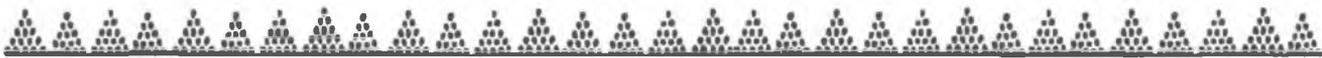


## Chapter 3



# Mixing of Projectile Point Types within Housepit Rim and Floor Strata at Keatley Creek

*Andrew Henry & Brian Hayden*



### Introduction

This issue of whether artifacts in floor deposits in housepits result only from activities carried out on those floors, or whether floor assemblages are contaminated by artifacts from earlier periods that became mixed in with floor deposits is crucial for interpreting artifact patterning on those floors, and hence the socioeconomic organization in housepits. Some archaeologists in the region have expressed skepticism that anything useful can be learned from the study of housepit floor deposits due to the supposedly mixed nature of these deposits (based on observations of different styles of projectile points occurring in the same floor deposits). If this is true it certainly needs to be taken into consideration when interpreting house floor assemblages. If it is not true, other explanations for the co-occurrence of different point styles need to be examined. This is the goal of this chapter. Projectile points are also one of the most useful lithic types for identifying regional cultures, changes over time, and interactions between groups. Therefore projectile points have been given extended attention in the following analysis. We focus, however, on the morphological variability and spatial distribution of projectile points recovered from the housepit assemblages at Keatley Creek.

### Description of Projectile Point Types

Projectile points from the Keatley Creek site have been classified as: Windust, Lochnore, Lehman, Shuswap, Plateau, Late Plateau (or Transitional), and Kamloops points. These projectile point types have been defined using criteria such as dimensions, base shape, barbs, notches, shoulders, and angle characteristics combined to form the comparative types used on the Canadian Plateau. Representative samples of these types are illustrated in Volume I, Chapter 1, Figure 16 (see also Richards and Rousseau 1987).

The Kamloops point type is differentiated from other point types by the presence of side-notches and the generally smaller dimensions of this point type. The Kamloops point, originally defined by Stryd (1972:20), is associated with bow and arrow technology as opposed to atlatl or spear technology. Kamloops multi-notched points have similar diagnostic attributes to the Kamloops side-notched points. The multi-notched variety, however, have multiple notches along one lateral blade margin. Dates associated with this point type are between ca. 400 and 100 BP (Richards and

Rousseau 1987:43–45). There have been only a few of these projectile point types recovered associated with the Keatley Creek site. One was a surface find along a trail from the site into the mountain, several others were from a peripheral storage pit (EHPE 21) with horse remains (Vol. III, Chap. 11.22), and several are from the HP 7 surface, with one recorded from the floor that was probably associated with an intrusive, post-abandonment hunter's encampment.

Being larger, Plateau points are appropriate for tipping spears or atlatl darts. Late Plateau points have the same general shape as other Plateau points, but are significantly smaller, being intermediate in size between Plateau and Kamloops points. Late Plateau points may represent projectile points used with the initial introduction of the bow and arrow (Rousseau 1992:102; Richards and Rousseau 1987:34). They appear to date from 1,500–1,200 BP. Shuswap points are also considered associated with atlatl darts rather than arrowheads (Richards and Rousseau 1987:25). Some have concave lateral sides of bases or are shouldered.

Lochnore points are "leaf-shaped to lanceolate, unbarbed projectile points with side notches, heavy basal grinding, and pointed or convex bases" (Stryd and Rousseau 1996:193). Lehman points, according to Stryd and Rousseau (1996:189), are characterized as "thin, pentagonal projectile points with obliquely-oriented, V-shaped corner or side notches." A single possible example of a Windust point was recovered from the pre-housepit deposits under the rim of HP 5 (Fig. 1). Given its fragmentary state, positive identification is problematical, but edge grinding of the stem does indicate the possible presence of Windust-like Paleo-Indian groups at the site before 9,000 BP.

One other example of a non-standard regional point type also occurs in the excavated assemblage. A unique, small bipointed piece from the protohistorical occupation of HP 104 (Fig. 1) resembles the shape of early Historic metal arrowheads. We will not deal with the unique occurrences further, but will concentrate our analysis on the recurring regional point types.

## Projectile Point Occurrences at Keatley Creek

Housepits 3 and 7 are the central focus of this analysis due to their completely excavated floor strata, and the high concentration and variety of projectile points found throughout their roof, rim, and floor strata. Housepits 3 and 7 have yielded 19.4% and 53%, respectively, of all projectile points as yet recovered from this site. Outline forms and quantification of the various projectile point types from each housepit are provided in Figures 2–6, and Table 1. Not all housepits yielded enough projectile points to render quantitative analyses meaningful as Figure 2 indicates. However, to provide an overall synthesis of projectile points at this site, all occurrences have been tabulated (see Table 1).

### Housepit 3

Housepit 3 is a multi-component housepit initially occupied during the Shuswap horizon. It was periodically cleared down to sterile till by its occupants with the debris of each preceding occupation being deposited upon the rim or roof of the housepit (Vol. III, Chap. 4). Floor deposits of HP 3, as Table 1 illustrates, contain 13 Kamloops points (76.5%), 3 Plateau points (17.7%), and 1 possible Lehman point (5.9%). These numbers represent 26.6% of the total number of points

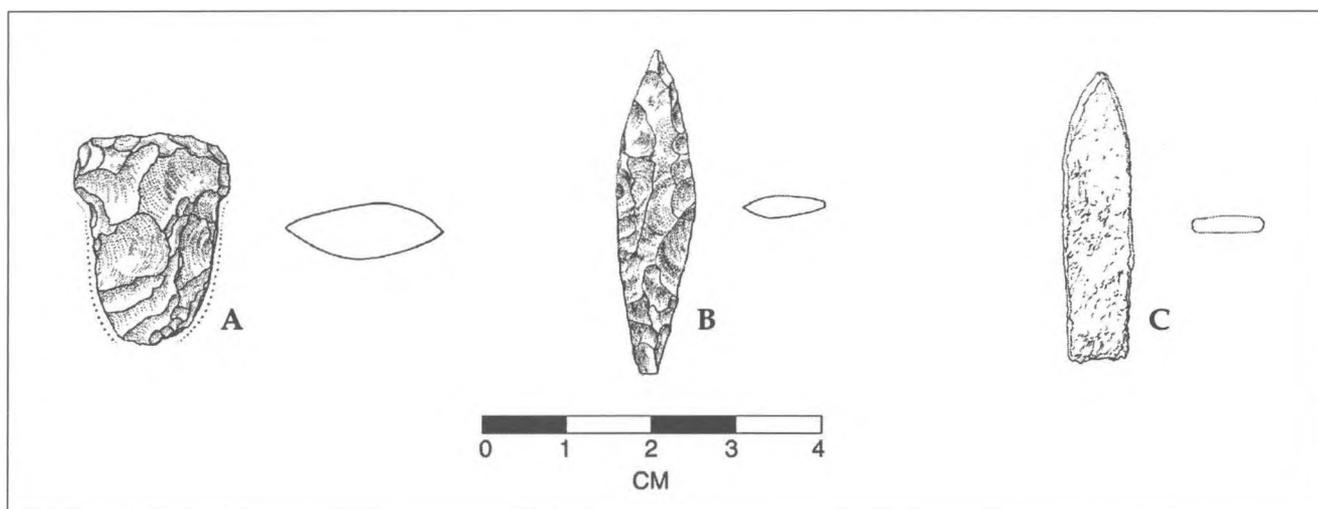


Figure 1. The possible Windust point base (A: with basal grinding indicated by dots) found below the rim deposits of HP 5; and the unusual Protohistoric bipointed arrowhead (B) from HP 104, compared to an historic metal arrowhead (C) found in Keatley Creek surface deposits in HP 5.

recovered from this housepit. Roof and roof surface strata contain 19 (50%) Kamloops points, 12 (31.6%) Late Plateau points, 5 (13.2%) Plateau points, and 2 (5.3%) Shuswap point. This is 58.8% of the total number of points from this housepit. Rim stratum levels in this housepit lack any direct evidence of projectile points other than one Shuswap point located at the bottom of the rim on the southern extreme of the housepit. The final occupation of this floor has been dated to 1,080 BP (Vol. I, Chap. 2) as is consistent with the predominance of Kamloops points in the floor deposits and the lack of any multinotch Kamloops points in the house.

### Housepit 7

Housepit 7 is also a multi-component residence. The initial occupation of this housepit probably dates to the late Shuswap horizon based on a date of 2,600 BP from the base of its rim (Vol. I, Chap. 2). Housepit 7 appears to have been excavated into an earlier Lochnore phase surface occupation (See Vol. III, Chap. 5). A terminal date of 1,080 BP during the Kamloops horizon is given to this housepit based on radiocarbon dating of the floor.

As Table 1 indicates, the floor stratum in HP 7 contained 21 (78%) Kamloops points, 3 (11%) Plateau points, 1 (3.7%) Shuswap points, and 2 (7.4%) Lochnore points. The number of projectile points located within this stratum, represents 15.2% of the total number of

points recovered from this housepit. Of the three Plateau points that were recovered from the floor stratum, two are located near the edge of the floor and one at the very center of the floor. These are areas not occupied by Kamloops points. Shuswap points occur almost exclusively near the eastern wall.

Roof and Roof Surface strata in this housepit contain 49 (53.3%) Kamloops points, 19 (20.7%) Late Plateau points, 12 (13%) Plateau points, 8 (8.7%) Shuswap points, and 4 (4.4%) Lochnore points. The roof stratum contains 51.7% of the total number of points from this housepit. The Lochnore points and all but one Shuswap point associated with the roof stratum of this housepit are located near the edge of the roof. This might be expected in a roof matrix if there was mixing with rim deposits that contained artifacts from previous horizon occupations. There would undoubtedly be some such mixing of the rim deposits with the roof strata during the digging of post or roof beam emplacement holes in the rims for roofs.

Rim deposits in this housepit contain 4 (21%) Kamloops, 4 (21%) Plateau, 3 (15.8%) Late Plateau, 4 (21%) Shuswap, 3 (15.8%) Lochnore points, and 1 Lehman point (5.3%). These various projectile point types represent only 10.7% of the total number of points found in this housepit. This low proportion is largely due to the very limited testing of rim deposits that took place compared to the complete excavation of roof and floor deposits. The same holds true for HP 3.

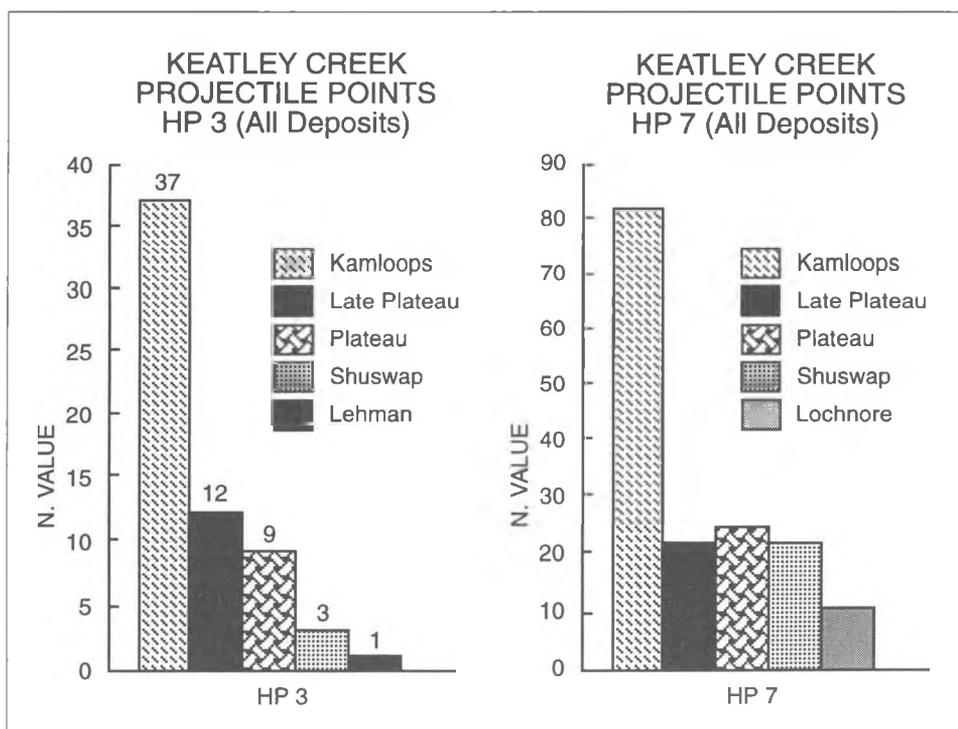


Figure 2. Histograms showing the distribution of types of projectile points in excavated floor deposits as well as the total type distribution of projectile points in HP's 3 and 7.

The predominance of Kamloops points in the floor deposits and the lack of Kamloops multinotch points (other than the probable intrusive post abandonment specimens noted earlier) is consistent with an early Kamloops final occupation as indicated by radiocarbon dates.

From the foregoing description of projectile point proveniences, it is abundantly clear that there are few stylistically "pure" deposits in any of the major types of strata, whether floors, roofs, or rims. While mixed styles may not be surprising in some contexts, such as roofs, mixed styles in other contexts such as floors present more interpretive problems.

**Table 1. Keatley Creek Projectile Point Frequencies and Proveniences**

**HP 1**

<u>Point Type</u>	Strata Type						<i>Strata Type Subtotals</i>
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Feature	1						1
Rim Spoil	1		1				2
Unknown	3			1			4
<i>Subtotals</i>	5		1	1			Total points: 7

**HP 2**

<u>Point Type</u>	Strata Type						<i>Strata Type Subtotals</i>
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof Surface	1						1
Floor	2						2
Rim: Level 5				1			1
Level 8			1				1
<i>Subtotals</i>	3		1	1			Total points: 5

**HP 3**

<u>Point Type</u>	Strata Type						<i>Strata Type Subtotals</i>
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Surface	3						3
Roof Surface	6	4	2	1			13
Roof	13	8	3	1			25
Floor	13		3			1	17
Rim: Level 10B				1			1
Collapse	3		1	1			5
Unknown	1						1
<i>Subtotals</i>	39	12	9	4		1	Total points: 65

**HP 4**

<u>Point Type</u>	Strata Type						<i>Strata Type Subtotals</i>
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof	1		2	1			4
Floor			1				1
Rim: Level 6				1			1
<i>Subtotals</i>	1		3	2			Total points: 6

Table 1. Keatley Creek Projectile Point Frequencies and Proveniences (continued)

HP 5							Strata Type Subtotals
Point Type	Strata Type						
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof				1			1
Floor					2		2
Rim: Level 1	1		3	1		1	6
Level 2	1						1
Level 3			2				2
Level 6				1			1
Level 7							
Subtotals	2		5	3	2	1	Total points: 14

1 windust and 1 misc. point not included here.

HP 6							Strata Type Subtotals
Point Type	Strata Type						
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof	1		1				2
Floor	1						1
Subtotals	2		1				Total points: 3

HP 7*							Strata Type Subtotals
Point Type	Strata Type						
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Surface	2						2
Roof Surface	4	2	1	1			8
Roof	45	17	11	7	4		84
Floor	21		3	9	2		35
Feature	5	3	2	1	1		12
Rim: Level 1	4			2	1		7
Level 2		2		1	2	1	6
Level 3		1		1			2
Level 6			1				1
Level 8			1				1
Level 9			1				1
Rim Spoil			1				1
Collapse	1		2				3
Pit Fill					1		1
Potted				2			2
Unknown	9	1	6	2	2		20
Subtotals	91	26	29	26	13	1	Total points: 186

\* Some entries differ from detailed analyses in Vol. I, Chap. 15; however, no resolution of discrepancies could be achieved and we assume the detailed analysis is more accurate.

Table 1. Keatley Creek Projectile Point Frequencies and Proveniences (continued)

HP 8							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof	1	1	1				3
Floor	1	1					2
<i>Subtotals</i>	2	2	1				Total points: 5

HP 9							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Surface	3						3
Roof Surface	1						1
Roof	1						1
Floor			5	1			6
Feature	2						2
Unknown			1				1
<i>Subtotals</i>	7		6	2			Total points: 15

HP 12							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof Surface	1						1
Roof	1	1	2				4
Floor			2				2
<i>Subtotals</i>	2	1	4				Total points: 7

HP 47							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Dump			1				1
<i>Subtotals</i>			1				Total points: 1

HP 58							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Rim: Level 1			1				1
<i>Subtotals</i>			1				Total points: 1

Table 1. Keatley Creek Projectile Point Frequencies and Proveniences (continued)

HP 90							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof Surface			2				2
Roof				1			1
Feature			1				1
Unknown				1			1
<i>Subtotals</i>			3	2			Total points: 5

HP 101							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Floor	2		1				3
<i>Subtotals</i>	2		1				Total points: 3

HP 104							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Floor	1						1
<i>Subtotals</i>	1						Total points: 1

1 misc. point not included here.

HP 105							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Surface	1						1
Dump	1						1
Unknown	1						1
<i>Subtotals</i>	3						Total points: 3

HP 106							
Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof Surface	1						1
<i>Subtotals</i>	1						Total points: 1

Table 1. Keatley Creek Projectile Point Frequencies and Proveniences (continued)

**HP 107**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Dump			1				1
<i>Subtotals</i>			1				Total points: 1

**HP 109**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Fill				1			1
<i>Subtotals</i>				1			Total points: 1

**HP 110**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Roof				1			1
Floor	1			4			5
Feature	1			1			2
<i>Subtotals</i>	2			6			Total points: 8

**EHPE 11**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Unknown	2						2
<i>Subtotals</i>	2						Total points: 2

**EHPE 12**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Unknown			2				2
<i>Subtotals</i>			2				Total points: 2

**EHPE 21**

Point Type	Strata Type						Strata Type Subtotals
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore	Lehman	
Unknown	2						2
<i>Subtotals</i>	2						Total points: 2

Table 1. Keatley Creek Projectile Point Frequencies and Proveniences (continued)

Grand Totals							
Point Type Totals:	Strata Type					Point Grand Total: 343	
	Kamloops	Late Plateau	Plateau	Shuswap	Lochnore		Lehman
	167	41	75	42	16		3

## Analysis

Mixing of projectile point types may be due to several causes. These include: (1) Simultaneous use of the different point styles or technologies. (2) Collection and possible reuse, recycling, and/or rejuvenation of point types from previous inhabitants of the locality, site, or housepit. (3) Incomplete removal of floor debris from occupations when creating or renovating the structure and its floor surface. (4) Filtration of artifacts from roof or wall deposits onto the most recently occupied floor surface before abandonment. (5) Possible failure of excavators to adequately distinguish floor, roof, and later intrusive pit deposits during excavations thus resulting in the inclusion of some artifacts contained in the roof or later pits with sediments identified as floor deposits. (6) Deep trampling by livestock or other post-occupational turbation of the soil matrix. (7) Mixing of deposits from different time periods due to the excavation of soil for roofing, filling of large storage pits, or other purposes. We will begin by discussing the clearest case of projectile point style mixing: roof deposits.

## Roof and Roof Surfaces

From ethnographic accounts (Vol. I, Chap. 2) and archaeological observation (Vol. I, Chap. 17), it is clear that soil used to cover pithouse roofs was frequently recycled and mixed with both floor and rim deposits, perhaps even every time a new roof was constructed to replace rotting ones. This process more than adequately accounts for the degree of stylistic mixing of projectile points observed in the roof deposits of HP's 3 and 7. However, there is some unexpected and interesting patterning in these roof deposits.

In both HP 3 and 7 there is a larger quantity of projectile points of each type located within the roof stratum than in the floor stratum. Among other things, and assuming floors were incorporated in roofs every 20–30 years when roofs were replaced, this indicates that placing dirt on the roofs of large houses was a practice that had only begun within the last 200 years

or so of the site's history, otherwise even more points would be found in the roof deposits. The estimate of 200 years is derived by dividing the number of Kamloops and Late Plateau points in the roof by the number of Kamloops points in the floor deposit. This results in an estimate of 3.6 reroofing events for HP 3 and 3.5 reroofing events for HP 7. If the number of Plateau points in the roofs and floors are similarly divided, this results in an additional 1.7 and 3.3 reroofing events for HP's 3 and 7, or a total of 5.3 reroofing events for HP 3 and 6.8 reroofings for HP 7. Assuming roofs lasted 25 years, this would mean that earth covered roofs had been used for about 150–200 years (including the last floor) at Keatley Creek.

The predominant location of Kamloops points in the roof stratum of both housepits is in the northern sectors. The locations of most points in the northern sector of the housepit roofs may be due to cultural agencies, noncultural agencies, or a combination of both factors. Some of the likely factors responsible for point location within the roof strata are: (1) the preferred area for discarding general hard (lithic) materials including projectile points was probably the north roof and rim, and (2) the preferred location for projectile point knapping, maintenance and/or storage of points may have been the north roof (less likely). This pattern will be important later for interpreting causes of mixing in floor deposits.

Since the bulk of *Late Plateau* points in HP 3 and 7 (N=39) are located in the roof surface (N=6) and roof (N=25) strata but not in the floor stratum, this may provide some indication of the degree to which filtration from roof to floor occurred during the pre- and post-abandonment periods of the Keatley Creek pithouses and may also provide clues to the dynamics of change in point styles, a topic discussed below. Most Plateau points are located in roof strata as would be expected if the last floor occupation was of Kamloops date and if previous, Plateau, floor deposits had been incorporated into roof sediment during re-roofing events.

### Floors

Of all the strata types that seemed as though they should be relatively "pure" in terms of temporally bounded artifact types, housepit living floor deposits seemed to have the greatest potential, especially since they seem to have been used for short periods of time (20–30 years) and to have been sealed by the intentional burning and collapse of the roof structures at the time of abandonment (Vol. I, Chap. 17). Moreover, much of the interpretation of social and economic organization within structures depends upon the floor deposits being relatively uncontaminated from mixing with artifacts from other time periods, whether during the occupation or after abandonment. The presence of both Plateau (and earlier) styles of projectile points together with Kamloops style projectile points on the floors of

HP's 3 and 7 (as well as other housepits) therefore presents interpretive problems of some significance (Figs. 2, 4, and 5). We had assumed at the outset that the floors would only contain projectile points that were supposed to characterize the latest prehistoric period i.e., Kamloops points. While the vast majority of points in some floors were certainly Kamloops style points, there were a surprising percentage of other point styles as well. What factors were responsible for this occurrence of non-Kamloops style points in the floor deposits?

While we cannot come to any definitive conclusions at this point, we believe that a number of sources of mixing can be excluded on the basis of the patterning in the data and on the basis of similar developments elsewhere that parallel the changes that occurred at Keatley Creek.

First, as already noted, most of the earlier Plateau and Shuswap points in the floors of HP's 3 and 7 are located close to the walls, especially the eastern wall of HP 7. Because these areas are the most deeply buried by roof collapse, they are the least likely to have been affected by any kind of post-depositional turbation after the burning and collapse of the pithouse roof. Post-depositional mixing can therefore probably be eliminated. Other early points may occur in floor deposits due to recycling.

Second, the degree of filtration from the roof postulated for the translocation of points from the roof sediments to the floor while the pithouse was functioning seems inconceivable. We would expect that the inhabitants would have reroofed the structure long before artifact-sized debris began raining down on the floor from the roofs.

On the other hand, many of the walls inside the house were cut into earlier rim midden deposits to the extent that the walls would have been relatively unstable given the soft, unconsolidated, organic nature of the rim deposits in larger houses. During excavation, we noted on many occasions that floor de-

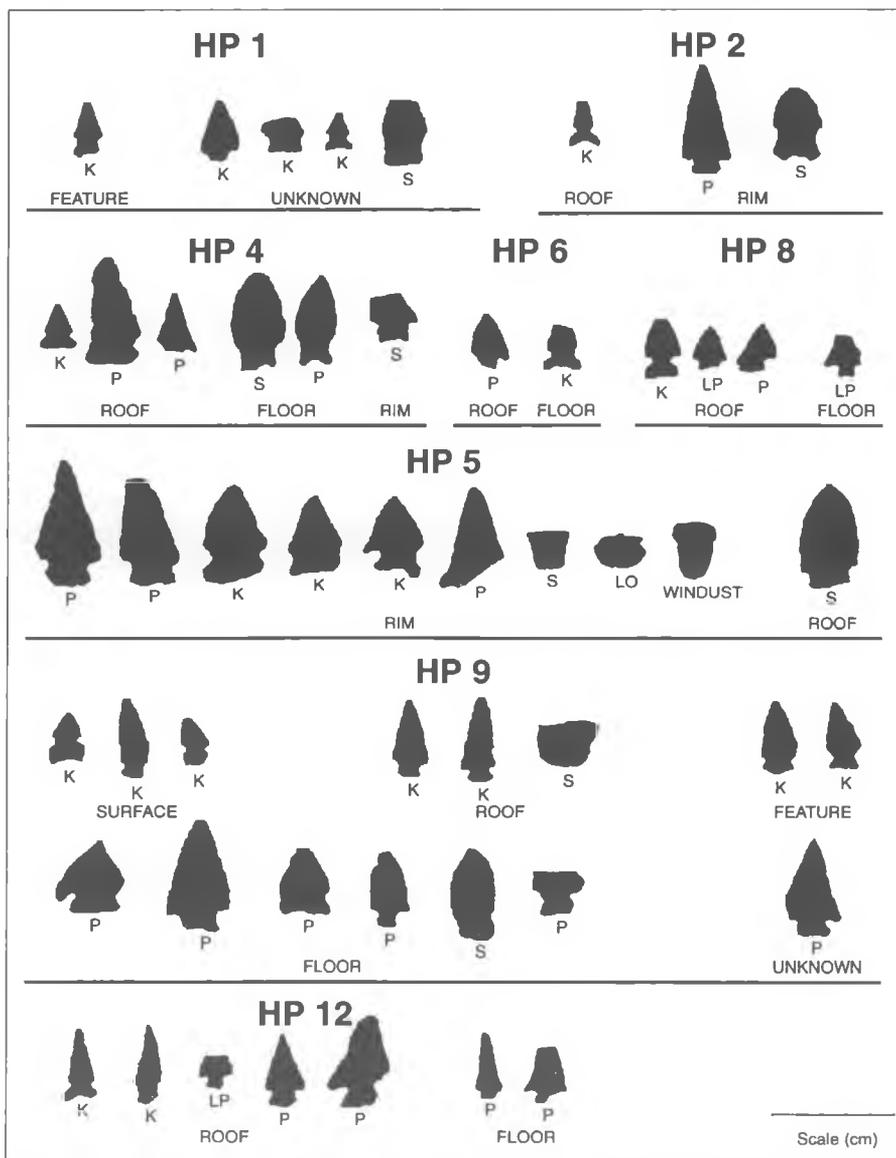


Figure 3. Outline shapes of projectile points from HP's 1, 2, 4, 5, 6, 8, 9, and 12. K = Kamloops point; LO = Lochmore point; LP = Late Plateau point; P = Plateau point; S = Shuswap point.

posits near the walls seemed to become indistinct and graded into wall deposits as though there had been sloughing off of the wall or deposits that had trickled down onto the floors (perhaps under sleeping platforms) and become mixed with floor deposits. The sloughing off of steep wall or rim midden deposits along the walls could have certainly contributed some earlier artifactual materials to the floor deposits near the walls. This might well explain the dominant distribution of Plateau points in HP's 3 and 7 near the walls.

Also in HP 7, excavators noted several occasions where there appeared to be earlier deposits under the Kamloops living floors, especially near the walls, and especially in the south and west sectors where Middle Prehistoric deposits underlie the Kamloops floors. These earlier deposits were often simply cataloged as "level 2" of the floor deposits and treated as floor artifacts, whereas, with hindsight, it is clear that they should have been dealt with separately. Similarly, several laminated floor remnants were present against the east wall of HP 7. Thus, failure of excavators or analysts to adequately distinguish between the deposits of the last floor and deposits underlying the last floor, as well as material sloughed off of the walls, must account for some of the non-Kamloops style points cataloged in with the artifacts of the last floor deposits. However, since the flotation samples that were analyzed generally came from the uppermost level of the floor deposits, and since the stone tools and bone elements that were examined for distributional patterning were only taken from the uppermost levels of the floors, we have considerable confidence that these sources of error have not affected the overall patterning of artifacts, especially away from the immediate wall zones.

Another source of mixing may have been derived from the periodic filling with earth and subsequent emptying of the large storage pits in the medium and large sized houses. These storage pits were sometimes over a meter deep and wide. We do not know when they were first dug, but the presence of Plateau points in some of them and a radiocarbon date of 2,060 BP from one pit in HP 7 indicate that many storage pits probably originated during the Plateau horizon. If dirt from these pits

was banked inside the houses when the pits were full of food, it is likely that some artifacts contained in the pit fill could have become mixed with the floor deposits. However, we do not know precisely where such dirt was stored (whether inside or outside the house) nor when these pits were last used. While emptying dirt fill from pits may have contributed to the random "background" occurrences of artifacts across the floor (including occasional occurrences of earlier style points), this source of mixing does not seem to have affected the overall, more robust patterning of artifacts across the floor as indicated by the close association of debitage, FCR, and artifacts with hearth locations and sleeping areas. Thus, prehistoric excavations of soil containing earlier materials may have contributed some items to the floor assemblages, but does not appear to have created any major biases.

Similarly, the prehistoric retrieval and recycling of early point styles from surface finds undoubtedly contributed to some extent to the mixing of point styles in the floor deposits at Keatley Creek. This kind of retrieval and recycling is specifically documented in the region ethnographically by James Teit (1900:241,338; 1909:519,539,645) and Harlan Smith (1899:126-7,137). It is also documented for other regions of North America (e.g., Trigger 1989:28). While this source of mixing might certainly account for the introduction of an occasional earlier point style into an otherwise pure

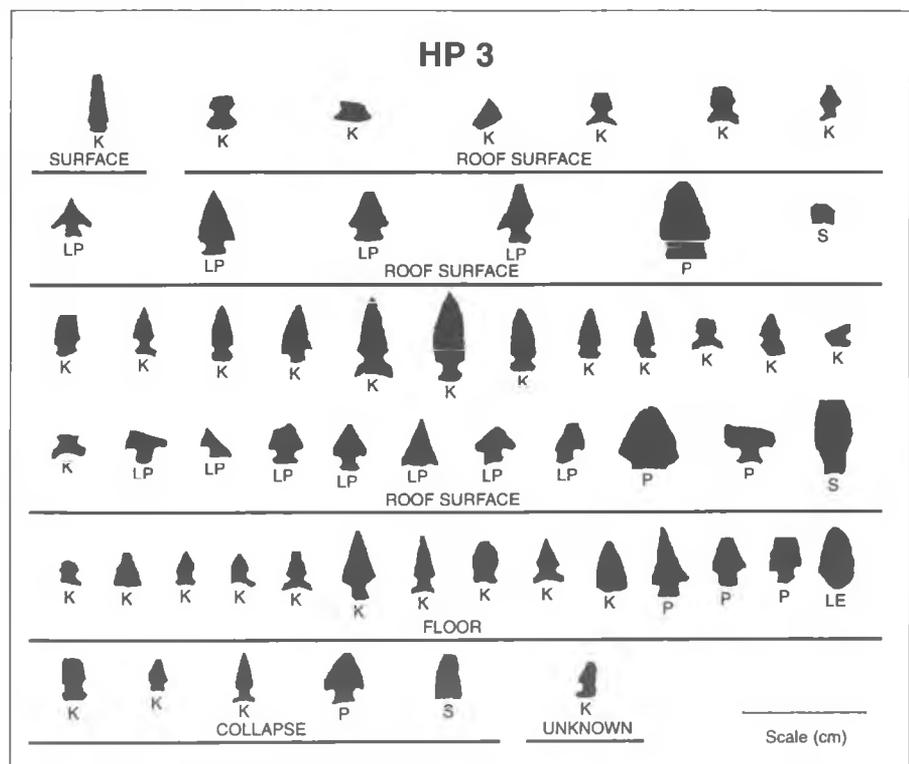


Figure 4. Outline shapes of projectile points from HP 3. Small point fragments are not included and some points are missing from the collection. K = Kamloops point; LE = Lehman point; LP = Late Plateau point; P = Plateau point; S = Shuswap point.

assemblage, it seems unrealistic to assume that it could have accounted for the large percentages of non-Kamloops points documented in HP's 3 and 7. Thus, other factors likely contributed to the formation of these "mixed" point styles in floor deposits.

The final source of mixing that we would like to consider is the possibility that there were actually two projectile technologies being used simultaneously by the occupants of HP's 3 and 7: a bow and arrow technology, and a spearthrower and dart technology. There

are several reasons why it might make sense for both of these technologies to coexist at least for some extended period of time. First, the bow and arrow technology is much more time consuming and difficult to manufacture. In fact, specialists were probably required to produce good functional bows (Prusinski 1993-4). It is also a much higher risk technology since bows and bow strings can break under too much stress. On the other hand, bow and arrows have the advantage of being able to be fired more rapidly, and hunters or warriors are able to carry more missiles with less weight.

Neither accuracy nor ranges seem to differ significantly between bows and arrows, and spearthrowers and darts. Second, given the higher costs and the initial problems of first adoptions, it could well be expected that only certain individuals in any community would be able to adopt and use the bow and arrow initially. These individuals would have typically been the more affluent and powerful members of the community.

A variety of observations support this scenario. It is widely recognized that the bow and arrow did not abruptly replace the spearthrower and dart in the Northwest, or in adjoining areas, or indeed elsewhere in North America. In the Plateau area, Rousseau (1992:102) considers that the bow and arrow was introduced about 1,500 BP (as reflected in the appearance of small "Late Plateau" style points, and that it was used concurrently with the spearthrower for about 500 years, until 1,000 BP when the bow and arrow functionally replaced the spearthrower everywhere and for everyone (see also Fladmark 1986:131-2). Farther south on the American Plateau and in the Great Basin, a similar situation prevailed (Cressman 1977:106; Aikens 1986:20,47), as it did on the Northwest Coast (Pettigrew 1990:523). Blitz

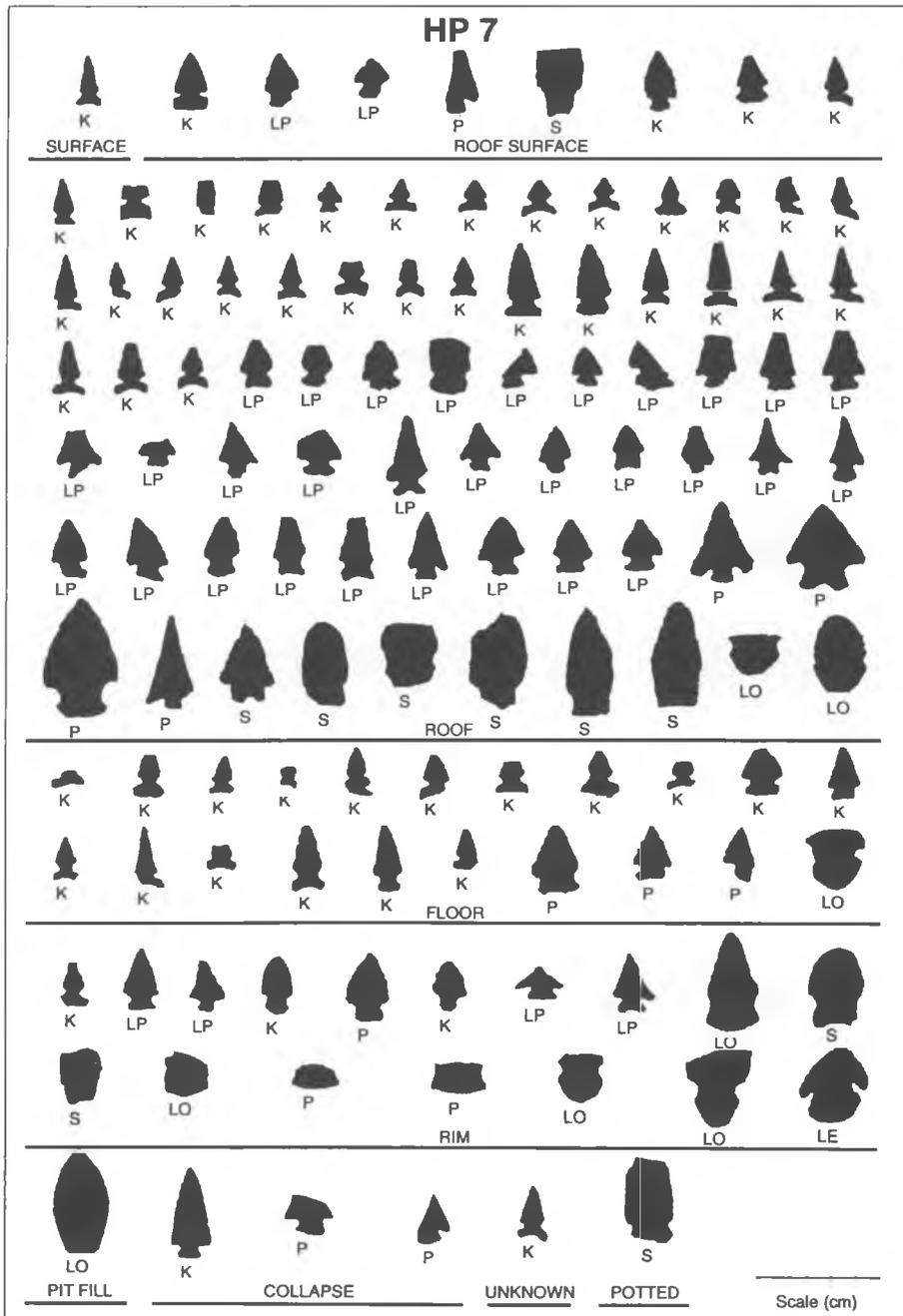


Figure 5. Outline shapes of projectile points from HP 7. Small point fragments are not included and some points are missing from the collection. K = Kamloops point; LO = Lochmore point; LP = Late Plateau point; P = Plateau point; S = Shuswap point.

(1988) and Shott (1993) document similar replacement scenarios elsewhere in North America.

In addition, the two styles of projectile points are distributed in a roughly complementary fashion on the floor of HP 7, the most hierarchically organized housepit that we have fully excavated (Figs. 7 & 8). Plateau spearthrower projectile points occur exclusively in the poor half of the house and do not coincide with occurrences of Kamloops style bow and arrow projectile points (Spafford 1991:134). Moreover, the distribution of key-shaped scrapers on the HP 7 floor (which Rousseau (1992:102) argues are functionally linked to spearthrowers and dart technology), is heavily weighted in the poorer, eastern half of the house where spearthrower technology may have been most common (Fig. 9). This clearly makes sense in terms of the richer and more elite members of a community being the first to adopt new, more costly, and risky technologies while poorer members continued to use less expensive, simpler, more reliable, and more traditional technologies. A similar situation has been recorded archaeologically on the Coast where Ken Ames (personal communication) and Chatters (1989:176-7) have documented the division of houses into elite and nonelite halves characterized by different hunting technologies (see Vol. I, Chap. 17).

Finally, the curious occurrence of Late Plateau (arrow) points only in the *roof* deposits of HP's 3 and 7, but not in the floor deposits, would make sense if they had only been used for a brief period at the initial introduction of the bow and arrow, and had been subsequently replaced by Kamloops points. In this case, full sized Plateau points would have continued to be used as part of the spearthrower technology alongside the subsequent Kamloops points with their bow and arrow technology. Thus, in the last occupation, Plateau style dart points and Kamloops style bow and arrow points could be used in the same house, being deposited as part of the same living floor assemblage. However, because Kamloops points had replaced the Late Plateau style arrow points, the Late Plateau

points would not be found in the floor deposits, but only in the cleaned out previous floor deposits that had been incorporated into the roof or rim deposits. This is precisely the pattern that does occur, i.e., there are no Late Plateau arrow points found in floor deposits. They are all found in roof deposits. The above scenario assumes that Plateau corner notching is more suited to hafting on darts while side notching is more suited for hafting on arrows.

Furthermore, given the differential occurrence of Late Plateau points only in the roofs but not on the floors of HP's 3 and 7, it also seems unlikely that any significant proportion of the overall point assemblage contained in the floor deposits had fallen through the roofs onto the floors during the house occupations; otherwise some Late Plateau points should have occurred in floor deposits.

Thus, both the occurrence of Late Plateau points in the roof but not on the floors, and the predominant distribution of Plateau points in the poorer domestic areas of HP 7, seem to indicate that a large proportion of the Plateau points associated with these floors

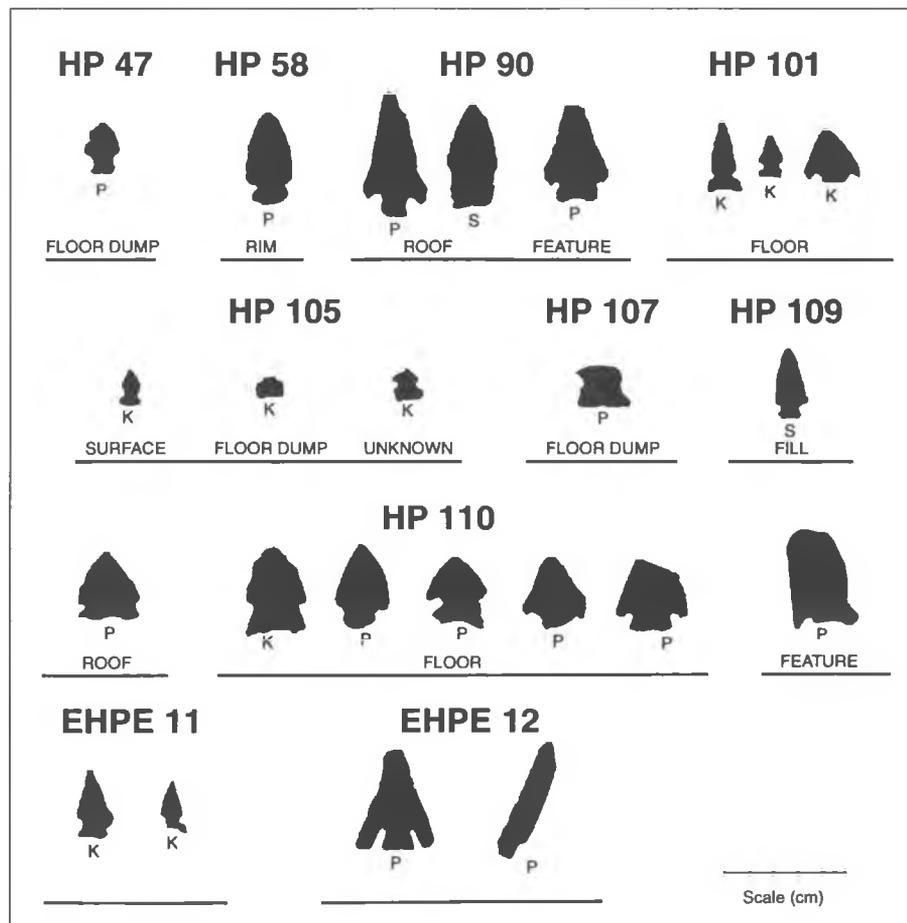


Figure 6. Outline shapes of projectile points from HP's 47, 58, 90, 101, 104, 105, 107, 109, 110, and EHPE's 11 and 12. K = Kamloops points, LE = Lehman points; P = Plateau; S = Shuswap points.

represent the use of the spearthrower technology by some of the poorer inhabitants, while other more affluent members of the same household were using bows and arrows. If this is the case, it is also possible that some smaller, poor housepits containing only Plateau style points in their floors (e.g., HP 90) were actually contemporaneous with some of the larger and wealthier housepits that contained a mixture of Plateau and Kamloops points in their floor deposits.

In sum, it seems likely that retrieval and recycling of earlier points, as well as excavating out pit fill with early materials, and the sloughing off of earlier materials from the midden layers of the inside walls contributed modestly to the mixed nature of the point styles in the floor assemblages. Failure of excavators to clearly distinguish between the uppermost (last) floor and earlier floor levels has added to this mixing in analyses where all points are considered (as in this chapter), but should not have affected other distributional analyses where only the uppermost floor was used in analysis. However, on the basis of the floor areas where Plateau points are most concentrated, and distributions in other strata, it would seem that one of the major sources of the mixed point styles may have

been the coexistence of spearthrower and bow technologies during the formation of the last floor deposits at Keatley Creek, and probably for one or two hundred years preceding that time. Certainly, the strong patterning across housepit floors as documented in the other analyses of stone tools and debitage, faunal remains, botanical remains, and soil chemistry in relation to hearths and sleeping areas display little evidence of any significant mixing of deposits outside of general background random occurrences. Indeed, if there had been any substantial mixing of deposits, it is difficult to see how these artifact patterns could have been created or maintained.

### Rims

Rim deposits were largely formed as the floors of previously occupied or new housepits were cleared by occupants to create a new floor surface (see Vol. I, Chaps. 15 & 17). In general, the sequence of early points (Shuswap or earlier) at the base of the rim, followed by

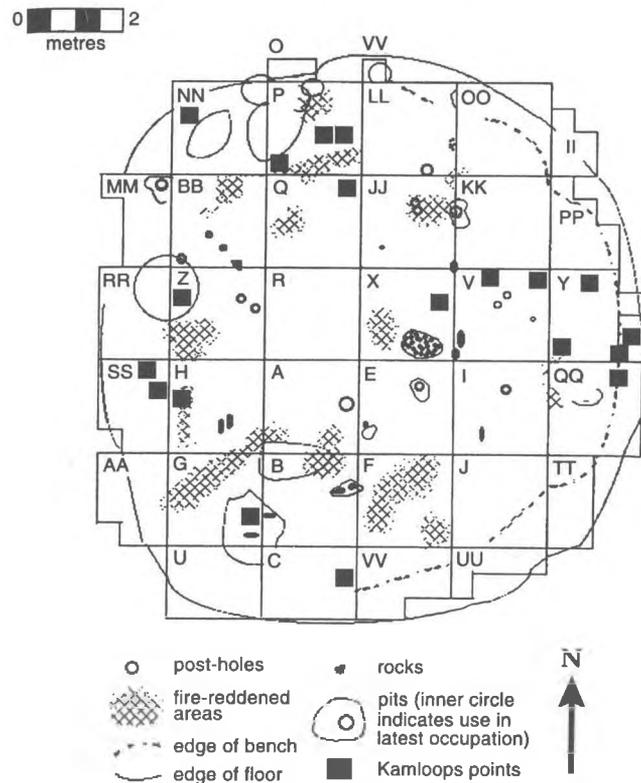


Figure 7. The distribution of Kamloops (arrow) points on the floor of HP 7. Note the general trend of these points to occur on the west side of the house except for one concentration in the eastern sector.

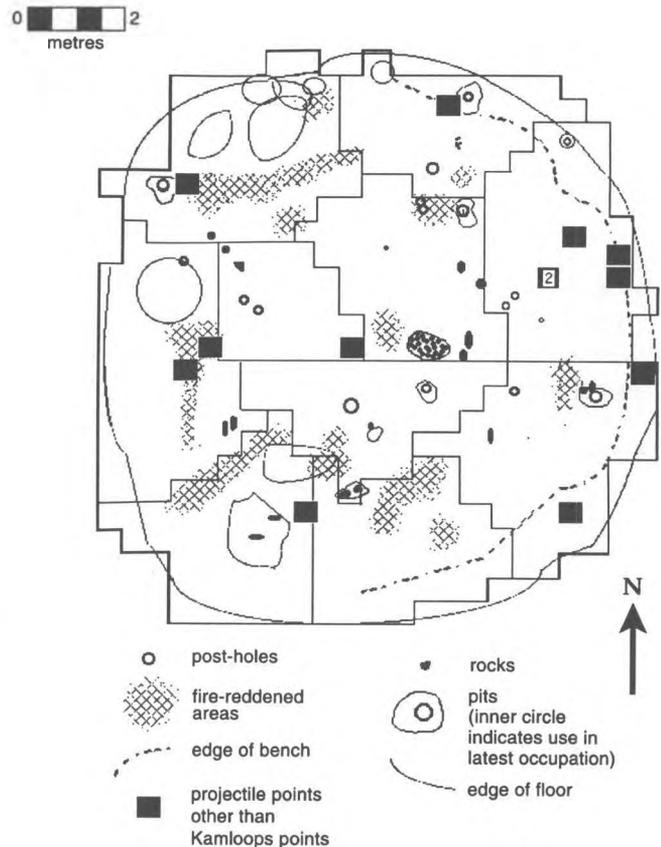


Figure 8. The distribution of non-Kamloops (dart) points on the floor of HP 7. All Plateau points occur in the east half of the floor. Much earlier Lochnore and Shuswap style points are probably present due to chance finds and recycling or due to earlier Lochnore deposits underlying the last floor that were not adequately distinguished from the Kamloops floor.

Plateau points in the middle of the rim, and mixed Plateau, Kamloops, or other points in the upper part of the rim (when dirt roofs presumably began to be used) is evident in all the housepits where rims were intensively tested (see Vol. I, Chap. 15; Table 1). During excavation, the temporal and stratigraphic coherence of the rims seemed to be fundamentally intact although rodent and other sources of turbation have undoubtedly created some vertical mixing.

## Summary

The projectile point types at Keatley Creek conform to the regional types and time periods as established by Richards and Rousseau (1987). In stratified rim deposits, point types generally follow the expected seriation sequences, although occasional points do occur "out of sequence" as might be expected in deposits that were occasionally reworked by digging emplacements for joists and reworked by burrowing animals and insects. Roof deposits were very mixed as expected, and the absolute frequency of points in earth roofs provided a basis for estimating how long earth covered roofs had been in use at the site (about 200 years).

Floor assemblages proved to contain unexpectedly mixed Kamloops (bow and arrow) and Plateau (atlatl and dart) points. Many factors may have been responsible for representatives of both of these technologies being attributed to the same floor deposit. There has undoubtedly been some mixing due to sloughing off of rim material onto the edge of floors and due to excavator errors in distinguishing floor from other deposits. Recycling of old points by Indians is also documented. However, it seems unlikely that these factors would account for the large proportion of Plateau points found in Kamloops floors. We suggest

that the "bow and arrow" and "atlatl and dart" technologies co-existed for several hundred years and probably characterized different socioeconomic classes, with the bow and arrow being preferentially used by higher classes and the spearthrower being largely used by lower classes.

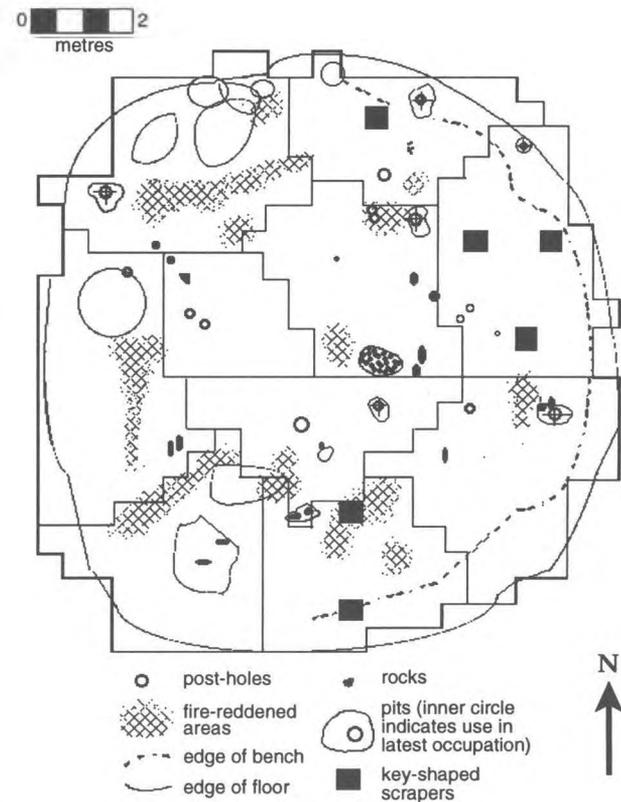


Figure 9. The distribution of key-shaped scrapers on the floor of HP 7. Rousseau (1992) associates these tools with spearthrower darts, and it is interesting that they strongly cluster in the poorer half of the house where we suspect spearthrower technology may have persisted the longest.

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