

NON-DOMESTIC ARCHITECTURE IN  
PREHISTORIC COMPLEX HUNTER-GATHERER COMMUNITIES:  
AN EXAMPLE FROM KEATLEY CREEK, ON THE CANADIAN PLATEAU OF BRITISH COLUMBIA

by

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## Abstract

This thesis explores the variability in housepit use in the large prehistoric village on the Canadian Plateau of Keatley Creek. A comparative analysis of domestic housepits and potential ritual structures was undertaken to determine whether or not ST 106 was used as a winter domestic residence, or used for other purposes. Twenty-four methods of comparison were used to identify differences and similarities between the groups of domestic housepits and potential ritual structures.

The results of this study indicate that these potential ritual structures cluster as a group distinct from the domestic housepits. The sample of potential ritual structures differs from the domestic housepits most notably by: distinctive spatial distribution at the site, association with feasting facilities, high fish element density, low debitage density, high proportions of bifacial thinning flakes, and high proportions of rare or unique artifacts. The late Kamloops horizon occupation of structure 106 displays all of these trends and clusters most closely with the Plateau horizon occupation of ST 9.

Comparison of the material attributes recovered from ST 106 and the other potential ritual structures with material expectations of various non-domestic structures for the study region suggests that these structures were used as feasting or meeting-houses and not domestic residences. These potential ritual structures originate in the Classic Lillooet (2600–1100 B.P.) occupation of the site and were used up until the late Kamloops horizon.

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## 1.0 Introduction to the Research Problem

The goal of this research project is to increase our knowledge of the socio-economic organization of complex hunter-gatherer communities. This project examines the possibility that not all housepit depressions in the Mid-Fraser River region of interior British Columbia are necessarily the remains of domestic pithouse residences. Unusual remains evident in several housepits in at least one large village site indicate a greater specialization, or distinctive activities than expected of domestic winter pithouses. This thesis aims to identify and explore the role of special use housepits in complex hunter-gatherer societies.

Complex hunter-gatherers occupied the Mid-Fraser River region located between the Fraser's confluences with the Chilcotin River in the north, with and Thompson River at Lytton in the south. About 4500 years ago, these peoples began to adopt a logistic-collector economy based on stored salmon and plant foods, and became increasingly semisedentary (Binford 1980, Richards and Rousseau 1987: 49–52, Rousseau 2004). This cultural tradition is referred to as the Plateau Pithouse Tradition (PPT) (4500–200 B.P., all dates uncalibrated radiocarbon years, unless otherwise indicated) (Rousseau 2004). It involved fewer residential moves, and greater reliance on stored foods than the forager-type subsistence strategy that preceded it. Specific task-procurement sites across the landscape are well described in the ethnographic and archaeological literature (Alexander 1992; Kew 1992; Peacock 1998; Pokotylo and Froese 1983; Romanoff 1992a, 1992b; Teit 1900, 1906, 1909, 1928). Population densities appear to have been very high and social inequalities marked. The largest winter communities (the major base camps) had populations of more than 1000 inhabitants (Hayden *et al.* 1985; Hayden 2000a; Stryd 1971). All villages both large and small were located exclusively within the river terrace zone (Alexander 1992: 154).

The Keatley Creek site (EeR1 7), intensively studied for the past 20 years, is a large winter village of over 100 housepits had an estimated peak population of at least 1200 people (Hayden 2000a) (Figures 1 and 2). While in Plateau and early Kamloops horizons, the occupation of the site appears very intensive, there is considerably less cultural activity after its apparent collapse (Hayden 2005; Prentiss *et al.* 2003; 2005). In the late Kamloops horizon (400–200 B.P.), activity at the site appears limited to the use of four structures on the eastern periphery of the site's older core, and a series of large storage features on the southern periphery of the site (Hayden 2000c; Hayden and Adams 2004) (Figure 2).

These four late Kamloops horizon pithouse structures (ST 104, 105, 106 and 109) have been tested, and the material remains in all are distinctive from the domestic housepits (HP) that dominate the rest of the site (Hayden 2004a, Hayden 2004b) (Figure 2 and *Appendix A* Figure 6). Structure 106 has a paucity of artifacts and debitage, intensive fire reddening, occurrence of unique artifacts, and unusual placement of artifacts (Hayden 2004b; Hayden and Adams 2004; Morin 2006). The main occupation floor inside the structure displays major differences in subsistence, lithic reduction strategies, and intensity of use, from other winter domestic residences at the site.

On the basis of preliminary testing, Brian Hayden (2004b, Hayden and Adams 2004), suggested that ST 106 may have been a special purpose structure for feasting activities or ritual by limited members of the community. As there is no evidence of substantial occupation of the site in late Kamloops horizon

besides structures 104, 105, 106, and 109 (but evidence for use of storage facilities, some small cooking facilities, and very ephemeral campsites) (Hayden 2000d, Hayden and Adams 2004), it is uncertain where the community that used these special-purpose structures was based. However, approximately 80 housepits at the site have not been tested or dated; therefore, it is possible that some occupation of the site core occurred during this period as well. There are 10 housepits in the core of the site with Kamloops horizon indicators (mainly Kamloops points) that are undated radiometrically. The uncalibrated date for ST 106 ( $220 \pm 70$  B.P., Beta 106611, pine bark roofing material) has a wide calibrated value and error range (228 cal B.P., with a two sigma range of 0–456 B.P.), and while many artifacts associate this structure with the Kamloops horizon, no historic artifacts were recovered from floor (Stratum IV), roof (Stratum III) or rim (Stratum IV) strata (*Appendix A* Figures 3, 4, and 5; Morin 2006; Prentiss *et al.* 2003). While Hayden and Adams (2004) suggest ritual functions of ST 106, such as shrine, secret society meeting house, or ritual seclusion structure, other occupation or task specific functions may also account for the atypical remains present (e.g., residence of an occupational specialist such as a hunter or a shaman, base camp for subsistence activities such as a hunting lodge, or meeting place for elites, warriors, or secret societies, or that these are the remains of a small village). Aldenderfer (1993: 1) highlights the importance of ritual activities as agents of change in foraging societies, especially among relatively sedentary foragers. Mid-Fraser ritual structures may provide important insight into cultural change and prehistoric community organization in the Plateau Pithouse Tradition.

There is also the possibility that ST 106 was a domestic residence and a centre for ritual activities. In the Southwest, Lekson (1989) and Adler (1989) identify the presence of 'domestic' activities in supposed ritual structures and vice versa. The situation could be similar at Keatley Creek, with individuals conducting ritual activities within primarily domestic contexts (e.g., a potlatch in HP 7), and conducting limited 'domestic' activities at a primarily ritual location (e.g., feasts at shrines). Interpreting the function of ST 106, more precisely the most regular use of the structure, will require a multifaceted approach to many lines of material remains. The purpose of this thesis is to evaluate whether ST 106 was a winter domestic residence or not. If it does not appear to be a winter residence, then the goal is to interpret the structure and its remains in terms of roles for ST 106. Specifically, one hypothesis will be tested:

1. *The null hypothesis: ST 106 is not different from winter domestic residences (it is a typical housepit), and*

If the null hypothesis can be rejected, then the remains of ST 106 will be compared to the proposed material remains profiles of regional non-domestic architecture to achieve a 'best fit' model of utilization.

### 1.1 History of Regional Research

Since modern research-oriented archaeology was first undertaken in the region in the 1960's, a major topic of interest has been the very large pithouse villages of the Plateau and early Kamloops horizons (referred to as the Classic Lillooet Phase, 2600–1100 B.P. for the Mid-Fraser region) (Hayden 1997a, 1997b, 2000a, 2005; Kuijt and Prentiss 2004; Prentiss *et al.* 2003; Stryd 1973, 1978). These large aggregated settlements display significant variation in both the number of housepit depressions (from 1 to 120) and individual



housepit size (from <5–21 m in diameter) (Hayden 2000b). This variation has led researchers to explore whether or not all housepit depressions were used as domestic habitations.

Sanger's research at the Lochnore-Nesikep locality developed the first culture history for the area (Sanger 1967, 1969). Stryd's (1973, 1978) excavations at the Bell site (EeRk 4) were partially designed to determine if the large housepits were residences or special function structures, and his research suggested that all such housepits were analogous to winter domestic residences described ethnographically. Hayden's (2000a) work at Keatley Creek confirmed that the very large housepits were multifamily residences (residential corporate groups), and further explored the differences in social organization and resource access in various sized housepits at the site.

### *1.1.1 Social Organization in the Mid-Fraser Region*

The fundamental socio-economic unit in the Mid-Fraser Region in the PPT (4500–200 B.P.) was the household and residential corporate group, with corporate groups being identified as much larger than nuclear family residences (Hayden 2000a; Hayden and Cannon 1982; Rousseau 2004). Each corporate group was composed of one to eight or more nuclear families and had specific inheritance-based resource rights and status (Teit 1900: 255, 294, 1909: 572, 583). These groups separated in the spring and summer months; every fall they reunited to reside in a single pithouse subsisting on stored foods collected earlier in the year. Individual residential households are thus represented archaeologically by their housepits, the remains of their collapsed pithouses. The larger examples of housepits (e.g. HP 7) appear to have been used by multifamily corporate groups for considerably long periods of time (Hayden and Cannon 1982; Hayden *et al.* 1996a).

Ongoing research at the Keatley Creek site has examined numerous housepits of various sizes and proposed various modes of household organization. The smallest housepits (under 10 m in diameter) are interpreted as having been occupied by one or two nuclear families of relatively low economic standing (Hayden 2000a). These groups had limited rights of resource access and were less residentially stable, that is, their houses were only occupied for one or two generations in most cases. Medium sized housepits (10–15 m in diameter) are interpreted as having been occupied by three or four nuclear families (or two extended families) with relatively moderate economic standing (Hayden 2000a). These groups still had limited resource rights, or rights to minor resource-producing locations, but greater permanency. Large housepits (>15 m in diameter) were occupied by 5 to 8 nuclear families and enjoyed the highest economic standing. Large pithouses had an internal hierarchical organization probably including house 'chiefs' (household leaders) and slaves. They had the greatest access rights to most resources and were the most permanent social groups, persisting as recognizable corporate groups for many generations (Hayden *et al.* 1996a).

While the above model may account for much of the social organization within households, it does not address community-wide and inter-community organization. Specifically, given the high population densities of the region, one might expect some sort of extra-household integrative forces (for example, cultural institutions that cross-cut kin groups including secret societies, warrior groups and other

sodalities), and perhaps occupational specializations (e.g., shamans, hunters, warriors) (Binford 2001: 406; Hayden 1997b: 43–47). Ethnographically, and cross culturally, there is abundant evidence for such institutions in communities much smaller than the Classic Lillooet occupation of Keatley Creek (Hayden 1997b, Johansen 2004).

### *1.1.2 Logistical Organization and Site Variation in the Mid-Fraser River Terrace Zone*

Although the majority of archaeological research in this river-terrace zone has focussed on large winter-village pithouse sites, it is possible that some structures and other features were logistic bases for subsistence-related activities and not winter habitations (Binford 1980). Examples include hunting lodges or root-roasting locations (Teit 1900: 196).

### *1.1.3 Ritual Structures in Complex Communities*

The archaeological and ethnographic records abound with examples of social differentiation expressed in architecture (e.g., palatial elite residences and temples/ritual structures), and it is expected that similar, subtler, differences also exist in complex hunter-gatherer communities. Some researchers have noted a close correspondence between increased sedentism and increased intensity of ritual activities among foraging societies (Aldenderfer 1993, Price and Brown 1985: 9). Examples of specialized non-habitation ritual structures include: a peripheral ritual structure at Dolni Vestonice in the Czech Republic (Klima 1954, 1962); Greek Neolithic 'shrines' (Marangou 2001); 'mealing rooms' (Mobley-Tanaka 1997); protokivas (Mobley-Tanaka 1997); kivas (Lekson 1989) of the American Southwest; the Yukuot Whalers' shrine (Jonaitis 1999); and secret society meeting-houses for the Nuxalk (Bella Coola) (McIlwraith 1992a: 177–179) in the Pacific Northwest (see Table 1).

In the early 1900s, James Teit described several types of non-domestic ritual structures for the Mid-Fraser region, such as special feasting or potlatching structures (1900:196), ritual seclusion structures (1929: 114, 1900: 312, 326), and sweat bathhouses (1900: 198) (Table 2). Other ethnographers also documented that secret societies had separate non-domestic meetinghouses (McIlwraith 1992a: 177–179).

## **1.2 Archaeological Correlates of Plateau Non-Domestic Structures**

Identifying non-domestic as potentially ritual structures archaeologically requires differentiation between feasting, meeting, seclusion, sweating, task-specific, and domestic household activities (Lesure and Blake 2002). The following section briefly describes proposed archaeological signatures for several types of special function structures described for the Canadian Plateau. This discussion is also summarized in Table 2.

### *1.2.1 Feasting Structures*

Feasting activities have recently been suggested to hold a critical role in the social organization in transegalitarian societies (Deitler 1996; Dietler and Hayden 2001). Further, it is proposed that feasts provide the major means of organizing surplus, and converting surplus into other desired services, relationships, or goods (Dietler 2001; Hayden 2001). Feasts can be used to maintain the *status quo*, or

disrupt it, and as mechanisms for culture change. Thus, feasting activities can be seen as an arena for contesting or maintaining the social order.

Hayden (2001) discusses possible criteria to archaeologically differentiate feasting activities from other types of activities. Feasts typically involve consumption of 'special' or rare foods in large quantities prepared and served in a distinctive fashion (Dietler and Hayden 2001; Kelly 2001; Kirch 2001). Such feasts also sometimes take place in distinctive structures allowing for guests and elaborate dancing and ritual displays (Hayden 2001). Teit (1900: 196) describes large lodges used for potlatches and special occasions for the Thompson. Densities of fire-cracked rock (FCR), salmon and artiodactyl remains, and the ratio of artiodactyls to salmon (as measured by the NISP) are important to this study because they could indicate feasting, or elite consumption of highly valued foods distinctive from well-documented domestic subsistence activities dominated by salmon (Table 2, Kuijt 1989; Kusmer 2000; Langemann 1987; Lovell *et al.* 1986). These ratios are quantifiable and can be statistically compared to other samples. These ratios thus have the potential to distinguish between domestic or extra-domestic consumption activities.

#### 1.2.2 *Secret Society Meeting houses*

Secret societies were widespread in the Pacific Northwest and other areas of aboriginal North America – Great Plains, California, and the Southwest (Boas 1970; Binford 2001: 354, 406, 432, 463; Donald 2003; Hill-Tout 1978; McIlwraith 1992a and 1992b; Owens and Hayden 1997; Teit 1909: 577). Similar to feasting activities, secret society meeting activities in specific structures should also produce a distinctive archaeological signature. However, in this case, the activities undertaken can be far more diverse, ranging from ceremonial singing and dancing, to socializing, feasting, and manufacturing specific goods (Johansen 2004). An early illustration of a men's semisubterranean meeting and gambling lodge of the Wintu in northern California is remarkably devoid of artifacts and site furniture (LaPena 1978: 326). McIlwraith provides a vivid description of the location of such a facility utilized only by secret society members of the Nuxalk.

Near every village is a place where the chiefs hold such meetings. All the inhabitants know the general locality, but there is such dread of the supernatural powers of the *kusiut* society that none would dare go there. If an uninitiated person should do so, he formerly would have been either killed or initiated into the society. The meeting place of the Qomqots chiefs is on a ledge of rock jutting out over a waterfall about a quarter of a mile from the village. ... The meeting-places of other villages lack such natural settings, though all are at the bases of cliffs or near some easily distinguished feature (McIlwraith 1992a: 177–178).

While no single element may be indicative of a secret society meetinghouse, its overall assemblage may display its distinctiveness (Table 2). Exclusive feasting activities may also be associated with meetinghouses, as McIlwraith (1992b: 263) describes an "elaborate feast of smoked goat flesh" (1992b: 263) held by and for *Kusiut* secret society members in their secluded meeting place. Also, the density of artifacts associated with domestic activities should be relatively lower in a meetinghouse than it would be in a domestic residence. These measures can be quantified and statistically compared to other housepit samples.

### 1.2.3 *Ritual Seclusion Structures*

Ritual seclusion structures are similar to secret society meeting houses in that not all classes of domestic activities should be represented in them. Ritual seclusion structures may be more distinctive than secret society meeting houses in that only specific genders or age classes may have used such structures. Examples of this include menstrual huts and puberty seclusion sites (Teit 1900: 196, 312, 326). Specific themes represented archaeologically might include containment of 'polluting elements.' Examples of attributes potentially associated with a ritual seclusion structure include special disposal facilities, craft tools such as awls, restricted foodstuffs, remote locations, and perhaps specific ritual utensils such as bone scratchers and bird bone drinking tubes (Table 2). Ideally, for these types of structures, we should differentiate between male and female activities, although such detailed distinctions are difficult to make for lithic technology (Conkey and Spector 1984, Gero 1991, Sassaman 1992). The dietary restrictions prohibiting menstruating females from consuming venison or large game meat may prove useful in determining whether or not ST 106 functioned as a menstrual hut (Teit 1900: 327).

### 1.2.4 *Shrines*

Shrines would probably have the most restricted function of any non-domestic structures discussed thus far. One would expect such extremely sacred locales to be quite free of domestic waste and have few, if any indications of domestic activities (Table 2). Shrines should be meticulously clean, may contain food offerings, are small in size, and contain some ritual or cult objects (Jonaitis 1999). This class of ritual structure would probably be the most difficult to identify archaeologically.

### 1.2.5 *Sweat-bath Houses*

While ethnographic sweat baths were very small and flimsily constructed, this does not necessarily preclude their archaeological visibility (Teit 1900: plate XVII). Sweat-baths should leave quite distinctive archaeological signatures readily differentiated from domestic activities (Table 2). Most important is the paucity of domestic or food waste contrasted with large quantities of fire-cracked rock associated with an exterior hearth.

### 1.2.6 *Hunting Lodges*

Another type of non-domestic winter structure is the hunting lodge (Teit 1900: 196). Although they do not usually occur in the river terrace zone (Alexander 1992), these structures could have been seasonally occupied, probably in the late fall or winter, by hunting parties for artiodactyls in surrounding areas. Such structures should display some degree of subassemblage specialization, perhaps high counts of projectile points, and billet and pressure flakes, and fewer activities represented than normally found in a winter domestic residence (Table 2). Faunal remains should indicate high ratios of artiodactyls to salmon, primary butchering of nearly whole artiodactyl carcasses, particular systematically under-represented elements, and perhaps a high frequency of small game. Due to its limited season of occupation, a hunting lodge should display minimal rim midden accumulation, and limited accumulation of debris on or in living floors (see Alexander 1992).

### 1.3 Summary

The above discussion provides a framework for this research to differentiate domestic (HP) and particular types of potential ritual structures (ST). These extremely specific types of comparisons can only be made because of the very large data set provided by investigations in the Lillooet area (Stryd 1978) and at the Keatley Creek site (Hayden 2000a).

### 2.0 Methodology and Data Set

In order to determine if ST 106 was used as a domestic residence, it must be compared to other clearly identified domestic housepits in the region. If ST 106 is similar to domestic housepits, then it too may have functioned as one. If ST 106 differs in significant ways from domestic housepits, then it may have functioned as a non-domestic, perhaps ritual, structure.

The material remains recovered from ST 106 can be considered as a sample on two different scales. On the first scale, housepit floor strata are generally understood to represent the last season or seasons, of pithouse use, assuming regular cleaning activities limit long-term accumulation of debris, especially large objects. They represent a fine-grained chronological sample of past activities (Prentiss 1993). Housepit floor strata were a primary unit of analysis by Hayden (2000a, 2000c, 2000d), Prentiss (1993, 2000), Spafford (1991, 2000a and 2000b), Kusmer (2000) for other Keatley Creek intra- and inter-housepit comparisons, and are utilized in this study as the primary unit of comparison.

ST 106 was excavated from 1997–2005, exposing over 90 percent of its floor area, and recovering an almost complete assemblage of the structure's artifacts (*Appendix A* Figures 1,3, and 4; Morin 2006). The floor stratum (Stratum IV), dating to 220 B.P. (with a calibrated two sigma range of 0–456 cal B.P.), is the primary unit of investigation in this thesis (see Morin 2006), and will be compared with floor deposits from nine other Keatley Creek housepits excavated by Hayden, and six housepits excavated at several sites in the Lillooet region by Stryd (1973, 1978) (*Appendix B* Tables 1 and 4). This sample includes all fully excavated housepits in the Lillooet region (post 1970), and most of the partially excavated potential ritual structures that have a minimum of 15% excavated floor area from Keatley Creek. All samples date to the latter half of the PPT – the Plateau horizon (2400–1200 B.P.), and the Kamloops horizon (1200–200 B.P.) (*Appendix B* Table 1). The non-Keatley Creek housepits are 5–10 km south of Keatley Creek, and all of these sites are in river terrace environmental settings (Blake 1974a; Stryd 1973, 1978) (Figure 1). Except for six structures at Keatley Creek (ST 104, 105, 106, 107, 109 and 9), all have been interpreted as domestic winter residences. Combined, the Keatley Creek and non-Keatley Creek domestic housepits provide a general baseline of typical winter domestic structures to compare with ST 106. This baseline includes four classes of housepit floor assemblages: 1) fauna, 2) debitage, 3) fire-cracked rock (FCR), and 4) artifacts.

On the second scale, all strata associated with a single housepit (floors, roof, rim, features) can be taken as an aggregate sample of the activities undertaken in or associated with a housepit over its use-life. Pithouse roofs and rims would rapidly accumulate debris from household activities (Lepofsky 2000). Re-

roofing events would further mix cultural materials and roof or rim sediments, but would probably be limited to a single housepit structure. Roof and rim strata may contain artifacts from other activities conducted on the roof or in an abandoned housepit, for example cooking activities on collapsed roofs, or raw material processing on the standing roofs of structures (e.g., Stratum X, a large meat-roasting feature, see *Appendix A* Figures 3 and 4). Overall, a housepit sample can be taken as all strata and features associated with that structure. Such an aggregate sample will represent the activities in individual housepits during their entire span of occupation. Where possible, it is of course useful to differentiate clearly between different kinds of use on collapsed housepit roofs, and this approach is taken in analysis and comparison of the ST 106 excavated materials (see Morin 2006). Total housepit samples are used for comparison with ST 106, primarily with non-Keatley Creek housepits, where materials are not described in relation to housepit floors.

A detailed comparative approach is undertaken in order to test the main research hypothesis: was ST 106 a domestic structure. Most of my comparisons include only housepits from Keatley Creek to avoid methodological incompatibilities between research programs, such as differences in recovery techniques, stratigraphic control and nomenclature (see Langemann 1987: 261–7). In comparing ST 106 with non-Keatley Creek housepits, only total housepit samples are used (see *Appendix B* Tables 1 and 4). The Keatley Creek housepits have been tentatively divided into two groups: potential ritual structures on the periphery of the site (ST 9, 104, 105, 106, 107, 109), and domestic housepits in the core of the site (HP 7, 3, 90, 12) (Hayden 2000c; Hayden and Adams 2004; Prentiss 1993, 2000; Spafford 2000a) (*Appendix B* Table 2). In comparing ST 106 with the Keatley Creek housepits, floor and total housepit samples are used.

### 3.0 Results

Twenty-four methods were used to compare the material remains from ST 106 to other domestic housepits and potential ritual structures (Table 3). Most are based on the densities or the proportions of taxonomic and typological classes of material remains, and the presence/absence of artifact classes. The classes of remains include fauna, debitage, artifacts, and fire-cracked rock (*Appendix B* Table 1). Two methods of comparison consider the presence of rare fauna and artifact classes in greater detail. Many of these comparisons were made using a Mann-Whitney Test (two-group comparison) to examine the likelihood that the groups of housepits and structures from Keatley Creek are drawn from a single population (Fletcher and Lock 1991; Norusis 2004; SPSS 12.0 used for all statistical calculations). That is, do potential ritual structures 106, 104, 105, 107, 109, and 9 cluster as a distinct population from domestic housepits 7, 3, 12, and 90, or are there no significant differences between the domestic and potential ritual samples (i.e., a two sample comparison test)? Also, a hierarchical cluster analysis using Ward's Method (SPSS 12.0) was applied to the sample of domestic housepits and potential ritual structures to explore multivariate clustering of individual housepit and potential ritual structure deposits. Other comparisons are made subjectively by examining the relative frequency and presence or absence of rare artifact classes.

### 3.1 Context and Construction Techniques of ST 106

Before presenting a detailed analysis of ST 106 material, it is appropriate to describe its context, location, and layout relative to other potential ritual structures and domestic housepits. Structure 106 is a shallowly excavated housepit depression, oval or rectilinear in shape (8 m by 11 m), adjoining ST 105. It has a well-defined rim and although it was definitely earth-covered, it has a comparatively thin layer of earth as roofing material (*Appendix A* Figures 1, 3 and 4; Morin 2006). Although ST 106 is the only rectilinear potential ritual structure identified at Keatley Creek, such forms are more common in the Kamloops horizon than in preceding horizons (Richards and Rousseau 1987: 43).

Several internal features of ST 106 distinguish it from domestic housepits and associate it with the other potential ritual structures at Keatley Creek (*Appendix B* Table 2). Most notably, ST 106 contained two unusual hearths and a prepared silt floor. A small but intensely utilized funnel-shaped hearth was identified in the centre of the structure's floor, and a large intensely utilized oval hearth was noted at the north end of the structure (*Appendix A* Figure 1; Morin 2006). The funnel shaped hearth is unique at the Keatley Creek site, and the large hearth is most similar to the large hearths on the eastern and southern, likely elite, portions of HP 7 (Brian Hayden, personal communication 2005; Spafford 2000b: 172–175). The only stone lined hearths identified at Keatley Creek were found in ST 107 and 9 (Hayden and Adams 2004). Unusual, or intensely used, hearths seem to be restricted to the largest housepits that dominate the site (e.g., HP 7), and the potential ritual structures on the periphery of the site. Also, prepared silt floors, usually nearly devoid of debitage or artifacts, are common to all of the proposed ritual structures except for ST 105 and 109 (Hayden and Adams 2004).

The group of potential ritual structures can be divided into to sub-groups based on their location to the core of the Keatley Creek site (*Appendix B* Table 2). The first group, including ST 104, 105, 106 and 109, lies on two terraces in a cluster 150–250 m to the east of the core. This portion of the site is called the Terrace 1 and 2 Complex and has Plateau, late Kamloops and Protohistoric components (Figure 2). The second cluster, including ST 9 (with both Plateau and Kamloops horizon occupation floors) and 107, lies on a terrace 300 m south of the core and is called the South Terrace Complex, which has late Plateau and early Kamloops components (Hayden and Adams 2004). Each complex is also associated with a large number of storage pits and roasting features, including the largest examples of plant and meat-roasting features on the site (Hayden and Cousins 2004; Morin 2006).

The Terrace 1 and 2 Complex contains the highest density of meat- and plant-roasting features on the site. Excavations of ST 106 revealed a 6.5 m by 4 m meat-roasting feature (Stratum X) overlying its roof (*Appendix A* Figures 2, 3 and 4), and a small meat-roasting feature, 80 cm diameter, underlying its eastern rim (*Appendix A* Figures 1 and 5; Morin 2006). There are also at least three other meat-roasting facilities in the immediate vicinity (*Appendix A* Figure 6), and several more on Terrace 1 (Hayden and Cousins 2004). This post-collapse feature is probably Protohistoric: it contained some historic artifacts, and is the largest meat-roasting feature identified at the site. Meat-roasting features such as these suggest that this location had a distinctive occupation history compared to the rest of the site. The group of potential

ritual structures, including those of both the South Terrace Complex and Terrace 1 and 2 Complex, are closely spatially associated with the best examples of feasting facilities identified at Keatley Creek.

Potential ritual structures share several traits that distinguish them from domestic housepits:

- 1) they are less than 11 m in diameter,
- 2) they have intensively used hearths,
- 3) they have prepared silt floors that are generally devoid of artifacts,
- 4) they are located on terraces 150–250 m from the core of the site, and
- 5) they are spatially associated with the largest and highest concentrations of meat and root-roasting features on the site.

These patterns suggest that ST 106 is not similar to domestic housepits at Keatley Creek, and instead conform to the patterns described by Hayden and Adams (2004) for ritual structures at the site.

### 3.2 Fauna

Number of identified specimens (NISP) is the most common measure of abundance used in zooarchaeological studies. It is a count of the number of elements identified to a specific taxon, and is used as ‘uppermost’ estimate of relative taxonomic abundance (Klein and Cruz-Uribe 1984: 25). Here I compare the ratio of salmon to artiodactyl remains from several housepits. Dried salmon was the staple food during winter months, so it is not surprising that most housepit assemblages display overwhelming dominance of salmon as a percentage of the total NISP (Langemann 1987; Kusmer 2000). Smoked deer meat was a highly valued potlatch food (Romanoff 1992b), and buckskin was prized (Romanoff 1992a: 224, 1992b: 472). Artiodactyls are the second most abundant taxon in domestic housepit assemblages, and account for 10% or less of total identifiable fauna (Kusmer 2000; Langemann 1987). If ST 106 differs significantly from this ‘baseline’ of winter domestic faunal assemblages, then we should reject the null hypothesis that ST 106 was a winter domestic residence. This approach follows Muir (1999) in analysis of similar specialized structures in Southwestern pueblos (see also Driver 1997).

#### 3.2.1 *Salmon*

Segments of articulated salmon elements, including vertebrae, ribs, and cranial elements, were recovered from the floors of ST 104, 106 and 9 (Hayden and Adams 2004; Morin 2006). This trend is best demonstrated by ST 9, with the highest recorded fish element density of any housepit at Keatley Creek. This sort of deposition is extremely rare in domestic housepits in the core of the site, where elements are mostly disarticulated, and ribs, spines, and cranial elements rarely occur (Kusmer 2000). These smaller, more delicate remains account for the vastly elevated counts of fish remains in these potential ritual structures (see below). There are two likely explanations for this patterning. First, it is possible that cranial and rib elements were rarely brought into the domestic housepits compared to potential ritual structures. This could be a result of different techniques of salmon processing (Morin 2004). Second, heavy foot traffic in densely populated domestic housepits may have disarticulated and destroyed the more fragile elements. In several of the potential ritual structures, preserved skeletal columns, fins, ribs, and occasional



cranial elements were discarded somewhat haphazardly on the floor with limited post-depositional disturbance.

The dense concentrations of fish remains recovered from potential ritual structure floors, and ST 106, clearly distinguish them from the group of domestic housepits (Figure 3) (Morin 2006). A Mann-Whitney test of the density of fish remains indicates the two groups are different at the 0.05 level of significance (exact significance = 0.029). The only domestic housepit approaching the high fish element densities displayed by the group of potential ritual structures is HP 7, one of the largest housepits on the site. The small domestic housepits most similar in size to the potential ritual structures contained hardly any fish elements in their floors.

### 3.2.2 *Artiodactyls*

The patterns of consumption and disposal of artiodactyls within ST 106 and 104, but not ST 9, are markedly different from domestic housepits at Keatley Creek (Morin 2006). Specifically, artiodactyl remains occur in greater densities and constitute a larger portion of the NISP within floors, storage facilities, and all strata combined, in ST 104 and 106 than in any domestic housepits at Keatley Creek and the Lillooet region (Figures 4, 5, and 6). In most Keatley Creek and regional housepit deposits, artiodactyls are the second most commonly identified taxon, after salmon, but they are no where near as abundant as in ST 106 and 104. This is shown by 1) articulated lower artiodactyl legs found directly on the floors and in storage pits of ST 106 and 104 – a type of deposition that does not regularly occur in Keatley Creek domestic housepits; and, 2) the presence of multiple artiodactyl roasting features both under and overlying the housepit deposits of ST 106, and three other small meat-roasting features within 20 m (Hayden and Cousins 2004; Morin 2006).

### 3.2.3 *Rare Fauna*

The excavations of ST 106 yielded a large and diverse faunal assemblage. The ST 106 excavation report (Morin 2006) discusses broad statistical trends in the faunal assemblage. Discussion of rare fauna represented in ST 106 fall into two classes of remains: birds, and mammals.

#### 3.2.3.1 *Birds*

Avian elements (mainly unidentifiable long bones) occur at very low rates in all Keatley Creek and regional housepit deposits but ST 106 has three classes of birds rare or unique to it at Keatley Creek – duck (mallard-sized, also occurs in ST 104), goose, and probable woodpecker. Goose and duck would have been extremely rare in the vicinity of the site, and woodpeckers presently occur in low numbers. None of these birds would have contributed significantly to the diet of ST 106 occupants, and more likely were used as elements of costumes and ritual paraphernalia. Ethnographically, bird bone tubes, similar to the worked goose humerus found in ST 106 (see below) were used exclusively in ritual contexts, while woodpecker or duck feathers and bones could have been used in elaborate headdresses (Teit 1900: 222, 1909: 510; Tepper 1987: 78). The birds identified from ST 106 are not typical of most Keatley Creek housepit deposits, but rather are more broadly similar to larger and more diverse housepit faunal samples (e.g., HP 7 and ST 9).

### 3.2.3.2 Mammals

Three rare classes of mammals were recovered from ST 106 – bear (*Ursus americanus*), lynx and moose (Morin 2006). All are uncommon in Keatley Creek deposits; lynx and bear are both represented by only single elements, and moose by two pieces of worked antler, all from HP 7. From a regional perspective, bear are represented by 8 elements in Langemann's (1987: 151–165) large sample of housepits, lynx represented by only 4 elements, and moose are absent. In ST 106, bear is represented by a proximal tibia, lynx by a fifth lumbar, and moose by a large friable piece of antler. During the PPT, moose did not occupy the Mid-Fraser region and their antlers were traded in from several hundred kilometres north (Langemann 1987). Because of its rarity, moose antler has been identified as a prestige item at Keatley Creek (Hayden 2000c). Lynx were hunted and trapped for their pelts rather than for meat, and their tibiae and femorae, cut into tubular sections, were occasionally used for ritual paraphernalia (Langemann 1987: 151; Pokotylo *et al.* 1987). Lynx and bear fur would have been used for regalia and costumes. Worked lynx leg elements have been found in association with an exceptionally rich child burial in the region (Pokotylo *et al.* 1987).

### 3.2.4 Fauna Summary

The faunal assemblage from ST 106 is atypical compared to other domestic housepits, especially small housepits, but is similar to potential ritual structures. First, with strong statistical significance (exact significance = 0.029), fish elements occur in much higher quantities in potential ritual structure floors than in domestic housepits. In these potential ritual structures fish elements are often articulated and all elements, including vertebrae, ribs, spines and cranial, are recovered. Second, ST 104 and 106 display much higher proportions of artiodactyl remains at all levels of sampling than any other Keatley Creek or regional domestic housepit. These high proportions of artiodactyl remains are associated with the numerous meat-roasting features near these structures. As with fish elements, articulated artiodactyl lower legs regularly occur on the floors and in storage features of ST 104 and 106 – a type of deposition not present in domestic housepits. Third, rare species occur in the faunal assemblage from ST 106. Many of these rare species only occur in HP 7, likely an elite corporate group residence, and never in smaller domestic housepits. The types of remains, and their co-association in the largest and wealthiest housepits, suggest that the individuals that used ST 106 had access to trade items (Hayden 2000b). Rare faunal remains such as bear, lynx, and birds were probably used in personal ornamentation and ceremonial activities rather than for subsistence. The null hypothesis cannot be rejected through comparison of rare fauna because the group of potential ritual structures, including ST 106, although notably different from faunal assemblages from smaller domestic housepits (e.g., HP 3, 12 and 90), have similarly rare species as HP 7. In summary, the faunal assemblage from ST 106 is much more similar to other potential ritual structures than to domestic housepits, except for one of the major corporate groups on the site – a HP 7 (Hayden *et al.* 1996a).

## 3.3 Debitage

This study compares the ST 106 sample to other Keatley Creek housepits that followed identical excavation, recovery, analysis, and recording procedures (*Appendix B* Tables 1 and 4). One useful method

of comparison is a measure of the density of debitage on the floors of domestic housepits and potential ritual structures. For all deposits, debitage density was measured in terms of number of objects per litre. Comparative samples were drawn from Spafford (2000a) and Heffner (2000). Comparing the density of debitage in ST 106 gives an indication of the intensity of use of that structure relative to other housepits, while the proportions of debitage types gives insight into the types of lithic reduction undertaken therein.

Five basic types of comparison were used to identify lithic reduction sequences and stages of manufacture: 1) tool to flake ratio, 2) small flake (<2 cm) to large flake (>2 cm) ratio, 3) cortex bearing to non-cortex bearing flake ratio, 4) billet/pressure flake to hard hammer flake ratio, and 5) bipolar flake to hard hammer flake ratio. Lithic raw materials were also compared between ST 106 and the domestic housepit samples. Obsidian, chalcedonies, and cherts are considerably more rare and probably more valuable than trachydacite; therefore a difference in the ratio of such exotics to trachydacite might mark a different function for ST 106 compared to Keatley Creek housepit deposits (Spafford 2000a). The following discussion only covers notable differences between the potential ritual structures and the domestic housepits. A complete review of all methods of lithic comparison is reported in Morin (2006).

### 3.3.1 *Lithic Debitage Density*

Lithic debitage is sparse in ST 106 as it is in all potential ritual structures (Figure 7) (Morin 2006). A Mann-Whitney test indicates that the debitage density in the potential ritual structures differs from the domestic housepits at the 0.05 significance level (exact significance = 0.029). Unlike domestic housepits, very little flintknapping was undertaken within these structures.

### 3.3.2 *Bifacial Thinning Flakes (BTF)*

The types of knapping activities undertaken within ST 106 and the other potential ritual structures are different than those in domestic housepits. In the domestic housepits, bifacial thinning flakes constitute 2–12% of all the debitage, while in the potential ritual structures on the Terrace 1 and 2 Complex and the South Terrace, bifacial thinning flakes comprise 13–52% of the debitage (Figure 8). A Mann-Whitney test of BTF values indicates that the potential ritual structures are different from the domestic housepits at the 0.01 level of significance (exact significance = 0.008) (Morin 2006). The ST 106 floor had the second highest percentage of BTF (43%) of any extensively excavated housepit deposit at Keatley Creek, and all strata of ST 106 had BTF proportions greater than 25% of the assemblage – two to four times the value of any domestic housepit (Prentiss 1993: 593).

### 3.3.3 *Bipolar Flakes (BPF)*

While bipolar flakes make up 0.2–1.5% of the debitage in domestic housepit floors, bipolar reduction is nearly archaeologically invisible in the potential ritual structures (Morin 2006). Only eight flakes (of 1749) from ST 106 appear to have been produced by bipolar percussion, and only five small bipolar cores were recovered from all strata. In contrast, domestic housepits have BPF frequencies ranging from HP 7 with 83, to HP 12 with 6 (Spafford 2000a). Although the relationship is not statistically significant, the proportions of BPF appear to be consistently different for ST 106 and ST 104 than for domestic housepits (Figure 9).

### 3.3.4 Debitage Summary

Several methods of lithic comparison distinguish the group of potential ritual structures, including ST 106, from the group of domestic housepits. The extremely lowdebitage densities in the potential ritual structures are statistically significant fromdebitage densities in domestic housepits. All of the potential ritual structures with well reported lithic assemblages have consistently high BTF, and low BPF values, assemblage characteristics that are considerably different from domestic housepits. Overall, the lithic assemblages in these structures indicates that much less block core reduction, flake-tool production, raw material scavenging, and proportionately much more bifacial rejuvenation, including billet and pressure flaking, occurred within these structures than in domestic housepits (Hayden *et al.* 1996b; Prentiss 2000). Following Magne (1989), the ST 106debitage assemblage likely results from tool maintenance, rather than production activities. The above results do not support the hypothesis that ST 106 is a winter domestic assemblage, as it is much more like the assemblages in other potential ritual structures at Keatley Creek.

### 3.4 Fire-Cracked Rock (FCR)

Comparisons of FCR are based on density values (count per litre) in floor strata of Keatley Creek housepits; values were derived from the Keatley Creek master database. Only pieces larger than 4 cm in diameter were included within the count. The density of FCR in the ST 106 floor (0.29) is above the mean of 0.2 and clusters with the other potential ritual structures and HP 7, one of the largest and longest occupied domestic residences at the site (Figure 10) (Morin 2006). The difference between FCR densities in potential ritual structures and domestic housepits is not statistically significant. The sample of potential ritual structures is most similar in size, heating requirements, and population to the small housepits, 12 and 90. However, in cooking, as indicated by the quantity of FCR, the potential ritual structures clearly are more similar to HP 7 than to any other domestic housepit. The count of FCR recovered from the meat-roasting features both under and overlying ST 106 were not included in this method of analysis, as all density comparisons are from floor strata only (Morin 2006). The null hypothesis cannot be rejected by this method of analysis because the group of potential ritual structures, including ST 106, although notably different from smaller domestic housepits (e.g., HP 3, 12 and 90), have similar values to HP 7. However, this clustering of HP 7 and the potential ritual structures does distinguish them from all of the other domestic housepits (i.e., HP 3, 12, and 90).

### 3.5 Artifacts

Two major types of analysis were undertaken: 1) a comparison of floor or whole housepit assemblages, and 2) comparison of distinctive artifacts (*Appendix B* Tables 1 and 3). Artifacts from ST 106 were compared to those from other samples of domestic tool kits (Spafford 2000a). Since the ST 106 assemblage is so small, comparing artifacts in terms of their percentage of the assemblage is not likely to reveal any significant trends. A simple presence/absence comparison of artifact classes may be just as, or more useful (Cannon 1983). This should indicate whether or not some tool types are over or under represented in ST 106 and whether or not ST 106 is similar to a domestic housepit profile, or whether it appears distinct.

### 3.5.1 Domestic Lithic Toolkit

The artifact assemblage recovered from ST 106 is the least artifact-rich housepit floor of any major excavated housepit deposit at Keatley Creek (Morin 2006). The floor strata of ST 106 contained only 22 lithic artifacts, and all strata combined yielded only 251. Although the small sample size limits the utility in comparing the proportions of artifact classes in ST 106 to other housepit samples, the assemblage is similar to domestic housepit assemblage profiles of small, medium and large domestic housepits at Keatley Creek in most respects (Morin 2006). A presence/absence comparison of artifact classes from ST 106's floor and total assemblages to other domestic assemblages confirms that most classes of domestic artifacts are present in ST 106 (Morin 2006).

The exceptions to both the above statements are: 1) the higher than average number of piercers in ST 106 and, 2) the absence of cores in the floor strata, and their scarcity in all strata of ST 106. Piercers compose a larger proportion of the assemblage in ST 106 than in any other major excavated housepit. Five of the 22 (23%) lithic artifacts recovered from the floor strata were retouched to be used as piercers, a rate approximately 10 to 20 times higher than in other Keatley Creek floor strata (Morin 2006).

Only a single small multidirectional block core – the most common core type at Keatley Creek – was recovered from ST 106. It was recovered from Stratum I, an aeolian surface deposit on top of the collapsed roof (Stratum III) (*Appendix A* Figures 3 and 4; Morin 2006), that also contained historic artifacts: an iron projectile point, horseshoe nails, and a glass bead. Besides five small bipolar cores, cores were absent from the Protohistoric and late Kamloops strata underlying this thin historic deposit. The block core reduction strategy accounts for the vast majority of the lithic assemblage at Keatley Creek (Hayden *et al.* 1996b). Compared to the volume of debitage created, and the number of cores recovered from fully excavated domestic housepits at Keatley Creek (range of HP 7 with 54 to HP 12 with 3), block core reduction is extremely limited in ST 106. As discussed below, debitage from the sample of potential ritual structures does not appear to be derived from domestic lithic activities typified by housepits 3, 7, 12 and 90. Such domestic activity would result in far more lithic debitage, and more cores. A late Kamloops horizon domestic residence of a corporate group of 15 to 20 individuals (Hayden 1997b: 45) simply could not function without a source of cutting implements – multidirectional or bifacial block cores – too many domestic tasks require such tools (Prentiss 1993; Spafford 1991).

Although no Euroamerican artifacts were recovered from floor, roof or rim strata in structures 106 and 104, one might argue that the late Kamloops occupants of these structures were beginning to use metal in lieu of stone. If so, bifacial knives would probably be the first tool class to be replaced, and these tools are well represented (perhaps over-represented), along with bifacial flaking, in ST 106. If metal tools were introduced in any quantity in this period, one would expect lithic density to decrease through time. Instead, lithic density increases through time in ST 106 deposits, with the earliest floor layers having the sparsest remains, and later layers have much more lithic material, including the only block core (*Appendix A* Figures 3 and 4; Morin 2006). As indicated in Figure 7, the Plateau and early Kamloops horizon

occupations of ST 9 cluster with the sample of late Kamloops horizon structures in having low lithic debitage densities.

It is unlikely that iron cutting tools supplanted chipped stone technologies of the region's inhabitants by 220 B.P.; contemporaneous housepits excavated at the Ollie, Gibbs Creek and Mitchell sites (Stryd 1973: 312, Blake 1974b), 10–15 km south of Keatley Creek, contained unambiguous evidence for continuation of Kamloops horizon lithic technologies well into the Protohistoric and Historic periods. Housepit 3 at the Ollie site, roughly contemporaneous with ST 106, contains more than five times the count of artifacts and fauna recovered from ST 106 (Blake 1974b). Its assemblage is far larger and more diverse than ST 106, and displays clear co-association of historic-trade and indigenous technologies.

Iron implements began to appear in the Lillooet region by at least 1750 A.D., but were still relatively rare half a century later (metal implements in greater numbers were obtained on the coast somewhat earlier) (Acheson 2003; Lamb 1960: 83; Teit 1909: 475). From my reading of ethnographic and historic accounts, it seems that although some metal implements were traded into the Mid-Fraser canyon by 1808 AD, it is unlikely that enough iron implements were sufficiently available to supplant indigenous lithic technologies until closer to 1850 AD. Historic-trade objects are absent in the floor strata of ST 106 and ST 104. While metal tools may have had an early effect on indigenous lithic technologies, they do no account for extremely sparse floor assemblage of ST 106 and the other potential ritual structures.

### 3.5.2 *Rare Artifact Types*

Although the assemblage of artifacts from ST 106 is small, it contains several rare artifact classes and deserves elaboration. A summary of the following discussion is tabulated in *Appendix B* Table 3.

#### 3.5.2.1 *Rare Bifaces*

In what may be an offering, two finely made bifaces, and two cruder ones, were deposited at the bottom of a small, undated meat-roasting feature (Feature 4) that underlies the eastern rim of ST 106 (*Appendix A* Figures 1 and 5; Morin 2006). One is a broken fan-tailed biface (Hayden 2000b: 197–198) (*Appendix A* Figure 7: d). Fan-tailed bifaces are rare at Keatley Creek (N = 12), apparently unreported elsewhere in the Canadian Plateau (Magne 1985; Richards and Rousseau 1987; Rousseau *et al.* 1991a, 1991b, 1989; Sanger 1970; Schulting 1995; Stryd 1973; Wilson and Carlson 1980), and thus far occur only in the largest housepits in the core of the Keatley Creek site (HP 1, HP 7, and HP 102), and in the small potential ritual structures at the periphery of the site (ST 104, ST 107, and ST 109), or in meat-roasting features in the same location (ST 106, Feature 4, Morin 2006).

It has been suggested that these bifaces are preforms for early basally notched Plateau horizon points, most commonly found from 2400–2000 B.P. (Mike Rousseau personal communication 2005), but I think these could have also been used as hafted knives (utilizing the either the pointed or the ulu shaped end). All examples I have observed from the east and south peripheries of Keatley Creek have very straight sharp and continuous cutting edges, and the flint knapping ability demonstrated in their manufacture is superior to nearly all of the flaked tools recovered from the site. The other biface is complete and crescentic in shape. It is unique in the Pacific Northwest of North America (*Appendix A* Figure 8) (Hayden and

Adams 2004, Hayden 2000b: 197–198). Both of these items display very high levels of craftsmanship, and are among the most finely made flaked stone objects recovered from twenty years of excavation at the site. They are very thin, have extremely sharp, straight cutting edges, and would have been useful in a variety of precise cutting or slicing tasks. If these artifacts had an exclusively utilitarian function, one would expect them to appear in greater numbers, especially in the large domestic housepit assemblages. It is more likely that these knives were prestige items used in important ritual and symbolic contexts.

#### 3.5.2.2 Hide scrapers

Well-formed hide scrapers with obvious use-wear occur only occasionally in housepit contexts at Keatley Creek (1: 1000 tools) and the Bell site (1: 2500 tools) (Stryd 1973: 354). The best example of several from ST 106 is displayed in *Appendix A* Figure 7: c. Buckskin was highly valued and not accessible to the majority of the population, and thus has been identified as prestige good in the region (Hayden 2000b). This suggests that individuals with status and resources rights, rather than materially poor individuals more likely used ST 106. A concentration of hide working activities reinforces the over-abundance of artiodactyls in ST 106.

#### 3.5.2.3 Bird Bone Tube

A complete ochre-stained bird bone drinking tube was recovered from a food refuse pit (Morin 2006) within ST 106 and likely dates to the same occupation phase represented by the final roofing of the structure ( $220 \pm 70$  B.P.) (*Appendix A* Figure 7: g). Ethnographically, these items were used by both men and women in liminal or ritually charged states (e.g., pregnancy (Teit 1906: 261), puberty seclusion (Teit 1909:588, Jenness 1955: 79), shamman's curing rites (Teit 1909: 520), and in rituals surrounding obtaining a guardian spirit (Jenness 1955:45, Jilek and Jilek-Aall 2000: 7). In prehistoric Plateau mortuary contexts, the occurrence of bird bone tubes is divided evenly between the sexes (Schulting 1995: 156). Males or females could have used the bird bone tube recovered from ST 106 in a number of ritual contexts.

Such tubes are usually reported from mortuary contexts (Pokotylo *et al.* 1987, Schulting 1995: 99–156). Only one similar item has been recovered from ST 9, another suspected ritual structure (Hayden and Adams 2004). Across the site, these artifacts occur approximately one in every 5000 artifacts recovered (rarer than dentalium 1: 1000, approximately as rare as copper artifacts 1: 5000). At the nearby Bell, East, Gibbs Creek and Ollie pithouse village sites, Stryd's extensive excavations yielded only one single bird bone tube from a sample of over 10,000 artifacts (Stryd 1973: 248, 393). These artifacts are not the same as the 'tubes' reported in Wilson and Carlson (1980), which are more likely elongated beads.

#### 3.5.2.4 Bone Scratcher

A small piece of ground mammal bone was recovered from the roof of ST 106 (*Appendix A* Figure 7: f). Although broken at one end, the form of this object is similar to a Late Gulf of Georgia Phase toggling harpoon valve (Stewart 1996: 109–111). However, it is not sharp and displays no signs of abrasion (as do all other pieces of worked bone from ST 106). The rounded form and high degree of polish on this object make it remarkably similar to a bone scratcher illustrated by Teit (1900: 312, illustration 282b). Such

objects were used by the Thompson primarily in the ritual seclusion of pubescent girls. No other such objects are reported for Keatley Creek, or Stryd's (1973) sample, however comparison is difficult as most catalogues would list such an object as a worked or polished mammal bone. If this object is a scratcher, then with the drinking tube it represents a nearly complete set of a pubescent girl's ritual exclusion paraphernalia as described by Teit (1900: 312, 1906: 261, 1909: 588) for the Thompson, Lillooet and Shuswap.

#### 3.5.2.5 Bird Bone Beads

Three incised bird bone beads were recovered from various locations in the roof strata of ST 106 (*Appendix A* Figure 7: j). These artifacts are very rare, occurring most commonly at Keatley Creek in, ST 106 (N = 3) and ST 9 (N = 3), and ST 105 (N = 1), and have not been recovered from elsewhere else on site. Stryd's (1973: 389) extensive housepit excavations in the Lillooet region recovered 27 bone beads (four incised), but did not distinguish between mammal and bird bone types. The presence of a number of bird bone beads coincides with a similar occurrence of rare or unique bird species in the faunal assemblage of ST 106.

#### 3.5.2.6 Cervid Tooth Bead

A ground and polished cervid canine bead/pendant was also recovered from ST 106 deposits (*Appendix A* Figure 7: i). The only other similar items recovered at Keatley Creek were from HP 7, a very large housepit with over 5000 associated artifacts, and a very rich deposit in HP 101. Only one cervid canine bead/pendant was recovered from Stryd's excavations in the Lillooet region (from the Ollie site, Blake 1974b: 34; Stryd 1973: 391). As with bird bone tubes, such pendants are extremely rare and are usually associated with high status mortuary contexts (Pokotylo *et al.* 1987; Sanger 1968: 11; Schulting 1995: 37; Vanhaeren and d'Errico 2005). These beads are only made from elk canines, a prey species that rarely occurs in the Mid-Fraser region. Elk canine beads were usually obtained in the Lillooet region via trade with the Thompson and Shuswap (Teit 1906: 220). As with bird bone beads, cervid canine bead/pendants were valuable, rare, and had very limited distribution amongst the prehistoric inhabitants of the site.

#### 3.5.2.7 Possible War Club

A bifacially flaked, teardrop shaped quartzite spall tool was recovered from a bench inside ST 106 (*Appendix A* Figure 7: b). This artifact displays heavy grinding on the midpoints of its lateral margins (presumably for hafting) and blunting, but no wear on its distal edge (Beyries 2000). The symmetrical lateral flaking and lateral grinding on this artifact are not typical of spall tools or hidescrapers from the site, and indicate substantially greater investment than required to produce a functional hidescraper (Hayden *et al.* 1996b). It is either the largest such tool recovered from the site (Teit 1900: 185, illustration 127), or more likely a 'tomahawk' type war club, as it is nearly identical to the specimen described and illustrated in Teit (1900: 265, illustration 252, 379, illustration 299; 1906: 234). Sanger (1968:4) hesitatingly describes similar artifacts as hidescrapers from the Texas Creek burial only 35 km from Keatley Creek (Texas Creek). Its distal (business) edge is rounded, blunt and thick, is similar to many Northwest Coast war clubs held in the Museum of Anthropology at the University of British Columbia. War clubs, again, typically



occur in mortuary contexts and are extremely rare in pithouse village contexts (Stryd 1973: 393; Schulting 1995). No other similar artifact has been recovered from Keatley Creek (Brian Hayden, personal communication 2003).

#### 3.5.2.8 Antler Pick-type War Club

A large piece of worked deer antler, or young elk, was buried vertically in the floor of ST 106 (Morin 2006). This proximal portion of antler beam is bevelled and broken on its distal end and its corolla is present (*Appendix A* Figure 7: a). It was originally interpreted as a wedge (the bevelling is very similar, but it is not longitudinally split), no attempt was made to shorten or straighten the piece. Its curvature is so great that it would have misdirected any percussive force applied to it. It is perhaps as curved as a single implement illustrated by Stewart (1996: 89, illustration 15) for the Northwest Coast that looks more like a pick than a wedge. Instead, this object is quite similar to curved and bevelled antler beams hafted as war-picks or maces illustrated in Tepper (1987: 78). Schulting (1995: 157) discusses possible antler war clubs interred with males and described as digging stick handles, but lacking a central hole for the stick. Simon Fraser observed war clubs made of 'horn' in the Fraser Canyon (Lamb 1960: 99, 103, and 105) and they are also reported among the Thompson by Hill-Tout (1978: 44).

#### 3.5.2.9 Bone Gaming Pieces

ST 106 has potential examples of bone gaming pieces. A slender bone pin incised with three parallel dashes may have been used as a counting piece (*Appendix A* Figure 7: h), while two heavily worn or ground left deer patellae – unlike anything else recovered at the site – may have been used as dice. The patellae are well worn and appear to have been tumbled or lightly ground (*Appendix A* Figure 9). This pattern of wear is very similar to the wear observed on astragali dice used in classical Europe and the Near East (Hesse and Wapnish 1985: 56). While the function of these objects is by no means clear, they are unique to ST 106 at Keatley Creek.

#### 3.5.2.10 Bone Points

Ground and polished mammal bone points are very rare at Keatley Creek, and are only present in HP 7 (N = 3), ST 9 (N = 1), ST 105 (N = 1), and ST 106 (N = 1). These artifacts only appear in the largest and wealthiest housepits in the community (e.g., HP 7), and at a relatively much higher rate among potential ritual structures (e.g., ST 9, 105 and 106). The example recovered from ST 106 is still very sharp and is decorated with two pairs of parallel lines (*Appendix A* Figure 7: e). The two most likely functions of such items are armatures for leisters or harpoons, or projectile points (Teit 1900: 251–253). If bone points were important component of prehistoric fisherman's gear, one would expect them to occur at much higher rates than observed among the semisedentary community of fishers at Keatley Creek. Stryd (1973: 384) reports only three unbarbed bone points from his large sample of housepit excavations. Teit relates that such fish spears were very valuable property (1909: 660), and perhaps not every male owned one. Bone points also occur in mortuary assemblages (Schulting 1995: 166).

Some bone points may have served as projectile points for arrows – replacing the ubiquitous Kamloops point armature. Bone points may have been used for specialized hunting activities, or in warfare as indicated by recent experiments in projectile weapons systems (Lowery 1999: 56). After iron, bone points have the greatest armour penetrating capacity (Lowery 1999: 67–68), highlighting the utility of such implements in warfare.

#### 3.5.2.11 Red Ochre

Red ochre is rare at Keatley Creek. Its use is usually associated with personal adornment (Teit 1909: 510), and is commonly associated with mortuary contexts (Pokotylo *et al.* 1987; Stryd 1973: 426, 428). In ST 106 there were several instances of ochre on the floor, a small cache of ochre was recovered from the bottom of an adjacent storage pit, and a recovered bird bone drinking tube is clearly ochre stained (Morin 2006). There are no other indications of ochre either spread on floors, artifacts, or deposited in caches at the Keatley Creek site. If there were only a single unique ochre find at ST 106, then it could be argued that this represented domestic or day to day use of the substance. However, three contextually discrete ochre finds in ST 106, indicate far more regular or intense than anywhere else on site.

#### 3.5.3 Artifact Assemblage Summary

While the ST 106 artifact assemblage contained most domestic tool types, it displays major departures from domestic housepits in both proportion of artifact types, and occurrence of rare artifacts. The ST 106 floor contained proportionally more piercers and fewer cores than would be expected from a domestic housepit of comparable size. Although only 269 artifacts (254 lithic and 15 bone) were recovered from ST 106, and only 24 artifacts (22 lithic and two bone) were associated with the floor of the structure, the occurrence of fine bifaces, rare decorative items (bird bone beads, ochre, cervid tooth beads), perhaps a complete set of girl's puberty seclusion ritual paraphernalia (a bird bone tube and bone scratcher), rare weapons (two war clubs and a bone point), and gaming pieces is exceptional. The only other structures at Keatley Creek with very low artifact densities and comparably high counts of rare artifact classes are all potential ritual structures at the peripheries of the site (ST 9, ST 104, ST 107, and ST 109) (Hayden and Adams 2004). While most common domestic artifacts are present in ST 106, the regular occurrence of rare artifacts is very unusual for a small domestic housepit with a very small assemblage of artifacts. Following Cannon (1983), the occurrence of specialized artifacts, rather than their proportion of an assemblage, is a reliable indicator of occupational specialization. While the function of some of these artifacts is somewhat ambiguous, their presence in such a small assemblage certainly suggests ritual, ceremonial, or conflict specialization. The artifact assemblage recovered from ST 106 does not support the hypothesis that it is a domestic housepit, and suggests consideration of alternate uses.

### 3.6 Activity Intensities in Potential Ritual Structures and Domestic Housepits

The preceding discussion compared individual classes of material remains recovered from ST 106 and other potential ritual structures to remains recovered from domestic housepits. This particularistic method of comparison ignores relationships between different classes of material remains. To address this

shortcoming, a multivariate hierarchical cluster analysis of potential ritual structures and domestic housepits was undertaken. Using debitage, artifact, fish, mammal, and fire-cracked rock densities as variables, Ward's method (squared Euclidean distance) separated groups of potential ritual structures and domestic housepits (Figure 11). The hypothesised groups of domestic housepits and potential ritual structures is clearly supported by these quantitative methods, as the deepest branching between groups is between the domestic housepits and suspected ritual structures. There is clear clustering of one group of domestic housepits, and another group of potential ritual structures. The small and medium domestic housepits (12, 90 and 3) cluster very closely together. The group of potential ritual structures clusters less tightly, and ST 106 clusters most closely with ST 9 (P), the most ancient potential ritual structure identified at Keatley Creek. These results are particularly important because they suggest both strong similarities within each suggested group in terms of general activity orientation.

#### **4.0 Discussion**

The majority of the comparisons of material remains (19 out of 24) display some qualitatively observable grouping of potential ritual structures versus domestic housepits, while only four cases display no such observable patterning (percent of exotic flakes of the debitage, tools as a percent of flakes, salmon as percent of NISP including floors and features, and salmon as a percent of NISP including only floors) (Table 3). Four of the 19 comparisons that display clear grouping of two populations are statistically significant at the 0.05 level (Table 3, bifacial thinning flakes as a percent of the assemblage, debitage density, debitage and artifact density, and fish element density). Regarding the 5 classes of material remains used for comparison 1) context and construction, 2) fauna, 3) debitage, 4) FCR, and 5) artifacts, the alternative hypothesis was supported in every case except for FCR, where the HP 7 clustered with the potential ritual structures. Following the hierarchical cluster analysis presented above (Figure 11), the separation of the two groups appears justified. Following these results, it seems likely that there are at least two types of structures at Keatley Creek, domestic housepits, and potential ritual structures, each used for a different suite of activities by different groups of people from the same community.

Structure 106 consistently shares attributes common to the potential ritual structures (often at the extreme end of variable ranges) and rarely is similar to any of the sample of domestic housepits. Following comparison of individual classes of material remains, ST 106 most closely follows the material profile of ST 104, followed by ST 9, and HP 7. Because of limited data, structures 105, 107 and 109 were used in comparison in only one case. Following the cluster analysis presented above (Figure 11), ST 106 clusters most closely with the Plateau horizon occupation of ST 9. The group of potential ritual structures are consistently more similar to each other, than they are to the domestic housepits. While most methods of comparison suggest that ST 106 is most similar to ST 104, the multivariate analysis suggests close clustering of ST 106 and ST 9. The limited avenues of comparison with the other potential ritual structures, i.e., the percentage of BTF, and occurrence of rare artifacts (Hayden and Adams 2004) also suggest that these structures belong in a group distinct from domestic housepits. Also, ST 106 only very rarely clusters

with the small domestic housepits it physically resembles (e.g., HP 12 and 90), and more often clusters with the largest excavated housepits at the site (e.g., HP 7). This patterning repeats itself in terms of rare artifacts and fauna. While the potential ritual structures are more similar to each other than to any domestic housepit, the activities and access to scarce resources represented in ST 106 are more similar to one of the wealthiest corporate groups represented at the site, than the small, poor domestic housepits in the core of the Keatley Creek community. Some of the activities well represented in the potential ritual structures also occurred in HP 7, but not in the small and medium domestic housepits. Housepit 7 may have been the loci for the same activities represented in the potential ritual structures, albeit at a much lower rate of occurrence. The following sections synthesize and discuss various activities represented in ST 106 and the other potential ritual structures.

#### **4.1 Intensity of Use**

Given the inverse relationship between lithic debitage and fish element densities, it is difficult to claim that the differences in this patterning are entirely due to intensity of use (Figure 12). That is, if these structures were used more intensively (more inhabitants or longer use-lives) than domestic housepits, why would they have far less dense concentrations of debitage, and in most cases, artifacts (Figure 7)? Conversely, if potential ritual structures were simply utilised for a shorter period of time (short use-lives), or by fewer individuals (low intensity use), compared to domestic housepits, why would they contain far more dense concentrations of fish and fire-cracked rock on the floor (Figures 3 and 10). Although limited use of these structures would result in less foot traffic and consequent less attrition on delicate fish elements, the high densities of FCR cannot be explained in this way. Alternatively, differential models of utilization, activities, and disposal behaviour compared to winter domestic contexts are more likely explanations for the consistent patterns found among these potential ritual structures.

#### **4.2 Lithics and Gender**

The difference in debitage profiles between potential ritual structures and domestic housepits clearly indicates different activity orientation. The differences in debitage do not seem readily attributable to differences in seasonal occupation, resource utilization, the introduction of foreign iron tools or horses, or differences in cultural lithic traditions/technologies. It is worth considering that this may be correlated with gendered lithic activities (Gero 1991, Prentiss 2000: 216). The under-representation of the most common types of domestic debitage in structures may indicate that either women's and/or men's domestic activities were rarely pursued inside these structures. Gendered division of domestic space has been identified in some houses at Keatley Creek (Hayden 1997b: 69; Prentiss 2000: 216), and examples of gender specific structures abound in the regional ethnographic literature, the most prominent examples being menstrual and puberty seclusion structures (Teit 1900, 1906, 1909). Confidently identifying gendered lithic reduction strategies are beyond the scope of this project, but it is more likely that the assemblage dominated by billet and pressure flakes is the result of male preparation of hunting tools as opposed to female knapping

activities (Hayden and Hutchings 1989: 238–239). Culturally structured patterning of activities of some type must be responsible for this dramatic departure from domestic debitage assemblages.

#### 4.3 Artiodactyl Utilization

There are several reasons to think that the overrepresentation of artiodactyls is an indicator for the presence of high status individuals. It is untenable that this concentration of artiodactyl remains is solely the result of target resource choice, (e.g., focussing on deer after a poor salmon run) because salmon remains are also over-represented in terms of density in potential ritual structures compared to housepits. The intensities of artiodactyl utilisation in ST 106 and 104 are far greater than in any of the domestic housepits identified as being homes to particularly wealthy and powerful corporate groups (e.g., HP 7, Bell site – HP 19).

Amassed dried deer meat was required for sponsoring potlatches, and venison appears to have been a very highly valued and infrequent foodstuff, unevenly accessible to the general population (Romanoff 1992b). Estimates for cull rates approximate one deer per house, per year (Alexander 1992). Buckskin clothing was certainly a prestige good, unattainable by poorer individuals who made up a significant portion of society (Romanoff 1992a, 1992b). The extremely high concentrations of artiodactyl remains, especially leg elements, is evidence of unusual consumption by whomever occupied or utilised ST 106 and 104. Those individuals had an extremely high level of access to these valued sources of prestige food and materials, possibly as hunting chiefs or resource stewards or close connections to such individuals.

While ST 106 and 104 are too small (11 m and 8 m in diameter, respectively) for hosting large feasts, high proportions of artiodactyl remains may indicate exclusive feasting activities by high status guests. McIlwraith (1992b: 263) specifically describes, “an elaborate feast of smoked goat flesh” held by and for Kusiut (secret society) members of the Nuxalk. It is possible that high concentrations of artiodactyl remains and the cooking facilities associated with ST 106 and 104 are the result comparable feast events.

#### 4.4 Cooking

The combination of distinctive hearths and high densities of FCR in potential ritual structures are evidence for different patterns of food preparation and consumption compared to domestic housepits (Hayden and Adams 2004; Morin 2006). I propose that both roasting meat and/or boiling soups were activities undertaken within the potential ritual structures more often than in domestic housepits (this statement excludes the meat-roasting features underneath and on top of ST 106, and the other external roasting features on the Terrace 1 and 2 Complex). The only domestic housepit with comparable evidence for internal cooking activities is HP 7 – one of the largest, and likely wealthiest, corporate groups at Keatley Creek. Intensively used hearths do not occur in all Keatley Creek housepit deposits (limited to the largest domestic housepits and the potential ritual structures), and it appears the special cooking is an activity that occurred in potential ritual structures with much greater frequency than in domestic housepits (Hayden 1997b: 49–51; Hayden and Adams 2004; MacDonald 2000).

#### 4.5 Non-domestic Structures in the Mid-Fraser Region

Several types of non-domestic or ritual structures are mentioned in the regional ethnography of Mid-Fraser region (Table 2), and many more from comparable societies are listed in Table 1. The following section briefly reviews the expectations for each of these types structures with the material remains recovered from ST 106, and its relation to the other identified potential ritual structures.

##### 4.5.1 *Feasting Structures or Potlatch Houses*

The potential archaeological correlates of feasting structures or potlatch houses were discussed above (Table 2), and all of the potential ritual structures conform to most of these correlates. Structure 106 in particular displayed high densities of FCR, salmon and artiodactyl remains, and the highest proportion of artiodactyls of any completely excavated housepit in Keatley Creek or the Lillooet region. Also, ST 106 stratigraphically overlies a small meat-roasting pit containing a possible foundation offering, and the collapsed remains of the structure were used to construct the largest recorded meat-roasting feature at the Keatley Creek site (Morin 2006). Hayden and Adams (2004), and Hayden and Cousins (2004) discuss the strong associations of all the proposed ritual structures, including ST 106, with large plant roasting pits (8 m and 7 m in diameter), meat-roasting pits, and large numbers of storage features. Although ST 106 lacks large internal storage features, there are many in its immediate vicinity (*Appendix A* Figure 6). Finally, ST 106 contains two deeply fire-reddened hearths, one of which is funnel-shaped and surrounded by stake holes (Feature 6), unique at Keatley Creek (*Appendix A* Figure 1; Morin 2006), while the other is large and oval shaped, similar to the large hearths in the south western, likely elite, section of HP 7.

In summary, ST 106 and all of the other proposed ritual structures in my primary sample conform closely to the expected archaeological remains of a feasting structure or potlatch house. Feasting activities appear to be more common in these potential ritual structures relative to domestic housepits. The relatively small size of these structures, and their remote locations suggest that they were not intended as gathering places for large groups. Rather, if feasting activities were held within these structures, they were more likely attended by limited members of the immediate community – for exclusive feasting by elites, occupational specialists such as hunters or secret society members. This is distinct from the public feasting represented at the Ollie site – a ‘letting down feast’ (Langemann 1987: 151). The very large meat and root-roasting features spatially associated with the potential ritual structures at Keatley Creek also suggest that they were associated with large public feasting events held elsewhere.

##### 4.5.2 *Meeting houses*

The potential ritual structures conform to most of the material correlates of an elite, secret society, or occupational specialist meetinghouse described above (Table 2). The very small assemblage from ST 106 includes many rare artifact classes including beads, at least one bird bone drinking tube, two likely war-clubs, potential gaming pieces, a unique crescentic biface, and a fan-tailed biface. These very rare artifact classes occur only among the sample of potential ritual structures and the largest housepits at Keatley Creek. Structure 106 and the other potential ritual structures contain much less debitage than any domestic housepits, suggesting that very little domestic knapping activities occurred within them. Also, all the

potential ritual structures display strong signatures for exclusive feasting activities. There are possible examples of specialized seating and flooring in ST 106 (see Morin 2006), but such arrangements occasionally occur within domestic housepits. The unusual hearths in ST 106 were discussed above. As with the expected correlates of a potlatch house, ST 106 and the other proposed ritual structures conform very closely to the proposed model of a meetinghouse for elites, secret society members, or occupational specialists. It is possible that these prehistoric structures were used for both potlatching and meeting activities, materially supported by, but distinct from, domestic residences.

#### 4.5.3 *Ritual Seclusion Structure*

The type of structure used by individual pubescent girls, and the menstrual huts used by women among the Lillooet, Thompson, and Shuswap is very small and does not conform at all to basic pithouse characteristics. These huts were very small, not earth-covered, and had a deep hole in the centre (Teit 1900: 198). Structure 106 was clearly a semisubterranean pithouse and therefore is very unlikely a puberty seclusion structure. Specific women's artifacts are difficult to identify, but a bird bone drinking tube, a possible scratcher, and formed hidescrapers are likely examples in ST 106. The numerous lines of evidence for private feasting activities in ST 106, and among most of the sample of potential ritual structures, does not accord well at all with the dietary restrictions associated with individuals in states of ritual seclusion. For example, Teit clearly states that women in menstrual seclusion did not cook nor eat any venison or large game (1900: 326–327). The faunal assemblage recovered from ST 106 displays the exact opposite of this – large quantities of artiodactyls and salmon. As argued above, this is more likely a correlate of over abundance and feasting, the opposite of what would be expected of a restricted or limited diet. It seems very unlikely then that ST 106, or any of the other potential ritual structures, was primarily used for ritual seclusion of any group of individuals. However, ST 106 may have been used by people leaving such states, and amid much ceremony, re-entering the community.

#### 4.5.4 *Shrines*

ST 106 and all of the other potential ritual structures display too much domestic activity for any of them to have been used as shrines. All have internal hearths, storage facilities, debitage, artifacts, fauna, and FCR. The only structures comparable to shrines in the regional ethnographic literature occur in cemeteries (see Jonaitis 1988: 187).

#### 4.5.5 *Sweat Bath Houses*

Sweat lodges or sweat bathhouses as described by Teit (1900: 198) were earth covered, but are much smaller than ST 106 or any other proposed ritual structures. Also, all of these structures contain hearths, features that should be conspicuously absent from sweat lodges. None of these structures contain the large caches of FCR associated with a sweat lodge. On this basis I think that none of the potential ritual structures in the sample were used as sweat lodges.

#### 4.5.6 *Hunting Lodges*

It is very unlikely that the four late Kamloops horizon earth-covered structures of Terrace 1 and 2 (ST 104, 105, 106 and 109) are hunting lodges. These structures lie in the river terrace zone adjacent to a pithouse village that may or may not have been contemporaneously occupied, not montane parkland or forests where most game actually lives (Alexander 1992: 104). There are no notable concentrations of game in the river terrace areas surrounding Keatley Creek, and it is very difficult to imagine the utility of a large hunting camp of some four structures, established at the location. Also, the artifacts recovered from ST 106 do not indicate comparable activity specialization. Piercers appear to be the only artifact type over represented in ST 106, and points, bifaces and hide scrapers all occur within ST 106 well within the range of variation of other housepit deposits.

However, there is over-emphasis of artiodactyl remains in some these potential ritual structures compared to domestic housepits – especially on Terraces 1 and 2, but apparently not on the South Terrace (Morin 2006). Whoever utilized these structures appears to have had greater access to these resources than the general population. Also, the high incidence of bifacial thinning flakes in ST 106 and the other structures may represent male-oriented lithic reduction of hunting implements (knives, points, etc.) (Prentiss 1993: 589–592). Thus, I think ST 106 may have been utilised or supported by predominantly male hunting specialists, but it seems unlikely that ST 106 along with ST 104, 105, and 109 were primarily utilized as a hunting base-camp.

#### 4.6 **Summary**

Structure 106 and the other potential ritual structures (9, 104, 105, 107, and 109) at Keatley Creek display a suite of material remains consistently distinct from the domestic housepits in the core of the site (Table 3). These potential ritual structures did not ‘function’ as domestic housepits, and they were used for different activities. The material remains and architecture of these potential ritual structures exclude the likelihood of them being sweat-bath houses, ritual seclusion structures (pubescent girls or menstruating women), or shrines. These structures display less domestic activity than domestic housepits, and much more evidence for feasting, status, and ritual. As ‘potential ritual structures,’ ST 106 and the others are more similar to the proposed profiles of a feasting or potlatching structure, or a meetinghouse, and meet some of the expectations of a hunting lodge.

Acknowledging the variability between these potential ritual structures, all appear to have been consistently utilized for activities distinctive from those undertaken within domestic housepits. The only exception in several cases is HP 7, which by some methods of comparison, also clusters with the potential ritual structures. Activities within the group of potential ritual structures are more similar to each other than to domestic housepits. Most notably, it appears that people in these structures did very little knapping, and consumed large quantities of artiodactyls and salmon. Over-emphasis on artiodactyls is especially apparent on the Terrace 1 and 2 Complex, and over-emphasis on salmon is especially apparent on the South Terrace Complex. This dichotomy (potential ritual structures versus domestic housepits) has considerable time depth. This time depth, as, following the multivariate analysis of density data, the late Kamloops



occupation of ST 106 clusters most closely with the Plateau occupation of ST 9, rather than the contemporaneous occupation of ST 104, or the Kamloops horizon domestic housepits. These structures appear in two clusters, one on Terrace 1 and 2 (ST 104, 105, 106, and 109), and another on the South Terrace (ST 9 and 107). The Terrace 1 and 2 Complex has evidence for Protohistoric, late Kamloops, and Plateau occupations, while the South Terrace has evidence for early Kamloops and Plateau occupations (Hayden and Adams 2004). These potential ritual structures appear to originate with the Classic Lillooet or major occupation phase of the site in the early Plateau Horizon, and the late Kamloops horizon potential ritual structures may be functionally and historically related to those more ancient structures. In the Plateau and Kamloops horizons, these potential ritual structures were centres of important socio-ritual activities for limited members of society in the pithouse village of Keatley Creek, and likely elsewhere in the Mid-Fraser region. It is unclear whether the late Kamloops horizon potential ritual structures were used by a community based at Keatley Creek or elsewhere.

## 5.0 Conclusion

In order to understand the variability within pithouse structures in a large complex hunter-gatherer winter village, this thesis compares a recently excavated structure and a sample of proposed ritual structures to a sample of domestic housepits from the Keatley Creek site. The goal of this analysis was to test whether ST 106 was used as a domestic residence, or as something else. Analysis of multiple lines of evidence reveals strong clustering of ST 106 with the proposed ritual structures, as distinct from the sample of domestic housepits. This pattern is especially strong in my primary sample of potential ritual structures (9(P), 9(K), 104, and 106). The limited samples from structures 105, 107, 109 (Plateau or late Shuswap), and 109 (late Kamloops) appear to conform to this pattern as well, however, all of these structures require further excavation to evaluate this apparent grouping.

Ethnographic and prehistoric comparison reveals numerous examples of ritual structures in communities comparable in size to Keatley Creek, but ethnographic description of such structures in the Plateau regional literature is lacking. The most plausible functions or uses of ST 106 and probably ST 104, and 9, are something akin to a ceremonial feasting and/or meetinghouse for limited segments of the local population. These structures were probably used much more episodically than domestic housepits.

The association of these ceremonial meeting houses with the largest and most numerous feasting facilities at the site suggests some degree of control of large surpluses for feasts or potlatches by the individuals that utilized these structures. This may be an example of aggrandizing behaviour by sponsoring large public feasts meant to validate claims of ritual authority and power. The sponsorship of sacred potlatches by secret society members among the Nuxalk provides perhaps the most useful ethnographic analogy for the prehistoric association of ritual and feasting activities Keatley Creek (McIlwraith 1992a: 180–403, 1992b: 1–267). Terraces 1 and 2 were used for large-scale food production from the Plateau to the late Kamloops horizon and Protohistoric periods.

Of all the domestic housepits, HP 7, the largest completely excavated domestic housepit at the site, is in many ways most similar to the sample of potential ritual structures. It seems that in addition to all of the intensive domestic activities undertaken within HP 7, there was also a subset of activities undertaken that is most clearly represented in the sample of potential ritual structures – namely cooking and intensive use of hearths. There may be three major types of housepits at Keatley Creek: small and medium domestic housepits, large housepits, and potential ritual structures. Clearly, another fully excavated large housepit at the site could help clarify this possible trend.

Immediate directions for further work include the following. First, a more detailed chronology or occupation history of the two clusters of potential ritual structures needs to be established. Second, more research needs to be directed into the relationship between the sample of Classic Lillooet (Hayden 2000a) potential ritual structures and the respective contemporaneous domestic housepits, particularly the large housepits, at Keatley Creek. Third, the core of the site should be further tested for late Kamloops occupation to help identify the community that utilized the late Kamloops potential ritual structures on the Terrace 1 and 2 Complex, and to more accurately date the reoccupation of the region. Finally, similar spatial patterning should be explored in other large complex hunter-gatherer communities. Specialization in housepit function broadly similar to the sample of potential ritual structures at Keatley Creek may be present at the Two Springs site (EeRl 41) near Kettlebrook Creek, 6 km south of Keatley Creek (Magne 1985: 149–151; Stryd 1972: 316), and HP 8 from the Harper Ranch site (EdRa 9) on the South Thompson River, 20 km east of Kamloops (Wilson and Carlson 1980: 30–39). Both these small housepits are in the vicinity of intensive winter village occupations and display high fauna concentrations and very low lithic debitage and tool densities. As with the recent awareness on the Northwest Coast of defensive refuges at domestic sites (Maschner 1992, 1997; Mitchell 1990: 348, 355; Moss and Erlandson 1992: 84), ritual structures, perhaps in the form of ceremonial feasting and/or meeting houses, should be considered in the examination of large complex hunter-gatherer communities in the Mid Fraser region, and elsewhere in the Pacific Northwest.

## 6.0 Figures and Tables

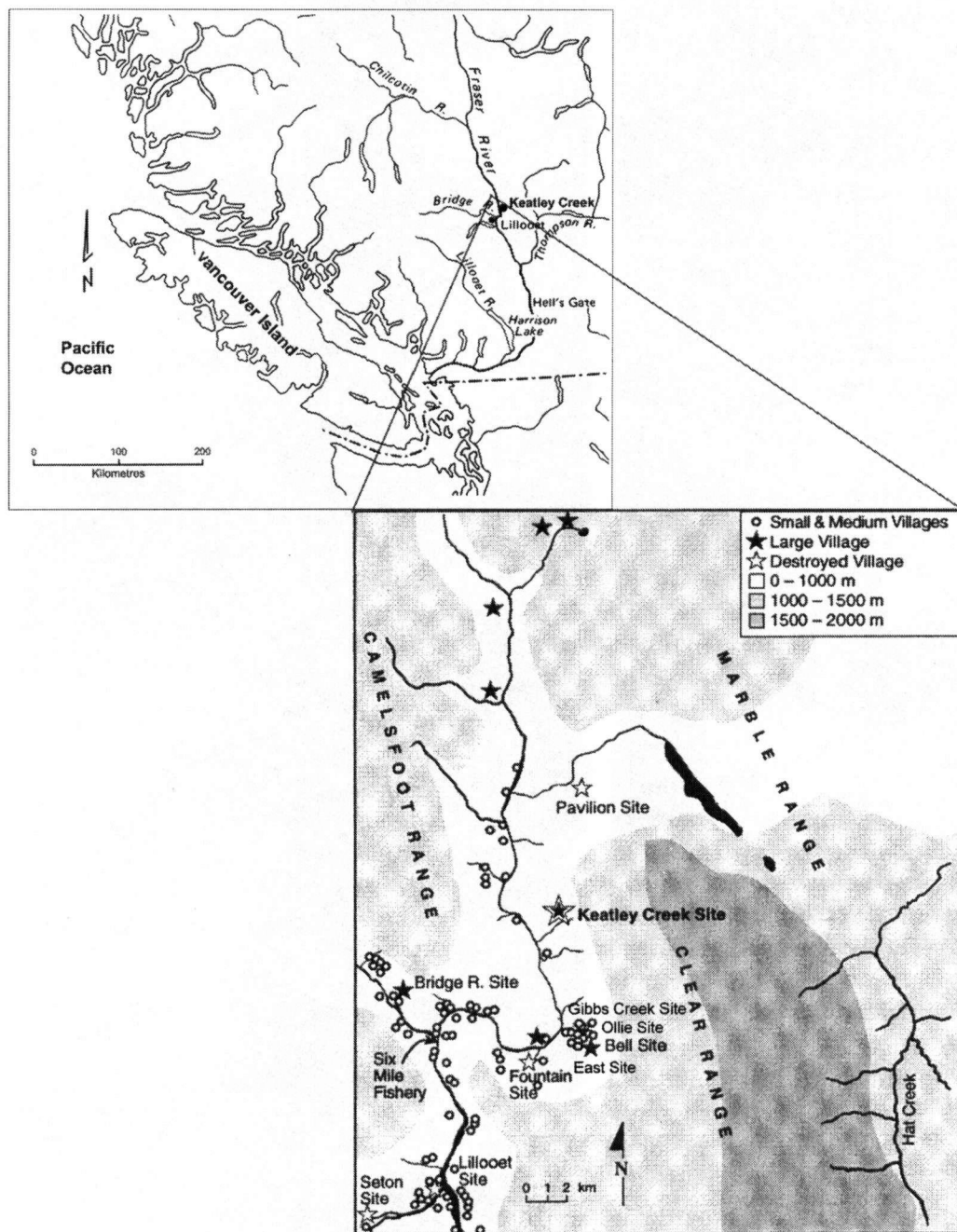
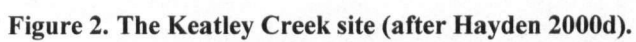
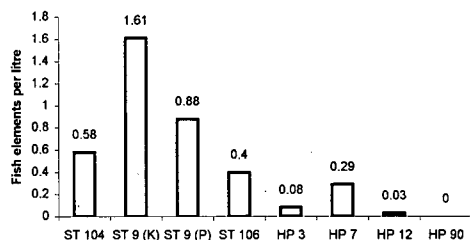
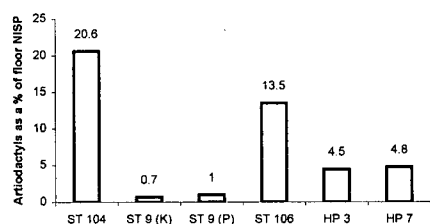


Figure 1. The Keatley Creek site (EeR1 7) in Southwest British Columbia, and housepit sites in the Lillooet region (after Hayden and Ryder 1991 and Hayden 2000d).

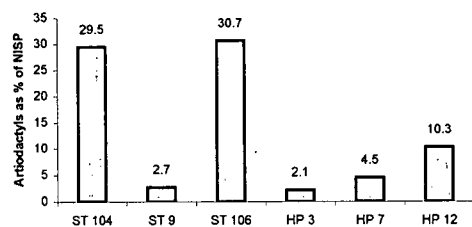




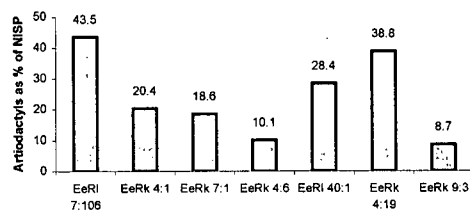
**Figure 3.** Fish element densities in potential ritual structure and domestic housepit floors (sample does not include features associated with floor strata; note ST 9 (K and P) designate the early Kamloops and Plateau horizon floors of that structure).



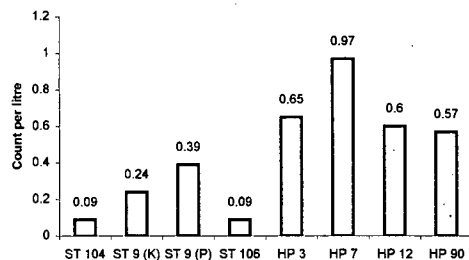
**Figure 4.** Artiodactyls as a percent of NISP in potential ritual structure and housepit floors (sample does not include features associated with floor strata; HP 12 and 90 are excluded due to extremely small NISP values; note ST 9 (K and P) designate the early Kamloops and Plateau horizon floors of that structure).



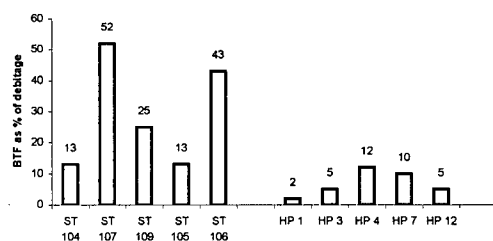
**Figure 5.** Artiodactyls as a percent of NISP for entire potential ritual structure and housepit samples (sample includes meat-roasting features directly associated with ST 106).



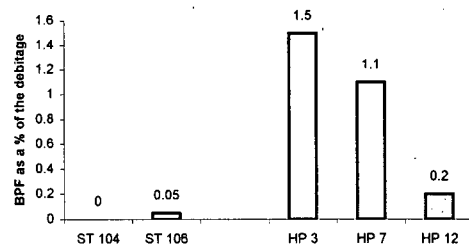
**Figure 6.** Artiodactyls in ST 106 and non-Keatley Creek housepits. Note that in this sample NISP for ST 106 differs from that in figure 5. For comparison with housepits excavated under Stryd 1973, NISP is calculated following Langemann (1987), in that only salmon vertebrae are considered identifiable to taxon (following Kusmer (2000) for Keatley Creek fauna, all fish elements, including ribs and spines are counted as identifiable to the taxon salmon).



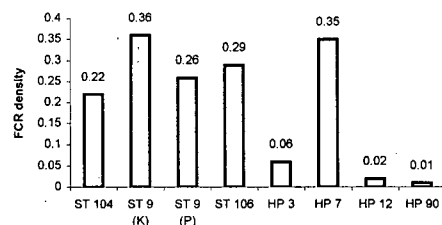
**Figure 7. Lithic debitage density in potential ritual structure and domestic housepit floors at Keatley Creek (note: ST 9 (K and P) designate the early Kamloops and Plateau horizon floors of that structure, values derived from Spafford (2000a), and Heffner (2000)).**



**Figure 8. Bifacial thinning flakes and pressure flakes as a percentage of the lithic debitage in potential ritual structures and domestic housepit floors (note that this comparison does not include ST 9 due to lack of reported data).**



**Figure 9. Bipolar flakes as a percentage of the lithic debitage in potential ritual structures and domestic housepits (ST 9 and HP 90 are not included due to lack of reported data).**



**Figure 10. Density of fire-cracked rock in potential ritual structure and domestic housepit floors, measured in count per litre of floor matrix (note: ST 9 (K and P) designate the early Kamloops and Plateau horizon floors of that structure).**

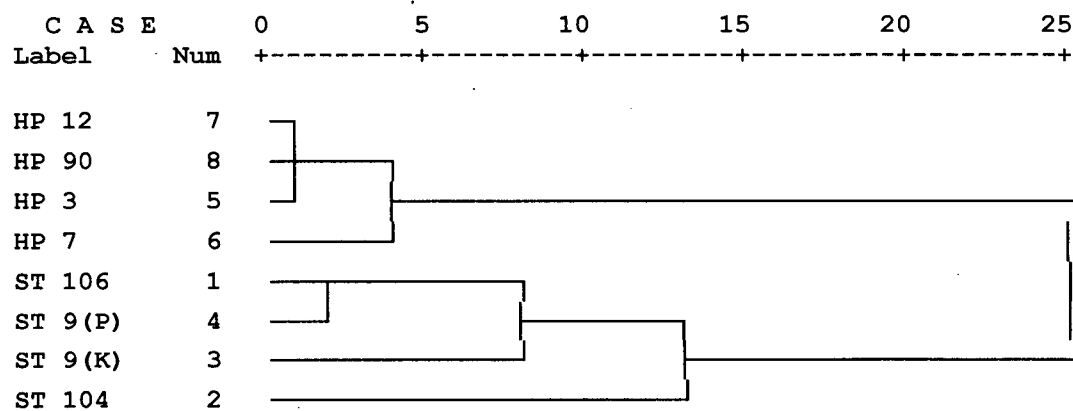


Figure 11. Hierarchical Cluster Analysis (Ward's method using squared Euclidean distance, SPSS 12.0) for potential ritual structures and domestic housepits. In this case the group of domestic housepits (12, 90, 3, and 7) cluster tightly, while the potential ritual structures (106, 9(P), 9(K), and 104) form a much less tightly clustered, but clearly distinguishable group. Note that ST 106 clusters most closely with ST 9(P).

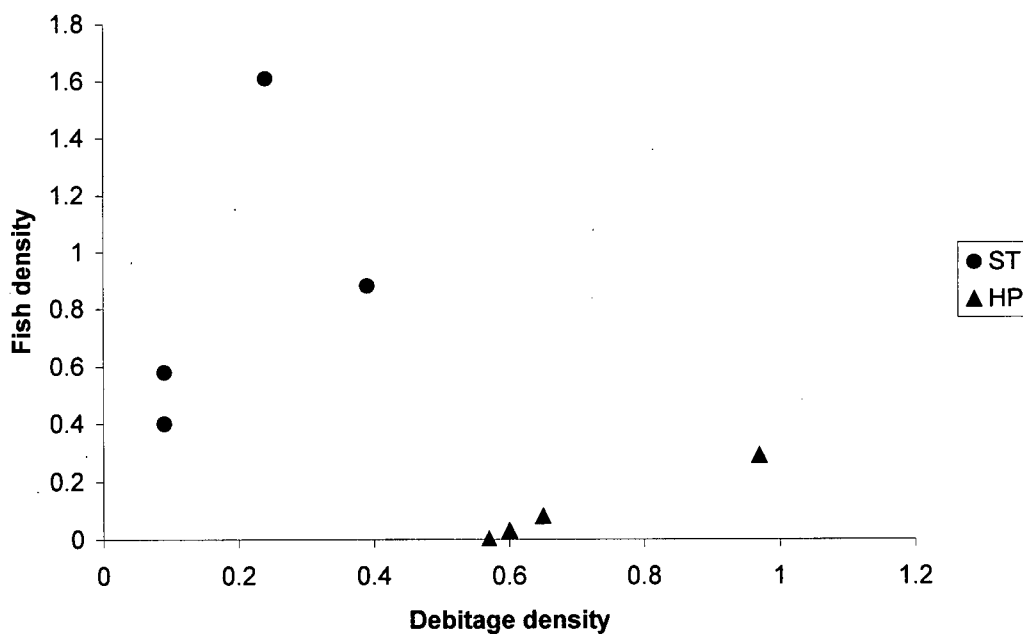


Figure 12. Scattergram of density values of debitage and fish elements on potential ritual structure and domestic housepit floors. Note distinct clustering of two groups.

Table 1. Ethnographic and archaeological examples of ritual structures in small-scale communities.

<i>Region:</i>	<i>Group or Site:</i>	<i>Type:</i>	<i>Location:</i>	<i>Reference:</i>
Canadian Plateau	Thompson	Sweat bath houses	Beside a stream	Teit 1900: 198
	Thompson	Puberty seclusion	Peripheral to village core	Teit 1900: 198, 312
	Thompson	Menstrual hut	Peripheral to village core	Teit 1900: 312, 326
	Thompson and Shushwap	Potlatching structure	Near fishing locations	Teit 1900: 196 Teit 1909: 492
Northwest Coast	Nuxalk (Bella Coola)	Secret society meeting houses	300 m from village Unusual natural location	Mellwraith 1992a: 177 Mellwraith 1992b: 11, 17, 32
	Nuxalk (Bella Coola)	House annex/ compartment	Rear of house	Mellwraith 1992a: 199-201 Mellwraith 1992b: 18, 76
Northwest Coast	Tlingit	Shaman's house	Peripheral to village core	Oberg 1973: 19
	Tlingit	Sweat bath house	Adjacent to houses	deLaguna 1972: 305
Northwest Coast	Nuu-chan-nulth (Nootka)	Whaler's shrine	Peripheral to village core	Boas 1930: 266-269 Arima & Dewhirst 1990: 395
California	Chumash	Shrines	Peripheral to village core	Blackburn 1974: 104
	Chumash	Dance/ceremonial enclosures	Village core	Blackburn 1974: 104
Southwest	Pueblo	Kiva, ritual structure	Village core	Muir 1999: 78-81
Southwest	Pueblo	D-shaped, biwalled	Village core	Muir and Driver 2002
Southwest	Pueblo	Mealing rooms	Village core	Mobley-Tanaka 1997
Southwest	Pueblo	Protokiva, ritual structure	Village core	Wilshusen 1986
Arctic	Thule	<i>Karagi</i> , ritual structure	Village core	Savelk 1987: 61-69, 204-215
Arctic	Eskimo	Ritual centers/ men's houses	Village core	Chlenov & Krupnik 1984: 6-15
Upper Paleolithic (Europe)	El Juyo	Sanctuary	Cave	Freeman & Edhaegaray 1981: 1-19
Upper Paleolithic (Europe)	Dolni Vestonice	Ritual structure	Peripheral to village core	Klima 1954: 4-14
Neolithic (Near East)	PPNA	Ritual structure	Peripheral to village core	Garrard et al. 1994 Strodeur et al. 2001 Byrd 1994: 656



Table 2. Potential non-domestic structures in the Mid-Fraser Region, and their expected material correlates (Jonaitis 1999, Teit 1900, 1906, 1909 and 1928).

<i>Type of Structure:</i>	<i>Material Attributes:</i>	<i>Location:</i>
Feasting House (potlatch house)	Associated with roasting pits Associated with storage pits Prepared floor (silt or fir needles) Special hearth Specialized seating Distinctive structural elements Distinctive food remains (type and quantity) Ornaments or ceremonial regalia Larger structures	Associated with central community spaces or locations remote from the centre of the community
Meeting House (elite, secret societies)	Specialized seating Special hearth Prepared floor (silt or fir needles) Distinctive food remains (type and quantity) Ornaments or ceremonial regalia Limited trampling of floor Smaller structures Low artifact density Rare artifact types	Associated with central community spaces, locations remote from the centre of the community, or locations marked by prominent natural features
Ritual Seclusion (pubescent girls and menstruating women)	Central pit No mammal bone (dietary restrictions) Gender specific artifacts (awls, utilized flakes) Ritual artifacts (bone tubes, whistles and scratchers) Limited trampling of floor Smallest structures (3m)	Locations remote from the centre of the
Shrines (societies, ancestors)	Very few artifacts Very clean occupation surface Unusual diversity of artifacts Human remains	Associated with central community spaces or locations remote from the centre of the community
Sweat-Bath Houses (ritual bathing)	Large exterior hearth Central pit/basin Distinctive seating arrangement No internal hearth High quantities of FCR Smallest structures (3m)	Directly beside a stream
Hunting Lodges (specific task base camp)	Outdoor drying facilities Distinctive hearth Task-specific artifacts (points, bifaces, high BTF values) Limited domestic debitage High densities of mammal remains Absence of storage pits Smaller structures	Distant (several days) from a winter village site

**Table 3. Outcomes of all quantitative methods of comparison of potential ritual structures and domestic housepits. (\* Significant at the 0.05 level)**

<i>Variable:</i>	<i>Structures:</i>	<i>Housepits:</i>	<i>Probability:</i>	<i>Qualitatively Perceived Trend:</i>
Bifacial thinning flake %	106, 104, 105, 109, 107	1, 3, 4, 7, 12	0.008*	Structures as a distinct population
Debitage density	106, 104, 9K, 9P	3, 7, 12, 90	0.029*	Structures as a distinct population
Lithic density (debitage and artifacts)	106, 104, 9K, 9P	3, 7, 12, 90	0.029*	Structures as a distinct population
Fish element density	106, 104, 9K, 9P	3, 7, 12, 90	0.029*	Structures as a distinct population
Cortex bearing flake %	106, 104, 9	3, 7, 12, 90	0.229	ST 106 and 104 cluster
Mammal element density	106, 104, 9K, 9P	3, 7, 12, 90	0.2	ST 106 and 104 cluster
Artiodactyls % NISP (floors, features)	106, 104, 9K	3, 7	0.267	ST 106 and 104 cluster
Artiodactyls % NISP (floors)	106, 104, 9K, 9P	3, 7	1	ST 106 and 104 cluster
Artiodactyls % NISP (entire structure)	106, 104, 9	3, 7, 12	0.4	ST 106 and 104 cluster
Bipolar flake %	106, 104	3, 7, 12	N/A	ST 106 and 104 cluster
Protohistoric HPs (% artiodactyls)	106, 104	EeRk 9: 3	N/A	ST 106 and 104 cluster
Small flake %	106, 104, 9	3, 7, 12, 90	0.4	ST 106 and 9 cluster
Regional HPs (% artiodactyls)	106	EeRk 4: 1, 6, 19; EeRk 7: 1; EeRl 40: 1; EeRk 9:3	N/A	ST 106 dissimilar to most samples
Salmon % of NISP (HP)	106, 104, 9	3, 7, 12	0.4	Some clustering of structures vs. housepits
Artifact density	106, 104, 9K, 9P	3, 7, 12, 90	0.2	Some clustering of structures vs. housepits
Fire-cracked rock density	106, 104, 9K, 9P	3, 7, 12, 90	0.2	Clustering of structures and HP 7 vs. housepits
Exotic lithics%	106, 104, 9	3, 7, 12, 90	0.629	No clustering
Tools as a % of flakes	106, 104, 9	3, 7, 12, 90	0.229	No clustering
Salmon % of NISP (floors, features)	106, 104, 9K, 9P	3, 7	0.8	No clustering
Salmon % of NISP (floors)	106, 104, 9K 9P	3, 7	0.8	No clustering
Occurrence of rare fauna	106, 105, 104, 109, 107, 9	EeRl 7: 3, 7, 12, 90; EeRk 4; EeRk 7; EeRl 40; EeRk 9	N/A	Clustering of structures and HP 7 vs. housepits
Occurrence of rare artifacts	106, 105, 104, 109, 107, 9	EeRl 7; EeRk 4; EeRk 7; EeRl 40; EeRk 9	N/A	Some clustering of structures vs. housepits
Similarity to domestic lithic assemblage	106	3, 7, 12, 90	N/A	ST 106 dissimilar to most samples
Context and features	106, 105, 104, 109, 107, 9	3, 7, 12, 90	N/A	Structures as a distinct population

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## 8.0 Appendix A: Structure 106 Plans, Profiles and Artifact Illustrations

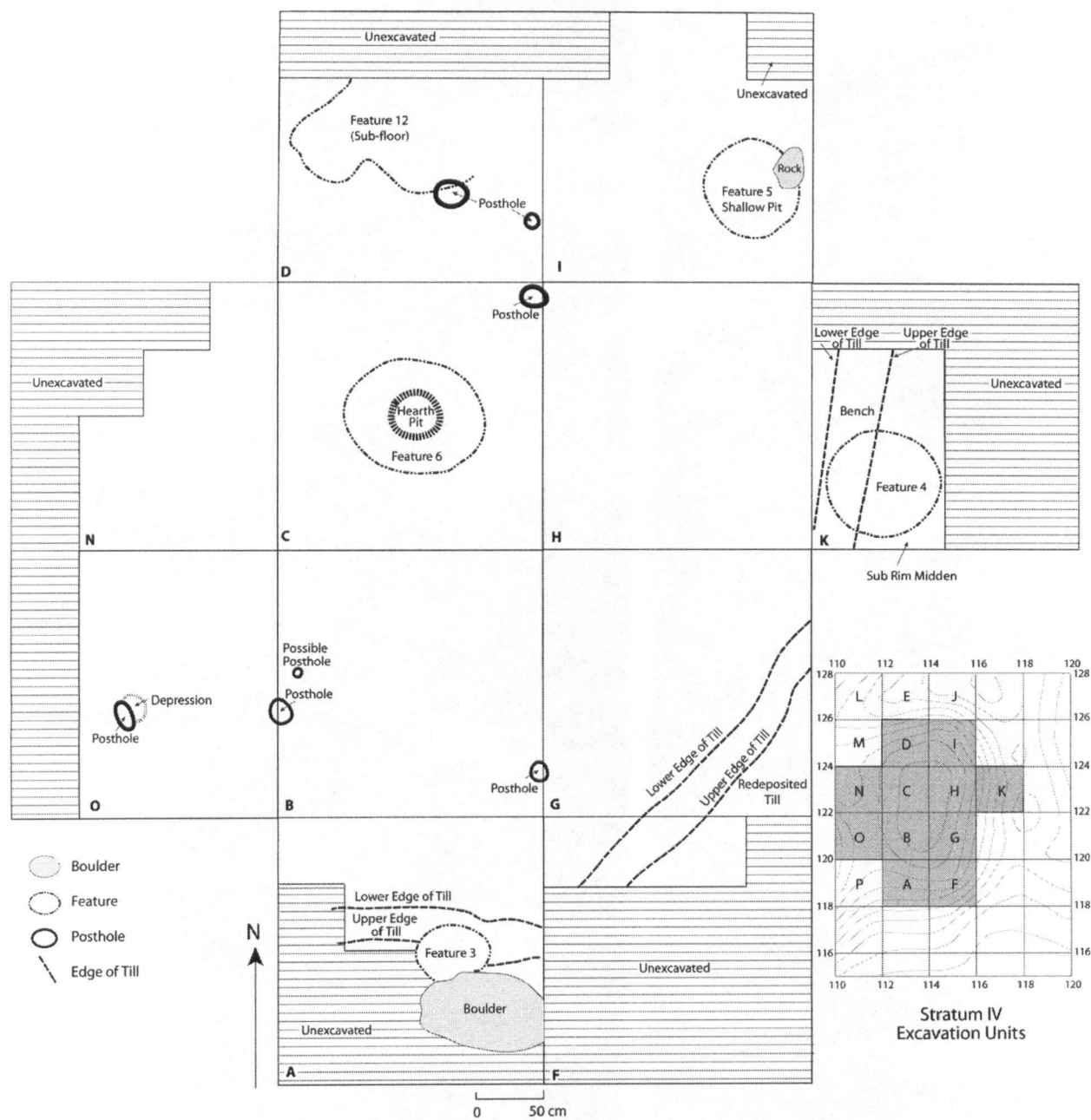
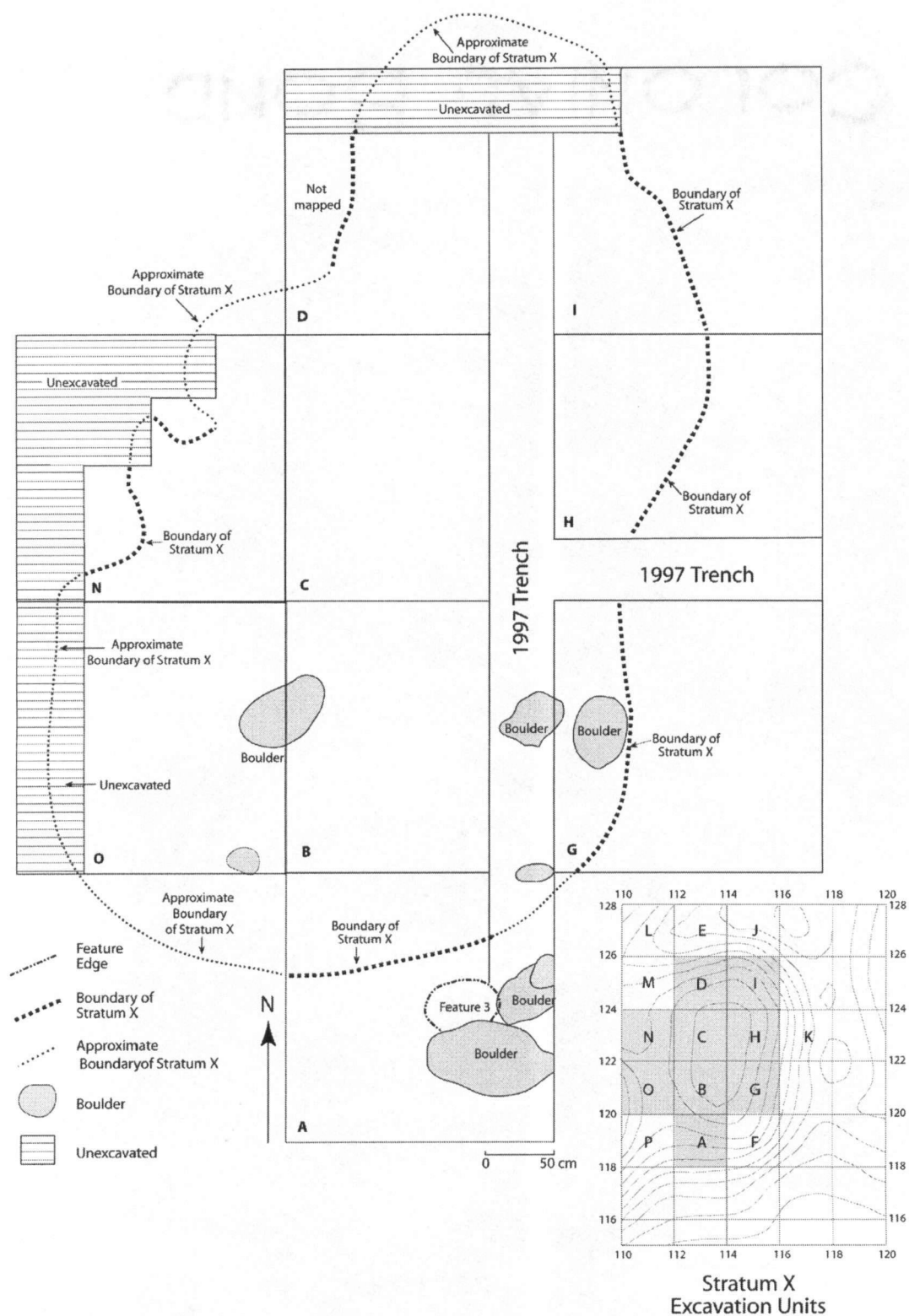


Figure 1. Floor plan of ST 106, at Keatley Creek EeR1 7.



**Figure 2: Plan of Stratum X / Feature 1, a large meat roasting feature overlying the roof-collapse of ST 106 at Keatley Creek EeR1 7.**

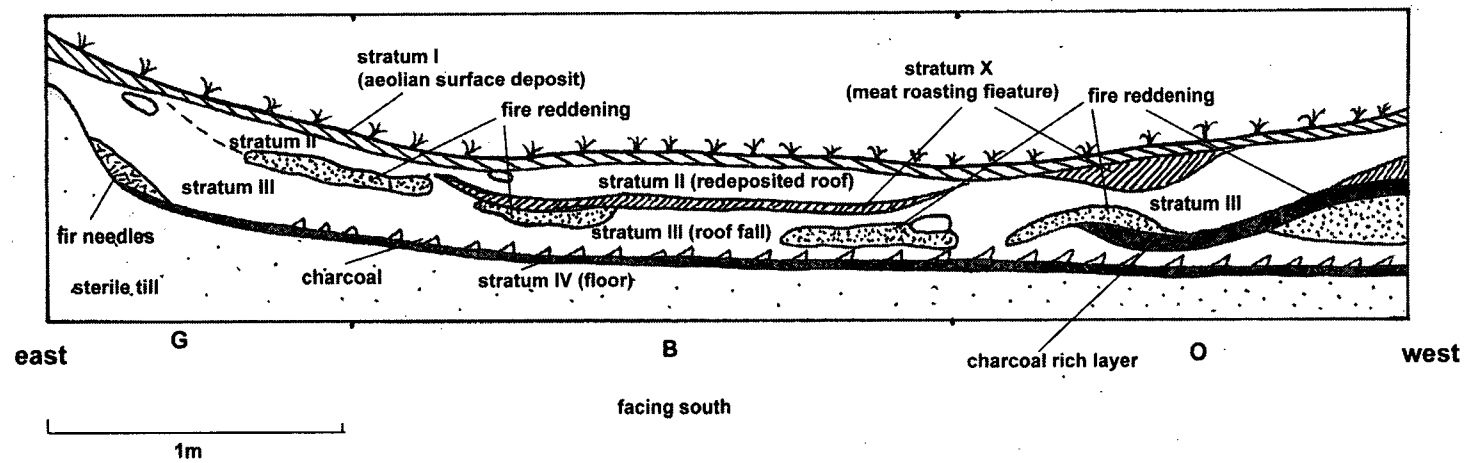
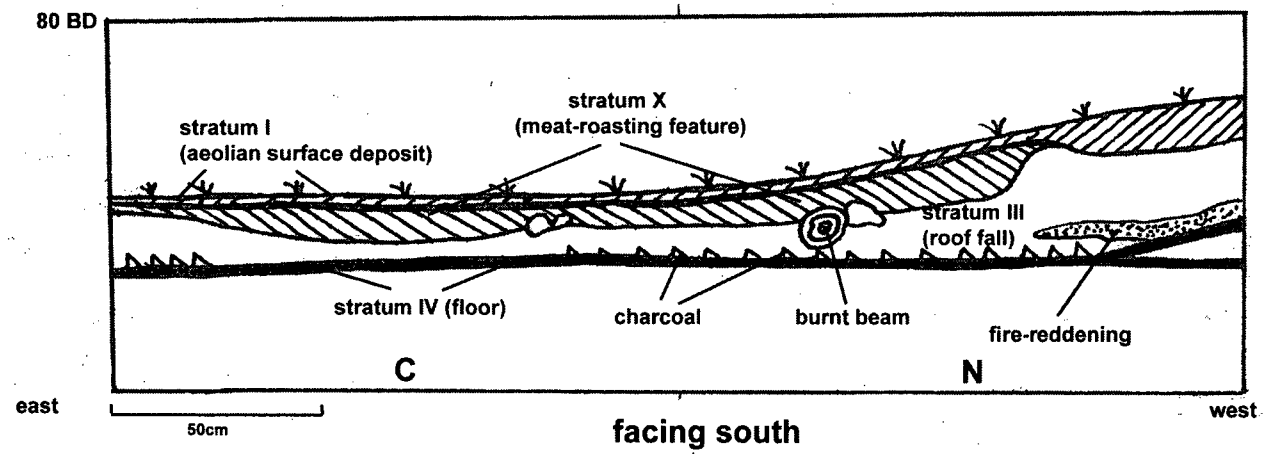


Figure 3: Stratigraphic profile of ST 106 at Keatley Creek FERI 7 (Squares G, B and O, facing south).

Figure 4. Stratigraphic profile of ST 106 at Keatley Creek EeRI 7 (Squares C and N facing south).



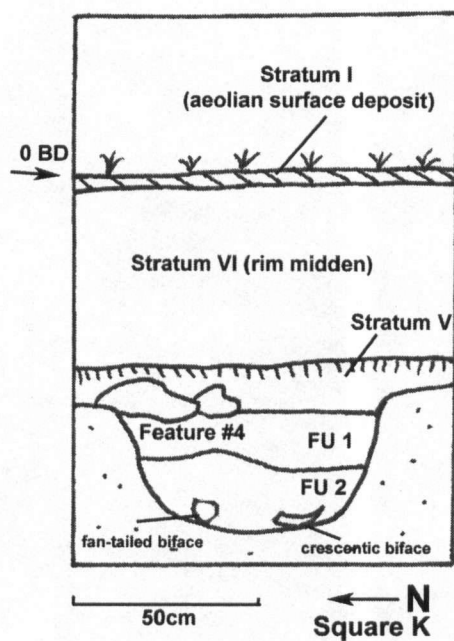


Figure 5. Stratigraphic profile of Feature 4 underlying the eastern rim of ST 106 (Square K, facing east).

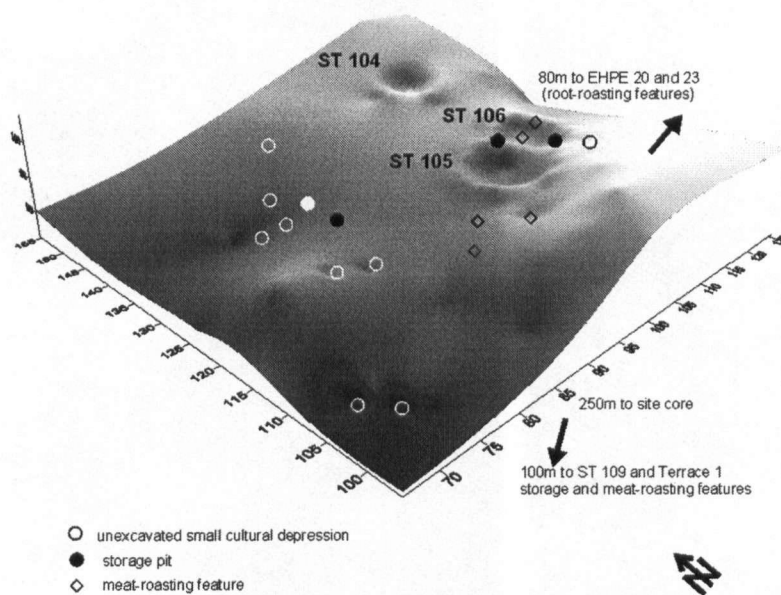


Figure 6. Potential ritual structures and features on Terrace 2 at Keatley Creek EeRI 7, note the high concentration of meat-roasting and storage features.



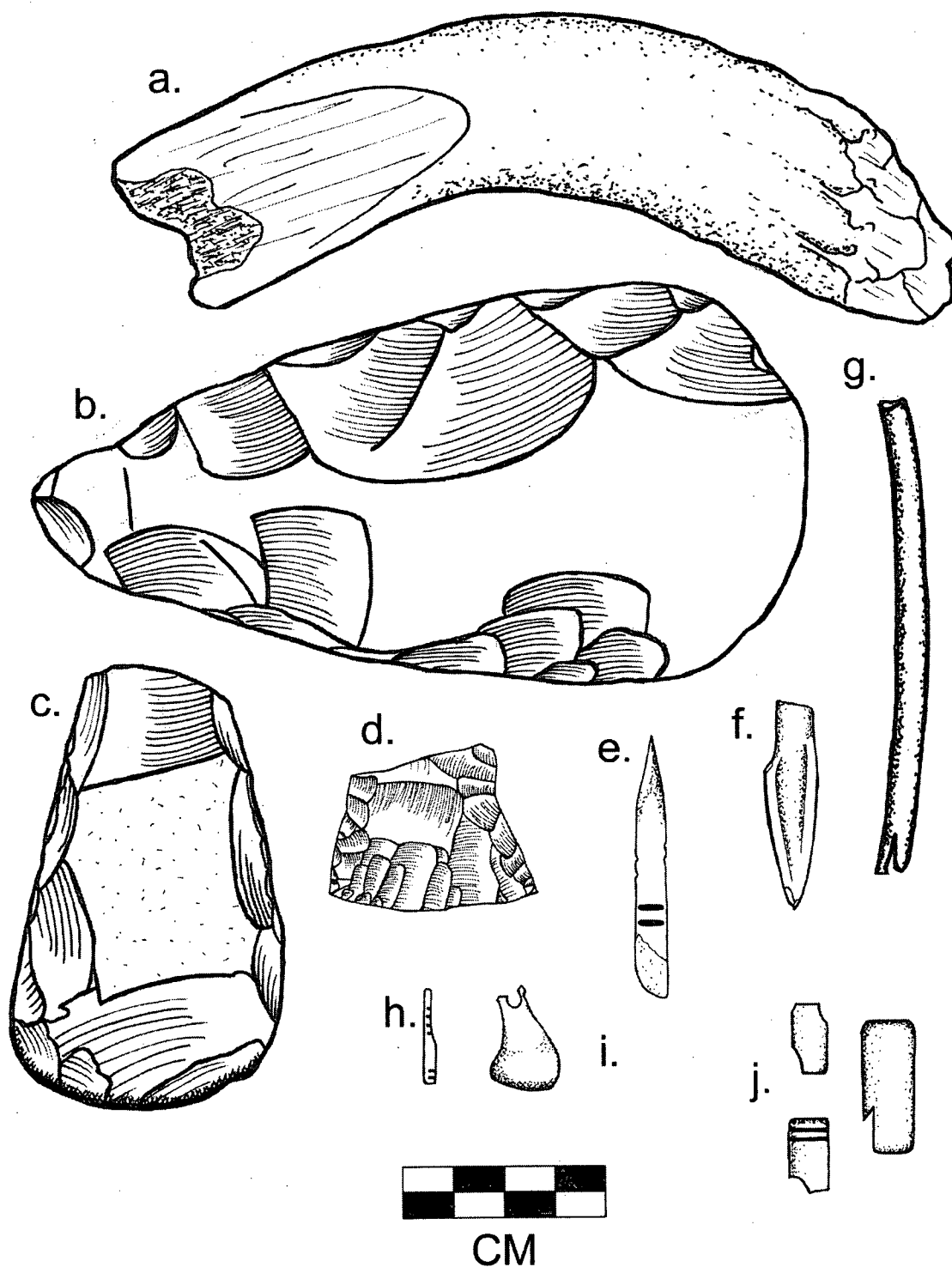
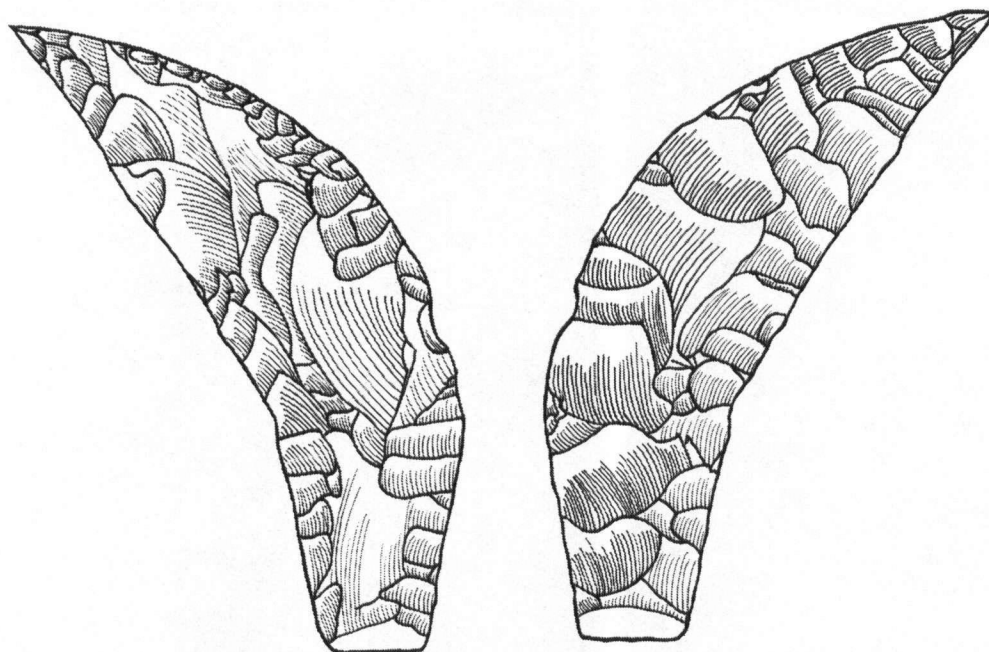


Figure 7. Rare artifact types recovered from ST 106. a) worked antler war-pick or mace type war club; b) flaked and ground quartzite spall tomahawk type war club; c) hide-scraper; d) fan-tailed biface (broken); e) bone point; f) bone scraper; g) bird bone tube, h) bone gaming piece, i) cervid tooth bead; j) bird bone beads.



**Figure 8. Crescentic biface recovered from small meat-roasting feature (Feature 4) underlying ST 106. This artifact measures 11.2 cm along its long axis.**



**Figure 9. Bone gaming pieces. Both are left artiodactyl patellae lightly ground in identical fashion.**

## 9.0 Appendix B: Data Set

Table 1. Comparative housepit and potential ritual structure sample.

<i>Samples:</i>					<i>Classes for comparison:</i>			
Site	Number	HP	Dated Floors	Sample	Fauna	Debitage	Artifacts	Features/ Structure
Keatley Creek	EeR1 7	104	Late Kamloops	partial	yes	yes	yes	yes
Keatley Creek	EeR1 7	105	Plateau/Late Kamloops	partial	yes	yes	yes	yes
Keatley Creek	EeR1 7	107	Plateau	partial	yes	yes	yes	yes
Keatley Creek	EeR1 7	109	Plateau?/Late Kamloops	partial	yes	yes	yes	yes
Keatley Creek	EeR1 7	3	Plateau/Early Kamloops	complete	yes	yes	yes	yes
Keatley Creek	EeR1 7	7	Plateau/Early Kamloops	complete	yes	yes	yes	yes
Keatley Creek	EeR1 7	9	Plateau/Early Kamloops	complete	yes	yes	yes	yes
Keatley Creek	EeR1 7	12	Plateau/Early Kamloops	complete	yes	yes	yes	yes
Keatley Creek	EeR1 7	90	Plateau	complete	yes	yes	yes	yes
Bell	EeRk 4	1	Plateau	complete	yes	no	yes	no
Bell	EeRk 4	6	Plateau	complete	yes	no	yes	no
Bell	EeRk 4	19	Plateau	complete	yes	no	yes	no
Ollie	EeRk 9	3	Late Kamloops/Protohistoric	complete	yes	no	yes	no
Gibbs Creek	EeRk 7	1	Kamloops	complete	yes	no	yes	no
East	EeR1 40	1	Kamloops	complete	yes	no	yes	no

Table 2. Context and features associated with potential ritual structures and domestic housepits.

Size:	Location:	Distance from core	Intense or atypical hearths:	Silt floor:	Large scale food processing facilities:	High numbers of storage features:
<i>Domestic Housepits:</i>						
HP 7	Large Core	None	Yes	No	Yes (meat-roasting pits, large hearths)	Yes (internal)
HP 3	Medium Core	None	No	No	No	No
HP 12	Small Core	None	No	No	No	No
HP 90	Small Core	None	No	No	No	No
<i>Non-Domestic Structures:</i>						
ST 9	Small South Terrace	250 m	Yes	Yes	Yes (root roasting pits)	No
ST 104	Small Terrace 2	200 m	N/A	Yes	Yes (meat- and root-roasting pits)	Yes (external)
ST 105	Small Terrace 2	200 m	N/A	No	Yes (meat- and root-roasting pits)	Yes (internal & external)
ST 106	Small Terrace 2	200 m	Yes	Yes	Yes (meat- and root-roasting pits)	Yes (external)
ST 109	Small Terrace 1	150 m	N/A	Yes	Yes (meat- and root-roasting pits)	Yes (external)
ST 107	Small South Terrace	250 m	Yes	Yes	Yes (root roasting pits)	Yes (internal)

Table 3. Rare artifact types recovered from ST 106 as compared to Keatley Creek and Stryd (1973), i.e., Bell, Ollie, East and Gibbs Creek sites, and mortuary contexts (Pokotylo *et al.* 1987; Sanger 1968; and Stryd 1973), i.e., Texas Creek, Cache Creek, and Fountain Flats sites.

Type:	Count at ST 106	% of total assemblage	% of floor assemblage	Count at Keatley Creek	% of assemblage	Count from Stryd	% of assemblage	Mortuary Contexts
Fan-tailed biface	1	0.36	n/a	12	0.16	0	0	no
Crescentic biface	1	0.36	n/a	1	0.01	0	0	no
Bird bone tube	1	0.36	4.2	2	0.02	1	0.01	yes
Elk tooth bead	1	0.36	n/a	3	0.04	1	0.01	yes
Bird bone bead	3	1.08	n/a	7	0.09	<27		yes
War club	2	0.71	8.3	2	0.01	0	0	yes
Gaming piece	3	1.08	n/a	4	0.05	1	0.01	yes
Bone point	1	0.36	n/a	7	0.09	3	0.03	yes
Red ochre	1	n/a	n/a	1	n/a	1	n/a	yes
Column Totals:		278	24	~7500		~10000		

Table 4. Master data table. Note that the NISP for ST 106 is calculated following Kusmer (2000) for comparison with Keatley Creek samples, and calculated following Langemann (1987) for comparison with regional samples. Most values for lithic comparison are derived from Spafford (2000a), and Heffner (2000), and most values for fauna are derived from Kusmer (2000) and Langemann (1987), and all others derived from the Keatley Creek master databases.

<i>Variable:</i>	<i>ST 106</i>	<i>ST 104</i>	<i>ST 9(K)</i>	<i>ST 9(P)</i>	<i>HP 3</i>	<i>HP 7</i>	<i>HP 12</i>	<i>HP 90</i>
<i>Density Variables</i>								
Debitage Density (floors)	0.09	0.09	0.24	0.39	0.65	0.97	0.6	0.57
Fire-Cracked Rock Density (floors)	0.29	0.22	0.36	0.26	0.06	0.35	0.02	0.01
Debitage and Artifact Density (floors)	0.11	0.13	0.28	0.43	0.74	1.17	0.63	0.64
Artifact Density (floors)	0.02	0.4	0.04	0.04	0.09	0.2	0.03	0.07
Fish Element Density (floors)	0.4	0.58	1.61	0.88	0.08	0.29	0.03	0
Mammal Element Density (floors)	0.2	1.2	0.24	0.06	0.1	0.22	0.08	0
<i>Percent Variables</i>								
Bifacial Thinning Flakes as a % of Debitage	43.0	13.0	-	-	5.0	10.0	5.0	-
Exotic Raw Materials as a % of Debitage	12.9	0	10.0	10.0	4.0	9.0	3.0	10.0
Small Flakes (<2 cm) as a % of Debitage	63.0	76.0	60.0	60.0	70.0	70.0	70.0	80.0
Bipolar Flakes as a % of Debitage	0.05	0	-	-	1.5	1.1	0.2	-
Cortex Bearing Flakes as a % of Debitage	2.7	0	6.0	6.0	8.4	5.9	5.3	8.5
Tools as a % of Flakes	14.4	44.0	28.0	28.0	13.0	15.0	8.0	38.0
Salmon as a % of NISP (all strata)	67.1	70.0	94.5	94.5	94.7	73.7	87.6	-
Salmon as a % of NISP (floors and features)	86.3	76.1	96.4	99.0	96.7	74.9	-	-
Salmon as a % of NISP (floors)	86.3	78.7	98.4	99.0	83.1	91.1	-	-
Artiodactyls as a % of NISP (floors)	13.4	20.6	0.7	1.0	4.5	4.8	-	-
Artiodactyls as a % of NISP (all strata)	30.7	29.5	2.7	2.7	2.1	4.5	10.3	-
Artiodactyls as a % of NISP (floors and features)	13.4	23.2	2.4	1.0	0.9	0.9	-	-
<i>ST 106 and Regional Housepits</i>								
	<i>ST 106</i>	<i>ST 104</i>	<i>Ollie: 3</i>	<i>Bell: 1</i>	<i>Bell: 6</i>	<i>Bell: 19</i>	<i>Gibbs: 1</i>	<i>East: 1</i>
Protohistoric Regional Housepits Artiodactyls as % of NISP	43.5	35.5	8.7	-	-	-	-	-
Regional Housepits Artiodactyls as % of NISP	43.5	-	8.7	20.4	10.1	38.8	18.6	28.4
<i>Limited comparison Housepits and Structures</i>								
	<i>ST 107</i>	<i>ST 109</i>	<i>ST 105</i>	<i>HP 1</i>	<i>HP 4</i>			
Bifacial Thinning Flakes as a % of Debitage	52.0	25.0	13.0	2.0	12.0			