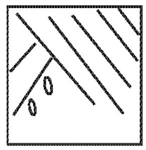
n=2



Decoration Number 10

Description: Odd assortment of diagonally opposed trailed lines within a trailed chevron; likely part of a larger motif, but obscured by small sherd size

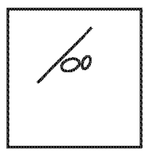
n=1



Decoration Number 11

Description: Opposed fields of parallel trailed lines with punctates along edge of one field

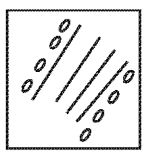
n=1



Decoration Number 12

Description: Single trailed line and multiple punctates; punctates not evenly spaced from line

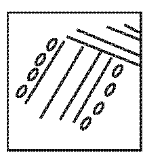
n=2



Decoration Number 13

Description: Field of parallel trailed lines with lines of punctates parallel along edges; large undecorated areas

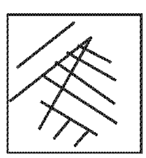
n=13



Decoration Number 14

Description: Field of parallel lines with lines of punctates parallel along edges and an opposed field of parallel lines with no punctates; large undecorated areas

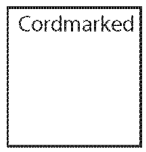
n=0 (redundant motif)



Decoration Number 15

Description: Opposed and partially cross-cutting fields of parallel trailed lines

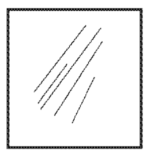
n=5



Decoration Number 16

Description: Cordmarked

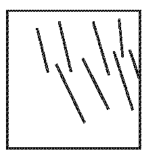
n=7



Decoration Number 17

Description: Very fine, nearly parallel trailed lines; possibly accident of manufacture, but appears to be intentional

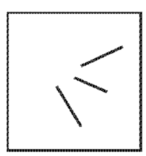
n=2



Decoration Number 18

Description: Nearly parallel lines ending with others beginning nex to them; this is observed on base-curve sherds and appears to be a continuation of a #2 motif onto the under-side of the pot

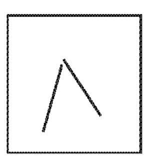
n=1



Decoration Number 19

Description: Trailed lines at odd angles to each other

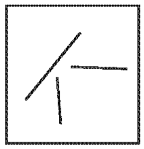
n=1



Decoration Number 20

Description: Trailed chevron

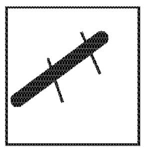
n=2



Decoration Number 21

Description: Opposed individual trailed lines leading to a single line at a third orientation

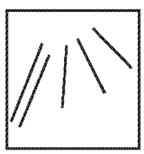
n=1



Decoration Number 22

Description: Wide trailed line crossed by finer trailed lines

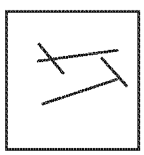
n=1



Decoration Number 23

Description: Radiating trailed lines

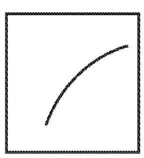
n=1



Decoration Number 24

Description: Nearly parallel trailed lines crosscut by shorter trailed line segments

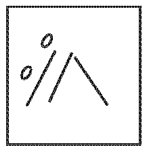
n=1



Decoration Number 25

Description: Curved trailed line

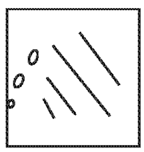
n=1



Decoration Number 26

Description: Opposed sets of trailed lines with punctates

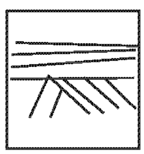
n=2



Decoration Number 27

Description: Fields of parallel trailed lines and a line of punctates perpendicular to the trailed lines; part of motifs #11 and 14?

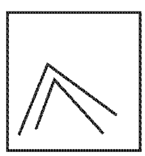
n=1



Decoration Number 28

Description: Opposed fields of trailed lines topped with a band of very thin parallel lines oriented horizontally to the vessel; observed at neck curve

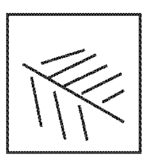
n=1



Decoration Number 29

Description: Multiple trailed chevron or herringbone with no fill

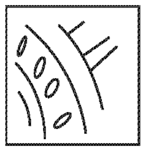
n=1



Decoration Number 30

Description: Opposed fields of trailed lines divided by a single trailed line

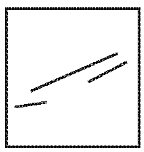
n=3



Decoration Number 31

Description: Concentric curved trailed lines, a band of punctates layered between the lines, and a series of trailed lines radiating out from the outermost curved line

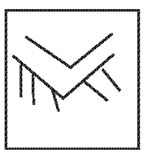
n=1



Decoration Number 32

Description: Single trailed line with two line segments nearly parallel to it

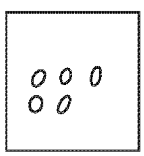
n=1



Decoration Number 33

Description: Double trailed chevron with parallel trailed lines extending away from it

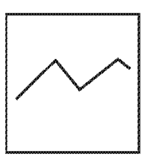
n=1



Decoration Number 34

Description: Field of punctates

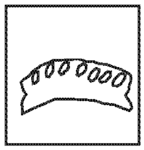
n=1



Decoration Number 35

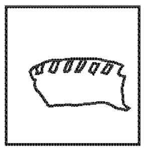
Description: Horizontal zigzag; possibly part of other motif, but entire design not present

n=1



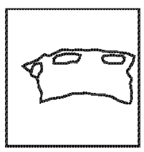
Decoration Number 101

Description: Ovate tool impressions applied in a counterclockwise direction from the outside of the lip



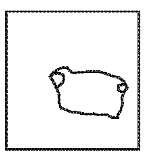
Decoration Number 102

Description: Rectangular tool impressions applied in a counterclockwise direction from the outside of the lip



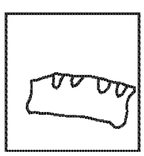
Decoration Number 103

Description: Ovate tool impressions applied in a counter clockwise direction parallel to the lip



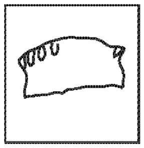
Decoration Number 104

Description: Incomplete tool impressions; cannot be identified definitely



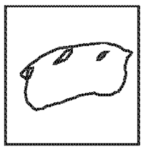
Decoration Number 105

Description: Ovate tool impressions applied vertically (perpendicular to the lip)



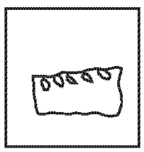
Decoration Number 106

Description: Ovate punctates applied nearly vertically intermittently with undecorated areas



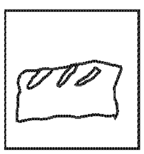
Decoration Number 107

Description: Fingernail Impressions alligned counterclockwise from the outside in



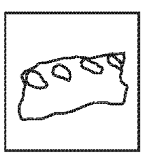
Decoration Number 108

Description: Ovate tool impressions applied in a clockwise direction from the outside of the lip



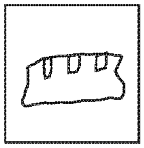
Decoration Number 109

Description: Ovate tool impressions made with a pointed tool applied in a counterclockwise direction from the outside of the lip



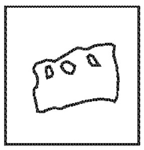
Decoration Number 110

Description: Ovate tool impressions made with a pointed tool applied in a clockwise direction from the outside of the lip



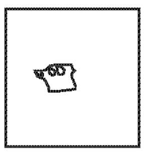
Decoration Number 111

Description: Rectangular tool impressions applied vertically (perpendicular to lip)



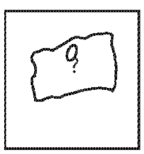
Decoration Number 112

Description: Rectangular tool impressions applied in a clockwise direction with respect to lip



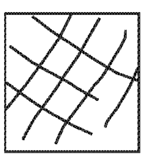
Decoration Number 113

Description: Ovate Punctates made with pointed tool in unknown direction. Also, a round punctate is next to one of the ovate ones. Not enough sherd to identify direction of application or entire motif.



Decoration Number 114

Description: Ovate Punctates; not enough of sherd remains to identify direction of application



Decoration Number 36

Description: Trailed lines in a cross-hatch pattern

n=1

Appendix 2

Key for Recoding Ceramic Motifs

Re-Coded Category	Cribb's Crib	Humphrey and Vosburg	White Rock	Dixon	Swantek (Appendix 1)
Field of parallel trailed lines	1,2	5a	Parallel Incised Lines	Parallel Trailing	2
Opposed fields of trailed lines any number of fields	1a, 1e, 1h, 1i	2a	Opposed Diag Trailed Lines	Opposed Diagonal Trailing	3, 15, 28
Field of trailed lines bounded by punctates	2a, 2b, 2e, 2h, 2i, 7c	5b		Punctation Along Trailed Lines	8, 13, 27
Opposed fields of trailed lines bounded by punctates (one or more punctate borders)	1b, 1c, 1d, 1f, 1g, 7b	2b			11, 14, 26
Punctates (linear or close, no fields)	7, 7a, 7e	1b			4
Punctate fields				Punctation	34
Chevron (single or multiple	3e, 4	4a	Chevron, Intersecting Chevrons	Chevron	10, 29
Chevron filled with trailed	4d				6
Chevron with trailed radiating up					33
Chevron with punctates	3, 3a, 3b, 4a, 4b, 4c, 4h	4b		Chevron with Punctation	
Chevron with punctates and fields of parallel lines	3c, 3d, 4e, 4f, 4g				

Herringbone					30
ZigZag					35
Curvilinear		6a		Festoon; Horizontal Meander	25
Bullseye or concentric	5, 5a, 5b, 5c, 5d			Bullseye	31
Perpendicular trailed lines	2d	3a	Perp Intersecting Trailed Lines; Perpendicular Trailed Lines	Perpendic ular Trailing	5
Perpendicular trailed lines with punctates	2c, 2f, 2g	3b, 7b			
Radiating Trailed Lines					19, 23
Cross	6				
Chevron of punctates	7d, 7f				
Parallel trailed lines bounded by single opposed trailed (may be part of filled chevron?					7, 9
Single trailed line with punctates					12
Chevron with other trailed line					21
Curvilinear with punctates		6b		Festoon with Punctation	
Wide Vert Trails (Pumpkin Pot)				Wide Vertical Trails	
Other	8	8a	Red painted double chevron with field of trailed lines	Node; Oblique Tool Trails	10, 17, 18, 22, 24, 32

Appendix 3

Report of Excavations at the Swantek Site

In order to situate the Swantek Site in the culture-historic context of the Late Prehistoric Central Plains, it is compared here to the region's other major archaeological cultures discussed in the previous chapter. Similarities and differences are drawn between Swantek and those other cultures, and conclusions are made as to the relationships of the Swantek Site.

Dates

Two radiocarbon dates were taken from the Swantek Site. Both dates were calculated by Beta Analytic Laboratories using wood charcoal samples from feature contexts. The first date was taken from Feature 6, a formal bell-shaped storage pit within the walls of the structure, and it returned a calibrated date of AD 1290-1420 (Table 1). The second date was taken from the refuse pit feature also inside the structure, Feature 5, and it returned a very similar date of AD 1260-1410 calibrated.

Table1. Radiocarbon dates from the Swantek Site. Dates and calibration performed by Beta Analytic.

Feature Number	Feature Type	Conventional Age	Calibrated Date
6	Storage Pit	600 +/- 40 BP	AD 1290-1420
5	Trash Pit	660 +/- 60 BP	AD 1260-1410

These dates place the occupation of the structure at the Swantek site in the Late Prehistoric period. As discussed in chapter 2, traditional models of Plains Prehistory suggest that CPt people had nearly abandoned the region during this time, possibly due to environmental hardship (Baerreis and Bryson 1965), leaving only Itskari and other small vestigial populations of CPt people behind. Perhaps significantly, the lingering Itskari population was concentrated in the Loup River valley immediately west of the Swantek Site. Meanwhile, Oneota populations were expanding throughout the Midwest (Hollinger 2005) and this is approximately the same period when White Rock sites first appear in Kansas (Rusco 1960; Logan 1995, 1998; Ritterbush 2002; Ritterbush and Logan 2000).

Settlement and Architecture

Excavations at the Swantek site documented a number of features including nine large postholes approximately 20 cm in diameter and excavated approximately 20 cm into sterile subsoil and an additional 15 shallow round stains that may be the remains of smaller posts (Figures 1-2). Additionally, Feature 10 is a concentration of bone and dark soil in a roughly circular pattern with no apparent edges. The bottom of the feature, however, includes a slightly deeper circular depression that may be the remains of another posthole. The six largest posts form a curved line (Figure 3-4) that is also roughly coincidental with an isobar in artifact densities (Figure 5-7) suggesting that this is the outline of a prehistoric structure. The apparent wall forms a rounded corner at what was the southwest of the structure and possibly the outline of a third wall to the southeast as well.

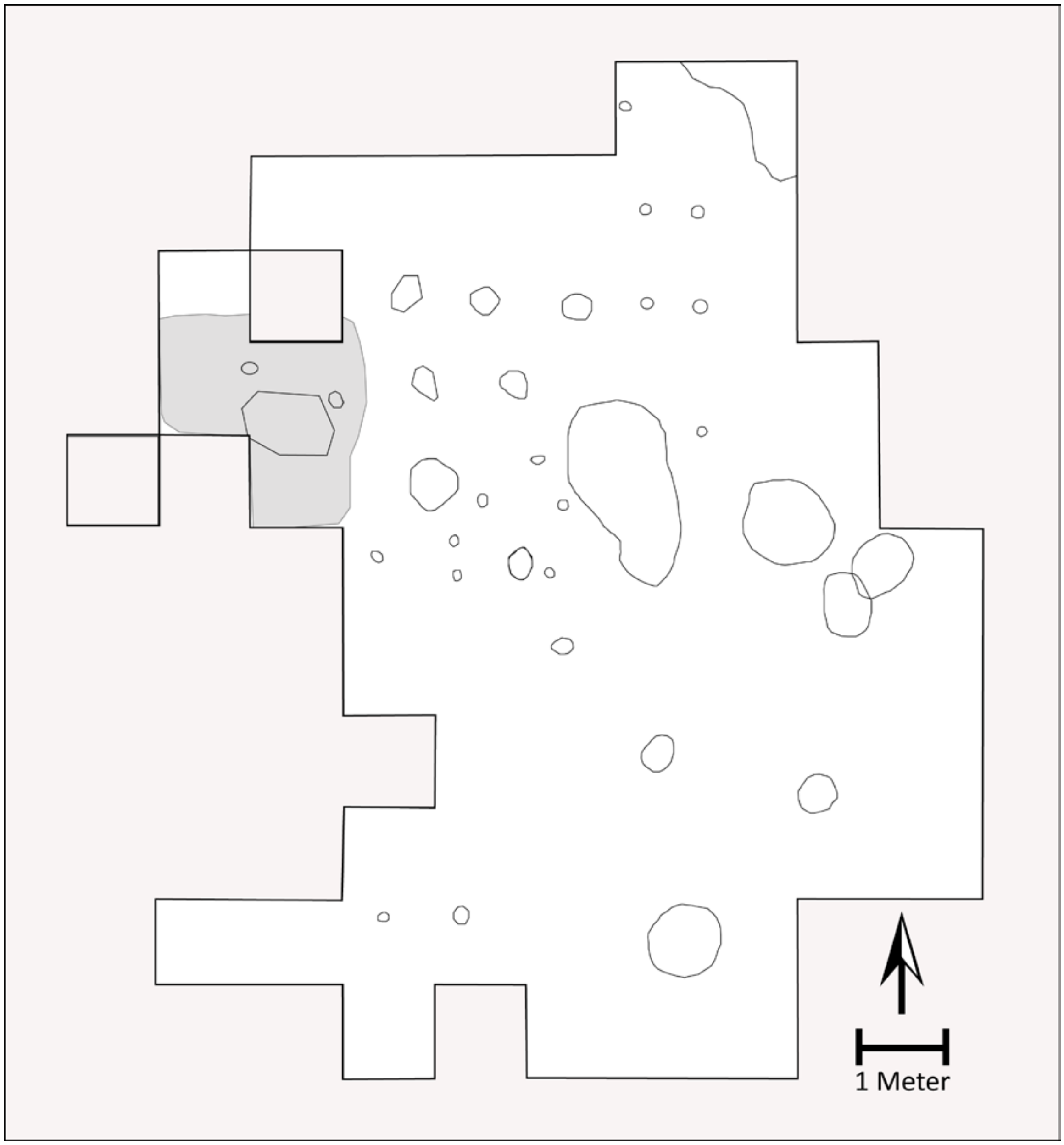


Figure 3. All Features Excavated at the Swantek Site. Midden area is marked in gray.

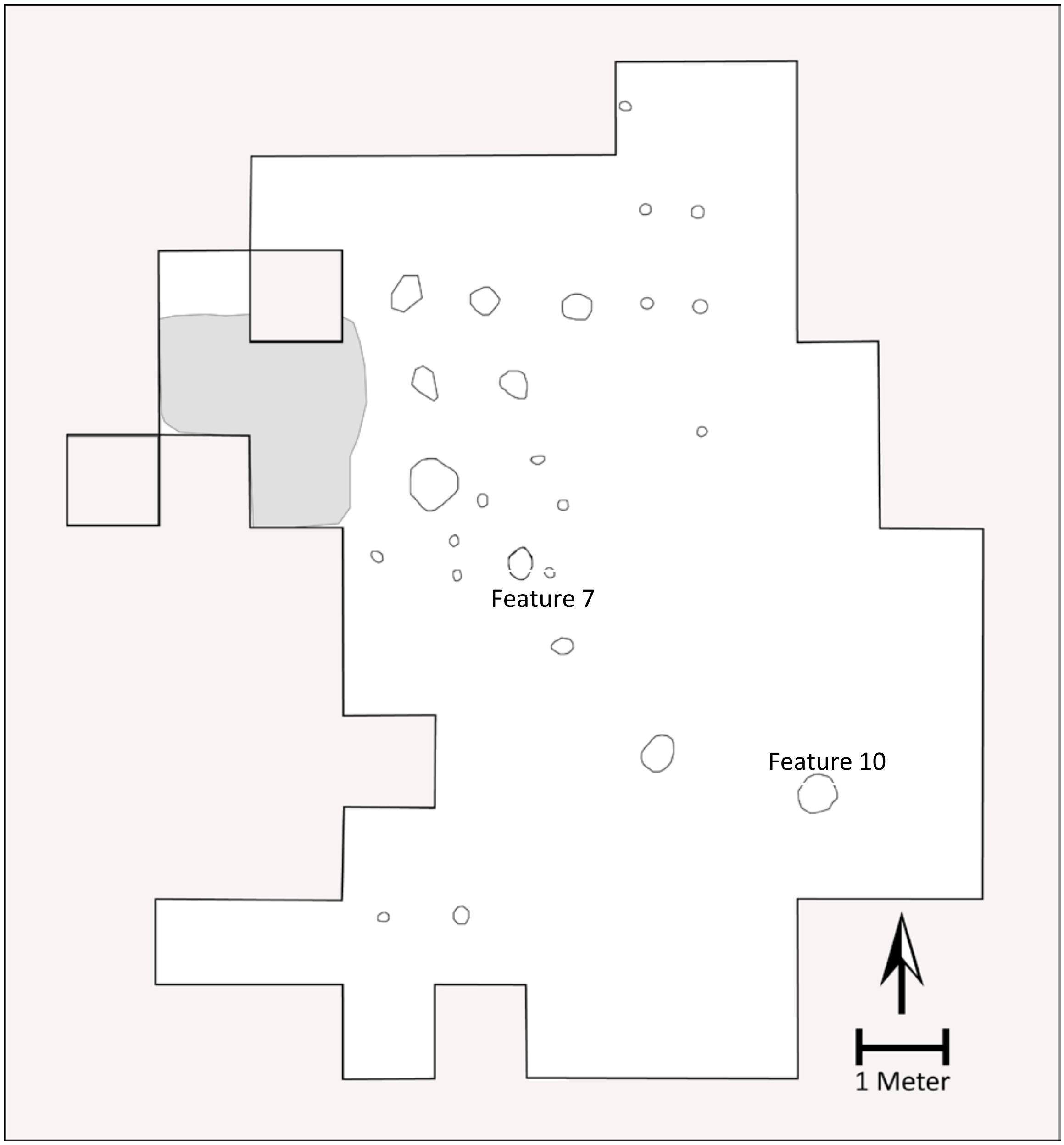


Figure 2. All postholes and possible postholes excavated at the Swantek Site. Midden area marked in gray.

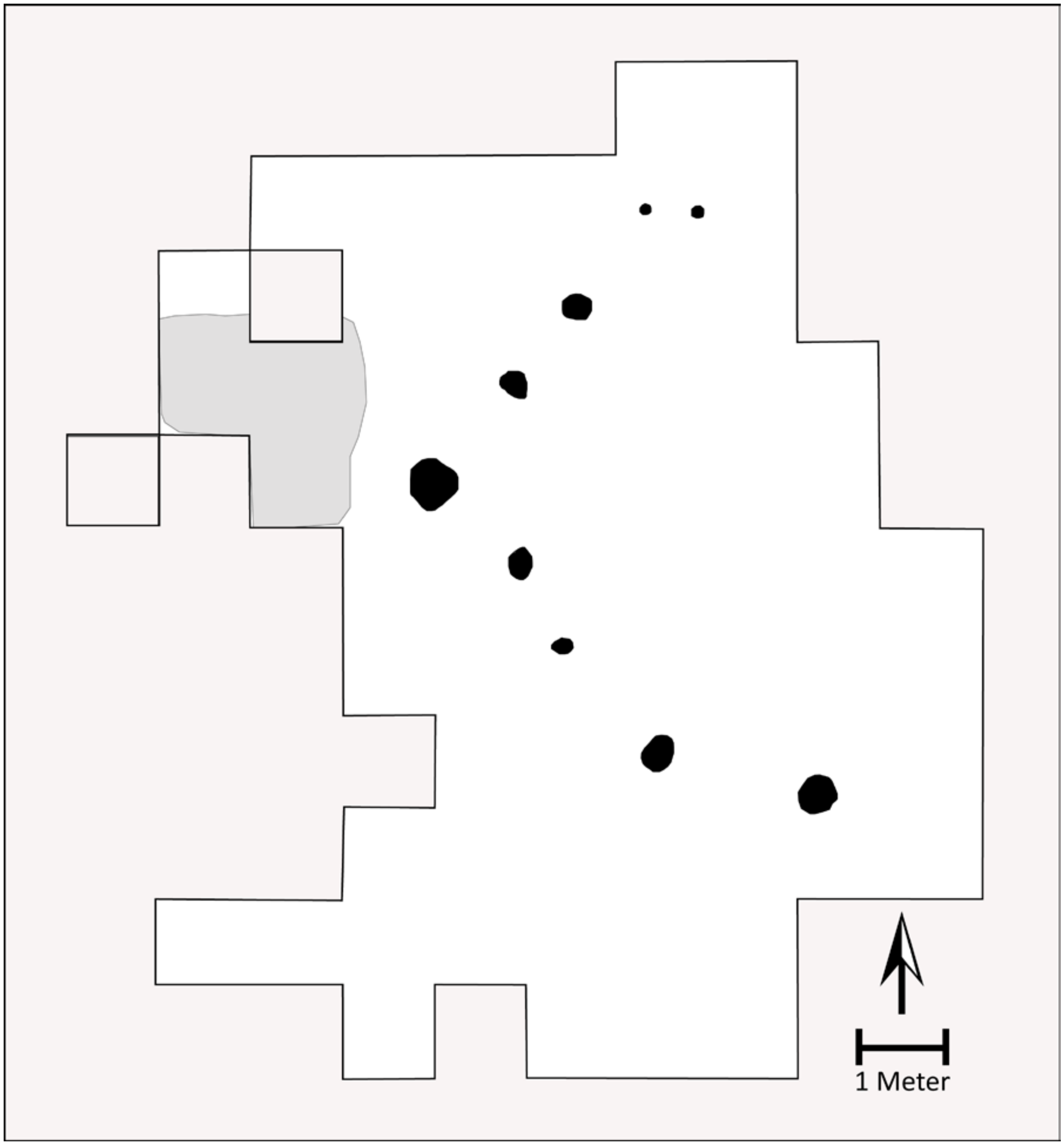


Figure 3. Major postholes defining structure. Midden area marked in gray.

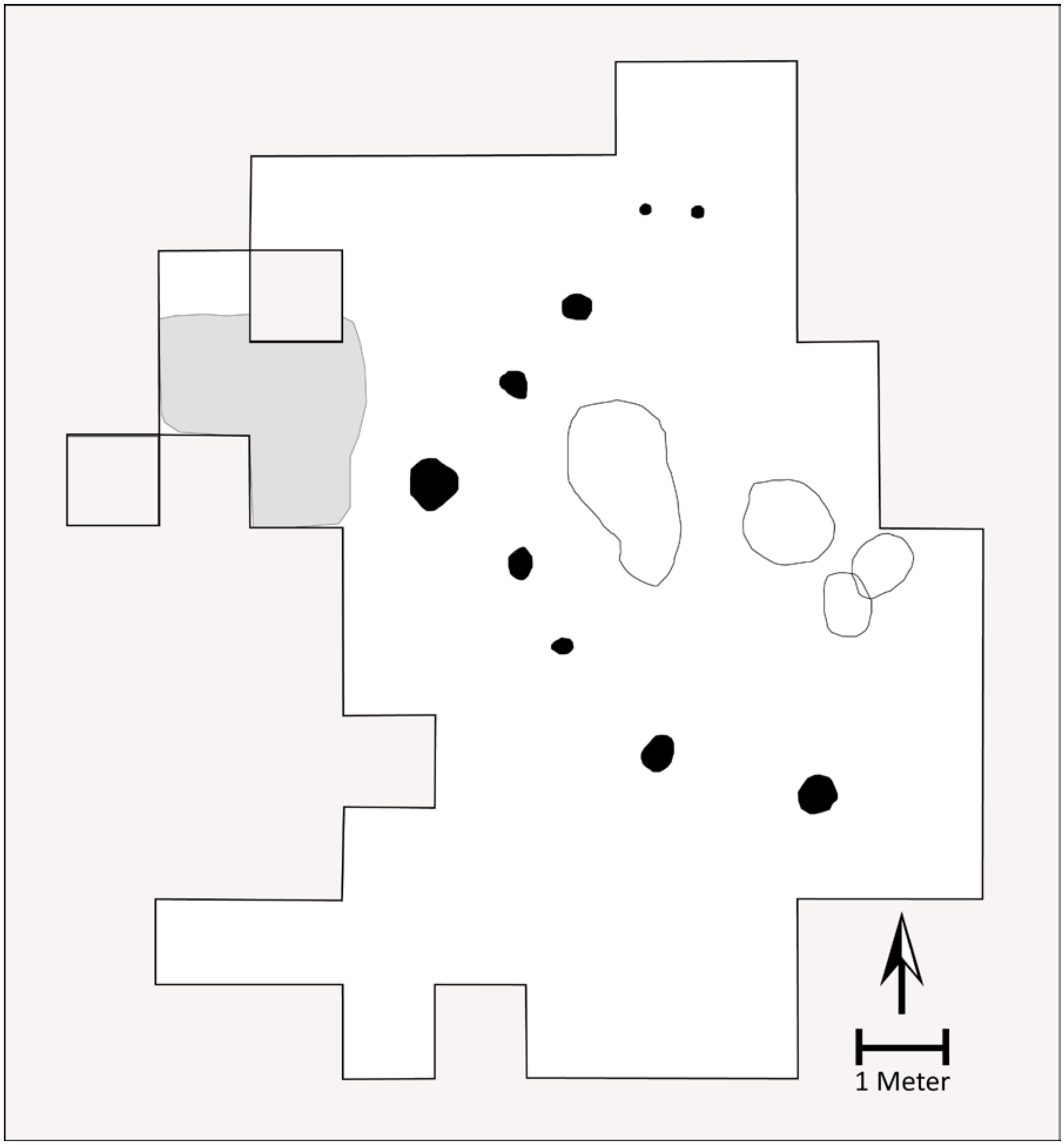


Figure 4. Structure with internal features and external midden area. Midden area marked in gray, postholes marked in black.

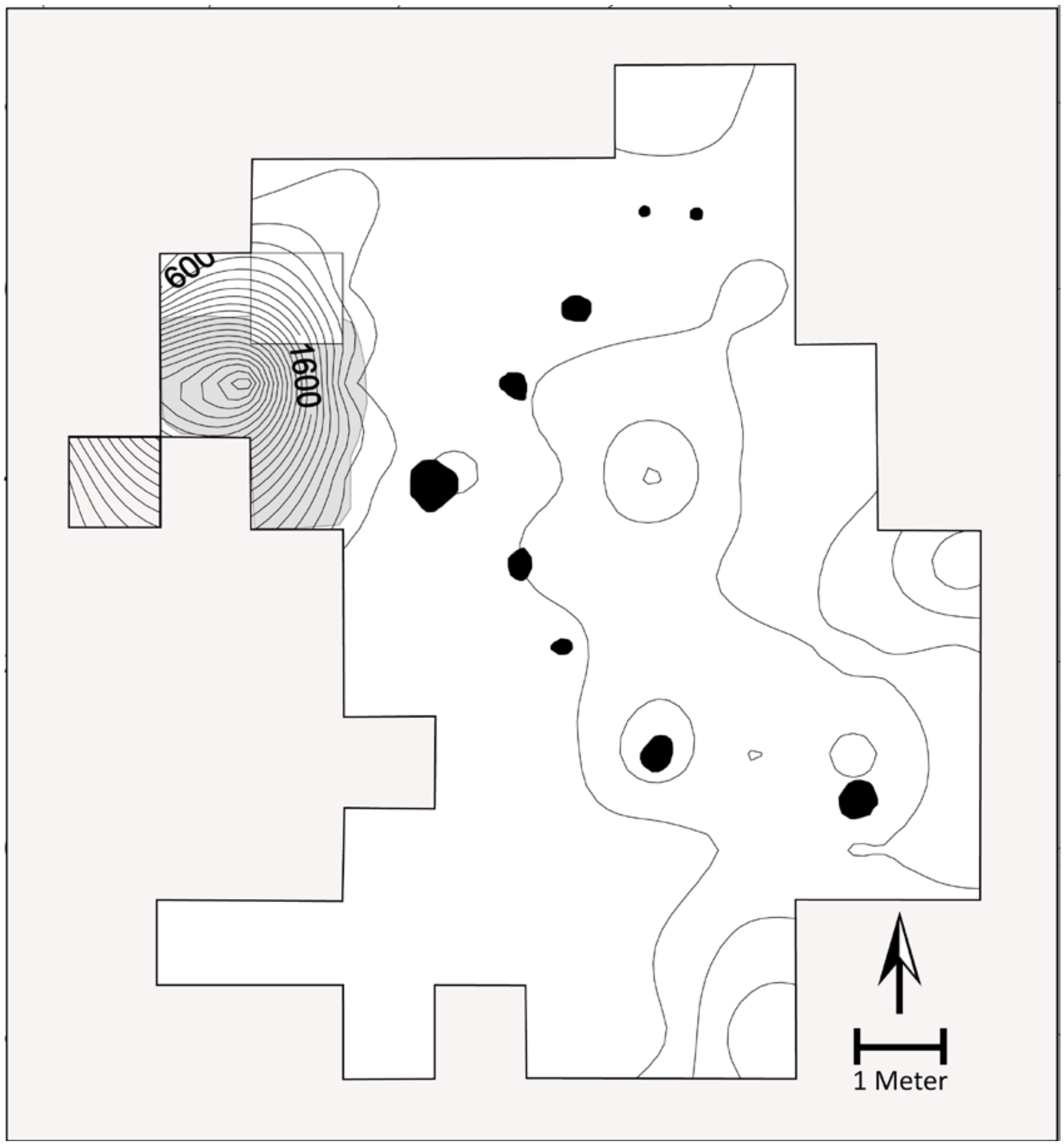


Figure 5. Combined artifact densities in grams per square meter. Main structure posts are marked in black.

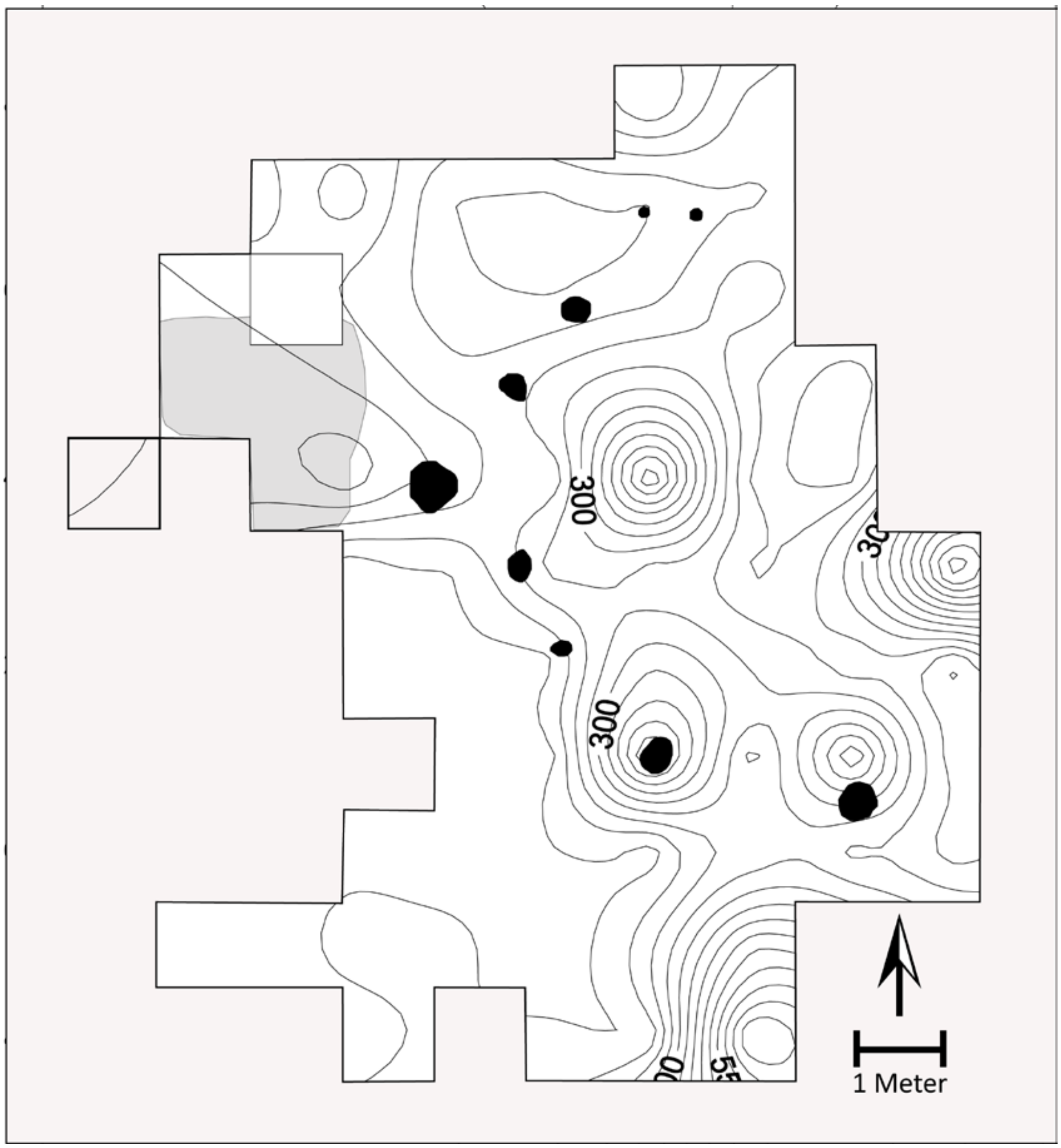


Figure 6. Combined artifact densities in grams per square meter. Densities over 1000g/m2 have been clipped from this data set to reduce effect of midden area on densities. Main structure posts are marked in black.

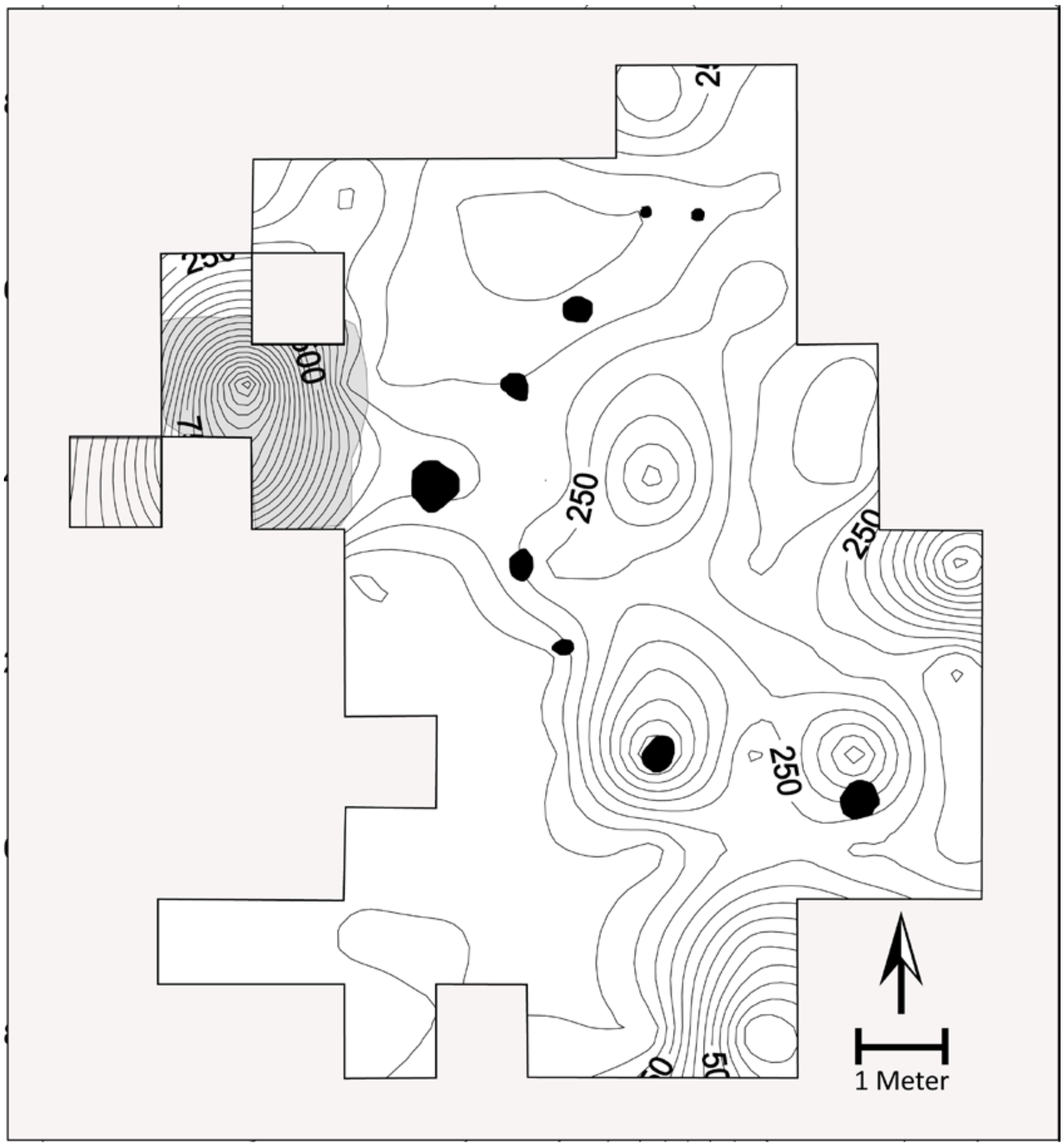


Figure 7. Combined artifact densities excluding daub and burned earth. Main Postholes marked in black.

The structure was built on an axis approximately 45 degrees off compass north with the southwestern wall measuring approximately 5.5 meters in length. No apparent entryway was excavated for this structure, but there is an area to the west of the house corner that included irregular superimposed features, large wood charcoal, burned earth, and an overburden of refuse. This area was not given a feature number, but it is apparently a reused midden area so it has been indicated in structure maps.

At least one wall post (Feature 7) appears to have been repaired or replaced. The feature itself contained a large number of broken artifacts and was surrounded by smaller post holes in a roughly circular pattern. It is possible that this post rotted in place and was pulled and replaced by several smaller posts. This suggests considerable occupation duration at the Swantek Site, at least long enough for this post to decay and be replaced.

The interior of the structure included dark, soft soil with scattered artifacts and bits of burned earth, mottling into yellow subsoil at a depth of approximately 20 cm below current ground surface. The structure is somewhat difficult to define with no formal floor, obvious edges, or deep subterranean excavation. There is no entryway and the wall pattern is one of a few large posts and smaller accessory or possibly repair posts.

There is also little evidence of a substantial daub covering to the structure. Only six samples of burned earth, out of a total of 40 units in which it was collected, show evidence of stick impressions. The majority is simply burned earth that may have resulted from fireplace cleaning. The distribution of burned earth does show a pattern with the vast bulk coming from the midden area (Figure 8). Some units in this area produced over three kilograms, while the greatest concentration outside of the midden was around 250 g (Figure 9). Eliminating the highest concentrations (those over 1000 g in the midden area), the distribution again clearly indicates a marked difference with a major point of difference at the apparent structure wall. Taken together, this suggests that the structure itself was not covered in daub or was never burned.

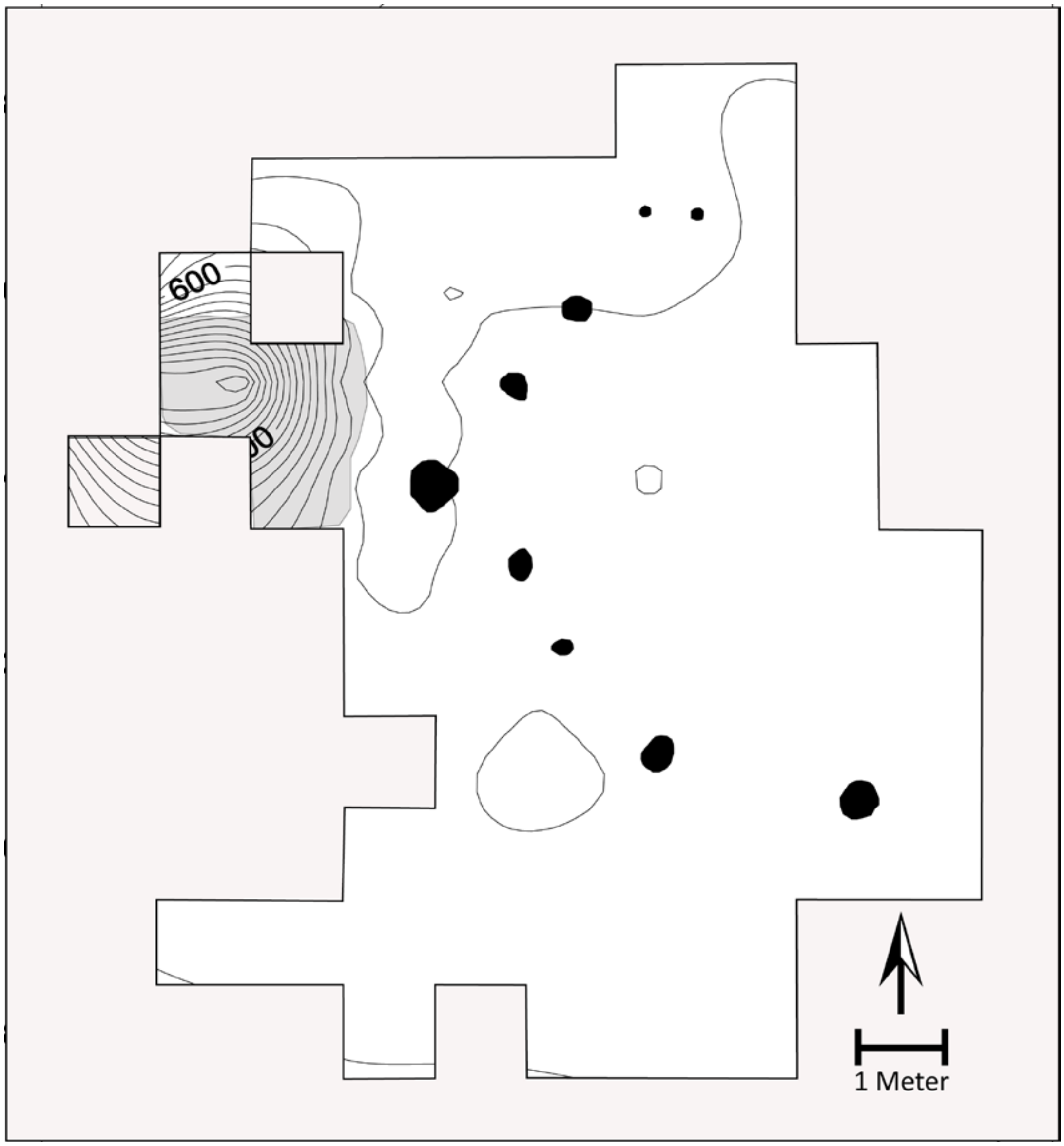


Figure 8. Daub and burned earth density. Main structure posts are marked in black.

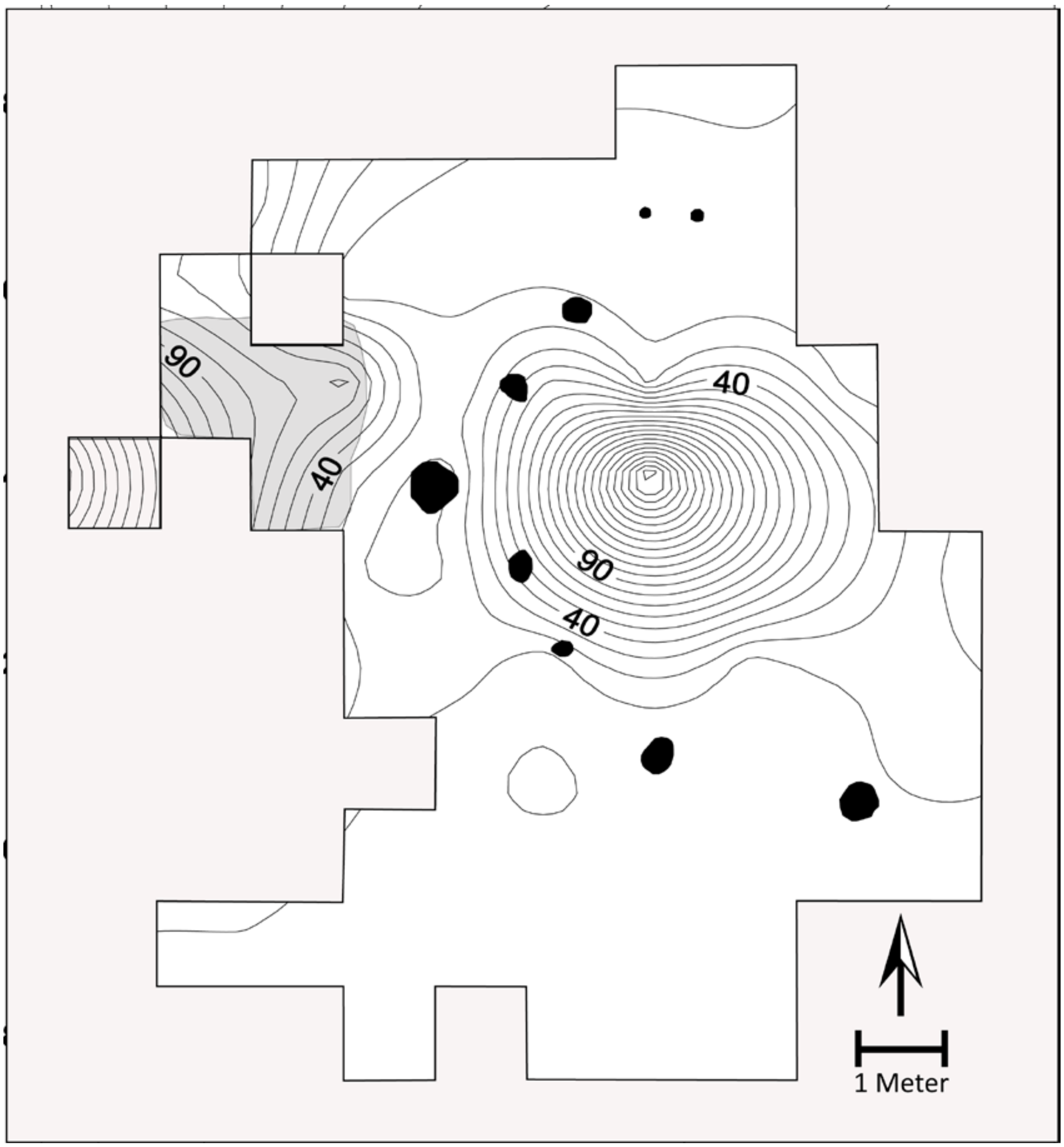


Figure 9. Daub and burned earth densities. Densities over 1000g per meter have been clipped to limit the effect of the midden area. Major postholes are indicated in black.

There is little to suggest a substantial earthlodge of the CPt style. In addition to the paucity of daub, the typical CPt pattern of four center posts around the central hearth is absent. Rather the main structure of the lodge appears to have been medium sized exterior posts arranged in a subrectangular pattern around a shallow floor with several interior features. This sort of post structure without substantial earth covering is common in Oneota and White Rock sites, and the usual interpretation is that the structures were covered with bark, hides, mats, or other perishable materials. In this, the architectural evidence at the Swantek Site is most suggestive of the Oneota and White Rock Pattern. The placement of the site on a low terrace, however, is unlike the Oneota and White Rock patterns and more like the tendency for CPt lodges to be found on low terraces and floodplains for access to arable soils.

Only one large block has been excavated at the Swantek site, so gauging the extent of simultaneous site settlement is difficult. Surface scatter and backfill from animal burrows suggest a large areal extent of the site, with dense scatters of material covering approximately 50 acres (approximately 20 hectares) (Figure 10). Limited shovel testing and soil coring was carried out near the edges of the scatter and these investigations suggest that similar densities of artifacts and features exist throughout most of this area. A test unit (TU101) on the terrace immediately above and northwest of the main excavation trench uncovered a posthole with debris similar to the house floor area in the main excavation trench (Figure 11). It is likely that multiple structures were built across this site, but without further investigations and dating, it is impossible to determine whether it was a large simultaneously occupied village in the Oneota or White Rock style or a series of sequentially occupied lodges in the CPt style.

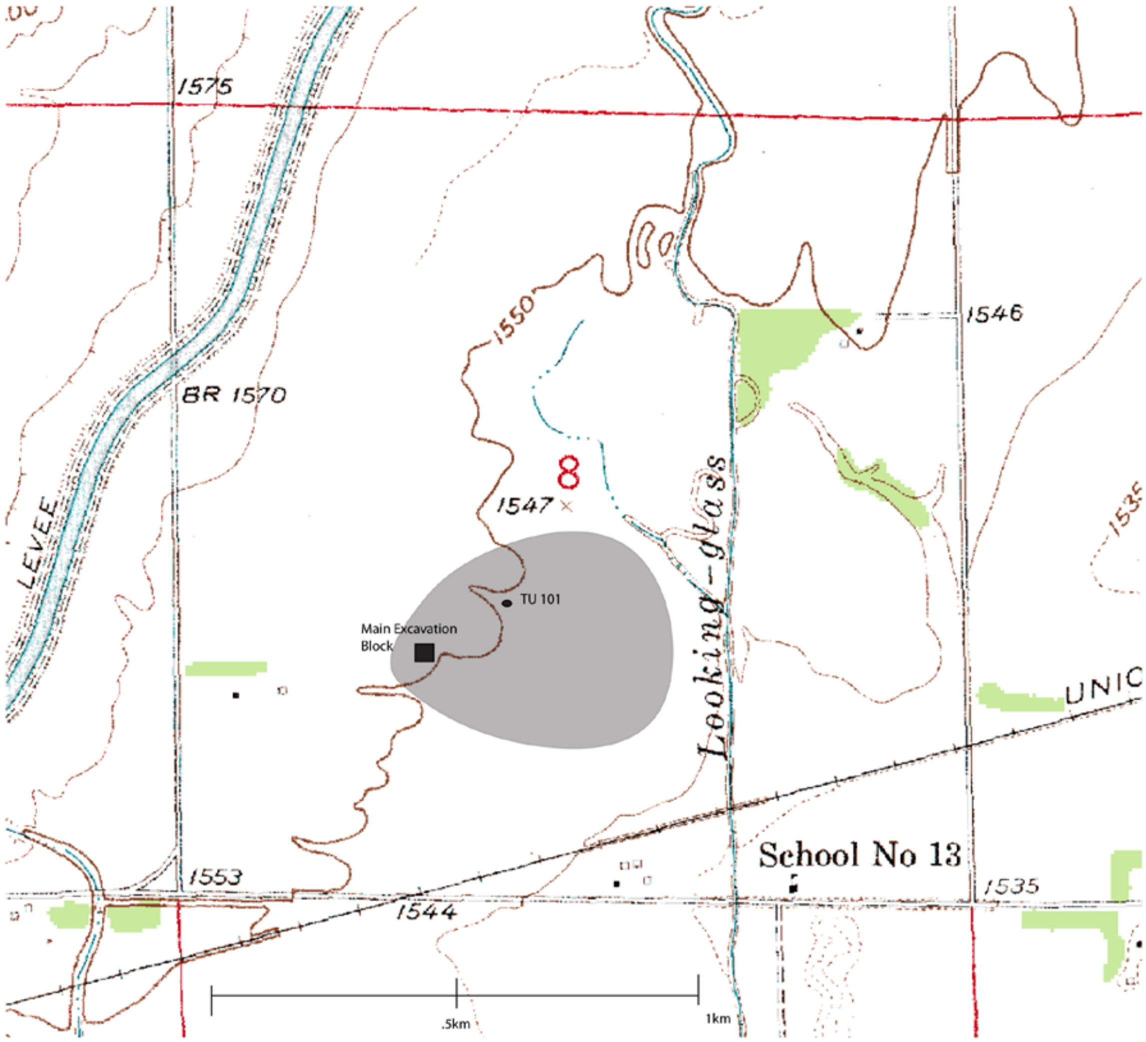


Figure 10. Approximate extent of observed site scatter marked in gray. Locations of main excavation block and TU101 marked in black. From USGS 7.5 minute quadrangle Genoa, Nebraska *Township 17 North, Range 3 West, Section 8.*

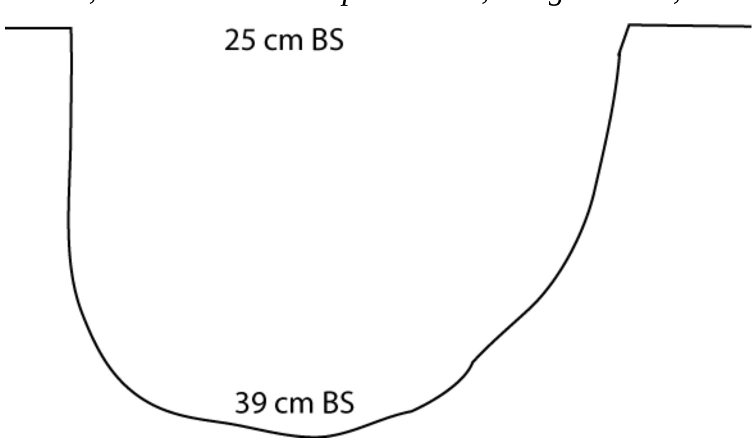


Figure 11. South profile of posthole feature found in TU101. Feature diameter is 22 cm at top.

Several lines of evidence discussed in detail below suggest a significant occupation duration for the Swantek site. Lithic and bone tools found at the Swantek site show wide variation in degree of use, suggesting that the site was occupied for a considerable period. Scapulae tool length is similarly variable, also suggesting significant occupation duration. Together with the evidence for structure remodeling and post replacement discussed above and the evidence for feature re-use, superimposition or repurposing of features, it seems reasonable to conclude that the site was occupied for a considerable period and not simply a temporary camp site.

Economy

The faunal remains recovered from the Swantek Site suggest a bison-focal hunting economy and the worked bone assemblage additionally suggests some reliance on agriculture. A total of 5,194 pieces of bone were collected at the Swantek site of which 1,265 were considered large enough to analyze and 491 were considered minimally identifiable (NMISP= identifiable to element including, long bone shaft fragment, and axial). Fully identifiable elements (identifiable to elment excluding lbsf and axial) provide a number of identified specimens (NISP) of 436.

Out of this NISP, the animal source of 430 elements were also identifiable to at least the family level and the vast majority were identified as bison (Bison NISP = 300 plus 6 Bovid) with deer providing the next greatest portion of the identified assemblage (Deer NISP = 15 plus 2 elk or deer) and a small portion of bones identified as rodent, canid, bivalve, bird, wapiti, and turtle (in descending order of frequency) (Table 2-3).

Table 2. NISP counts by species (excludes 125 elements identifiable only to family or group level)

Species	**NISP**	**% of Total**
Bison	300	92.3%
Bovid	6	1.8%
Deer	15	4.6%
Wapiti	1	0.3%
Wapiti or Deer	2	0.6%
Canis familiaris	1	0.3%
Total	325	100%

Table 3. NISP by Family or Group

Family or Group	**N**	**% of Total**
Bivalve	3	0.7%
Canid	3	0.7%
Carnivore (canid?)	3	0.7%
Cervid	3	0.7%
Large Mammal	317	72.7%
Mammal	4	0.9%
Medium Mammal	21	4.8%
Medium Ungulate	1	0.2%
Medium/Large Mammal	64	14.7%
Medium/small Bird	1	0.2%
Rodent	5	1.2%
Small Rodent	1	0.2%
Small/Medium Mammal	2	0.5%
Turtle	1	0.2%
Ungulate	2	0.5%
Unknown (Tooth Enamel)	4	0.9%
Total	435	100%

Table 4. Identified element counts for bison (including teeth identified simply as "bovid").

Element 8	**N**	**% of Total**
Astragalus	11	3.6%
Atlas	1	0.3%
C1	1	0.3%
calcaneus	3	1.0%
Cervical Vertebra	20	6.5%
Cranium	4	1.3%
EctCuneiform	1	0.3%
Femur	5	1.6%
Fifth Metatarsal	1	0.3%

Element 8	N	% of Total
Fused second and third carpals	2	0.7%
Horn Core	3	1.0%
Horn Core and Cranium	1	0.3%
Humerus	6	2.0%
Intermedial Carpal	3	1.0%
Mandible	4	1.3%
Metacarpal	1	0.3%
Metapodial	12	3.9%
Metatarsal	3	1.0%
Navicular Cuboid	3	1.0%
Phalange 1	17	5.5%
Phalange 2	12	3.9%
Phalange 3	10	3.3%
Pelvis	10	3.3%
Phalange	2	0.7%
Pisaform	1	0.3%
Radius	8	2.6%
Rib	30	9.8%
Sacrum	1	0.3%
Scaphoid	1	0.3%
Scapula	32	10.4%
Sesamoid	3	1.0%
Sesamoid/Pisaform	2	0.7%
Thorasic Vertebra	1	0.3%
Tibia	7	2.3%
Tooth	33	10.7%
Ulna	6	2.0%
Ulnar Carpal	3	1.0%
Vertebra	42	13.7%
Total	306	100%

Among bison, there is a strong apparent focus on scapulae, with these providing a minimum number of individuals (MNI) of 14 animals (total bison scapula NISP=32). Without scapulae, however, the MNI for bison is only four, that number coming from radii (Table 4). Based on glenoid size, horn core diameter, and element fusion, these bones appear to reflect a large male, a female, and two juveniles or small females (Table 5). These data are not sufficient to make a determination about sex selection or seasonality of hunting.

Table 5. MNI numbers for each animal group. MNISP used for all but deer and bison

Animal	NISP	MNI – Element
Bison	300	4 - Radius (14 - Scapula)
Deer	15	2 (1 Juvenile) - Phalanges
Canid	3	1 - Metapodial, Tooth
Rodent	23	1 - Multiple Long Bones
Large Bird	2	1 - Long Bone
Medium/Small Bird	1	1 – Tibiotarsus
Turtle	1	1 – Carapace
Bivalve	3	1 – Shell
Elk	1	1 – Antler

The presence of elements from throughout the body suggests no selection for elements besides scapulae. Utility indices produce very low correlations for both Modified General Utility Index (MGUI) and Standardized Food Utility Index (SFUI). Following Speth and others (Speth 1983; Binford 1978; Speth and Scott 1989), this suggests that bison were hunted locally and complete or nearly complete carcasses were often brought to the Swantek Site for processing (Figure 12-13).

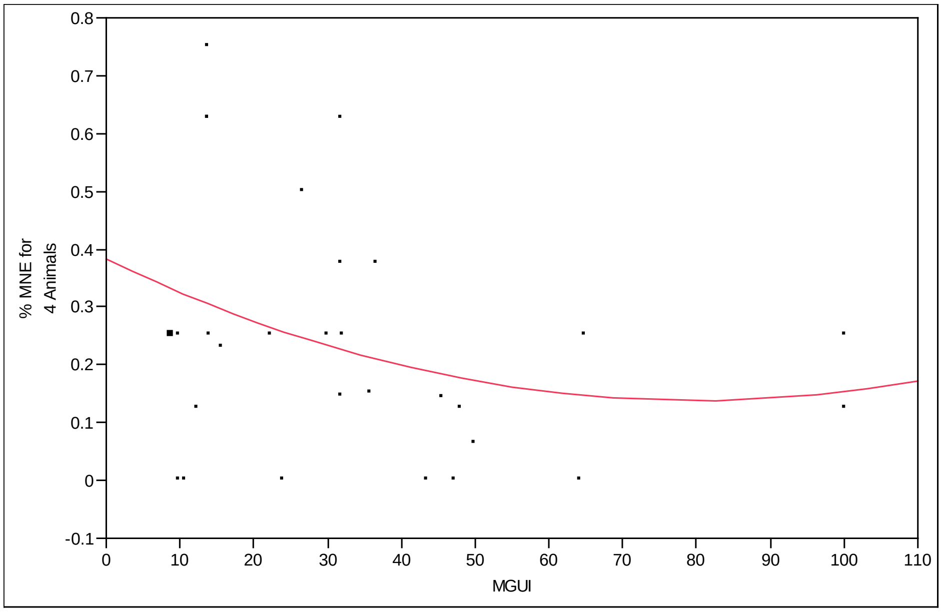


Figure 12. MGUI analysis for expected distribution of 4 bison. R^{2} = .087

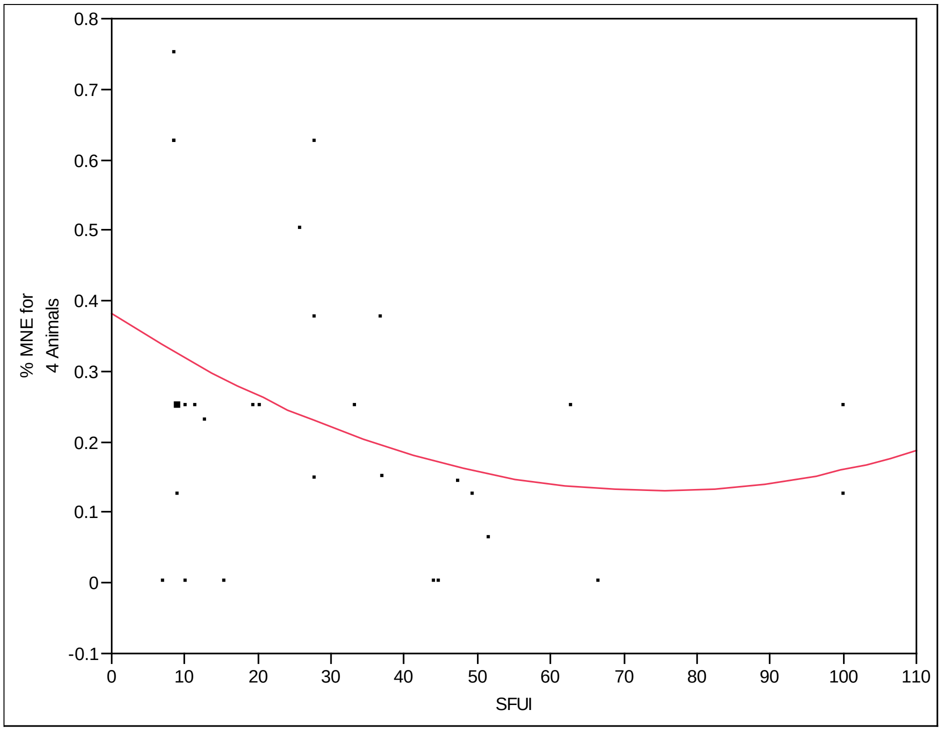


Figure 13. SFUI analysis for expected MNE of 4 bison. $R^{2} = .113$

Processing was quite complete and intense with cutmarks frequently found on bones (Table 6) and many elements too fragmented to be reliably identified (Non-Identifiable Specimens n = 4703). A large concentration of extremely fragmented large mammal bones found in the refuse pit excavated as Feature 5 suggests grease production and marrow extraction of bison bone. This is similar to the findings of Logan at the White Rock site, which he takes to suggest that White Rock people were more focused on bison hunting and production than agriculture or other forms of food gathering (Logan 1995; Chapter 5 this volume).

Table 6. Cutmark frequencies

Number of Specimes with Cutmarks	120
Pieces Identified To Element With Cutmarks	84 (19%)
Average Number of Cutmarks Per Specimen	16.1

Table 7. NMISP by family or group.

Group or Family	N	% of Total
Bivalve	3	0.6%
Canid	3	0.6%
Carnivore (canid?)	3	0.6%
Cervid	3	0.6%
Large Bird	2	0.4%
Large Mammal	331	67.4%
Mammal	4	0.8%
Medium Mammal	22	4.5%
Medium Ungulate	1	0.2%
Medium/Large Mammal	101	20.6%
Medium/small Bird	1	0.2%
Rodent	5	1.0%
Small Mammal	1	0.2%
Small Rodent	1	0.2%
Small/Medium Mammal	2	0.4%
Turtle	1	0.2%
Ungulate	2	0.4%
Unknown (Tooth Enamel)	5	1.0%
Total	491	100%

This focus on bison is also suggested in the counts of bones that were not identified to family or species. Among these specimens, there is a very heavy focus on large and medium to large animals and it is likely that the preponderance of these are from bison with some also coming from wapiti and deer (Table 7). Other bones in the Swantek collection reflect a strategy of supplementing the bison economy with generalized hunting and a slight focus on riparian animal such as turtles and medium to large birds.

The Scapula tools present in this collection likely indicate some reliance on agriculture as these are generally assumed to be digging and/or hoeing tools. However, at least three of the Swantek scapulae do not conform to the expectations for this sort of tool. Instead of solid worked distal blades to be used in earth moving, some include worked notches in the distal end and on one, it is clear that the notch was smoothed and polished (Figure 14). This has been suggested by Bell (1971) to reflect the use of scapulae in hide-working activities rather than earth-working ones. This and the preponderance of butchering and scraping tools in the lithic collection discussed below seem to suggest further that the economy of the people at the Swantek Site was very focused on bison. This intense focus on bison suggests an economic pattern similar to that at Western and Plains Oneota sites such as Dixon and White Rock and clearly separates the activities at the Swantek Site from those typical at CPt sites where the pattern tend to be generalized, reflecting the available wild resources with additional emphasis on gardening. Bison generally appear only in limited quantities in CPt assemblages and seldom dominate the bone counts as they do at the Swantek Site.

Figure 14. Distal end of scapula tool with smoothed worked notch.

Tools

The chipped stone tool assemblage from the Swantek Site is dominated by informal flake tools (Table 8). Used flakes – flakes that show signs of use wear, but no formal sharpening – account for 18.5% and retouched flakes – those with formal retouch sharpening but little other modification of the original flake – account for an additional 23.4% of the total 346 tools recovered, altogether these informal flake tools account for nearly 42% of the assemblage. Among formal tools, scraping tools are by far the most common type (n=87), the majority of which include the primary working sedge on a steeply sharpened distal face. These scrapers take several shapes including long trapezoidal to rectangular forms, but also a number of nearly round flat scrapers with very thin bodies and multiple working edges including a small burinated point on each (Figure 15).

Table 8. Tool Counts

Primary Tool Type	N	% of Total
Beveled Knife	4	1.2%
Biface Fragment	1	0.3%
Bifacial Chopper	1	0.3%
Burin	1	0.3%
Core	10	2.9%
Drill	1	0.3%
End Scraper	59	17.1%
Knife/Cutting Tool	15	4.3%
Miscellaneous	8	2.3%
Point	19	5.5%
Point frag.	30	8.7%
Retouched Flake	81	23.4%
Side Scraper	28	8.1%
Tool Fragment	22	6.4%
Used Flake	64	18.5%
Wedge	2	0.6%
Total	346	100%

Figure 15. Selected complete scrapers. Scraper on lower right includes burinated point. Scale bar is 1cm.

Beveled knives, usually indicative of Plains cultural influence are present (n=4), but they are relatively infrequent (non-beveled knife n=15) and tend to be on non-local chert suggesting that they do not reflect a large degree of influence from the Plains. Unifacial tools and bifacial tools with only limited ventral thinning are most common in the assemblage; excluding points, only three other bifacial tools were found (a chopper, a drill, and an unidentified tool fragment). In sum, this collection of chipped stone tools seems to reflect an economy that was focused on hunting and animal processing activities, especially hide working, and one that valued expedience over form in tool manufacture. Still, formal tools are quite intentional with a definite set of design principles apparent across most types. Given the presence of cores, informal tools, and large debitage, much of the Swantek tool assemblage appears to have been made on-site.

The most variability in form and degree of use among Swantek's formal tools is among scrapers, and many of the scrapers recovered at the Swantek site tend to be heavily worn from use (Table 9). The amount of usewear among scraping tools and the presence of tools from all stages of use from early manufacture through exhaustion suggests a long-term occupation of the site. Seventy-one scrapers show moderate to heavy wear on at least one side.

Table 9. Usewear frequencies for scrapers

Usewear	**N**	**% of Total**
Heavy	32	36.8%
Moderate to Heavy	6	6.9%
Moderate	33	37.9%
Light to Moderate	3	3.4%
Light	13	14.9%

Projectile points at the Swantek Site (n=49 including fragments) tend to be small triangular arrow points without notches. There are two side notched points, one of which appears to be an intrusive Woodland point and the other is similar to CPt style points (Figure 16). Points average 19mm long and 13mm wide (width includes point bases of incomplete points) (Table 10). Although bifacial thinning is common among points (n=44 including fragments), this number is a bit misleading because most are only sharpened bifacially and not thinned extensively (Table 11-13). Thinning was typically only done to the extent necessary to make usable points and not as part of a shaping process as is typical in CPt points. Overall the points at the Swantek Site are quite informal and would fit well in Western Oneota or White Rock assemblages.

Figure 16. Sample of projectile points and nearly complete point fragments collected at the Swantek Site. Point on lower right is side-notched in CPt style. Scale is 1 cm.

Table 10. Metric attributes of recovered points (complete and nearly complete only n=16)

	Min	Max	Range	Mean
Max Length	12	27.5	15.5	18.78125
Max Thickness	2	5.2	3.2	2.7875
Max Width	8.4	18.3	9.9	12.90625
Weight	0.2	2.4	2.2	0.7375

Table 11. Retouch for all points and fragments

Retouch	N	% of Total
Bifacial	44	89.8%
Unifacial	5	10.2%

Table 12. Dorsally thinned points (complete and nearly complete only n=16)

Dorsal Thinning	N	% of Total
0-25%	1	6.3%

26-50%	2	12.5%
51-75%	2	12.5%
76-99%	1	6.3%
100%	10	62.5%

Table 13. Ventrally thinned points (complete and nearly complete only n=16)

Ventral Thinning	N	% of Total
0-25%	6	37.5%
26-50%	2	12.5%
51-75%	2	12.5%
76-99%	1	6.3%
100%	5	31.3%

Several cores were found at the Swantek Site (n=10) (Table 14) and cortex is present on many (Table 15) suggesting that primary reduction and all stages of tool production were carried out at the site and thus likely involved materials gathered nearby (discussed more fully in section on raw material acquisition below). Heat treatment of cores and tools is quite uncommon, again suggesting that tool manufacture was expedient, focusing on efficiency rather than form (Tables 16-17.

Table 14. Metric attributes of cores (n=10)

	Min	**Max**	**Mean**	**Std Dev**
Maximum Length	41.5	146.1	63.58	30.2529999
Maximum Width	18.4	68	41.79	15.7849049
Maximum Thickness	8.5	41.7	21.4	11.1744749
Weight	7.8	343.2	83.82	106.371339

Table 15. Cortex on cores [n doesn't match with n for heat treat]

Cortex	**N**	**% of Total**
None	3	33.3%

Cortex	N	% of Total
1-25%	1	11.1%
26-50%	3	33.3%
76-99%	2	22.2%

Table 16. Heat treatment of cores

Heat Treatment	N	% of Total
None	9	90.0%
Moderate Discoloration	1	10.0%

Table 17. Heat Treatment of Tools including cores

Heat Treatment	N	% of Total
Potlidding	9	2.6%
Heavy Discoloration	8	2.3%
Moderate Discoloration	20	5.8%
None	309	89.3%

Bone tools

Scapula tools are extremely common at the Swantek site with a total of 18 worked scapulae found at the site. Working includes removal of costal margin and spine and smoothing of the distal edge for use as digging or hoeing tools. Several of these were stored in nearly unused condition, apparently warehoused for later use, but others were used extensively, and some are essentially exhausted with little remaining distal of the glenoid (Figure 17). This diversity of blade lengths and presence of several exhausted scapula tools is another line of evidence suggesting an extended occupation duration for the site as all stages of tool life are represented.

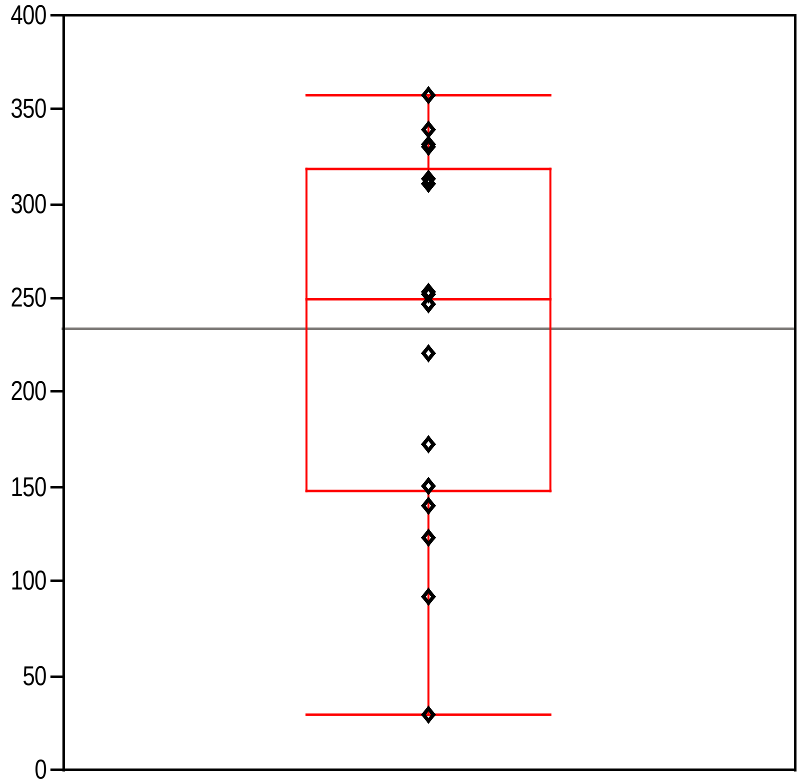


Figure 17. Length of measurable scapula blades (glenoid present)

As discussed above in the section on bone tools, several of these scapulae were likely used in hide-working activities and others were likely used as hoes in the plant-food economy.

Only a few bone tools were found besides the scapulae. These include a spatulate elk antler digging tool (Cat # 3853), another burned and polished antler tip (3732), a worked bison long bone shaft fragment that may have served as a digging stick (2457), a polished fox or badger tooth (2608), and two long smoothed rectangular items made of a medium or large animal bones worked on all sides (3682, 2077). Item number 2587 is the left half of an unworked bison mandible that shows no signs of modification or use, but may have been retained for use as a corn shelling or other sickle type tool. It is more likely, however, that it was simply discarded as it was recovered from the refuse deposits of Feature five, which also included most of a bison skull and a good deal of a bison's post-cranium including an articulated spinal column and pelvis.

Groundstone

A total of 11 pieces of groundstone were found at the Swantek Site including a grooved sandstone abrader (cat 2118) and three additional pieces of sandstone with faint groves that were likely also abraders (cat 2558, 2192, 3526), five cobbles or fragments of cobbles with flat-ground surfaces (cat 2003-028, 3880, 3878, 3621, 3469), a wedge-shaped piece of broken sandstone ground to a dull edge on one side similar to a celt (cat 3799), and a small chunk of white quartzite with a very small area ground smooth (cat 3394). Most of the groundstone is broken and quite fragmentary. No large mauls or axes, common at White Rock sites, were found here.

Ceramics

A total of 9,943 ceramic artifacts were excavated at the Swantek Site, 9,686 of which are body sherds (97.4%), 244 are rims (2.5%), 12 (0.1%) are strap handles, and one (<0.1%) is a perforated rim or disc. 5,899 (59.3%) body sherds were large enough to be analyzed (greater than 2.5 cm on two axes), with the remaining 3,787 (38.1%) simply counted and weighed (Table 18). The ceramics recovered from the Swantek Site are a unique assemblage showing significant Oneota influence.

Table 18. Ceramic type distribution

Ceramic Type	**n**	**%Total**
Analyzed Body Sherd	5899	59.3%
Unanalyzed Body Sherd	3787	38.1%
Rim	244	2.5%
Handle	12	0.1%
Perforated Disc	1	0.0%
Total	9943	100.0%

Shell or other calcium tempering is present in approximately 10% of all analyzed sherds from the Swantek Site, putting it roughly on par with the White Rock collections as a whole (Logan 1995: 63-64) (Table 19-20). Grit and sand account for the greatest majority of tempered sherds (over 89% of analyzed body sherds fall into these temper categories), with both grit and shell found in only three body sherds. Grog and other tempering agents are completely absent from the Swantek assemblage. This ratio of shell to sand or grit temper is far lower than traditional Oneota assemblages in the Midwest, higher than most CPt assemblages, and similar to Logan's ceramic analysis at White Rock (1995).

Table 19. Temper Distribution for Body Sherds large enough to analyze

Temper	**N**	**% of Total**
Grit	2865	48.6%
Grit and Shell	3	0.1%
Sand	2400	40.7%
Shell/ Calcium	631	10.7%

Table 20. Temper frequencies for rims

Temper	**N**	**% of Total**
Grit	107	43.7%
Sand	110	44.9%
Shell/ Calcium	28	11.4%

The surfaces of body sherds are typically smoothed, sometimes with traces of simple stamping present through the smoothing, but only ten sherds included indications of cordmarking. Non-lip decoration of the Swantek ceramics is most often found on the shoulders (n=805, 13.6% of analyzed body sherds include decoration), occasionally extending into the lower portion of the rim. Decoration is typically trailed linear motifs with punctates present on many sherds (n= 33, 4.1% of decorated body sherds include some kind of punctates). Common motifs include nested opposed triangles, chevrons, and groups of parallel or opposed straight lines with curvilinear motifs present, but uncommon (n=2, 0.25%% of decorated sherds include curvilinear elements) (See appendix 1 for decorative motifs with counts).

One vessel was reconstructable to a point that allowed the overall vessel form to be evaluated. It is a low globular vessel with two strap handles that attach near the top of the low, flaring rim (Figure 18). Other sherds from the assemblage appear to be from vessels of similar form, with no sherds that appear to be from the very large connoidal vessels typical of CPt assemblages and a few apparently coming from roughly made miniature vessels.

All of the rim sherds present in the Swantek assemblage are low flaring to straight rims; no collared, braced, or cloistered rims are present in the assemblage at all (Figure 19-20). Lip decoration is most often applied to the interior of vessel lips (n=161) and occasionally to the top of vessel lips (n=34). Rim exteriors are very occasionally decorated (n=15) with trailed line or punctate motifs and often include portions of lip top decorations that have spilled over onto them. These lip decorations are typically punctates or short, deep trailed lines applied repeatedly at angles, forming a continuous ring of tool impressions around the vessel lip (see appendix 1 for lip decoration motifs and counts). Three sherds are highly polished and may include traces of slip, but pigment is otherwise absent. Lip form tends to be round with some vessel lips flat and very few beveled or flanged (Table 21).

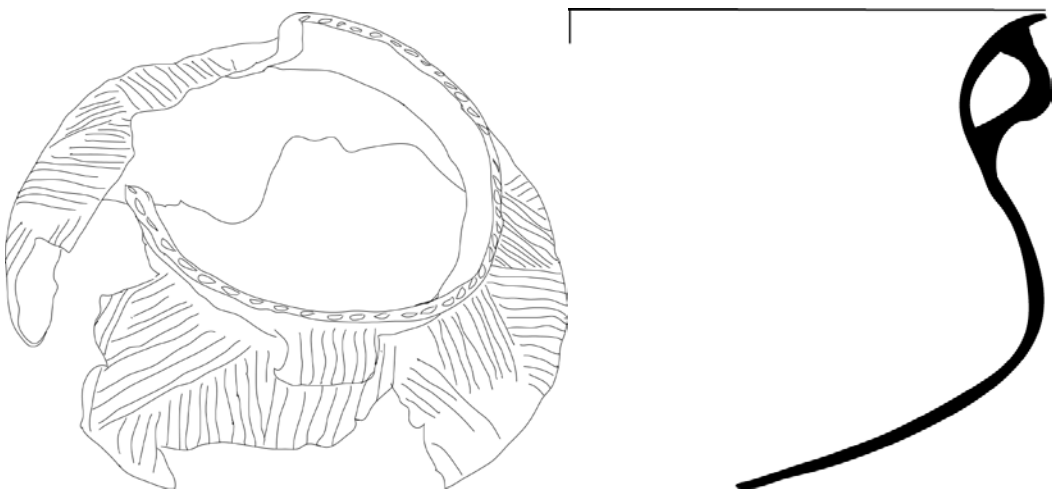


Figure 18. Line Drawing and profile of partially reconstructed vessel. Top line of profile shows 7.5 cm radius (15 cm diameter).[clean and scale]

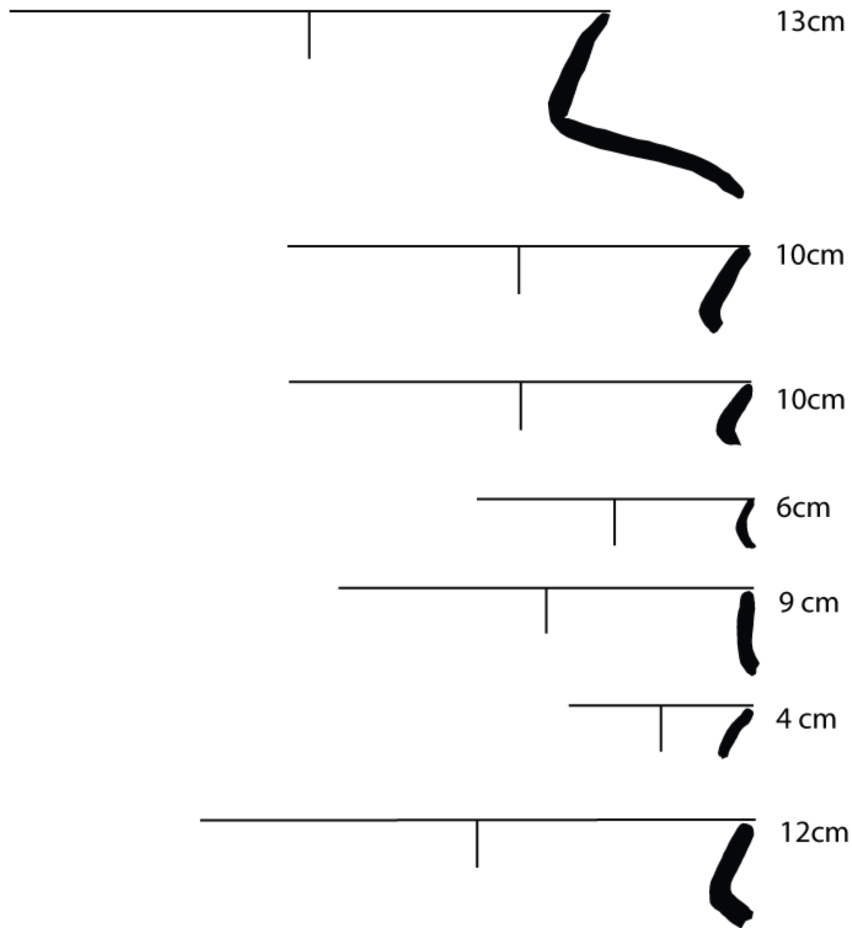


Figure 19. Selected rim profiles with diameter estimates.

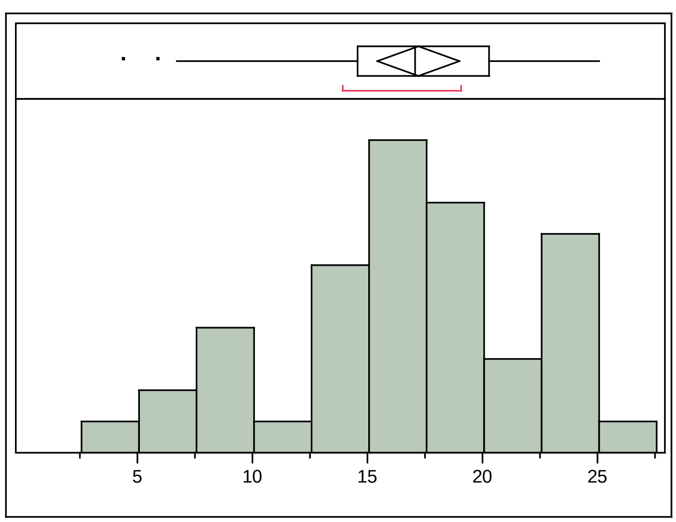


Figure 20. Rim Height for all rims

Table 21. Lip Form for all Rims

Form	**N**	**% of Total**
Beveled	2	0.8%
Flanged	1	0.4%
Flat	30	12.3%
Indeterminate	6	2.5%
Round	205	84.0%
Total	244	100.0%

Vessel size as measured by rim radius ranges from two to 15 cm with an average of 8.3 cm, suggesting that these tend to be relatively small vessels with some miniatures present at the lower end of the range (Figure 21). Rims are also fairly thin with an average rim thickness of only 5 mm (Figure 22). Rims are typically high and flaring, with an average angle between rim and neck of approximately 60 degrees (Figure 23) and average height of 17.2 mm (Figure 24). This degree of flaring is notably greater than that typical for the Walnut Decorated Lip type typical in White Rock assemblages (Rusco 1960).

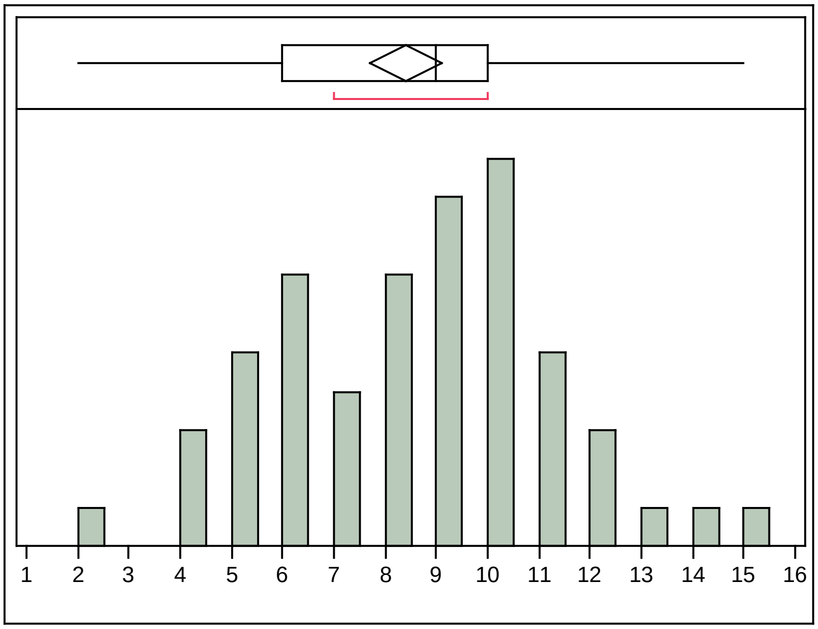


Figure 21. Rim Radius for all Rims

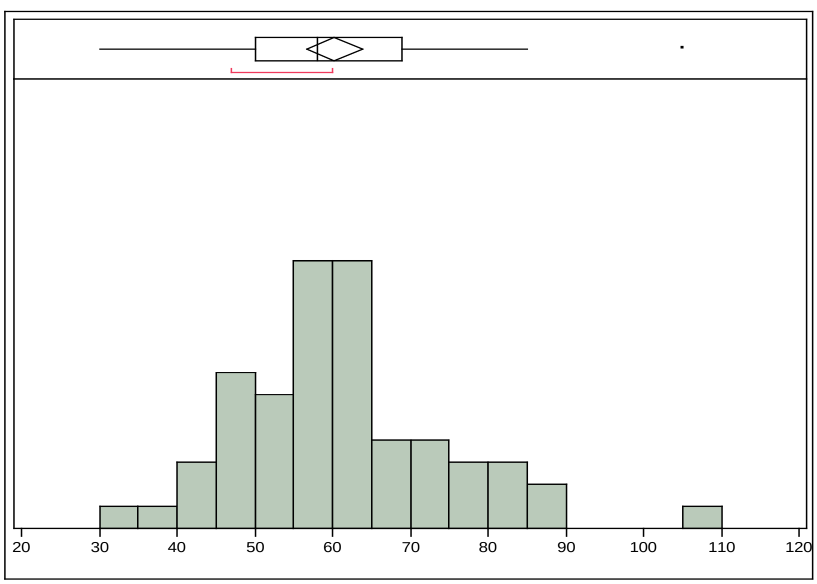


Figure 22. Rim Angle for all rims

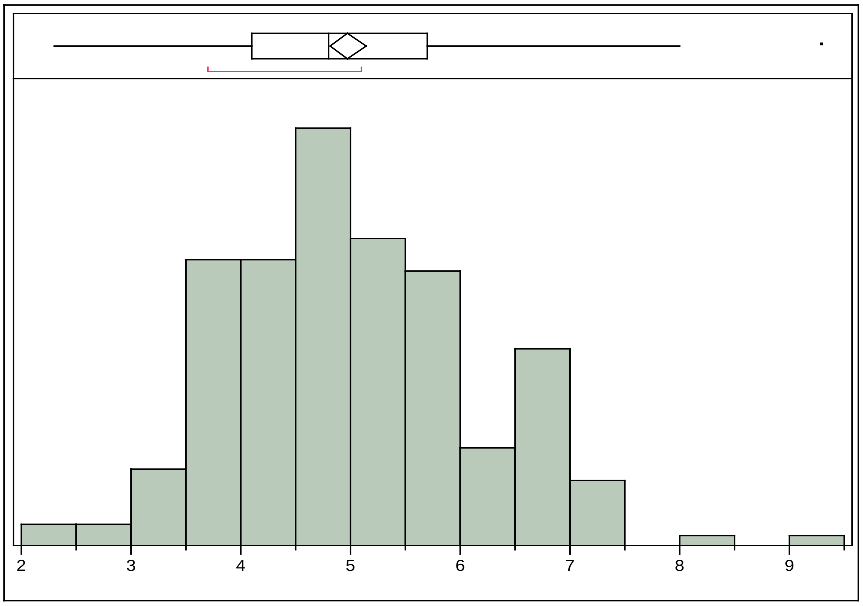


Figure 23. Rim Thickness for all Rims

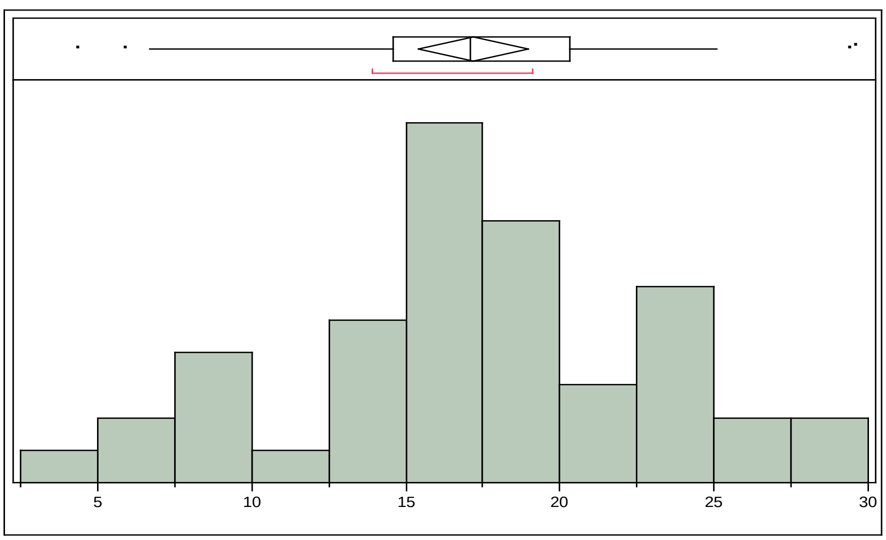


Figure 24. Rim Height for measured rims

Handles are fairly common among the Swantek sherds with approximately 1 handle for every 20 rim sherds (Table 18). These are all wide strap handles, many with parallel incised lines running longitudinally. On sherds where attachment can be determined, these strap handles attached just below the vessel lip, a trait that may signal early to middle Developmental Oneota horizon in Western Oneota contexts (e.g. Harvey 1979: 224).

Overall, these ceramics bear many similarities to the Walnut Decorated lip wares of the White Rock culture, but rims at Swantek tend to be higher and more flared than those at White Rock sites. Shoulder decoration and strap handles are also a bit more common at the Swantek site than in Walnut Decorated Lip collections, and the presence of curvilinear and punctate motifs is also unique here among Plains Oneota assemblages. Clearly the Swantek ceramics share much in common with the western Oneota assemblages at sites like Dixon, but the lower proportion of shell tempering, fewer curvilinear decorations, and rim form separate it. In this, the Swantek assemblage is also quite similar to the Walnut Decorated Lip ware of White Rock sites, but the higher and more flaring rims, presence of curvilinear decorations, higher frequency of handles, and absence of non-flaring rim forms separates it from that type. This appears to be a unique ceramic tradition with influences from Oneota cultures in the Midwest, and closest in form to Walnut Decorated.

Raw Material Acquisition

Raw material distributions at the Swantek site clearly point to local acquisition for most lithic toolstones (Figure 25). Out of 5,069 pieces of debitage collected, nearly 80% come from Cretaceous Niobrarite sources (Table 22). Outcrops of Niobrarite are available throughout the central Plains region, with the largest concentration in north-central Kansas near the White Rock sites. Outcrops are also available, however in Nance

County very near the Swantek site, particularly on Beaver Creek just south of Genoa. The dark brown color that dominates the Swantek assemblage is the most common color of Niobrarite and does not allow definite sourcing of a resolution sufficient to characterize the collection as local or coming from the White Rock area, but qualitative analysis suggests that the Swantek assemblage is primarily of local origin. The materials in the Swantek collection are generally low quality with a high frequency of cortex and internal imperfections. This tendency for relatively low quality is also observed in the Niobrarite that can be found along Beaver Creek and other sources in Nance and Platte Counties. The sources in Republic and Jewel Counties Kansas (the White Rock area), on the other hand tend to be much more pure and free of imperfections. This qualitative assessment along with the proximity of jasper sources in the Swantek area suggest that these materials were collected within a few kilometers of the site.

Table 22. Raw material distributions for all tools and debitage

	Tools		**Debitage**		**Tools and Debitage**	
Raw Material	**N**	**%**	**N**	**%**	**N**	**%**
Niobrarite	251	63.4%	4036	79.6%	4287	78.4%
Permian	98	24.7%	300	5.9%	398	7.3%
Pennsylvanian	2	0.6%	135	2.7%	137	2.6%
Gravel	11	2.8%	159	3.1%	170	3.1%
Bijou Hills Quartzite	14	3.5%	300	5.9%	314	5.7%
Hartville	3	0.8%	4	0.1%	7	0.1%
Sioux Quartzite	2	0.5%	25	0.5%	27	0.5%
Plate Chalcedony	2	0.5%	0	0.0%	2	<0.1%
Petrified Wood	1	0.3%	0	0.0%	1	<0.1%
Basaltic Gravel	0	0.0%	25	0.5%	25	0.5%
Agate	2	0.3%	8	0.2%	10	0.2%
Indeterminate	11	2.8%	77	1.5%	88	1.6%
Total	397	100.0%	5069	100%	5466	100.0%

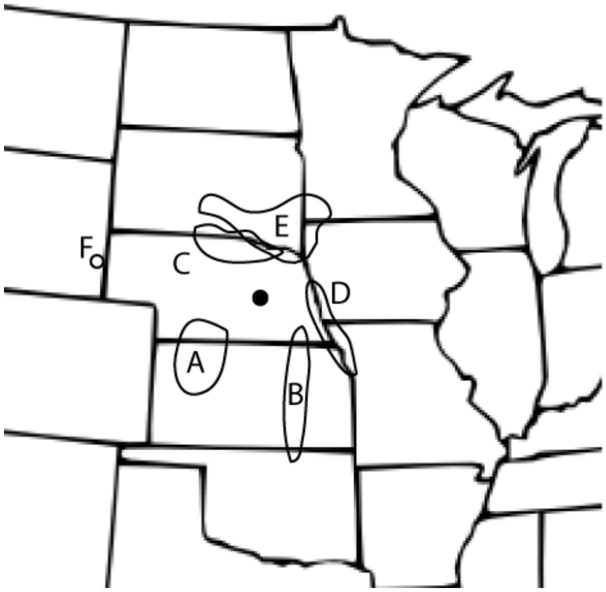


Figure 25. Source areas for major non-gravel toolstones found at the Swantek Site. A - Niobrarite; B - Permian; C - Bijou Hills Quartzite; D - Pennsylvanian; E - Sioux Quartzite; F - Hartville Chert. Location of Swantek Site marked with black dot.

After Niobrarite, the next most frequent material type in the Swantek debitage assemblage is Permian cherts from the Flint Hills of central Kansas (n=300 5.9% total debitage). Bijou Hills quartzite debitage, sourced to the Dakotas and north-central Nebraska, is present in the same frequency as Permian cherts (n=300 5.9%). Altogether, this suggests that raw materials are being collected locally with some coming from the west and north as well. Large quantities of materials were not brought in from the Oneota heartland to the east where Pennsylvanian and Mississippian deposits are common; Pennsylvanian materials only account for 2.7% of debitage and less than 1% of tools, and Mississippian aged stones are not present at all in this assemblage. This suggests that any contact with the Midwest was limited to the western edge along the Missouri River trench in western Iowa where Pennsylvanian and quartzite sources are available.

Similar patterns hold for the raw material distributions among tools as well. Here, Permian sources are slightly more common, accounting for 98 (24.7%) of tool materials. Bijoux Hills is slightly less common with only 14 tools identified as this type of stone (3.5%). If the people at the Swantek site had contact with people at great distances in any direction, this did not result in significant movement of toolstones (Table 23).

Table 23. Raw material frequencies among tool types. Lower numbers is percent of tool type in each material.

	Agate	**Bijoux Hills Quartzite**	**Gravel**	**Niobrarite**	**Hardville**	**Pennsylvanian**	**Permian**	**Petrified Wood**	**Chalcedony**	**Sioux Quartzite**	**Unknown**	**Total**
Knife	0 0.0	1 5.3	1 5.3	12 63.2	1 5.3	0 0.0	4 21.1	0 0.0	0 0.0	0 0.0	0 0.0	**19 5.5**
Retouched Flake	0 0.0	2 2.5	2 2.5	59 72.8	0 0.0	1 1.2	15 18.5	0 0.0	0 0.0	0 0.0	2 2.5	**81 23.4**
Misc Biface	1 50.0	0 0.0	0 0.0	1 50.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**2 0.6**
Burin	0 0.0	0 0.0	0 0.0	1 100	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**1 0.3**
Core	0 0.0	0 0.0	1 10.0	6 60.0	0 0.0	0 0.0	2 20.0	0 0.0	1 10.0	0 0.0	0 0.0	**10 2.9**
Drill	0 0.0	0 0.0	0 0.0	1 100	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	**1 0.3**
Scraper	0 0.0	2 2.3	8 9.2	41 47.1	2 2.3	0 0.0	31 35.6	0 0.0	1 1.1	0 0.0	2 2.3	**87 25.1**
Misc Tool Fragment	1 3.3	3 10.0	2 6.7	16 53.3	0 0.0	0 0.0	6 20.0	0 0.0	0 0.0	1 3.3	1 3.3	**30 8.7**
Point	0 0.0	0 0.0	1 2.0	35 71.4	0 0.0	0 0.0	10 20.4	1 2.0	0 0.0	0 0.0	2 4.1	**49 14.2**
Utilized Flake	0 0.0	3 4.7	5 7.8	39 60.9	0 0.0	0 0.0	15 23.4	0 0.0	0 0.0	0 0.0	2 3.1	**64 18.5**
Wedge	0 0.0	0 0.0	0 0.0	1 50.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 50.0	0 0.0	**2 0.6**
Total	**2 0.6**	**11 3.2**	**20 5.8**	**212 61.3**	**3 0.9**	**1 0.3**	**83 24.0**	**1 0.3**	**2 0.6**	**2 0.6**	**9 2.6**	**346 100**

Niobrarite is more dominant among points than any other tool type, suggesting that these were usually manufactured locally. The simple triangular style of these points reflects local manufacture almost without a doubt

Knives show the same distribution as the overall assemblage with a heavy emphasis on local Niobrarite and a significant minority of toolstone coming from Permian sources to the south and west in the Flint Hills. Among bevelled knives, however, the pattern is less local. Of the four beveled knives, only one could be definitely sourced and it is a cretaceous stone. Another is identified as either cretaceous or heavily silicified wood, and the remaining two are of unidentified brown materials. These characteristically Great Plains tools may have been traded into the site or transported from off site locations.

Scrapers are the only tool category that shows a significantly different raw material distribution with a much more heavy focus on Permian sources (38.3% of scrapers). Scrapers may have been brought to the Swantek Site from the Southwest, perhaps as part of an embedded hunting strategy. Still, the dominant material type for scrapers is local Niobrarite. This extra emphasis on Permian sources for scrapers was also found by Logan at the White Rock Site (1995: 70) as discussed in the previous chapter.

Cores and rough preforms are most commonly Niobrarite at the Swantek site, but four cores of other materials were collected. Core fragments were identified in Nehawka Chert (Pennsylvanian), Plate Chalcedony, and Permian cherts. The final core fragment is of an unidentified green chert with a highly weathered cortex that likely came from gravel deposits locally. The non-local cores tend to be rather small, with the largest of them being the Nehawka core, weighing only 74.5 g. This suggests that small pieces of unworked stone were occasionally acquired non-locally, but only in small quantities. The main focus of lithic tool stone acquisition for the people at the Swantek Site was local deposits of Niobrarite and occasionally gravels.

Other Artifacts and Observations

Small pieces of hematite were found throughout the Swantek site (sample n=17). These are all very small pieces, most are tiny crumbs. A small ball of unfired clay with a light green to beige color was found stored at the bottom of Feature 6 as was a very soft piece of sandstone in the shape of an egg. It is not clear the function of these artifacts, but they were apparently stored for later use in this pit, which was later repurposed as a refuse pit without retrieving these artifacts or the two unused scapulae also stored at the bottom. Two other lumps of unfired clay were also found (cats 2083, 2173, 2262 all clay). One large piece of granite, nearly spherical and about the size of a bowling ball (cat 2545) was found in feature 7 with a bundle of other unusual artifacts. The granite appears to be unworked and is likely a glacial erratic. Its function, if any, is unclear. No pipes of any sort or pipestone tablets were found in the excavations at the site. A small fragment of what appears to be a ceramic disc or a perforated rim sherd was also found (cat 3859). It is approximately 2 cm wide and seven millimeters, tempered with sand, and undecorated. The outer edge is slightly convex, rounded in cross-section with a slight bevel, possibly worked after firing. The interior edge is concave and has a very small section of a surface that was perforated before firing. The function of this item is unclear.

Discussion

Although the materials from the Swantek Site do not precisely match the collections from any of the known sites of contemporary cultures discussed in the previous chapter, there is ample evidence to suggest an influence from Oneota cultures to the east. Very few of the hallmarks of CPt culture are found, leading to the conclusion that this is not a CPt site. Specifically, the architectural remains suggest a permanent but insubstantial structure of posts in a shallow sub-rectangular basin with interior features similar to those found at Dixon and possibly by Rusco at the White Rock site. The difficulty that researchers have had in identifying structures amid large scatters of posts and features in the White Rock area is familiar when dealing with the architectural evidence at the Swantek Site.

The ceramics from the Swantek site provide the strongest connection with Oneota culture. Vessels are small and globular with direct to flaring rims and no collared or braced rims. Strap handles are common as are trailed and punctate decorations. Cordmarking, a characteristic CPt surface treatment, is nearly absent from the Swantek collection with most vessels smoothed and some showing evidence of smoothed simple stamping as in Oneota and White Rock assemblages. Shoulder and lip decoration are common among the Swantek ceramics including trailed line and punctate motifs suggestive of an Oneota influence such as nested triangles, chevrons, and even curvilinear motifs. The frequency of shoulder decoration and presence of punctate and curvilinear motifs clearly suggests Oneota influence. The presence of shell tempering is also expected for a culture with Oneota influence, but the low proportion of sherds with shell or other calcium sources as part of the temper clearly separates the Swantek collection from Midwestern Oneota sites like Dixon, and makes it much more similar to the reported frequencies for White Rock sites. In both form and style, the Swantek ceramics are most like those found at White Rock sites. Unlike the Walnut Decorated Lip wares of the White Rock area, however, Swantek rims tend to be higher, handles are more common, and there is more eastern influence in the decorative treatments.

The economic remains from the Swantek site also suggest great similarities with White Rock economies. The people at this site clearly had a wide-spectrum diet including wild animal and plant foods as well as some cultigens, but the main focus is on bison with the animals hunted locally and heavily processed. Some of the bison represented at the Swantek site were apparently also killed far from the site itself with scapulae being selectively curated and used as tools. This use of scapula tools was part of a gardening economy, but also likely part of the hide working and wild animal economy of the site. This intensive focus on large game and lower emphasis on garden and small game products aligns the Swantek economy most closely with White Rock economies and separates it from the Central Plains tradition.

Lithic tools also suggest a heavy emphasis on bison and wild animal processing with a high frequency of scraping and animal processing tools found. Groundstone tools such as grinding stones that may have been used in plant processing are fragmentary and uncommon, and mauls are completely absent from the Swantek assemblage, a significant if rare departure from the White Rock pattern. The lithic assemblage of the Swantek site signals further similarities between it and Oneota and White Rock sites with tools typically informal and often unifacially worked or only bifacially worked for retouch. The very finely made notched points of CPt cultures are uncommon at this site, with informal triangular flakes only worked to the minimum necessary to make a useable projectile being the norm. This pattern has been noted in both Oneota and White Rock assemblages elsewhere (Fishel 1999: 51; Ritterbush and Logan 2000).

Patterns of raw material acquisition at the Swantek site suggest very little long-distance interaction by the people here. The vast bulk of tool stones were acquired from the Cretaceous deposits of the Central Plains and likely within an hour or two walk from the site itself. The few non-local sources suggest a modest focus on the Flint Hills in central Kansas and the Dakotas to the north, with some material also probably coming from Pennsylvanian deposits on the Missouri River trench. Only this last source and the Bijou Hills Quartzite suggest interactions with Oneota people in the Midwest. Materials such as Burlington and other Mississippian aged cherts from farther east are notably absent. This focus on local materials, sometimes of mediocre quality, echoes the focus on expedience over form in the formal lithic analysis.

None of the culturally iconic items such as pipes and pipestone tablets were found at the Swantek site, so assignment of cultural affiliation is not absolute. The bulk of the evidence however suggests significant Oneota influence, with the closest overall similarities between Swantek and White Rock sites. The presence of a unique constellation of ceramic attributes at Swantek suggests moreover that the people at this site were independent of the three major archaeological cultures discussed in the previous chapter. In sum, the most likely scenario seems to be that the Swantek site was created by a previously unrecognized group of people who were distinct from the earlier CPt inhabitants if the area, but shared an historical connection to western Oneota groups similar to the connection between White Rock and Oneota. It is likely that similar processes that brought the people of the White Rock area into the central Plains also brought the people of the Swantek site.

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