

THE 2008 ARCHAEOLOGICAL FIELD SEASON AT BLACKFOOT CROSSING HISTORICAL PARK



Blackfoot Crossing Historical Park Archaeological Research Project Annual Summary Report # 1

By

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Executive Summary

Blackfoot Crossing Historical Park (BCHP) and the Department of Archaeology, University of Calgary have entered into a cooperative archaeological research project intended to further scientific investigation of the famous Cluny Fortified Village site (EePf-1), investigate other archaeological resources at the Siksika Nation, and to incorporate the scientific work into an educational interpretive program.

The first season of fieldwork in the project was conducted during the 2007 field season (14 May–28 June) under the direction of Dr. Brian Kooyman. Two trenches, both 1 m wide, were opened during the 2007 field season to assess the One Gun Phase component at the site and to collect flotation samples along the two transects created by the trenches. The first trench, 15 m in length, crosses the fortification trench and one of the pit features before entering the interior of the enclosed site area then ending at the edge of one of Richard Forbis' 1960 excavation units. The second trench, 1 m to the east of the first and 7 m long, continues into the interior of the site ending near the edge of a large natural depression. Flotation is an extremely time consuming operation and the field crew was unable to complete excavation of the One Gun Phase component during the 2007 field season.

The second season of fieldwork was conducted during the 2008 field season (14 May–28 June) under the direction of Dale Walde. Rain was a constant source of delay during 2008 and only 10 full days of excavation were possible (approximately half the usual field time allowed by the field school schedule). The second season program initially had four objectives: 1. to complete the excavation and flotation of matrix from the One Gun Phase component in the 2007 trenches; 2. to test deeper matrices in selected units in the 2007 trenches for deeper and older components in the site; 3) to initiate a testing program to determine the extent and nature of archaeological resources in and near the enclosed area of the site, and 4) to take advantage of new surveying and mapping technology to create a new, highly detailed map of the site and its immediate area. As the field season neared completion, conversations with BCHP personnel indicated the presence of other, nearby archaeological resources and a fifth objective—to conduct a short archaeological

reconnaissance in the general area of the Blackfoot Crossing Historical Park Interpretive Centre—was added.

The excavation and flotation of the One Gun Phase component in the 2007 trenches was completed, with one exception, during the 2008 field season and the results of preliminary analysis of excavated materials and features in that 22 m² area are presented in this report. A report on the analysis of the flotation sample is awaiting completion of laboratory work and will be forthcoming when that work is concluded.

Excavations in the One Gun Phase component of the trenches revealed several very interesting features. A short sandstone “wall” along the north side of Pit 4 is a feature type unique to the site and, indeed, to the precontact Canadian Plains. That feature was encountered on the last day of excavation and awaits completion of excavation and recording during the 2009 field season. Also in Pit 4, a gravel lining was found in the base of the pit; again, a unique feature requiring further study both within the pit and in other pits in the site. Excavations in the fortification trench revealed the presence of a relatively dense concentration of faunal material, suggesting a secondary function as a trash disposal location.

Following completion of the One Gun Phase occupation level in the 2007 field season trenches an additional twenty-one (21) 1 x 0.5 m test units were opened to assess the distribution of materials within the enclosed site area. A total of 10.5 m² were excavated during the test excavation phase of the fieldwork. Those tests revealed the presence of a particularly dense One Gun Phase occupation in the eastern portion of the enclosed area. Features exposed include a hearth, a fire-broken rock dump, a possible hide-scraping station, and a portion of the palisade wall. Careful excavation of features suggests multiple use and may suggest that the site was reused on several occasions. This may alter the current interpretation of the site as a single, very short term occupation.

Deep testing in the 2007 trenches and in selected 2008 test units indicates the presence of at least three precontact components underlying the One Gun Phase occupation. These lower components have not yet revealed diagnostic artifacts and are sparsely and intermittently represented in the test units.

Survey and mapping of the site and its area was only partially completed during the 2008 field season due to the presence of dense tree and bush cover in large areas of the site. Where accurate mapping could be accomplished, at least two new interpretations of data did become available. Firstly, the course of the fortification trench seems to have been affected by the location of the large pit features at the periphery of the site, suggesting a previously undetected sequence of construction with building of the pit features occurring before construction of the fortification trench. Secondly, extremely detailed survey and mapping in one area of the site revealed the presence of a third palisade. This strongly implies multiple occupation of the site, again suggesting that current interpretations of the site as a single, short-lived occurrence will have to be revised.

A pilot program of public interpretation tours led by student volunteers was instituted and was well-received by members of the public and by the student participants.

A brief reconnaissance by three volunteer students guided by Leonard Bearshirt was conducted on weekends following the formal end of the field season. That reconnaissance revealed the presence of a number of interesting circular vegetation patterns and, most importantly, an arrangement of five pits a few hundred metres from EePf-1 that strongly resemble pit houses. If these are, indeed, pit houses, they would be unique to the Canadian Plains and of extremely high scientific and cultural significance.

The 2008 field season, given its rain-shortened length, was extremely successful in revealing important, new information about the Cluny site and its surroundings. The need for further work at the site and its vicinity is clearly demonstrated.

The following recommendations for further work during the 2009 field season are made:

- a. that the tree and bush cover be removed from the site prior to the beginning of the 2009 field season to permit detailed and complete mapping of the site.
- b. that part of the 2009 field project be devoted to beginning a complete exposure of the palisade area to determine the sequence of construction as well as the full course of each portion of the wall.
- c. that part of the 2009 field project be devoted to the opening of a large block excavation to reveal patterned relationships amongst features and to identify

the remains of any living floors and structures on the east side of the Cluny Fortified Village site.

- d. that part of the 2009 field season be devoted to completing excavation and recording of the sandstone “wall” feature in Pit 4.
- e. that part of the 2009 field project be devoted to further testing of the fortification trench using 2x2m units to examine its possible secondary function as a trash disposal area.
- f. that part of the 2009 field project be devoted to detailed mapping and test excavation of the possible pit house features discovered off-site during the survey exercise to assess their function and significance.
- g. that the program of public interpretive tours instituted during the 2008 field season be continued and expanded and that exploratory development of other public education programs be initiated during the 2009 field season.

Acknowledgements

The excavations conducted at the Cluny site along with the following brief reconnaissance are part of a developing partnership between the Department of Archaeology, University of Calgary and Blackfoot Crossing Historical Park. This partnership marks an important step in the conduct of academic archaeological research in Alberta. Special thanks are due to Jack Royal and Shane Breaker of Blackfoot Crossing Historical Park and to Brian Kooyman of the Department of Archaeology, University of Calgary for their cooperation, assistance, and enthusiastic interest in helping bring the project to fruition. Leonard Bearshirt was passionate and supportive in suggesting and helping with the post-field school reconnaissance exercise.

The excavations were conducted by students of the Department of Archaeology Archaeology Field School. Those students were, participating in Archaeology 306, Kelsey Barnum, Britney Bowman, Danielle Dalton, Christy Filmore, Derek Graf, Cyrus Haghghi, Kristi Holmes, Caroline Humphrey, Nicole Jessup, Tobi Krahulic, Sydney Lauzon, Sarah Lebedoff, Jalyn Neysmith, Jordynn Theines, and Jennifer Verge, as well as Carol Ramsey (Archaeology 506).

Leanne Gladstone served as my teaching assistant and excelled in that position.

Caroline Humphrey, Sarah Lebedoff, and Jalyn Neysmith deserve extra thanks for initiating and carrying out the brief but very productive post-field school reconnaissance on a volunteer basis.

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1 Introduction

The Cluny Fortified Village (EePf-1, Figure 1) is one of the more famous and significant archaeological sites of the Canadian Plains. Located in the valley of the Bow River in the Siksika First Nation, the site has been visited and speculated upon by Euro-Canadians since 1875 (Forbis 1977:6). Scientific excavation began in 1960 with work by Richard G. Forbis (1977) and the results of that work have formed the basis of further speculation as to the origins and relationships of the precontact occupants of the site ever since (e.g., Byrne 1973, Walde 2003, 2004). The construction and opening of the interpretive centre at Blackfoot Crossing Historical Park (BCHP) and the development of an interpretive program incorporating the Cluny site coincided reasonably well with the development of new information and ideas regarding the distribution of Cluny Complex ceramics and, importantly, on the role of maize and contact with tribal level horticulturalists on Late Precontact Canadian Plains peoples (e.g., Walde 2006a, 2006b). Timing, new contexts, and new questions provided strong reasons and opportunities to conduct further archaeological work at the site to the mutual benefit of the Siksika and academic archaeologists. Blackfoot Crossing Historical Park and the Department of Archaeology, University of Calgary (DAUC) accordingly entered into a cooperative archaeological research project intended to further scientific investigation of the Cluny Fortified Village site (EePf-1), investigate other archaeological resources at the Siksika Nation, and to incorporate the scientific work into an educational interpretive program.

The first season of fieldwork (14 May-28 June) in the project was conducted during 2007 under the direction of Dr. Brian Kooyman. Two trenches, both 1 m wide, were opened during the 2007 field season to assess the One Gun Phase component at the site and to collect flotation samples along the two transects created by the trenches. The first trench, 15 m in length, crosses the fortification trench and one of the pit features before entering the interior of the enclosed site area and ending at the edge of one of the 1960 DAUC excavation units. The second trench, 1 m to the east of the first and 7 m long, continues into the interior of the site ending near the edge of a large natural depression. Flotation is an extremely time consuming operation and the field crew was unable to complete excavation of the One Gun Phase component during the 2007 field season.

The second season of fieldwork was conducted during the 2008 field season (14 May–28 June) under the direction of Dale Walde. The second season program initially had four objectives: 1. to complete the excavation and flotation of matrix from the One Gun Phase component in the 2007 trenches; 2. to test deeper matrices in selected units in the 2007 trenches for deeper and older components in the site; 3) to initiate a testing program to determine the extent and nature of archaeological resources in and near the enclosed area of the site, and 4) to take advantage of new surveying and mapping technology to create a new, highly detailed map of the site and its immediate area. As the field season neared completion, conversations with BCHP personnel indicated the presence of other, nearby archaeological resources and fifth objective—to conduct a short archaeological reconnaissance in the general area of the Blackfoot Crossing Historical Park Interpretive Centre—was added.

The report below summarizes the results of the work conducted during the 2008 field season.

Integration of the scientific work at Cluny into a program of public education and interpretation is an important objective of both BCHP and DAUC. Accordingly, a small pilot program of public site interpretation was instituted during the 2008 field season using volunteers from the Archaeology 306 field school students. These students, following a brief training session, led tours of the Cluny site for school groups and interpretive centre visitors. The tours were well received and continuation and expansion of the program is recommended.

2 A Brief Summary of Late Period Culture History in Southern Alberta

Archaeologists have been able to document human occupation in what is now southern Alberta over roughly the last twelve thousand years. The long history of human endeavour there is both complicated and exciting; a monument to the ingenuity and determination of Canadian Plains First Nations peoples. It is, however, only the later period of that history that is directly relevant to the excavations at the Cluny site. The following summary is based on longer treatments by Walde et al. (1995), Walde and Meyer (2003) and Walde (2003, 2004) and the interested reader is referred to those works for a more detailed explication.

Forbis (1977:16–17), using the combined evidence of a seriation of projectile points along with the presence of copper or brass knife blades and horse bones as well as a single radiocarbon date, to estimate age, suggested that the occupation at Cluny occurred at about A.D. 1740 during an archaeological cultural stage now known variously as the Protocontact or Indirect Contact Period (roughly, A.D. 1700–1754 in Alberta). This cultural stage refers to a time on the Canadian Plains before EuroCanadians and Americans arrived in the area but a time when their manufactured goods and horses were present, brought in along well-established First Nations trade and exchange networks from settlements to the northeast and southeast. Byrne (1973), working primarily with pottery from the Cluny site as well as with ceramics from the Morkin site (Cluny Complex pottery) some one hundred kilometers to the southwest of the Cluny site, felt the material culture from these occupations was dramatically different from the majority of sites regularly found in southern Alberta and named a new archaeological phase—the One Gun Phase—to account for the dramatically different materials. Since the time of the work of Byrne (1973) and Forbis (1977), a number of additional, very late, components containing Cluny Complex ceramics have been recovered elsewhere in southern Alberta (Walde 2006a).

Most archaeologists who have worked with One Gun Phase materials (e.g., Byrne 1973, Forbis 1977, Walde 2003, 2004) suggest the One Gun Phase represents a short-lived and very late intrusion into southern Alberta of people ultimately related to horticultural village groups living in the Middle Missouri area of North Dakota, perhaps the Hidatsa

who were somewhat more given to moving beyond the Middle Missouri area than their Mandan neighbours. To better understand the implications of this suggestion, however, it is necessary to go back a bit further in time to an era predating the appearance of the people who occupied the Cluny site.

Archaeologists identify the cultural stage prior to the Protocontact Period by a variety of names but these may be summarized as referring to a Late Precontact Period or a Late Period (ca. 500 B.C.–A.D. 1700). This period refers to a time during which peoples of the Canadian Plains adopted the bow and arrow, began making pottery, and conducted very large and complex bison kills. These were “dog days” prior to the adoption of the horse as a traction animal. Dogs were used to carry and haul the necessities and luxuries of daily life and the people walked. Warfare was conducted by foot soldiers carrying very large, round shields and extensive trade and exchange networks linked the plains bison hunting peoples with horticultural maize-growing peoples to the southeast and with hunter-gatherer groups elsewhere on the Canadian Plains and beyond. There were at least two named cultural historical entities (the Besant Phase and the Avonlea Horizon) present on the Canadian Plains during the early part of the Late Period but our story will begin later at about A.D. 900 with the Old Women’s Phase, which lasted through to the Contact Period (beginning with the first recorded EuroCanadian arrival in southern Alberta in 1754).

The Old Women’s Phase is a very long-lasting (over 800 years) and very large archaeological culture that may have extended during its earliest times from southern Alberta east through the southern Saskatchewan Plains into the southwest corner of Manitoba and south into northern Montana (see also Peck 1996 and Peck and Ives 2001). The phase is characterized by a distinctive grouping of projectile point styles known as the Cayley Series as well as by a unique grouping of pottery types collectively known as Ethridge Ware. The term “phase” is often understood to refer not only to a distinct grouping of archaeological materials but also to a recognizable group of people, specifically a “tribe.” Tribe is an anthropologically ambiguous and problematic term and many archaeologists have a great deal of difficulty accepting a simple correspondence between archaeological remains and any self-identifying group of people. Nonetheless,

most archaeologists working in southern Alberta, if pressed, would suggest that the Old Women's Phase most probably represents the material culture remains of ancestors of present-day Blackfoot groups.

As a phase, Old Women's does present some conceptual issues. It is extremely large for a tribal grouping, regardless of how that term might be conceived, and many spatial and temporal differences amongst assemblages tend to be glossed over with the application of a single homogeneous identification to a wide range of sites and artifacts. Future research may very well alter and reduce the spatial configuration and size of the phase and might also elevate it to the level of Culture (a grouping of similar phases) to accommodate the range of temporal and regional variation within that reduced area. Even anticipating technical changes to the Old Women's cultural historical entity, however, it is clear that Old Women's Phase groups certainly occupied southern Alberta by at least A.D. 900 and remained there until the arrival of EuroCanadians in the mid-1700s A.D. The Old Women's Phase may very accurately be understood to represent the indigenous occupants of southern Alberta over at least the last eight hundred years before the Contact Period. As noted above, many archaeologists equate the Old Women's Phase with ancestors of present-day Blackfoot groups.

Whether or not early Old Women's sites continue to be recognized on the Canadian Plains to the east of southern Alberta, it is clear that by A.D. 1200 or so a new and very different group of people arrived on the plains of southern Saskatchewan, replacing whoever was there before. A distinctive suite of pottery, arrowhead style, and lithic procurement patterns distinguishes the Mortlach Culture from its predecessors and from surrounding contemporaneous groups. The abruptness of the transition suggests an actual movement of people into the area that displaced the previous occupants. Mortlach material culture suggests a distant descendant relationship with Woodland horticultural peoples to the south and east of Saskatchewan and it has been strongly suggested that Mortlach represents the material remains of ancestors of present-day northern plains Nakoda (Assiniboine) groups, although other arguments have been made (see Walde 2003 for details of those discussions).

Some Cluny Complex pottery bears a certain resemblance to pottery types found in Mortlach Culture assemblages and a few investigators suggest a close relationship between the two groups. However, it seems clear to this investigator that the relationship is a relatively distant one (see Walde 2003, 2004 for a full discussion) and that the two entities are entirely distinct.

Like One Gun, Mortlach Culture components also appear later in the period in southeastern and south-central Alberta sites (Walde 2003, 2006a). Dated assemblages tend to occur roughly contemporaneously with the Cluny and Morkin radiocarbon dates in the Late Period sequence in southern Alberta (Walde 2006a:99) and may, like One Gun, represent an intrusion or series of intrusions of non-local people into the traditional territory of Old Women's Phase groups. The brief appearance of the two "foreign" archaeological cultures in southern Alberta at the end of the Late Precontact Period and into the Protocontact Period is a matter of considerable interest.

David Thompson (1968), an early explorer of the Canadian West, met and spoke with a Pikanii chief (of Cree descent) named Saukamapee in 1787. Saukamapee, by then an extremely old man, spoke of his early days serving as a warrior for his Pikanii allies and fighting the "Snakes" who had intruded into Blackfoot territory and had, for a time, driven them out of the southern portions of their traditional lands in southern Alberta. While there are several problems of consistency and dating in Thompson's narrative of Saukamapee's account, which he wrote from memory as an 80 year old man recalling his second journey into the interior at the age of seventeen (Russell 1991), if Thompson's estimate of Saukamapee's age is roughly correct then the events he recalled would have occurred nearly contemporaneously with the intrusion of Mortlach and One Gun groups into what had formerly been the more or less exclusive domain of Old Women's peoples. Identifying the ethnicity of the "Snakes" from Thompson's account has been a challenge to archaeologists for decades and it may be that the present study will help define the problem more closely.

The near juxtaposition in time of the archaeological and earliest written records in southern Alberta gives investigators a strong motivation to explore the Late Precontact

and Protocontact Periods in close detail. And the invitation to go back to the Cluny site with new ideas and new approaches to excavation, analysis, and interpretation will make an excellent opportunity to begin and guide that exploration.

3 The 2008 Field Season at the Cluny Fortified Village Site (EePf-1)

3.1 Methods

The 2008 excavations were conducted using the same grid system established by Brian Kooyman for his 2007 excavations. That grid is tied into Forbis's secondary datum point, which he placed inside the fortifications at Feature F-56 (Forbis 1977:19). The 2008 excavations were firstly aimed at completing the excavation and flotation of matrix in the One Gun Phase component of the two trenches opened by Kooyman during the 200y field season (Figure 1).

Excavation was conducted in the 2007 trenches within fifty cm square quadrants of one metre excavation units and in five cm arbitrary levels. Where matrix changes warranted, the five cm arbitrary levels were subdivided into spits whose thickness was determined by natural stratification within the matrix. For the flotation portion of the excavations, all matrix excavated was screened first through ¼" screening then floated. Materials recovered *in situ* and in the screen were bagged and taken to the DAUC field school laboratory for cleaning, cataloguing and analysis. Those materials are described in the report below. Floated materials were divided into heavy and light fractions, placed in cloth bags, and hung to dry. Dried samples were then taken to the DAUC laboratories for identification and analysis. Results of analysis of the materials recovered through flotation will be described in a future report.

Following completion of the excavation of the One Gun Phase component in the 2007 trenches, an interval sampling test excavation program was instituted to establish the extent and nature of the archaeological resources present in the site. The grid extends beyond fortified area of the site but all tests save one were conducted within the fortifications. Test excavations were placed at ten metre intervals using Forbis's secondary datum point as the origin of the grid to maintain continuity in data collection and recording procedures. Excavation units were fifty by one hundred cm in horizontal extent. Several test units, as well as several units in the 2007 trench were excavated below the One Gun Phase component to explore the nature of any cultural materials predating that occupation. Excavation procedures mirrored those used in excavation of the 2007 trenches but only feature matrix collected in bulk for future flotation in the

DAUC field school laboratory. Flotation results of floatation of those materials will be made available in a forthcoming report.

The 2008 excavations were conducted during a very rainy spring. Rain cancellations resulted in only ten full days of excavation, approximately half the expected number. Nonetheless, some very interesting results were obtained and those results are summarized below.

3.2 Results from the 2008 Field Season

3.3 Results of Work at the Cluny Fortified Village Site (EePf-1)

3.3.1 Mapping of Fortification Features

Advances in mapping technology since the production of Forbis's maps in the early 1960s (Forbis 1977) required that a new survey of the site area be conducted. Carol Ramsay, as part of her Archaeology 506 project, carried out that survey with the assistance of Archaeology 306 students who provided rodperson services and produced a shaded relief map using a total station and Surfer mapping software (Golden Software, Inc. 1999). The survey and subsequent mapping was severely hampered by dense brush and tree cover on the site and it is recommended that the vegetation cover be removed during the 2009 field season to permit a full and accurate survey of the site area. The partial map (Figure 1) produced is, however, quite instructive in the areas of complete coverage and provides some details not noted earlier.

Examination of the partial site map prepared during the 2008 field season clearly indicates that the placement of fortification trench was influenced by the positions of the large pit features (Figure 1), as the course of the ditch is deflected around them. This strongly suggests that the pits were installed prior to the construction of the surrounding trench. Interruptions in the ditch line suggest that access to the settlement was at least symbolically limited to a few avenues between the large pit features. People stationed in the pits could very readily control these access routes.

The pits may have served as defensive positions as work on the ditch progressed and may well have continued to serve in that function as a type of bastion as it appears that the palisade or screening wall is not present directly behind any of the pits excavated to date. Relatively widely spaced posts in front of the pits (Figure 1, Forbis 1977:Figure 6) could

have served to partially screen their occupants while still allowing for a good view of the area outside the settlement.

The palisade appears to have consisted of relatively thin (ca. 5 cm) posts formed from local poplar saplings (Forbis 1977:34). Forbis (1977:34) suggests, given the relatively shallow burial of the posts in the palisade trench, that the wall may well have been supported with some form of internal bracing structure. The relatively flimsy wall construction could suggest that the feature functioned more as a screen to help direct and control movement in and out of the settlement than as a strongly functional defensive installation.

Forbis's excavations revealed two parallel palisade sections in the vicinity of pit Feature 7 (1977:Figure 6). He did not feel that this represented a second wall construction during a second occupation of the site, suggesting instead that the second section of palisade represents a mistake or a double wall section (1977:34). That second section could, however, very well indicate that the site was occupied and repaired on more than one occasion. A linear feature revealed during the 2008 mapping survey (Figure 1) may indicate a third palisade line and lend support to a suggestion that the site was reoccupied several times before its use was discontinued. Distinct multiple use of Feature 2008-008 (see below), partially excavated during the 2008 field season, may also indicate multiple occupation events.

3.3.2 Seasonality and Length of Occupation

Foetal bone recovered from the fortification ditch in unit 59S128E suggests a winter occupation. It is unlikely that the fortification trench and the large pits could have been dug using hand tools formed of wood, bone, or stone could have been excavated in the frozen ground and occupation for some time prior to winter freeze-up is probable.

As noted above, the presence of multiple palisade constructions and multiple use of at least one feature suggest that the site was occupied by One Gun Phase people on several occasions.

3.3.3 2008 One Gun Phase Finds

Definitions of archaeological find types are based upon reasonably standard archaeological practice and follow Dyck and Morlan (1995) closely.

3.3.3.1 Features

Features are remains of structures or patterns of material culture debris that has been preserved in primary context but are not generally able to be excavated as a whole unit. At the Cluny site and other Canadian Plains sites, hearths, pits, and boiling pits are human formed constructions/patterns that may be subsumed under the title “feature.” The relationships of the constituent parts of features must be recorded by archaeologists as notes, drawings, and photographs, a practice known, perhaps optimistically, as “preservation by record.”

3.3.3.1.1 Feature 2008–001

Excavation in ash and trash disposal Feature 2008–001 (Plates 1 and 2) was initiated during the 2007 field season and was completed during the 2008 field season. Work continued from 15–20 cm below surface in the SE and SW quadrants of 72S128E. Large portions of that feature were excavated from 71S128E and the north half of 72S128E during the 2007 field season. During the 2008 field season, the feature matrix was screened through ¼” hardware cloth and collected for flotation and analysis to be conducted in the future. The mixture of burned and unburned materials in the feature and the area immediately surrounding the feature suggests a series of dumping actions from a variety of sources.

3.3.3.1.2 Feature 2008–003

Feature 2008–003 (Plate 3), a circular fire–broken rock feature in 75S117E, may be a trash–filled boiling pit. Much of the fire–broken rock is of sufficient size to be useful as heating rocks (Brink and Dawe 2003) and this rock pile may have been intended as a cache for future use, as well as a convenient waste disposal area. A number of stone tools including cobble choppers, cores, a hammerstone, a grinding stone, unmodified quartzite flake tools, and pieces of lithic debitage were also recovered from this feature. Many of the fire–broken rock pieces show impact marks, suggesting they were initially broken with hammerstones prior to being used as heating sources. Burned and unburned faunal and ceramic materials were also recovered from this feature along with fragments of

charcoal. No reddening was present below the feature and use as a rock-heating hearth does not seem probable.

3.3.3.1.3 Feature 2008-004

Feature 2008-004 may be considered a sub-feature of Pit 6 (Forbis 1977:Figure 4), appearing as a thick layer of gravel (ca. 10-15 cm) lining the bottom of the pit (Plate 3). No function may be confidently assigned to this lining at this time.

3.3.3.1.4 Feature 2008-007

Feature 2008-007 in 75S87E consists of the highly eroded remains of three upright bone pegs (Plate 4), the remains of which were collected and catalogued. Ethnographically and historically, pegs were frequently used to stretch and secure hides for scraping. The presence of this feature outside the fortification ditch indicates that activities were conducted outside the constructed camp and that accurate interpretation of the site will require survey and excavation beyond the confines of the fortifications.

3.3.3.1.5 Feature 2008-008

The north half of 75S137E was excavated to 30 cm below surface revealing the red stained earth of hearth Feature 2008-008 (Plates 5 and 6). This hearth was reburied to allow for further work during the 2009 field season. Unburned materials recovered immediately above the hearth stain suggest multiple use of the feature area. A thin layer of matrix between some of the unburned materials and the hearth stain may suggest the passage of some small amount of time between uses of the feature, perhaps suggesting a return to the site following temporary abandonment.

3.3.3.1.6 Feature 2008-009

This feature was a poorly defined ash dump containing cultural materials encountered between 18-21 cm below surface in 95S147E (Plate 7). Significant artifacts recovered from this feature include the base of a Plains Side Notch projectile point (Plate 8:b) and a neck/shoulder sherd from a Cluny Complex vessel.

3.3.3.1.7 Feature 2008-010

Feature 2008-010 consists of a single post mould in the SW corner of the NE quadrant of 75S147E (Plate 9). The post seems to be situated along the line expected for the palisade

and is probably associated with that feature. Further excavation of the palisade wall is need to establish its position as well as to recover any evidence of multiple construction events. Wood fragments were collected from the feature for future analysis.

3.3.3.1.8 Feature 2008–011

Feature 2008–011 may also be considered a sub–feature of Pit 6 (Forbis 1977:Figure 4), consisting of short wall stacked sandstone slabs along the north edge of the pit. The wall is of unknown height and length at present. This feature was encountered during the last few minutes of the last day of the field season and was reburied to allow for excavation during the 2009 field season.

3.3.3.1.9 Feature 2008–012

A possible post mould (Feature 2008–012) was noted between 25–30 cm below surface in 105S157E.

3.3.3.2 Ceramics

Artifacts, primarily pottery vessels, made from fired clay are found relatively commonly in Late Period Canadian Plains sites. The remains of several ceramic vessels were recovered during the 2008 excavations at the Cluny site. Three vessels can be identified using rim sherds excavated from the test units at 157E95S (Vessel 25) and 157E105S (Vessel 26) as well as a neck/shoulder sherd recovered from test unit 147E95S (Vessel 27). Vessel numbering is sequential following the series initiated by Forbis (1977).

3.3.3.2.1 Vessel 25

Vessel 25 is represented by eight rim sherds and a single neck sherd. The vessel appears to have been a vertical profile pot with a lip shape varying between T–shaped to an inward–expanding and upward–sloping T–shape (Plates 10 and 11) with a thickness of 16.30 mm. The rim below the lip is 10.38 mm thick. The lip surface is decorated with bottom–left, top–right angled dentate stamp impressions (Plate 10) that serve as the only surviving visible rim decoration. The dentate impressions have a mean height of 1.54 mm and a mean length of 2.69. The rows of decoration are separated by a mean distance of 2.71 mm (Table 1).

The approach used in finishing the rim is of some interest. Profile views and breakage patterns (Plates 10–11) suggest that the rim was initially formed by pulling a clay body vertically then lightly paddling it to roughly shape the rim. Vertical laminations and a loosely compacted paste in the profile support this interpretation. Possibly following a drying period, a second layer of more densely compacted clay was added to give the rim its final form. These two clay bodies appear to have been allowed to dry for some time before a third, very thin layer of clay was added to provide a plastic surface into which the dentate tool was pressed to form the decoration. The drying period prior to the addition of the final thin layer of clay seems to have made for a poor join and, on one sherd, this final layer has detached from the main clay body, emphasizing the sequence of manufacture (Plate 12).

The exterior surface of the rim has been smoothed, obliterating any traces of manufacturing technique.

The neck sherd has a smoothed exterior surface that has been decorated by a row of vertically oriented ovoid tool impressions, possibly finger marks (Plate 13).

3.3.3.2.2 Vessel 26

Vessel 26 is represented by three rim sherds (Plate 14). The vessel had a vertical, slightly insloping profile with a T-shaped lip (Plate 15) with a thickness of 12.75 mm. The rim below the lip is 7.78 mm thick. The lip surface is decorated with bottom-left, top-right angled dentate stamp impressions (Plate 16). At least two rows of horizontal dentate stamps decorate the smoothed exterior surface of the rim below the lip. The dentate impressions have a mean height of 1.84 mm and a mean length of 3.98 mm. The rows of decoration are separated by a mean distance of 4.01 mm (Table 1).

The rim appears to have been formed in a manner similar to that used for Vessel 25. A laminated, loosely compacted clay body forms the core of the rim and is surrounded by an unlaminated, more densely compacted clay body. It appears that the two horizontal rows of dentate stamps were added to the rim prior to the impressing of the lip surface. A thin break line below the lip surface (Plate 14) may indicate that a third, thin layer of clay was added to the lip following the formation of the two horizontal dentate stamp rows. Following the addition of the horizontal rows, the lip surface decoration was added with

enough force to cause the clay body to slump externally and partially obscure the uppermost dentate stamp row (Plate 14).

3.3.3.2.3 Vessel 27

Vessel 27 is represented by a single neck/shoulder sherd. The exterior obliterated surface of this sherd is undecorated—distinguishing it from its counterpart in Vessel 25 located 10 m to the east of this specimen.

3.3.3.3 Lithics

Lithics is a generic term referring to any recovered material made of stone. Unmodified lithics are natural forms that have not been modified by human activity. Types of human-modified lithics are defined below.

3.3.3.3.1 Unmodified

Unmodified cobbles and pebbles were collected when they occurred in non-gravel bearing matrices, that is, where their occurrence could be considered to be the result of human activity. Unmodified lithics may have been brought to the site to serve as raw material for tool manufacture or as raw material for stone boiling. The most likely source of unmodified pebbles and cobbles is the nearby Bow River. A total of twenty-seven unmodified cobbles and forty unmodified pebbles were collected.

A number (10) of small sandstone slabs were also encountered. Seven of these pieces were recovered from the “wall” on the north side of Pit 4 encountered on the last day of the 2008 field season (Feature 2008-011 described above). The remaining three are isolated finds. Forbis (1977:62) notes that sandstone slabs showing evidence of use as grinding surfaces were found during the 1960 excavations. The locating of these slabs in the “Unmodified” section may be a misplacement as people may have shaped the slabs into appropriate forms but there is to date no evidence of that.

A search for the nearest possible source of the sandstone will be conducted during the 2009 field season.

3.3.3.3.2 Fire-Broken Rock

Fire-broken rock is formed when cobbles and pebbles are repeatedly subjected to heating in a fire and subsequent rapid cooling in water. Fire-broken rock is often the result of a

cooking process known as “stone boiling.” This process consists of filling a hide-lined pit with water and placing quantities of smashed bone in the water. The water is then heated by placing rocks heated in a nearby fire into the water. Repeated heating and replacement of the rocks causes the water to boil and release grease from the broken bones. The grease can then be collected from the surface of the water to form an ingredient in the storable dried meat product known as pemmican. Repeated heating and cooling causes the rock eventually to crack and break until it become too small to be of further use and is discarded (Brink and Dawe 2003).

A total of one hundred and fourteen (114) pieces of fire-broken rock were recovered during the 2008 excavations. Of these, seventy-seven (67.54%) were found in Feature 2008-003 with the remainder occurring as a light scatter in the other test units.

3.3.3.3.3 Debitage

Debitage consists of lithic debris resulting from the manufacture of stone tools. This debris may consist of cores, shatter, and flakes (defined below).

3.3.3.3.4 Cores

Cores are pieces of rock from which material has been taken for use or further modification. Cores may simply be discarded following removal of material or may be re-used as, for example, heating rocks for stone boiling or as crude choppers when appropriately shaped.

Five minimally reduced quartzite cores were recovered during the 2008 excavations—three from Feature 2008-003. All the cores were subsequently used as heating rocks and are fire-broken, as well.

3.3.3.3.5 Flakes

Flakes are materials that have been removed from a core and show a distinctive striking platform on the proximal end. A striking platform is that place on the flake where force was applied to remove it from its parent core. Flakes may be discarded, used without modification, or subjected to further modification to form tools of specific shapes (e.g., arrowheads, knives, and so on).

Twenty-one flakes were recovered during 2008 excavations, although many of the pieces of shatter are broken flakes. Locally available lithics dominate the raw material types.

3.3.3.3.6 Shatter

Shatter is lithic debris resulting from the removal of material from a core. A defining characteristic is that shatter lacks a striking platform. Shatter may also be discarded, used without modification, or subjected to further modification to form tools of specific shapes, although perhaps not as readily as flakes.

Fifty-six pieces of shatter were recovered during the 2008 excavations. Most of this debitage was formed on locally available raw materials but occasional representation of Montana cherts and obsidian does suggest a certain degree of contact with distant groups.

3.3.3.3.7 Unformed Tools

Unformed tools are lithics that have been modified by use or by small amounts of deliberate retouching but have not otherwise been shaped to form distinct tool types.

3.3.3.3.7.1 Hammerstones

Hammerstones are lithics that have been used to modify other lithics, for example, to detach flakes from cores or to shape flakes into specific tool forms. These tools are usually otherwise unmodified pebbles or small cobbles showing distinct evidence of battering along one or more edges.

A single hammerstone was recovered from Feature 2008-003.

3.3.3.3.7.2 Cobble Spall Tools

Cobble spall tools are formed on relatively large flakes taken from cobbles (often quartzite on the Canadian Plains). These tools may have had multiple uses such as cutting or scraping depending on the angle of the edge formed by breakage or by occasional unifacial retouching along the non-cortex surface.

Five quartzite cobble spall tools were recovered during the 2008 excavations (e.g., Plate 17). Four of these tools were discovered in the fire-broken-rock/waste disposal/cache Feature 2008-003, perhaps awaiting an intended but unrealized future return to the site. Four of the spall tools are unifacially retouched along one side of their non-cortex faces

and opposed striking platforms suggest the use of a bipolar (hammer and anvil) approach to flake removal from quartzite cobbles (see Plate 17).

3.3.3.3.7.3 Grinding/Rubbing Stones

These artifacts are formed through use as grinding or rubbing implements. Grinding may produce pitted or smoothed surfaces depending of the strength and coarseness of both the lithic and the subject materials while rubbed surfaces tend to be smoothed and show directional striations reflecting the direction of use.

An ochre-stained fire-broken-rock cobble (see Plate 18) appears to have been used to grind red ochre, perhaps as part of a paint production process. The piece was recovered from Feature 2008-003.

Also recovered from Feature 2008-003 was a split quartzite cobble showing rubbing/grinding striations along the broken surface (Plates 19 and 20). Determination of the specific function of this tool awaits further analysis.

3.3.3.3.8 Formed Tools

Formed tools are lithics that, as the name implies, have been deliberately shaped to perform specific functions. Deliberately shaped tools such as projectile points may be sufficiently invested with style to serve as distinctive cultural and/or temporal markers.

3.3.3.3.8.1 Projectile Points

Projectile points are pointed and in the case of Cluny points, notched bifaces that were hafted onto arrow shafts and used as arrow points. Other projectile points could serve as spear or atlatl points.

The remains of two projectile points were recovered during the 2008 excavations (Plate 8). One point is formed on red quartzite and the other is on a grey-white chert of unknown origin. Both may be assigned to the Plains Side Notch type (Kehoe 1966) and to the Cayley Series (Peck 1996; Peck and Ives 2001). The similarity of projectile points recovered from the Cluny site, presumably associated with the intrusive One Gun Phase, to those recovered from indigenous Old Women's Phase sites is a matter of some interest in that stylistic differences might be expected between the two apparently unrelated

archaeological assemblages. This is an area of interest that very definitely requires further research as the project continues.

3.3.3.3.8.2 Bifaces

Bifaces are lithics that have been shaped by flaking along both faces. Bifaces may take on a wide variety of shapes and functions but are often cutting implements with relatively narrow edge angles.

The tip of a single bifacially formed tool was recovered during the 2008 excavations. The tool was formed on quartzite but cannot be assigned a form or function on the basis of this very small fragment.

3.3.3.4 Artifacts Formed on Faunal Materials

3.3.3.4.1 Mollusc

Two beads formed on mollusc shell were recovered during the 2008 excavations (Plate 21:c, d). These beads are similar in form to items recovered by Forbis during the 1960 University of Calgary excavations (Forbis 1977:Plate 12).

3.3.3.4.2 Mammal

Two beads formed on large canid metapodials were recovered during the 2008 excavations (Plate 21:a,b) and are also similar in form to materials recovered by Forbis during the 1960 University of Calgary excavations (Forbis 1977:Plate 12, see, especially Plate 12:i). Analysis of similar materials found elsewhere on the Canadian Plains (e.g., Walde 1983) also suggests the beads were most probably formed by grooving and snapping a large canid metapodial.

3.3.3.5 Fauna

3.3.3.5.1 Molluscs

Six fragments of mollusc shell were recovered during the 2008 excavations. These may well represent detritus from bead-making.

3.3.3.5.2 Mammals

3.3.3.5.2.1 Bison

Much of the bison skeleton is represented in the faunal assemblage recovered from the 2008 Cluny excavations and bison represents the most common identifiable faunal

material, indicating, unsurprisingly for the area, that bison provided most of the meat portion of the diet of the occupants.

Bison elements encountered include sixteen molarform teeth and tooth fragments, an incisiform tooth, two mandible fragments, four fragments of scapula, a proximal humerus fragment with carnivore gnaw marks, a distal radius fragment, a lunate, a metacarpal from a juvenile animal, one each of first and third phalanges, a fragment of vertebra, five rib fragments, two pieces of acetabulum, a patella, a fragment of proximal tibia, three pieces of distal tibia, a lateral malleolus, and a fragment of calcaneus. Two unidentified long bone fragments are also probably assignable to bison and, as noted above, a bison foetal bone was encountered. Most of the elements present are the remains of lower value skeletal units and most probably represent the very end result of an intensive processing, consumption, and disposal sequence.

Forbis (1977:70) notes that the small amount of bison bone recovered from his excavations suggests that the “few bison inferred for Cluny would not have supported any appreciable number of people for long.” Even given the limited exposure of the 2008 testing program and the apparent complete utilization of bison carcasses that would destroy most of the bones, Forbis’s assessment might also seem applicable to the results of the present study, as well. And this would seem to contradict the increasing evidence noted above that the site was probably occupied not only for a longer period than the two months or so suggested by Forbis (1977:74) but may also have been reoccupied two or three times. However, the recovery of a relatively large amount of bone in the fortification trench test unit (59S128E) may suggest that much of the camp detritus was disposed of in the trench and that past camp maintenance activities and present-day excavation patterns have obscured the subsistence pattern in the archaeological record. Extensive testing of the trench will be required to determine its supplemental role as a disposal area. The role of stored food in the form of pemmican and, quite possibly, maize in the winter diet of the One Gun Phase people must also be explored in greater detail.

3.3.3.5.2.2 Large Canids

The largest concentration of large canid remains (total recovery = 21) was recovered from and in the vicinity of Feature 2008–002, which contained two matching mandible

halves, a canine tooth, and three premolars. Found in the immediate vicinity of the feature were a first phalanx, two canines, two premolars. Scattered amongst the test units were two tooth fragments, a third phalanx, two mandible fragments, a canine, a molar, two incisors, and a fragment of cervical vertebra.

Forbis (1977:70), quoting a paper read by Jonathon Driver at the 1976 Annual Meeting of the Canadian Archaeological Association, notes that the large canid remains recovered during his 1960 excavations are from domestic dogs and it seems likely that this is the case for the materials recovered during 2008. Dog remains represent the second largest component of the faunal assemblage recovered from the present study as is the case in the 1960 assemblage. The importance of dogs as transportation animals and as food for the One Gun Phase occupants of the Cluny site is an interesting research topic; one that will be pursued as the project continues.

3.3.3.5.2.3 Deer

A single spirally fractured distal humerus from a deer was recovered from 59S128E.

3.3.3.5.2.4 Rodents

Surprisingly few rodent remains were recovered during the 2008 field season—only two mandibles. Intrusive rodent remains are often found in Canadian Plains archaeological sites but it would appear that rodent disturbance is a minor concern here.

3.3.3.5.2.5 Unidentifiable Bone Fragments

A total of 1,926 unidentifiable bone fragments were recovered during the 2008 excavations. Of these, the majority (86.66%) are unburned (n = 1669) while 48 (2.49%) are scorched, 31 (1.61%) are burned, and 178 (9.24%) are calcined.

In all but one unit, the bone fragments that show signs of having been burnt are mixed with unburned bone suggesting these recoveries generally represent either dumping events from several sources that served different functions or multiple activities conducted in single locations. Extended or multiple occupations may be indicated by this evidence.

3.3.3.6 Fossils

A small horn coral fossil (Plate 21:e) was recovered during the 2008 excavations. This type of fossil is common in Devonian deposits in the Rocky Mountains and its parent

rock could readily have been brought down to the site area by ice rafting and subsequent natural deposition (L. Hills, personal communication) and subsequently discovered when its rocky matrix was broken open by the site occupants. Its presence in the site is considered to be the result of human activity. Fossils are recovered with some regularity from Late Precontact/Protocontact Canadian Plains archaeological sites. The reasons for collection of fossils in the past are the objects of speculation but no generally robust analytical solutions have been forthcoming to date (but see Peck 2002 for a strong discussion of the specific role of ammonite fossils (*iniskim*) in Blackfoot culture). Forbis (1977:71) notes that fragments of ammonite septa were recovered during his 1960 excavations.

The presence of ammonites at the Cluny site is potentially problematic. While ammonites have not been associated ethnographically with groups other than Blackfoot peoples, it may be that other groups, including One Gun people, did collect these fossils, along with others, in the past. Alternatively, ancestors of present-day Blackfoot peoples might well have camped with the One Gun Phase occupants of the site or before, after, or between One Gun occupations. Careful excavation may clarify this question.

3.3.4 Components below the One Gun Phase Occupation Zone

The 2008 test excavations revealed the apparent presence of as many as three sparsely represented components below the One Gun Occupation Zone. No culturally or temporally diagnostic artifacts have yet been recovered from these components. Because their presence in the deposit is sporadic, the identification of components is considered tentative and subject to change as excavation at the site proceeds. The components are numbered in sequential order from the top of the glacial gravel deposit underlying the cultural components in the site.

3.3.4.1 Component 3

Component 3 was first encountered in the form of Feature 2008-002 (Plates 22-23) in 69S128E. This feature is a pit feature filled with pebbles, cobbles, lithic debitage, wood, charcoal, and faunal materials, including both halves of a large canid mandible. The top of the feature was encountered at 35 cm below surface in the form of a bison acetabulum. The acetabulum rested on the two large canid mandible halves, which, in turn, rested on

unmodified cobbles and other materials. The bottom of the pit occurred at 56 cm below surface. Three soil samples were screened through ¼” hardware cloth and then bagged for future flotation.

This feature was encountered below the One Gun Phase occupation and represents an earlier occupation of the site by an as yet unidentified group. Few traces of a component at 35 cm below surface are present in the excavations conducted to date.

3.3.4.2 Component 2

This component is perhaps the most strongly represented, although nonetheless sparse, occupation below the One Gun Phase materials with a regular though light occurrence of materials between about 45–55 cm below surface.

Component 2 is most strikingly represented by two features. Feature 2008–006 in 75S117E was a dark, circular soil feature encountered at 45 cm below surface (Plate 24). The feature was only visible when moist but was associated with a small number of small bone fragments. No function can be proposed for this feature at present.

Feature 2008–005, an ash deposit encountered at about 50 cm below surface in 69S128E, may also be associated with Component 2.

3.3.4.3 Component 1

A fourth component at about 85 cm below the present surface may be represented by materials recovered at that depth (underlying the One Gun Phase fortification trench) in 59S128E.

None of the components below the One Gun Phase Occupation Zone appears to represent major occupation of the site area prior its construction by One Gun people but it does appear that excavation of the fortification trench and the large pit features would have cut through at least two of lower components and that some mixing of cultural materials may be present in those areas, complicating interpretation.

3.4 Results of the 2008 Reconnaissance at Blackfoot Crossing Historical Park

The post–season reconnaissance conducted at Blackfoot Crossing Historical Park was brief and relatively informal. A crew of three student volunteers (Caroline Humphrey, Sarah Lebedov, and Jalyn Neysmith) was guided by Leonard Bearshirt to locations he felt

might of archaeological interest. A number of circular vegetation patterns and several pit concentrations were recorded for future investigation. Following the reconnaissance exercise, Dale Walde visited the locations with Jalyn Neysmith to inspect the locations. While all locations are of interest and require formal archaeological assessment, a linear arrangement of large pits located some two hundred metres to the northwest of the Cluny site is of special importance. These are large pits between five and six metres in diameter and at least two have what appear to be entrance ramps leading into the structure (Plate 25). These features appear, on the surface, to be very similar to expected configurations for pithouses or small earthlodges. Structures such as these have never been recorded archaeologically on the Canadian Plains and are potentially of extremely high cultural and scientific importance. Mapping and test excavation of these features is of the highest priority and should be conducted as soon as possible during the 2009 field season.

4 Recommendations for the 2009 Field Project

1. The 2008 mapping survey program produced only an incomplete map of the site and its immediate area due to dense tree and bush cover over important areas. It is recommended that the tree and bush be removed from the site prior to the beginning of the 2009 field season to permit detailed and complete mapping of the site.
2. The 2008 mapping survey in conjunction with reanalysis of the 1960 map suggests the possibility that the palisade wall was built and rebuilt at least three times. It is recommended that part of the 2009 field project be devoted to beginning a complete exposure of the palisade area to determine the sequence of construction as well as the full course of each portion of the wall.
3. The 2008 testing program revealed a very dense zone of occupation on the east side of the site. It is recommended that part of the 2009 field project be devoted to the opening of a large block excavation to reveal patterned relationships amongst features and to identify the remains of any living floors and structures in the One Gun Phase occupation. A block excavation, while scientifically necessary, will also provide a strong focal point for interpretive tours and talks. Further work in the components underlying the One Gun Phase occupation is not recommended at present.
4. The 2008 testing program partially revealed the presence of a short “wall” of sandstone slabs along the north rim of Pit 4. This type of feature has not been recorded previously at the site or elsewhere on the Canadian Plains and is of high significance. It is recommended that part of the 2009 field season be devoted to completing excavation and recording of this feature.
5. The 2008 testing program revealed a relatively dense deposit of cultural materials, especially faunal remains, in the fortification trench. It is recommended that part of the 2009 field project be devoted to further testing of the trench using 2x2m units to examine its possible second function as a trash disposal area.

6. The 2008 survey exercise revealed a linear arrangement of five features that very strongly resemble pit houses. If these features are indeed pit houses, their presence would be the first known example on the Canadian Plains and would be of extremely high significance both scientifically and culturally. It is recommended that part of the 2009 field project be devoted to detailed mapping and test excavation of these features to assess their function and significance.
7. The 2008 pilot program of public interpretive tours was well-received. It is recommended that the program of public interpretive tours be continued and expanded and that exploratory development of other public education programs be initiated during the 2009 field season.

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Vessel Number	Location on Vessel	Dentate Length	Dentate Height	Distance between Lines
25	Lip	2.61	1.39	2.86
25	Lip	2.98	0.87	2.68
25	Lip	2.38	1.22	2.70
25	Lip	2.49	2.52	3.00
25	Lip	2.90	1.44	3.27
25	Lip	2.92	2.12	2.87
25	Lip	2.75	1.52	2.73
25	Lip	3.03	2.47	3.26
25	Lip	2.42	2.06	3.00
25	Lip	2.69	1.84	2.86
25	Lip	2.26	1.97	2.71
25	Lip	2.90	1.21	2.26
25	Lip	2.39	1.53	0.92
25	Lip	3.00	1.50	2.99
25	Lip	3.17	1.78	2.90
25	Lip	2.36	1.65	2.77
25	Lip	2.73	0.85	2.64
25	Lip	2.83	0.93	2.38
25	Lip	2.78	1.01	2.84
25	Lip	2.28	0.85	2.47
26	Rim	5.05	1.65	4.87
26	Rim	5.64	2.20	3.97
26	Rim	.	1.44	4.25
26	Rim	2.96	1.38	4.33
26	Rim	3.44	2.01	3.63
26	Rim	3.64	2.41	3.77
26	Rim	4.39	2.23	3.73
26	Rim	2.77	1.41	3.50

Table 1. Measurements of pottery decoration impressions on Cluny site vessels 25 and 26.

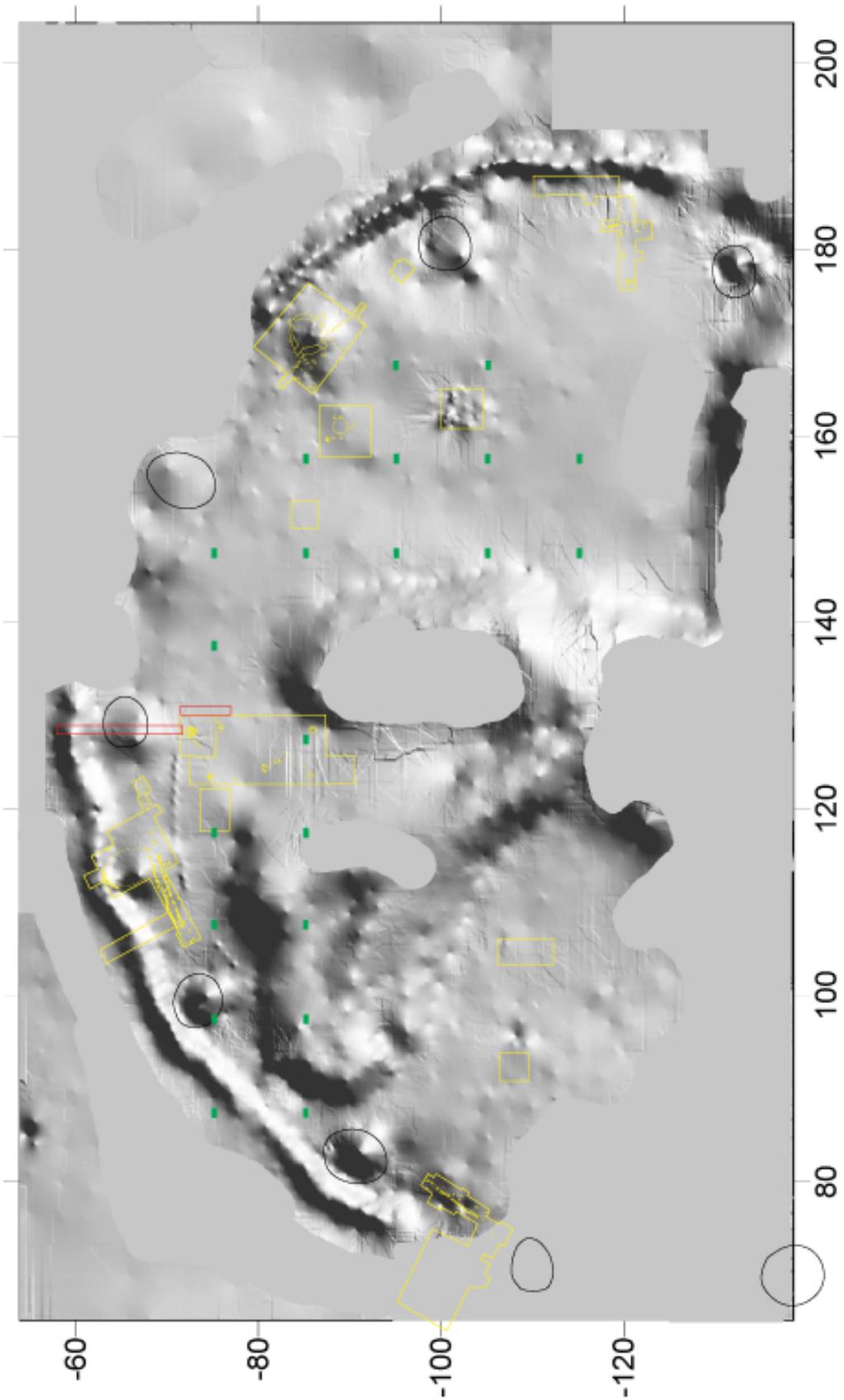


Figure 1. 2008 map of the Cluny site (EePf-1). Yellow outline: 1960s excavations; red outline: 2007 excavation units; green filled rectangles: 2008 test units; black outline: fortification pits identified by Forbis (1977).



Plate 1. Feature 2008-001 (beginning of 2008 excavation).



Plate 2. Feature 2008-001 profile view of east wall.



Plate 3. Feature 2008-003.



Plate 4. Feature 2008-007 (red circles indicate remains of bone pegs).



Plate 5. Feature 2008-008 showing multiple layers of cultural materials.



Plate 6. Feature 2008-008 with bottom of hearth exposed.



Plate 7. Feature 2008-009.



Plate 8. Projectile points recovered during the 2008 field season.



Plate 9. Feature 2008-010 (red circle outlines post mould).



Plate 10. Vessel 25 lip surface.



Plate 11. Vessel 25 profile (interior to right).



Plate 12. Vessel 25 showing detached decorative surface.



Plate 13. Vessel 25 neck sherd.



Plate 14. Vessel 26 rim exterior.



Plate 15. Vessel 26 profile (interior to right).



Plate 16. Vessel 26 lip surface.



Plate 17. Cobble spall tool (arrows indicate bipolar striking platforms).



Plate 18. Ochre-stained fire-broken cobble (most evident in right-bottom quadrant).



Plate 19. Split cobble with striations on broken surface.



Plate 20. Split cobble with striations on broken surface (detail).



Plate 21. Bone beads (a, b), shell beads (c, d), and fossil (e).



Plate 22. Feature 2008-002 (top of feature).



Plate 23. Feature 2008-002 (base of feature).

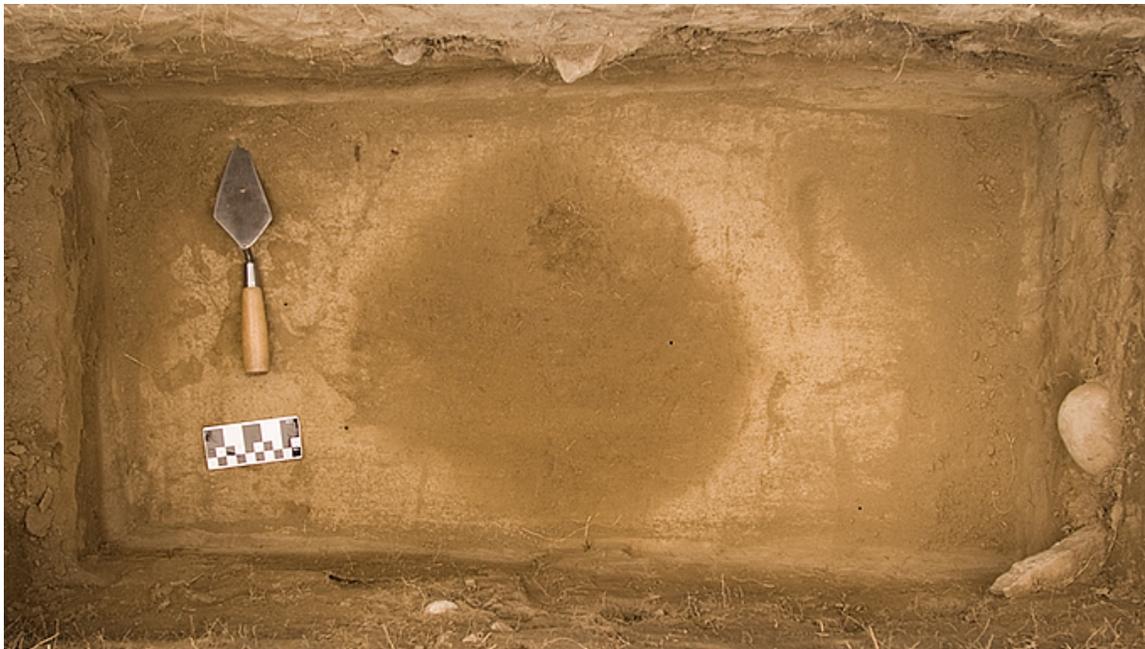


Plate 24. Feature 2008-006

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Plate 25. Student (Sarah Lebedov) in possible house pit feature.

9 Appendix 1: Detailed Description of 2008 Finds by Excavation Unit

9.1 75S87E

The north half of this unit was excavated to 45 cm below surface. Artifacts were first encountered between 10–15 cm below surface. Feature 2008–007 consisting of the remains of three bone pegs (Plate 4) was discovered between 15–20 cm below surface. No materials were found below 20 cm below surface.

9.1.1 Features

9.1.1.1 2008–007

Feature 2008–007 in 75S87E consists of the highly eroded remains of three upright bone pegs (Plate 4), the remains of which were collected and catalogued. Ethnographically and historically, pegs were frequently used to stretch and secure hides for scraping. The presence of this feature outside the fortification ditch indicates that activities were conducted outside the constructed camp and that accurate interpretation of the site will require survey and excavation beyond the confines of the fortifications.

9.1.1.2 Faunal

9.1.1.2.1 Mammals

9.1.1.2.1.1 Unidentifiable

In addition to the bone peg samples from Feature 2008–007, fifty–one small unburned, unidentifiable bone fragments were recovered between 10–15 cm below surface and five between 15–20 cm below surface.

9.1.1.3 Lithics

9.1.1.3.1 Fire–Broken Rock

Three pieces of fire–broken rock were recovered between 5–10 cm below surface and three fragments were recovered between 10–15 cm below surface.

9.2 85S87E

The north half of this unit was excavated to 35 cm below surface. Artifacts were first encountered between 10–15 below surface. Most materials excepting three unburned, unidentifiable bone fragments were discovered between 5–10 cm below surface and a single unburned, unidentifiable bone fragment were recovered between 10–25 cm below surface.

9.2.1 Botanical
9.2.1.1 Charcoal

Seven pieces of charcoal were recovered between 10–15 cm below surface, nineteen between 15–20 cm below surface, and five between 20–25 cm below surface. Four charcoal and wood rich soil samples were taken between 1–25 cm below surface for future flotation and analysis.

9.2.1.2 Faunal
9.2.1.2.1 Mammals
9.2.1.2.1.1 Unidentifiable

Three unburned, unidentifiable bone fragments were recovered between 5–10 cm below surface, thirty–five between 10–15 cm below surface, forty–two between 15–20 cm, twelve between 20–25 cm, and one between 30–35 cm below surface.

9.3 75S 97E

The north half of this unit, located in the sloping wall of Pit Feature 8 (Forbis 1977:Figure 4), was excavated to 75 cm below surface. The sloping wall renders interpretation of the depth measurements problematic and it does not seem probable that the very few materials recovered are related to pre–One Gun Phase occupations. No materials were recovered below 55 cm below surface.

9.3.1 Faunal
9.3.1.1 Mammals
9.3.1.1.1 Unidentifiable

Four scorched, unidentifiable bone fragments were recovered between 50–55 cm below surface.

9.3.2 Lithics
9.3.2.1 Unmodified

An unmodified cobble was recovered between 20–25 cm below surface.

9.4 85S97E

The north half of this unit was excavated to 25 cm below surface in the bottom of the eroded gully in the centre of the site. Five unburned, unidentifiable bone fragments were recovered between 5–20 cm below surface in extremely gravelly matrix. Materials

present between 0–20 cm below surface. No materials were noted below 20 cm below surface.

- 9.4.1 Faunal
- 9.4.1.1 Mammals
- 9.4.1.1.1 Unidentifiable

One unburned, unidentifiable bone fragment was recovered between 5–1- cm below surface and four between 15–20 cm below surface.

9.5 75S107E

The north half of this unit was excavated to 65 cm below surface. Cultural materials present between 5–20 cm below surface with no artifacts present below 20 below surface excepting only a possibly modified pebble recovered between 45–50 cm below surface. A quartzite core was recovered between 10–15 cm below surface. Matrix well recorded to 65 cm below surface.

- 9.5.1 Botanical
- 9.5.1.1 Charcoal

Two pieces of charcoal were recovered between 10–15 cm below surface and one between 15–20 cm below surface.

- 9.5.2 Faunal
- 9.5.2.1 Mammals
- 9.5.2.1.1 Unidentifiable

Three unburned, unidentifiable bone fragments were recovered between 5–10 cm below surface, one of which bears cut marks, and two were recovered between 10–15 cm below surface.

- 9.5.3 Lithics
- 9.5.3.1 Unmodified

One possibly modified pebble was recovered between 0–5 cm below surface and another between 45–50 cm below surface.

- 9.5.3.2 Fire–Broken Rock

Two pieces of fire–broken rock were recovered between 0–5 cm below surface.

9.5.3.3 Debitage

A quartzite core was recovered between 10–15 cm below surface.

9.6 85S107E

The north half of this unit was excavated to 20 cm below surface in the bottom of the eroded gully in the centre of the site. The matrix was almost entirely gravel and no cultural materials recovered.

9.7 75S117E

The north half of this unit was excavated to 55 cm below surface. Cultural materials were present between 0–35 cm below surface. Feature 2008–003 (Plate 3), a circular fire–broken rock feature in 75S117E, may be a trash–filled boiling pit was noted in this level. Much of the fire–broken rock is of sufficient size to be useful as heating rocks (Brink and Dawe 2003) and this rock pile may have been intended as a cache for future use, as well as a convenient waste disposal area. A number of stone tools including cobble choppers, cores, a hammerstone, a grinding stone, unmodified quartzite flake tools, and pieces of lithicdebitage were also recovered from this feature. Many of the fire–broken rock pieces show impact marks, suggesting they were initially broken with hammerstones prior to being used as heating sources. Burned and unburned faunal and ceramic materials were also recovered from this feature along with fragments of charcoal. No reddening was present below the feature and use as a rock–heating hearth does not seem probable.

Cultural materials were also present in an underlying component between 45–55 cm below surface in apparent association with a dark, circular soil feature at 45 cm below surface—Feature 2008–006 (Plate 24)—that was only visible when moist. No function can be proposed for this feature at present.

9.7.1 Botanical

9.7.1.1 Charcoal

Four pieces of charcoal were recovered between 0–5 cm below surface, two between 10–15 cm below surface, eleven between 20–25 cm below surface, and sxi between 25–30 cm below surface.

9.7.1.2 Faunal
9.7.1.2.1 Mammals
9.7.1.2.1.1 Unidentifiable

Fourteen unburned, unidentifiable bone fragments were recovered between 0–5 cm below surface, thirty–two between 5–10 cm below surface, twenty–nine between 10–15 cm below surface, thirty–six between 15–20 cm below surface, fifty–four between 20–25 cm below surface, and eleven between 25–30 cm below surface.

Three unburned, unidentifiable bone fragments were also recovered between 45–50 cm below surface and three between 50–55 cm below surface.

One scorched, unidentifiable bone fragment was recovered between 15–20 cm below surface.

One burned, unidentifiable bone fragment was recovered between 5–10 cm below surface and two between 20–25 cm below surface.

Two calcined, unidentifiable bone fragments were recovered between 0–5 cm below surface, three between 5–10 cm below surface, one between 10–15 cm below surface, five between 15–20 cm below surface, fifteen between 20–25 cm below surface, and four between 25–30 cm below surface.

9.7.1.2.1.1.1 Bison

A portion of unburned bison distal calcaneum was recovered between 5–10 cm below surface as was a bison molariform tooth.

9.7.1.2.1.1.2 Canid

An unburned third phalanx from a large canid was recovered between 40–45 cm below surface.

9.7.1.2.2 Ceramics

Six very small pottery sherds were recovered between 20–25 cm below surface and one between 25–30 cm below surface. No typological or cultural classification of these materials is possible.

9.7.1.2.3 Lithics

9.7.1.2.3.1 Unmodified

Four unmodified pebbles were recovered between 15–20 cm below surface and five unmodified cobbles were found between 25–30 cm below surface.

9.7.1.2.3.2 Fire-Broken Rock

Two pieces of fire-broken rock were removed from the layer between 15–20 cm below surface, twenty-six between 20–25 cm below surface, and forty-nine between 25–30 cm below surface.

9.7.1.2.3.3 Debitage

9.7.1.2.3.3.1 Cores

Two minimally reduced cores (broken quartzite cobbles) were recovered between 25–30 cm below surface. A Swan River Chert core was found between 20–25 cm below surface.

9.7.1.2.3.3.2 Shatter

Eight pieces of lithic shatter were recovered; one between 0–5 cm below surface, one between 5–10 cm, five between 20–25 cm, and one between 25–30 cm below surface.

9.7.1.2.3.3.3 Flakes

Ten lithic flakes were recovered; two between 10–15 cm, three between 15–20 cm, three between 20–25 cm, and one between 25–30 cm below surface. One flake was found between 50–55 cm below surface.

9.7.1.2.3.4 Unformed Lithic Tools

9.7.1.2.3.4.1 Cobble Choppers

Two cobble choppers were recovered between 20–25 cm below surface.

9.7.1.2.3.4.2 Unretouched Quartzite Spall Tools

One unretouched quartzite spall tool was recovered between 20–25 cm below surface.

9.7.1.2.3.4.3 Unifacially Retouched Quartzite Spall Tools

Three unifacially retouched quartzite cobble tools were recovered between 20–25 cm below surface.

9.7.1.2.3.4.4 Hammerstone

A single hammerstone was recovered between 25–30 cm below surface.

9.7.1.2.3.4.5 Grinding Stone

A single grinding stone was recovered between 25–30 cm below surface.

9.8 85S117E

The north half of this unit was excavated to 35 cm below surface in the bottom of the eroded gully in the centre of the site. The matrix was almost entirely gravel. A very light scatter of materials including two unidentifiable pottery sherds at 0–5 cm below surface, a small piece of fire–broken rock at the same depth, a lithic flake between 10–15 cm below surface and three unburned, unidentifiable bone fragments between 20–25 cm below surface. No materials below 25 cm below surface.

9.9 85S127E

The north half of this unit was excavated to 70 cm below surface. Cultural materials were present between 0 and 15 cm below surface, with no artifacts occurring below 15 cm below surface. Good description of matrix to 70 cm below surface.

9.9.1 Faunal

9.9.1.1 Mammals

9.9.1.1.1 Unidentifiable

Eighteen unburned, unidentifiable bone fragments were recovered between 0–5 cm below surface and twelve were recovered between 5–10 cm below surface.

9.9.2 Lithics

9.9.2.1 Debitage

One piece of petrified wood shatter was recovered between 0–5 cm below surface and one primary decortication flake on quartzite was encountered between 5–10 cm below surface.

9.9.3 Ceramics

Twenty–seven unidentifiable pottery sherds were recovered between 0–5 cm below surface, two between 5–10 cm, and four between 10–15 cm below surface.

9.10 59S128E

Work continued in this unit from 2007 with initial excavation of a clean–up level consisting of wall fall and cattle–disturbed surface. The unit was excavated to 85 cm

below surface but not to glacial gravels. A dark, richly organic layer containing cultural materials was encountered between 40–65 in the bottom of the One Gun Phase fortification trench. Bison foetal bone recovered in the bottom of the trench indicate a winter occupation. Cultural materials were also encountered between 80–85 cm below surface in the first occupation above the top of the glacial gravel deposit.

- 9.10.1 Faunal
- 9.10.1.1 Mammals
- 9.10.1.1.1 Unidentifiable

Nineteen unburned, unidentifiable bone fragments were recovered between 40–45 cm below surface along with four between 45–50 cm below surface, and one between 50–55 cm below surface.

- 9.10.1.1.2 Bison

Three unburned bison bone fragments were recovered between 40–45 cm below surface: a left first phalanx, a patella, and a bison foetal bone. Two unburned bison bone fragments were recovered between 45–50 cm below surface: a rib fragment and a piece of proximal tibia. A fragment of unburned vertebra was recovered between 55–60 m below surface and an unburned rib fragment was encountered between 60–65 cm below surface.

A large rib fragment with a cutmark was recovered between 80–85 cm below surface.

- 9.10.1.1.3 Deer

A spirally fractured left distal deer humerus was recovered between 45–50 cm below surface.

- 9.10.2 Lithics
- 9.10.2.1 Unmodified

One unmodified pebble was recovered between 40–45 cm below surface and an unmodified pebble as well as an unmodified cobble were recovered between 45–50 cm below surface.

- 9.10.2.2 Fire–Broken Rock

A single piece of fire–broken rock was recovered between 50–55 cm bs.

9.11 60S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 40 cm below surface but not to glacial gravels. No cultural materials were recovered.

9.12 61S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 35 cm below surface but not to glacial gravels. No cultural materials recovered from this unit.

9.13 62S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 85 cm below surface but not to glacial gravels. Initial excavation was conducted by a student who did not complete the course and who excavated the unit to 40 cm below surface in one level. The excavation was completed by other students who took the unit down to 85 cm below surface in the prescribed manner. Two pieces of fire-broken quartzite and three unburned, unidentifiable bone fragments were recovered in the interval between the base of the 2007 excavation and 40 cm below surface.

9.14 63S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 40 cm below surface but not to glacial gravels. A sandstone slab wall feature on N (exterior) side of pit feature. (Feature 2008-011) was encountered during the last hour of excavation during the 2008 field season. Excavation is incomplete and will be completed during 2009.

9.14.1 Features

9.14.1.1 Feature 2008-011

A small wall of sandstone slabs was encountered but could not be excavated in the time available. This feature will be numbered and excavated during the 2009 field season. Seven small slabs were removed and collected during the 2008 field season.

9.15 65S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 65 cm below surface where the apparent upper surface of underlying glacial gravels was encountered. Cultural materials were encountered throughout the vertical extent of the excavation.

9.15.1 Botanical

9.15.1.1 Charcoal

A large amount of charcoal mixed with raw wood was recovered between 35–60 cm below surface. It seems most probably that this material is the result of a large, natural root burn but the material has been retained along with matrix for future flotation and analysis.

9.15.2 Faunal

9.15.2.1 Mammals

9.15.2.1.1 Unidentifiable

Two unburned, unidentifiable bone fragments were recovered between 30–35 cm below surface, three between 35–40 cm below surface, three between 40–45 cm below surface, one between 45–50 cm below surface, four between 50–55 below surface, and one between 60–65 cm below surface.

9.15.2.1.2 Microtine Rodent

One microtine rodent mandible was recovered between 35–40 cm below surface. A noncultural origin is probable.

9.15.2.1.3 Bison

Three fragments of tooth enamel, most probably from bison, were recovered between 25–30 cm below surface, two between 30–35 cm below surface, and two between 45–50 cm below surface.

9.15.2.2 Lithics

9.15.2.2.1 Fossils

A small fossil mollusc was recovered between 40–45 cm below surface (Plate 21:e).

9.15.2.2.2 Unmodified

Three soft limonite pebbles were recovered, two between 40–45 cm below surface and one between 55–60 cm below surface. A noncultural origin is possible.

9.15.2.2.3 Debitage

A single piece of shatter was recovered between 25–30 cm below surface and two between 30–35 cm below surface.

9.16 66S 128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 30 cm below surface but not to glacial gravels. No cultural materials were recovered during excavation of this unit.

9.17 67S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 50 cm below surface but not to glacial gravels. Cultural materials were encountered between 20–55 below surface. Good description of matrix to 85 cm below surface.

9.17.1 Botanical

9.17.1.1 Wood

Two fragments of wood were recovered at 59 cm below surface. It is unclear if these specimens are cultural or not.

9.17.1.2 Charcoal

One small fragment of charcoal was recovered between 35–40 cm below surface.

9.17.2 Faunal

9.17.2.1 Mammals

9.17.2.1.1 Bison

A single fragment of bison molar was recovered between 40–45 cm below surface

9.17.3 Lithics

9.17.3.1 Fire-Broken Rock

Two very small fragments of possibly fire-broken sandstone were recovered between 35–40 cm below surface.

9.18 69S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 80 cm below surface where the apparent upper surface of underlying glacial gravels was encountered. Features 2008-002 and 2008-005 were encountered between 35-60 cm below surface. No cultural materials were noted below 60 cm below surface. Two components in addition to One Gun Phase component are represented by the two features. Good description of matrix to 80 cm below surface.

9.18.1 Features

9.18.1.1 Feature 2008-002

Feature 2008-002 (Plates 22-23) in 69S128E is a pit feature filled with pebbles, cobbles, lithic debitage, wood, charcoal, and faunal materials, including both halves of a large canid mandible. The top of the feature was encountered at 35 cm below surface in the form of a bison acetabulum. The acetabulum rested on the two large canid mandible halves, which, in turn, rested on unmodified cobbles and other materials. The bottom of the pit occurred at 56 cm below surface. Three soil samples were screened through ¼" hardware cloth and then bagged for future flotation.

9.18.1.1.1 Feature 2008-002 Finds

9.18.1.1.1.1 Botanical

9.18.1.1.1.1.1 Charcoal

Two pieces of charcoal were recovered between 35-40 cm below surface.

9.18.1.1.1.2 Faunal

9.18.1.1.1.2.1 Mammals

9.18.1.1.1.2.1.1 Unidentifiable

An unburned, unidentifiable bone fragment was recovered between 50-55 cm below surface.

9.18.1.1.1.2.1.2 Bison

An unburned bison acetabulum was recovered between 35-40 cm below surface and a bison molar imbedded in a partial mandible was recovered between 55-50 cm below surface.

9.18.1.1.1.2.1.3 Canid

A left and right mandible (matching) from a large canid were recovered along with a large canid canine and two premolars, all almost certainly from the mandibles were recovered between 35–40 cm below surface. These elements are unburned. An unburned large canid premolar was also recovered between 40–45 cm below surface.

9.18.1.1.1.3 Lithics

9.18.1.1.1.3.1 Unmodified

Two unmodified cobbles were recovered between 40–45 cm below surface, four between 45–50 cm below surface, and three between 50–55 cm below surface.

Five unmodified pebbles were recovered between 40–45 cm below surface, two between 45–50 cm below surface, and two between 50–55 cm below surface.

9.18.1.2 2008–005

Feature 2008–005 consisted of a darkly stained, ash–rich matrix. It was first encountered at about 40 cm below surface and ended at 55 cm below surface. No cultural materials were encountered in this feature.

9.18.2 Non–Feature Finds

9.18.2.1 Botanical

9.18.2.1.1 Wood

A single fragment of unburned wood was recovered between 50–55 cm below surface.

9.18.2.1.2 Charcoal

Thirteen charcoal pieces were recovered between 35–40 cm below surface, three between 40–45 cm below surface, and four between 50–55 cm below surface.

9.18.2.2 Faunal

9.18.2.2.1 Mammals

9.18.2.2.1.1 Unidentifiable

Three unburned, unidentifiable bone fragments were recovered between 35–40 cm below surface, two between 40–45 cm below surface, one between 45–50 cm below surface, and twelve between 50–55 cm below surface.

9.18.2.2.1.1.1 Bison

A bison distal tibia was recovered between 25–30 cm below surface.

9.18.2.2.1.1.1.1 Canid

A single large canid phalanx was recovered between 25–30 cm below surface. Between 35–40 cm below surface, two large canid canines and two large canid premolars were recovered. These materials were recovered from the same level as the large canid materials found in Feature 2008–002 and made good fits with the mandibles recovered in that feature. It may be that the feature was not as well defined as it appeared in the field.

9.18.2.2.2 Lithics

9.18.2.2.2.1 Unmodified

An unmodified cobble was recovered between 550–60 cm below surface.

9.18.2.2.2.2 Debitage

A broken pebble was recovered between 35–40 cm below surface.

A single very small piece of Swan River Chert shatter was recovered between 35–40 cm below surface and a second piece of shatter was encountered between 40–45 cm below surface.

9.19 70S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 45 cm below surface but not to glacial gravels. Cultural materials were encountered between 25–35 below surface and 40–45 below surface. The materials between 25–35 below surface may represent the earliest One Gun Phase occupation, although this is not clear as the materials recovered between 30–35 cm below surface were concentrated at the bottom of that level and a thin layer of culturally sterile matrix may be present between the materials recovered at 30 cm below surface and those found closer to 35 cm below surface. Materials recovered between 40–45 below surface are clearly part of an earlier, as yet unidentified cultural component.

9.19.1 Botanical

9.19.1.1 Charcoal

A single piece of charcoal was recovered between 40–45 cm below surface.

- 9.19.2 Faunal
- 9.19.2.1 Mammals
- 9.19.2.1.1 Unidentifiable

One unburned, unidentifiable bone fragment as well as a single calcined, unidentifiable bone fragment were recovered between 25–30 cm below surface.

Five unburned, unidentifiable bone fragments were recovered between 30–35 cm below surface.

Seven unburned, unidentifiable bone fragments were recovered between 40–45 cm below surface.

- 9.19.2.1.2 Canid

A large canid cervical vertebra was recovered at 35 cm below surface.

- 9.19.2.2 Bone Tools

A rib fragment from a large mammal was recovered between 25–30 cm below surface. The rubbed exterior and cancellous tissue surfaces suggest the item was used as a tool. Heavy carnivore chewing has, however, rendered the form and function of the item unrecognizable.

- 9.20 71S128E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 55 cm below surface but not to glacial gravels. Cultural materials were encountered between 25–30 cm below surface with no recoveries below that level.

- 9.20.1 Botanical
- 9.20.1.1 Charcoal

A single piece of charcoal was recovered between 25–30 cm below surface.

- 9.20.2 Faunal
- 9.20.2.1 Mammals
- 9.20.2.1.1 Unidentifiable

A single piece of unburned, unidentifiable bone was recovered between 25–30 cm below surface.

9.21 71S130E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 50 cm below surface but not to glacial gravels. Cultural materials were encountered between 25–35 cm below surface with no recoveries below that level.

9.21.1 Botanical

9.21.1.1 Seeds

Nut fragments of an as yet unidentified species were recovered from the SW quadrant between 30–35 cm below surface.

9.21.1.1.1 Charcoal

A single charcoal fragment was recovered from the NE quadrant between 25–30 cm below surface and a second example was recovered from the SW quadrant between 30–35 cm below surface.

9.21.2 Faunal

9.21.2.1 Insects

A pupa from an as yet unidentified species was recovered from the NE quadrant between 25–30 cm below surface.

9.21.2.2 Mammals

Three unburned unidentifiable bone fragments and one calcined unidentifiable bone fragment were recovered from the NE quadrant between 25–30 cm below surface. A burned unidentifiable bone fragment was recovered from the SW quadrant between 30–35 cm below surface.

9.21.3 Lithic

9.21.3.1 Unmodified

A single unmodified pebble was recovered at 44 below surface in the NW quadrant. There is no direct evidence that this is a culturally placed object but it does occur at the same level as cultural objects found in other units. Good description of matrix to 50 cm below surface.

9.21.3.2 Debitage

A single piece of shatter on Swan River Chert was recovered between 30–35 cm below surface in the SW quadrant.

9.22 72S130E

Excavation continued from 2007. Disturbed cultural materials were recovered from screened wall fall from the 2007 excavations. Excavation in ash and trash disposal Feature 2008–001 continues from 15–20 cm below surface in the SE and SW quadrants. Large portions of that feature were excavated from 71S128E and the north half of 72S128E during the 2007 field season. During the 2008 field season, the feature matrix was screened through ¼” hardware cloth and collected for flotation and analysis to be conducted in the future. The mixture of burned and unburned materials in the feature and the area immediately surrounding the feature suggests a series of dumping actions from a variety of sources.

9.22.1 Features

9.22.1.1 Feature 2008–001

9.22.1.1.1 Screened Materials from Feature 2008–001

9.22.1.1.1.1 Botanical

9.22.1.1.1.1.1 Charcoal

Thirty–six fragments of charcoal were recovered between 15–20 cm in the SE quadrant and four were recovered at the same level in the SW quadrant.

9.22.1.1.1.1.1 Unburned Wood

Three fragments of unburned wood were recovered between 15–20 cm below surface in the SE quadrant and one was recovered at the same level in the SW quadrant.

9.22.1.1.1.2 Faunal

9.22.1.1.1.2.1 Mammals

Six unburned unidentifiable bone fragments were recovered between 15–20 cm below surface in the SE quadrant while sixteen were recovered at the same level from the SW quadrant. Four scorched unidentifiable bone fragments were recovered between 15–20 cm below surface in the SE quadrant and two were recovered from the same level in the SW quadrant. Seven calcined unidentifiable bone fragments were recovered between 15–

20 cm below surface in the SE quadrant and one was recovered from the SW quadrant at the same level.

9.22.1.1.1.3 Lithics

Six unmodified pebbles were recovered between 15–20 cm below surface in the SE quadrant.

9.22.1.2 Non-Feature Materials from 72S130E

Cultural materials were recovered from the periphery of Feature 2008–001 between 15–30 cm below surface and below the feature where bone fragments were recovered between 75–80 cm below surface. Good description of matrix to 85 cm below surface.

9.22.1.2.1 Botanical

9.22.1.2.1.1 Wood

Five small fragments of unburned wood were recovered between 15–20 cm below surface.

9.22.1.2.1.1.1 Charcoal

Five small pieces of charcoal were recovered from the disturbed zone in 72S130E.

Seventy–three pieces of charcoal were recovered between 15–20 cm below surface.

Thirty–seven pieces of charcoal were recovered between 20–25 cm below surface.

Two pieces of charcoal were recovered between 25–30 cm below surface.

One piece of charcoal was recovered between 75–80 cm below surface.

9.22.1.2.2 Faunal

9.22.1.2.2.1 Mammals

9.22.1.2.2.1.1 Unidentifiable

Sixteen unidentifiable bone fragments were recovered from the disturbed zone in 72S130E.

Forty–three fragments of unburned, unidentifiable bone fragments along with six pieces of scorched, unidentifiable bone, and thirteen fragments of calcined bone and an unburned, unidentifiable tooth fragment were recovered between 15–20 cm below surface.

Five fragments of unburned, unidentifiable bone fragments along with one fragment of calcined bone were recovered between 20–25 cm below surface.

Two fragments of unburned, unidentifiable bone fragments were recovered between 25–30 cm below surface.

Two fragments of unburned, unidentifiable bone fragments were recovered between 75–80 cm below surface.

9.22.1.2.3 Lithics

9.22.1.2.3.1 Unmodified

Fifteen unmodified pebbles were recovered between 15–20 cm below surface.

9.22.1.2.3.2 Fire–Broken Rock

One very small piece of fire–broken rock was recovered between 20–25 cm below surface.

9.22.1.2.3.3 Debitage

A single piece of black chert shatter was recovered between 15–20 cm below surface.

9.23 73S130E

Work continued in this unit from 2007 with initial excavation of a clean–up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 40 cm below surface but not to glacial gravels. No cultural materials were encountered.

9.24 75S130E

Work continued in this unit from 2007 with initial excavation of a clean–up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 55 cm below surface but not to glacial gravels.

9.24.1 Faunal

9.24.1.1 Mammals

9.24.1.1.1 Unidentifiable

A single unburned unidentifiable bone fragment was recovered at 25.4 cm below surface.

9.25 76S130E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 30 cm below surface but not to glacial gravels.

9.25.1 Lithics 9.25.1.1 Debitage

A single piece of quartz shatter was recovered from wall fall from the 2007 excavation.

9.26 77S130E

Work continued in this unit from 2007 with initial excavation of a clean-up level consisting of wall fall and cattle disturbed surface. The unit was excavated to 45 cm below surface but not to glacial gravels. No materials were encountered below 25 cm below surface.

9.26.1 Faunal 9.26.1.1 Mammals 9.26.1.1.1 Unidentifiable

A single unburned unidentifiable bone fragment was recovered between 20–25 cm below surface.

9.27 75S137E

The north half of this unit was excavated to 30 cm below surface, leaving the red stained earth of hearth Feature 2008–008 (Plate 5) exposed for further work during the 2009 field season. Unburned materials recovered immediately above the hearth stain suggest multiple use of the feature area. A thin layer of matrix between some of the unburned materials and the hearth stain may suggest the passage of some small amount of time between uses of the feature, perhaps suggesting a return to the site following temporary abandonment.

9.27.1 Botanical 9.27.1.1 Charcoal

One piece of charcoal was recovered between 20–25 cm below surface and five were noted between 25–30 cm below surface.

- 9.27.2 Faunal
- 9.27.2.1 Mammals
- 9.27.2.1.1 Unidentifiable

Fifteen unburned, unidentifiable bone fragments were recovered between 20–25 cm below surface and eight were recovered between 25–30 cm below surface.

One scorched, unidentifiable bone fragment was recovered between 25–30 cm below surface and four calcined, unidentifiable bone fragments were recovered between 20–25 cm below surface.

- 9.27.2.1.2 Bison

A carnivore–gnawed spirally fractured proximal bison humerus was recovered between 25–30 cm below surface as were a fragment of bison molariform tooth and a juvenile bison metacarpal between 20–25 cm below surface.

- 9.27.3 Lithics
- 9.27.3.1 Unmodified

Four unmodified cobbles were recovered immediately above the hearth stain between 25–30 cm below surface.

- 9.27.3.2 Fire–Broken Rock

One small piece of fire–broken rock was recovered between 25–30 cm below surface.

- 9.27.3.3 Debitage

Two pieces of shatter were recovered between 20–25 cm below surface along with nine between 25–30 cm below surface.

- 9.28 75S147E

The north half of this unit was excavated to 55 cm below surface with incomplete excavation around a pedestalled post mould Feature 2008-010 encountered between 15–20 cm below surface (Plate 8). The post mould is in the approximate location expected for the palisade wall and may represent an initial exposure of the palisade trench in the area. Cultural materials encountered between 10–20 cm below surface with no recoveries (other than the post mould) below 20 cm below surface. Good matrix description to 55 cm below surface.

9.28.1 Botanical
9.28.1.1 Wood

A fragment of wood was recovered from the post mould feature between 15–20 cm below surface.

9.28.2 Faunal
9.28.2.1 Mammals
9.28.2.1.1 Unidentifiable

Two unburned, unidentifiable bone fragments were recovered between 10–15 cm below surface and 56 between 15–20 cm below surface.

9.28.3 Lithics
9.28.3.1 Fire–Broken Rock

Three small pieces of fire–broken rock were recovered between 10–15 cm below surface along with four between 15–20 cm below surface.

9.28.3.2 Debitage

One piece of shatter was recovered between 10–15 cm below surface as was one piece between 15–20 cm below surface.

9.28.4 Ceramics

Two unidentifiable pottery sherds were recovered between 10–15 cm below surface.

9.29 85S147E

The north half of this unit was excavated to 50 cm below surface. Cultural materials were recovered between 10–25 cm below surface (mostly 15–20 cm below surface) and 35–40 cm below surface. No cultural materials were recovered below 40 cm below surface. No features were noted in this unit.

9.29.1 Faunal
9.29.1.1 Molluscs

One fragment of mollusc shell was recovered between 10–15 cm below surface and two were recovered between 15–20 cm below surface. These may be detritus remaining from the manufacture of shell beads, two of which were recovered during the 2008 field season.

9.29.1.2 Mammals
9.29.1.2.1 Unidentifiable

Thirty-nine unburned, unidentifiable bone fragments were recovered between 10–15 cm below surface, fifty-four between 15–20 cm below surface, one between 20–25 cm below surface, and one between 35–40 cm below surface.

9.29.1.2.2 Canid

One canid tooth fragment was recovered between 10–15 cm below surface and two were recovered between 15–20 cm below surface.

9.29.2 Artifacts Fashioned from Faunal Materials

9.29.2.1 Mammals

9.29.2.1.1 Canid

One root-weathered bone bead was recovered between 35–40 cm below surface (Plate 21:d). Analysis of similar materials (e.g., Walde 1983) suggests the bead was most probably formed by grooving and snapping a large canid metapodial.

9.30 95S147E

The north half of this unit was excavated to 45 cm below surface. Cultural materials recovered between 15–25 cm below surface (primarily from an ash dump Feature 2008–009—Plate 6—between 18–21 cm below surface, with the majority of recoveries occurring between 20–25 cm below surface) and 40–45 cm below surface. A ceramic neck/shoulder sherd (Vessel 27) and a point base (Plate 8:b) at 21.5 cm below surface.

9.30.1 Features

9.30.1.1 Feature 2008–009

Feature 2008–009 was a poorly defined ash dump containing cultural materials was encountered between 18–21 cm below surface.

9.30.1.1.1 Materials recovered from Feature 2008–009

9.30.1.1.1.1 Matrix Samples

Two soil samples, one from between 20–21 cm below surface and one from between 21–25 cm below surface, were screened through ¼” hardware cloth and retained for future flotation and analysis.

9.30.1.1.1.1.1 Botanical
9.30.1.1.1.1.1.1 Wood

One fragment of wood was recovered from this feature.

9.30.1.1.1.1.1.1 Charcoal

Two pieces of charcoal were recovered from this feature.

9.30.1.1.1.1.2 Faunal
9.30.1.1.1.1.2.1 Mammals
9.30.1.1.1.1.2.1.1 Unidentifiable

One hundred and ten unburned, unidentifiable bone fragments were recovered from the feature along with sixteen scorched and fifteen calcined unidentifiable bone fragments.

9.30.1.1.1.1.2.1.2 Bison

Two tooth fragments including most of a maxillary premolar were recovered from this feature.

9.30.1.1.1.1.3 Lithics
9.30.1.1.1.1.3.1 Unmodified

Two small pieces of mica were recovered from this feature. Forbis (1977:39) notes that local micaceous clays might have been used to make the pottery found at the site.

9.30.1.1.1.1.3.2 Fire-Broken Rock

Two pieces of fire-broken rock were recovered from this feature.

9.30.1.1.1.1.3.3 Debitage

Three pieces of petrified wood shatter were recovered from this feature.

9.30.1.1.1.1.3.4 Formed Tools
9.30.1.1.1.1.3.4.1 Projectile Points

The base of a Plains Side Notch projectile point was recovered from this feature (Plate 8:b).

9.30.1.1.1.1.4 Ceramics

Nine fragments of precontact pottery were recovered including a neck/shoulder sherd (Vessel 27), a near-rim sherd, and seven small unidentifiable sherds.

9.30.2 Non-Feature Recovered from 95S147E

9.30.2.1 Botanical

9.30.2.1.1 Seeds

One seed was recovered between 20–25 cm below surface. Identification awaits further analysis.

9.30.2.1.1.1 Wood

Two small pieces of wood were recovered between 20–21 cm below surface.

9.30.2.1.1.1.1 Charcoal

Four pieces of charcoal were recovered between 20–21 cm below surface.

9.30.2.2 Faunal

9.30.2.2.1 Molluscs

One fragment of mollusc shell was recovered between 20–21 cm below surface.

9.30.2.2.2 Mammals

9.30.2.2.2.1 Unidentifiable

One hundred and nineteen unburned, unidentifiable bone fragments were recovered from this unit outside Feature 2008–009 (three between 15–20 cm below surface with the remainder occurring between 20–21 cm below surface) along with twelve scorched (one between 20–25 cm below surface with the remainder occurring between 20–21 cm below surface) and twenty–four calcined unidentifiable bone fragments, all of which were found between 20–21 cm below surface..

One unidentifiable tooth fragment was recovered between 15–20 cm below surface.

9.30.2.3 Lithics

9.30.2.3.1 Fire-Broken Rock

Six pieces of fire–broken rock were recovered between 20–21 cm below surface.

9.30.2.4 Ceramic

One small unidentifiable sherd of precontact pottery was recovered between 20–21 cm below surface.

9.30.2.5 Mineral

Three pieces of red ochre were recovered between 20–25 cm below surface.

9.31 105S147E

The north half of this unit was excavated to 35 cm below surface. Materials recovered between 10–25 cm below surface (mostly 20–25 cm below surface). Excavation is incomplete and will be completed during the 2009 field season. No features were encountered in this unit.

9.31.1 Botanical

9.31.1.1 Charcoal

One small piece of charcoal was recovered between 15–20 cm below surface.

9.31.2 Faunal

9.31.2.1 Mammals

9.31.2.1.1 Unidentifiable

Ten unburned, unidentifiable bone fragments were recovered between 15–20 cm below surface along with five between 20–25 cm below surface.

9.31.2.2 Lithics

9.31.2.2.1 Fire–Broken Rock

Nine pieces of fire–broken rock were recovered; six between 15–20 cm below surface and three between 20–25 cm below surface.

9.31.2.2.2 Debitage

One piece of shatter was recovered between 20–25 cm below surface.

9.32 115S147E

The north half of this unit was excavated to 35 cm below surface. Cultural materials recovered between 10–25 cm below surface (with most originating between 15–20 cm below surface). Excavation of this unit is incomplete. No features were encountered in this unit.

9.32.1 Faunal

9.32.1.1 Mammals

9.32.1.1.1 Unidentifiable

Four unburned, unidentifiable bone fragments were recovered between 10–15 cm below surface along with twenty–seven between 15–20 cm below surface and eleven between 20–25 cm below surface.

9.32.1.1.2 Bison

One fragment of bison scapula was recovered between 15–20 cm below surface.

9.32.2 Lithics

9.32.2.1 Unmodified

Three pieces of sandstone were recovered between 20–25 cm below surface.

9.32.2.2 Debitage

Ten pieces of lithic debitage, including five finishing flakes and five small pieces of shatter were recovered between 20–25 cm below surface.

9.33 85S157E

The north half of this unit was excavated to 45 cm below surface. Cultural materials were recovered between 10–25 cm below surface (with most finds occurring between 15–20 cm below surface). Excavation of this unit is incomplete. No features were noted in this unit.

9.33.1 Botanical

9.33.1.1 Wood

One sample of wood recovered between 15–20 cm below surface was collected for future analysis.

9.33.1.1.1 Charcoal

Eight pieces of charcoal were recovered between 15–20 cm below surface.

9.33.1.2 Faunal

9.33.1.2.1 Mammals

9.33.1.2.1.1 Unidentifiable

Ten unburned, unidentifiable bone fragments were recovered between 10–15 cm below surface along with fifty-one between 15–20 cm below surface. One of the unburned, unidentifiable bone fragments found between 15–20 cm below surface has gnaw marks on its surface.

Fifty-four calcined, unidentifiable bone fragments were recovered between 15–20 cm below surface along with a single example between 20–25 cm below surface.

9.33.1.2.1.2 Rodent

A mandible from an unidentified rodent was recovered between 15–20 cm below surface.

9.33.1.2.1.3 Bison

A bison third phalanx was recovered between 10–15 cm below surface. A bison lunate was recovered between 15–20 cm below surface along with three bison rib fragments in the same level.

9.33.1.2.1.4 Canid

Seven fragmentary large canid remains were recovered between 15–20 cm below surface including two incisors, one canine, a molar and an unidentified tooth fragment as well as a mandible and a mandible fragment

9.33.1.3 Lithics

9.33.1.3.1 Unmodified

One unmodified cobble and two pieces of sandstone were recovered between 15–20 cm below surface.

9.33.1.3.2 Fire–Broken Rock

Two pieces of fire–broken rock were recovered between 15–20 cm below surface and one between 20–25 cm below surface.

9.33.1.3.3 Debitage

9.33.1.3.3.1 Shatter

One piece of quartzite shatter were recovered between 15–20 cm below surface.

9.33.1.3.3.2 Flakes

One black chert flake was recovered between 15–20 cm below surface.

9.33.1.3.4 Unformed Lithic Tools

One unifacially retouched quartzite spall tool was recovered at 18 cm below surface (Plate 17).

9.33.1.3.5 Formed Tools

9.33.1.3.5.1 Projectile Points

One Plains Side Notch projectile point was recovered between 18–20 cm below surface (Plate 8:a).

9.34 95S157E

The north half of this unit was excavated to 35 cm below surface. Cultural materials recovered between 10–25 cm below surface with most occurring between 15–20 cm below surface. Excavation of this unit is incomplete. Many small, friable pottery fragments along with rim sherds (Vessel 25). A possible wooden peg was noted at 21 cm below surface in the NW quadrant of the unit. No features were encountered.

9.34.1 Botanical

9.34.1.1 Seeds

A dried Saskatoon berry was recovered between 15–20 cm below surface. This may have fallen into the unit from the contemporary surface.

9.34.1.2 Wood

Fourteen pieces of wood, perhaps from a root, were recovered between 15–20 cm below surface. Four pieces of wood, possibly from a peg, were recovered between 20–25 cm below surface.

9.34.1.3 Charcoal

Twenty–six pieces of charcoal were recovered between 15–20 cm below surface.

9.34.2 Faunal

9.34.2.1 Mammals

9.34.2.1.1 Unidentifiable

One hundred and eighty–four unburned, unidentifiable bone fragments were recovered between 15–20 cm below surface along with two between 20–25 cm below surface.

One scorched, unidentifiable bone fragment was recovered between 15–20 cm below surface.

Twenty–two calcined, unidentifiable bone fragments were recovered between 15–20 cm below surface.

9.34.2.1.1.1 Bison

One fragment of molariform tooth enamel was recovered between 15–20 cm below surface along with a molar, a mandible fragment, three scapula fragments, a lateral malleolus, and two pieces of unidentified long bone.

9.34.3 Tools Formed on Faunal Material

9.34.3.1 Mammal

Two pieces of unidentifiable, unburned bone with use wear were recovered between 15–20 cm below surface.

9.34.4 Lithics

9.34.4.1 Unmodified

Three unmodified pebbles along with a large unmodified sandstone slab were recovered between 15–20 cm below surface.

9.34.4.2 Debitage

Five pieces of shatter were recovered between 15–20 cm below surface.

9.34.4.3 Formed Tools

9.34.4.3.1 Bifaces

A fragment of a biface formed on quartzite was recovered between 15–20 cm below surface.

9.34.5 Ceramics

Eight hundred and twenty-four pieces of precontact pottery were recovered between 15–20 cm below surface. Most are extremely small, unidentifiable fragments but three rim sherds permit assignment of all the sherds to Vessel 25 (described above, Plates 10–13).

9.35 105S157E

The north half of this unit was excavated to 35 cm below surface. Cultural materials were recovered between 10–30 cm below surface, primarily between 15–25 cm below surface. Excavation of this unit is incomplete.

9.35.1 Features

9.35.1.1 Feature 2008–012

Feature 2008–012 is a possible post mould encountered between 25–30 cm below surface.

9.35.1.2 Soil Samples

A sample of soil containing a possible bone peg was collected for future flotation and analysis.

9.35.1.3 Botanical

9.35.1.3.1 Wood

Four pieces of wood were collected between 20–25 cm below surface for future analysis.

9.35.1.3.2 Charcoal

Eight pieces of charcoal were collected between 20–25 cm below surface.

9.35.1.4 Faunal

9.35.1.4.1 Molluscs

One piece of mollusc shell was recovered between 15–20 cm below surface.

9.35.1.4.2 Mammals

9.35.1.4.2.1 Unidentifiable

Two hundred and ten unburned, unidentifiable bone fragments were recovered between 20–25 cm below surface along with two between 25–30 cm below surface.

Seven burned, unidentifiable bone fragments were recovered between 20–25 cm below surface as was a single calcined, unidentifiable bone fragment.

9.35.1.4.2.2 Bison

One bison incisor as well as a right distal tibia were recovered between 20–25 cm below surface.

9.35.1.4.3 Lithics

9.35.1.4.3.1 Debitage

Two pieces of shatter, one on quartzite and the other on petrified wood were recovered between 15–20 cm below surface.

9.35.1.4.4 Ceramics

Thirty-one precontact pottery sherds were recovered between 20–25 cm below surface, including three rim sherds. These sherds have been assigned to Vessel 26 (described above, Plates 14–16).

9.36 115S157E

The north half of this unit was excavated to 40 cm below surface. Cultural materials were recovered between 10–30 cm below surface, largely between 15–20 cm below surface.

Fragments of mollusk shell and precontact pottery recovered. A small concentration of

ash and charcoal was recorded as Feature 2008–012. Excavation of this unit is incomplete.

9.36.1 Features
9.36.1.1 Feature 2008–012

A small concentration collection of charcoal and ash occurring between 15–25 cm below surface was collected and recorded as Feature 2008–012. The sample was screened through ¼” hardware cloth and retained for future flotation and analysis.

9.36.2 Botanical
9.36.2.1 Wood

Four samples of burned wood, probably from a root, were retained for future analysis.

9.36.2.2 Charcoal

Ten fragments of charcoal were recovered between 15–29 cm below surface and one between 20–25 cm below surface.

9.36.3 Faunal
9.36.3.1 Molluscs

A single fragment of mollusc shell was recovered between 10–15 cm below surface.

9.36.3.2 Mammals
9.36.3.2.1 Unidentifiable

Forty–six unburned bone fragments were recovered between 10–15 cm below surface along with one hundred and seven between 15–20 cm below surface, four between 20–25 cm below surface, and one between 25–30 cm below surface.

Seventeen burned, unidentifiable bone fragments were recovered between 15–20 cm below surface as were nineteen calcined unidentifiable bone fragments. A single calcined unidentifiable bone fragment was recovered between 20–25 cm below surface.

9.36.4 Lithics
9.36.4.1 Fire–Broken Rock

One piece of fire–broken rock was recovered between 10–15 cm below surface and one between 15–20 cm below surface.

9.36.4.2 Debitage

One flake on Top of the World Chert was recovered between 10–15 cm below surface and one on an unidentified material was encountered between 15–20 cm below surface.

9.36.5 Ceramics

Ten precontact pottery sherds were recovered between 15–20 cm below surface.

9.37 95S167E

The north half of this unit was excavated to 40 cm below surface. Cultural materials were recovered between 0–30 cm below surface, primarily between 20–25 cm below surface. Formed artifacts recovered include two shell beads and one bone bead. No features were recorded in this unit.

9.37.1 Faunal

9.37.1.1 Mammals

9.37.1.1.1 Unidentifiable

Three unburned, unidentifiable bone fragments were recovered between 0–5 cm below surface, three between 10–15 cm below surface, one between 15–20 cm below surface, and sixty–five between 20–25 cm below surface.

Three burned, unidentifiable bone fragments were recovered between 20–25 cm below surface.

A single calcined, unidentifiable bone fragment was recovered between 15–20 cm below surface.

9.37.1.1.2 Bison

A left distal bison radius was recovered between 15–20 cm below surface and a bison premolar was encountered between 20–25 cm below surface. Neither bison specimen showed traces of burning.

9.37.1.2 Artifacts Formed on Faunal Materials

Two mollusc beads with central holes were recovered between 20–25 cm below surface (Plate 21:a, b).

A single bone bead was recovered between 20–25 cm below surface (Plate 21:c). Analysis of similar materials (e.g., Walde 1983) suggests the bead was most probably formed by grooving and snapping a large canid metapodial.

9.37.1.3 Lithics

9.37.1.3.1 Unmodified

One unmodified cobble was recovered between 20–25 cm below surface.

9.37.1.3.2 Fire–Broken Rock

One piece of fire–broken rock was recovered between 15–20 cm below surface.

9.37.1.3.3 Debitage

9.37.1.3.3.1 Shatter

Eleven pieces of shatter were recovered between 20–25 cm below surface.

9.37.1.3.3.2 Flakes

A single flake was recovered between 20–25 cm below surface.

9.37.1.4 Mineral

One sample of red ochre was taken between 20–25 cm below surface and retained for future analysis.

9.38 105S167E

The north half of this unit was excavated to 30 cm below surface. Cultural materials were recovered between 0–25 cm below surface with most being encountered between 15–20 cm below surface. No features were noted in this unit.

9.38.1 Botanical

9.38.1.1 Charcoal

Two small pieces of charcoal were recovered between 5–10 cm below surface and a charcoal–rich soil sample was taken between 15–20 cm below surface for future flotation and analysis.

- 9.38.2 Faunal
- 9.38.2.1 Mammals
- 9.38.2.1.1 Unidentifiable

Sixteen unburned, unidentifiable bone fragments were recovered between 5–10 cm below surface, three between 10–15 below surface, and eleven between 15–20 cm below surface.

A single piece of scorched bone was recovered between 5–10 cm below surface.

- 9.38.2.1.2 Bison

A fragment of bison acetabulum was recovered between 15–20 cm below surface as was a fragment of distal tibia. A piece of bison molariform tooth enamel was encountered between 5–10 cm below surface. None of the bison specimens show evidence of burning.

- 9.38.2.2 Lithics
- 9.38.2.2.1 Unmodified

One unmodified pebble was recovered between 5–10 cm below surface.

- 9.38.2.2.2 Debitage

One piece of shatter was encountered between 5–10 cm below surface.

- 9.38.2.3 Ceramic

A single sherd of unassignable precontact pottery was encountered between 15–20 cm below surface.