

**BESANT BEGINNINGS AT THE FINCASTLE SITE:
A LATE MIDDLE PREHISTORIC COMPARATIVE STUDY
ON THE NORTHERN PLAINS**

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Abstract

The Fincastle Bison Kill Site (D1Ox-5), located approximately 100 km east of Lethbridge, Alberta, has been radiocarbon dated to 2 500 BP. Excavations at the site yielded an extensive assemblage of lithics and faunal remains, and several unique features. The elongated point forms, along with the bone upright features, appeared similar to those found at Sonota sites within the Dakota region that dated between 1 950 BP and 1 350 BP. The relatively early date of the Fincastle Site prompted a re-investigation into the origins of the Besant Culture. The features, faunal and lithic assemblages from twenty-three Late Middle Prehistoric sites in Southern Alberta, Saskatchewan, Montana, Wyoming, and the Dakotas were analyzed and compared. The findings show that Fincastle represents an early component of the Besant Culture referred to as the Outlook Complex. This analysis also suggests a possible Middle Missouri origin of the Fincastle hunters, as well as the entire Besant Culture.

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CHAPTER 1 – Introduction

Introduction

The Fincastle Bison Kill Site (DIOx-5), located approximately 100 km east of Lethbridge, Alberta, has been radiocarbon dated to 2 500 BP. an extensive assemblage, including lithics and faunal remains and several unique features were found at the site. Previous studies of the site's material have associated the Fincastle Site with the Besant, Sonota and/or Outlook groups of the Northern Plains (Varsakis 2006; Watts 2008; Mills 2009; Peck 2010). Elongated point forms recovered from the excavations, along with bone upright features observed at the site, appear similar to those found at Sonota sites within the Dakota region dating to 1 950 BP to 1 350 BP. The chronological placement of Fincastle at 2 500 BP predates the Sonota Complex, as it is currently defined, which has lead some researchers (Peck 2010) to associate the site with the Outlook Complex, as was first described by Dyck and Morlan (1995) at the Sjovold site in Saskatchewan. The relatively early date of the Fincastle Site in connection with the archaeological material recovered from it prompted a reassessment of the origins of the Besant Culture.

Research Objectives

The main goal of this research was to define the cultural attributes (characteristics of a culture or group of people) of the Fincastle Site, and compare these to other Late Middle Prehistoric sites on the Northern Plains in order to associate the Fincastle group with a previously defined culture complex or confirm a new designation. This study concentrated on the interpretation of the features, faunal and lithic assemblages from a number of selected sites, and investigated the possible functional and cultural

explanations of the material culture. It also aimed to add to the existing knowledge of the Besant Culture in this region by comparing Southern Alberta and Saskatchewan sites with Late Middle Prehistoric sites in Montana, Wyoming, and the Dakotas.

Thesis Overview

This study began with a review of the Fincastle Site and its associated assemblage, which was then linked with an overview of the 23 comparative sites that were chosen based on their dates and description as Besant, Sonota and/or Outlook. Common characteristics of all assemblages (lithic, faunal, features and ochre) were assessed and reviewed in order to form functional and cultural connections between all 24 sites. Finally, the Besant, Sonota and Outlook groups were redefined, and the 24 sites were placed within their respective groups based on the conclusions of this study.

Chapter 2 - Literature Review/Culture

Chapter 2 provides a basic overview of the terminology utilized within this study, such as variable, attribute, determinate, type, tradition, phase and sub-phase. The use of the term 'culture' is also extensively reviewed. Because the Fincastle Site dates to the Late Middle Prehistoric Period, several previously defined groups/cultures contemporary in age are described, and their associated material culture discussed and reviewed. These groups include Besant, Sonota, Sandy Creek and Outlook or the Unnamed Culture/Complex.

Chapter 3 – The Fincastle Site

The Fincastle Site and its associated material assemblage is presented within this chapter. Background information, including the present and paleo-environment (flora and fauna), site stratigraphy, and radiocarbon dates, is provided. Field excavations and laboratory methods are also noted. Aspects of the Fincastle assemblage that are described include the lithic and faunal (bison and non-bison) assemblages, features observed in the field and the ochre recovered during the excavations.

Chapter 4 – Late Middle Prehistoric Comparison Sites

Twenty-three Late Middle Prehistoric sites found within Alberta, Saskatchewan, Montana, Wyoming and the Dakotas are reviewed in Chapter 4, following the format used in the previous chapter. These sites were selected based on their dates and their descriptions as ‘Besant’, ‘Sonota’ or ‘Outlook’ occupations. The common materials and features of each region (Alberta and Saskatchewan, Montana, Wyoming and the Dakotas) are then discussed. Characteristics of the different site function types (i.e. kill/processing, camp, burial, etc) are listed as they related to the observed differences between the site assemblages.

Chapter 5 – Interpretation of the Fincastle Site

This chapter concentrates on interpreting the Fincastle assemblage by comparing it to the 23 comparison sites. The aim of this investigation was to draw connections between the site assemblages in order to associate the functional and/or cultural attributes of particular site activities with the groups occupying the Northern Plains during the Late Middle Prehistoric Period.

Chapter 6 – Conclusions of the Comparative Study and the Reassessment of the Besant Culture and Associated Groups

The final chapter of this thesis focuses on the review of the social organization of Late Middle Prehistoric nomadic groups of the Northern Plains as it relates to the archaeological evidence found at Fincastle and the 23 comparative sites included in this study. The 'Pan-Besant Culture' along with Sonota, Outlook and regional Besant Complex variants are redefined and assigned start and end dates. The limitations of this study and future directions of research into the Besant Culture are also discussed.

CHAPTER 2 – Terminology Overview

Introduction

This chapter defines the main terms, such as *attribute*, *type*, *tradition*, *complex* and *culture* as they are applied within this thesis. Because this study is concerned with identifying relationships between groups of people based on correlations within the material culture of several archaeological sites, it is vital to provide an overview these concepts and terms. It is important to review preconceived notions attached to terminology and discern the different uses of these terms by various scholars. How these terms are used within this thesis is, therefore, clearly outlined.

Variables and Attributes

A *variable* is a formally defined aspect of the object being studied (Watson et al 1984: 192), while an *attribute* is the basic, observable component of any phenomena. Each entity has a potentially limitless number of measurable attributes. Although the number of attributes of an object is theoretically infinite, in practice this number is limited by the methods of measurement, interests of the researcher and available effort for defining and recording the attributes (Redman 1978). Separate attribute observations are often organized into classes of attributes, such as colour (hue or chroma), size (length, width and thickness) or raw material (chemical composition and hardness). Attribute recognition and selection is a crucial step in the analysis of archaeological material because the properties that are described by archaeologists represent a few selections out of several possibilities and can, therefore, alter the end results of analysis and/or overlook significant attributes (Redman 1978:163).

Non-essential attributes are those that do not vary significantly within the collection. *Essential attributes*, on the other hand, are found to vary with respect to at least one interpretive dimension of the assemblage. For example, assemblages from five sites with the same projectile point form (a non-essential attribute) could have differing raw material types and body lengths, which are then essential attributes. Alternatively, if the raw material used was the same at all five sites but the projectile forms were different, the raw material would become a non-essential attribute and the point forms an essential attribute. Key attributes are groups of two or more essential attributes that can be identified based on recurring traits within several site assemblages. Discovering and explaining the observable patterns of essential and key attributes is one of the goals of archaeological analysis (Redman 1978:163).

Determinates

McKern et al (2003:208) used the term *determinates* to signify “traits among the known evidences of a material culture which, because of their individuality, serve to differentiate it from other cultures”. Determinates are essentially key attributes that are unique to that particular group. It is important to identify determinates based on a lack of adherence to cultural norms (pottery decoration for example) and those controlled by environmental factors, such as raw material availability.

Types

Type is sometimes used interchangeably with *tradition* or *culture* in the literature. Most archaeological types are based on the fundamental assumption that a *type*

is a group or a cluster of objects more similar to one another, sharing two or more attributes, than to objects in other groups (Jones 2002). This typological approach is not limited to single artifacts, but is widely applied to complete cultural assemblages as well.

A *monolithic type* is defined as a group of artifacts or assemblages that share a number of attributes that all members of the type must possess, while a *polythetic type* is defined as a collection of remains that share a family of attributes, though no one in particular is found by all members of the type (Watson, LeBlanc and Redman 1984).

Tradition, Phase and Sub-phase

According to Willey and Philips (1958:37) an archaeological *tradition* is “a primary temporal continuity represented by persistent configurations in single technologies or other systems of related forms”. This is similar to Reeves’ (1983a:39-40) definition of a cultural tradition as “persistent configurations in a number of cultural systems which interact to produce an archaeological unit distinct from all other archaeological units conceived on the same criteria”. A tradition depends on the continuity or persistence of types that may or may not represent several social groups. For example, Reeves (1983a:12) defines the *Besant Tradition* as a technological assemblage, represented by a particular projectile points form. There can also be burial traditions, pottery traditions and so on. In many cases a tradition does represent a social group, though this is not always the case. For instance, the bow and arrow tradition is found within several independent social groups. For this reason, the term *cultural tradition* will not be used within this thesis.

A *phase* can be viewed as a chronological fragmentation of a tradition and, therefore, is only used in relation to a proposed temporal sequence of change. For example, Peck's (2010) Bracken Phase of the Pelican Lake Complex represents later projectile point forms developing out of the Pelican Lake form. When a tradition is broken up into smaller segments with no clear relation to temporal succession, the term *sub-phase* is used. Joyes (1984) and Varsakis' (2006) Kenny and Sonota Sub-phases of the Besant Complex are good examples of this use, though there is still an implied temporal link.

When two or more traditions or types are identified as belonging to the same group the term *complex* is used. For example, Alberta, Scottsbuff and Eden point types or traditions are all part of the Cody Complex. This usually occurs when more than one type or tradition is found within the same layer or occupation of a site. The word *complex* has become interchangeable with *culture* as it refers to a physical group of people who share particular traditions within their group. Due to the varied use of *culture* in the literature, *complex* will be used within this thesis to define a collection of traditions or types.

The Culture Type/Complex

Culture is the sum of values, beliefs, rules and behavior patterns that are held in common by a group, at any scale. It involves a commonality and the reoccurrence of traits in contrast to those that are outside the group (Hodder 1987). Culture is a *type* in that it is made-up of types of behavior, types of material, types of sites and so on. A series of cultures of the same type make up a *culture group* in the same way that a series of attributes of the same type make up a *tradition* of artifacts (Hodder and Hutson 2003).

Unfortunately, the definition of the term *culture* is in a constant state of flux between prehistoric and modern cultural and social studies. One could list a variety of definitions based solely on the North American archaeological literature written in the last forty years. Moreover, the term *culture* has been used in place of several of the aforementioned terms in relation to archaeological assemblages. Therefore, the term *culture* will be used when referring to an actual collection of people who move together within the landscape and/or who originate from and/or reside in the same locality, while the terms *complex*, *tradition* and *type* will be used when discussing similarities in material assemblages between sites.

Defined Complexes

In order to assess the relationship between Fincastle and the prehistoric cultural groups already defined by Frison (1978), Epp and Dyck (1983), Reeves (1983a), Peck (2010) and others, an extensive review of the literature was required. This review was based on the culture chronologies and the assigned complexes of the Northern Plains in the Late Middle Prehistoric period (3 500 – 1 250 BP). The main complexes included in this period are Besant, Sonota, Sandy Creek and the Outlook or The Unnamed Complex. Because there is disagreement regarding when and how these groups relate to one another, each was discussed separately. The complexes were reviewed based on their initial classifications, as well as the proceeding interpretations by individual scholars. Temporal and geographical ranges, possible origins and material culture assemblages of each complex were reviewed in detail.

Besant

The *Besant Complex* was first named and described by Wettlaufer (1955) when he was working at the Mortlach Site in south-central Saskatchewan. The name 'Besant' is derived from the Besant Valley where Mortlach is located. Wettlaufer (1955:44) defined the short and broad projectile points with shallow side notches and slightly concave bases that he found in occupation layers 4A through D as 'Besant Side-Notched Points'. These became the signature of Besant occupation in Great Plains. As more sites were discovered, the definition of Besant evolved to include regional and temporal sub-phases, which has resulted in major discussions concerning the Besant Complex, and any possible sub-phases and/or progenitors (Wettlaufer 1955; Neuman 1975; Frison 1978; Epp and Dyck 1983; Reeves 1983a; Joyes 1984; Vickers 1986; Duke 1991; Varsakis 2006; Peck 2010). In some cases, Sonota, Sandy Creek and Outlook points are interpreted as individual groups (cultures) and/or distinct types (complexes), rather than phases and/or sub-phases of a larger Besant Complex (Peck 2010). In other cases, these 'phases' and/or 'sub-phases' have been identified as regional or temporal variations of one larger group, being the 'Besant Culture' (Epp and Dyck 1983; Reeves 1983a; Joyes 1984).

Besant sites are spread across the Northern Plains, within eastern Wyoming, eastern Montana, North Dakota, northern South Dakota, southern Alberta, southern Saskatchewan and southwestern Manitoba (Reeves 1983a). Peck (2010:324), however, suggested that there are no Besant sites in North and South Dakota as he defines these sites as Sonota. Commonly accepted Besant dates include: 2 000 - 1 150 BP (Epp and Dyck 1983; Reeves 1983a) and 2 400 - 1 000 BP (Duke 1991; Peck 2010). The oldest

Besant sites are located in the Middle Missouri area followed by the Upper Missouri and the Saskatchewan Basin. Termination dates vary from region to region.

Joyes (1984) and Varsakis (2006) separate their defined 'Besant Complex' into several sub-phases. The Kenny Sub-phase (2 000 - 1 250 BP) represents the indigenous manifestation of Besant in the Saskatchewan Basin. Accordingly, the Kenny Sub-phase sites can have both Pelican Lake and Besant type points because of contact between the two groups or a possible Pelican Lake origin. The Sonota Sub-phase (2 500 - 1 250 BP) represents the north-east Plains and the Middle Missouri variant. The Wyoming Sub-phase (2 000 - 1 250 BP) represents the spread of Besant into the Wyoming area. Varsakis (2006:362) also suggested a possible Montana Sub-phase as there are similarities shared with sites in the first three sub-regions. The concept of a Kenny Sub-phase is similar to a possible Besant origin discussed by Reeves (1983a:142) where Besant is part of the 'Tunaxa' Phase, developing from Pelican Lake or another regional sub-phase.

Reeves (1983a:141) also discussed an alternative origin theory where Besant points represent an intrusive cultural tradition from another area. This hypothesis rests on the argument that there is no visible transition from Pelican Lake to Besant. The presence of Pelican Lake and Besant points within the same layer, in Reeves' opinion, can be seen as contact between two groups. The source of the intrusive group has been traced back to a number of possibilities, including the Boreal Forest (Byrne 1973), Eastern Woodlands (Reeves 1983a), Middle Missouri Basin (Varsakis 2006) and the Parklands of Saskatchewan (Reeves 1983a). A Middle Missouri origin will be discussed in relation to

the Outlook Phase or Unnamed Complex and Parkland origin will be reviewed within the Sandy Creek Phase.

Based on his analyses of Alberta ceramic traditions, Byrne (1973:446) suggested an origin in the Boreal forest that spread southwestward across the Plains from Manitoba. He based this theory on the fact that he perceived Besant as an aceramic group, which in his opinion, indicates a sharing of cultural materials with Eastern Woodland and Northern Plains groups through contact and trade. Projectile points from Early Woodland sites in Manitoba bear resemblance to the Besant form. Reeves (1983a:149) agreed that there is a possibility that Boreal Forest cultures expanded into the Plains, bringing Eastern Woodland materials with them.

The Besant Culture could have originated from the Eastern Woodlands in Middle Woodland times (2 100 – 1 400 BP). Similar burial mounds were found in Manitoba and Besant points and bison remains were found in Malmo mounds and in relation to the Laurel Complex in the east. Defined Sonota sites found in the Middle Missouri region illustrate that the most influence came from the Eastern Woodlands groups, and will be discussed in depth below. A Besant connection to the Hopewell interaction sphere has been suggested (Reeves 1983a:149). Although, many have argued that the burial mounds of Manitoba and the Middle Missouri area are a local development not adopted from Hopewell interaction (Byrne 1973; Clark 1982), and even though Knife River Flint, a distinct raw material sourced to the Dakota region, is present at Hopewell sites, it is very rare and may represent insignificant interaction between a few borderland groups within a short span of time (Vickers 1986).

Besant Material Culture

Besant points represent dart and atlatl technology common in the Middle Prehistoric Period of the Northern Plains (Kehoe 1966). Besant forms vary (Kehoe 1966) but on average these points have convex body edges with sharp to rounded obtuse shoulders (Reeves 1970:42). Besant points are often referred to as side-notched but some do display corner-notches. Wettlaufer and Mayer-Oakes (1960:41) described the points as having a “shallowly side-notched straight to convex base with a series of flakes removed upward across the base and thinning the artifact somewhat”. Reeves (1970:42) also observed that grinding or thinning of the base was common on Besant points. Lengths vary from 22.5 to 75.0 mm and width from 11.0 to 33.2 mm (Johnson 1977:56).

According to Peck (2010:312), Besant sites have low numbers of side scrapers compared to end scrapers and many retouched and utilized flakes. Besant end scrapers are relatively small and made of trianguloid or rectanguloid blanks (Reeves 1983a:95). Bone tools, bifaces, grinding slabs and hammer stones are sometimes present but overall they are infrequent (Reeves 1983a, Peck 2010).

Percentages of raw material, used for lithic production vary from region to region, and this data is often used to create sub-phase separation. There is an emphasis on local sources, as well as exotic porcellanite, Avon chert and Knife River Flint (Epp and Dyck 1983; Reeves 1983a; Peck 2010). Obsidian and red and grey siltstones are rare (Reeves 1983a:96). Duke (1991:88) regarded Knife River Flint as important in eastern areas and early phases of the complex. In southern Alberta and Saskatchewan, quartzite, chalcedony and miscellaneous cherts are common. For obvious reasons, Montana cherts are common in the Montana area and Knife River Flint is frequent in the Middle Missouri region.

Byrne (1973) concluded that Besant was an aceramic group, but since his publication, Besant sites containing pottery have been excavated. Excavations at Ross Glen (Quigg 1986:119) yielded thirty-seven small ceramic fragments that were recovered from inside and outside stone circle 14. EgPn-111 (Head et al 2002:164) contained eleven sherds from two areas. Quigg (1986) suggested that the small number of ceramics identified at Ross Glen indicated that only few people in the society possessed the technology or that they acquired the vessels through trade.

Besant has been associated with many types of features and structures, including post-molds from pounds and corrals, surface hearths, basin hearths, fire-broken rock concentrations, earth pits, boiling pits and bone uprights (Epp and Dyck 1983; Reeves 1983a). Evidence of habitation structures include both Woodland types (Muhlbach) and tipis (Ross Glen). The tipi rings range from three to eight meters in diameter (Quigg 1986:43), though larger circles are common (Epp and Dyck 1983). Surface hearths seem to be characteristic, though basin hearths are also present. However, rock filled pits, like those found at Pelican Lake sites, are absent.

Sonota

Sonota was first described by Neuman (1975) in relation to a series of burial mounds and associated sites (Stelzer, Swift Bird, Grover Hand, Arpan, Boundary Mound, Baldhill Mounds, La Roche, Schmidt Mound and Porcupine) in North and South Dakota that date between 1 950 BP and 1 350 BP. Sonota sites have been described as having low domed burial mounds and bone uprights within camp and kill sites (Reeves 1983a).

Neuman (1975) suggested that the Sonota sites represent a regional segment of Besant Culture seen on the Great Plains. He believed that “the Sonota people were

hunters and gatherers, whose cultural development, but not necessarily origin, took place on the Northern Great Plains and was very closely linked to the Besant occupations in Montana, Saskatchewan and Alberta” (Neuman 1975:93-96). Neuman viewed the Sonota sites as a Middle Missouri occupation of a northwestern group, or a local population deeply connected and/or influenced by Northern Plains Besant. Based on Neuman’s view of the Sonota group, the burial mounds were the product of eastern influences from the Hopewell interaction sphere, rather than a westward migration of woodland groups. Epp and Dyck (1983) and Reeves (1983a) do not separate Sonota from Besant but do share the view that the Sonota sites represent a regional variation of Besant. Reeves (1983a:10) referred to the Sonota sites as part of the Middle Missouri variant of the Besant Complex. Joyes (1984) and Varsakis (2006) also supported this theory with their Sonota Sub-phase.

Peck (2010) included several southern Alberta and Saskatchewan sites (EgPn-111, Head-Smashed-In Buffalo Jump, Fitzgerald and Melhagen) in his description of the Sonota Complex, including Zone 3 of the Mortlach site, described as the ‘Caron Culture’ by Wettlaufer (1955:36-39). Syms (1977:90) also suggested that Sonota sites reached into Alberta (Muhlbach) and Saskatchewan (Walter Felt). These theories oppose Reeves’ (1983a:11) view that the label ‘Sonota’ should be restricted to the mound building variant of Besant in the Middle Missouri area.

The placement of Sonota in the greater Plains chronology rests on the argument surrounding the origins of the Sonota group. Epp and Dyck (1983:115) viewed Sonota as either originating in or else strongly influenced by Early and Middle Woodland Complexes of eastern United States. Alternatively, Reeves (1983a) proposed that Sonota sites are the result of Besant movement from the Parkland of Saskatchewan to the Middle

Missouri area at which time they were influenced by Woodland cultures to the East. Peck's (2010) understanding of the Sonota variant is that this group originated in the Middle Missouri area and is a completely separate group from Besant, which he believes developed out of Pelican Lake and/or Sandy Creek. Rather than a later regional manifestation of the Besant sequence, as proposed by Reeves (1983a), Peck suggested two separate areas of origin for Besant and Sonota in order to validate their separation into two distinct groups. Based on the site dates and a comprehensive assessment of the cultural assemblages from his assigned Besant and Sonota sites, Peck (2010) suggested the Sonota group replaced Besant on the Northern Plains around 2 100 BP. That this material culture change represents one group forcing another out of this territory rather than a transition of point types within one group.

Sonota Material Culture

Neuman (1975:90) described the Sonota lithic assemblage as a variable set of projectile point forms, including Plains-triangular, end and side-notched and corner-notched points, ovoid, triangular and lanceolate knives, plano-convex and plano-concave end scrapers, drills, notched and utilized flakes, side scrapers and graters. He also noted that end scrapers represent the largest group in the lithic assemblage, and tools involved in hide working were very common. All tool descriptions within Reeves' (1983a:146-48) list of common Besant characteristics were based on assemblages from Middle Missouri sites as well as Canadian sites. Peck (2010:337) suggested that the non-point tools of the assemblage may lead to the differentiation between Besant and Sonota. Differences defined by Peck (2010) include a number of side scrapers, which are common in Alberta but not in the Middle Missouri region, as compared to quantities of square end scrapers,

large ovoid bifaces/knives and retouched and utilized flakes which are common in Sonota sites.

Based solely on the Sonota sites grouped together by Neuman (1975), the raw material used consisted mainly of local materials, such as Knife River Flint. Material often found in high percentages within assemblages of Sonota labeled sites outside of the Dakotas include Swan River Chert, miscellaneous cherts and chalcedonies (Peck 2010:338). There are also instances of some banded chalcedonies, fine-grained quartzite, quartz, jasper, chert, petrified wood, gypsum, moss agate and obsidian (Neuman 1975:91).

Ceramics are not abundant but are present in seven sites described by Neuman (1975:93). Excavated pottery sherds reveal a distinctive conoidal form with a vertical cord-roughened surface, punctuates and bosses for decoration. Only one type of ceramic has been found at Sonota sites, which was made using local clay and formed through the paddle and anvil technique (Neuman 1975:93).

One main reason for separating Sonota sites from the greater Besant Complex is the presence of burial mounds in the east, an uncommon practice on the Plains. When describing the burial practices of the Besant Culture, Reeves (1983a) and Epp and Dyck (1983) referred to the mortuary structures present at the Middle Missouri mound sites. These burials involved secondary internment into log filled pits in mounds, and are associated with grave goods and bison remains. These mounds are similar to those found in southern Manitoba, where subfloor pit internment, secondary bundle burials, bison offerings and ochre sprinkled on bodies took place (Reeves 1983a:98). It has been questioned whether the burial mounds illustrate ranked society (Reeves 1983a) or an

egalitarian mortuary practice (Neuman 1975), as there were several ornamental objects within the Sonota burial mounds that were made from mammal, bird and human bone, marine and fresh water shells and copper and native ores (Neuman 1975:90). Ornaments included pendants, beads and pigments (green sands, magnetite and yellow ochre). These objects will be discussed in greater detail in Chapter 4.

Sandy Creek

The Sandy Creek Phase was first named and described at the Mortlach site in relation to Layer 4E. Wettlaufer (1955:51) separated this layer from the upper Besant layers based on a change in projectile point form, the presence of a new scraper type and the appearance of bone tools. Radiocarbon dates from that layer place the Sandy Creek Phase at $2\,450 \pm 173$ BP (S-22). Epp and Dyck (1983:108) bracketed the phase from 2 450 to 1 950 BP. Reeves (1983a:14) viewed Sandy Creek as a transition point type from Oxbow to Besant. Based on this theory, a segment of the Oxbow population within the Parkland area of Saskatchewan transformed into Sandy Creek and eventually spread outwards onto the Plains. Peck (2010) proposed that the Sandy Creek Complex was an initial, but brief occupation of the Northern Plains around 2 500 BP. He suggests that these points likely evolved into the Besant forms, making Sandy Creek the most likely progenitor of Besant, rather than the Unnamed or Outlook Complex, described below. He added that the group was likely pushed out of the area by Bracken groups (2 800 to 2 100 BP), a later form of Pelican Lake.

The Sandy Creek point type is described as side-notched and basely indented (Epp and Dyck 1983:108). Epp and Dyck (1983:108) noted that Sandy Creek points are indistinguishable at times from Oxbow or Besant forms, making *in situ* dating imperative

to identify Sandy Creek components of sites. Swan River Chert and local quartzite was the most common raw material used to create the points and other lithic tools (Reeves 1983a:20).

Outlook or Unnamed Complex

Dyck and Morlan (1995:425) found side-notched points within Layer XIV of the Sjøvold Site and identified them as Outlook points of the Unnamed Complex. With a radiocarbon date of $2\ 580 \pm 85$ BP (S-2060), Epp and Dyck (1983:107) placed the appearance of the Unnamed Complex at 2 500 BP. He did not assign a terminus date for this point type.

Epp and Dyck (1983:108) viewed Outlook points as similar to point types in Early Woodland Complexes to the east, like those in Minnesota, Illinois and Ohio. Based on this connection, they suggested that groups expanded out of this area around 2 550 – 2 450 BP. Peck (2010:261) argued for a Middle Missouri beginning that expanded to include northwestern sites such as Head-Smashed-In Buffalo Jump, Happy Valley and Fincastle in Alberta. There is a possibility that the Outlook or Unnamed Complex represents the emergence of Besant, making it the progenitor of Sandy Creek, Sonota and Besant point types. Varsakis (2006) noted that there is a 500 year period between the Fincastle Site and the Sonota Sub-phase, when there are no known Besant sites in Alberta. Peck (2010) attributed this absence to the local Bracken population driving the Outlook groups back to the Middle Missouri region. Besant does not appear in Alberta until Sandy Creek emerges from the Parkland and replaces the Bracken Culture (Peck 2010:266).

Cultural Models

There are two main models to consider when discussing the origins of the Besant Culture on the Northern Plains. Though they have already been briefly discussed within the descriptions of Besant, Sonota, Sandy Creek and the Outlook Complexes, it is important to summarize these two opposing models by Reeves (1983a) and Peck (2010) as they will directly relate to the interpretations of the Besant Culture proposed within this thesis.

Reeves' Model

According to Reeves (1983a), the Oxbow Culture was pushed out of the Northern Plains and into the Parklands by Pelican Lake groups. Within the Parklands, one group of Oxbow people developed into the Sandy Creek group, who then exited the Parklands and expanded into Northern Plains to become Besant. Subgroups with this early Besant Culture eventually expanded down into the Middle Missouri region to form the Sonota Complex, the regional mound building variant of Besant. Based on his model (shown in Figure 1), Sandy Creek, Outlook, Besant, and Sonota are all part of the Besant Culture, within the Napikwan Tradition.

Peck's Model

Based on Peck's (2010) study of the Alberta prehistoric complexes, both Sandy Creek and Outlook appeared and briefly occupied the Northern Plains around 2 500 BP. Both groups were possibly pushed out by local members of the Bracken Phase (2 800 – 2 100 BP). Besant then appeared around 2 100 BP, most likely as a development out of the Sandy Creek Complex, and was a completely separate group from Outlook. Peck also

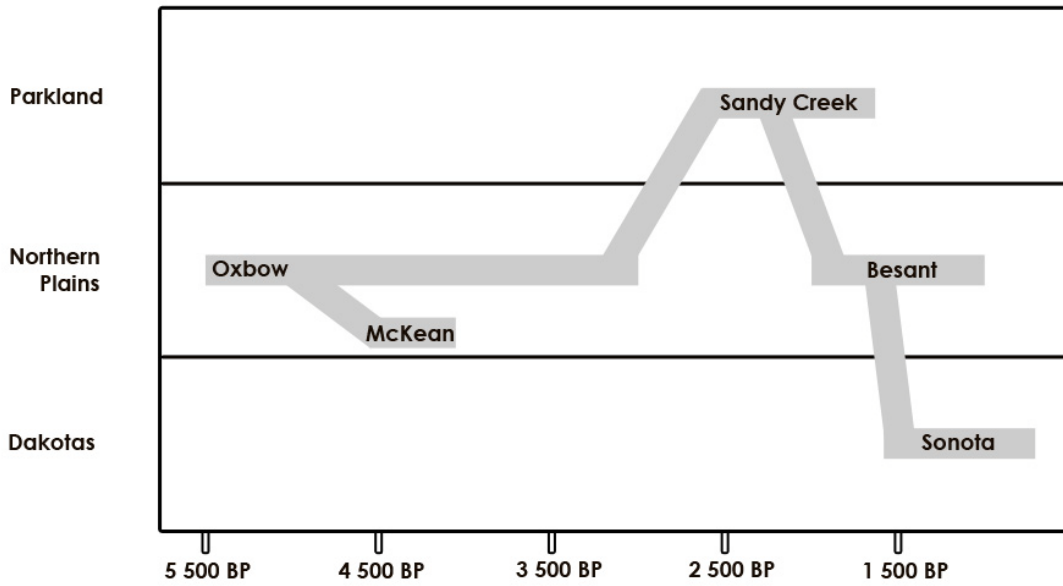


Figure 1: Depiction of Reeves' model of the cultural relationships on the Northern Plains during the Middle Prehistoric Period.

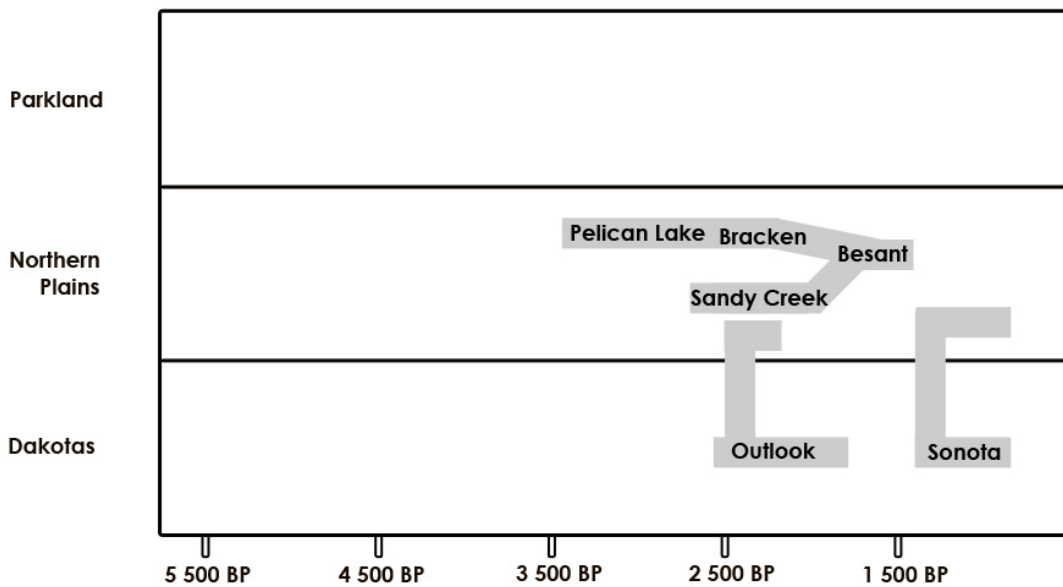


Figure 2: Depiction of Peck's model of the cultural relationships on the Northern Plains during the Middle Prehistoric Period.

suggested, as did Kehoe (1974:111), that the Bracken point could represent a transition from the Pelican Lake to Besant form. The existence of both Bracken and Besant points at several Northern Plains sites and the similarities in morphology between several specimens supports this hypothesis. Following Peck's model (depicted above in Figure 2), Sonota moved from the Dakota region onto the Northern Plains and replaced Besant around 1 500 BP. Both Outlook and Sonota groups seem to have moved into Northern Plains region and briefly occupied it in similar fashions, but they were two distinct groups of people. Outlook, Besant and Sonota are therefore three separate groups of people and are not precursors or descendants to one another.

Summary

An archaeological *culture* is defined as a group of people whose size can vary from a small nomadic group to large scale societies comprised of several interrelated complexes, phases and sub-phases. These groups are represented in the archaeological record by an assemblage of traditions (i.e. ceramic tradition, projectile point tradition, burial tradition, etc.). Therefore, a culture is the group and the traditions are their material culture. A *complex* is a collection of traditions reflecting a unique group of people within a culture. If a group spans a wide area of space and an extended period of time, the material culture or traditions can often be separated into phases and/or sub-phases. A *phase* is a chronological separation of a complex, while a *sub-phase* identifies a regional difference or a difference that cannot be clearly separated chronologically. Using the terminology defined above, the Besant projectile point is a technological tradition.

Whether or not it can be used to classify a complex, phase or sub-phase is to be determined.

In the following chapters the material assemblage of the Fincastle site, as well as the twenty-three comparison sites are reviewed and compared in order to identify any common variables and/or attributes. Based on the determinates isolated in each of the assemblages, Fincastle is either assigned to a culture type or placed within a newly defined category. Since the Fincastle Site shares several attributes with other sites previously defined as Besant, Sonota, Sandy Creek and Outlook, including the Besant point tradition, each site was defined by its point tradition as well as several other archaeological assemblage traditions and attributes.

For the purpose of this research, Besant points are identified as short and broad projectiles with shallow side notches and a slightly concave base (Wettlaufer 1955:44). These points average 35 to 45mm long and 20 to 25mm wide, and may have basal thinning. Sonota points are identified as elongated wide bodies consisting primarily of Knife River Flint. These points range from 20 to 65mm long and 17 to 27mm wide (Neuman 1975).

The Sonota sites contain a variable collection of points but the type point measurements sit on the higher end of the range. They range from 20 to 65mm in length with an average near the higher end of the scale. Sandy Creek points are identified as short, thick, rather misshaped points with shallow notches and slightly indented bases (Wettlaufer 1955:52). These points average 28mm long and 19mm wide and are generally the widest at the base. Finally, Outlook points are identified as 'U' shaped, with

wide deep edges and short bases. The basal width is usually equal to the maximum width of the body (Dyck and Moran 1995:430-435).

Additional attributes in each group include the following: For Sonota, the dominance of Knife River Flint, burial mounds, ceramics, bone upright features and several types of bone tools must also be included. The separation of Sandy Creek is based predominantly on earlier dates than Besant, sites dated to around 2 500 BP, and the addition of curved scrapers and bone tools, including scrapers awls produced through flaking techniques (Wettlaufer 1955:53). For Outlook, the earlier date of 2 500 BP is also significant, as well as the presence of surface hearths and bone tools (pressure flakers and awls) and a lithic assemblage dominated by Knife River Flint and Swan River Chert (Dyck and Moran 1995:425-450).

It must be noted that in many cases a site was listed as Besant that may otherwise have been identified as Sonota, Sandy Creek or Outlook based on different views of the cultural material from these groups. Therefore, the different attributes from these four groups have been identified and separated out of the broader Besant assemblage. The placement and association of the Fincastle Site within one of the aforementioned groups and the relationships between them was assessed using these definitions. These findings were then linked to the models of Besant Culture proposed by Reeves (1983a) and Peck (2010).

Chapter 3 – The Fincastle Site (DIOx-5)

Site Description

The Fincastle Bison Kill Site (DIOx-5) is located approximately 100 km east of Lethbridge, Alberta (Figure 3). The Oldman River lies 3.8 km to the north. The site is situated within an area of low sand hills, inside a protected cattle grazing reserve on crown land. It is within a prairie eco-zone dominated by prairie grasses, cacti and other plants that require little moisture. The climate is classified as semi-arid, and aeolian processes dominate the landscape.

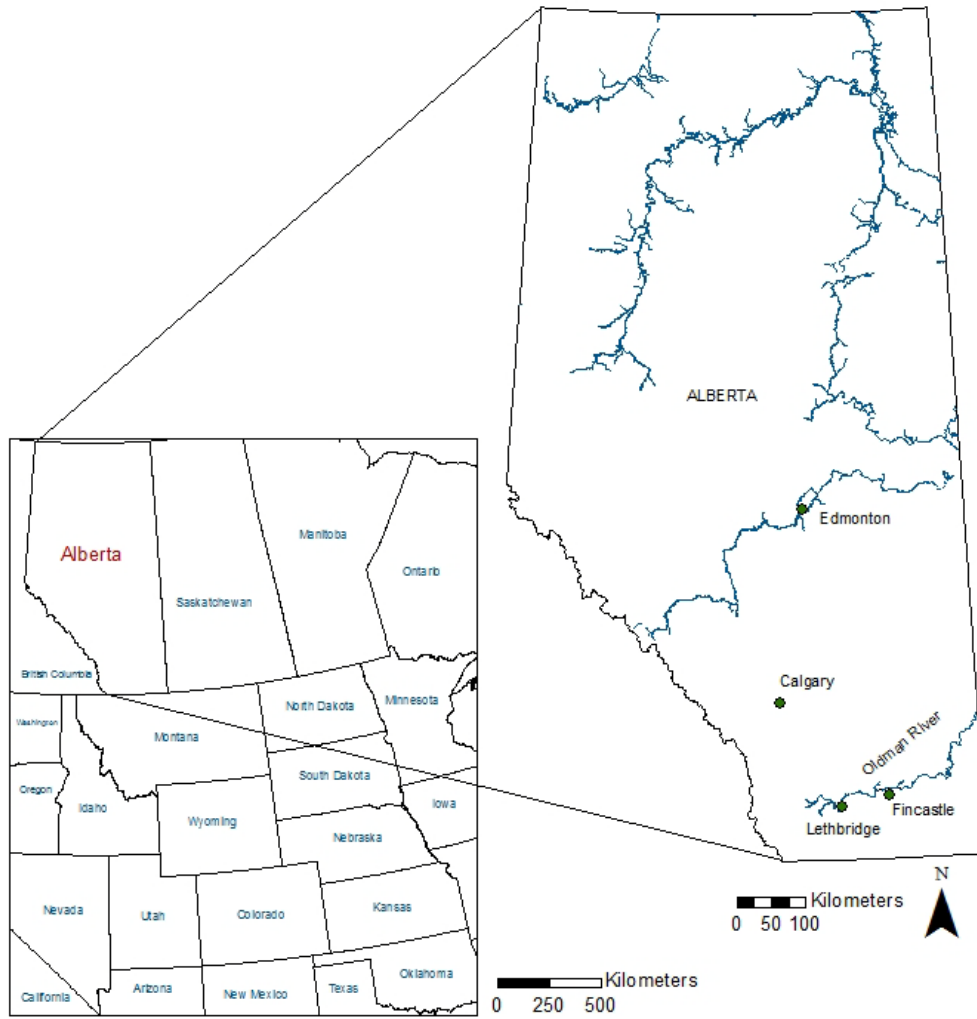


Figure 3: Location of the Fincastle Bison Kill Site (DIOx-5).

Paleo-environment

The Laurentide ice sheet that covered the Southern Alberta Plains during the Late Pleistocene retreated from this area as late as 12 000 BP (Beaty 1975:63). After deglaciation, glacial melt water formed lakes along the ice sheet, and as these lakes dried up, glacial lacustrine deposits were left behind. These lake bed deposits were then eroded by the southwestern winds to form dune fields, one of which is present in the Purple Springs area today (Beaty 1975:72). These dunes were eventually stabilized by vegetation, and parabolic dunes were created. The site of Fincastle is now located within one of these parabolic dunes, although it is not temporally associated with it.

Flora and Fauna

The flora and fauna currently present in the area would have been similar to those found at the site around 2 500 BP, with the exception of the wild bison herds, whose range no longer extends this far south. According to Aiken and Darbyshire (1983), prevalent mammals in the area include pronghorn (*Antilocapra Americana*), white-tailed and mule deer (*Odocoileus virginianus* and *Odocoileus hemionus*), coyote (*Canis latrans*), red and swift fox (*Vulpes vulpes* and *Vulpes velox*), jack and cottontail rabbit (*Lepus timidus* and *Lepus sylvaticus*), long-tail weasel (*Mustela frenata*), black footed ferret (*Mustela nigripes*), deer mouse (*Peromyscus*), Richardson ground squirrel (*Spermophilus richardsonii*), rattlesnake (*Crotalus cerastes*) and the protected spadefooted toad (*Spea bombifrons*). Native grasses within the area include spear grass (*Stipa comata*), sand grass (*Sporobolus cryptandrus*), june grass (*Koeleria cristata*), blue gamma (*Bouteloua gracilis*) and buffalo grass (*Bouteloua dactyloides*).

Excavations

Local inhabitants have known about the Fincastle Site for decades. Looting activities at the site in 2003 prompted the Alberta Culture and Community Spirit Historic Resources Management Branch to record and organize its assessment. That same year, volunteers from the Archaeological Society of Alberta (Lethbridge Centre), under the supervision of Dr. Shawn Bubel from the University of Lethbridge, surveyed the site to assess the damage caused by the looting, and to denote areas of excavation potential. Shovel-tests and surface collection determined that the site was likely a Besant bison kill that needed to be excavated in order to collect and record the cultural material in danger of being disturbed.

Field Methodology

The main objectives of the 2004, 2006 and 2007 field seasons were to obtain a large enough sample to reconstruct the activities that took place at the site, and to confirm its cultural affiliation. 1m by 1 meter units were excavated in 5 cm arbitrary levels in a checkerboard grid pattern in order to record the stratigraphic context of the remains recovered. Trowels were used to excavate the units, although shovels were used in the initial shovel test pits. Once the bone bed was reached, paintbrushes, bamboo skewers, dental picks and spoons were used to carefully expose the remains. All excavated sediment was screened through a 1/8 inch mesh. A tight mesh size was utilized in order to recover small material, such as micro debitage.

Detailed field records were maintained during the excavations. Field books were kept for every unit and test pit in order to record the excavation process with as much

detail as possible. Each artifact and ecofact was given an individual field number, which was written on field tags along with the date and its three-dimensional provenience. Standard level sheets were written up for every level, which included information such as the depth of the level, assigned field numbers, types and amounts of artifacts found and a detailed sediment analysis. All cultural material, with the exception of unidentifiable faunal remains under 5 cm in length and fire-broken rock under 2 cm, was drawn on level graphs at a scale of 1:5. Photographs were taken of all features and projectile points *in situ*, as well as the bone bed when it was reached and the profiles of the unit before it was closed.

The spatial location of each artifact was recorded by measuring the northing and easting coordinates in centimeters from the strings on the sides of the unit. The depths of the remains were measured using a calibrated datum line that was tied to the southwest stake. The top of each southwest stake was measured with the total station and the height of the string from the top of the stake was recorded. Measurements were then recorded as cm below datum.

2004

During the 2004 field season, twenty 1 x 1 m units were excavated in the West Area and East Block to assess the damage cause by looting and to locate *in situ* material. These units were spread across this part of the site, located in both looted and preserved sections. At the same time, six 50 x 50 cm shovel test pits were excavated about 100m to the east, which resulted in the discovery of an intact bone bed. Thirty-four 1 x 1 m units were then excavated in the East Block area following a checkerboard pattern. All the test

pits but Test Pit 1, which was 8m to the south of this area and yielded very few remains, were situated within these units.

2006

In May 2006, thirteen units were excavated in a northern extension of the East Block, as well as seven units in a southern extension (Figure 2). Nine 50 x 50 cm test pits were excavated between the West Area and East Block, in order to stratigraphically connect the two areas. Test Pit 14 was expanded into a 1 x 1 m unit when a concentration of ash was discovered (Feature 9).

2007

In May 2007, twenty-eight 1 x 1 m units were excavated, including the ten remaining units in the East Block, sixteen units in the Northern Extension and two units in the Southern Extension (Figure 4). Nine more 50 x 50 cm test pits were excavated along a transect 9 m north of the 2006 test pits. Test Pit 20 was expanded after a bone upright feature was discovered (Feature 2).

By the end of the 2007 field season, 101 1 x 1 m units and 24 50 x 50 cm test pits had been excavated at the site.

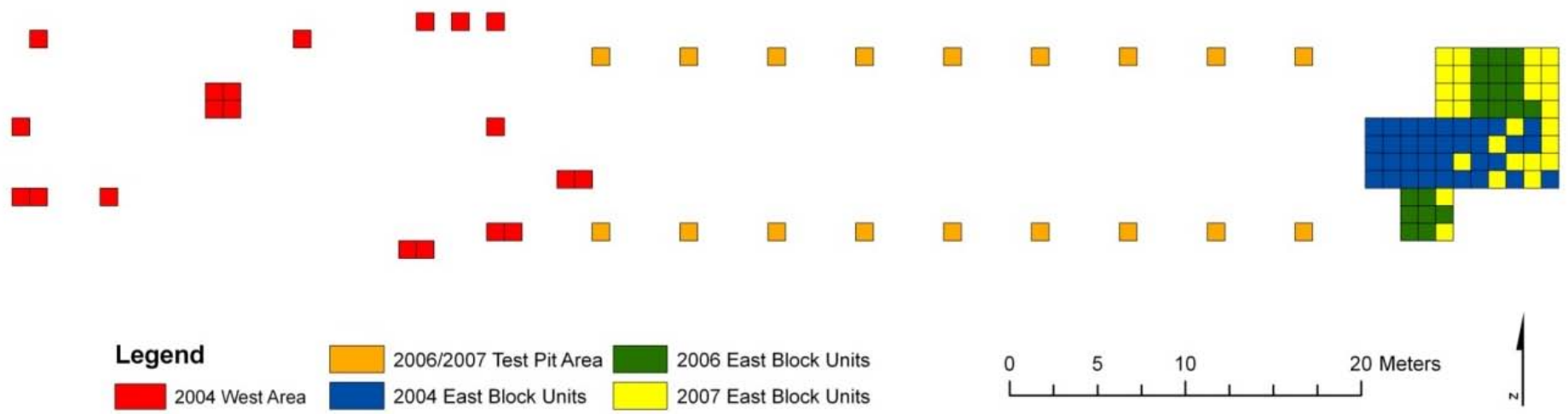


Figure 4: Excavated areas of the Fincastle Site.

Stratigraphy

The occupation layer is situated on top of gleyed glacial lacustrine clays, which suggests a standing body of water was at or near the site. The bone bed sits directly above the clay. In areas where the bone bed is at least 30cm below the surface, it is below an A horizon, within a lighter AB, B or sandy C horizon. This paleosoil is 5 to 15 cm thick throughout the site. Its parent material, which covered the bone bed, is made up of sands from the migrating dune that eventually stabilized to create the current parabolic dune, which covers part of the site. This process must have occurred relatively soon after the kill event, given the degree of faunal preservation. There were some bone fragments and debitage recovered from the sandy AB/B horizons, above which, were most likely transported from the west by these aeolian processes. A modern dark A horizon, roughly 2 to 5 cm in thickness, caps the site and is covered by vegetation.

Based on the homogeneity of the stratigraphy within the East Block and the sealed context of the cultural level, the excavated remains represent a single event. The consistent form of the lithic artifacts, similar preservation of the faunal assemblage, the five close radiocarbon dates (see below) and the position of a single cultural layer above the sterile glacial lacustrine clays all support this hypothesis. There were several krotovinas (animal burrows) found throughout the excavated layers of the site, which can also account for material found out of context, several centimeters above and below the bone bed.

Radiocarbon Dating

Seven samples of bone were sent to Beta Analytic Inc. for radiocarbon dating. Two were dated in 2004, selected from bone recovered from that year's field season. Five more samples from different contexts were sent off in March 2008, to confirm that all areas of excavation related to one another and that only a single event took place. Five of the seven samples came directly from the bone bed, while the other two were taken 15cm above it. Samples were selected from the southern and northern extensions of the East Block, as well as from the West Area. Moreover, two uprights were dated to confirm that the features were created at the same time as the kill event. The dates obtained from 2008 were consistent with those received in 2004, confirming that the excavated materials from the 2004, 2006 and 2007 field seasons represent a single kill and butchering operation (Table 1). Therefore, the site dates to c. 2 500 BP, which places it in the Late Middle Prehistoric Period. The two samples from above the *in situ* material of the bone bed revealed inconsistent dates. Samples 241256 and 241257 were likely transported from another context or site in the area through aeolian processes.

The Fincastle Assemblage

The Fincastle assemblage includes lithics (projectile points, small and large tools and debitage), fire-broken rock, faunal remains, features and ochre. By analyzing these remains in detail one is able to identify the activities that took place at the site and determine how it relates to other sites (i.e. those reviewed in chapter 4). It is important to gain as much information about the individual aspects of the assemblage as possible for later reconstruction and interpretation. Therefore, a number of different attributes for

each artifact class were analyzed to produce both quantitative and qualitative data. This primary data was then utilized in the interpretation of the site and the general Prehistoric record. The following sections focus on the primary data collected and its analysis, which will later be used in the interpretation of the site and its comparison to other sites (Chapter 6).

Table 1: Radiocarbon dates from the Fincastle Site.

Beta Sample Number	Date Processed by Beta	Fincastle Excavation Context	Bone Element	Conventional Radiocarbon Age
201909	15/3/2005	East Block, Bone Bed (2004)	Lumbar Vertebra	2 540±50
201910	15/3/2005	East Block, Bone Bed, Upright (2004)	Metacarpal	2 490±60
241254	20/3/2008	West Area, Bone Bed (2004)	First Phalanx	2 490±40
241255	20/3/2008	West Area, Bone Bed (2004)	First Phalanx	2 610±40
241256	20/3/2008	Northern Extension of East Block, Above Bone Bed (2007)	Second Phalanx	1 310±40
241257	20/3/2008	Northern Extension of East Block, Above Bone Bed (2007)	Lone Bone Fragment	3 100±40
241258	20/3/2008	East Block, Bone Bed Upright (2007)	Metacarpal	2 680±40

Lithics

The characteristics or attributes of the lithic artifacts were identified and measured depending on their type. Since stone tools can be analyzed to compare ancient systems of acquisition, manufacture, use and exchange in a variety of regions (Kardulias and Yerkes 2003), this analysis focused on their form and function, which included the study of their raw material, typology, context, etc. This data can be used to understand the activities that took place, the different kinds and levels of technology used, trade and/or contact and

from one group to another. Quantifiable data, such as metric measurements and the geology of the lithics, can be used to compare lithic assemblages. It is also possible to identify the manufacturing techniques that were used to create the lithics. Both quantitative and qualitative data was collected from the projectile points, large tools and small tools and debitage. The results are discussed according to each lithic type.

Projectile Points

The Fincastle assemblage included 119 projectile points, 37 of which are complete, 43 are body/bases, 19 are tips and 20 are body fragments (Figure 5). Measurements of the complete points vary from 5.4 – 72mm (mean=27.6) in length. The majority of the body shapes are ovate, though there are eight that are triangular in form. Most have straight bases, but there are a few with concave bases. All points with intact notches display side or corner/side orientations. Seventy-two have basal thinning, 51 have been resharpened and 78 display signs of use-wear.

On average, the Fincastle projectile points exhibit Besant and/or Sonota characteristics as defined in Chapter 2. Varsakis (2006) completed a study of the projectile points recovered from the 2004 and 2006 excavations. She compiled a list of metric measurements and non-metric traits for comparison to points from other assemblages. In her analysis she concluded that the points from the Fincastle Site appeared most similar to the Sonota point form. Peck (2010), however, concluded that the Fincastle point assemblage represented the Outlook or Unnamed Complex first identified at Sjovold (Dyck and Morlan 1995) in his study of Alberta projectile points.



Figure 5: Sample of the projectile points recovered from the Fincastle Site.

Small and Large Tools

There were 75 small tools recovered from the 2004, 2006 and 2007 field seasons (Table 2). Of the 47 utilized flakes, 26 were retouched through use, 14 were unifacially retouched and 7 were bifacially retouched. There are 15 scrapers, 8 of which are thumbnail end scrapers. There are two drills and one borer. One of the drills is a reworked projectile point made of Knife River Flint. There are 7 knives: 5 bifacial and 2 unifacial. One of the bifacial knives is half crescent shaped and was manufactured from Swan River Chert. A wedge and an unclassified manuport were also found. The manuport is shaped like an atlatl weight, although it is undersized.

Table 2: Small tools recovered from the Fincastle Site.

Lithic Artifact Type	Num
Utilized flake retouched through use	26
Marginally uniaxially retouched flake	14
Marginally bifacially retouched flake	7
Scraper	15
Drill (Borer or Perforator)	3
Wedge	1
Bifacial knife	5
Unifacial knife	2
Manuport?	1
Total	75

Large tools in the lithic assemblage included 5 multidirectional cores, all of which were made from quartzite that is readily available in the area. There were also 11 hammerstones with evidence of moderate pecking on one or both ends. Three choppers were also identified, as well as what might be a large manuport. This manuport was assigned as such because of its location within Feature 8. A large quartzite anvil was found within Unit 560N 603E, in close proximity to two of the hammerstones. Table 3 lists the large tools recovered from the site.

Table 3: Large tools recovered from the Fincastle Site.

Lithic Artifact Type	Num
Multidirectional Core	5
Hammerstone	11
Anvil	1
Bifacial Chopper	3
Manuport	1
Total	21

Debitage

The lithic assemblage includes 3 401 pieces of debitage (Table 4), the majority of which was found within the Northern Extension of the East Block where there was also a dense concentration of bone and fire-broken rock. Almost all (98%) of all debitage is less than 25mm in size, most of which was discovered through the use of the 1/8 inch mesh screens. In general, the debitage represents retouch activities rather than tool production.

Table 4: Debitage recovered from the Fincastle Site.

West Area	East Block	Northern Extension	Southern Extension	Test Pits	Total
431	859	1 680	141	290	3 401

Raw Material

The identification of lithic raw material serves as a diagnostic tool to understanding technology, trade and migration, resource extraction and several other aspects of prehistoric life (Kooyman 2000). The choice to exploit one resource over another may also reflect a preference within one group (Odell 1996). Therefore, determining if there was a preference of a raw material within a site assemblage, and identifying and sourcing the lithics must be done.

The raw material of each lithic artifact was identified during the lab analysis process. Table 5 lists the raw materials according to the lithic tool types.

Table 5: Fincastle raw material numbers and weights (g) according to lithic type.

Material	Points		Small Tools		Large Tools		Debitage		Total	
	N	W	N	W	N	W	N	W	N	W
Obsidian	2	3.0	2	2.7	0	0	25	5.3	29	11.0
Brown Chalcedony (KRF)	91	283.0	36	61.5	0	0	2479	350.9	2606	695.4
White/Grey/Brown Chalcedony	4	12.0	1	1.2	0	0	0	0	5	13.2
Yellow Chalcedony	0	0	0	0	0	0	25	2.5	25	2.5
Red Chalcedony	0	0	0	0	0	0	6	0.9	6	0.9
Translucent Chalcedony	5	5.9	3	5.8	0	0	80	14.8	88	26.5
Black Chert	1	0.1	0	0	0	0	18	2.7	19	2.8
Swan River Chert	1	1.6	15	72.3	0	0	285	146.4	301	220.3
Opaque Yellow Chert	1	0.9	4	50.9	0	0	39	6.0	44	57.8
Opaque Red Chert	0	0	0	0	0	0	6	0.6	6	0.6
Misc. Chert	3	1.1	2	4.5	0	0	140	73.3	145	78.9
Argillite (Grey/Green)	0	0	1	86.9	1	990.0	7	0.8	9	1077.7
Kootenay Argillite	0	0	0	0	0	0	28	21.4	28	21.43
Porcellanite (Greys)	1	3.4	1	1.3	0	0	0	0	2	4.7
Porcellanite (Reds)	0	0	0	0	0	0	3	1.8	3	1.8
Mottled Chalcedony / Quartzite	1	1.6	1	2.0	0	0	0	0	2	3.6
Medium Fine Quartzite	1	1.1	3	97.4	17	5,868.7	82	501.0	103	6468.2
Massive Quartz	0	0	1	35.0	0	0	57	88.0	582	123.0
Coarse Quartzite	0	0	0	0	0	0	2	17.2	2	17.2
Petrified Wood	2	8.7	3	11.1	0	0	10	48.3	15	68.1
Siltstone	6	8.6	1	5.1	0	0	109	25.9	116	39.6
Sandstone	0	0	0	0	1	467.2	0	0	1	467.2
Basalt	0	0	0	0	1	357.6	0	0	1	357.6
?	0	0	0	0	1	510.0	0	0	1	510.0
Total	119	330.0	75	437.7	21	8193.5	3401	1307.8	4139	10256.8

Faunal remains

Through faunal analysis it is possible to identify the seasonality of kills, means of subsistence, life ways, migration, hunting and butchering technologies, and cultural bias in the selection of certain species or cuts of meat (Reitz and Wing 1999). The primary analysis of bone is separated into two methods: empirical and observational (Hesse and Wapnish 1984). Empirical methods involve the recording of basic information about each individual piece, such as weight, species, age, etc. Observational methods include the identification of marks on the remains due natural and cultural causes.

The three field seasons at Fincastle produced 16 137 identifiable bone fragments. Lab studies of the faunal remains included primary and secondary analysis, such as the identification of the element, side, species, age, preservation, and butchering evidence of each individual bone fragment. Due to the well preserved state of the bone bed, 63% of the fragments were identified to a specific element. These faunal remains were then further identified to a specific portion of element using Brumley's (1991) Bone Unit Analysis System. Over 99% of the faunal assemblage is *Bison bison*, with an MNI (minimum number of individuals) of 60 based on the left navicular cuboid. The rest of the remains are from canids, pronghorn and several smaller prairie animals, including rodents and birds.

Butchering Evidence

Watts (2008) concluded that both primary (joint dismemberment and rough meat removal) and secondary butchering (detailed meat removal as well as marrow and grease extraction) occurred at the site. The Fincastle hunters did not fully utilized the entire carcass based on the number of articulations, which lead Watts (2008) to suggest that the

kill occurred during a time of plenty. There were far more axial than appendicular elements (3 298 axial to 2 242 appendicular), which indicated that primary processing and the extraction of these selections to a secondary location was carried out (Watts 2007:240). The appendicular elements that remained at the site were further broken, beyond recognition in most cases, suggesting extensive secondary butchering processes.

Most of the articulated elements were vertebral columns and lower limbs. These sections of the bison contained little meat, and therefore, were discarded at the kill site. Watts (2008) concluded that Fincastle's butchering patterns fell within Frison's (1978) general primary butchering operation, which included the removal of the hide and lower limbs, stripping off of major muscle groups, followed by the removal of the side, hump and neck meat. Eventually, grease and marrow extraction was carried out. There were impact marks, as well as several long and short spiral patterns identified on the long bones which indicated marrow removal. The high number of hyoid bones recovered from excavations illustrated tongue removal. The large number of ribs at the site also indicated detailed meat removal, which is often seen at secondary processing areas, such as associated camp sites.

Watts (2008) also indicated that concentrations of particular elements could represent butchering stations. Further research into this theory was carried out by Mills (2009), who confirmed that this was the case based on the spatial analysis of the bone bed.

Non-Bison Remains

If possible, all non-bison elements were classified to their genus and/or species using the comparative skeleton collections housed at the University of Alberta and the Royal Alberta Museum.

Canis

Thirty-four bone pieces belong to the genus *Canis* (Table 6). Thirty of these fragments were identified as a large or wolf sized canid and four as a medium sized animal. Distinguishing between wolf (*Canis lupus*) and coyote (*Canis latrans*) was based on size, as was done at other sites (Brumley 1971; Dyck 1977; Reeves 1983a; Shortt 1993). There was enough of the partially complete skull to confirm that it belonged to *Canis lupus* due based on the differing characteristics in the occipital regions between wolves and coyotes. The partially complete left mandible also appeared to be similar in shape, size and age to the skull.

The canid elements were disarticulated and spatially dispersed throughout the site; some were found over 80m away from one another. Just over half of the remains were found in the West Area, and the others came from the East Block. Both *Canis lupus* and *Canis latrans* were found in the West Area and East Block areas. Of the canid remains, 76% are axial elements and 24% are post-cranial. Of the 26 axial elements, 19 likely belong to the partially complete wolf skull. Based on the fact that there is butchering evidence on the remains and their location within the bone bed, they were associated with the kill event and were processed alongside the bison. What is not certain is whether the canids were scavengers that were attracted to the kill area by the butchered bison

carcasses or were sought out and killed by the hunters. These questions will be discussed further in Chapter 5.

Table 6: Canid remains identified within the Fincastle faunal assemblage.

Element	Number
Skull	11
Tooth, molar	3
Tooth, canine	2
Tooth, incisor	3
Tooth, premolar	3
Mandible	1
Axis	1
Cervical vertebra	1
Scapula	1
Humerus	1
Radius	1
Rib	2
Lateral Malleolus	1
Navicular cuboid	1
First Phalanx	1
Third Phalanx	1
Total	34

Domestication

It is possible that the Fincastle hunters had canine companions within their group, therefore, an attempt was made to determine if the wolf remains were domesticated.

Animals that have undergone domestication often reduce in size from those found in wild populations (Reitz and Wing 1999). In several cases, medium or coyote sized dogs were interpreted as either wild coyote or domesticated dog (Dyck 1977; Reeves 1983b; Shortt

1993; Dyck and Morlan 1995), based on domestication identification studies carried out by Driver (1976) and Krozser (1991). The partially complete skull found in Feature 1, as well as the humerus and radius fragments (Figure 6), were larger than any comparative wolf skeleton. Moreover, these elements are from a sub-adult individual that likely would have been even larger by full maturity. Considering this evidence, the wolf elements belong to a wild *Canis lupus*. Other signatures of domestication in Driver's (1976) study include the crowding of teeth and a deeper angle of the ascending ramus in domesticated wolves. Unfortunately, the mandible was too fragmented to assess the angle of the ascending ramus, but the teeth were not crowded at all.



Figure 6: Top: Fragments of the incomplete skull identified as a *Canis lupus*. Lower left: left mandible. Lower right: left humerus.

Pronghorn

Four elements were identified as belonging to pronghorn (*Antilocapra americana*), including one right magnum, two right lunates and a fragment of an articular condyle of a metapodial. Based on the count and sides of the four elements, there is a MNI of one pronghorn. It is important to point out that, like the canid remains, the pronghorn remains were scattered throughout the site and were directly associated with the bone bed.

Small Mammals

There are 440 fragments within the faunal assemblage that were identifiable as small mammals. A majority of these belong to Richardson Ground Squirrels (*Spermophilus richardsonii*) that encroached upon the area long after the kill event. Most of these remains were found 10 to 50 cm above the bone bed or within krotovinas dug into it. Over 90% of the Richardson Ground Squirrel remains came from the West Area. Other small mammals include possible rabbits and/or weasels, as well as the talon of a hawk sized bird of prey.

Fire-broken Rock (FBR)

Fire-broken rock (FBR) is created when rocks are submerged in hot water, such as in boiling pits, or exposed to fire. The presence of these artifacts and their distinctive attributes can denote that fire was made and/or specific processing activities were carried out at a site (Lovick 1983).

Measurable attributes of the Fincastle fire-broken rock included weight, material type, material colour, amount of crazing, amount of cortex and angularity. For the

purpose of this thesis, the fire-broken rock analysis focused on the amount recovered from the site and its spatial location as compared to other contemporary sites.

There were 1 152 pieces of fire-broken rock recovered from the 2004, 2006 and 2007 excavations. Divided into raw material types, 43% are granite, 36% are quartzite and 12% are sandstone, all of which can be easily found in the surrounding area. The fire-broken rock at Fincastle appears to be wide spread across the site, with higher concentrations within the northern and eastern sections of the East Block (see Mills 2009 for details regarding the spatial location of the fire-broken rock).

Table 7: Numbers and weights of fire-broken rock per raw material types.

Material	Num	Weight (g)
Quartzite	408	15 292.90
Granite	495	40 432.06
Sandstone	132	9 014.20
Gneiss	85	8 212.30
Phyllite	16	2 459.10
Schist	7	1 026.20
Shale	1	460.80
Other	8	449.20
Total	1 152	77 346.76

Red Ochre

Ochre is oxidized clay or oxidized hematite, and is common in Plains ceremonial sites, such as burial and rock art sites (Tankersley et al 1995). Its presence may be an indication of such a site or a ceremonial area within a site. One of the most noted attributes of ochre is its colour. Depending on the amount of oxidization, ochre can

present a spectrum of chroma and values of red, yellow, orange and white. The state of the ochre can also be identified, i.e. whether it has been crushed to a fine powder or is a chunk of raw clay or hematite. The chemical signature of some red ochre can also be identified and sourced.

During the 2004 excavations, a single piece of red ochre was found in the Level 3 screen bag of Unit 561N 602E. It was 5 to 10 cm below the surface and 5 to 10 cm above the bone bed, within the sandy B Horizon. It is a small piece of tightly compacted oxidized clay 13.8 mm in length, 11.1 mm in width, 5.3 mm in thickness and weighs 0.8 g. The ochre does not appear to be shaped, though one end is rounded compared to the other three straight edges. The Munsell Soil colour of the ochre is 2.5YR 4/6 (red).

The gleyed clay directly below the bone bed contained oxidized nodules of clay that were red, orange and yellow in colour. These nodules were 2 to 7 mm in diameter, and were very friable. This difference, along with the location of the red ochre several centimeters above the bone bed, and the absence of more oxidized clay in the sandy horizons throughout the site, ruled out the possibility that the ochre was a natural deposit of oxidized clay.

Features

There is no universal systematic or comprehensive method of categorizing features (non-portable artifacts/structures that cannot be removed intact from their original context (Sharer and Ashmore 1979) for study and analysis. In most cases, the feature 'type' is assigned based on the interpreted intended function (Dyck 1977; Linnamae 1983). Therefore, the internal composition is important to record as it may

relate to function (Brink and Dawe 1989). For example, a hearth would include ash and possibly charcoal, while a boiling pit for grease extraction would not hold these remains, and may include a greater consideration of faunal remains (Brink and Dawe 1989). Measurable attributes depend on the type of feature. Once each individual feature is analyzed, and the results collated, it is possible to infer spatial relations and the organization of activities across the site.

Nine cultural features were identified from the Fincastle excavations. Of the nine features, six were bone uprights, two were bone filled pits and one was an ash concentration. As mentioned in the analysis of the fire-broken rock, no hearth features have been discovered at the site. The features were located in the West Area, in the Test Pits and the East Block, though most were clustered in the last two areas of the site (Figure 7).

Table 8: Cultural feature numbers, locations and types.

Feature Number	Unit Location	Feature Type
1	564N 528E +	Bone Upright
2	566N 585E	Bone Upright
3	559N 604E	Bone Upright
4	559N 599E	Bone Upright
5	563N 603E	Bone Upright
6	565N 600E	Bone Upright/Pit
7	561N 604E	Bone Upright
8	563N 604E	Bone Upright/Pit
9	556N 570E	Ash Concentration

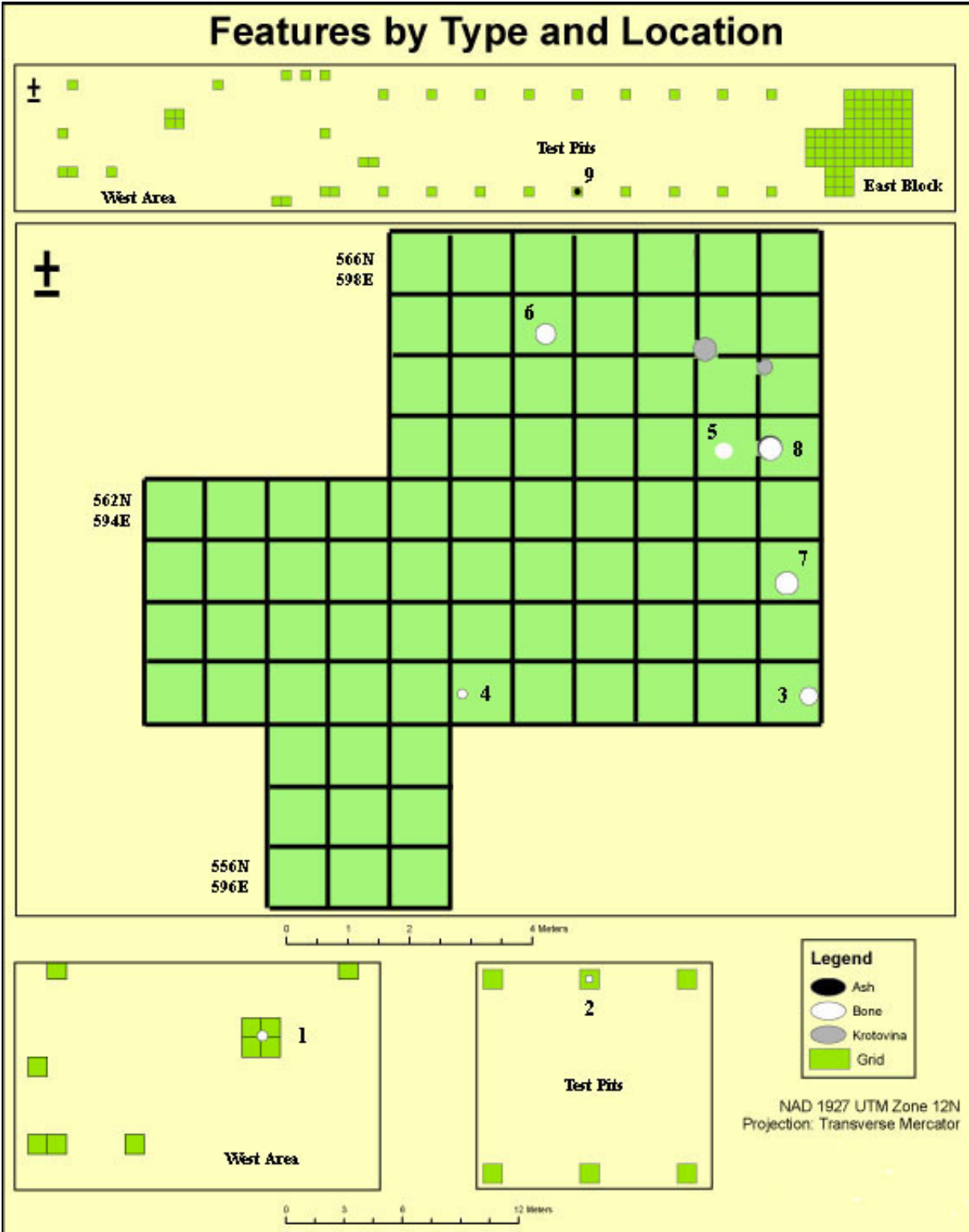


Figure 7: Location of the features excavated at the Fincastle Site.

Feature 1 (Pit/Bone Filled)

Feature 1 was a pit that was dug into the sandy sediment and lower clay deposit that was then filled with bone. Located in the center of the connecting corners of units 564N 528E, 563N 528E, 564N 529E and 563N 529E in the West Area, this feature was found within an area of dense concentration of bone. At the bottom of the pit was a canid skull (*Canis lupus*) facing downwards. There were several upright elements within the pit, including fragments of a tibia, radius, several vertebrae and an articulated mandible (Figures 8 and 9). There were also several elements placed within the pit, around the uprights. It is possible that the upright bones represent the intended feature, and the remaining elements fell into the pit from the overlying bone bed during processing activities.



Figure 8: Pit/Bone filled Feature 1.



Figure 9: Upright mandible and scapula within Feature 1.

Feature 2 (Bone Upright)

Feature 2 was comprised of an upright metatarsal and a radius that was culturally fractured at the shaft. Both ends were forced vertically into the sterile clay (Figure 10). Located in Unit 566N 585E, the feature was well below the dense bone bed. The distal metatarsal was orientated with the shaft facing downwards. The sharp shaft ends of both pieces of the radius were facing down. There were no marks on any kind on the elements.



Figure 10: Feature 2. The upright metatarsal was in middle of the unit and both ends of the radius were in the northeast corner.

Feature 3 (Bone Upright)

Feature 3 was made using the distal ends of three scapulae that were forced vertically into the clay (Figure 11). Located directly below the bone bed within Unit 559N 604E, the three elements appeared to be in a 'C' shape, with two scapulae fragments orientated west to east and a connecting fragment stretched north to south. There did not appear to be any marks on the scapulae, though all three elements are in poor condition and are very fragmented.



Figure 11: Three upright scapulae in Feature 3.

Feature 4 (Bone Upright)

Feature 4 was created using two metacarpals that were forced vertically into the sterile clay, with both the proximal ends facing down. It was located within Unit 559N 599E, a unit that was situated within an area of dense bone. This feature was found directly below the bone bed. Both metacarpals were fractured at the proximal ends and

pressed downwards until they were entirely encompassed by the clay bed (Figure 12). There were no marks on either bone that could indicate their use as bone stakes or tie downs. One of the metacarpals was sent for radiocarbon dating and produced a date of 490 ± 60 BP (Beta-201910). This date closely matches the other dated samples from the bone bed.



Figure 12: Two upright metacarpals pressed into the clay in Feature 4.

Feature 5 (Bone Upright)

Feature 5 was a skull fragment placed vertically into the sterile clay (Figure 13). Located in Unit 563N 603E, Feature 5 was situated under one of the most densely concentrated areas of bone at the site. As was the case for all the other upright features, the skull fragment was below the bone bed and completely surrounded by clay. It was made using a partially complete right maxilla, with the premaxilla and the anterior portion of the palatine present. The skull fragment was orientated face down.



Figure 13: Upright skull fragment in Feature 5.

Feature 6 (Pit/Bone Upright)

Feature 6 was a pit dug into the sterile clay that was then filled with bone and light brown sandy sediment. Situated within Unit 565N 600E, this feature was directly beneath the bone bed and located within an area of dense concentrations of bone, fire-broken rock and debitage. The pit was filled with at least 28 bone elements (Figure 14).



Figure 14: Bottom of Feature 6 showing the mandible and scapula.

At the bottom of the feature was a near complete scapula placed vertically into the clay with the proximal end facing down. The blade of the scapula appeared to have been intentionally broken in order to create a sharp, pointed end. There were also two mandibles and a metatarsal forced vertically into the clay alongside the scapula. Both incomplete mandibles were orientated with the ascending ramus pointed upwards. The metatarsal was culturally fractured at the shaft and placed with the distal end down. A complete atlas rested directly above the glenoid fossa of the scapula. The remaining elements were clustered above the upright bones. It is possible the upright elements were the intended feature, and the other elements filled the pit later, when the bison were being processed.

Feature 7 (Bone Upright)

Feature 7 consisted of four upright mandibles and one upright tibia forced vertically into the sterile clay (Figure 15). Feature 7 was located in Unit 561N 604E, in an area of dense bone. Again, the feature was below the bone bed, almost completely enclosed in the sterile clay. All four mandibles were orientated with the ascending ramus facing upwards and were nearly complete. The tibia had been culturally fractured at the shaft and placed with the proximal end up. There were no processing marks on any of the elements. The proximal ends of three of the four mandibles were complete and showed no evidence that could indicate that this feature was used as an anvil for processing activities. There were also several articulated elements above the feature, including a set of paired mandibles, a lower leg and a pelvis with sacrum. There was also a quartzite chopper found within this unit.



Figure 15: Top (above) and side (below) view of Feature 7.

Feature 8 (Bone Upright)

Feature 8 was a bone upright feature made using several elements that were forced vertically into the sterile clay (Figure 16). The bone elements reached as far down as 50cm into the clay bed. Located within Unit 563N 604E, Feature 8 was situated within an area of dense concentrations of bone. The cluster of elements at the bottom included four carpals, a sesamoid and the distal epiphysis of a radius. On top of these elements was a mandible, followed by a third and first phalanx, a calcaneum, a metacarpal and then an atlas. There were over 30 different elements sitting directly above the atlas, in a shallow pit about 5cm deep within the clay. It is possible that the bones within the clay were the intended feature and all elements above the atlas fell into the depression that was created when the uprights were forced into the clay. There was no evidence that a pit was dug in order to push the bones that far down. Most of the elements within the upright feature were complete, with little to no signs of cultural processing. The radiocarbon date of the metacarpal was $2\ 680 \pm 40$ BP (Beta-241258).

Feature 9 (Ash Concentration)

Feature 9 was a 2-5mm thick lens of grey ash with fragments of burnt bone. It was found within TP 14, which was then expanded into Unit 556N 570E, half-way between the East block and West Area. All material recovered from Feature 9 was small, including 340 fragments of unidentifiable bone, 138 fragments of burnt unidentifiable bone, 34 tooth fragments, 41 pieces of fire-broken rock and 8 pieces of debitage. All pieces of fire-broken rock were smaller than 5cm and were mostly quartzite with some granite. The fire-broken rock was scattered throughout the feature and did not appear to outline a hearth.

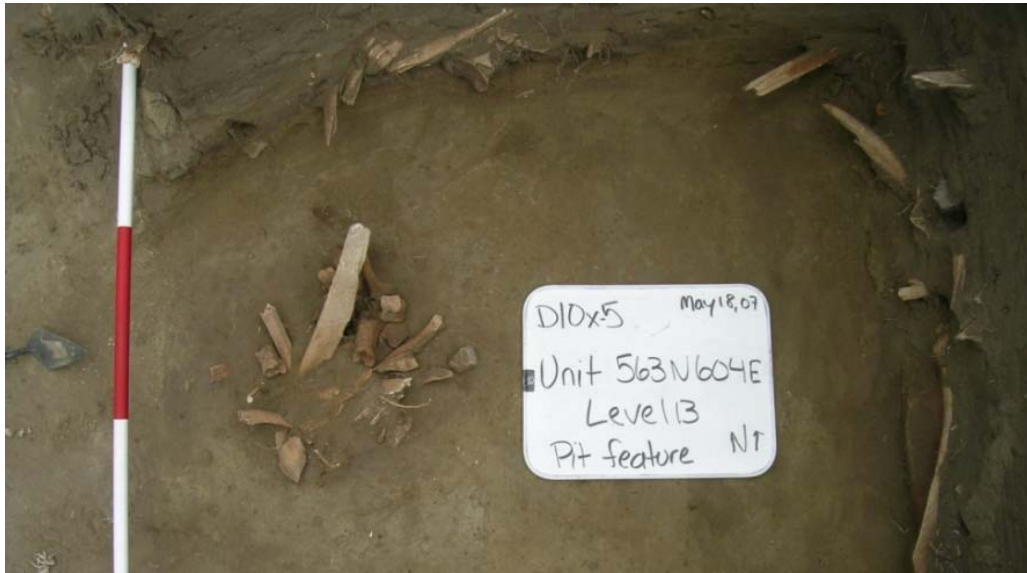


Figure 16: Top view (above) of Feature 8 as it was being exposed at the clay boundary. Side view (below) of the lower upright elements within clay including the atlas, metacarpal, first phalanx, third phalanx, calcaneum and mandible.

Similarities between Features

There does appear to be some common construction aspects between the bone upright features. Fractured long bones, such tibias and radii, were found in several of the features, as well as scapulae, whole mandibles and metapodials. Though each feature appeared unique in regards to the choice and orientation of individual bone elements, there are similarities. For example, Feature 8 had an axis resting on top of the intended structure, which was similar to the atlas on top of Feature 6. Moreover, in most cases, the elements were placed close together, either on top of one another, such as in Features 1, 6 and 8, or next to one another, like in Features 3, 4, 5 and 7. Their cultural interpretation is discussed further in chapter 5, where they are compared to other features found at Besant sites.

Summary

The Fincastle assemblage contains a breadth of material, including lithics, fire-broken rock, faunal remains and features. The analysis of this material revealed several key attributes that define the assemblage, which could then be used to identify similarities in other site assemblages. These characteristics or attributes include a projectile point assemblage consisting of both Besant and Sonota point types as previously defined in Chapter 2. Considering the Fincastle Site is a single occupation and that the entire assemblage is attributed to one event, and therefore one group of people, the combination of both point types is a significant finding that will be expanded on below. The lithic raw material is dominated by Knife River Flint and Swan River Chert, though there is also evidence of other exotic materials (obsidian/Montana cherts), as well as local rock

(quartzite/sandstone). In regards to the faunal assemblage, the fact that both primary and secondary processing took place, and that there was some waste of unused meat during the butchering process, are noteworthy. The lack of skulls and evidence related to the butchering of skulls is important as well, as is the evidence that butchering of other species, including canid and pronghorn, took place. The large amount of fire-broken rock and its spatial scatter throughout the site, along with the presence of red ochre may also be significant. The existence of bone uprights is also very important. The common elements within these features, including culturally fractured long bones, scapulae, mandibles and axial elements (axis and atlas) were noted for comparison with the other sites, along with their orientation and placement below the bone bed. Finally, the date of occupation around 2 500 BP is vital for comparative purposes.

Fincastle was undoubtedly a bison kill site at which primary and secondary butchering took place. By comparing this assemblage to those found at other Late Middle Prehistoric sites in the Northern Plains one can gain a better understanding of the cultural activities that took place at the Fincastle Site, and its context within this period.

Furthermore, the Fincastle assemblage can add to the understanding of the Besant Culture and/or the other complexes. This was explored by reviewing a number of contemporary sites (Chapter 4), which were then compared in Chapter 5.

Chapter 4 – Late Middle Prehistoric Comparison Sites

Introduction

Twenty-three sites were chosen for comparison to the Fincastle Site. Placing the Fincastle Site into a broad cultural context is vital to understanding its occupants. Seven sites from Alberta, six from Saskatchewan, two in Montana, two in Wyoming and six from the Dakotas were selected (Figure 17), most of which were chosen based on their designated point types (essential attributes), along with their temporal and spatial proximity to Fincastle (Table 9). All of the comparison sites were previously defined as Besant, Outlook, Sonota, Pelican Lake or Middle Woodland, or a combination of these cultures/complexes. Bison kill and processing activities took place at most of the sites so they compare well to the Fincastle assemblage. There were also several camp and burial sites included because they may reflect the broader material culture of a group since many of these artifacts and features would be absent at a kill. The amount of information gathered from each site varies due to limited publication material and/or access to this information. For example, some site reports provided raw material percentages while others listed the numbers of lithics manufactured from different raw materials. Still, a great deal of information has been gathered, which has allowed for an in depth comparison between Fincastle and these sites. The sites are separated into the province or state that they are located within, and are then reviewed in alphabetical order.



Figure 17: Location of the comparison Late Middle Prehistoric sites used in this study.

Table 9: Comparison sites used in this study.

Site	Province	Type	Date	Affiliation	Source
EgPn-111	Alberta	Kill/Processing	1 310± 60 BP	Besant	Head et al (2002)
Happy Valley (EgPn-290)	Alberta	Kill/Processing	2 440± 180 BP	Besant	Shortt (1993)
Head-Smashed-In Buffalo Jump (DkPj-1)	Alberta	Kill/Processing	1 510± 90 BP 1 950± 80 BP	Besant (Layers 3 and 11)	Brink and Dawe (1989)
Kenny (DkPj-1)	Alberta	Camp	1 460± 110 BP (L6) 1 600± 110 BP (L8)	Besant (Layers 6 and 8)	Reeves (1983b)
Muhlbach (FbPf-1)	Alberta	Kill/Processing	1 350± 150 BP	Besant	Gruhn (1969)
Ross Glen (DIOp-2)	Alberta	Camp	1 471± 50 BP	Besant	Quigg (1986) Quigg (1982)
Bracken Cairn (DhOb-3)	Alberta	Burial	2 465± 85 BP	Pelican Lake	Walker (1982)
EdOh-23	Sask.	Camp	1 675± 115 BP	Besant	Johnson (1983)
Elma Thompson (EiOj-1)	Sask.	Camp	1 675± 145 BP	Besant	Finnigan and Johnson (1984)
Fitzgerald (EINp-8)	Sask.	Kill/Processing	1 490± 90 BP	Besant	Hjermstad (1996)
Melhagen (EgNn-1)	Sask.	Kill/Processing	1 905± 110 BP 1 575± 115 BP	Besant (Level 2)	Ramsey (1991)
Mortlach (EcNI-1)	Sask.	Camp	2 327± 235 BP	Besant (Levels 4A, 4B, 4C and 4D)	Wettlaufer (1955)
Sjovold (EiNs-4)	Sask.	Camp	2 340± 120 BP (L10) 2 355± 105 BP (L12) 2 500± 85 BP (L13)	Besant (Layers 10 and 12) Outlook (Layer 13)	Dyck and Morlan (1995)
Antonsen (24GA660)	Montana	Kill/Processing	1 605± 90 BP	Besant (1st occupation)	Davis and Zeier (1978)
Whiskey Hill (24W1001)	Montana	Camp	1 550± 60 BP	Besant/Woodland	Johnson (1977)
Muddy Creek (48CR324)	Wyoming	Camp	1 720± 110 BP	Besant	Hughes (1981)
Ruby (48CA302)	Wyoming	Kill/Processing	1 670± 135 BP	Besant	Frison (1971)
Boundary Mound (32SI1)	North Dakota	Burial Mound	1 540± 160 BP (M 1) 1 340± 150 BP (M 2) 1 700± 125 BP (M 3)	Sonota	Neuman (1975)
Naze (32SN246)	North Dakota	Camp	1 918± 36 BP 2 003± 43 BP 2 035± 70 BP	Middle Plains Woodland (2 nd occupation)	Gregg (1987)
Arpan (39DW252)	South Dakota	Burial Mound	1 859± 90 BP	Sonota	Neuman (1975)
Grover Hand (39DW240)	South Dakota	Burial Mound	1 640± 80 BP (M 2) 1 720± 75 BP (M 3)	Sonota	Neuman (1975)
Stelzer (39DW242)	South Dakota	Camp	Not dated	Sonota	Neuman (1975)
Swift Bird (39DW233)	South Dakota	Burial Mound	1 400± 150 BP	Sonota	Neuman (1975)

Alberta

EgPn-111

EgPn-111 is a single component bison kill and processing site located along the south bank of the Elbow River in Calgary, Alberta. Bison Historical Services Ltd. excavated the site between 1998 and 2000. Information concerning EgPn-111 was obtained from Head et al's 2002 final report. Radiocarbon dates place the site around 1310 ± 60 BP. The site seasonality was determined to be a fall kill based on the analysis of the faunal remains.

The lithic assemblage included 751 pieces of debitage and one hundred and ninety-five assorted tools. The tool types included thirty-four projectile points, thirty-three scrapers, seventy-two retouched stone tools, twenty-one bifacial tools, six choppers, six utilized flakes, five hammer stones, five wedges, four mauls, three abraders, three multi-directional cores, two manuports and one bipolar core. The entire assemblage is dominated by chert, quartzite and siltstone.

Of the thirty-four projectile points, twenty were identified as Besant, five as the smaller Samantha form, eight as Pelican Lake and one was unknown. Head et al (2002:195) noted that Besant sites associated with Pelican Lake points are not uncommon. Thirteen were manufactured from chert, sixteen from chalcedony, three from quartzite and two from siltstone.

The faunal assemblage consisted of forty-eight bison based on mandible counts. There was a strong representation of skulls (MNI=13), mandibles and axial elements. The skulls displayed a high degree of fragmentation, yet most of the mandibles were whole. The few hyoid bones indicated the removal of tongues. The lack of upper limb elements

lead Head et al (2002) to suggest they were removed from the site. It is also interesting to note that only 1.3% of the total faunal assemblage was burnt.

Bison bison comprised over 99.6% of the faunal assemblage. Other species included those from the family Canidae (coyote, wolf and dog) and Cervidae (deer, antelope and elk). Carnivore gnawing was present on a small number of bison bones.

There were 4 608 pieces of fire-broken rock found, most of which was concentrated within the main kill area. An overwhelming 98.4% denoted water fracture patterns and were associated with boiling activities.

There were eighteen ceramic sherds recovered from the excavations. These were deemed “comparable to other Besant-Sonota components on the Canadian Plains” (Head et al 2002:167).

Happy Valley (EgPn-290)

Happy Valley (EgPn-290) is a single component bison kill and processing site located on the south side of the Bow River in Calgary, Alberta. Lifeways of Canada excavated the site in 1991. Information pertaining to EgPn-290 was obtained from Shortt’s 1993 M.A. thesis, which focused on the meat procurement methods at the site. The single radiocarbon date from the 1991 excavations places the site at $2\ 350 \pm 80$ BP (Beta-51285) and the seasonality was determined to be a summer kill based on the analysis of the faunal remains.

A total of sixty-three lithic tools including thirteen projectile points, three bifacial tools, eleven retouched flakes, twenty-four flakes and twelve large tools were recovered from the excavations. Lithic raw material included quartzite (N=29), Knife River Flint

(N=10), various cherts (N=10), siltstone (N=7), obsidian (N=3), Swan River Chert (N=1), sandstone (N=1), petrified wood (N=1) and other (N=1).

Two points were identified as Pelican Lake type, two as Pincher Creek, three as Besant and six are unidentified body fragments. Shortt (2003:17) pointed out that the site may represent a series of reuse occupations between Pelican Lake and Besant groups. The projectile points were made of a variety of materials found at the site, excluding the siltstone. The Besant points were made of Knife River Flint, Swan River Chert and Opaque Brown Chert.

There were 38 826 pieces of bone recovered, 24 583 of which were burnt or calcined. Some interesting aspects of the faunal assemblage included the lack of complete skulls. The skull fragments represent an MNI of eight, which is significantly smaller than the MNI of 43 represented by mandibles. The skulls were removed with care not to remove the occipital lobe, atlas and axes. Shortt (1993) interpreted the removal of skulls from the site as a religious activity or brain extraction.

Shortt (1993) identified forty-four bones as non-bison. These elements included Richardson Ground Squirrel (N=4), small mammal (N=1), medium mammal (N=2), large mammal that was probably Cervidae (N=1), small to medium canid (N=24) and large canid (N=12). The small canid remains belonged to a domestic dog or coyote. They represented a minimum of one individual and included two right metacarpals, one left metatarsal, one right pelvis fragment, one scapula fragment, one first phalanx, one metapodial, one left humerus, one rib fragment and four weathered carpals and tarsals, an articulated vertebral column of six cervical elements, one thoracic vertebra and three ribs. There was a minimum number of one individual for the large canid which included

two scapula, one humerus, one right articulating radius and ulna, one right articulating humerus, radius and ulna, one heavily weathered carpal, one sacral fragment, one first phalanx and one second phalanx. Shortt (1993) suggested that the presence of canid and Cervidae remains as evidence of 'chance kills' during the kill event. There was direct evidence of butchering on the small canid humerus and one tarsal was burnt. There were also butchering hack marks on the right radius and cultural fracture patterns on the left humerus of the large canid. One long bone fragment appeared similar to Cervidae and was broken for marrow extraction.

Shortt (1993) did not mention any features found at the site. It is possible that none were observed within the excavated areas of Happy Valley, though Shortt (1993) suggested the topography was suitable for a corral or pound structure.

Head-Smashed-In Buffalo Jump (DkPj-1)

Head-Smashed-In Buffalo Jump (DkPj-1) is a multiple occupation site spanning 5 500 years. It consists of a jump and associated campsite that was used by several groups. The site is located on the south-eastern edge of the Porcupine Hills in southern Alberta (Reeves 1978). Head-Smashed-In Buffalo Jump was first excavated by Junius Bird in 1949, followed by the University of Calgary, under the direction of Dick Forbis in 1965, 1966 and 1972. Brink and Dawe then lead the Archaeological Survey of Alberta excavations the site between 1983 and 1987. Brian Kooyman excavated there in the early 1990s for the University of Calgary. All information pertaining to the material assemblage of Head-Smashed-In Buffalo Jump was obtained from a series of publications related to the 1983-1987 excavations (Dawe and Trott 1984, Brink et al 1986, Brink and Dawe 1989), along with Reeves' (1978) overview of the site.

In the South Area of the site, Reeves assigned a Besant and Pelican Lake occupation to Layer 11, which dated to around $1\ 930 \pm 80$ BP (GX-1253). In the North Area, Reeves linked a Besant occupation to Layer 3, intermingled with Pelican Lake points below, which dated to $1\ 900 \pm 100$ BP (RL-331) and $1\ 705 \pm 90$ BP (GX-1220) respectively. Besant was not a well-defined occupation layer, but appeared to represent a brief use of the jump (Reeves 1990:165).

Due to lack of stratigraphic control at the site, the only lithics assigned to the Besant occupations were those displaying this typological form. There were five Besant projectile points recovered during the 1983 excavations (Dawe and Trott 1984:113) that were made from miscellaneous chert, chalcedony and Swan River Chert. The twelve Besant type points recovered from the 1985 and 1986 field seasons (Brink and Dawe 1989:215) were made from several different types of raw material including Knife River Flint (N=3), chert (N=1); silicified mudstone (N=1), fine quality silicified wood (N=1), pebble chert (N=2), silicified mudstone (N=2), dendritic gold chert (N=1) and silicified limestone (N=1).

Features associated with the Besant occupation included several bone uprights, although an association between the uprights and a Besant Phase could not always be distinguished. A couple of elements within the upright features were sent for radiocarbon dating but there was insufficient collagen to produce a date. There were also a few uprights associated with the later occupation layers. The features worth describing for later comparison studies included a series of uprights observed in the 1984-1987 field seasons. The function of the uprights remains unknown, though Brink and Dawe (1989)

suggested they may have been used as tipi tie-downs, anchors against the wind for meat drying racks or as supports for wooden pegs.

There were four upright features found during the 1984 field season. Feature 22-3 was a small pit depression that contained a tight cluster of appendicular bone elements. It was designated a bone concentration because the bones appeared to occupy a rodent burrow. The feature was oval and measured 40 by 30 cm and was 20 cm below surface. Elements within the feature were primarily rear limbs, particularly tarsals. Feature 23-2 consisted of a single thoracic vertebra that had been driven in the ground. The distal end of the element appeared purposefully sharpened. This feature was interpreted as a bone peg. Feature 26-1 was a multiple bone upright packed loosely into a pit. The ends of the bones were sharpened. Brink and Dawe (1989) believed that smaller bones, such as phalanxes, and pebbles were used to pack in the bones, and that the bones were pushed into a preexisting rodent burrow. Feature 26-2 was a tightly packed, multiple bone upright located 50 cm south of Feature 26-1. It was comprised of three elements: the distal portions of a radius and ulna and a distal end of a metatarsal. There were no signs of post-holes nearby and insufficient space for a wooden peg to have accompanied it.

Two bone upright features were recorded in the 1985 and 1986 seasons (Brink and Dawe 1989:35). Feature 86-2 consisted of a pair of distal bison tibiae with the articular ends up. Feature 85-7 was a tightly packed multiple bone upright that extended 25cm down. All elements were bison and included two scapula fragments, a distal metacarpal, a distal radius and a proximal metatarsal. The articular ends of the last three were facing upwards. Brink and Dawe (1989) suggested that the impact mark on one of

the articular condyles of the metacarpal was made when driving the element into ground. The longitudinal fracture of metatarsal also suggests this action.

The bone upright features excavated in the 1987 field season consisted of tightly clustered bones planted vertically into the ground and extended into the sterile subsurface (Brink and Dawe 1988:14). Bison ribs and long bone fragments were the most common elements in the uprights. Many upright concentrations of bone were dismissed as natural features caused by animal burrowing, which were identified from the dark, disturbed soil that surrounded the bones, especially at the base of the uprights in otherwise light-coloured loess. Upright cultural features were denoted as such only when it was “demonstrated clearly that the base of the bones extend well into the undisturbed subsoil” (Brink and Dawe 1988:15-16).

Kenny (DkPj-1)

The Kenny site (DkPj-1) is a stratified campsite that contains three major occupations. The site is located near Pincher Creek, in southern Alberta. Forbis excavated the site in 1963 and 1964 with funding from the Glenbow Foundation. All information concerning the material assemblage of the site was obtained from Reeves' 1983 article. Besant points were found in association with Layers 6 (1 460± 110 BP) and 8 (1 600± 110 BP).

The lithic assemblage included end scrapers, side scrapers, perforators, cobble choppers, a pestle, two mauls, a hammer stone and a mortar. The majority of the lithic assemblage of Layer 6 consisted of local nodules of cherts and chalcedonies. Other raw materials included quartzite, petrified wood and obsidian. Only twelve flakes in Levels 6 and 8 were made of Knife River Flint.

Reeves identified fifty-nine Besant lanceolate forms, twenty-nine in Layer 6 and thirty in Layer 8. He also identified three Pincher Creek points within Layer 8. Reeves (1983b) related the points at Kenny to those at Wahkpa Chu-gn in Montana and Mortlach, Long Creek and Walter Felt in Saskatchewan. There were two Avonlea points found between the two Besant layers.

Layers 6 and 8 had MNIs of seven and thirteen bison respectively. There was an almost complete absence of cranial elements. Reeves (1983b:39) suggested that the skulls were possibly processed at the kill site and not taken back to the camp. He also interpreted the low number of mandibles to be an indication that the tongues were removed at the kill site and then brought to the camp.

Non bison remains at the Kenny Site included five canids from Layers 6 and 8, one Cervidae in Layer 8 and one *Caster canadensis* in Layer 8. Aside from one molar, all canid remains were post-cranial (mostly vertebrae, phalanxes and metapodials). The smaller canine individuals were interpreted as small dogs or coyotes and the larger individuals were identified as wolves or dogs. Reeves (1983b:36) suggested that the lack of limb bones may be the result of the utilization of canids as food.

Features within Layers 6 and 8 included pits, hearths and concentrations of fire-broken rock. There were groupings of flagstone often associated with hearths in Layer 8, which Reeves interpreted as tossed aside tipi weights. Prepared hearths were lined with stone, a characteristic of Pelican Lake rather than Besant sites.

One interesting feature worth describing for comparison purposes is Pit No.1. The fill was made up of tightly packed bison bones and fire-broken rock in a light-brown matrix. It was then capped with fire-broken rock. The bison bone within it included three

thoracic and one lumbar vertebrae articulated with a sacrum, one mandible, a left and right scapula, one ulna and one radius, one mature metacarpal, one fractured femur and tibia, one ischium, one patella, carpals, ribs and long bone fragments. Artifacts within the feature included one unfinished scraper, a blade and seven flakes (the majority of which were made of yellow jasper). Reeves (1983b) interpreted the pit to be a cache that was filled with refuse and capped with fire-broken rock.

There were fire-broken rock concentrations mixed with bone fragments and a few artifacts found spread across Layers 6 and 8. Reeves (1983b:34) interpreted these concentrations as open roasting areas or refuse piles of fire-broken rock. The large quantity of fire-broken rock at the site is evidence that surface hearths were being utilized.

Ochre recovered from the excavations included some yellow ochre and two pieces of white ochre in Layer 8, and two pieces of red ochre in Layers 6 and 8. A few of the larger pieces had grinding and carving marks on them that indicated their usage for paint.

Muhlbach (FbPf-1)

The Muhlbach site (FbPf-1) is a single occupation bison trap located within a low sand dune 16 km southwest of Stettler, Alberta. A small group of people probably used the site for a brief period of time. Gruhn excavated Muhlbach during the summer of 1965. All information regarding Muhlbach was obtained from Gruhn's 1969 preliminary report. Radiocarbon dates from that excavation place the site at $1\ 270 \pm 150$ BP (GSC-696). There was no evidence of a corral structure, therefore, Gruhn (1969) suggested the animals were driven into a mire and killed.

The lithic assemblage included one broad leaf shaped knife and two other fragments of knives, two Knife River Flint scrapers, a possible perforator, five retouched flakes, two utilized flakes, a possible polishing stone and sixty-one projectile points. There were also several (number not specified) utilized flakes, consisting mainly of Knife River Flint.

The majority of the points were found in the bone bed, and most were Besant in form. Of the bifacially worked points, 89% were made from Knife River Flint. The remainder were made from different chalcedonies, silicified wood, black chert and grey quartzite.

There were possibly 100-300 individual bison represented at Muhlbach. Interestingly, the faunal assemblage included few cranium fragments and no whole skulls. There were no whole long bones, likely due to processing activities, and carpals, tarsals and phalanxes were abundant.

There were several pits underlying the bone bed that were stuffed with bones of various kinds. Gruhn (1969:139) noted that “The bones did not appear to protrude noticeably above the bone layer, they were uncovered and recognized only when the bone bed was being uplifted.” Bones within the pits included long bones, such as radii, tibiae, and femora, metapodials, mandibles, pelvises, vertebrae and lower leg bones. Specific information on the individual pits was not available. Gruhn also observed that seven of the eight pits appeared to fall into two parallel lines in the main excavation area and three pits in the east excavation area appeared to be in alignment as well. There is no evidence that bones were used to wedge wooden posts as no evidence of posts were found. The function of the pits was unable to be discerned.

Ross Glen (DIOP-2)

Ross Glen (DIOP-2) is a multiple occupation campsite located in southern Alberta. The Archaeological Survey of Alberta excavated the site in 1978. All information pertaining to Ross Glen was obtained from Quigg's 1982 site report, as well as, Quigg's 1986 publication in the Archaeological Survey of Alberta Manuscript Series. The site consisted of eighteen nearly complete buried stone rings. Stone Circles 1-12, 14, 15, 18 and 20 were linked to the Besant occupation. Radiocarbon dates from the site were $1\ 485 \pm 165$ BP (GX-5892-A) and $1\ 330 \pm 160$ BP (GX-5892-G). Site seasonality was not able to be determined.

The lithic assemblage associated with the Besant occupation included eleven projectile points, eight bifaces, eleven cores, fourteen end scrapers, seventeen bifacial tools and 12 582 pieces of lithic debitage. Most of the tools were made from local material and knapped on site. Eleven end scrapers were made from non-local material (seven were Knife River Flint and four were a Montana chert). Quigg (1986) interpreted these tools as likely being brought to the site and finished there. The raw material of the lithic debitage included 82% made from local quartzites, 13% from argillites, 3% from Swan River Chert and a few other varieties of chert. All points were made from local materials.

There were very few faunal remains recovered from the 1978 excavations. Small amounts of burnt and calcined bone were found within fire-broken rock features, all of which were unidentifiable.

Quigg (1986) associated Features 1-10, 13-15, 17-39 with the Besant occupation. Twenty-three ancillary features were identified, including hearths, fire-broken rock piles,

post-molds, soil stains, knapping areas and small depressions. All features were located inside or immediately outside/adjacent to the rings, or in open areas between the rings. Refuse piles, such as Feature 1, contained fire-broken rock, bone and lithic material. Quigg interpreted the fire-broken rock piles as secondary due to lack of charcoal or staining. He also pointed out that the fire-broken rock piles were evidence of a lengthily stay. Boiling pits were identified by definable pits outlined with stains that contained fire-broken rock, lithic and bone material at the bottoms.

Feature 3 is worth noting since it was a 46 cm in diameter hearth identified by a dark circular stain. There were a few calcined bone fragments, fire-broken rock and thinning flakes within it. Twelve post-molds were identified around the feature ranging from 2 to 3 cm in diameter and 1 to 6 cm deep.

There were 6 192 pieces of fire-broken rock associated with the Besant occupation. The majority of the fire-broken rock was scattered throughout the site, though several clusters were identified by Quigg as features. It is also interesting to note that there was twice as much fire-broken rock within the circles as there was outside.

Thirty-seven pottery sherds were excavated, along with a Besant point, from Stone Circle 14. The temper used consists of quartz and feldspar and the exterior was corded and smoothed before firing.

Saskatchewan

Bracken Cairn Site (DhOb-3)

Bracken Cairn (DhOb-3) is a burial site situated on a hill overlooking the Frenchman River Valley in south-western Saskatchewan. The site was excavated in 1948

and the material was examined in 1957 and again in 1981. Unfortunately, original field notes were not kept. All information pertaining to Bracken Cairn was obtained from Finnigan and Johnson's 1984 report. The radiocarbon date of the site was $2\,465 \pm 85$ BP (S-912).

The grave was a shallow burial pit approximately 122 cm in length, 91 cm in width and 76 cm deep. Two human bundles were placed at opposite ends of the pit with both crania facing west. A single Pelican Lake projectile point was retrieved from within the burial. The remains of at least five individuals, including one child (1 year old) and two newborns, were recovered from the site. Red ochre stained the skulls and was deposited as a thick layer at ground surface. The burial was covered in boulders to form a cairn 3 m in diameter.

EdOh-23

EdOh-23 is a single component processing site located within the western periphery of the Great Sand Hills of Saskatchewan. There is a spring 1 500 meters away from the site, which could have been the allure to locate the site there. All information pertaining to EdOh-23 was obtained from Johnson's 1983 report. The radiocarbon date, obtained from bone, was $1\,675 \pm 115$ BP (S-2348).

The lithic assemblage included fourteen retouched flaked knives and eleven end scrapers. The tools appeared to have been severely used. Johnson suggested that the tools may have been all they had left of the raw material they were made from. The lithics were made from Knife River Flint with the exception of two knives made from green jasper and white chalcedony and a chopper made from quartzite. Two complete and five

fragments of Besant projectile points were recovered, which Johnson suggested were re-sharpened from larger forms.

Fire-broken rock was common throughout the site, and most of it was granite. There was a 200kg cobble cache of granite 1 km away from the site, which was assumed to have been brought in for boiling.

A large concentration of bone was discovered, along with the fire-broken rock. Most bone fragments were bison, but a canine tooth was also recovered.

Elma Thompson (EiOj-1)

Elma Thompson (EiOj-1) is a tipi ring site located in the West Central Saskatchewan Plains, along the western fringe of the Flaxcombe interlobate moraine. This camp represents a single family or small hunting group. Members of the Archaeological and Historical Society of West Central Saskatchewan excavated the site in the spring of 1981. All information pertaining to EiOj-1 was obtained from Finnigan and Johnson's 1984 report. The radiocarbon date from a bison tibia was $1\ 675 \pm 145$ BP (S-2202). Finnigan and Johnson speculated that the Elma Thompson site was a spring/summer camp.

The lithic assemblage included forty-eight flakes, three projectile points and point performs, two retouched flakes, seventeen pieces of shatter and 4.3 g of fire-broken rock. The highest concentration of artifacts was in the center of the ring. Tools were retouched but not produced at the site. Two of the points were Besant in form. The dominant lithic types were Swan River Chert and chalcedony. Other raw materials included quartzite, black chert, quartz, agate, pebble chert, jasper and basalt.

The faunal assemblage consisted of 649.1 g of bone. A single mature bison was killed near the camp and then heavily processed.

There were three features at EiOj-1, including a stone circle, a hearth and a rock filled pit. Feature 1 was a tipi ring (Johnson 1984). The ring consisted of 57 rocks and was 4.68 m in diameter. Finnigan and Johnson concluded that the feature was a four pole foundation tipi that could house nine people. Feature 2 was a hearth located along the east side of the tipi ring that contained 30.2 kg of fire-broken rock, 12.2 g of burnt bone, 194.2 g of debitage and 1754.6 g of charcoal stained matrix. Feature 3 was a rock filled pit located along the west edge of the tipi. The pit was 70 cm in diameter and 55 cm deep, and contained 117 kg of rock. There was also one flake, one unidentified bone fragment and one piece of fire-broken rock within Feature 3. The function of this feature was unclear.

Fitzgerald (ElNp-8)

Fitzgerald (ElNp-8) is a pound and processing site located in the Moose Woods Sand Hills, 15 km southeast of Saskatoon, Saskatchewan. The site is at the bottom of a small basin formed between two stabilized sand dunes that created a natural trap. The University of Saskatchewan carried out excavations at the site in 1992 and 1993. All information about Fitzgerald was obtained from Hjermstad's 1996 M.A. thesis. The radiocarbon date of the early fall kill site was $1\ 283 \pm 20$ BP.

There were two separate activity areas at the site. Area 1 was the main kill area, while Area 2 was the secondary processing area. The kill site may have been as large as 100m x 100m, with the main kill area as small as 40m x 40m.

The lithic assemblage included 143 projectile points (68 complete, near complete or bases), 13 end scrapers, a side scraper, 6 unifaces, a biface and 2 030 pieces of debitage. Hjermsstad identified Besant ‘Outlook’ points, along with a few Bratton points through a qualitative and quantitative attribute analysis. The debitage was dominated by retouched tool flakes. There were no cores or evidence of tool manufacture.

Knife River Flint dominated the lithic assemblage: 97% of the points; 66% of the formed tools; 92% of the utilized flakes and 90% of the debitage. Exotic material included fused shale (N=84), Tounge River silicified sediment (N=3) and obsidian (N=9). Local material included quartzite (N= 62), Swan River Chert (N=13), chert (N= 30), chalcedony (N=9), siltstone (N=2), jasper (N=1), silicified peat (N=1), petrified wood (N=1) and andesite (N=1).

The faunal assemblage from Fitzgerald was composed of 261 658 pieces (610 272 g) of bison bone, 11 287 of which were identified to element. As many as 800 bison were possibly drawn in and killed at the site. Hjermsstad concluded that the faunal remains recovered from the 1993 excavations were heavily processed and that the areas of the bison that yield large sections of meat were either missing or butchered. No articulations were observed. There were eight complete or near complete skulls found at the site.

There were two possible bone tools found, including a bone needle and a scraper. There were also five decorative items made from bone. One item was an incised cervid first phalanx decorated with two deep cut marks that made an upside down ‘V’ on the lateral edge. The phalanx was hollowed out like a decorative pendant. Another of these items was an anterior portion of a right bison hyoid bone with a 3.5 mm diameter hole drilled near the anterior end.

1 563 pieces of fire-broken rock were recovered from the kill area and 4 675 from the processing area. All but ten pieces were quartzite (these were granite and sandstone). Almost 90% were less than 2.5cm in diameter.

Sixteen features were identified during excavations, including basin shaped pits, ash stains and post-holes/uprights. All but two were within the kill area. Features 4, 11 and 12 were ash and burn stains with associated burnt bone. No boiling pits or hearths were found within the processing area. One single boiling pit was found in a test pit 50m southwest of the excavation block.

Features 2, 5, 6, 7, 8, 9 and 16 were bone uprights and post-molds. Feature 2 was a right metatarsal and an unidentifiable cranial fragment found 5 cm below the main bone bed. It was in the northwest portion of a 16cm diameter gray-stained post-hole. Feature 5 was a right distal humerus placed upright inside a post-hole. Feature 6 was a complete thoracic vertebra with its spinous processes inserted 23 cm deep into a post-hole. Feature 7 was a bone upright comprised of an immature right distal femur articulated with a proximal tibia, centered within a post-hole. Feature 16 was a multiple bone upright found in the processing area that was different from those in the kill area. This feature consisted of a right metatarsal, two complete thoracic vertebrae and a thoracic posterior epiphysis. The bones were tightly packed into a post-hole leaving no room for a wooden post to be inserted.

Feature 2 was a basin shaped pit filled with bones and fire-broken rock. The unburned bone included 52 identifiable elements. The only complete elements were a bison axis, a ulnar carpal and three phalanxes. Incomplete elements included fragments

from five rib shafts, three mandibles, five thoracic vertebrae, three radii, three scapula blades and two metatarsals. There were 50 pieces of quartzite within the feature.

Three ceramic sherds were recovered during the excavations. Each was made from grey clay tempered with small amounts of quartzite grit. One ceramic non-pottery piece was recovered from the processing area. It was a circular ball of grey clay with quartzite temper. The surface was smooth and undecorated. Its function was unclear.

Melhagen (EgNn-1)

Melhagen (EgNn-1) is a bison kill site located within the Aiktow Sand Hills in south central Saskatchewan. There were at least five bone bed concentrations within the excavated area, which represented multiple kills. A survey of the area revealed a possible camp site 200m west of the kill. The closest water is a spring located 5 miles to the south east. Considering that the water table was higher at time of kill this water source at the time could have been closer.

The Saskatchewan Archaeological Society first excavated the site in 1968. The University of Saskatchewan subsequently excavated there in 1986 in order to re-examine the cultural affiliation and activity areas of the site. All information pertaining to these excavations and the site assemblage was obtained from Ramsey's 1991 M.A. thesis. Her research focused on determining the cultural affiliation of the site, evaluating the frequency and seasonality of the kill event(s), and interpreting the hunting, butchering and processing activities that took place. Radiocarbon dates assigned to Level 2 were $1\ 905 \pm 110$ BP (S-2855), $1\ 575 \pm 115$ BP (S-2856) and 810 ± 205 BP (S-2857). All radiocarbon dates were obtained from bison bone retrieved from within the bone bed.

According to the mandible study, the kills occurred primarily in the fall and then continued through the winter and spring.

Since lithics were not the focus of Ramsey's study, they were only briefly mentioned; no numbers or specifics were included. She does describe a large hafted knife/spear tip made of Knife River Flint that was found near the centre of Area B. She also mentioned that tools were found throughout Areas A and B, clustered around burnt concentrations of bone. Between the Phenix and Ramsey collections there were 57 projectile points recovered. Ramsey concluded that all the points were Besant forms, with the possible exception of one Pelican Lake point and one possible Samantha point in Area B, though she argued that the Pelican Lake point was probably a Besant point, and that the form was due to the poor raw material. She also concluded that the Samantha point was probably a reworked Besant point. Knife River Flint comprises 70% of the entire collection. Swan River Chert is the second most common at 11%. Other raw materials included brown, mottled and white chalcedonies, Black Pebble Chert, jasper, silicified peat and fused shale.

One hundred and seventy bison were excavated from an area estimated to be 25% of the kill and processing areas. Ramsey determined that processing took place in the immediate vicinity of the kill, while some parts were taken back to the camp. The absence of bone in the centre of the site supports the hypothesis that the bison were killed and butchered at the edge of a slough, at the base of the sandy ridge, although it is not clear if the slough existed at the time of the kill.

There were no complete skulls found and few skull fragments were identified. However, there were numerous broken mandibles, including several articular condyles

found throughout the site with evidence that they were smashed off. Axis and atlas elements were often broken on the dorsal surface, possibly to facilitate the removal of the head from the body. Several of the ribs had cut marks, particularly on the articular ends. Long bones generally displayed spiral fractures. Pelvic bones were fragmented and there were cut marks on the ends of some of the metapodials.

There were a few non-bison elements in Area B, including a rib and thoracic vertebrae from a mule deer and a falcon claw. Ramsey could not determine why the mule deer was there, though she proposed that it got too close to the pound and was killed along with the bison. Other animals were thought to be scavengers that were killed off. Several burned and unburned swift fox elements were also identified in Area E, including mandibles and foot bones. These were interpreted as being either decorative beads or a local kill tossed into the fire.

Ramsey described the 'possible' bone tools found throughout the site as either polished bone fragments resulting from environmental weathering or fleshers and choppers made from metapodials and tibias.

Features at Melhagen included possible post-holes, bone uprights and hearths. There were several surface hearths in Area A, as evident in concentrations of burnt bone and lithic material. There was one possible post-hole feature found during the 1986 excavations, but it was not clearly defined. Ramsey concluded that the absence of post-holes may be an indicator that the topography has changed since the original kill. It is possible that higher ridges existed and the features that would have supported a pound have simply eroded away. She also observed that a winter seasonality would have made it hard to dig post-holes. Ramsey (1991:215) mentioned that a bone upright feature was

noted in the field drawings of the 1968 excavations, in the southeast corner of Unit 105W 65N. She wrote that “It appears that several mandibles were jammed into the ground with at least one long bone element. A rock was at the base of the hole.” No other information about this feature was available. This area was associated with primary and secondary butchering. Even though the exact form and organization of the feature is unknown, its spatial location within the butchering area is interesting to note.

Mortlach (EcNI-1)

Mortlach (EcNI-1) is a multiple occupation campsite located in central Saskatchewan. The site was interpreted by Wettlaufer as a place to stop for water and wood and hunt bison. He excavated the site in 1954, and all information pertaining to the site was obtained from his 1955 publication. Levels 4A, 4B, 4C and 4D were associated with Besant occupations. Occupation 4E was assigned to Sandy Creek and radiocarbon dated to $2\ 400 \pm 290$ BP. Level 4B was radiocarbon dated to $2\ 327 \pm 235$ BP.

Aside from Besant projectile points, the lithic assemblage of Level 4A included a chopper made of quartzite, a fragment of a blade, a drill and several side and end scrapers. Occupation 4B included two semi-lunar blades, fragments of an ovoid blade, several side and end scrapers and one hammerstone. Occupation 4C included three blades of cherty quartzite and two plano-convex scrapers. Lithics associated with Level 4D included two ovoid blades, one square-based blade and several scrapers.

Eleven Besant points were recovered from the 1954 excavations including three in Level 4A, three in 4B, one in 4C and four in 4D. The raw material used included chert, quartzite, chalcedony and petrified wood.

The faunal assemblage associated with the Besant layers included a possible bone tool and a bone pendant. The bone tool was made using a humerus of a canid or cervid that had been broken at the shaft and hollowed out. This tool was described as a possible whistle or bead. The bone pendant was a small fragment of bone with a hole drilled into it.

There were post-hole features associated with the Besant occupation that formed a semi-circle. Wettlaufer (1955:41) describes it as looking similar to Upper Republic type house patterns in North Dakota. There were no center pole or fire pit features found, but there appeared to be a double line of holes that were very shallow, only going down a few inches. These holes were too shallow to support a heavy house structure. The holes were filled with bones and debris, and the bones appeared to have been deliberately pushed in alongside the poles for support. There were no remnants of wood found in the holes.

Sjovold (EiNs-4)

Sjovold (EiNs-4) is a multiple component camp site located on the west bank of the Saskatchewan River. Dyck and Morlan directed excavations of the site in 1979 and 1980. All information pertaining to those field seasons and the Sjovold assemblage was obtained from Dyck and Morlan's 1995 publication. Layers 10 and 12 were assigned to the Besant period and Layer 14 was assigned to Outlook. Radiocarbon dates obtained from Layer 10 were 2 090±165 BP (S-1767), 2 190±140 BP (S-3366) and 2 340±120 BP (S-3367). The radiocarbon dates for Layers 12 and 14 were 2 355±105 BP (S-2059) and 2 500± 85 BP (S-2060).

Layer 10 was associated with Besant and Pelican Lake projectile points. Dyck and Morlan (1995:359) pointed out that this layer could represent several episodes of

occupation based on the material culture, the clustering of the hearths and the reuse of stones. There were six points in all. Four points were similar to Besant in form while two were closer to Pelican Lake.

The majority of the faunal remains in Layer 10 were bison. There were also remains of pronghorn, wolf, carnivore and rodents. Deer and pronghorn were represented by humerus, radius and metatarsals fragments. There were 24 pieces of wolf representing several elements throughout the skeleton. All elements were larger than their reference dog and wolf skeletons and all could have come from one animal. Two humerii and a radius of the canid were culturally fractured. A carnivore scavenged the wolf remains, which Dyck and Morlan suggested as evidence that the dog was procured for its skin and was then fed to the dogs. There were also carnivore gnaw marks on eight bison bones.

There were twelve features in Layer 10 including five surface hearths. Many hearths were disturbed, possibly for the retrieval of boiling stones.

Dyck and Morlan described Layer 11 as representing a Besant hunting party. The lithics were overwhelmingly made of Knife River Flint (N=19). Five were made of Swan River Chert, two of petrified wood, two of petrified peat, three of quartzite, two of quartz, two of solidified sediment and one of an unknown chert. Knife River Flint represented all stages of production, including finished tools and points, as well as retouch flakes, cores and debitage.

The faunal assemblage consisted mainly of bison (MNI=3). There were long bones with impact marks from marrow extraction, and a butchered vertebral column and mandible possibly indicating the removal of the skull. There was a humerus shaft of a

deer, as well as a lumbar vertebral arch and a rib fragment from either a small deer or a large canid.

Features within Layer 11 included two surface hearths (F12-a and F12-f), each between 2 and 9 cm in diameter. There were also two hearth drags (F12-b and F12-e), an extended hearth (F12-c) and a rock cluster (F12-d).

Layer 14 (identified as the Outlook occupation) had sixteen lithic tools, nine of which were manufactured from Knife River Flint (including six points). Features within Layer 14 included two surface hearths (F14-a and F14-b) and a debris cluster (F14-c).

Bison made up the majority of the faunal remains but there were also remains of wapiti, deer or pronghorn, lynx, rabbit, bird and unidentifiable mammals. The bison remains represented at least two calves and several adults. Marrow extraction was evidenced by the impact marks on the long bones. Heads and limbs were well represented and the mandibles had evidence of their removal from the skulls. Carnivore gnawing was present on several elements including a rib end, a distal scapula, a juvenile scapula and an innominate. Dyck and Morlan (1995:440) suggested that choice cuts were removed at the kill site and brought back to the camp for further processing.

Montana

Antonsen (24GA660)

Antonsen (24GA660) is a multiple component bison kill site located in the Gallatin Valley near Bozeman, Montana. The University of Montana excavated the site in 1972 under the direction of Leslie Davis. A limited amount of information pertaining to the excavations and cultural material was obtained from Davis and Zeier's 1978 article.

Areas B, C and D were associated with Besant projectile points. A radiocarbon date from Area C was $1\ 605 \pm 90$ BP (1-7027). Davis and Zeier suggested that the Besant component at Antonsen represented an early manifestation of intrusive Besant hunters in the area.

Two hundred and twenty-eight Besant style points were recovered from Areas C and D. Of these, 48.7% were made from chalcedony, chert and jasper, 15% were made of obsidian and the remaining 36.3% were made of local material obtained no more than 80 km away in the Mountain Valley.

Features within Area B included fire hearths and post-molds. There were vertical bones embedded into the post-molds and stones encircled around them.

Whiskey Hill (24DW1001)

Whiskey Hill (24DW1001) is an unexcavated occupation site situated on the west side of Whiskey Hills Canyon in eastern Montana. The Kvaalen family, who own the land that the site rests on, conducted surface collections over several years. Many of the artifacts were recorded *in situ* as they eroded out of the canyon wall. All information pertaining to the cultural material from Whiskey Hill was obtained from Johnson's 1977 article. A sample of charcoal and burnt bone taken from within a hearth that held a Besant point dated to $1\ 550 \pm 60$ BP (Wis. 914).

The cultural layer was 2 or 3 inches thick and contained pottery, debitage, broken bone, ash, charcoal and fire-broken rock. Surface collections from this layer included nine pieces of pottery, five corner-notched projectile points, a bone awl, scrapers, a broken knife, a drill, an end scraper, a spokeshave and several utilized flakes. Lithic raw material included grey porcellanite (three points and a drill), Knife River Flint (a point

and a knife), grey chert (end scrapers) and jasper (spokeshave). The pottery represented at least one vessel of Woodland pottery manufactured using the paddle and anvil technique.

Wyoming

Muddy Creek (48CR324)

Muddy Creek (48CR324) is a bison kill site located on western edge of Shirley Basin, within the Southern Rockies of Wyoming. The site includes a bison pound, a large campsite and a butchering area. Amateur archaeologist Charles Darnall excavated the site in 1962. Charles Love tested the site in 1972 and George Frison extracted material for radiocarbon dating in 1978 (1 720 ±110 BP RL-394). The University of Wyoming excavated the site in 1980 under the direction of Charles Reher. Susan Hughes (1981) examined variability in the point assemblage. Her article was used to summarize this site.

Hughes' sample from the site included 414 points, a scraper, a knife fragment and a drill. Of these, 305 were classifiable as Besant. The remaining 98 were body fragments. Two points were recycled into other tools. Hughes attempted to identify variability between the Sonota and Besant projectile points by examining the Muddy Creek assemblage. She observed the modification of preexisting blade forms to new forms in 62.7% of the complete points, thus illustrating her 'reworking hypotheses'. Hughes also pointed out that reworking was more common at Besant and Sonota sites than sites with other point types in Wyoming.

The raw materials the points were manufactured from included microcrystalline quartz, brown chalcedony (N=5), jasper (N=112), cherts (N=250), metamorphosed

sandstone, devitrified rhyolite and siltstone. Hughes sourced 73% of the raw material to the local Laramie Mountains and Hartville Uplift.

Darnall and Frison identified several post-hole remains during the 1978 tests, which attested a pound structure. The pound was 12.9m in diameter and was comprised of a single row of post-holes (Frison 1978). The posts were made of pine that is available on the edges of the Shirley Basin today.

Ruby (48CA302)

Ruby (48CA302) is a single component kill site located in the Powder River Basin of Wyoming. The site consists of a partial pound within the meander of an arroyo, part of the drive lane and an associated ceremonial structure. The University of Wyoming excavated the site in 1968 and 1969 under the direction of George Frison. All information pertaining to the site and the associated cultural assemblage was obtained from his 1971 site report. The radiocarbon date of the site was $1\ 670 \pm 135$ BP (GX-1157).

The lithic assemblage included 201 projectile points, 2 manos and 3 008 flakes recovered from the kill area. Of the projectile points, 23% were altered from their original form and over 95% of the debitage was the result of tool sharpening rather than tool making.

The remaining articulated segments of bison found at the kill may indicate overkill. Caudal vertebrae were lacking and mandibles were often found paired but separated from the skull. Butchering evidence suggests that selected parts of the carcasses were cut at the kill and then taken to the secondary processing area. Frison identified surface or shallow hearths within this area of the site. Other species represented in the faunal assemblage included badger (*Taxidea taxus*), bobcat (*Lynx rufus*) and hawk

(*Buteo regalis*). Frison noted that the hunting of carnivores might have accounted for the different sizes of points.

Post-holes found throughout the site, spread 2 to 4m across and in two lines, outlined the corral structure. Small fragments of juniper (*Juniperus scopulorum*) were found within some of the post-holes. Frison noted that the deeper posts within the structure may have aided in the killing of the bison by means of impalement. Many of the post-holes had bison mandibles, ribs, humeri, and other long bones forced up against them. Frison (1971:80) interpreted their placement as a means to tighten the posts within the ground. There were also flat stones between the posts and to the sides of the holes.

A ceremonial structure, measuring 11.9m long and 4.6m wide, was identified 6m to the east of the pound. There were three small holes that contained either a third or fourth bison thoracic vertebrae, with the dorsal spine in the hole, found inside the south end of the structure. There were also six complete bison skulls lacking mandibles within the south end. A complete scapula was beside one of the skulls. There were two holes outside of the structure. One contained four thoracic vertebrae with their dorsal ends facing down. The other had an articulated cervical vertebra with an axis and atlas. The floor of the structure was identified based on the discovery of a compact sandy deposit with the occasional stone flake or bone fragment. Fragments of juniper within the floor lead Frison to conclude that the rafters of the structure were constructed from logs.

The Dakotas

Boundary Mound (32SI1)

Boundary Mound (32SI1) consists of four burial mounds that rest on a high terrace overlooking the Missouri River at the South and North Dakota border. The Smithsonian Institute River Basin Survey excavated three of the mounds under the direction of Neuman from 1960 to 1967. All information regarding the excavations and material assemblage of Boundary Mound was obtained from Neuman's 1975 publication on the Sonota Complex and related sites. The radiocarbon date from timber samples puts Mound 1 at $1\ 549\pm 160$ BP, Mound 2 at $1\ 349\pm 150$ BP and Mound 3 at $2\ 250\pm 125$ BP.

Mound 1 was 23m in diameter with a maximum height of 75cm. There was a rectangular pit beneath the dome that measured 3m by 1.7m and was 91cm deep. Fifteen individuals representing six burial events were interred within the mound. Burial 1 consisted of two individuals on the mound floor. Burial 2 included up to six individuals associated with one point, several flakes, a canine tooth pendant and two bone beads. Burial 3 had a maximum of two individuals that were associated with several flakes, a small fragment of a bone awl, pieces of shell and a small lump of hematite coated white clay. Burial 4 was comprised of at least two individuals and a scraper. Burial 5 was made up of two fully articulated children. One was covered in purplish-brown, red and yellow pigments. Lying on its rib cage in a circular pattern, were six points. Two other points, a stone knife, two stone drills, two atlatl weights, a bone bead, a small quantity of shell and gypsum and a small spherical lump of green sand coated with hematite were associated with this burial. Artifacts not associated with any one burial included some pottery sherds, seven points, one knife, three scrapers, two drills, eight flakes, two atlatl weights,

an antler flaker, three bone beads, three bone pendants, two awls and lumps of clay covered in red hematite.

There was a significant amount of bison bone found on the mound floor, including skulls, skull fragments and a single articulated axial skeleton arched around the burial pit. There were eighteen intact skulls, of which nine were placed face down. A maximum of thirty and a minimum of fifteen bison were represented. There was also a canine skull aligned with the bison skulls. Other species found within the mound included deer, prairie dog, snake and badger.

Mound 2 was 18.3m by 20.4m and 88cm above the ground. The pit measured 2m by 3.3m and was 30.5cm deep. Seven individuals, representing three burial events, were interned within the mound. Burial 1 consisted of at least three individuals, associated with lumps of green sand. Burial 2 represented at least three individuals, associated with a heart-shaped stone and a small, tubular bone bead. One individual was within Burial 3, associated with an atlatl weight and several worked, hematite coated fragments of bear maxilla and teeth. There was a circular stain of hematite on the floor between Burials 2 and 3. Artifacts within the mound included one point, one end scraper, one side scraper, one drill, five flakes, one atlatl weight, one bone bead, one bone awl, one antler object, six bear maxilla and teeth, one small piece of petrified wood and hematite. There were two complete bison skulls found on the mound floor and one skeleton lacking legs. Several fragments of other elements were scattered throughout the mound. Other species included one deer tibia and a prairie dog jaw.

Mound 3 was 26m in diameter and 1.6m high. There was a rectangular pit beneath the earthen mound that measured 3.1m by 1.8m and 1.3m in depth. The floor and lower

walls were covered with woven fibers that resembled grass. Twenty-three individuals representing thirteen burial events were found within the mound. Burial 1 consisted of one adolescent overlying the burial pit. A few lumps of green sand and clay were associated with it. One child was within Burial 2. Burial 3 contained two adults and one infant coated in red hematite. Burial 5 had at least two individuals that were painted red. Burials 4, 6, 8 and 9 all consisted of one adult and one infant, with some bones painted red. There was worked human bone and a palate associated with Burial 4. Burial 9 was associated with small lumps of green sand and hematite, a clay object, bone beads, antler flakers, an antler tin, a quill flattener and worked beaver mandibles. Burial 7 contained an adult, an adolescent and one infant. Some bones were coated in hematite. Burial 11 had at least two children and one adult. A single adult was found in each of Burials 10, 12 and 13. There were several pieces of charred timber found within the mound. Artifacts include three points, one knife, one blade, one scraper, one abraider, one unknown clay artifact, one antler tine, one antler flaker, one antler handle, two worked beaver mandibles, twelve bone beads, one bear tooth pendant and lumps of hematite and green sand. There were also four pieces of worked human bone. A minimum of three individual bison were represented in the mound in the form of skulls, skeletons and isolated elements. Bones from deer, a jackrabbit and a prairie dog were also found.

Naze (32SN246)

Naze (32SN246) is a multiple component campsite located near the St. James River in North Dakota. The Middle Woodland occupation represented a processing area of grease extraction. The University of North Dakota excavated the site under the direction of Michael Gregg in 1985. All information pertaining to the excavations and

associated cultural material was obtained from his site report (Gregg et al 1987). Gregg assigned Cultural Zone 2 of the Naze site to the Sonota Complex rather than Besant because he believed the material bore more resemblance to Sonota Middle Woodland sites in the same area and time period. He did point out that the assignment of Sonota to Zone 2 raised important questions concerning the origins of Besant (Gregg 1987:268). Radiocarbon dates obtained from Zone 2 are $1\ 918 \pm 36$ BP (SMU-1778), $2\ 003 \pm 43$ BP (SMU-1758) and $2\ 035 \pm 70$ BP (SMU-1398).

The lithic assemblage from Zone 2 included one Samantha and twelve Besant side-notched points, several knives, three end scrapers, a quartzite hammer stone, manuports, bifacial cutting tools, cores, a bipolar hammer/anvil, manos, drills, simple abrading tools, bifacial choppers and spokeshaves. The lithic tools represented several activities, including lithic raw material stock piling, stone tool production, hunting, butchering, bone and hide processing, hide working, bone and antler working and plant processing. An awl and two beads made of copper were attributed to the Zone 2 occupation. Gregg (1987a:430) compared them to artifacts common in Hopewell sites in Illinois, Ohio and Michigan.

The raw material used included some obsidian from Wyoming, Rainy Buttes silicified wood, porcellanite, Knife River Flint, Bijou Hills silicified sediment from the south and copper from the east. Six of the points were made of Knife River Flint, three of Swan River Chert, two of Rainy Buttes silicified wood and two from Bijou Hills silicified sediment. Of the 122 lithic tools, 75 were made of Knife River Flint, 17 from Swan River Chert, and the rest were local cherts or basalt. Quartzite and granites were used for the

large tools. Gregg noted an obvious preference of Knife River Flint for tool manufacture during this Middle Woodland occupation level of the site.

Sixty-seven fragments of bison bone were identified. An MNI of two individuals was based on the right humerus. Gregg concluded that the entire animal was heavily butchered at the site since all elements were present. There were some modified bone pieces, including three tools. Many were used as striation, polish, chipping or notching tools.

There were 12 054 identifiable non-bison elements in Zone 2, representing mammals, birds, amphibians, reptiles and fish. Many represented secondary, natural intrusions to the site. Fish were represented by 345 elements. Forty-five fragments belonged to a small dog or coyote (thirty-nine of which are teeth), three belong to a fox of an unspecified species and eighteen were undetermined canids. Based on the analysis of the teeth found, there was one fox and one juvenile and two adult coyote or dogs. One proximal ulna fragment, one first phalanx, one axis and one mandible fragment were identified as belonging to a small dog. The ulna, mandible and some teeth were charred, which lead Gregg (1987:358) to believe that the remains represent domestic dog rather than coyote. The juvenile teeth also displayed extensive wear.

Features included two hearths, one of which was oval and lined with stones while the other was a flat bottom pit. Both had charcoal, bone and lithic material within them. Gregg noted that the two hearths were morphologically similar to Sonota features found at Stelzer. There was no evidence of residential structures.

There was an interesting feature noted in the Early Woodland occupation of the site that dated to $2\ 440 \pm 70$ BP. It was made of eight charred post-hole fragments, holes

and footing trenches. There were masses of fired clay that were packed around the butts of the posts. The posts ranged from 8cm to 19cm in diameter and appeared to function as a central support for a residential structure. Gregg interpreted the post features as representing a complex at the centre of a lodge, with a 4m x 6m diameter area of enclosed floor space. No hearth features or evidence of outer perimeter posts and roofing were found.

Sonota style pottery was recovered from the excavations. The sherds appeared to represent large vessels and were all decorated with cord and fabric impressions. Residue analysis showed they were used for cooking, which is similar at other Sonota sites.

There was a considerable amount of fire-broken rock scattered across Cultural Zone 2, associated with the Middle Woodlands occupation. Gregg postulated that this zone was used several times (though chronologically close together) and at the last occupation the heavy butchering of bison remains took place. The fire-broken rock that appeared to have been moved away supports this theory.

Arpan Site (39DW252)

The Arpan Site (39DW252) consisted of three mounds but Neuman (1975) only excavated Mound 1. The mound measured 1.9m by 2.8m and was 70cm below the surface. The radiocarbon date based on the timber wood was 1 859± 90 BP. Mound 1 contained thirty-five individuals within six separate burials. The remains represented three fetuses, eight infants, twelve children, four adult females and nine adult males. The fill of the mound yielded over one hundred human and animal bones. On the mound floor were several concentrations of bison bone. Timber was laid across the burial pit. North of the pit was one adult and one immature bison skull lying side by side. A pile of bison

skulls sat north of the pit, eight of which were lacking mandibles. There was one lone bison skull with its mandible sitting west of the pit, along with a compact pile of mandibles. The artifacts included some pottery sherds, one point, a knife, a side scraper, six flakes, two ground stones and one bead.

Grover Hand Site (39DW240)

The Grover Hand Site (39DW240) consisted of three mounds, all of which were excavated by Neuman (1975). Radiocarbon dating of charcoal placed Mound 2 at $1\ 649 \pm 80$ BP and Mound 3 at 1729 ± 75 BP.

Mound 1 was 1.9m by 3.5m and 76cm below the surface. Timbers were laid across the top of the pit. The mound contained ten burials. Burial 1 was located on top of the burial pit and included an adult female lying on her back alongside one fetus and two children. A basket was placed upside down on the chest of the woman, covering a projectile point, an antler fragment and two mussel shell valves. Remains of matting were recovered from beneath Burial 1, and everything was stained with red hematite. Burials 2 to 10 were concentrated on the pit floor. There were three fetuses, seven infants, twelve children and twenty adults found within the mound. Artifacts associated with the burials included flakes, a worked piece of bone, two bone beads, beaver incisors, a notched blade, a bone awl, four sections of worked antler and hematite. There was a small clay ball of unknown significance associated with Burial 4. Burial 10 was covered with a crushed bison skull. Bark or grass matting was often found below the remains and the bones were stained with red hematite.

Artifacts within the mound that were not associated with any one burial included two points, one notched blade, two knives, two end scrapers, one side scraper, twelve

flakes, one grooved maul, five pieces of worked antler, two beads, two awls, two worked bison bones, clay objects and pendants. There were two articular bison skeleton remains within the mound, including two skulls and individual bones of mature and immature animals. Non-bison remains included the skulls of a rabbit, a squirrel, a kangaroo rat and several prairie dog mandibles. There was a stone pile feature within the mound that was filled with fire-broken rock and bone (Feature 2). The bone was mainly bison but also contained human, deer, antelope and skunk. There were also some rim sherds and a major portion of a grooved maul within it.

Mound 2 was 23m in diameter and 45cm below the surface. Timbers were laid across the burial pit and to the side. The mound consisted of four infants, five children and seventeen adults within six separate burials. Artifacts associated with the burials included olivella beads, an antler tine, several shells and a clay pipe. There was matting sitting directly above the bones that was covered in red hematite. Artifacts not associated with burials included one pottery sherd, one point, two knives, two side scrapers, one bison bone flesher, one antler tine, five shell beads and a clay pipe. The remains of immature bison skeletons, articulated sections and single elements, lined the floor of the mound, along with three bison skulls.

Mound 3 was 17m in diameter and was 43cm below the surface. The rectangular pit below the mound measured 2.5m by 1.3m and 43cm deep. Timber was laid across the pit and several logs were lying nearby. The pit contained three adults in individual burials. Burial 1 sat on a thick layer of red hematite covered matting. The remains were associated with a crude stone knife, a conch shell pendant coated in hematite, grayish clay and several small burned rocks. On the ground surface adjacent to the pit were

secondary human interments of at least four adults and one infant. Within the fill of the mound were a number of human and animal bones. In all directions from the burial were bison remains, represented by articulated skeletons and articulated segments, skulls and miscellaneous single elements belonging to at least sixteen animals, one of which was a fetus.

Stelzer (39DW242)

Stelzer (39DW242) was the 'Sonota' campsite that Neuman excavated between 1960 and 1967. Neuman (1975) concluded that the site represented a small group of people whose subsistence relied heavily on bison. Interesting artifacts found at site included a few pieces of worked bone, two thin sheets of copper and five small lumps of hematite.

The lithic assemblage included ninety-eight projectile points, ninety-eight knives, one hundred and seventy end scrapers, seven drills, twenty gravers, twelve notched flakes, eighteen utilized flakes, 2 794 un-worked flakes, twenty-nine cores, four grooved mauls, six hammer stones, twenty-two grinding stones, nine abrading stones, seven awls, three seriated fleshers and several atlatl weights. There were sixteen rim sherds found throughout the site.

Features at Stelzer included midden concentrations, earth filled and trashed filled fire and/or roasting pits, post-molds and bone uprights. All the hearths appeared to be fire pits. The bone upright features are noteworthy as they were similar to those at the Fincastle site. Neuman (1975:30) interpreted the bone uprights as "an integral part of the industry". They appeared to be concentrated in two work areas of Area 1. Many were close to adjacent middens or pits, which lead Neuman to conclude that they were

associated with activities conducted in those areas, such as food preparation, hide working and flint knapping. The uprights were mostly comprised of limb bones that were broken and then inserted into the ground, while the articular surface sat only a few inches above the surface. In most instances, the features consisted of three or more tightly compacted bones. Neuman noted that their surfaces would have been ideal to place a stone core for flaking or a long bone to smash for marrow extraction. Features 25, 54 and 57 also had a rock within them that sat at the same level as the bones around them. Features 23 and 33A had a space for a possible rock as well. The tops of the bones rarely had any scars or scraps on them, but Neuman proposed that if the heads were cloaked with hides the bones would have been shielded from cutting or impact.

Feature 2 consisted of the ends of several incomplete long bones with the unbroken articular surfaces facing upwards. Neuman noted that it appeared that the bones were driven into the ground rather than placed in a prepared pit. The bones include a right distal humerus, three pieces of a right distal radius, a left distal tibia and a lower second molar, along with thirty-two unidentifiable bone fragments. Features 8, 23, 24, 26, 27, 34, 35, 36, 38, 39, 47, 48 were made of single or tightly packed bison limbs placed vertically in the ground. Some were articulated. There was no sign of posts. Feature 29 consisted of two bone uprights adjacent to a midden. Another feature included a humerus, femur and a scapula all forced into the living surface with their distal ends down. The other was a single upright bone. Feature 31 was made up of three scapulas and several bone fragments wedged vertically into the occupation level. Feature 33A had bison limb bone fragments ringed around a dark soil stain that may have been a post-mold. The stain was 13cm in diameter and 24cm deep. Feature 54 consisted of three bison bones inserted

vertically into the occupation level, forming a triangular outline. A rock fragment filled the central area.

Swift Bird (39DW233)

Swift Bird (39DW233) consists of two mounds, both of which Neuman (1975) excavated. Radiocarbon dating of charcoal placed Mound 1 at $1\ 944 \pm 120$ BP and Mound 2 at $1\ 609 \pm 100$ BP.

Mound 1 was 22m in diameter with a maximum height of 88cm. Beneath the central area of the mound was a rectangular pit with a flat floor, vertical walls and rounded edges. The pit measured 3.5m by 2.1m and was 88cm below the ground surface. Charred timber logs extended across the top of the pit. The mound included six infants, three children, two adolescents and two adults that were secondarily interned. These burials were associated with a single point, two shell beads and a shell atlatl weight. A few remains were sprinkled with hematite. Another burial of an adolescent male was placed on top of the pit (Feature 1, Burial 1). This burial was associated with chipped stone flakes, a bone bead, some shell beads and a shell pendant. An adult male and adolescent was found beside the pit on the mound floor (Feature 2, Burial 1). On the mound floor, directly west of the burial pit, were two fully articulated bison skeletons and two bison skulls. One skeleton lacked legs.

Mound 2 was 23m in diameter, with a maximum height of 94cm above the ground surface. There was an ovoid subsurface burial pit with vertical walls and a flat floor beneath the dome. The pit measured 3.2m by 2m and was 76cm deep. The mound contained six fetuses, eleven infants, eight children, three adolescents and nine adults in eight burials. Burial 3 was associated with a concentration of reddish-brown hematite.

Burial 4 included bark matting coloured red with hematite. A small circular reddish-brown hematite stain was observed 2.5m north of the burial pit on the mound floor. At least eighteen bison were represented in Mound 2. Skeletons of calves and yearlings were within the mound, as well as adult skulls. Two bison skulls, positioned face down, covered Burial 2. Six articulated bison selections were present, mostly comprised of axial skeleton elements.

Discussion

With each site individually reviewed, broader, regional themes or key attributes can be outlined and discussed. Frequently excavated material within each region was highlighted to identify differences between these regions as well as similarities within the entire study area. The distinction of regional cultural material (determinates for each group) was then used in the classification of Besant, Sonota and Outlook Complexes.

Regional Connections

Alberta and Saskatchewan

Alberta and Saskatchewan can be discussed together because the major attributes of the cultural assemblages are shared between sites in both provinces. Chronologically, the sites included in this region span one thousand years. They appear to share similar assemblages, with a deviation that would be expected within such a wide span of time and space. Variation between sites may also represent earlier intrusive groups as opposed to the eventual creation of a local culture, which will be discussed in more detail in Chapters 5 and 6.

Tools manufactured from Knife River Flint can be found at all the sites. Swan River Chert is common at Saskatchewan sites, and local quartzite is common at later occupations in both provinces. Besant points were found at every site excluding Bracken Cairn. Wider elongated points were found in the older sites, while those associated with later dates contained stubbier forms. This difference may or may not serve as justification of separating these sites into two separate groups. It appears that bison hunting was the main means of subsistence at all of the sites. Hunting strategies ranged from the surround technique, to corral and pound structures, and jumps. A few sites contained ceramics and bone tools (Ross Glen, Fitzgerald and EgPn-111), which are uncommon in this region and time period. Large quantities of fire-broken rock were common in the processing areas of these sites, though associated features were rarely found in their original context. Surface hearths were found at many sites, as well as fire-broken rock concentrations. Bone uprights appeared at some Alberta and Saskatchewan sites but their presence was not consistent throughout the region.

Wyoming and Montana

Both of these areas are represented in this thesis by only a couple of sites, thus they by no means form a basis of a comprehensive understanding of the local culture. The Ruby and Muddy Creek sites of Wyoming represent the expert bison hunters of the Late Middle Prehistoric Period. These hunters knew exactly what they were doing; exploiting the landscape and creating corrals to trap large numbers of bison. These sites represent a group that had perfected their skills through generations of bison hunting. They also represent this group's necessity to conserve Knife River Flint and other exotic materials through resharpening worn and broken points. The projectile points produced by this

group represent the spectrum of sizes and would be defined by most scholars as a Besant typological form. Knife River Flint was a preferred material, but there is a growing representation of local materials in the assemblages, such as Montana cherts, obsidian, jasper and materials from the Laramie Mountains. Surface hearths were a common feature, as well as post-holes from corrals and other structures.

The Dakotas

All of the sites reviewed from the Dakotas represent a local manifestation, and are associated with the same group of people. The sites, excluding the Early Woodland component of Naze, reflect Middle Woodland cultures. The area was heavily influenced by eastern cultures, as reflected in the ceramics, mortuary practices and several individual artifacts. However, the groups functioned similarly to those found further west. They relied on the bison herds for their main means of subsistence. Locally sourced Knife River Flint was the preferred raw material for tool manufacture, dominating the lithic assemblage at all of the sites. This group made wide, elongated projectile points similar to Besant forms found elsewhere on the Northern Plains. Shorter, typical Besant forms were also produced. There were several activity-specific tools found within the mounds that illustrate the diverse activities that went on at the camps, including hide work, bone carving, weaving, etc. Decorative items associated with the graves, such as the bone beads and pendants, reflect a craftsmanship that would have been prevalent within the group. It appears that this group had a diverse tool kit, including bone tools. This is an important separation from other groups dating to this period. This group had ceramics as early as the Early Woodland Period, either acquired through trade with eastern groups or

by producing it themselves. Ceramic production is a characteristic of Woodland groups, and the pottery forms found at all the sites are similar to Laurel Ware.

It appears that this Plains Woodland group relied heavily on bison, though there was evidence of supplementary species within the faunal assemblage. Bone upright features, consisting of a variety of bison elements, were abundant within the processing area at the Stelzer site. Interpretation of the exact nature and function of these features aside, it appears they played a pivotal role in processing activities and would likely be found at other kill sites associated with this group.

All but two of the sites included in this region are burial mounds and thus the materials that accompanied the human remains may serve as a means to discern culturally and ceremonially significant items connected to this group. The amount of red ochre and/or hematite within the graves illustrates that it was likely important in ceremonial and mortuary practices within the region. The mounds were constructed in a similar fashion to Laurel mounds to the east, and, therefore, reflect an eastern influence on the area.

Similar Site Types

Similarities between the sites within this study also pertain to the functional type of the site (i.e. kill, camp, burial, etc.). Therefore, it is important to identify similar assemblages based on the function of the site in order to properly identify cultural or social differences.

Kill and Processing Sites

The kill and processing sites include EgPn-111, Happy Valley, Head-Smashed-In Buffalo Jump, Muhlbach, Fitzgerald, Melhagen, Antonsen and Ruby. Faunal remains

were the most abundant material recovered at the majority of these sites. Projectile points were also common tool types found, which makes sense considering that they were vital to the hunt. In the processing areas, scrapers, utilized flakes, knives and hammer stones were common. Depending on the degree of processing that went on at the primary kill sites, there were also drills, spokeshaves and large quantities of debitage, which represents the constant resharpening of tools. High quality materials (Knife River Flint, Swan River Chert, other cherts, obsidian, etc.) were often used to manufacture the points and cutting tools. The lower quality materials (i.e. quartzite, siltstone and mudstone) were used in the manufacture of expedient tools that were left behind, such as hammerstones.

The kill methods ranged from using the surround technique, impounding in corral structures, to herding the bison off jumps. The differences in methods may be connected to the number of bison needed to be killed, the local landscape and the individual group's developed hunting technique. Corrals and jumps showed up in the Middle Prehistoric Period and became more numerous towards the end of the period. Common features include post-moulds, upright bones and wooden posts associated with corral structures. Other common features found throughout the sites included hearths, fire-broken rock concentrations and uprights associated with processing activities. Only in the case of the Ruby Site was a structure identified as being associated with ceremonial activities as opposed to hunting and processing operations.

Camp Sites

The camp sites include Kenny, Ross Glen, EdOh-23, Elma Thompson, Mortlach, Sjovold, Whiskey Hill, Muddy Creek, Stelzer and Naze. These sites are spread throughout every province and state included in this study. Common materials depend

upon the extent of time spent at each site and the degree of secondary processing that took place. In cases where extensive processing of bison remains occurred (i.e. Stelzer), the number of tools associated with the activity increased. These tools are similar to those listed for the kill and processing camps. The difference is that primary butchering is more common at the kill and secondary processing and specific activities (i.e. hide work, bone work, etc.) at the camps. Tool kits were more elaborate at the camps, as the occupants would have carried out a variety of tasks in addition to meat processing, such as ceramic, clothing and basket manufacture. Common features associated with bison processing included more intact hearths and middens, which evidence extended periods of use. Moreover, fire was utilized in more activities than just bison processing at camp sites. Other features that designate the sites as camps are the shelter structures, including stone rings and post-holes.

Burial Sites

The burial sites are Bracken Cairn, Boundary Mound, Arpan, Grover Hand and Swift Bird. Bracken Cairn is a Pelican Lake burial and the last four are Sonota burials. The Sonota sites are very similar to one another as they are all likely related to the same local group and date to a short period of time. All sites represent beneath ground internment. Secondary (bundle) burial of the human remains within a dug out feature and the addition of red ochre or red hematite to cover the bodies and/or burial structures were common. The Sonota sites included several primary burials of multiple individuals aged from infancy to adulthood within the mounds, while the Pelican Lake burial only held two adult individuals. This may reflect the difference in duration the groups spent at these locations. Further differences between the burials were the materials used to cover or seal

the dugout features. In the case of Bracken Cairn, the burial was covered with several cobbles to create a rock cairn. At the Sonota sites the burial pits were covered with logs and then a mound of sediment. In both cases, the burials seem to have been built with the intention to be easily seen within the landscape. Common artifacts included personal items associated with the individuals and bison remains within the mounds. One Pelican Lake point was found placed within the Bracken Cairn burial. This practice was similar to the mound burials, where several points were placed alongside the individuals.

Chronological Connections

Chronological change in the material assemblages can be seen as additional materials reflecting eastern influences, such as burial mounds and ceramics within the Dakota region, begin to appear. The addition of ceramics in later Northern Plains sites may also reflect this change. The relative percentages of Knife River Flint in the lithic assemblages appears to decrease as time goes by, though not at every site as some assemblages denote Dakota groups moving in and out of the region in later times.

Summary

The assemblages from the 23 comparison sites contain a variable collection of material culture that may evidence relationships between them and the Fincastle Site. It is clear that there are regional differences between the Besant sites throughout the Northern Plains, as Reeves (1983a) previously identified. By examining these regional differences, as well as chronological changes within these areas, one is able to discern different cultural groups and/or relationships between small individual groups over time and space. The most noticeable differences between the regions centre on the raw materials and the

relationship to the lithic sources. Chronological change is best reflected in a change of raw material, or the appearance of new lithic sources, as well as the emergence of cultural material signifying eastern influences within the Dakota region. Chapter 5 expands on these findings in order to identify the cultural origins and relationships between the groups.

Chapter 5 – Interpretation of the Fincastle Site

The four main categories used to interpret the Fincastle assemblage were lithics, faunal remains, features and red ochre. Each of these was investigated in relation to the possibility of utilitarian and ceremonial activity at the site, the origins and size of the group, and any possible correlations to the comparison sites discussed in Chapter 4. These findings then led to a wider discussion of the Northern Plains during the Late Middle Prehistoric Period (Chapter 6).

Lithics

The following is a brief interpretation of the Fincastle lithic assemblage as it relates to the cultural interpretation of Fincastle and the comparison sites. Lithic analysis is by no means the focus of this thesis. Considering that lithic analysis, often focused on projectile points, has been included in the interpretation of all of the comparative sites, and such analysis forms the bases for culture chronologies of the Northern Plains, it is necessary to begin this chapter with these artifacts.

Projectile Points

The Fincastle lithic assemblage is made up of projectile points, large and small tools and debitage, as is typical of a major kill site. Associating the entire assemblage with Sonota, Besant, Sandy Creek or Outlook is difficult as there are several individual point forms that appear to represent each. The short, stubby points are best associated with Besant, while the larger, elongated points appear similar to Sonota or Outlook forms. Under Reeves' (1983a) amalgamated definition of Besant, the Fincastle projectile

points represent Besant technology and form. However, according to Peck's (2010) chronology the points are matched with the Outlook Complex, and therefore separate from Besant all together. The question is whether an analysis of the point forms can delineate the Fincastle assemblage into a smaller, regionally and temporally defined group.

The identification of similar point assemblages to Fincastle was based on observable qualitative and quantitative characteristics. Though analyses of Besant/Sonota assemblages have been carried out in the past (Hughes 1981; Varsakis 2006; Peck 2010), differentiating between the three possibilities has been largely founded on the qualitative differences or in combination with qualitative attributes. Varsakis (2006:303) stated that Sonota and Besant are so closely related that statistical analysis may not be a diagnostic enough means to distinguish between them. In fact, Varsakis recognized Sonota as a different ethnic group based on the overwhelming percentage of Knife River Flint, along with the presence of elongated point forms in assemblages, separating out the Kenny Sub-phase out based, in part, on an earlier date than Besant.

One must be cognitive of the fact that separation of point assemblages based on body length alone can lead to misleading assumptions, since the intended form may differ from the end result found in the archaeological record that actually represents the last stage of the use of the artifact. In the case of Fincastle, there is evidence of resharpening on 51 of the 119 Fincastle points (43%). The variability in body length could, therefore, be explained as the result of continuous reuse as resharpening will shorten the body length and width. The elongated points could have been whittled down to stouter forms. Johnson (1983) observed that the tool assemblage from EdOh-23, comprised of 92%

Knife River Flint, appeared to have undergone severe reduction through resharpening. He interpreted this as reuse of what was left of a preferable material type (Johnson 1983). At the Ruby site 23% of the projectile points were altered from their original form and Frison (1971:80) suggested that many of the body fragments lacking distal ends were probably also similarly changed. Several of the Ruby points were the result of re-notching proximally broken points and reworking a tip on those that were distally fractured (Frison 1971). Much like the Fincastle assemblage, Ruby projectile points varied from elongated to short stubby points, ranging from 2 to 6cm in length.

The elongated Outlook and Sonota points are said to also have wide base and neck widths (Varsakis 2006). If the points are proximally fractured and a new base is formed out of the body then the new base and neck width would be smaller as a result. In this case, the base and neck width difference between the elongated points and the retouched or reworked points would not be a suitable marker for the separation into two different groups. Through the analysis of the Muddy Creek projectile point assemblage, Hughes (1981) identified 25 statistical and descriptive attributes to describe several types of point modification. As mentioned previously, she observed the modification of preexisting blade forms in 62.7% of the complete points. Unmodified points represented the idealized long and lanceolate 'Besant' type (Hughes 1981:15), which others would call Outlook or Sonota based on length. Hughes identified several ways in which the broken fragments of the point forms were transformed into smaller points. If Hughes' theory stands true, then the length of the point is no longer a viable distinguishing characteristic to separate Sonota and Outlook from the Besant point type.

Mean lengths are based on complete tools discarded at the time of the kill, without the consideration of broken fragments. Based on site assemblages, average measurements of length can provide a means to investigate this reuse. It may be that the hunters left the points at the site because they became too short to use again: the end result of retouch and reworking broken elongated points. Or that the hunters were not concerned with retrieval no matter what state the points were in. The same question can be raised with all other tools within the assemblage. The only true intentional measurements come from burials within a ceremonial context. Within the Sonota burial mounds, for example, utilitarian items associated with the human remains, such as the projectile points and tools, are much longer than the Northern Plains Besant forms. Therefore, the elongated forms may reflect the use life of an artifact rather than a reflection of a different group. Though point size could reflect the ability for these groups to obtain these raw materials and therefore signify difference between groups in close contact with the Dakotas and those cut off from the trade network.

The lithic material used in the manufacturing of the points at Muddy Creek did not consist of Knife River Flint but rather cherts and jaspers from the local Laramie Mountains and Hartville Uplift. Muddy Creek does not represent the reuse of exotic material in low supply but it does denote the reworking of preferable materials from a source at least 40 - 80km away. During processing activities, it would be unlikely that the hunters would return to the lithic source to manufacture new tools if they were able to rework their pre-existing forms, thereby conserving their material. Consequently, elongated forms may be found at a site in close proximity to the source, while smaller points represent a longer distance from the original source. Hughes (1981:37) pointed out

that reworking was more common at Besant and Sonota sites than at sites with other point types in Wyoming. She viewed the points found at the Ruby Site as similar to those at Muddy Creek, but with some “within-group stylistic variation”. Elongated forms evidencing high quality workmanship, manufactured from local materials, like at Ruby, represent a group moving into and remaining within the new territory. Ruby’s unique projectile form coupled with the overwhelming use of local materials may indicate that a group that had originated from the Dakotas became established in these areas, therefore, maintaining characteristics of their origins but creating local adjustments. Muddy Creek may also evidence a movement of Middle Missouri groups into the region, who then started to rely on local sources rather than returning to the Knife River Flint quarries. The Fincastle hunters may have acted similarly to those at Muddy Creek, the main difference being that the preferred raw material in the Fincastle assemblage came from North Dakota while the Muddy Creek people utilized a local source of stone.

Other Lithics

Aside from the projectile points, the majority of the lithic tools recovered from Fincastle relate to the processing activities that took place at the site. The lithic assemblage is simple. Most of the artifacts are cutting tools used to remove selected cuts of meat from the carcasses, as well as for hide removal. It appears that exotic Knife River Flint (48%) and Swan River Chert (20%) were the preferred materials used to manufacture the cutting tools. The lithic assemblage from Elma Thompson had almost equal quantities of Swan River Chert (22.2%: N=10) and Knife River Flint (24.4%: N=11). Of the tools retrieved from excavation of the Naze Site, 61.5% were Knife River Flint and 13.9% were Swan River Chert.

Eleven hammer stones and three bifacial choppers provided further evidence of the primary butchering that took place at Fincastle. These large tools would have been used to smash apart and disarticulate the bison carcasses. Later on they could have been utilized for the removal of marrow from the long bones. The large anvil found in the Northern Extension of the East Block would have been a preferable implement to smash bones against. Seventeen of the twenty-one large tools were manufactured from quartzite, a material readily available in the area. Considering the availability of raw material and the bulky nature of these tools, it would be preferred to acquire the material, create and then discard the tools on site.

The Fincastle tool assemblage is similar to most of the comparison sites discussed in Chapter 4. The tool kits consist mainly of projectile points, cutting tools (scrapers, knives, flakes) and large tools (hammer stones and choppers), all of which are associated with meat procurement and processing. A few sites contained a variety of other processing tools, such as drills, awls, perforators and spokeshaves, though none are dominant tool types within the assemblages. There are a few sites that yielded much more varied and elaborate tool kits than Fincastle. The Middle Missouri sites of Naze and Stelzer, for example, contained a varied tool kit that represented stone tool production, hunting, butchering, bone and hide processing, bone and antler working and plant processing. These sites were camps as well as processing sites and, therefore, represent more activities than a kill event.

The Fincastle debitage is largely the result of resharpening activities. When butchering the bison carcasses, the hunters had to continually sharpen the blades of their

cutting tools, which created debitage. This debitage is connected to the tools left at the site, as well as those deemed still useful and, therefore, brought to a secondary location.

Sites with lithic assemblages that are dominated by points but that lack the tools associated with both primary and secondary processing, like Muhlbach, even though these activities are confirmed based on the faunal remains, may suggest an economization of the lithic materials. There is extensive evidence of retouch at Muddy Creek, which is dominated by points, and the tools found in excavation do not represent the actual percentages of lithic material utilized at the site. Therefore, it is the make-up of the micro-debitage assemblage that should be used to determine percentages and preferences of raw materials used in tool production. The largest percentages of raw materials include 72.3% Knife River Flint, 9.8% of several different types of cherts and chalcedonies and 8.4% Swan River Chert. There are flakes of lower quality local material but they represent small percentages of the overall assemblage, including 2.4% medium fine quartzite and 3.2% siltstone. Based on these numbers, it appears that the entire tool assemblage, used in the processing of the bison at Muddy Creek was manufactured largely from Knife River Flint.

The micro-debitage recovered from the Fincastle Site, representing resharpening rather than the manufacture of tools, consists mainly of Knife River Flint. This fact, along with the absence of cores of the same raw material leads to the hypothesis that the tool kit was prepared prior to the kill event, possibly at the campsite, which has not yet been located. The presence of five quartzite cores illustrates that although local raw material was utilized, the cores were abandoned because this poorer quality material can be found throughout the area.

Raw Materials

The presence and percentages of certain raw materials within the lithic assemblages have been major determinates used to separate Besant sites into smaller regional groups (Reeves 1983a; Epp and Dyck 1983; Duke 1991; Varsakis 2006; Peck 2010). One of the most commonly used indicators to suggest the presence of Dakota invaders or the Sonota Complex in the Northwestern Plains is the presence of Knife River Flint. The primary source of Knife River Flint is just south of the Missouri River in the Dunn and Mercer counties of North Dakota (Gregg 1987b). The Sonota group within the Middle Missouri area was close to the Knife River Flint source and was using it for practically all tool types (Clark 1982:185). In Hopewell sites where Knife River Flint is observed, it is always found within burial mounds, suggesting it was a valuable exotic material in low supply (Clark 1982). This reflects Renfrew's (1972:460) "Prestige Chain Exchange" theory that highly valued exotic materials traded from other groups were only utilized in the manufacture of ceremonial/important objects. The majority of the Fincastle lithic assemblage consists of Knife River Flint and that the tool kit was manufactured in a different location prior to the kill event. Based on this evidence, it is plausible to postulate that the Fincastle hunters originated from the same area as their preferred lithic material: the Dakotas.

Alternately, if the Knife River Flint present at Fincastle was acquired through trade it would have been a part of a "Down the Line" exchange, indicating that there was a preference for this material, and that it was used for the manufacture of as many tools as possible. Based on this theory, one would have to assume that the percentage of Knife River Flint utilized equaled the amount they had on hand, therefore, the smaller the

percentage the lower the amount of Knife River Flint available to the group. Fincastle is over 900km away from the primary Knife River Flint source yet the lithic material represents 62% of the entire lithic assemblage. The carrying cost to bring Knife River Flint from the original source to Fincastle would have been very high. It would have been easier for the hunters to exploit local resources. Generally, the majority of the raw material used at a site comes from a local source; 60 – 80% of the stone comes from less than 5km away (Brantingham 2003:489). It is clear that the Fincastle group had a large supply of Knife River Flint but that they also had to substitute their assemblages with lower quality materials. This implies that they would have had to return to the source, regain access to trade or start utilizing local materials, like what seems to have occurred at Muddy Creek and Ruby.

When directly comparing the percentages of Knife River Flint in the total lithic assemblages, the sites that correlate the best to Fincastle (62%) are those located in the Dakotas, with more than 90% at Naze, Stelzer, Swift Bird, Arpan Mound, Grover Hand and Boundary Mound, Muhlbach (89%), Fitzgerald (97% of points, 66% of formed tools, 92% of utilized flakes and 90% of debitage), EdOh-23 (92%), Sjovold (51%), Kenny (78.3%) and Head-Smashed-In Buffalo Jump (33%). Knife River Flint does appear at Muddy Creek, EgPn-111 and Happy Valley, but these sites had an overwhelming percentage of local materials, including quartzite, siltstone and cherts. Interestingly, Peck (2010:262) identifies Happy Valley as part of the Outlook Complex, presumably based on point measurements and radiocarbon dates.

Another aspect of the lithic assemblage that may support the migration hypothesis is the number of projectile points left at the site. Ninety-one (76.5%) of the points

recovered from the Fincastle excavations were manufactured from Knife River Flint. If the material was in short supply, one would assume that the hunters would have collected as many points as possible for future reuse. Although the original number of points used in the kill can never be known, it appears as though the preferred raw material was not in low supply. This could be because they recently arrived in the area from the Dakotas, or that they had access to Knife River Flint through direct access or trade. The reworking of earlier used points may have been necessary leading up to this kill event but became inconsequential if they decided to return to the lithic source area with the meat they acquired from the kill. This hypothesis is, of course, based on the identification of the brown chalcedony found at the Fincastle Site as Knife River Flint from North Dakota.

Lithic Summary

Information gained through the analysis of the lithic assemblage from the Fincastle Site can help determine the origin of this group. Based solely on the elongated point forms, the Fincastle assemblage could be identified as belonging to the Outlook or Sonota Cultures. Yet, there are shorter forms within the assemblage that evidence retouch, which may link Fincastle to several Besant sites throughout the Northern Plains. Clearly, the lithic assemblage is not sufficient to determine the cultural affiliation of the Fincastle hunters. It could be possible that later Besant sites represent a group that needed to make many tools out of limited or low quality materials. In contrast, Fincastle existed during a period when high-quality raw material was in good supply, and many elongated points could be manufactured and left behind at kills.

Faunal Remains

The faunal analysis carried out within this thesis is primarily concerned with outlining the general processing activities that took place and identifying the possible cultural or ceremonial connection linked to this assemblage. The bison and non-bison remains found at the site were reviewed and possible connections with other sites were drawn. Further interpretation of the selection of elements linked to the Fincastle features is provided within this chapter.

Size of the Group

The number of people necessary to undertake the initial kill and the subsequent processing of the bison can be used to estimate the size of the group, although members left behind at the campsite may only be able to be identified based on the amount of foodstuffs acquired for the entire group. This is an important question because the size of the group is significant when considering the origins of these people. Evidence of a small group could support a hypothesis of a small hunting party travelling from as far away as North Dakota. In contrast, evidence of a very large group could suggest the existence of family units, composed of children and elders that would have been transporting camp materials that would slow movement over long distances.

Based on Watts' (2008) analysis of the processing evidence, the Fincastle kill does not represent a time when the processing of the entire carcass of each bison was necessary to feed the group, though there was a great deal of meat removed from the 60 animals. Based on Gade's (2008) breakdown of the Vore Site, in an autumn herd of 100 bison, 55% are mature females, 10% are two year old heifers, 15% are yearlings, 15% are calves and 10% are bulls. This amounts to about 51 900 pounds of meat, plus three to

four tons of marrow bones and hide. The average adult requires 1 500 calories a day for basic bodily functions. An increase of physical activity would raise that amount to around 3 700 calories (Harris and Benedict 1918). According to the US Department of Agriculture (2008), one pound of raw bison meat contains about 445 calories. Gade (2008) estimated that a hunter would require ten pounds of cooked meat daily. If there is 51 900 pounds of meat available from 100 bison, the 60 bison processed at Fincastle would have yielded around 31 140 pounds, or 13 857 300 calories of uncooked meat. This would last a small group of up to 50 individuals more than 60 days, or 25 people more than 120 days (the average length of the winter season). If the group was large (upwards of 200 to 300 individuals) two to three kills equal in size would have been needed to supply the group with enough food.

According to Gade (2008) four to six individuals could process one carcass a day, but secondary processing, such as grease extraction and meat drying, would require three times that number. The group would have wanted to process the carcasses as fast as possible to avoid the meat spoiling and attracting scavengers. If the process lasted as long as one week, the smallest number of people necessary for the initial processing of 60 bison would be between 36 and 54. Complete secondary butchering would require 105 to 156. A small group of around 30 individuals could have completed initial processing at the site then transported sections of the carcasses to the campsite where the rest of the group facilitated the processing of the meat. This seems an unlikely scenario at Fincastle since evidence of secondary processing (fire-broken rock, butchered long bones for marrow, etc.) were present at the site. It is more likely that the small group conducted both the primary and secondary butchering, and left a portion of the usable meat behind,

as it was either not necessary or they did not have the time or numbers to process it. The initial processing of the carcasses may also have extended up to a week and a half to allow the small group more time, assuming of course that conditions allowed it.

Skulls

Excavations at Fincastle resulted in the recovery of 401 skull fragments but these only add up to 10 109g, which is less than 40% of one complete skull. The largest skull was found in Feature 5, which was a piece of right maxilla. EgPn-111 had a similar count: 748, which added up to 11 355.8g. In both cases, the skull is represented within the bone bed but in very low amounts compared to the entire assemblage and calculated MNI. The low number of skull fragments may relate to the processing activities; however, the absence of whole skulls from other Late Middle Prehistoric kill and processing sites has been interpreted as evidence of cultural or ceremonial activities (Gruhn 1969; Frison 1971; Reeves 1983b; Shortt 1993; Hjermsstad 1996). The ability to differentiate between the removal of the Fincastle skulls for processing or for ceremonial purposes depends on a number of factors. Both hypotheses are discussed and critiqued.

Though lacking in quantity, there is still a presence of skull fragments at Fincastle, as well as at several of the comparison kill sites. Furthermore, the analysis of the faunal remains resulted in the identification of butchering evidence on the skull fragments at Melhagen (Ramsey 1991:192), Happy Valley (Shortt 1993:80), Fitzgerald (Hjermsstad 1996:175) and EgPn-111 (Head et al 2002:58). Skulls were stripped of muscle and mandibles, and were then smashed open to obtain brain matter and cartilage (Shortt 1993:102). A cache pit in Layer 8 of the Kenny Site (Reeves 1983b:32), for example, contained an articulated atlas with a skull missing the top brain case and nasal

cavity. The skull fragments at Fitzgerald are the second highest Minimum Number of Animals (MAU) percentage in the entire faunal assemblage, meaning that the skulls of several individuals were present at the site (Hjermstad 1996:175). The processing of the skulls for brain and cartilage may result in the heavy fragmentation of the element, which is then difficult to identify in the archaeological record.

Alternatively, the skulls may have been removed and then taken to a secondary location for either specific butchering processing or a ceremonial function. Reeves (1983b:39) mentions that the removal of the maxilla to the camp was a butchering technique observed at a site in South Dakota by White (1953:162). Skulls were clearly processed at Fincastle. Selected cuts could have been removed to a secondary location. Out of the 401 skull fragments at Fincastle, 219 were from the interior and 77 were maxilla fragments, suggesting that the brain was accessed through the front of the skull. If all the skulls at Fincastle were being processed similarly to those at Fitzgerald, there should be more fragments within the total assemblage. Processing may account for absences of whole elements but not an absence of most fragments, unless whole skulls were removed to a secondary location.

It is important to try to understand why the hunters would have transported several skulls to a secondary location; a severed bison head would still weigh a considerable amount. To transport them would be an inefficient use of time and energy for a group processing over sixty carcasses, in the case of Fincastle. Shortt (1993:102) interpreted the lack of skulls at Happy Valley to indicate their possible removal to a secondary location, like a campsite. Yet, at the Kenny camp, which was nearly void of skull fragments, Reeves (1983b:39) suggested that the skulls were processed at the kill

site rather than taken back to the camp. Ross Glen is also a camp site with only a very small concentration of bone at all, though this site represents a small group and not a camp linked to a major kill event. At the Elma Thompson Site only one mature bison was killed and heavily butchered. Some of the skulls at Fincastle were undoubtedly smashed apart during processing, but it seems that many of the skulls were taken to a secondary location, either on site in an area not yet excavated or to another site.

It may also be possible that at least some of the skulls were used for ceremonial purposes, as opposed to further processing. Skulls found in ceremonial contexts are normally complete and in good condition. The Ruby Site (Frison 1971:85) contained six whole skulls placed in a pattern within a ceremonial structure. Ruby also yielded several articulated sections of the bison, an indication of overkill. The hunters at the Ruby Site may have had less of a need for the meat that could be processed from the skull and placed them in the ceremonial structure. There were eighteen intact skulls including nine placed face down in Mound 1 of the Boundary Mound Site (Neuman 1975:65). A pile of complete bison skulls sat north of the pit within the Arpan Mound (Neuman 1975:61). One bison skull with an articulated mandible was found west of the pit and there was one adult and one immature bison skull lying side by side on the mound floor. Burial 10 of Mound 1 at Grover Hand (Neuman 1975:48) was covered with a crushed bison skull and there were two skulls within bone concentrations on the floor of the mound. Mound 3 (Neuman 1975:56) contained three bison skulls. There were two bison skulls in Mound 1, and two, positioned face down, covered Burial 2 of Mound 2 at Swift Bird (Neuman 1975:39-42). The sheer number of whole skulls within Middle Missouri burial mounds

attests to the significance of skulls for ceremonial activities, as well as, the importance of complete elements for this practice.

There were eight complete skulls recovered from the excavations at Fitzgerald, all of which were found in excellent condition (Hjermstad 1996:176). Hjermstad (1996:176-77) wrote that the complete skulls were removed with care allowing him to associate them with Besant ceremonial practices, but there was no mention of their placement or orientation to suggest a ceremonial context. He denoted a ceremonial connection based on the fact that the method of skull removal from the vertebrae was different for skulls selected for further processing and those meant for ideological practices. Shortt (1993:103) suggested two methods of skull removal, the first involving the separation between the axis and atlas, the second involving the chopping of the occipital condyle located on the back of skull. The first method would ensure minimum damage to the skull and would maintain a skull and axis articulation, though there would be an absence of the atlas. The latter method of separation would damage the skull, rendering it useless for ceremony, and would result in large numbers of occipital condyles left in processing areas.

The Fincastle assemblage has 22 atlases (three complete) and 19 axes, a smaller number when compared to the 60 calculated individuals, but they are nearly equal to one another. EgPn-111 had 68 and 58 atlases and axes respectively. Happy Valley was similar, with 21 atlases and 31 axes but Shortt (1993:83) observed consistent damage to the wings of the atlases which he interpreted as evidence for the removal of the head. The meat around this area would have been cut away and then the head would have been twisted off to ensure the least amount of damage to the back of the skull. Seven occipital

condyles were identified at Fincastle, fourteen at EgPn-111 and one in both Layers 6 and 8 at Kenny. There were several articular condyles found throughout the Melhagen Site (Ramsey 1991:192) with evidence that they were smashed off, in addition to blow mark evidence that denoted the removal of the head between the atlas and axis. The seven identified articular condyles at Fincastle represent the quick removal of the skull to access the brain cavity. Atlases and axes at Fincastle could represent both removal with care or disarticulation after smashing through the back of the skull. In Unit 562N 602E specifically, there was an axis articulated with two cervical vertebrae (Figure 18). It is possible that this articulation reflects the removal of the head and atlas from the rest of the vertebral column.

It appears that the processing of the skulls took place at the kill sites, including Fincastle. Although some skulls may have been removed with care and left intact for ceremonial purposes, several were utilized for the brain and/or meat they contained, as is evident by the seven occipital condyles and interior fragments left behind at Fincastle. It is possible that expanding the excavation further north or east could result in the recovery of a processing area containing the skulls, as many of the atlases and axes are currently lacking in the assemblage. It could also be that some of the skulls were in fact taken elsewhere. Unfortunately, there is not enough concrete evidence at this time to confirm either hypothesis.



Figure 18: Articulated axis with two cervical vertebrae.

Canis

Thirty canid elements at Fincastle have been identified as wolf (*Canis lupus*) and four belong to a medium sized dog or coyote (*Canis latrans*). Canid elements were found throughout the bone bed, including in Feature 1, illustrating that the remains were associated with the kill event. Canid remains were also identified at the comparison kill sites of Happy Valley (Shortt 1993) and EgPn-111 (Head et al 2002), the campsites of Kenny (Reeves 1983b), EdOh-23 (Johnson 1983), Naze (Gregg 1987) and Sjovold (Dyck and Morlan 1995) and in a ceremonial burial at Boundary Mound (Neuman 1975). They are frequently recovered from kill sites and usually represent one or two individuals

(Kroczser 1991:81), which is the case at Fincastle, as well as, most of the comparison sites.

Why canid remains were found among the sixty bison that were processed is an interesting question. There is evidence of consumption and possible domestication at several of the comparison sites, and the fact that one of the bones was found in Feature 1 suggests a possible utilization of their canids for ceremonial purposes.

Butchering evidence on Canid Remains

As noted above, the Fincastle canid remains were recovered throughout the site, with 56% in the West Area and 44% in the East Block. The position of the remains within the bone bed and at the bottom of Feature 1 not only confirms that the canid remains were related to the kill event, but that the animals were purposely disarticulated. This is similar to the context of the remains found at both EgPn-111 and Happy Valley. The spiral fracture on the shaft of the left humerus of a sub-adult wolf recovered from the Fincastle excavations confirms that the canids were culturally fractured. Cultural fracture patterns were also identified on the left humerus of the large canid at Happy Valley (Shortt 1993:62-63) and there was direct evidence of butchering on the small canid humerus found there. Two canid humerii and a radius from Sjøvold were also culturally fractured (Dyck and Morlan 1995:357), and there were butchering hack marks on the right canid radius from Kenny (Reeves 1983b:36). Reeves (1983b:36-37) suggested that the lack of canid limb bones at the site may be because the hunters utilized the canids for food. Aside from one molar, all the canid remains at Kenny were post-cranial (mostly vertebrae, phalanxes and metapodials), which yield less edible components of the canids. Similar bison elements were often unutilized at the kill sites. Gregg (1987:358) also

concluded that the two adult coyotes or dogs at the Naze site were used for food.

Alternatively, Dyck and Morlan (1995:357) suggested that the twenty-four pieces of wolf in Layer 10 of Sjovold represented one individual *Canis lupus* was procured for its skin.

Though processing of over sixty bison would be an immense task that would have provided the group with plenty of food, it would appear that the Fincastle hunters butchered at least one wolf and one coyote while processing the bison remains. The canids could have been killed for their hides, but there is evidence that they were utilized for food. Perhaps the meat of the canid was considered a delicacy that the hunters could afford to acquire at the time.

Scavengers/Wild Kills

A bison kill the size of Fincastle would have undoubtedly attracted scavengers to the area (Krozser 1991:83). Shortt (1993:64) suggested that the hunters at Happy Valley exploited other species that frequented the area and that the canid remains represented these killed scavengers. He called the remains “chance” species whose procurement was a matter of convenience while the hunters processed the bison. The wolf remains at Fincastle belonged to a sub-adult, yet it was already larger than the reference adult skeleton. Killing this individual would have been a lengthy undertaking, unless it was caught off guard by the hunters. There was little detail concerning the canid remains at EgPn-111, though gnawing marks on ninety-three bison bones was interpreted as minimal scavenging after the use of the site (Head et al 2002:93), which could be interpreted as evidence of canids in the area. A carnivore also furrowed the wolf remains and several bison bones at Sjovold (Dyck and Morlan 1995:357). There was little

evidence of gnawing on the Fincastle remains, other than there are occurrence of rodent teeth marks most likely made years after the kill event.

Domestication

Evidence of domestic dog in the Middle Prehistoric Period of Alberta is scarce (Driver 1976:15). Driver (1976:15) identified a mandible from the Cactus Flower Site, dated to $4\ 130 \pm 85$ BP and there is also strong evidence that human groups were utilizing domesticated wolves within the Great Lakes region as far back as 8 000 BP (Morey 2006:160). Dyck and Morlan (1995:357) suggested that the canid remains at the Sjøvold Site were feed to the dogs, which implies that there were canine companions within this group. There is evidence of canid domestication at the Naze site based on the frequency of juvenile elements (23%) and the fact that teeth displayed extensive wear from a diet of scraps and bone (Gregg 1987:358). This evidence, along with charred remains, lead Gregg (1987:358) to identify the canids as domestic rather than coyotes utilized for food. If the canids at the Naze Site truly represented domesticated dogs (*Canis familiaris*) then the people of the Middle Missouri region had canine companions as far back as two thousand years ago. If the Fincastle hunters originated from this area, it is plausible that they too were accompanied by domesticated wolves. The Fincastle canids show no evidence of domestication, but that does not mean that the group did not have any back at their camp, where domesticated dogs were usually kept (Kroczser 1991:82-83).

Using canine companions to carry things would lengthen the distance a group could travel. Canids could aid in the transport of butchered meat to the camp site, as well as collected raw material for lithic manufacture. However, when hauling a travois, dogs cannot carry a heavy load and probably could not cover a distance more than 8 to 10km a

day. It is also difficult for them to carry heavy materials up a steep gradient. Even if the Fincastle group had canine companions back at the camp, they may not have actually helped in the transport of materials over long distance.

The possibility of domesticated wolves within the Fincastle group is purely speculative; what is clear is that the few canid remains found at the site were butchered along with the bison. Based on this evidence it seems more likely that these canids were butchered for their meat, though the hypothesis of canid companions, a cultural attribute linking them to the Dakotas region, is an interesting suggestion.

Pronghorn and Deer

Four fragments of pronghorn (*Antilocapra americana*) were recovered from the bone bed at Fincastle. It is possible that the animal was in the area at the time and was killed with the bison. This seems the most likely scenario, as it would not have been an efficient use of time or energy to hunt the animal while processing the bison, nor would the pronghorn have come into the site and died there after the kill event. There is no direct evidence of butchering on the remains aside from their disarticulated state. All the fragments are from the lower limb. The rest of the animal may have been taken to a secondary location or the remains extend into unexcavated areas of the site.

Cervidae and *Antilocapra* were hunted and butchered at several of the comparison sites. There were Cervidae remains at EgPn-111, though details were not given (Head et al 2002), and one long bone fragment broken for marrow extraction from Happy Valley appeared similar to Cervidae (Shortt 1993:60). There was one Cervidae in Layers 6 and 8, and one pronghorn in Layer 6 at the Kenny Site (Reeves 1983b:38). One rib and a thoracic vertebra from a mule deer were found at Melhagen (Ramsey 1991:210), and

pronghorn was present at Sjøvold (Dyck and Morlan 1995:357). A deer tibia fragment was also found within Mound 2 of Boundary Mound (Neuman 1975:70). A bone tool appeared in Wettlaufer's (1955:45;97) photos from the Mortlach Site that appears to be the distal end of a femur of a deer that had been broken at the shaft and hollowed out. This tool was described as a possible whistle or bead.

Deer and pronghorn were hunted at several of the comparison bison kills and campsites. Non-bison were utilized for subsistence and would have been processed alongside the bison, and may also have been worked into artifacts. There is evidence of pronghorn at the Fincastle site, but there is no butchering evidence to suggest they were hunted and processed aside from the disarticulation of the remains. It is likely that the Fincastle group hunted additional prey along with the bison, either intentionally or accidentally as the pronghorn could have gotten caught within the drive and/or entrapment of the bison herd during the kill event. There presently little evidence to support this theory, however likely it is.

Other species

Other species identified at Fincastle were fox (*Vulpes vulpes*), a bird of prey and unidentified small mammals. The fox was identified through teeth and foot bones. There is no evidence for the consumption of the fox remains at Fincastle, but it is possible that a fox was killed during the bison processing activities and then utilized for its hide. There were several burned and unburned swift fox elements identified in Area E of Melhagen (Ramsey 1991:215), which was suggested to be from a local kill tossed into the fire or used as decorative beads. Three teeth belonging to a fox of an unspecified species was also identified at Naze (Gregg 1987:358).

The bird of prey at Fincastle was represented by a third phalanx (talon) that could not be identified to a specific species, but it is of hawk size. A number of unidentified small mammals are represented by several elements, the most common of which are leg and foot bones. These smaller elements could not be identified to specific species, but likely represent the same sort of mammals that are in the area today. Due to the close proximity of the West Area bone bed to the surface, many of these remains may be intrusive to the bone bed.

It is of interest to note that badger (*Taxidea taxus*), bobcat (*Lynx rufus*) and hawk (*Buteo regalis*) were all identified at the Ruby Site. Frison (1971:82-83) suggested that the hunting of carnivores might account for the different sizes of points. Other species within Boundary Mound included badger in Mound 1, six bear maxilla and teeth in Mound 2, and two worked beaver mandibles and one bear tooth in Mound 3 (Neuman 1975:64-77). Non-bison remains within Mound 1 of Grover Hand included the skulls of a rabbit, a squirrel, a kangaroo rat and several prairie dog mandibles (Neuman 1975:47-58). Evidence of small mammals within the burial mounds demonstrates the importance of these animals in the ceremonial activities of the Middle Missouri people during the Middle Prehistoric period.

Faunal Summary

The amount of food that would have been available from the Fincastle kill could have sustained a small group of 25 to 35 individuals through the winter months. It is also possible that Fincastle represents one of several autumn kills a larger group took part in to acquire enough food. If the group was small and traveled from a far distance, the Fincastle kill would have been just the right size to allow for the utilization of choice cuts

of meat. Only a few skulls would have needed to be processed for subsistence. Remains of seven occipital condyles prove that a few skulls were removed with haste at the back of the skull, but the low number of skull fragments found throughout the site confirms that the majority of the skulls are missing. These skulls could have been taken back to the camp and/or used in ceremonial practices or for structures at other sites, such as at Ruby.

Non-bison animals were also killed at the site, and butchering evidence illustrates that, in the case of one sub-adult wolf, they were being processed for subsistence. Canids (both wild and domesticated) were killed and butchered at several other sites within Alberta, Saskatchewan and North Dakota. It is possible that the Fincastle group had canine companions, though there is minimal evidence at the site to support this hypothesis.

In regards to the faunal remains, Fincastle compares best with a number of sites for different reasons. EgPn-111, Happy Valley, Kenny, EdOh-23 and the Naze Site have evidence of careful skull removal, while Fitzgerald and Ruby and all of the Dakota mound sites had complete skulls within ceremonial contexts. Moreover, EgPn-111, Happy Valley, Kenny and Sjovold contained canid remains and evidence that those remains were butchered. Boundary Mound is also similar to Fincastle in that it contained a canid skull within one of the mounds. The canid skull within Feature 1 at Fincastle could have had ceremonial value as well. The butchering evidence at Fincastle compares best with the other kill and processing comparison sites, though these similarities are best associated with the activities that took place, and should not be used to assign a cultural affiliation.

Features

Each individual feature at the Fincastle Site was reviewed and interpreted, and their possible functions were assessed. Since bone uprights do not necessarily serve a common function at sites where processing activities took place, and the assessment of their function cannot always be determined on composition or wear (Brink and Dawe 1989:38), it was important to review the possible functions of each feature, as well as common uses within the Middle Prehistoric Period.

Feature 1 (Bone Filled Pit)

Feature 1 was a bone filled pit composed of several upright bison elements with a downwards facing canid skull placed at the bottom. Though the function of this feature is not clear, there are several possibilities. The pit could be a cache, considering the amount of faunal material within it. Caches are common at campsites where a prolonged stay may account for the need to store foodstuffs. The cache from the Kenny Site also contained several elements, including phalanxes, ribs, long bone fragments, lumbar and sacral vertebrae (Reeves 1983b:30). Elements within Pit No.1 (Reeves 1983b:28) at this site included three thoracic and one lumbar vertebrae articulated with a sacrum, one mandible, one left and one right scapula, one ulna and one radius, one mature metacarpal, a fractured femur and tibia, one ischium, one patella, carpals, rib and long bone fragments. There were also several lithic artifacts and fire-broken rock within these two features. There were no other materials within Feature 1 at Fincastle aside from bone. Fincastle is a kill and processing site, and there is no evidence of prolonged use of the site or reoccupation. Therefore, it is unlikely that Feature 1, or any other feature at the site, was created to cache these remains.

At Head-smashed-In Buffalo Jump (Brink and Dawe 1989:85), there was a small pit depression that contained a tight cluster of appendicular bone elements (Feature 22-3). It was designated a bone concentration because the bones appeared to occupy a rodent burrow. If the pit associated with Feature 1 at Fincastle was created by rodents, and remained open at the time of processing, it is possible that several elements could have fallen into it. Yet, the seemingly specific vertical position of the elements was most likely achieved through cultural activities. The presence of the canid skull at the bottom of the pit further indicates a purposeful placement of the elements.

The fact that Feature 1 contained a canid skull is very interesting. As mentioned previously, a canid was butchered at the site. This skull in Feature 1 may belong to it. Though in a poor state of preservation, it appears to be a complete specimen. The back of the skull was intact enough to denote that it was carefully removed. While the other canid elements were butchered, the skull within this feature was placed intact.

It is difficult to confirm a ceremonial affiliation when the function of the feature is unknown, but there is evidence of skulls, more specifically canid skulls, within ceremonial features at other sites. There was a canine skull aligned with bison skulls in Mound 1 at Boundary Mound (Neuman 1975:66). It is also interesting to note that the skull was placed faced down. Of the eighteen intact skulls within Mound 1 of the Boundary Mound Site, nine were orientated faced down (Neuman 1975:65). If the Fincastle group is related to the people who constructed the Middle Missouri mounds, it is possible that they too shared an ideological link with canid skulls. The importance of the canid skull could be similar to that of the bison described earlier. If bison skulls were regarded as sacred, then perhaps skulls of other animals were treated in a similar fashion.

Feature 2 (Bone Upright) and Feature 4 (Bone Upright)

Features 2 and 4 were similar in composition. Feature 2 included an upright metatarsal and a radius that were culturally fractured at the shaft and both ends forced vertically into the sterile clay. There was no evidence of any post-mold or wood fragments near this feature. Feature 4 was comprised of two metacarpals, both of which were placed with the proximal ends facing down. A similar feature was recorded at Head-Smashed-In Buffalo Jump. Feature 26-2 was a tightly packed, multiple bone upright feature comprised of the distal portions of a radius and ulna and the distal end of a metatarsal. According to Brink and Dawe (1989:35), there were no signs of post-holes nearby and insufficient space for a wooden peg to have been placed within it. These features were similar to the uprights from Fitzgerald, which were identified as post-holes. Feature 5 at this site was made up of a right distal humerus that was placed vertically into the ground (Hjermstad 1996:90). Feature 16 at the same site consisted of a right metatarsal, two complete thoracic vertebrae and a thoracic posterior epiphysis. The bones were tightly packed into a post-hole leaving no room for a wooden post to be inserted (Hjermstad 1996:93). Feature 29 at the Stelzer Site consisted of two bone uprights adjacent to a midden. One included a humerus, femur and a scapula, all forced into the living surface, distal ends down (Neuman 1975:9).

Feature 85-7 at Head-Smashed-In Buffalo Jump (Brink and Dawe 1989:36-40) was a tightly packed multiple bone upright feature that extended down 25cm. It was interpreted as an anchor to tie down hides. All elements were bison: two scapula fragments, a distal metacarpal, a distal radius and a proximal metatarsal. The articular ends of the last three were facing upwards. The depth of the Fincastle uprights would

allow for the stretching of hides or securing a drying rack. This functional hypothesis remains a possibility since secondary processing activities took place at Fincastle, but there is little evidence to confirm this.

Feature 3 (Bone Upright)

Feature 3 was made by forcing three scapulae into the clay with their distal ends orientated upwards to form a triangular shape. The function of Feature 3 may be connected to those found within the processing area of Stelzer. Feature 31 at Stelzer consisted of three scapulae, as well as several bone fragments wedged vertically into the occupation level (Neuman 1975:9). Feature 54 from this site included three bison bones that were inserted vertically into the surface to form a triangular outline. A rock fragment filled the central area. It is possible that the feature was intentionally created to use the distal ends of the scapulae. It could have been possible to place something on top of the feature or to use it as an anchor or tie-down. Aside from a purpose related to processing, the scapulae could have been chosen for this feature for other reasons. There was a complete scapula found along-side one of the skulls within the ceremonial structure at Ruby (Frison 1971:80). If the features at Fincastle are in any way related to ceremonial activities, the selection of scapulae may be significant.

Feature 5 (Bone Upright)

Feature 5 was a skull fragment placed vertically into the sterile clay. It was orientated face down in a similar fashion to the canid skull in Feature 1. The feature was below the bone bed, within the sterile clay, and, therefore, did not likely serve a practical function relating to the processing of the remains. Feature 2 at the Fitzgerald Site was

made up of a right metatarsal and an unidentifiable cranial fragment found 5 cm below the main bone bed in the north-west portion of a 16cm diameter gray-stained post-hole (Hjermstad 1996:90). Once again, there was no evidence of any post-holes near the Fincastle features, so the connection between these two sites is poor.

Feature 7 (Bone Upright)

Feature 7 consisted of four upright mandibles and one upright tibia forced vertically into the sterile clay. The tibia was culturally fractured at the shaft and placed with the proximal end down. The Fincastle faunal assemblage included 453 mandible fragments, 10 of which are near complete. It is interesting to note that all complete mandibles were found in close proximity to one another, in an area that included one of only two articulating left and right mandibles found at the site. Moreover, Feature 7 was also located in this area of the site, and included four of these near complete mandibles.

At Head-Smashed-In Buffalo Jump, Feature 86-2 was made up of a pair of distal bison tibiae with the articular ends up. Brink and Dawe (1989:40) interpreted its design as the tightening of a post. Once again, there was no evidence of a post-mold in or around Feature 7. Ramsey (1991:215) mentioned that a bone upright feature was noted in the field drawings of the 1968 excavations at Melhagen. She wrote that several mandibles appeared to be jammed into the ground with at least one long bone element. No other information about this feature was available. The Melhagen feature seems to be similar to Feature 7 and both are within areas where primary and secondary processing took place. It is possible that Feature 7 is related to processing activities, but its exact function is unclear. There was a compact pile of mandibles within Arpan Mound on the mound floor

adjacent to the pit (Neuman 1975:61). Beyond the selection of mandibles there is no link to a ceremonial association.

Feature 6 (Pit/Bone Upright) and Feature 8 (Bone Upright)

Feature 6 was a pit dug into the sterile clay that was filled with bone and light brown sandy sediment. It included eighty-six bone fragments made up of at least twenty-eight different elements. At the bottom of the feature was a near complete scapula placed vertically into the clay with the proximal end facing down. The blade of the scapula appeared to have been intentionally broken in order to create a sharp, pointed edge. There were also two mandibles and a metatarsal forced vertically into the clay beside the scapula. A complete atlas rested directly above the glenoid fossa of the scapula. Feature 8 was a bone upright feature consisting of several elements forced as much as 50cm vertically into the sterile clay. On top of these elements was a mandible followed by a third phalanx, a calcaneum, a metacarpal and finally an atlas.

As was the case for all the Fincastle uprights, Features 6 and 8 were well below the bone bed within the sterile clay. This position is similar to the uprights found at Muhlbach (Gruhn 1969), Stelzer (Neuman 1975), Kenny (Reeves 1983b), Head-Smashed-In Buffalo Jump (Brink and Dawe 1988) and Fitzgerald (Hjermstad 1996), but the Fincastle uprights extend much further down into the clay than the features did at these sites. The sheer depth of these features may be a result of an environment that was not present at the other sites. As mentioned in Chapter 3, the bone bed sits above gleyed glacial-lacustrine clay, which suggests that a standing body of water was at the site at the time of the kill. If the clay was saturated with water, it may have been possible for the Fincastle hunters to easily push the individual elements farther down than would be

possible in solid sediment. This could explain how the elements were driven so far down yet remained complete and/or in good condition. Alternately, small pits could have been dug out, the elements placed tightly together up against the edges of the soft clay walls, and filled in with the same clay. This hypothesis is less likely however, as not one of the upright features displayed evidence of an initial pit excavation. A soft clay bed could also explain why there was, what appeared to be, a small pit above Features 6 and 8. If an individual stretched their arm down into the clay to place the deep elements there could have been a depression in the clay at the top of the feature where more remains could have fallen in later, when the processing activities covered the area. Though a standing body of water may explain how the features were made, it does not help in determining why they were created.

Posts/Corral

The uprights at Fitzgerald were identified as supports for the posts of a corral or pound structure (Hjermstad 1996). In most cases, bone wedges within pounds were found at sites that were used multiple times, where elements from one kill could have been used in the construction of a pound for the next kill (Frison 1971; 1991; Verbicky-Todd 1984; Ramsey 1991). Specifically, the post-molds at the Antonsen Site (Davis and Zeier 1978:26) had vertical bones embedded into them and stones encircled around them. The post-holes found throughout the Ruby Site outlined a corral structure. Many of these post-holes had bison mandibles, ribs, humerii and other long bones forced up against them. Frison (1971:80) interpreted the placement of the bones as a means to tighten the posts within the ground. There were also flat stones between the posts and next to the sides of the holes. Feature 33A at Stelzer consisted of bison limb bone fragments ringed

around a dark soil stain that may have been a post-mold (Neuman 1975:9). There was no evidence that bones were used to wedge wooden posts at Muhlbach. Gruhn (1969:139) did suggest that the flat terrain would have been suitable for a pound structure. Pounds were also presumed to have been created at Melhagen (Ramsey 1991), Happy Valley (Shortt 1993:30) and Muddy Creek (Frison 1978). Since Fincastle represents one kill event, and there is no evidence of post-mold stains or supportive rock features, it would be unlikely that the uprights were associated with a pound structure.

In preparation for the kill the hunters may have forced wooden posts into the soft ground to create a pound structure. Then, once the bison were killed it is possible that the wood was removed for use for the processing activities. The environment would have had little vegetation so collection and reuse of this material may have been necessary. This was the case at EdOh-23 where there was a limited amount of wood in area (Johnson 1983:42). Once the posts were removed, the pits could have collapsed, leaving little to no evidence of the structure. It is also possible that once the posts were removed, the holes were filled in with bison elements explaining the bone upright features. However, the Fincastle uprights do not appear to form lines as was seen at Muhlbach (Gruhn 1969) and Ruby (Frison 1971), though one cannot forget that much of the eastern periphery of the Fincastle Site remains unexcavated.

There are examples of bones wedged into post-holes at other sites on the Plains. U-shaped pits containing two wooden posts, wedged apart by whole or partial bison crania, were associated with Besant projectile points and dated to A.D. 550± 80 (GaK-2503) at the Wahkpa Chu'gn Site (24HL101) (Brumley 1971:21). Other wedged material included various bison elements and stones, some placed as far down as 76.2cm. This site

brings into question the validity of the ceremonial status assigned to whole and/or missing skulls at kill sites. In this case, whole skulls were removed with care, but were then used to tighten posts within the corral structure. The skulls were placed face down by forcing the sharp end into the ground. This type of bone placement is similar to many of the uprights at both Fincastle and the comparison sites with bone uprights. Long bones were fractured at the shafts, the blades of scapulae were broken and the sharp edges were forced into the ground. This may very well be the reason for the face down placement of nine skulls within Mound 1 at Boundary Mound, as well as, the face down canid skull within Feature 1 at Fincastle, though not if the feature was constructed after the kill event.

Though there were clear ceremonial associations with skulls within sites associated with Late Prehistoric and Historic cultures, the context at Wahkpa Chu'gn seems to represent a utilitarian use during the Middle Prehistoric Period. It is possible, however, that the skulls at Wahkpa Chu'gn were still entrusted with a ceremonial purpose and were associated with similar "calling of the buffalo" practices identified with the ceremonial structure at Ruby and in later period kills.

Post/Structure

Aside from a possible corral, the upright features could have been associated with a (ceremonial) structure near the kill area of the Fincastle Site. Bones appeared to be deliberately pushed in alongside the poles of the structure for support at Mortlach (Wettlaufer 1955:41). The ceremonial structure identified at Ruby (Frison 1971:80) was very close to the corral. It is possible that the processing activities expanded and covered the ceremonial area. The circle of bison skulls identified at the Vore Kill Site (Reher and

Frison 1980) was well within the processing area and was subsequently covered by several butchered elements, which illustrates that ceremonial and functional space is not always separate at kill sites.

Utilitarian Functions and Processing

Neuman (1975:30) interpreted the bone uprights at Stelzer as “an integral part of the industry”. They appeared to be concentrated in two work areas. Many were close to adjacent middens or pits, which lead Neuman to conclude that they were associated with activities conducted in those areas, such as food preparation, hide working and flint knapping. Neuman noted that the surface would have been ideal for placing a stone core for flaking or bone to smash for marrow extraction. Features 25, 54 and 57 had rocks within them that sat at the same level as the bones around them. Features 23 and 33A had space for a rock as well. The lack of wear on the tops of the bones was explained by Neuman as evidence that the heads were clocked with hides, shielding them from being cut or damaged.

Two bone uprights at the Fresno Site (24HL103) in Montana consisted of tightly packed long bones driven vertically into the ground to extend below the cultural layer (Keyser 1979:64-65). One was placed within a prepared hearth and included the proximal end of a bison humerus and the distal ends of two bison radii, grouped together and driven into the ash. The articulated ends had been heavily battered. The second upright was near the second hearth. It consisted of the heavily battered proximal ends of two humeri. Both uprights were associated with Stratum 2, which was dated to A.D. 250, and contained Besant type points. In this case, the uprights appear to be directly associated with processing activities, used as anvils. Brink and Dawe (1989:35) suggested that an

impact mark on one articular condyle of the metacarpal within an upright at Head-Smashed-In Buffalo Jump was made when driving the element into ground.

The uprights at Fincastle show no evidence of being utilized in this way. Aside from the fact that they were too far down into the clay to be of any use as anvils, there is no evidence of battering on the tops of the elements. Though the long bones within many features may have held up to battering if cloaked in hide, the ascending ramus on the mandibles of Feature 7 would not have stayed intact.

Several bone pegs and anchors were identified at Head-Smashed-In Buffalo Jump (Brink and Dawe 1989:85) and there were two bone pegs found near a hearth at the Fresno Site (Keyser 1979:64-65). The cobbles and two upright ribs found at Happy Valley were also interpreted as possible bone pegs for hides (Shortt 1993:32). As discussed earlier in relation to Features 2 and 4, several of the uprights could have served as anchors for hide working or used as meat drying racks.

Surface Hearths

Feature 9 (Ash Concentration)

Feature 9 was a 2-5mm thick lens of grey ash with traces of burnt bone, situated between the West Area and East Block excavation areas. Forty-one pieces of fire-broken rock and eight pieces of debitage were scattered throughout the feature and did not appear to outline a hearth shape. This feature likely represents an unprepared surface hearth. At Kenny there were nine unprepared hearths in Layer 6 and twelve in Layer 8 (Reeves 1983b:26-36). There were several surface hearths in Area A at Melhagen (Ramsey 1991:208). At Sjøvold there were five surface hearths in Layer 10, two in Layer 11 and

two in Layer 14 (Dyck and Morlan 1995). Surface hearths are a common characteristic of sites associated with Besant projectile points (Reeves 1983a:140-41).

Boiling Pits

The secondary butchering evidence on the faunal remains supports the hypothesis that the bones were boiled to extract marrow and grease, though there were no boiling pits observed at the site. It is possible that these pits are located in an unexcavated area, but it is also plausible that the bones were boiled in above ground structures that would not be preserved in the archaeological record. Brink and Dawe (1989:271-297) reconstructed such structures in an experiment designed to understand the possible surface hearths at Head-Smashed-In Buffalo Jump. The hearths were created by building up earth and placing a 'hide' (plastic) inside the earthen feature to hold water. Similar structures could have been created at Fincastle. Many hearths in Layer 10 at Sjovold displayed evidence of being disturbed, possibly for the retrieval of boiling stones (Dyck and Morlan 1995:336). There was a considerable amount of fire-broken rock associated with the Middle Woodlands occupation at Naze. Gregg (1997:79) postulated that Zone 2 was used over several episodes (close in time). The fire-broken rock appeared to have been moved from the hearths for use in boiling pits.

Fire-broken rock associated with stone boiling is characterized by angular fracture patterns (Head et al 2002:107). There were 1 152 pieces (77.3kg) of fire-broken rock recovered from the excavations at Fincastle. All fragments had a maximum length of 15cm and 72% were under 5cm. As larger cobbles were subjected to the boiling process they fractured apart. Their continuous reuse would have broken them into small fragments. The degree of angularity of the rocks (i.e. the number of facets) indicates

reuse. Thirty-three percent of the Fincastle fire-broken rock shows high angularity (five or more facets) and 60% had two to six facets. It would appear that after continuous reuse during the secondary processing activities, the rock was disposed of along with the bison remains, resulting in the seemingly random spread of 6 192 pieces of fire-broken rock across the Fincastle Site. Fire-broken rocks were also scattered throughout Ross Glen (Quigg 1986:10). At EgPn-111, 4 608 pieces of fire-broken rock were concentrated within the main kill area, and 98.4% had water fracture patterns and were associated with boiling activities (Head et al 2002:106). The quantity and condition of the fire-broken rock at EdOh-23 was interpreted as evidence of boiling activities (Johnson 1983:42). No boiling pits or hearths were found within the processing area at Fitzgerald, but 1 563 pieces of fire-broken rock were recovered from the kill area and 4 675 from the processing area (Hjermstad 1996:85). Almost 90% were less than 2.5cm in diameter.

Feature Summary

The function of the Fincastle uprights is still unclear. Similar features were identified at several of the comparison sites but the uprights may have served different purposes than they did at the other sites or even within the site itself. What is certain is that the positions of the Fincastle uprights were well within the sterile clay, below the bone bed, which would have not have allowed them to serve as anvils or structures to place items upon. Moreover, the condition of the bones in relation to those at the Fresno Site indicates that the bones were never used to smash open other bones. The uprights could have acted as anchors for processing activities, such as hide work or drying racks, though the fact that they are below the bone bed also brings this hypothesis into question. It is possible that the uprights occupied the vacant holes where wooden posts were

removed for fuel for the fires though the seemingly specific selection of certain elements does not support this hypothesis. One final possibility is that the uprights served a ceremonial purpose that cannot be fully understood at this time.

There were no boiling pits observed at Fincastle, but the amount and condition of the fire-broken rock scattered throughout the site evidences that they were constructed in the area. Feature 9, the one possible surface hearth that would have been made during the processing activities at the site, supports this assessment. Other hearths are either in unexcavated areas of the site or were disturbed when the site was abandoned.

The general finding is, therefore, that the Fincastle Site links best with the bone uprights at Stelzer. Uprights of similar composition and context were found at Melhagen and Head-Smashed-In Buffalo Jump. Happy Valley, Kenny, Muhlbach, Fitzgerald, Mortlach, Antonsen and Ruby also contained bone uprights though it is more likely that they served different purposes than those at Fincastle.

Ochre

The red ochre recovered from Fincastle is associated with the kill event but it is difficult to identify the cultural activity it related to. Ochre and ochre stained objects have been identified at prehistoric archaeological sites as far back as the Folsom era and as recent as the Old Woman's period, and have also been identified in ceremonial practices within several cultures around the world, from South Africa to Northern Europe (Roper 1991). Red ochre lined the Bracken Cairn burial associated with the Pelican Lake Culture, and most of the individuals within the Middle Missouri burial mound were coated in red hematite (Walker 1982; Neuman 1975). Due to its universal usage, ochre is

rarely used to identify specific cultural groups within the Prehistoric Plains, but it may be possible to identify the possible uses of ochre at a kill and processing site unrelated to ceremony.

At Kenny, yellow and white ochre was found in Layer 8 and red ochre in Layers 6 and 8. A few of the larger pieces had grinding and carving marks, indicating their usage for paint. The end of the single piece of red ochre recovered from Fincastle also appears to have been ground through use. At both Kenny and Fincastle there was no evidence of ochre on any of the remains or artifacts. It is possible that the ochre was washed off before the bone bed was covered, thus erasing all evidence of use. In the case of Bracken Cairn and the Sonota sites, the large quantities of ochre and hematite that covered the human remains was preserved because the remains were quickly buried.

Ochre has taken on several usages on the Plains, such as for rock art as well as pottery paint. It is possible that the ochre was applied to the skin or to personal objects that were taken from Fincastle when the group left the site. If ochre was used in this fashion, it would rarely be found in a utilitarian context. This could explain the presence of ochre in a ceremonial context more often than in relation to tool manufacture or meat processing. Still, ochre could be used as a pigment as well as a preservative for wood, bone and skin (Frison 1978:95; Roper 1991:295-296). The presence of ochre at kill, processing and camp sites may be an indication of utilitarian use rather than a ceremonial one. Wadley's (2005) study on the use of ochre as an adhesive for hafting tools in South Africa demonstrated that ochre could be used for processing and tool making activities. Though this does not prove similar use at Fincastle or Kenny, it does provide an alternative hypothesis for the presence of ochre at Plains kill sites.

General Findings

Information gained through the analyses of the lithics, faunal remains, features and ochre recovered from the Fincastle Site can be used to interpret the activities that took place, as well as, identify determinate types of material culture within site assemblages that can be used to associate the hunters with other groups on the Northern Plains. The amount of Knife River Flint in the lithic assemblage supports a Dakota origin for the group. The elongated point forms found at the Fincastle assemblage are similar to those at Outlook and Sonota sites but shorter forms within the assemblage, which evidences retouch, link Fincastle to several Besant sites within the Northern Plains. Fincastle likely existed during a period when high-quality raw material was in good supply, allowing so many elongated points to be manufactured and left behind. This is contrary to later Besant sites that show the groups attempting to make as many tools as possible out of a limited supply of high quality materials.

The amount of food that would have been available from the Fincastle kill event could have sustained a small group of 25 to 35 individuals through the winter months. If the group was small and traveled from a far distance, the Fincastle kill may have been just the right size to utilize choice cuts of meat. The absence of skulls could link Fincastle with the ceremonial and/or processing activities found at other sites, such as Ruby. Non-bison animals were also killed at the site; and butchering evidence illustrates that, in the case of one sub-adult wolf, they were being processed for food.

The function of the Fincastle uprights is still unclear. Similar features were identified at several of the comparison sites but the uprights may have served different purposes than they did at other sites or even within the site itself. Possible functions of

the Fincastle uprights include support for posts and/or drying racks and their use in ceremonial activities. There were no boiling pits observed at Fincastle, but the amount and condition of the fire-broken rock scattered throughout the site evidences that they were constructed in the area. Finally, it is possible that the ochre found at Fincastle was applied to the skin or personal objects that were removed when the group left the site.

Table 10 summarizes the links between Fincastle and the comparison sites. Listed according to regions, the connections between the sites are recorded as strong (2), weak (1) or nonexistent (0). A weak link was identified if similar materials were present within the assemblages, while a strong connection was assigned if similar functions were noted along with comparable attributes that could be attributed to an analogous cultural group. The projectile point types are those identified by the excavators of the comparison sites and the lithic column relates to similarities identified within this thesis. Raw material, bison skulls, other species and features refer to the similarities discussed above.

Based on this table, both the point styles and raw materials of Fincastle match most closely with the sites found in the Dakotas and those that are contemporary with it (c. 2500 BP). When it comes to the use of skulls, other species and the features, there are several sites that have strong connections with Fincastle within each region and period. Most noticeably, Fincastle shares similar faunal assemblage attributes with other kill and/or camp sites in Southern Alberta, possibly reflecting the local environment and available game. Fincastle also appears to share strong similarities with Neuman's Sonota sites, aside from lack of ceramics introduced to the region at a much later time. These results are considered in the next chapter.

Table 10: Summary table quantifying the cultural connections between the Fincastle Site and the comparative sites used in this study. Strong connections are noted with a **2**, weak connections with a **1** and no connections with a **0**.

Site	Date	Project. point	Lithics	Raw Material	Bison Skulls	Other Species	Features	TOTAL
EgPn-111	1 310± 60 BP	Besant	1	1	2	2	0	6
Happy Valley	2 440± 180 BP	Besant	2	1	2	2	1	8
Head-Smashed-In Buffalo Jump	1 510± 90 BP 1 950± 80 BP	Besant	2	2	0	0	2	6
Kenny	1 460± 110 BP 1 600± 110 BP	Besant	1	2	2	2	1	8
Muhlbach	1 350± 150 BP	Besant		2	0	0	1	3
Ross Glen	1 471± 50 BP	Besant	1	1	0	0	0	2
Bracken Cairn	2 465± 85 BP	Pelican Lake	0		0	0	0	0
EdOh-23	1 675± 115 BP	Besant	1	2	2	0	0	5
Elma Thompson	1 675± 145 BP	Besant	1	2	0	0	0	3
Fitzgerald	1 490± 90 BP	Besant	1	2	1	0	1	5
Melhagen	1 905± 110 BP 1 575± 115 BP	Besant	1	1	0	0	2	4
Mortlach	2 327± 235 BP	Besant	2	1	0	0	1	4
Sjovold	2 340± 120 BP 2 355± 105 BP 2 500± 85 BP	Besant Outlook	2	2	0	2	0	6
Antonsen	1 605± 90 BP	Besant	1	1	0	0	1	3
Whiskey Hill	1 550± 60 BP	Besant / Woodland	1	1	0	0	0	2
Muddy Creek	1 720± 110 BP	Besant	1	1	0	0	0	2
Ruby	1 670± 135 BP	Besant	1	1	1	0	1	4
Boundary Mound	1 540± 160 BP 1 340± 150 BP 1 700± 125 BP	Sonota	2	2	1	2	0	7
Naze	1 918± 36 BP 2 003± 43 BP 2 035± 70 BP	Middle Plains Woodland	2	2	2	0	0	6
Arpan	1 859± 90 BP	Sonota	2	2	1	0	0	5
Grover Hand	1 640± 80 BP 1 720± 75 BP	Sonota	2	2	1	0	0	5
Stelzer	Not dated	Sonota	2	2		0	2	6
Swift Bird	1 400± 150 BP	Sonota	2	2	1	0	0	5

Chapter 6 - Conclusions of the Comparative Study and the Reassessment of the Besant Culture and Associated Groups

Prehistoric Organization on the Plains and Contact between Groups

Prehistoric cultural groups on the Great Plains are defined through the analysis of artifact assemblage variability. The degree of variability that exists within a cultural group can be difficult to identify, and deciding when the observed variability represents a different group is challenging. This issue is known as the 'Assemblage Variability Problem' (Sackett 1986). Since the sites reviewed in this thesis alone cover over a thousand years (Fincastle dates to 2 500 BP and EgPn-111, the youngest site reviewed in this thesis, dates to 1 310 BP) and over one million square kilometers, there will undoubtedly be some variability. Spatial and temporal differences between sites are significant factors that must be taken into consideration when examining the variability between assemblages. The separation of Reeves' (1983a) Besant Complex into smaller regionally and temporally defined groups, such as Sonota and Outlook, implies that these group diverged enough from the group's norms to be identified as distinct, separate entities, but that they relate to the broad Besant culture. This particular problem also relates to the origins of the material being discussed. Was Sonota a Plains group that adopted Woodland ceramics or a Woodland group that adopted Plains point forms? Deciphering this issue depends on whether that change came from within a group (endogenous) or from an outside source (exogenous), and requires the origins of the change to be located.

Therefore, variability between site assemblages and origins of material culture can be best understood by reviewing the organization of the Middle Prehistoric nomadic groups on the Northern Plains. There are some basic characteristics of hunter/gatherer groups that would have been consistent throughout the Late Middle Prehistoric Period (Lee and DeVore 1968:11-12). Their mobility restricted the amount and kind of material they carried around with them, and there was rarely a surplus of food. The amount of foods acquired at kill sites is an important factor in understanding group size and population densities. This information, along with tipi ring sizes and numbers, illustrates the importance of keeping the group size small. However, Middle Prehistoric Plains nomadic groups would come together a few times a year to carry out large scale communal kills (Reeves 1983a; Epp and Dyck 1983). Aside from these exclusive episodes, the general population was normally split up into smaller groups because it was easier to support a small group throughout the year (Epp and Dyck 1983). When the population was spread out, their ability to exploit the local resources became infinitely easier. This division prompted variability. Moreover, interactions between different groups that occupied various resource areas prevented any one group from becoming attached to a single area.

When a group became too large to maintain itself, it would break apart into smaller factions. These smaller groups may have met several times to undertake large scale kills and/or to trade materials and people, but since these smaller groups eventually became larger, maintaining cohesive units was not possible. As the groups broke apart and expanded over a greater area, each group was able to extract the necessary resources from their environment(s). The Besant Culture, as defined by Reeves, spans over one

thousand years, therefore, it is not hard to imagine that one group likely grew into several smaller distinct groups over time and that these groups expanded into new areas.

Most Prehistoric Plains group origin studies have been based on cladistics and diffusion perspectives. The cladistic perspective regards cultural differences as the sum of the divergent evolution of many separate ethnic lineages (Bernardini 2005:32). In other words, the variability seen in the Besant Culture is the result of small groups separating from the main group and changing over time. In a diffusion explanation, cultural change is said to occur because of a characteristic that was transferred from one area to another (Rouse 1977). This may have occurred as the result of a group's migration into an area that was previously occupied by another group, or because of contact between groups, spreading knowledge across space (Dark 1995:191). The rate of diffusion between groups can be measured through artifact variability (Johnson 1999). This means that, in later times, Northern Plains Besant sites should display more variability than sites in the Middle Missouri Region within the Middle Woodland Period. Within the Besant interaction sphere, the greater the distance from the 'cultural centre' and contacted groups, the greater the variation (Buchli 1996). This is linked to Reeves' Besant Culture definition, where all sites are part of one group, but are divided by time, space and contact with other groups.

There are few other sites in Southern Alberta that contain Besant points that date to 2 500 BP (the date of the Fincastle Site), but the majority of Besant sites on the northern Plains date at least 500 years later. Based solely on radiocarbon dates, many of the comparison sites differ from Fincastle by almost a whole millennium. The five sites that most closely match the Fincastle Site are Happy Valley (2 440± 180 BP), Bracken

Cairn ($2\,465 \pm 85$ B.P), Mortlach ($2\,327 \pm 235$ BP), Sjovold (L10: $2\,340 \pm 120$ BP, L12: $2\,355 \pm 105$ BP and L13: $2\,500 \pm 85$ BP) and Naze ($2\,035 \pm 70$ BP). Peck (2010) assigned both Fincastle and Happy Valley to the Outlook Complex based on point types and on the fact that the dates are much older than the accepted Sonota and Besant periods. Peck (2010:260-261) also suggested that the points at Head-Smashed-In Buffalo Jump and Sjovold are possible indicators of the Outlook group. Mortlach is the first site where the Besant point was identified (Wettlaufer 1955) and Naze is an example of a Middle Missouri culture within North Dakota, a proposed origin of Besant. It is important to evaluate the possibility that these sites represent the same group or culture. It is also necessary to identify the origins of these earlier sites in Alberta and Saskatchewan to determine if a local group expanded outwards or a foreign group moved into the area. Since Fincastle is one of the oldest of these sites on the Plains, identifying the group's origins and connection to contemporary groups in other areas of the Plains is vital to understanding its cultural context.

Two thousand and five hundred years ago the predominant group in Southern Alberta was Pelican Lake. Pelican Lake points were present as far back as 3 300 BP, and were subsequently replaced by Besant/Avonlea forms. Varsakis (2006:360-365) proposed that a 'Kenny Sub-phase' of Besant, indigenous to Alberta, developed out of Bracken Cairn (a later form of Pelican Lake). This group was represented by sites where both Bracken Cairn and Besant points were recovered within the same occupation, such as at EgPn-111. This theory is similar to Peck's origin theory: that Besant (2010) evolved out of the Bracken phase of Pelican Lake, but that Besant differs from the Outlook and Sonota groups originating in the Dakotas. Besant and Pelican Lake sites contain different

assemblages, including point forms, hearth types and number of bone tools. It appears that although they occupied the same area, they are two distinct groups (Epp and Dyck 1983; Reeves 1983a). If they originated from and occupied the same area, they would appear more similar to one another. Therefore, as the Besant groups expanded, they occupied the same area exploited by the Bracken Cairn population. Though they used the same sites (EgPn-111, for example) there is also evidence that they avoided one another, as seen in the different occupation periods at Head-Smashed-In Buffalo Jump. Evidence of contact between the two groups reinforces the idea of a retained group identity. If interaction between groups tends to reinforce social boundaries (Barth 1969; Stark 1998), there would be fewer similarities between these two groups. A frontier, where cultural contact took place (Parker 2006:77), may have been a broad area in this case. The original Besant group influenced and, in return, was influenced by other groups, assuming that the Besant population migrated into the area. Internal change within one group, on the other hand, should be relatively consistent, as trade, migration and diffusion are assumed to cause drastic breaks in the flow of change (Johnson 1999). Since the two cultural assemblages are significantly different, Besant was very likely an exogenous group that came into contact with the local Pelican Lake population.

There is a clear difference between the Pelican Lake burial at Bracken Cairn and the Sonota burials in the Dakotas. The Bracken Cairn burial was constructed in a similar way that the Pelican Lake hearths were: pits lined with stone and then covered with a stone cairn. Alternatively, the Sonota burials were dug into the ground and covered with logs rather than stone. Though several of the Sonota mounds included secondary burials, like that of Bracken Cairn, there were also instances of primary burials. Still, these

differences only separate the Alberta Pelican Lake group from the Dakota Sonota group. No Besant burials have been excavated in Alberta.

The Fincastle assemblage included side-notched Besant form points that are similar to the Sonota points found in Middle Missouri sites during the Middle Woodland Period. Neuman dated these Sonota sites between 1 950 BP and 1 350 BP, 500 years later than Fincastle. Around 2 500 BP, there were sites within the Dakotas that bore striking resemblances to these early Besant sites the Northern Plains. Early Plains Woodlands points from the Naze site appear to be precursors to Middle Plains Woodland points. The people in this group occupying the Naze site in Early Woodland times were likely the ancestors of the Middle Woodland groups and eventually the Sonota sites. This evidence is instrumental in refuting the hypothesis that the origins of the Sonota group was from the Parkland area or other parts of the Northern Plains. The earliest Woodland components were found in Minnesota, demonstrating a clear movement of the tradition westward (Gregg and Picha 1989:39). It was these Woodland groups that travel long distances to attain trade goods, while other Plains groups stayed within their local regions, except for migration, that occurred when the groups split when they got too large.

The fact that the Fincastle assemblage contains an overwhelming number of lithics manufactured from Knife River Flint suggests that the hunters traveled from the Dakota region just prior to the kill event. From their place of origin, this group could have encountered Plains groups to the west as well as Woodland groups to the east. The abundance of Knife River Flint in the area allowed them to make the majority of their lithic artifacts from this ideal material. When they left the Dakotas and moved north,

south and westward into southern Alberta, Saskatchewan, Manitoba, Montana and Wyoming, they were likely small groups of only 25 to 50 adult hunters. Such sites can be found over one thousand kilometers from the source that contained a great deal of Knife River Flint. Small groups carried out kills in order to feed their group, but also to bring back choice cuts of meat to their main camp. Larger groups could have also have left the region for longer periods, and would have separated into smaller family groups throughout the year. These smaller groups would have likely congregated a few times a year to carry out mass kills. Camp sites were present in the Middle Missouri region in Middle Woodland times, but they do not represent large groups. Even at the Sonota burial mounds, which represent a prolonged stay in the area, there were less than 100 individuals represented, and most were young children, newborns and fetuses.

These migrating groups would have continued to interact and influence others as they came into contact with them, within the wide territory they moved into, but there must have been a certain point when the ties between the ever expanding homogeneous identities broke. It is likely that the further away these groups were the less contact they had. Over time, the variability within material culture would have increased, but continued contact allowed for some similarity in certain aspects. The groups may have been so closely connected ethnically that they belonged to a single self-conscious social entity, but the distance between sites may have rendered the actual network of social relations invisible (Sackett 1977:371). Thus, the more similar the assemblages are the greater the degree of interaction between the groups (Sackett 1977). Based on this theory, the sites that exhibit the most similarities to Fincastle must have kept close contact with these hunters.

Even when constant contact was maintained with the main group, assemblage norms will have a degree of variation and innovation (Hodder and Hutson 2003). The ideal form of an object, or norm, may not always be present. Some members may have manufactured artifacts that reflected more standard traits than others (Buchli 1996). Sackett's (1986) theory of 'Isochrestic Variation' takes into account an individual's choices in manufacturing that can result in a deviation from the ideal form. Thus, artifacts express a group's affiliation, but they also display moderate degrees of personal differentiation (Weissner 1985). Moreover, raw material accessibility, manufacturing techniques, transport (mode, distance and frequency of trips, carrying capacity and necessity), distribution, use, storage and retrieval, maintenance and repair, reuse, curation behavior and disposal would have also affected the form of an artifact (Schiffer and Skibo 1997).

Guided variation can also arise through the transmission process in which individuals acquire a pattern of behavior from their cultural parents and modify it in light of their own experience (Shennan 1996). This is a likely explanation for why later Besant points vary in form and raw materials. The basic form was passed down from generation to generation but individual innovation eventually brought regional change to the original blueprint. Both Muddy Creek and Kenny relied on local materials, a change that may account for the variation in form, but this also highlights that these groups were not traveling back to the Dakotas very often to replenish their Knife River Flint resources. Instead, they were occupying this new territory for long periods if not permanently. There was likely less interaction between these sites and the origin sites at the source of their preferred raw materials, but more importantly the source of their cultural epicenter. Both

Muddy Creek and Kenny demonstrate a group coming from the Dakota region that became reliant on local resources. This trend is also seen in Southern Alberta, Saskatchewan and Montana. Eventually there was a drop in the exotic Knife River Flint artifacts and a reliance on local materials to produce them.

According to Gregg and Picha (1989), there was a population increase in the Dakota region in Middle Woodland times, which could have caused a permanent spread north and westward of smaller groups looking for new territories to exploit. The Sonota culture manifested due to an increase in population and interaction with other groups around 2 000 years ago, a development of the Middle Plains Woodland Milieu (Gregg and Picha 1989:42; Neuman 1975). This could account for the increase in sites in Saskatchewan, Alberta, Montana and Wyoming. By this point the Sonota group, the part of the population that stayed within the Dakotas, was taking on more Woodland characteristics through contact and trade, such as the introduction of ceramics and burial mounds (Gregg and Picha 1989:38). In fact, the Plains Woodland tradition is viewed as originating from eastern groups because of the many correlations (Gregg and Picha 1989). As the Sonota groups expanded they took on characteristics of the groups they came into contact with: Sonota ceramics are similar to Valley Ware from Nebraska (Benn 1978), Rowe Ware from Iowa (Gregg and Picha 1989), and Scalp Ware along the Missouri River in South Dakota (Benn 1978). Laurel pottery was found at contemporary sites to Sonota in the Upper James River region, and Laurel mounds were found in Manitoba and to the east (Gregg and Picha 1989:43).

Ceramics were recovered from EgPn-111 (1 310± 60 BP), Ross Glen (1 471± 50 BP), Fitzgerald (1 490± 90 BP), Whiskey Hill (1 550± 60 BP), Muddy Creek (1 720±

110 BP), Naze (1 918± 36 BP), Stelzer (not dated), Swift Bird (1 400± 150 BP), Grover Hand (1 720± 75 BP) and Arpan Mound (1 859± 90 BP). Pottery found at all the Dakota sites reflects contact with eastern groups. The absence of pottery from Sjovold was interpreted as a result of seasonality (Dyck and Morlan 1995:446). The ceramics at EgPn-111 were deemed “comparable to other Besant-Sonota components on the Canadian Plains” (Head et al 2002:167). Most of the pottery represented Woodland forms manufactured using the paddle and anvil technique. The Canadian sites ranged from 780 to 1 190 years later than Fincastle and they all represent contact with Woodland groups.

Redefining Cultural Groups and Assigning Site Affiliations

Based on the discussion above, a better understanding of the Late Middle Prehistoric Period in the Northern Plains can be made. The analysis of the Fincastle Site and the comparison sites reviewed in Chapter 4 has allowed for the clarification of Outlook, Sonota and Besant, and temporal and regional variants can be identified and described. The following descriptions and classifications do not vary a great deal from those first described by Reeves (1983a), Frison (1983), Varsakis (2006) and Peck (2010) but rather serve as adjustments based on the findings of this study. Following the overview of these groups, Figure 19 displays the proposed affiliations of the twenty-four sites examined in this study.

Outlook

The Outlook Complex includes sites within the Dakotas and in neighbouring areas that signify short excursions across the Northern Plains. Since an origin from the Dakotas is accepted here, their temporal presence must relate to the Plains Woodland

chronology of that area. Thus, Outlook existed during the middle of the Early Plains Woodland Period and throughout the Middle Plains Woodland Period, dating from 2 700 to 1 400 BP. Though the proposed origins differ, the dates of the Outlook group defined within this thesis are equal to Peck's (2010) Outlook Complex, dated to around 2 500 BP, as well as Varsakis' (2006) Fincastle Complex, dating from 2 500 to 2 000 BP. This group resided within the Dakotas and was the possible progenitor to later groups. Early on they traveled short distances outside of the Dakotas to hunt bison, to trade or to collect exotic materials, and eventually expanded away from this region permanently in times of over population. Their lithics were primarily made using Knife River Flint and Swan River Chert as this was the preferred material within the Dakotas. Because they were able to maintain a constant supply of these materials they were able to create the larger, elongated point form characteristic to the Dakota area. The Naze Site (2 035± 70 BP) represents the primary group within the Dakota region. Fincastle (2 500 BP), Happy Valley (2 440± 180 BP), Mortlach (2 327± 235 BP) and Sjovold (L10: 2 340± 120 BP, L12: 2 355± 105 BP and L13: 2 500± 85 BP) all attest to the excursions made to sites outside of the region based on these attributes. Excluding Happy Valley, the sites contained large amounts of Knife River Flint and Swan River Chert., and all yielded large, elongated points, as well as shorter forms that may be attributed to resharpening activities. Moreover, Mortlach contained evidence of a structure possibly similar to that found at Naze, as well as several bone tools also present in Middle Missouri sites.

The Sonota Complex (see below) is defined by the presence of burial mounds, ceramics and other evidence of eastern influences that do not show up in Middle Missouri sites until much later. These changes aside, Sonota sites still represent the same group of

people living in the Dakota region, i.e. they evolved from the Outlook Complex.

Fincastle, Happy Valley, Mortlach and Sjevold share many similar attributes with sites placed in the Besant and Sonota groups but were separated out based on their dates and their material attributes.

Sonota

The Sonota Complex includes sites within the Dakotas and those outside the area that also reflect short excursions into Northern Plains. However, this group primarily stayed in the Dakotas during the population boom in the Middle Woodland Period, which was when mound building began in the area. Boundary Mound (1 540± 160 BP for Mound 1, 1 340± 150 BP for Mound 2 and 1 700± 125 BP for Mound 3), Grover Hand (650± 200 BP for Mound 1, 640± 80 BP for Mound 2 and 1 720± 75 BP for Mound 3), Swift Bird (1 400± 150 BP), Arpan Mound (1 859± 90 BP) and Stelzer (not dated) all represent the local manifestation of the Sonota Complex in the Dakotas and, therefore, the material culture from these sites represents the ideal Sonota Culture. Non-Dakota Sonota sites were identified based on elongated projectile points, high percentages of Knife River Flint and ceramics. The presence of ceramics is vital in the differentiation of Sonota from Besant sites as it illustrates the material culture change that took place within the Dakota region. These outside sites include EgPn-111(1 310± 60 BP), Ross Glen (1 471± 50 BP), Fitzgerald (1 490± 90 BP), Whiskey Hill (1 550± 60 BP), Muhlbach (1 350± 150 BP), Melhagen (1 905± 110 B.P), EdOh-23 (1 675± 115 B.P) and Ruby (1 670± 135 BP), which demonstrate that the group still traveled to obtain exotic materials and trade with other groups.

The Sonota Complex has been dated to 1 950 BP to 1 350 BP (Neuman 1975),

2 000 BP to 1 250 BP (Varsakis 2006) and 1 500 to 1 350 (Peck 2010). Neuman's dates are considered the most viable because he only included Dakota sites for his dates. The start and end dates of the associated sites outside of the Dakotas should correlate with those inside the area of origin. Any Northern Plains sites that predate or postdate the origin area are no longer associated with Sonota but, rather, are part of a progenitor or a later, local group. It is important to keep in mind, similarly to the Outlook sites, that these northern treks were brief, and that the group eventually returned to the Dakota region, perhaps after a few months or years. The longer these groups were gone the more they were to rely on local materials and interact with local groups.

Besant

The Besant Complex represents the Dakota groups that moved to and resided in new territories. The start and end dates for this group are equal to Peck's (2010) Besant Complex, dated from 2 100 to 1 500 BP, and Varsakis'(2006) Kenny Sub-phase, dated from 2 000 to 1 250 BP. Though, once again, the proposed origins are different. Whereas both Varsakis (2006) and Peck (2010) propose that Besant is a local development out of Pelican Lake groups, in this case, Besant is suggested to be a progression from the intrusive Middle Missouri groups into a local segment of the greater Besant Culture. Varsakis' (2006) dates are adopted for this thesis because, aside from differences in origin theories, her dates align best with the sites in the Northern Plains identified as a local group.

The material culture is similar to the previously defined groups, but the remains do not evidence continuous close contact with the Dakotas: they have no ceramics and appear to be reliant on local resources. It is important to keep in mind that this period

spans from the original movement into the Northern Plains from the Dakotas (c.2 500 BP) to the disappearance of Besant on the Northern Plains (roughly 1 000 BP). Besant does not represent one migration but rather several episodes where small groups broke away from the Dakota population and settled in a new territory permanently. Depending on when this break occurred there will be varying degrees of differences between these groups and the original population within the Middle Missouri area. Also it is important to keep in mind that several of these sites still contained Knife River Flint which is attributed to trade. Trade signifies a relationship between the groups in the Dakotas and those outside of the territory. For a very prolonged period of time these groups could have upheld a trade relationship based on common ancestry and/or cultural practice. Over time, and as these group moved further away and became more reliant on local resources, these bonds may have weakened, prompting the groups outside of the region to create unique, local traditions. The only sites in Alberta and Saskatchewan defined as Besant within this study are Kenny (Level 6: 1 460± 110 BP and Level 8: 1 600± 110 BP) and Elma Thompson (1 675± 145 BP).

Wyoming/Montana Besant Variants

Muddy Creek (1 720±110 BP) appears to represent a Besant Wyoming variant and Antonsen (1 605±90 BP) a Montana variant. It is not possible at this time to assign a date to these groups based only on this evidence. End dates of the Besant points are different in Alberta, Saskatchewan, Wyoming and Montana, therefore, more sites need to be included to identify when these variants were replaced by another form.



Figure 19: Comparison sites redefined into their associated complexes.

Revised Cultural Model

It is important to keep in mind that the findings of this research are based solely on the analysis of the sites included in this study, and further analysis and inclusion of several more sites is vital to create a more comprehensive understanding of the Late Middle Prehistoric Period. That being said, the following cultural model, depicted in Figure 20, is proposed.

Around 2 500 BP there is evidence that some of the Dakota groups moved in and out of the Northern Plains. This initial movement is identified as the Outlook Complex. Meanwhile, the Plains/Woodland culture became Sonota within the Dakota region through the adoption of eastern material culture around 1500 BP. Though they may be separate traditions, they represent the same cultural population of people. As was the case prior, these people continued to move in and out of the Northern Plains, but most (eventually) returned to the Dakotas. The few groups that decided to permanently reside in the new northern territory created a local complex identified as Besant. These groups display varying degrees of contact, and, therefore, similarity, with the groups in the Dakotas. At approximately 1 500 BP there was a population explosion within the Dakotas, which permanently forced several groups out of the region. This event is marked by an influx of Sonota sites in Alberta, Saskatchewan, Wyoming and Montana. They too altered their cultural traditions to adjust to their new environments, thereby becoming part of the Besant Complex. These groups may have interacted with the Pelican Lake groups, possibly sharing technology, ideas and people, but they did not share the same origins. Thus, the Besant Complex is a local manifestation, but the cultural groups that created this tradition originated from the Dakotas.

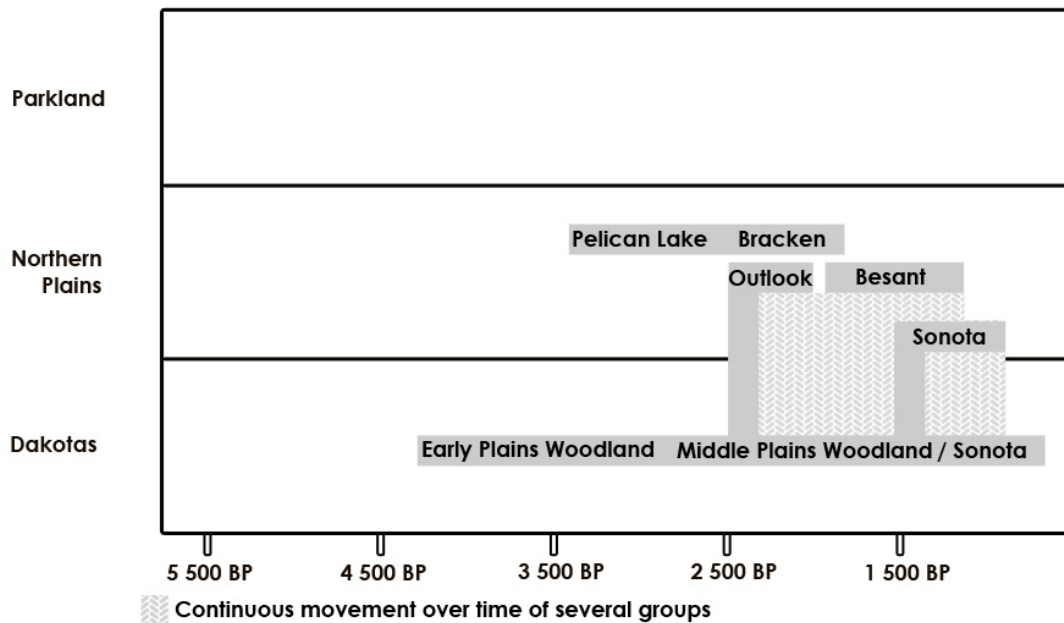


Figure 20: Depiction of the revised model of the cultural relationships on the Northern Plains during the Middle Prehistoric Period.

Final Conclusions

The Fincastle Site represents one of the earliest occupations of the Besant Culture in southern Alberta. This intrusive group of hunters originated from the Dakota region and eventually permanently settled in the area as a Plains/Woodland group. This marked the formation of the Besant Culture that dominated the Northern Plains in the Late Middle Period. All the sites reviewed in this thesis are considered part of the ‘Pan Besant Culture’, which represents several temporal and regional variations from the original group within the Dakotas (a polythetic type). Thus, Fincastle is a Besant site, but it can be sub-classified in regards to where it fits within the multi-component culture. Preliminary research done by Varsakis (2006) designated Fincastle as a Sonota site based on the elongated point forms that were also found at sites in the Dakotas, but this is an incorrect

label. As discussed in Chapter 2, and in this chapter, Sonota refers to the Middle to Late Plains/Woodland group within the Dakotas (with sites expanding outside this area). Sonota Culture is associated with Eastern Woodland influences, such as ceramic and mortuary traditions. The Fincastle Site clearly predates the Sonota sites. As a predecessor of both Sonota and later Besant Cultures, an association with the Outlook Complex is, at the present time, a more favorable choice. One foreseeable problem with using Outlook to describe early Besant Culture in the Northern Plains is that it represents a group indigenous to the Dakotas, yet it is not a term used to describe local groups within the region in that period. Outlook is a term created by a Canadian archaeologist and has only been used by other local archaeologists to describe sites in Canada. This difference in definition is confusing and creates differences when drawing broad comparisons and connections.

Following this early expansion onto the Northwestern Plains, other groups migrated into the region from the Dakotas, eventually establishing themselves more permanently in the area. This second migration became the Besant complex. This group dominated this region for close to a millennia, replaced by the Avonlea Culture around 1 000 BP.

Future Research

One key issue that is limiting a greater understanding of the Besant Culture is the lack of communication between Plains and Woodland archaeologists. There has been extensive research in the James River Basin, the epicenter of Sonota sites, as well as studies concerning Eastern Woodland cultures in Manitoba, the Dakotas and Missouri

(Sonota and Laurel); however, this research should be combined with Besant studies conducted on the Plains in order to truly comprehend the extent of this group's influence throughout the Northern Plains over the thousand year period. This thesis examined sites from Alberta, Saskatchewan, Montana, Wyoming and the Dakotas, but further research should expand into the aforementioned provinces and states in order to clearly assess the extent of these groups.

Further research is clearly needed in the Woodlands/Plains periphery region to understand the possible relationships and contacts between the sites. Until a solid understanding of the origins of the Middle Missouri Woodlands (Sonota) Complex is agreed upon, the Besant/Sonota relationship cannot be understood. There has been ample research into the connection between Sonota and the eastern mound building groups; however, it is now imperative that Plains and Woodland research be combined to better understand this periphery region of contact in the Late Middle Prehistoric Period. Research concerning trade, contact and exchange during the Late Prehistoric Period, and movement of eastern groups, such as Avonlea, may prove vital to understand the contact that took place in earlier periods. Though it is the opinion of this author that the Besant Culture originated in the Dakotas, further investigation into a possible Parkland origin would help to eliminate or adopt alternative theories of Besant material culture origins.

It would also be valuable to increase the number of sites reviewed in each region and time period to ensure that the fullest breadth of Besant sites is represented. This study included several sites within Alberta and Saskatchewan, but the addition of more sites would serve to increase the ability to identify smaller regionally and temporally distinct groups. In addition, more sites would also serve as a means to identify the transition from

intrusive to local groups over time, and possibly map the movement of Dakota groups into Alberta, Saskatchewan, Montana and Wyoming. Moreover, the ability to comprehend what was going on in Montana and Wyoming is nearly impossible based on the four sites included in this thesis. Additional sites may help to identify any differences between later groups in these areas and those found further north. An inclusion of more Eastern Woodland sites may help define the origins of the Sonota group. Though defining the origins of the Besant Culture was not the focus of this thesis, this study can be used as a spring board to discuss this issue, as well as understand the spread of material culture from its original region.

These research questions are possible to explore because enough sites have been excavated and analyzed and several regional studies have been conducted on Besant sites. It is important that a comprehensive collection and analysis of the material culture and associated literature be written up in order to provide both Plains and Woodland archaeologists with a better understanding of all the archaeological material that encompasses the diverse Besant Culture assemblage, and, in turn, the Late Middle Prehistoric Period of the Northern Plains.

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