

CHAPTER FOUR
LATE PREHISTORIC BISON
HIDE PRODUCTION AND
HUNTER-GATHERER IDENTITIES
ON THE NORTH AMERICAN PLAINS

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The North American Plains are spread from the provinces in southern Canada to the Texas panhandle, from the Rocky Mountains in the west to the modern states of Iowa and Missouri in the east (Wedel 1961). Within this vast geographic region, many different ways of life existed during more than ten thousand years of documented occupation (Frison and Mainfort 1996; Hofman 1989, 1996). Dozens, if not hundreds, of distinct ethnic groups lived on the Plains during European contact in the seventeenth through nineteenth centuries. Western Plains inhabitants were nomadic hunter-gatherers, whereas Eastern occupants were semisedentary farmers, especially after about AD 1000. My research focuses on this late prehistoric time period, when archaeologists observe a mosaic of both farming and foraging throughout the Plains.

The relationship between the Plains peoples and the buffalo is an enduring stereotype in popular American imagination. Ethnographic and archaeological evidence confirms that the products of the buffalo could and often did provide many of the materials needed to sustain domestic, economic, social, and spiritual life (Wedel and Frison 2001). Buffalo meat was a primary food resource, and buffalo hides provided shelter, clothing, blankets, and storage containers. Bones were shaped into tools, ornaments, and toys. The buffalo also played a significant ideological role as a cultural symbol and was incorporated into ritual (Harrod 2000). In this chapter, I examine ways that archaeological data on the Plains can provide

information about prehistoric butchering, animal processing, and hide-working, and how these data relate to wider social contexts.

Daily Lives and Archaeological Interpretation

Archaeologists working worldwide have differing ideas about the goals of their studies, and what they are trying to learn about the past and about the archaeological record. In my own research, I attempt to explore people's daily lives and to better understand the active construction and discard of material culture. These interpretations on a small scale are then used to better appreciate long-term culture change and continuities through time.

Two interrelated topics arise in attempting to link daily lives and archaeological interpretations: gender and ethnography. During the last decade, North American archaeologists have shown an increased interest in the study of gender and feminist practice (Berres 2001; Claassen and Joyce 1997; Frink et al. 2002; Hudecek-Cuffe 1998; Kornfeld 1991; Kornfeld and Francis 1991; Sassaman 1992; Watson and Kennedy 1991). Gender studies on the Plains are as much about the need to include people as they are to include women or gender dynamics in interpretations of the past (O'Brien 1990; Whelan 1995). For example, in an explicit evaluation of gender dynamics on the Plains, O'Brien (1991) examines gendered use of lodge space and considers how the cosmological roles of men and women would relate to house layout at a late prehistoric Smoky Hill Phase site in Kansas.

In order to strengthen our ability to talk about people and activities and not just artifacts and typologies, we need to consider labor, production, and consumption in human, and often gendered, terms. In hunter-gatherer societies, gender and age are primary defining social categories. Too often, more emphasis is placed on the diagnostic artifacts than on the people who created, modified, and discarded them. This dehumanized presentation of the past fails to consider people's intentions and motivations in the creation of the archaeological record.

Interpretation about gender in the past is inextricably interwoven with reflections about ethnography, ethnographic analogy, and the ethnohistoric record. Plains archaeologists often use ethnography to strengthen their interpretations. Wobst (1978) calls this widespread practice the

tyranny of the ethnographic record. To avoid an overreliance on historic data, some contemporary Plains archaeologists incorporate Plains ethnographic data only in a general, comparative way. I believe that we have available to us a robust literature about Plains inhabitants from a specific point in time between the seventeenth and twentieth centuries. The information contained within is biased, unsystematic, and certainly not *directly* applicable to the past. However, to ignore its existence or to acknowledge it only as an illustrative narrative relegates the past to a non-comparative, prehistoric accident without relevance as a foundation for those very societies documented in the ethnographic record (see also Frink and Weedman, this volume). If used critically, the information collected from the ethnohistoric period can be highly informative about one part of the *longue durée* of human occupation in a region (Lightfoot 1995). As Duke and Wilson (1995, 6) add, "Although the prehistoric past can be partially understood through the ethnographic present, the latter is still the product of the former."

A critical evaluation of the ethnographic record has implications for the incorporation of gender, people, and the division of labor in the past. Although men and women in numerous Plains societies of the historic period demonstrate variability in gender roles, ethnographies of large animal processing on the Plains consistently maintain that processing hides, rendering marrow, and preparing portable jerky were exclusively women's tasks, as well as most activities associated with gathering wild plants and farming cultigens (Ewers 1955; Hiller 1948; Hoebel 1978; Kroeber 1902; Lowie 1935; Verbicky-Todd 1984; Weltfish 1965; see also chapters in DeMallie 2001a). Some of this gender exclusivity may be due in part to the increase in the demand for buffalo hides starting in the protohistoric period, as well as increased mobility enabled by the horse. We cannot say whether women performed these same tasks in prehistory a thousand years ago, but we do know that five hundred years later women in almost every Plains group did.

One interesting direction of inquiry is to examine the relationship between hide processing, marrow production, and food preparation in the past as a foundation for changes that are documented in the protohistoric and historic periods. When gender is considered on the Plains, it is often based on an assumed division of labor, in terms of men's work and women's work, men's tools and women's tools. Considering the productive tasks that

underlie these simple classifications can augment this kind of analysis. What we want to avoid is correlating an assumed relationship between a gender and a particular tool type with the presence or absence of people of that gender at an archaeological site—for example, “I found an endscraper, or a needle, or an awl; therefore women were present at my site!”

Studies of Hideworking on the Plains

Archaeological studies of hideworking often focus on the lithic tools used to scrape the hides, especially on experimental microwear analysis of tool edges to determine tool function (Adams 1988; Mansur-Francomme 1983; McDevitt 1994; Sliva and Keeley 1994). Endscrapers in particular from Plains sites have commonly been objects of microwear analyses (Balenger 1996; Boszhardt and McCarthy 1999; Brink 1978; Schultz 1992). These studies demonstrate that scrapers, manos, cobbles, bifaces, and flake-tool blades, in addition to various bone implements, were all used to process hides (see also Schultz 1992).

For example, Boszhardt and McCarthy (1999) ascribe higher frequencies of endscrapers during the protohistoric period on the Eastern Plains and Prairie-Peninsula to an increase in buffalo hide processing. Based on use-wear analysis, they suggest that Oneota people traveled west to hunt buffalo and returned to villages with bison scapula hoes for tending crops, dried meat, and dry hides that were further processed. Further south in the Southern Plains, Creel (1991) suggests that higher frequencies of endscrapers and beveled knives (specialized hide-cutting tools) correspond with higher populations of buffalo after AD 1300 and with a growing trade in bison hides. These and other researchers often cite Plains ethnographic literature in support of their arguments, although they do not necessarily focus on hideworking as a gendered activity.

Of all of the photographs, paintings, and drawings of women from the Plains, woman as hideworker is one of the most pervasive. These images usually portray multiple women sitting on the ground scraping a stretched-out hide, with tipis and hanging dried meat in the background (figure 4.1). This icon of female labor has been called the “drudge on a hide” by Gifford-Gonzalez (1993), which confers a sense of social submission to the viewer. However, unlike artists’ illustrations of life in the Paleolithic period, these eyewitness photographs and illustrations show



Figure 4.1. Northern Cheyenne women tanning buffalo hides, mouth of the Yellowstone River, circa 1878. From stereo card by Stanley J. Morrow. Used with permission of the National Anthropological Archives (NAA neg #3701).

women in the foreground using actual tools and participating in social events. Although women may have been posed for the camera while fulfilling an idealized role, these activities of hideworking may have also been the ones that predominantly male photographers and artists were allowed to witness.

In this chapter, I highlight processing activities that were in historic times always conducted by women, which are often deemphasized or trivialized in the Plains literature (Whelan 1995). An emphasis on processing brings a much-needed complement to production. I examine the kinds of decisions that were made and consider how the procedures and techniques were passed down to future generations (see Frink, this volume). I consider hideworking as one product in a multidimensional process of turning animals from carcasses to commodities, possessions, and spirits (see Baillargeon, this volume).

The middle to latter part of the late prehistoric period (AD 1000–1400) is the time, just before the protohistoric and historic periods, when women's labor had not yet been co-opted by a market economy for buffalo hides, before the intensification of hide processing and possibly the solidification of gender roles (Habicht-Mauche, this volume; Peters 1995; Swagerty 2001). It is important to note that the daily domestic tasks that were intensified during the protohistoric period had been routine for hundreds of years. People needed food storage for seasonal shortages; hides for shelter, clothing, containers, and ceremonial items; and bones for tools and ornaments. The process of learning and teaching these skills was part of everyday prehistoric life.

Research Background for This Study

My research is focused on what is known as the High Plains (Fenneman 1931), specifically in the modern states of Wyoming, Colorado, Kansas, and Nebraska. The High Plains are characterized by expanses of grasslands bisected by intermittent streams, rivers, and rocky outcrops. My focus here is on sites that date to approximately AD 1000–1400 and are referred to as Upper Republican, a phase of the Central Plains Tradition (Roper 1995). In the western part of the study area, archaeologists have identified these sites based on distinctive pottery and lithic tools (figure 4.2) (Bell and Cape 1936; Champe 1946; Reher 1973; Wedel 1986; Wood 1971). These sites and their inhabitants are related to a series of horticultural hamlets further east (Grange 1980; Kivett 1949; Ludwickson and Bozell 1998; Steinacher and Carlson 1998; Wedel 1935). There, archaeologists recovered the same diagnostic artifacts along with evidence of earthlodge house structures and cultigens, both lacking in the western sites. The exact nature of the relationship between the western sites and eastern sites is unclear (Roper 1990, 2002; Scheiber 2001; Wood 1990). Both areas were occupied during the same four-hundred-year period. The people at the western sites probably sometimes visited eastern farmers, who seasonally moved west to hunt buffalo and sometimes chose to stay in the west as permanent residents. Bison products such as dried meat, hides, scapula hoes, and other bone tools may have been traded or carried from west to east, along with other raw materials.

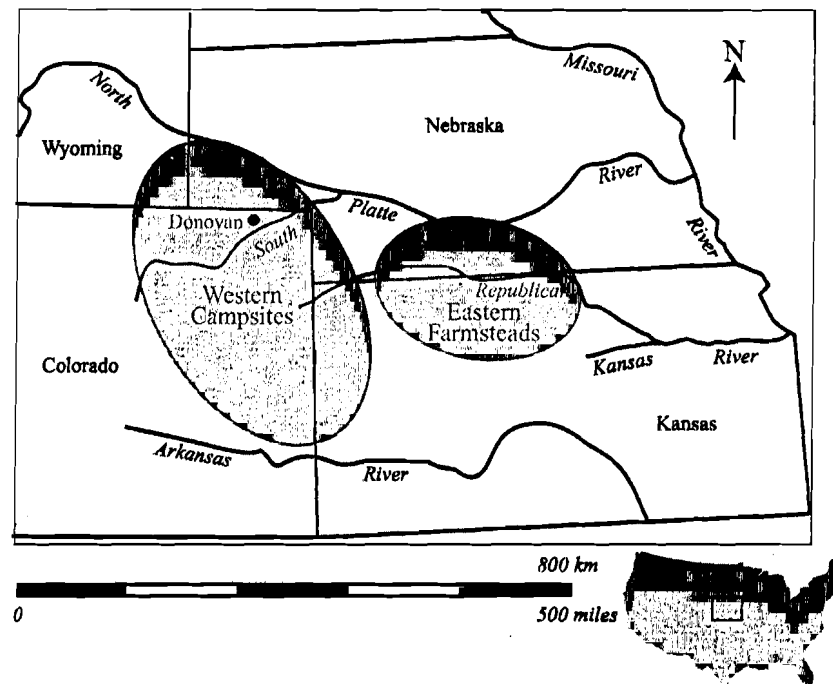


Figure 4.2. Map of the High Plains, showing Upper Republican Phase site distributions.

The research discussed here is based on seven field seasons between 1992 and 1999 at the Donovan site (5LO204), located along the South Platte drainage of northeastern Colorado and investigated as part of the University of Wyoming's High Plains Archaeology Project (Reher et al. 1994; Reher and Scheiber 1996; Scheiber 2001; Scheiber and Reher n.d.). The Donovan site contains at least eleven stratified Upper Republican levels, in over two meters of deposition. We believe that the same or a related group of people returned to the site repeatedly over the course of at least 250 years, bracketed between AD 1000 and AD 1380. Hearths and hearth areas at the Donovan site served as focal points and were used repeatedly for several visits. These hearths are located within a few centimeters horizontally, despite multiple cultural levels and years between occupations. These similarities suggest cultural continuity in usage and a repeated return to a favored place.

For the rest of this chapter, I highlight data from three Upper Republican occupations at the site, including the first time people visited the site (CL9), one of the visits in the middle of the sequence (CL6), and the last time people traveled there (CL1). The excavated sample in this part of the site is relatively small and includes 8.5 square meters of area per level in the main locale. Adjacent excavations indicate that this area contains the highest density of artifacts and features. It was likely the primary processing location during all of the occupations at the site.

The Donovan site is a processing area, not a kill site. What this means is that animals were killed elsewhere and some animal parts were brought back to Donovan to be further processed. This site allows us to focus on the activities associated with secondary butchering, marrow extraction, hide production, food consumption, and ornament manufacture, and to consider changes over the course of several generations. These were women's activities in ethnohistoric times, and women certainly played a role, if not the dominant role, in the creation of this site.

Much of the archaeological faunal literature for the Plains focuses on either kill sites where primary butchering and disarticulation occurred (Buehler 2000; Davis and Wilson 1978; Frison 1967, 1970, 1973; Frison et al. 1978; Morlan 1994; Reher and Frison 1980; Todd et al. 2001; Wheat 1972), or village sites where some of the dried meat was presumably eaten and where bone tools were used for farming implements (Blakeslee 1999; Bozell 1991; Drass and Flynn 1990; Falk 1969; Fishel 1999; Koch 1995; Koch et al. 1999; Manz and Blakeslee 1988; Molloy 1993; Watson 1996). An emphasis on this middle stage, after animals are killed and butchered and before finished products are taken to villages, has been lacking, along with the range of activities that occurred there, including marrow extraction and hide production (but see Logan 1998; Quigg 1997, 1998). These are the places where people obtained food and also socially interacted with one another in communal settings while working around hearths. For this reason, the Donovan data also speak to the organization of labor and household production of High Plains people.

Over 90 percent of the Donovan assemblage is composed of stone debitage and bison bone fragments. We also recovered numerous utilized flake tools, small side-notched projectile points, endscrapers and bifaces, beveled knives, ceramic sherds, and bone beads and ornaments. Many of these artifacts could have been used for hide production. Even the ubiq-

uitous bone grease produced by cracking open the bones may have been used for curing hides (Shawley 1976). In addition, many of the artifacts at the site relate to further disarticulating the animal carcasses, to breaking open the bones to reach the fat-rich marrow inside, and to boiling the bones in pots placed in fires so that the grease could be skimmed from the top. Meat drying probably occurred as well, although this activity leaves few material traces.

The material culture used by the Donovan residents at the site—pottery, triangular arrow points, and specialized cutting tools—are identical to those found in farming communities several hundred kilometers away. These people were obviously in contact with one another and may have visited back and forth. Although the Donovan residents were hunter-gatherers while occupying the site, they may also have been farming during other times of the year. Thus, a strict division between foraging and farming subsistence strategies may not be relevant when considering these sites and these people.

Donovan Site Analysis: Hideworking as Process

We have followed very detailed excavation methodologies, point-plotting thousands of artifacts in situ (Scheiber and Reher n.d.). Point-plotting allows us to more clearly re-create the patterning of artifacts and to see the kinds of activities that occurred at the site. Each of the occupational levels discussed here is slightly different, although they all contain a similar range of diagnostic artifacts and features.

Most of the activity and discard is concentrated around one or more hearths in the middle of the excavated area. The first occupation in particular contains more features of various kinds, including several charcoal/ash scatters, numerous circular post holes, and possible storage features. These large and small hearths, bone refuse dumps, and ash piles are characteristic of bone grease manufacturing areas (Bartram et al. 1991; Vehik 1977). Seasonality also varies from level to level. The first occupation (CL9) occurred during the early summer, while the last occupants at the site (CL1) visited during the early spring (Scheiber 2001). The season of occupation is unknown for the middle occupation (CL6).

A variety of questions arise when considering what people were doing at this site through time. We know that people spent a great deal of time

processing carcasses, breaking open and boiling bones, cooking, and scraping hides, but did they conduct the same activities every time? Were the activities performed the same way or did they change through time? And what kinds of data can be used to examine these questions?

First, consider basic artifact categories for the site as a whole and for the three occupations. Less than 10 percent of the artifacts from the entire excavated part of the site are lithic tools, ceramics, worked bone, and ground stone (table 4.1). The percentage of each artifact category varies by occupation. Whereas butchered bone comprises about 60 percent of the artifact assemblage from the first and middle occupations, it accounts for 90 percent of the material recovered for the last level. Based on this observation alone, we may conclude that a less diverse set of activities occurred later in time and that the last occupants either intensified their marrow production or procured more animals, resulting in more bone debris. On the other hand, although the first and middle occupations resemble each other in terms of total bone and flakes, the first occupants left behind many more fabricating tools, possibly used in hide processing or secondary butchering, compared to either of the other occupations (10 percent as opposed to 3 percent or less). Perhaps the middle occupants spent more time manufacturing and resharpening lithic tools with less intensity of marrow production compared to the last occupants and were not as diverse in their range of activities compared to the first occupants.

More than six hundred tools that may have been used for fabricating hide-based products or removing meat from bone have been recovered from the site, including five hundred utilized flakes, fifty-nine endscrapers, and fifty-six bifaces. A smaller number of abraders, awls, gravers, and

Table 4.1. Artifact Types Per Level

	Site total	First (CL9)	Middle (CL6)	Last (CL1)
Butchered bone	8,280 (51%)	845 (62%)	298 (63%)	1,487 (90%)
Lithic debitage	6,518 (41%)	294 (22%)	131 (28%)	88 (5%)
Possible fabricating tools ¹	636 (4%)	134 (10%)	12 (3%)	36 (2%)
Other tools and objects ²	566 (4%)	77 (6%)	27 (6%)	45 (3%)
TOTAL	16,000	1,350	468	1,656

¹Includes utilized flakes, scrapers, bifaces, abraders, awls, drills, and gravers.

²Includes projectile points, pottery, worked bone, groundstone, and hammerstones.

drills may also have been used for working hides (table 4.2). This is a site where a great deal of cutting and scraping occurred.

However, the variability in levels tells us a little more about each occupation. If we consider the three occupations individually, the most variation is seen in the number of utilized flakes, scrapers, and bifaces. A much higher number of these tools was recovered from the first occupation, eleven times more than the middle occupation and four times more than the last occupation. Almost all of the possible fabricating tools from the middle occupation (eleven of twelve) are multipurpose utilized flakes, indicating less focus on hide processing and hide-related manufacturing. These data suggest that the first occupants still practiced a variety of different activities despite their emphasis on bone fragmentation, even though these tasks are represented by only a small number of tools.

Does this mean that hideworking occurred only during the first occupation? Does it mean women were present only the first time this group visited the site? And is there something in the way the bones themselves were processed, butchered, and discarded that indicates more or less emphasis on hideworking? Although the number of endscrapers, bifaces, and utilized flakes varies by level, only a handful of the other possible fabricating artifacts are present.

Discarded faunal remains that leave traces of the techniques and of the decisions that went into animal processing are found in abundance, adding another dimension to the stone tools analysis. The bison bones themselves provide primary data for food preparation and animal acquisition. These are sociocultural practices, with social and symbolic, as well as nutritional and economic, dimensions. Using data from faunal assemblages to discuss social processes in hunter-gatherer sites can lead to further understanding

Table 4.2. Possible Fabricating and Butchering Tools Per Level

	Site total	First (CL9)	Middle (CL6)	Last (CL1)
Utilized flake	500 (79%)	105 (78%)	11 (92%)	26 (72%)
Scraper	59 (9%)	16 (12%)	0 (0%)	1 (3%)
Biface	56 (9%)	9 (7%)	0 (0%)	5 (13%)
Abrader	10 (2%)	2 (1%)	0 (0%)	1 (3%)
Awl	7 (1%)	1 (1%)	1 (8%)	1 (3%)
Drill	2 (0.5%)	1 (1%)	0 (0%)	1 (3%)
Graver	2 (0.5%)	0 (0%)	0 (0%)	1 (3%)
TOTAL	636	134	12	36

of issues involved in production and processing and can be used to address broader economic and social patterns on the Plains.

In terms of the order of events, animals were first killed elsewhere. Hides and some meat were removed at the kill site or sites and the carcasses were disarticulated into transportable parts. The hide would have been brought to the Donovan site, and there made into useable products. Other activities would include pemmican production, meat drying, and tool and ornament manufacture. The number of identified bison bones varies from level to level, but the total number of animals ranges from four to six per occupation (table 4.3). This number might increase if more of the site were excavated, although testing suggests that the density of faunal remains decreases dramatically within several meters.

The site assemblage appears to be a product of small-scale hunting parties, probably conducted by an extended family or related families. Therefore, this site does not provide evidence of communal hunting of several hundred buffalo as witnessed at other late prehistoric sites farther west on the Northwestern Plains, such as Glenrock (Frison 1970), Wardell (Frison 1973), Big Goose Creek (Frison et al. 1978), Piney Creek (Frison 1967), and Vore (Reher and Frison 1980). On the other hand, the difference between four and six animals weighing twelve hundred to two thousand pounds may be extreme in terms of amount of food. During the last occupation, people brought back parts of one and a half times more animals than either of the previous times. This may partially account for the higher ratios of bone fragments compared to the other levels.

Considering transport decisions that left only specific parts of each animal present at the site can augment the information about the number of animals per level. The decisions about what portions of the animal to bring to the processing area and what to leave behind remained relatively stable during the three occupations (table 4.4). The extremely well-preserved nature of the bones, with negligible weathering, rare incidence of carnivore modification, and lack of density-derived attrition, suggests

Table 4.3. Bison Per Level

	First (CL9)	Middle (CL6)	Last (CL1)
Number of identified specimens (NISP)	840	283	1,016
Minimum number of individuals (MNI)	4	4	6

that postdepositional processes did not impact the assemblages (see Scheiber 2001).

This means that patterns are probably due to cultural practices. The percentage of identified bone elements (%MAU) from the backbone, ribs, and feet is particularly low. Instead, people focused on transporting high-marrow-content parts. These choices did vary from level to level. Sometimes the forelimbs are more represented and sometimes the hindquarters are. This variation may be due to seasonality, animal condition, later intended activities, preference for bones with higher quality marrow, or idiosyncratic behavior on the part of the processors. Based on the location of more than two thousand identified bone elements, we know that people rendered all parts of the animals in the same area without separate butchering piles for different animal portions, thus decreasing the chance that missing elements are located in unexcavated portions of the site. Additionally, the actual bone elements brought to the processing site do not seem to correlate with evidence of hideworking, meaning that the level with the most hideworking tools does not differ significantly from the other two levels in body part transport.

A weak relationship exists between general utility of a particular element and the quantity of that element present at the site (figure 4.3). People did not seem to be making decisions based on general utility, a combination of meat, marrow, and grease (Binford 1978). The parts with the highest meat (such as the ribs) are not represented by bone elements.

Table 4.4. Percent Minimal Animal Units (%MAU) Per Level

Body Part	First (CL9)	Middle (CL6)	Last (CL1)
Mandible	83	17	63
Upper vertebrae	33	33	50
Lower vertebrae	80	33	75
Ribs	19	11	22
Scapula	50	33	38
Forelimbs	100	50	100
Innominate	100	50	63
Hindlimbs	100	100	50
Feet	13	17	19

See Binford (1978) and Lyman (1994) for discussion and calculation of %MAU. Values represent the maximum %MAU in each category. Upper vertebrae = cervicals, thoracics; lower vertebrae = lumbar; sacrum; forelimbs = humerus, radius, ulna, metacarpal; hindlimbs = femur, tibia, metatarsal; feet = phalanges, sesamoids.

The parts of the body that were brought back to the site are primarily those with the highest quantities of marrow and bone grease. Meat may have been cut from the bones while at the kill site as part of primary field butchery. Intensive marrow production is evidenced by the highly fragmented nature of the bones found at the site. Even those bone elements that do not have much marrow were crushed into small fragments, possibly to reduce them to fit into pots for boiling or cooking. Based on generalized utility, a kill site should have the least amount of the highest valued bones, leaving those with the lowest value behind at the site (Bunn and Kroll 1986; O'Connell et al. 1988). A processing camp should show the opposite, with most body parts coming from the highest valued bones. The Donovan data show that standardized functional models of bone transport do not apply. People made decisions based on particular and not idealized wants and needs.

Hammerstone impact marks are left when people crack open bones with hammerstones or other implements (White 1992). They are thus often associated with marrow and bone grease extraction and pemmican production. The number of impact marks present in the Donovan faunal assemblage is high, averaging over 30 percent of the number of identified specimens in each occupation (table 4.5). Of twelve element categories, seven do not show significant differences in the number of each element that exhibited impact marks. Although the number of impacts on bones recovered from the last occupation is lower for several elements, the overall pattern is consistent from level to level. Despite changing patterns in marrow extraction, hide processing, meat drying, and cooking per level, choices in the processing of the animals remained stable. These data show both consistency and variation in the way people engaged in a diverse set of activities at the site through time.

Attention to the faunal remains demonstrates that hideworking was only one part of a suite of activities relating to the processing of the bison. Other lines of evidence provide a more complete, if more ambiguous, picture of the processing activities. The Donovan residents were consistent in the way they were processing, even when they brought different parts of the animal back to the Donovan site, and even when other activities such as hideworking, cooking, and additional butchering occurred.

On the other hand, the presence of hideworking tools appears to be independent of bone transport decisions and pemmican manufacture.

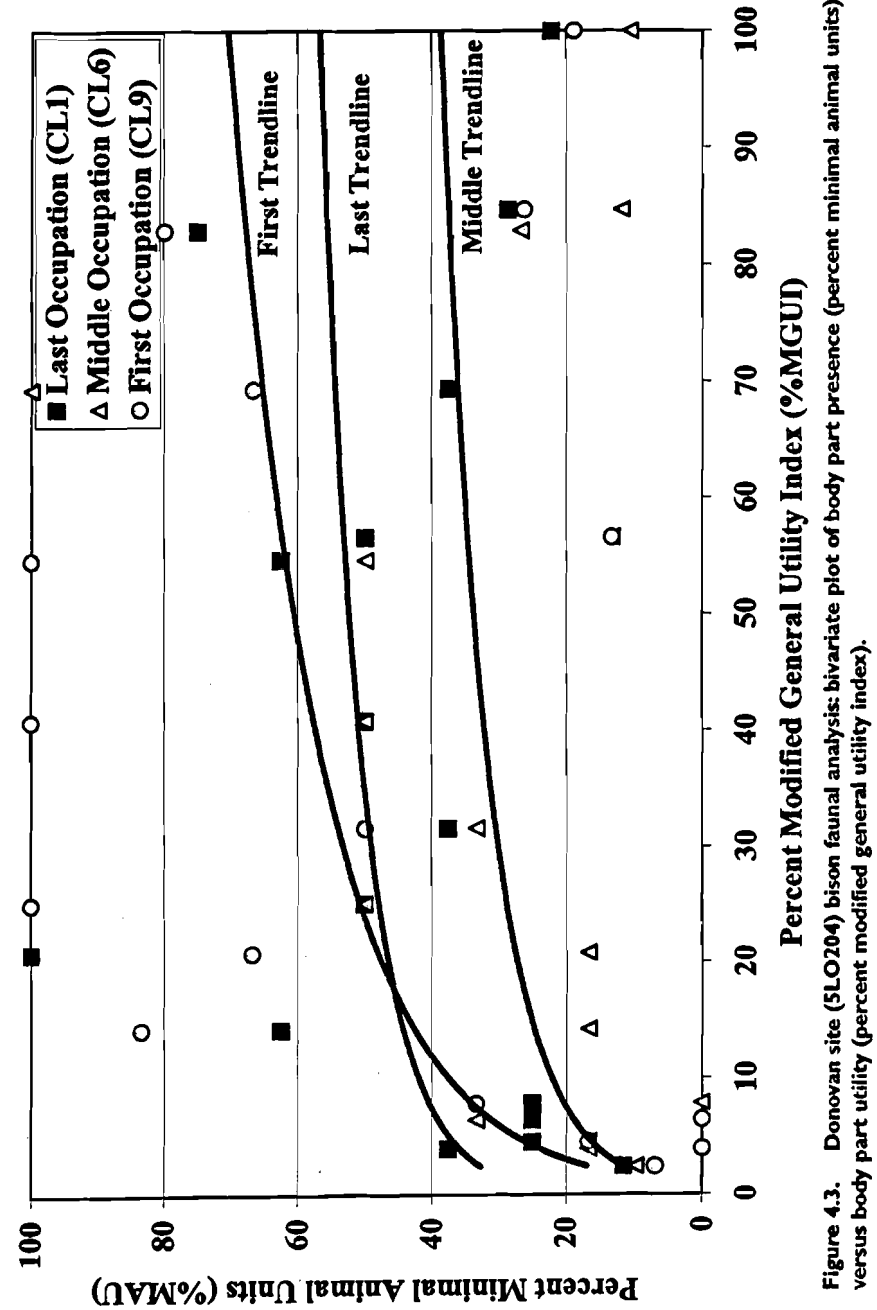


Figure 4.3. Donovan site (5LO204) bison faunal analysis: bivariate plot of body part presence (percent minimal animal units) versus body part utility (percent modified general utility index).

Table 4.5. Percent of Impact Marks Per Number of Identified Specimen Present (NISP) Per Level

Element	First (CL9)	Middle (CL6)	Last (CL1)
All	31.3	40.6	30.3
Mandible	26.8	16.7	17.6
Vertebrae	40.2	51.4	38.5
Ribs	25	28.4	19.4
Scapula	14.7	50	39.3
Humerus	70.6	53.8	65.7
Radius	43.8	100	54.2
Ulna	42.9	100	47.4
Femur	46.2	63.2	78.6
Tibia	42.4	46.7	50
Long Bones	34.2	27.8	36.8
Innominate	33.8	53.8	29.1

Evidence of hideworking does not necessarily correlate with the way people handled animals or made decisions about transporting and processing.

My research focuses not only on resource acquisition, but how a group organizes and structures the use of these resources. My focus is not limited to nutritional aspects of the bison brought back to Donovan or subsistence strategies per se, but rather is the range of methods and practices for disarticulating, processing, and cooking, and how these actions are expressed. The structured activities involved in processing animal remains, rendering the animal from hoof to hide, was a coordinated effort that was learned through repetition and experimentation and passed down to successive generations of children. Some of these children later returned to the site and coordinated their activities in much the same way as their ancestors.

The kinds of activities that occurred at the Donovan site likely played a role in forming hunter-gatherer identities, especially considering that the same or related families almost certainly returned to the site every several years or generations. Children probably learned about butchering and disarticulating animals, marrow processing, meat drying, and hideworking when they were young. We have no reason to doubt that the technical skills that were so valued in young women of the historic period would have been an important socialization tool of young people five hundred years earlier. Greene (2001, 1,049) states, "Girls' instruction in craft production [such as hideworking, clothing manufacture, and bone bead mak-

ing] was early, rigorous, and universal." Was it already universal on the Plains when the Donovan residents occupied the site?

Late Prehistoric Foraging and Farming

Another consideration of these data involves shifting gender roles associated with the transition to and from horticulture. In other areas, archaeologists have examined changing gender relations associated with increased sedentism, dependence on cultivation, and ceramic production (Crown and Wills 1995; Haaland 1997; Hastorf 1991). Pottery vessels are often associated with women's labor (Crown and Fish 1996; Wright 1991), and women probably played integral roles in processes of domestication and increased sedentism (Haaland 1997; Hastorf 1998; Watson and Kennedy 1991). In Plains horticultural societies of the eighteenth and nineteenth centuries such as the Hidatsa, Mandan, Arikara, Lakota, and Pawnee, women's primary roles were as food producers, tending and growing crops. They also processed wild animal and plant products and were the producers of ceramics (Lehmer 2001; Parks 2001a, 2001b; Stewart 2001; Wood and Irwin 2001). During those times that the group temporarily moved away from the villages, the women were away from their main tasks associated with the fields and instead focused on animal processing, gathering wild plants, dressing hides, perhaps hunting small animals, and generally supporting the camp during the hunting season.

According to Echo-Hawk (2000, 286), in Pawnee oral history, the Mother Corn Era began around AD 1000, when corn became important and was "accompanied by social upheavals related to the economic empowerment of women." Increased use of maize in the New World has been linked to "political stratification, power centralization, and social and religious realignments" (Hastorf and Johannassen 1994, 436). At the same time as these purported changes, some people may have left the newly formed villages and spent at least part of their time hunting buffalo in the Western Plains at sites such as Donovan. This shifting focus back and forth between farming and hunting may have further altered gender roles and the role of women in society. Did status change during hunting trips or in those communities that lived full-time on the Western Plains?

Much of what occurred during the 250 years of return to the Donovan site remained consistent and constant, suggesting that the same families

and their children returned to the site, although each visit brought slight variations in the processes and activities. If anything, an increased focus on marrow production may be indicated through time, but not necessarily a concomitant increase in the preparation of hides, a heavily traded item several hundred years later. We do not know how these seasonal changes, movements, and contacts affected women who were away from hamlets and farmsteads and crops, but we do know that obtaining animal products remained a priority for those who visited the site time and again, and certain individuals were probably more likely to be assigned the tasks associated with processing those animals. Even if we cannot differentiate task-specific gendered activities, some division of labor probably existed, and women were likely responsible for many of the tasks evidenced by the material record at the Donovan site.

Conclusion

One result of examining the day-to-day processing strategies and the unconscious and conscious choices that affect how a site is structured is that the *people* are reentered into the interpretation of events. Every step involved in the manufacture, use, and discard of these objects reflects the daily practices of the people who left them.

The field is wide open for nonfunctional, non-subsistence-based, nontypological, nonadaptational explanations of the Plains past (Duke and Wilson 1995; Hudecek-Cuffe 1998; Krause 1999). Many, although not all, of these topics are ideally suited for intrasite microscale studies focusing on details that can be used to address larger questions. It is precisely the small daily outputs that create the record used in coarse-grained narratives.

Acknowledgments

I would like to thank Lisa Frink and Kathryn Weedman for inviting me to participate in the Gender and Hide Production symposium at the Fifth World Archaeological Congress. I would also like to thank Charles Reher and the University of Wyoming for inviting me to participate in excavations at the Donovan site, for sponsoring my work there, and for allowing

me to analyze the faunal materials from the site. Countless field school students and volunteers assisted in the excavations that produced the artifacts discussed in this chapter, and dozens of undergraduates helped with the initial processing of bones for the analysis. I would also like to acknowledge the importance of the facilities at Indiana University's Zooarchaeological Laboratory for my continuing research.

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