The Keatley Creek Site and Corporate Group Archaeology*

BRIAN HAYDEN and JIM SPAFFORD

INTRODUCTION

In 1986, Hayden began a programme of excavations which has continued until the present at the Keatley Creek Site (EeRl 7) near Lillooet, B.C. The Keatley Creek Site is one of the most remarkable archaeological sites in British Columbia and deserves to be recognized as a special heritage resource for the province. It is one of the largest village sites in western Canada (perhaps the largest), and the size of the semisubterranean houses is unusual (up to 25 m in diameter). The remains of these structures are clearly visible (unlike many prehistoric sites which lack pronounced surface indications of their existence), and the site is very important for our understanding of the development of complex hunting and gathering cultures. It is also located in a region of special heritage importance, the geographic setting is spectacular (figure 1), and the site can be easily accessed from the nearby highway. Because of land and road developments, there are only three large prehistoric villages left in the Lillooet area, of which Keatley Creek is the largest.

The goal of the archaeological research undertaken at the Keatley Creek site was to determine why this site (like the two others near Lillooet) was so large and why some of the individual semisubterranean housepits were

* We are extremely grateful to Arnoud Stryd for his support, encouragement, and initial insights into the region. The landowner, Mr. J. E. Termuende, and John Termuende of the Diamond S Ranch, the Pavilion Indian Band, and the Fountain Indian Band were all very supportive of our research at the Keatley Creek site and we sincerely thank them. Desmond Peters Senior, Chief Desmond Peters Junior, and Chief Roger Adolph have been exceptionally generous with their time and knowledge and have helped in many ways, as did Trudy and Tony Takacs of the Pavilion General Store. Through their analyses and comments, Karla Kusmer and Dana Lepofsky have made exceptional contributions to our understanding of socioeconomic structure at Keatley Creek. Others who have contributed their excavational, analytical, and support skills to this endeavour over the years are too numerous to mention individually, but I would like to acknowledge and thank them all. Funding over the years was provided by the Social Sciences and Humanities Council of Canada, the SSHRC Small Grants Committee at Simon Fraser University, the B.C. Heritage Trust, and the Simon Fraser University Special Research Projects Fund.

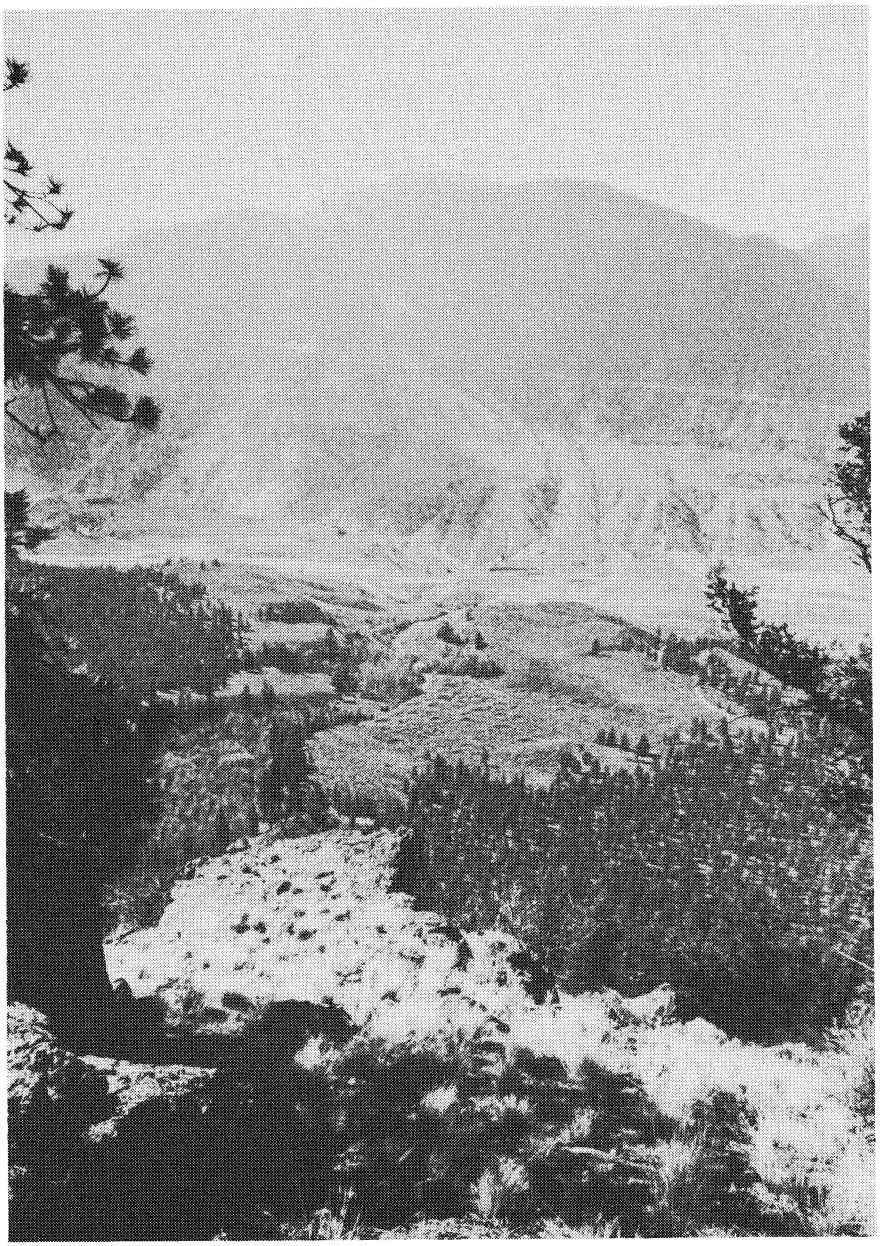

FIGURE 1

A panoramic view of the core of the Keatley Creek prehistoric village site looking toward the Fraser River (in the trench between the terrace formations). The outlines of the larger housepits are clearly visible in the site core.

also unusually big. These investigations built largely upon the previous work in the 1960s of Arnoud Stryd at the Bell site, another large prehistoric housepit site of the same age, only 6 km from the Keatley Creek site (figure 2). It was Stryd (1973) who concluded that the large depressions at the Bell site were in fact residences and that differences in house size probably reflected social inequalities in these prehistoric communities. He also argued for the relative contemporaneity of the three large settlements, an interpretation which subsequent work at Keatley Creek has strongly supported. Through his earlier research as well as his encouragement for research at Keatley Creek, Stryd set the stage for much of the work that began in 1986. Hayden (1977) had a long-standing interest in houses where many families live, referred to as "residential corporate groups" (Hayden and Cannon 1982). The large housepits at the Keatley Creek site provided an excellent opportunity to investigate the residential corporate group phenomenon, and large village size added further interest to the problem.

Although the Keatley Creek site was located in an area where the Shuswap Indian language was spoken at the beginning of this century, intermarriage with neighbouring Lillooet speakers over the years gradually transformed the region into a Lillooet-speaking area (Teit 1906). Both Shuswap and Lillooet languages are part of the Interior Salish language family, and the two cultures are very similar. While individual language groups cannot be distinguished on the basis of archaeological evidence, it seems clear from the stability and distribution of archaeological artifact types in the Lillooet region over the last 4,000–5,000 years that the prehistoric occupants of Keatley Creek belonged to the Interior Salish language family. At this point, we cannot tell which precise language of this family was spoken at the site.

The cultural continuity in the region, and a close correspondence between historical observations and archaeological evidence, indicates that prehistoric seasonal movements were probably very similar to those observed in the last century. On the basis of traditional ethnographies and recent analyses (see chapters in Hayden 1992), it is possible to reconstruct the traditional pattern of subsistence and movements. In the fall, large stores of salmon would be caught and dried along the Fraser River for winter food. After the fishing ended, the major deer hunt of the year took place in the alpine meadows. When cold weather set in, everyone would retreat to winter villages on the terraces of the Fraser River, where fish, meat, and plant foods were stored. During the winter, families lived in pithouses dug partly into the ground and covered with a conical wooden roof on which soil and sediment was piled for insulation, much like the roof of historical

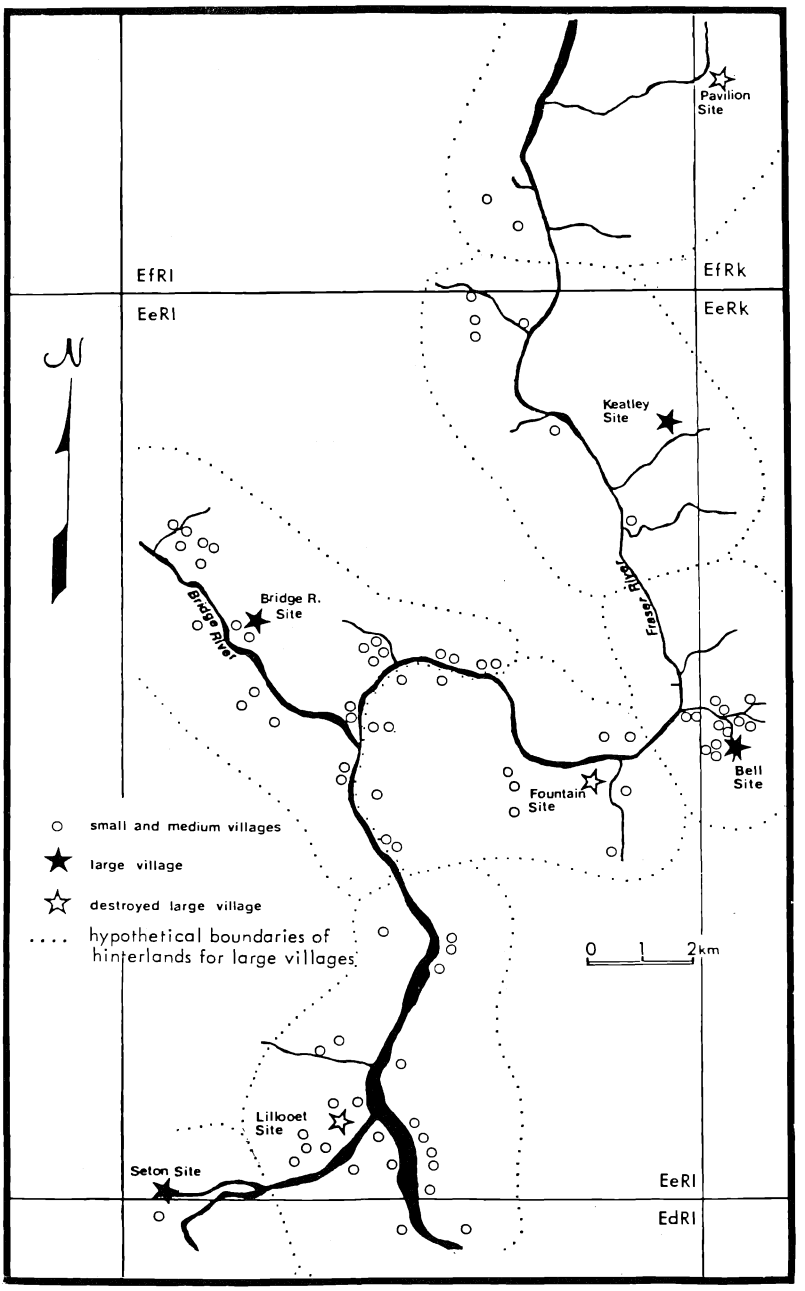

FIGURE 2

Map of the Lillooet area of British Columbia showing the position of the Keatley Creek site and other housepit sites in the region.

sod-covered cabins. Entry was generally via a ladder protruding through the smoke hole of the roof (figure 3); and we think that people were relatively tightly bunched together in these houses for warmth during the frigid winters.

By March, the people were anxious to move into the open and began to look for the first edible plant shoots and bulbs, such as young raspberry shoots and wild onions. Spring was often a time of hunger if winter food stores had been used up, and the first signs of spring salmon were eagerly awaited. When the snows had cleared in the mountains, most groups went to dig spring beauty corms ("mountain potatoes") and mountain lilies, as well as hunt and fish in the mountain lakes (Alexander 1992). In mid to late summer, people gathered saskatoon and other berries as they ripened at lower elevations. By late summer, everyone was back down at the river fishing sites preparing fish for the winter and trading with visitors.

People often came from far distances to obtain dried salmon in the Lillooet region, since this salmon was not oily like fish caught further downstream, and not too lean like fish from further upstream. The dry climate around Lillooet ensured production of dried fish that would not go rancid. Indians from the coast travelled along Harrison Lake, the Lillooet River, and down Anderson and Seton Lakes — the most easily traversed corridor through the mountains — to arrive at Lillooet and trade. Other Indians came from the Thompson River area, or even further south in Washington, and still others came from the north and east. They brought many trade goods from their areas which we find archaeologically.

While we have focused our research efforts on the winter pithouse villages, as has most Plateau archaeology, it is important to remember that these sites represent only one part of the total yearly life of Interior Salish groups. Most seasons were spent in fishing, hunting, and plant-collecting areas. However, archaeologists focus on the winter villages because these sites represent the largest, best-preserved structures and settlements. Moreover, these villages were used as central localities for foods gathered throughout the year, thus providing a glimpse of a wide range of seasonal activities. In contrast to the thin and widely dispersed artifact accumulations in sites in the mountains or nearer the rivers, winter villages have concentrations of artifacts associated with easily visible housepit structures, some repeatedly occupied over thousands of years. The persistence of occupation in the same highly visible locations for long periods not only helps archaeologists monitor changes over time, but also enables us to examine how prehistoric communities were organized socially and economically.

The Keatley Creek site is nestled in a small basin at the back edge of a

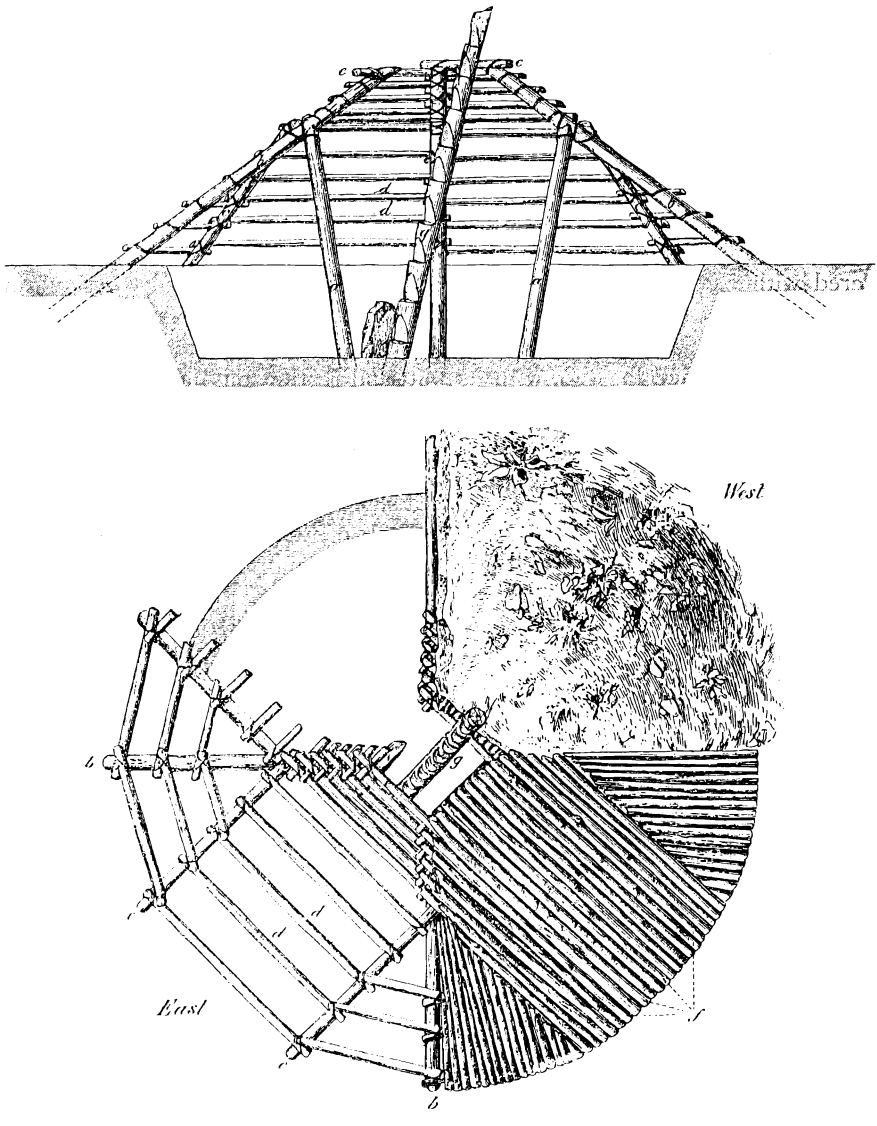

FIGURE 3

A schematic view of housepit architecture (Teit 1900).

Pleistocene river terrace where it meets the mountain slope (figure 1) over 1,200 feet (360 m) above the Fraser River. Such terraces are dry with only sage brush, grasses, and small cacti as ground cover, while pines and Douglas fir cover the mountain slopes. The Keatley Creek prehistoric village contains about 115 residential-size depressions (figure 4) forming a bimodal distribution of sizes with peaks at 7 m and 15 m diameters. We have tested twenty-one of these features as well as thirteen smaller depressions which turned out to be either storage pits, roasting pits, or very small structures. On the basis of these tests, it is evident that many of the *larger housepits* were initially occupied during the Shuswap horizon (2400–4000 BP, using Richards and Rousseau's 1987 classification), and continued to be inhabited during the subsequent Plateau horizon (1200–2400 BP) and into the early Kamloops horizon (beginning at 1200 BP). As Stryd originally observed (1973), all of the large housepit sites in the Lillooet region (i.e., the Keatley Creek site, the Bell site, and the Bridge River site) appear to have been abandoned by about 1000 BP (see Hayden and Ryder 1991 for a discussion of the probable causes for this phenomenon).

Smaller housepits that we have tested were often occupied for much shorter periods, often during the Plateau horizon. However, it would be incorrect to view the site during the Plateau horizon as being composed only of small structures, for our excavations of one large housepit (No. 7) strongly indicate that its greatest size was attained during the Plateau horizon and that its size remained about the same until the site was abandoned. The current interpretation is that the site contained both large and small structures during the Plateau horizon, and that by Kamloops horizon times, the number of small structures had diminished significantly. It is unclear at this point whether this indicates a real reduction in site population, or whether it simply represents an amalgamation of small housepit residents within larger groups.

Other changes that appear to occur from the Plateau to the Kamloops components at the site involve a greater use of earth to cover large housepit roofs in the Kamloops horizon. We find little evidence of earth roof deposits in large housepit rims during Plateau times. Point styles and sizes also change, indicating the introduction of the bow and arrow at the beginning of Kamloops times, although Plateau dart points continue to occur in the best early Kamloops floor contexts. Sometimes the dart points are reworked and have been clearly recycled. However, this is not clear in all cases, and it may be that both spear-thrower and bow technology co-existed in Plateau communities for decades or even centuries before the bow and arrow became the exclusive hunting weapon. Similar co-existence of these technolo-

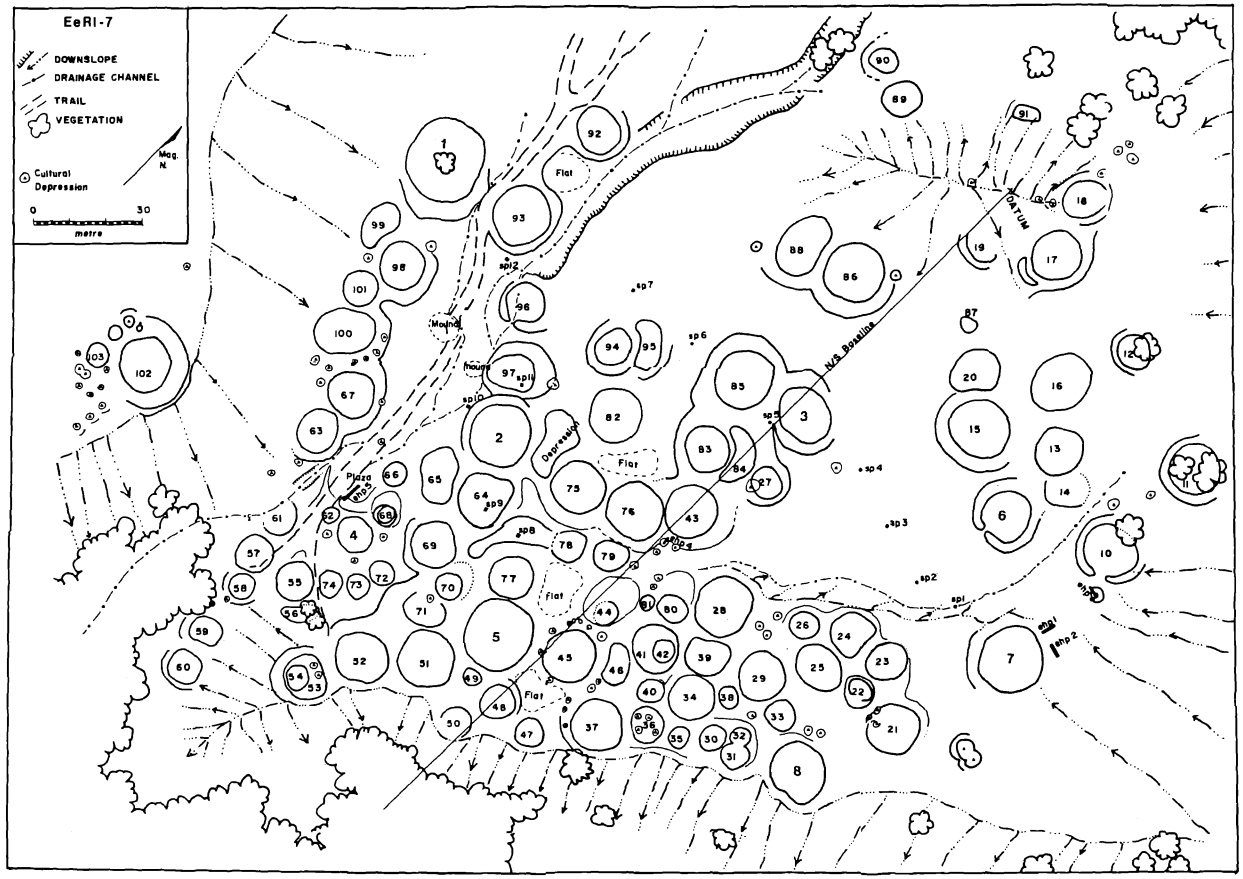

FIGURE 4

Map of the central core of the Keatley Creek site showing the location of housepits and topographic features.

gies occurs elsewhere in North America, such as on the Columbia Plateau and in the Great Basin (Creesman 1977: 106-7; Aikens 1986: 47). The only other notable change between the Plateau and Kamloops horizons is the introduction of the stone tubular pipe in early Kamloops times.

At present there is no reason to assume that the large housepits we tested were abandoned for any significant period of time. If most of these housepits and some of the smaller housepits were occupied contemporaneously at the peak of the settlement size, the site population must easily have numbered 500, and more likely would have been close to 1,000 or even more. This estimate is based in part on Teit's (1906) observations on population sizes of given numbers of dwellings, as well as his estimates for the number of people per pithouse and the size of those pithouses. Combining Teit's observations, the number of domestic hearth units in the larger housepits, and comparative ethnographic observations from other areas with pithouses, we have established with relative confidence that there were only 2.5 square metres of floor space per person at Keatley Creek. This density is typical of pithouses wherever winters are cold (Hayden et al., n.d.).

RESIDENTIAL CORPORATE GROUPS

In order to understand how the houses of large residential corporate groups differed from smaller residences occupied by a single nuclear family or limited extended family, it seemed essential to compare artifact assemblages (preferably from living floors) from a range of housepit sizes. This constituted our immediate excavational and analytical goals. However, before being able to accomplish these goals, it was necessary to develop a clear understanding of site formation processes so that living floor deposits could be reliably differentiated from roof and other types of deposits. Results of sedimentary, faunal, botanical, and artifactual analyses have convincingly demonstrated that living floor deposits can be satisfactorily identified. Perhaps the most convincing testimony in this respect is the very clear patterning of cultural remains consistent with contemporaneous sets of activities, present in identified floor deposits. The details of these site-formation processes will be discussed in subsequent publications.

The research design originally called for the excavation of a number of large, medium, and small sized housepits to investigate their differences and similarities, but practical constraints of time and money resulted only in the excavation and analysis of several small housepits and single examples of medium and large sized housepits. While this is far from a meaningful sample, it nevertheless does provide some indication of the kinds of differences that do occur and which may characterize the various sizes of

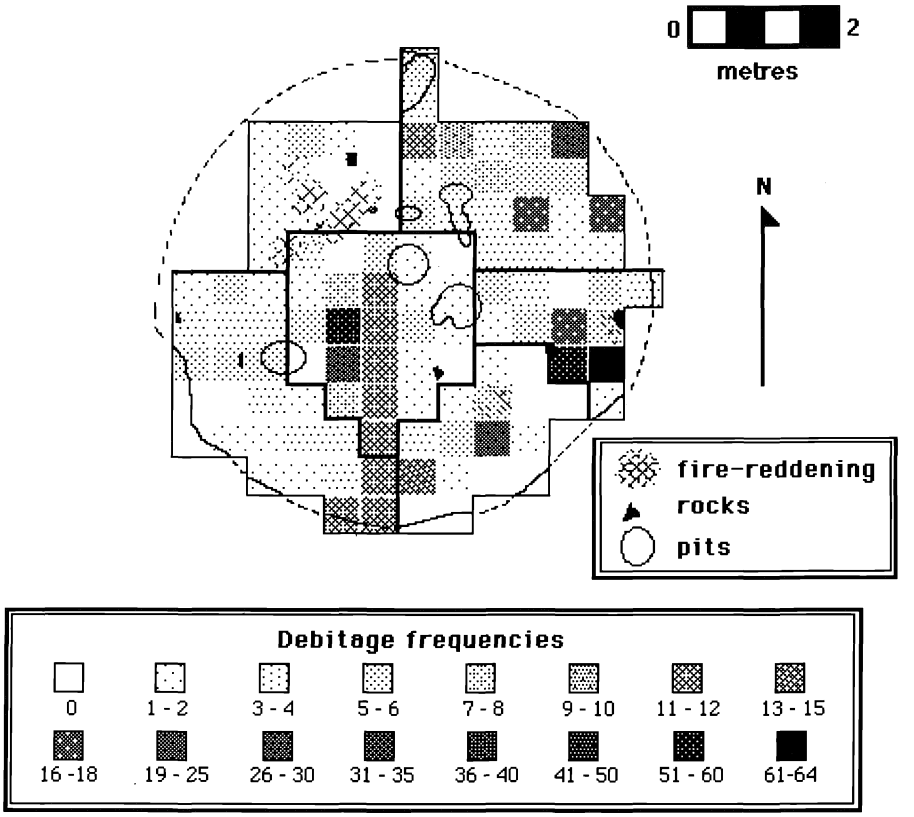

FIGURE 5

Plan view of the floor of Housepit 12 showing the position of hearths and pits and the density of stone debitage. The floor has been divided up into "sectors" (heavy black lines) for analytical purposes; these may represent separate activity or domestic areas.

housepits. Moreover, test trenches in other housepits confirm the trends discovered in the more completely excavated houses. Even given our small sample size, a number of tentative conclusions can be presented about the characteristics of the various size housepits.

Small housepits: Housepit 12 (figure 5) represents the small end of the size spectrum, although it is not the smallest housepit at the site. It is 9 m in diameter from rim crest to rim crest, whereas most small housepits are about 7 m in diameter. On the basis of floor area, we estimate that about nineteen people, divided into about three nuclear families, probably lived in Housepit 12. Occupation occurred either very late in Plateau times or relatively early in Kamloops times, based on point styles, and the occupation span appears to have been on the order of scores of years based on the total numbers of stone tools and faunal remains recovered from this structure, the lack of a developed midden on the rim, the lack of evidence for re-roofing, and the degree of organic staining in the roof and floor deposits. There is little in these deposits to indicate wealth, aside from a broken pipe fragment which could easily have been scavenged. The density of lithics and fauna is quite low, although discoloration of the floor and roof deposits indicates a sufficient occupation for the accumulation of considerable organic refuse. There are no spall scrapers for softening valuable buckskin hides. The only storage pits are relatively small (table 1), and contained exclusively remains of the least desirable type of salmon (pinks) which could have been obtained along most shorelines of the Fraser River (Ian Williams, Nanaimo Pacific Biological Research Station — personal communication).

The hearth in Housepit 12 exhibits only superficial fire-reddening of the underlying till and has very few fire-cracked rocks, which are scarce throughout the deposits associated with this structure. This indicates a small hearth only used intermittently. Poorer families may have been inadequately clothed to venture out in the coldest periods of the winter to obtain firewood, since only wealthy families owned warm buckskin clothes. Poor families had only bark-fibre garments (Teit 1906: 218; Romanoff 1992a: 479). In fact, due to the need for wood in constructing house roofs and for fires, firewood may have been largely depleted within easy walking distance of the site when its population was in the order of 500–1,000. It is possible that clothing and huddling may have been the main strategies for keeping warm during winters rather than reliance on fires, which would have consumed large quantities of wood, given a settlement of the magnitude of Keatley Creek or the Bell site. This model of warming strategies makes sense of a number of observations, including the high

TABLE 1

Storage Capacity by Housepit at Keatley Creek

Housepit	*Total Floor Area (m^2)*	*Total Pit Storage Capacity (in liters)*	*Liters Storage per m^2*
Small Houses			
9	20.5	1,022.5	49.9
12	38.5	771.9	20.1
Medium Houses			
3	78.5	1,747.4	22.3
Large Houses			
7	113.1	7,928.3	70.1

density of people per floor area (one person for every 2.5 square metres of floor which is at variance with estimates made by Naroll (1962) and others (Cook and Heizer 1968) of one person per 10 square metres). The lack of ash and charcoal accumulation above the fire-reddened areas in most small structures that we excavated also makes sense if hearths were only intermittently used. Where hearths were used at all, it may be that they were used for brief periods or for very occasional events. During other times, hearths seem to have been treated as normal floor space with ashes being scattered by people walking over the area. Most foods either needed no cooking or were cooked or smoked before drying and storage. Therefore, fires were not essential for preparing meals and may have been more of a luxury. Excavations at Housepit 90, another small housepit from the Plateau horizon, failed to reveal any hearth whatsoever. Thus, it appears that residents of small poor pithouses burned little or no wood to prepare meals or to keep themselves warm, as a reflection of their lower economic status.

Within Housepit 12, faunal and lithic analysis by Karla Kusmer (1993) and Jim Spafford (1991) have demonstrated that the floor space was organized into several activity areas where residents performed different tasks. Thus, there is one area for butchering or eating adjacent to the single hearth, areas of debitage and tool concentrations (figure 5) that do not overlap with the faunal concentrations,[1] and areas where almost nothing is found. The low number and diversity of plant taxa remains recovered from this structure indicate an impoverished use of plants compared to

[1] Final faunal distribution maps are currently in preparation.

other structures (Lepofsky 1993). There is no indication of any hierarchical organization here nor any indication of wealth. Spafford (1991) has argued that the apparent communal use of space in this small housepit probably reflects a relatively communal social organization among the resident families. We would emphasize that this dwelling was not among the very smallest at the site, and the fact that it had a substantial roof involving considerable labour expenditure may indicate that the residents were not among the very poorest of the settlement. Poorer families or individuals may have lived in still smaller dwellings, or perhaps in dwellings without any substantial earth roof, or perhaps they were attached to some of the more wealthy house owners as servants. We also tested several small cultural depressions from 3 to 6 m in diameter, lacking earth roof deposits, but which were clearly structures. Whether these represent women's seclusion huts, shelters for the poorest families, shelters for isolated individuals, or some other type of structure could not be determined from our tests.

While the above observations on Housepit 12 may well prove to typify one class of small housepits, it is also clear from excavations at other housepits that there was considerable variability in the social, economic, and probably ritual status of residents of small housepits. Some residents of small pithouses probably resided in small structures because they were poor, but other relatively well off families appear to have stayed in small structures by choice or because of their special roles. We specifically refer to Housepit 9, located on the southern periphery of the settlement, across the Keatley Creek ravine from the main part of the settlement. This housepit is only 8 m in diameter, and has an artifact density comparable to that of Housepit 12. Yet there are many striking differences, including the presence of a very large storage pit almost 90 cm deep — a size that has so far only been found in the larger housepits elsewhere. There is also a series of small but well developed hearths, including an excavated and stone-lined hearth — the only such hearth recovered from a housepit floor at the site. Unusual lithic artifacts consisted of the largest pieces of ground nephrite found at the site, as well as a broken soapstone pipe. There are also numerous unusual faunal elements, such as the largest number of worked antler pieces at the site, including a split and bevelled piece of antler over 40 cm long and the only two digging-stick handles found at the site. Housepit 9 also yielded the only loon and bald eagle bones found at the site (probably for ritual use according to Kusmer 1993), unusually numerous bighorn sheep remains, the most dentalium shells from any house at the site, plus numerous pieces of other shell including a worked piece of ocean mussel shell, and many beaver incisors. The numerous salmon bones also recovered

have not been speciated yet and the botanical analysis is still in process. The peripheral location of this housepit and the unusual faunal assemblage indicate some type of specialized status, possibly that of a hunter (Romanoff 1992a emphasizes the very special status of hunters in the Lillooet region), or a ritual specialist. The fact that this structure was not burned at abandonment like the others at the site is another distinctive feature. Analysis of the artifacts has not been completed.

While there appears to be considerable economic variability within the small housepit size category, all such structures excavated to date appear to be characterized by a scarcity or absolute lack of interior structural postholes. This seems to indicate that any interior posts were simply set on the surface of the floor (which seems unlikely given the risk of knocking such posts out of position), or that all structural posts were set on the rim of the pithouses, much as ethnographic winter lodges in the mountains were constructed (see Alexander 1992, Keddie 1990). This is a considerably different type of architecture than Teit (1900) illustrates as being the typical pithouse (figure 3).

Medium sized housepits: Only one housepit (No. 3) has been excavated in this size class. It measures 14 m from rim crest to rim crest. We estimate that about thirty people, representing five to six nuclear families, resided in this structure. The housepit was occupied from Shuswap to Kamloops times, judging from the material in its very substantial rim deposits, although occupation may not have been continuous. The social and economic organization of this housepit is not as distinctive or easily interpretable as the small housepits or the very large housepits. Artifactual, botanical, and faunal densities are greater in this medium sized housepit than in the poor types of small housepits, reflecting in part a longer occupational history, but in some cases (e.g., botanical and salmon remains — Lepofsky 1993; Berry 1991) clearly reflecting greater economic activity and greater access to food or other resources. The notion that residents of this medium sized housepit were moderately well off is supported by the occurrence of a number of wealth items such as fragments of nephrite, copper sheeting, soapstone pipes, graphite, decorated bone, (although dentalium shells are lacking), obsidian, and hawk bones. There are also spall scrapers for making buckskin, moderately sized storage pits (table 1), and several distinctive hearths. The salmon species represented are predominantly low status pinks; however, some four-year-old salmon (i.e., probably sockeye) are also present. This indicates some access to moderately good fishing locations, according to the analysis carried out by Kevin Berry (1991).

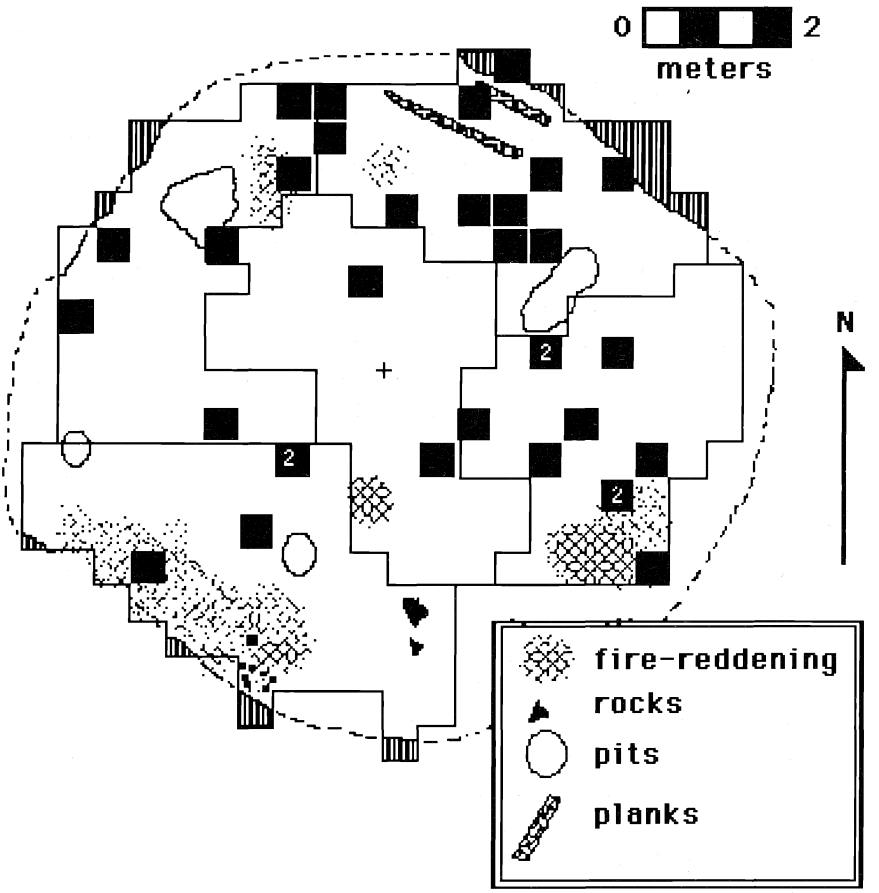

FIGURE 6

Plan view of the floor of Housepit 3 showing the position of hearths and the distribution of heavily retouched scrapers (black squares). The floor has been divided up into "sectors" (heavy black lines) that may represent separate domestic units or activity areas.

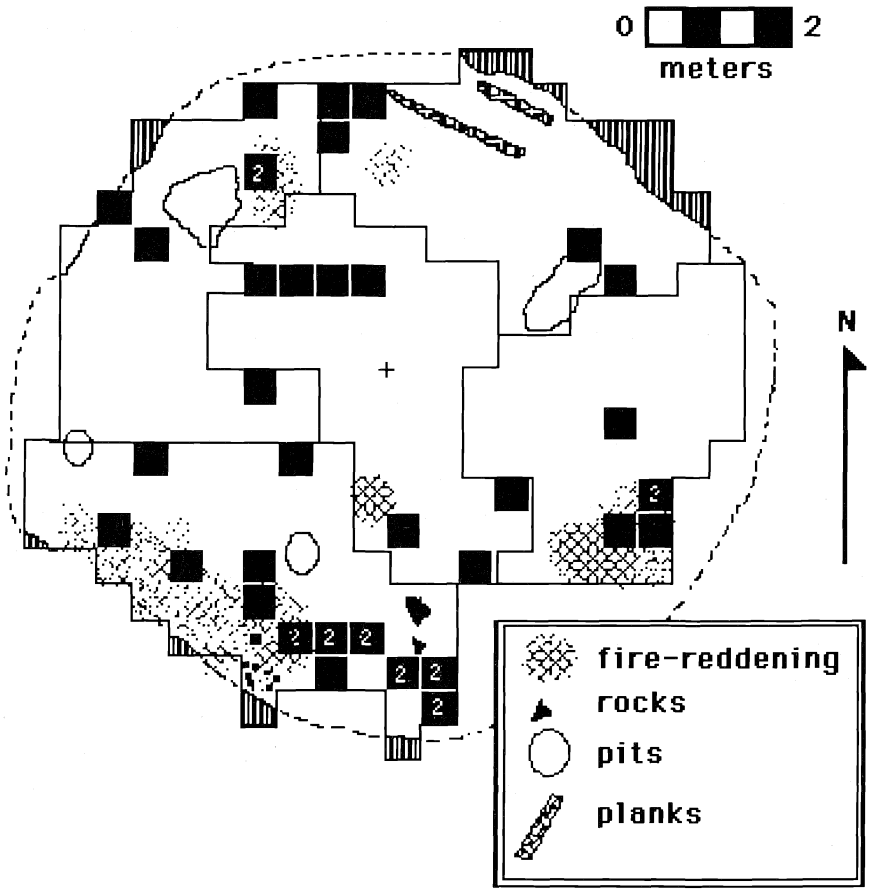

FIGURE 7

A plan view of the floor of Housepit 3 showing the distribution of utilized flakes (black squares) on the floor. Note that utilized flakes exhibit a complementary distribution to heavily retouched scrapers.

The living floor can easily be divided into four peripheral sectors based on the spaces between the four major support posts, plus a central sector. Spafford (1991) has noted that some features seem to reflect a relatively communal, non-hierarchical organization: the principal hearth in the central zone, the single concentration of fire-cracked rock, the opposing parts of the floor where utilized flakes versus scrapers are concentrated (figures 6 and 7), the arc-like zone of faunal remains to the north of the central zone, and the distinctly separate concentration of food plant seeds identified by Dana Lepofsky (1993) south and north of the central zone. On the other hand, Spafford's analysis also clearly shows that each of the four peripheral sectors have separate clusters of lithic debitage (figure 8); each sector has an abrading stone and a small, ephemeral hearth; and about 50% of all the tools found in each peripheral sector occur in the same proportions. Lepofsky's analysis shows that Douglas fir and pine needles were used near the walls in all peripheral sectors, presumably for bedding. These occurrences imply separate domestic spaces. The sectors differ significantly (statistically) in terms of their proportion of cherts to vitreous trachydacites and in terms of unusually high proportions of expedient scrapers and knives, utilized flakes, curated scrapers, and arrow points. Whether these differences should be interpreted as manufacturing and craft differences between the various families resident in the housepit, or whether these differences in part represent the use of some of the peripheral sectors for special activity areas is not clear at present. The heaviest concentration of debitage is in the northeast sector, where afternoon light would be expected to be the strongest and where people may have preferentially gone to knap stone. In contrast, food seeds and utilized flakes concentrate in the southwest, nearest the main hearth, but also in the darkest part of the housepit.

Do these differences make most sense in terms of areas conducive to certain types of activities, or in terms of specialized economic roles of families? Spafford has made a convincing argument for a basic sexual division in the use of space in opposite parts of the structure (northeast versus southwest). If this was the case, it is not clear where individual families would have slept, or whether certain domestic sleeping areas might also have been used as specialized manufacturing areas. More comparative floor plans are required to resolve these issues. However, the unusually high occurrence of arrow points in the northwest sector, together with unusually high proportions of cherts, chalcedonies, and obsidian, is difficult to interpret as an activity area and seems more likely to represent the domestic area of an unusually active hunter. This is also the sector where the largest

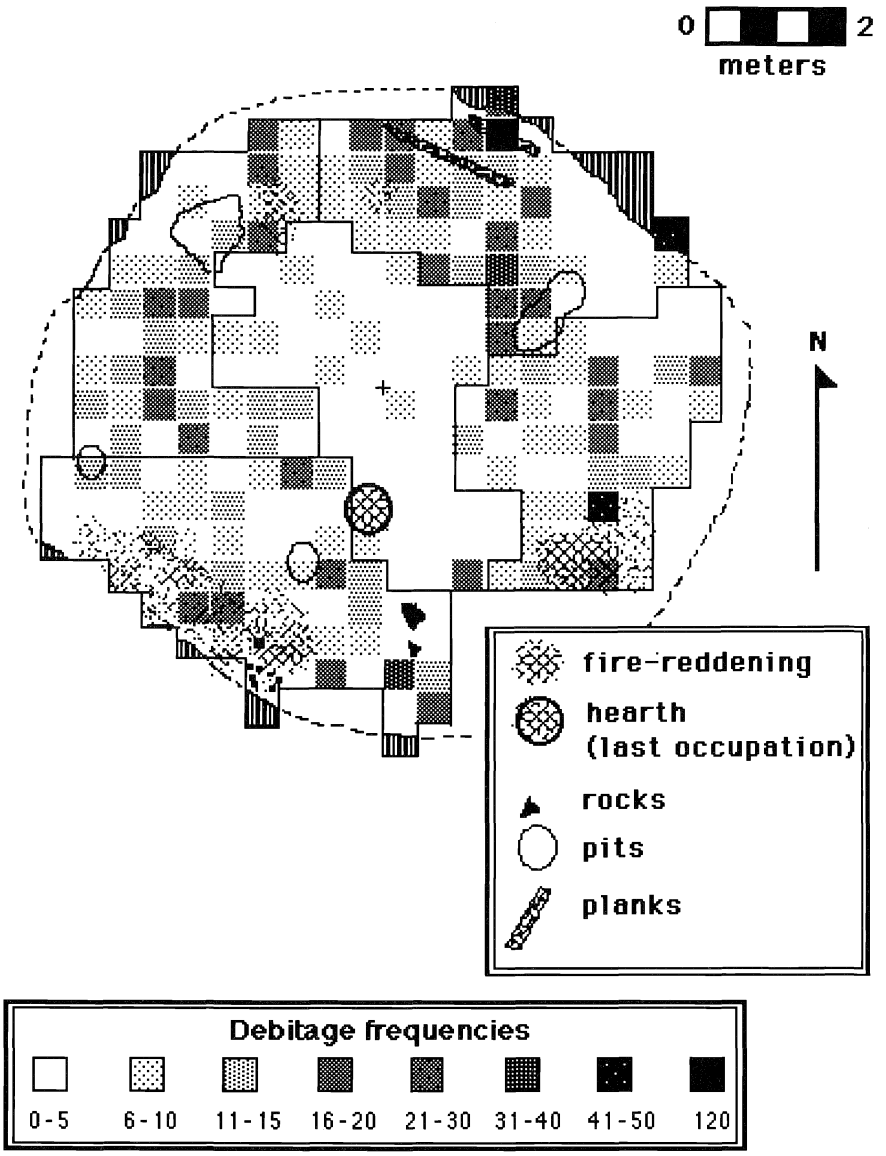

FIGURE 8

Plan view of the distribution of debitage on the floor of Housepit 3. Note that separate areas of high density occur in each separate sector and cluster around peripheral hearths.

of the two storage pits in the house is located. It is possible that some status difference is represented by these indications, but if so, it is relatively subtle and inconclusive.

One very unusual feature of this housepit was the recovery of a number of carbonized fragments of planks arranged along the northeast wall of the structure. These were made of poplar or cottonwood and Ponderosa pine, and were presumably part of benches or sleeping platforms constructed against the walls. The central area of this housepit was kept relatively free of artifacts, faunal remains, and botanical materials. The artifacts that do occur in the centre emphasize expedient knives and notches. This, more than any other sector, seems to represent a communally used area for activities requiring large amounts of space and/or passage from one part of the structure to another, as well as for ingress and egress through the smoke hole.

In sum, the residents of Housepit 3 seem to have had some access to desirable fishing locations (perhaps they owned one or more fishing sites of lesser importance), to have exploited plant resources more widely, and to have had more access to animal resources than residents in the poorer small housepits. They obtained some wealth items, but there are a number of indications that separate hierarchically organized families were not very developed. Instead, there appears to be considerable emphasis on the communal use of areas inside the house and communal involvement in activities by most or all house residents (possibly along sexual lines) whether preparing meat, knapping stone, processing plants, eating, or storing food.

Large housepits: The large housepit that we excavated (No. 7) provides the strongest contrast and the most pronounced difference to the smaller, poorer type of housepits. Housepit 7 is 19 m from rim crest to rim crest, and is estimated to have housed at least forty-five people, perhaps organized into as many as eight separate domestic units. It was occupied from Shuswap times until the abandonment of the site. On the basis of pit locations, remodelled postholes, and intact rim deposits, this housepit seems to have attained its maximum size during the Plateau horizon. There are also indications of earlier occupations containing microblades under the rim deposits of this housepit. These earlier occupation remnants do not appear to be associated with an excavated structure, although this is not impossible to rule out.

Compared to other sizes of housepits, this large residence seems to have been a veritable "powerhouse." It has far greater total numbers and densities of artifacts, botanical remains, and faunal remains. In fact, faunal remains are three times denser than in Housepit 3. It has multiple hearths

that are large and deeply fire-reddened, as well as abundant fire-cracked rock. The storage capacity per capita is far greater than any other size housepit (table 1). There is a much greater diversity of salmon species represented, (35% are composed of three- and four-year-old fish; the rest are two-year-old pinks), and there is a wide array of wealth items and exotic faunal remains.

Wealth items include fragments of nephrite (possibly from pendants), soapstone pipes, dentalium shells, a small zoomorphic carving, decorated and shaped bone, elk-tooth pendants, a shell bracelet cut from purple-hinged rock scallop, a tubular copper bead, and eccentric chipped-stone pieces. Quartzite hide scrapers used in the manufacturing of buckskin are far more common in Housepit 7 than anywhere else. Hayden (1990a) has argued elsewhere that buckskin was a wealth item of great importance in the Lillooet area (see also Teit 1906).

There is a much greater emphasis on artiodactyls (deer and/or sheep) in Housepit 7 than in Housepit 3. A number of species are unique to Housepit 7, including many imported and prestige species such as: fox, bear, lynx, moose, fisher, whelk, and the purple-hinged rock scallop mentioned previously. Ethnographically, fur-bearing pelts were used by wealthy individuals (Teit 1906). In addition, there is a remarkable collection of eight domesticated dog skulls, disjointed dog body parts and an entire dog buried in two adjacent storage pits in Housepit 7. There is a strong possibility that domesticated dogs were also status items. An additional domestic dog skull was found lying directly on the floor in the central zone of the housepit, reinforcing the impression of a special status for dogs in Housepit 7.

Thus, there are a number of indications that the residents of the large housepit were economically better off than residents in the other size pithouses. When we examine the internal organization of space, we find evidence of a very different kind of organization from that apparent in small and medium sized housepits. In the large housepit, instead of a single hearth and communal activity areas, there are a series of separate domestic units, each with its own hearth, abrading stones and anvil stones, its own cooking rocks (fire-cracked rocks) (figure 9), its own cluster of debitage and tools (figure 10), its own bedding material near the wall (Douglas fir needles, pine needles, and grass), and in the clearest cases, its own storage pit. These hearths are arranged in a concentric ring about 2 m from the structure's wall. The central area of the house may have been in part used communally, although there is a vacant area in the south-central zone largely devoid of artifacts, botanical remains, and faunal remains. This

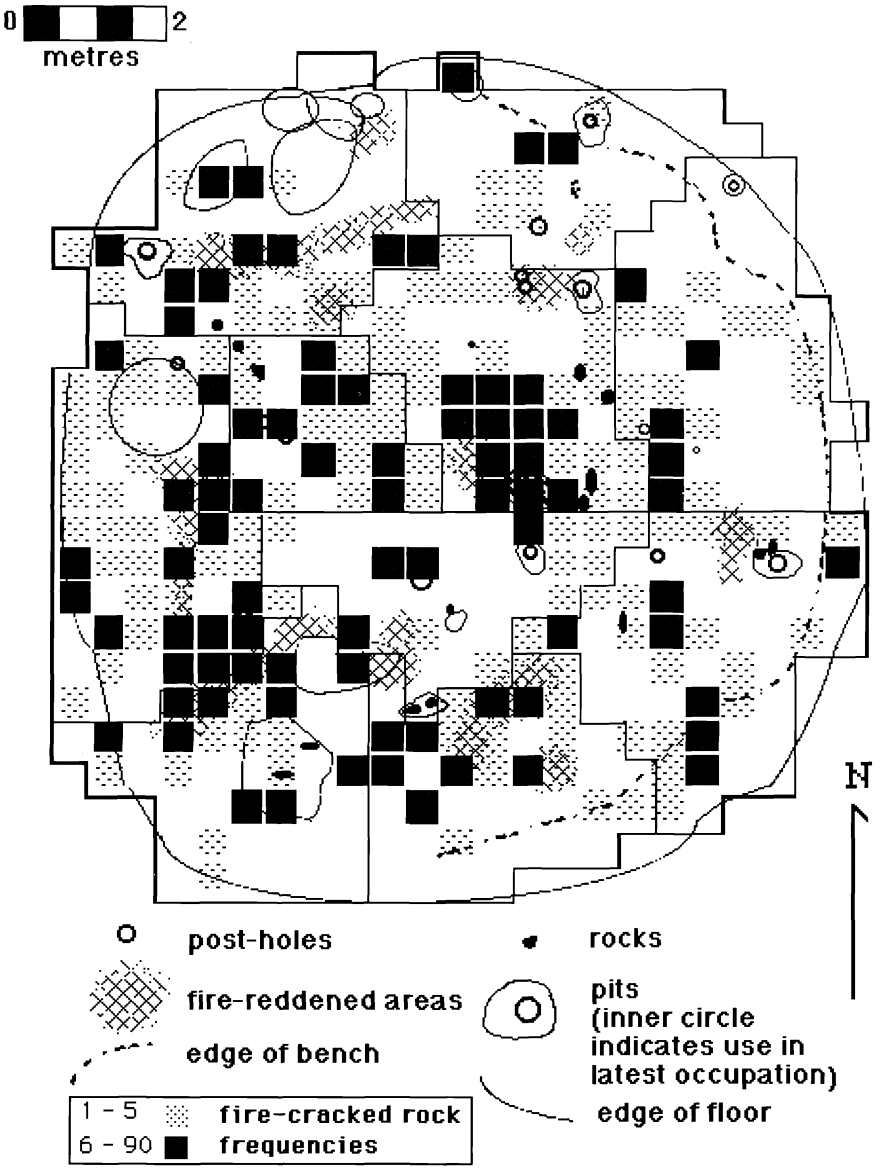

FIGURE 9

Plan view of the floor in Housepit 7 showing the position of hearths and the clustering of fire-cracked rock (cooking stones) around the hearths. The floor has been divided up into "sectors" (heavy black lines) that probably represent separate domestic units centred around separate hearths and concentrations of fire-cracked rock with debitage (see figure 8), or in some cases probably represent activity areas.

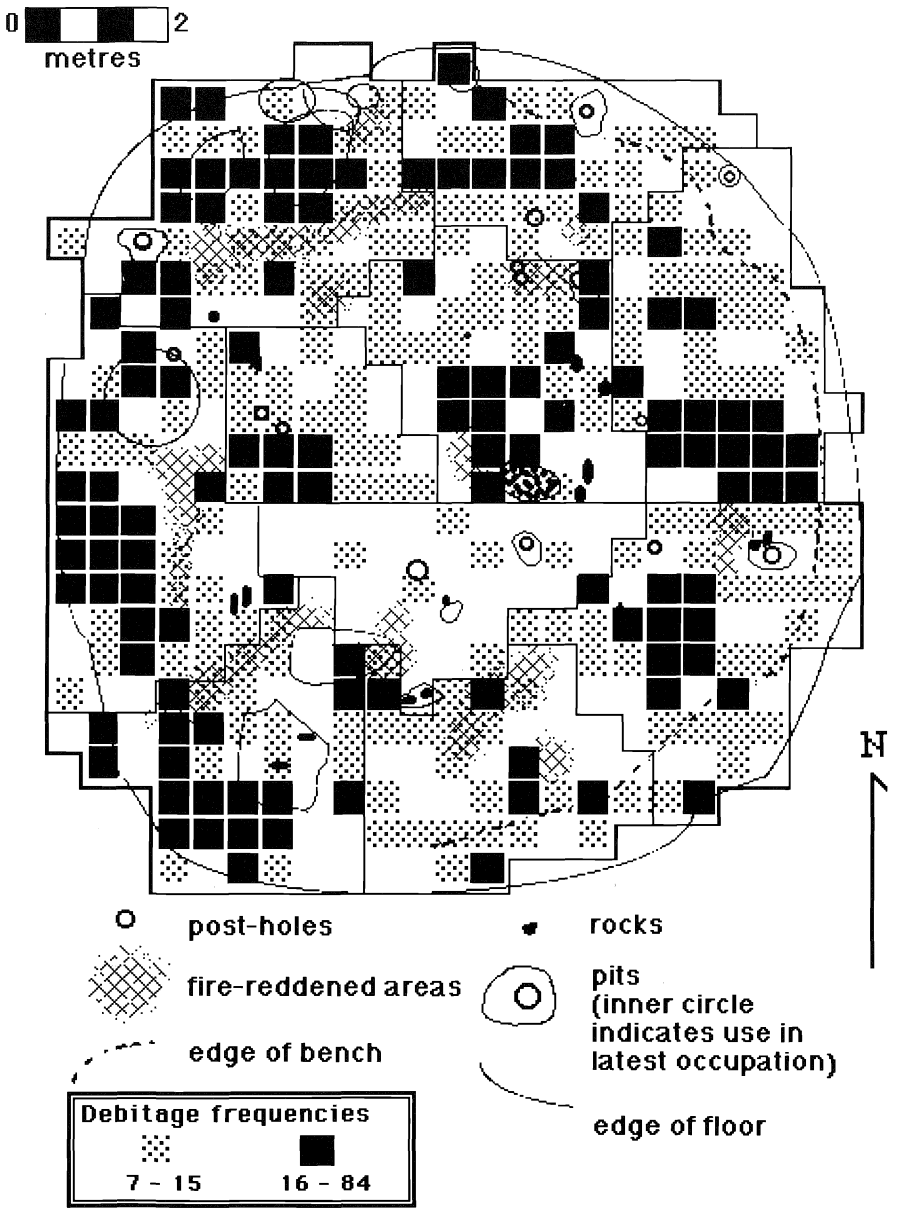

FIGURE 10

The distribution of debitage on the floor of Housepit 7. Note that debitage clusters around hearths, especially in areas between the hearths and house wall, while fire-cracked rock tends to concentrate on the opposite (centre-facing) side of the hearths.

vacant area may have been either a high-traffic area for ingress and egress via a smoke hole ladder, or a ritual area proscribed for mundane use.

This pattern of individual domestic-unit hearths is most pronounced in the west half of the housepit where the hearths are unusually large, fire-reddening is well developed, and hearths are associated with large storage pits. Similar patterning also occurs in the east half of the house, although the hearths are much smaller and poorly developed and there are no large storage pits. There are two likely interpretations of this patterning. First, it is possible that domestic groups were divided into two sectors: a dominant controlling sector with dominant families residing in the west half of the house versus a poor sector of commoners, servants, and slaves that resided in the east half of the house and had less access to firewood and stored food resources. Interestingly, almost all the cores and charred seeds recovered in the housepit came from the western half of the house indicating their possible use or control by the highest-ranking families in the house. A second possibility is that *all* families resided in the west part of the structure and that the hearths with cooking rocks and artifacts in the east represent special-activity areas. This last scenario does not appear likely in view of the similarity of artifacts, debitage, cooking rocks, anvils, abraders, and concentrations of conifer needles near the walls associated with the hearths in the east half of the house. These artifact and feature associations are the same as clearly identifiable domestic units elsewhere in the house. Nevertheless, some areas near the eastern wall where hearths are lacking may have been used as special-activity areas. Because of slumpage and water-deposited sediments along parts of the eastern wall, these sectors would certainly have been the least desirable places to sleep. There are two small hearths in the central part of the floor and here, too, it is difficult to determine if these represent domestic versus specialized activity areas. Food-plant remains are concentrated in only two areas of the floor, which may indicate that some activities could have been communally carried out by activity groups involving many of the women of the house.

Fifty per cent of all the tools associated with all hearth areas occur in the same types and proportions. This underlying similarity is probably enough to indicate that the same basic set of activities was carried out around each hearth, with variations due to individual propensities, aptitudes, and economic specializations. The tool similarity, plus the occurrence of anvils, abrading stones, discrete clusters of cooking rocks, and discrete clusters of debitage around each hearth (figures 9 and 10, and in the case of western hearths, the occurrence of storage pits), indicate that these hearths in the eastern sectors were separate domestic units rather than separate activity

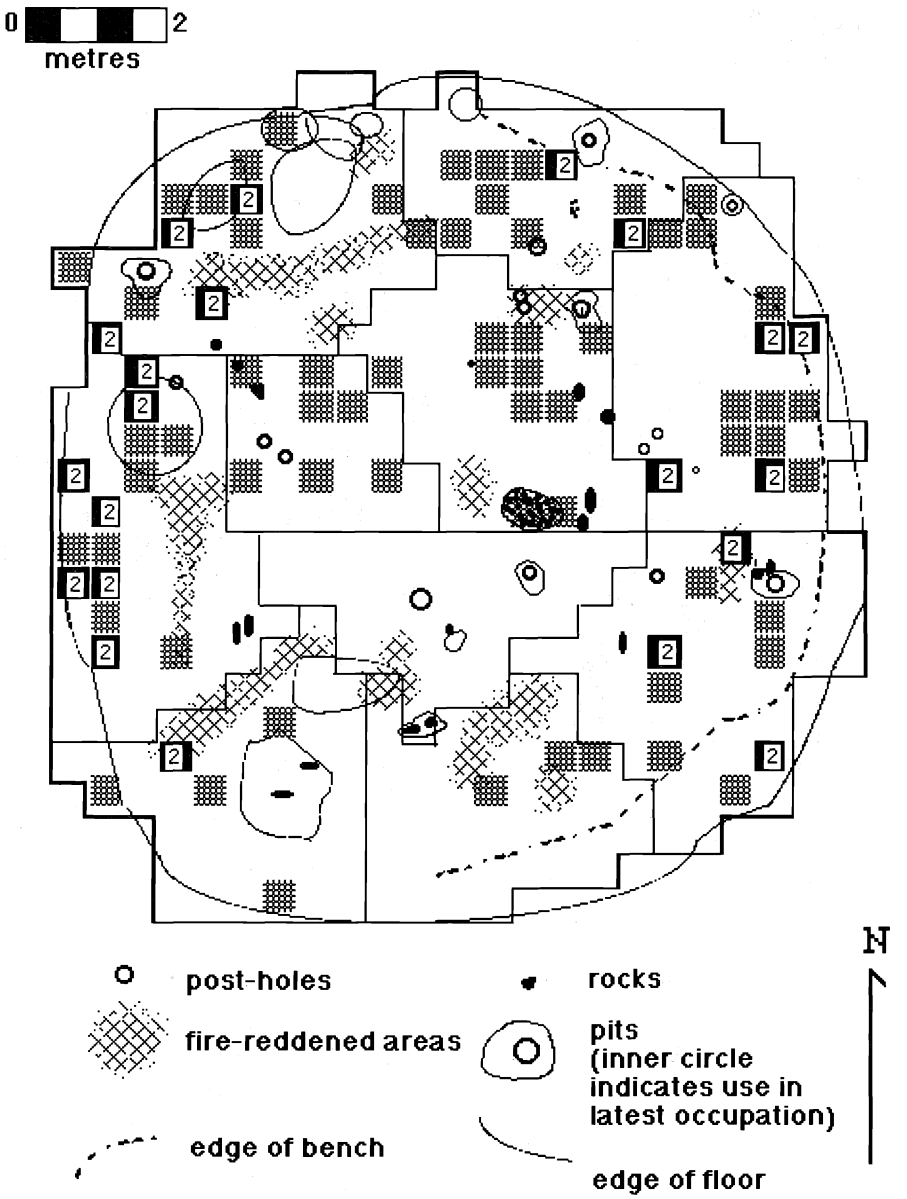

FIGURE 11

The distribution of heavily retouched scrapers on the floor of Housepit 7. Note that these tools strongly cluster along the wall, while other tools like biface fragments strongly cluster in the centre of the house floor (figure 10).

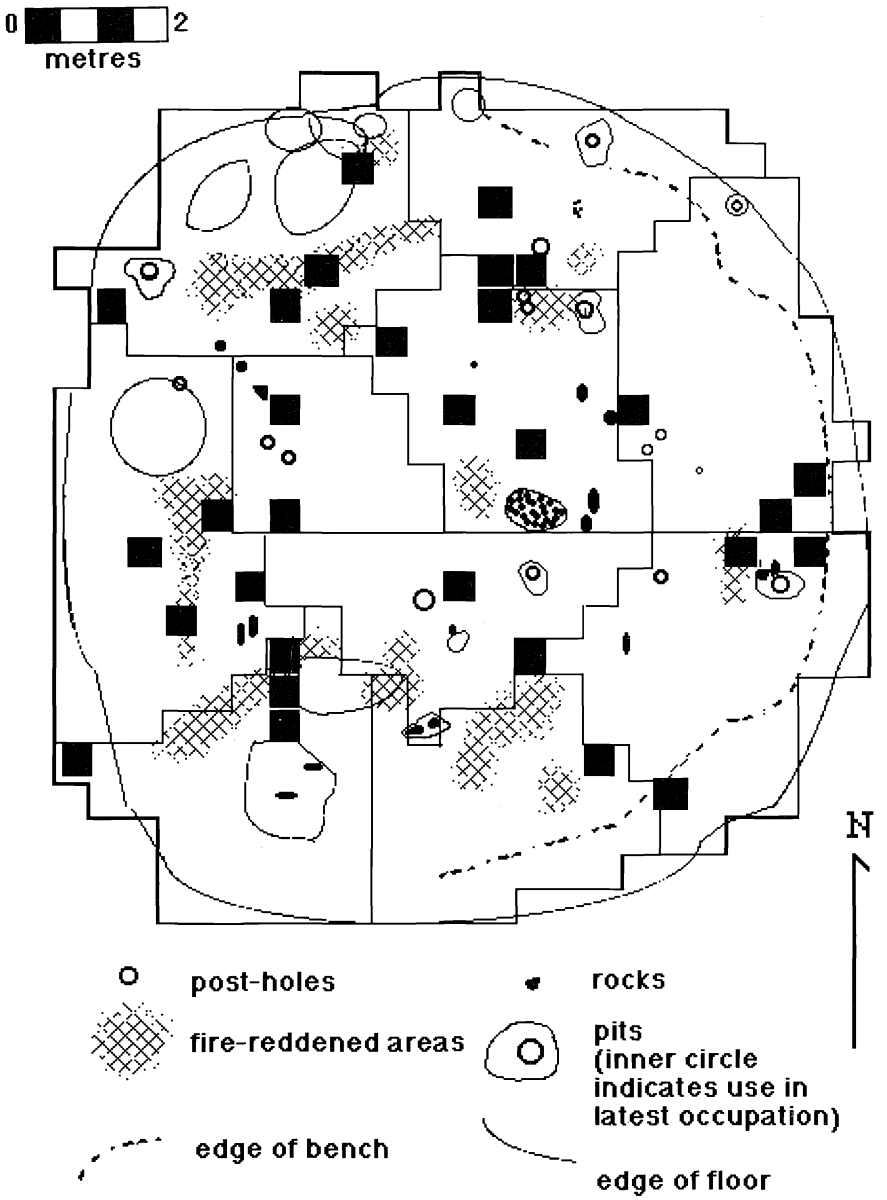

FIGURE 12

The distribution of biface fragments and bifaces on the floor of Housepit 7, showing their complementary occurrence to heavily retouched scrapers (figure 9).

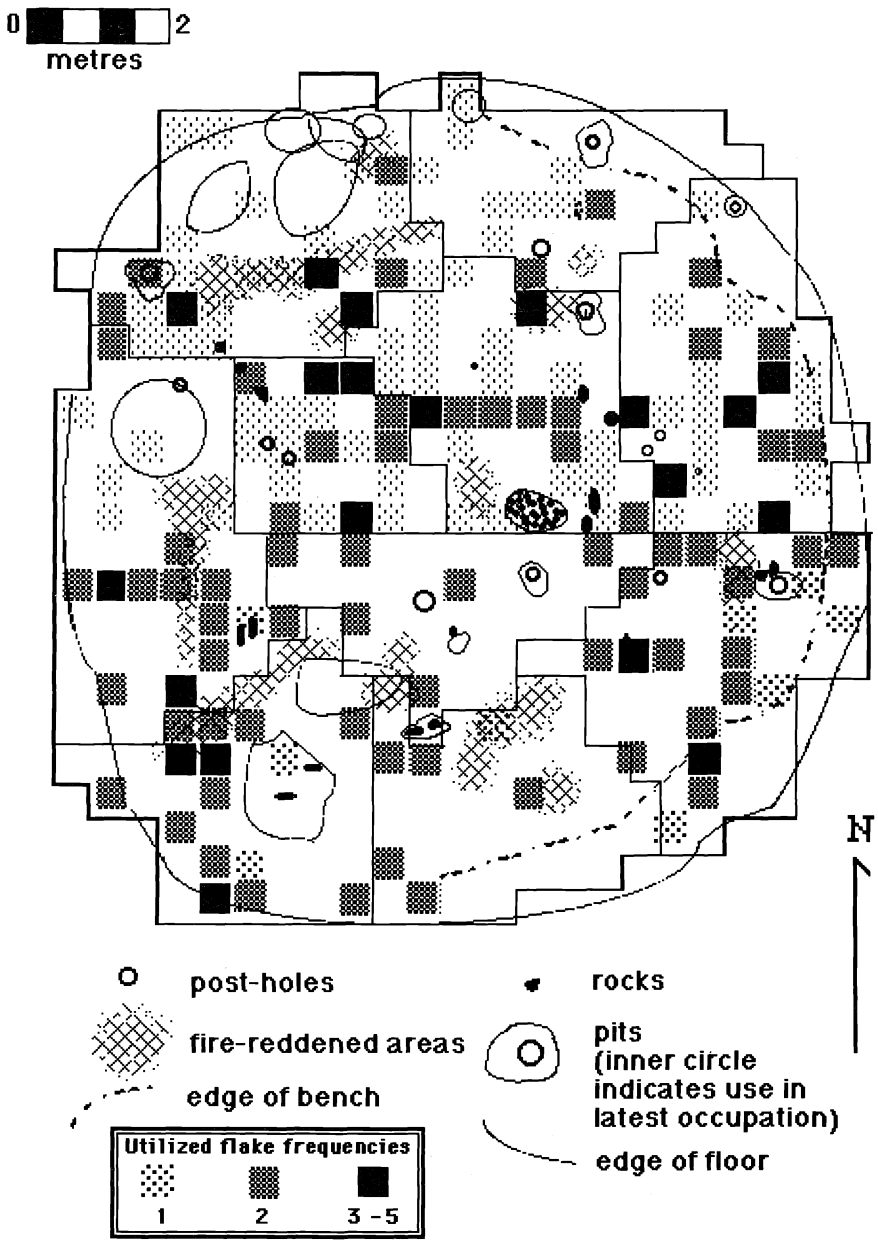

FIGURE 13

The distribution of utilized flakes on the floor of Housepit 7. As was the case in Housepit 3, these tend to occur most frequently in areas where heavily retouched scrapers tend not to occur.

areas. However, it is not impossible that some of the sectors in the east, especially the least desirable sleeping locations, might have been used preferentially for some activities, as the absence of a hearth in one sector and the occurrence of a cluster of beaver incisors may indicate. Even in this case, though, the incisors might equally well be debris from a part-time specialist working in his own domestic area. The same may be true of the central parts of the floor associated with hearths and clusters of debitage and cooking rocks.

In addition to the existence of separate domestic units exhibiting significant wealth or power differences in this large housepit, Spafford (1991) has demonstrated that in most parts of the structure there are very different assemblage compositions on the peripheral or wall side of the hearths as opposed to the inner side of the hearths. Debitage, curated scrapers, expedient knives, and large billet flakes are all concentrated between the wall and the hearths (figures 10 and 11), while fire-cracked rock, utilized flakes and biface fragments concentrate on the opposite side of the hearths (figures 9, 12, and 13). Similar differences have been noted by Prentiss (1993) in the distribution of debitage types. This may represent a sexual division of working space, or perhaps a practical division of space for activities requiring much room versus little room, or messy versus neater activities. Storage of some curated tools such as scrapers near the walls may also account for their concentration on the wall side of the hearths.

We argue that the emphasis on individual family versus communal activities is more consistent with a competitive ethic and attitude associated with socioeconomic hierarchies. Competitiveness, individualist ethics, and hierarchical ranking of individuals and families were engendered by advantages gained from controlling surpluses. It certainly appears that residents of this large housepit had greater access to important economic resources and wealth and that domestic units within the large housepit were individualized to a far greater extent than in any other size housepit.

Evidence for a fundamental socioeconomic division between residents in the house appears to be reflected in the basic difference between the large hearths in the west associated with storage pits, versus the small hearths in the east. Thus, it seems likely that there were families that controlled the corporate resources of the large houses, as well as tenant families or commoners that worked for and resided in the house. However, there is another important difference in assemblage patterning among the hearths in Housepit 7 which appears to be related to hierarchical organizations. The hearths along the southern periphery are unusual in their relative absence of lithics and fauna (but presence of plant remains) as well as in the breakdown of

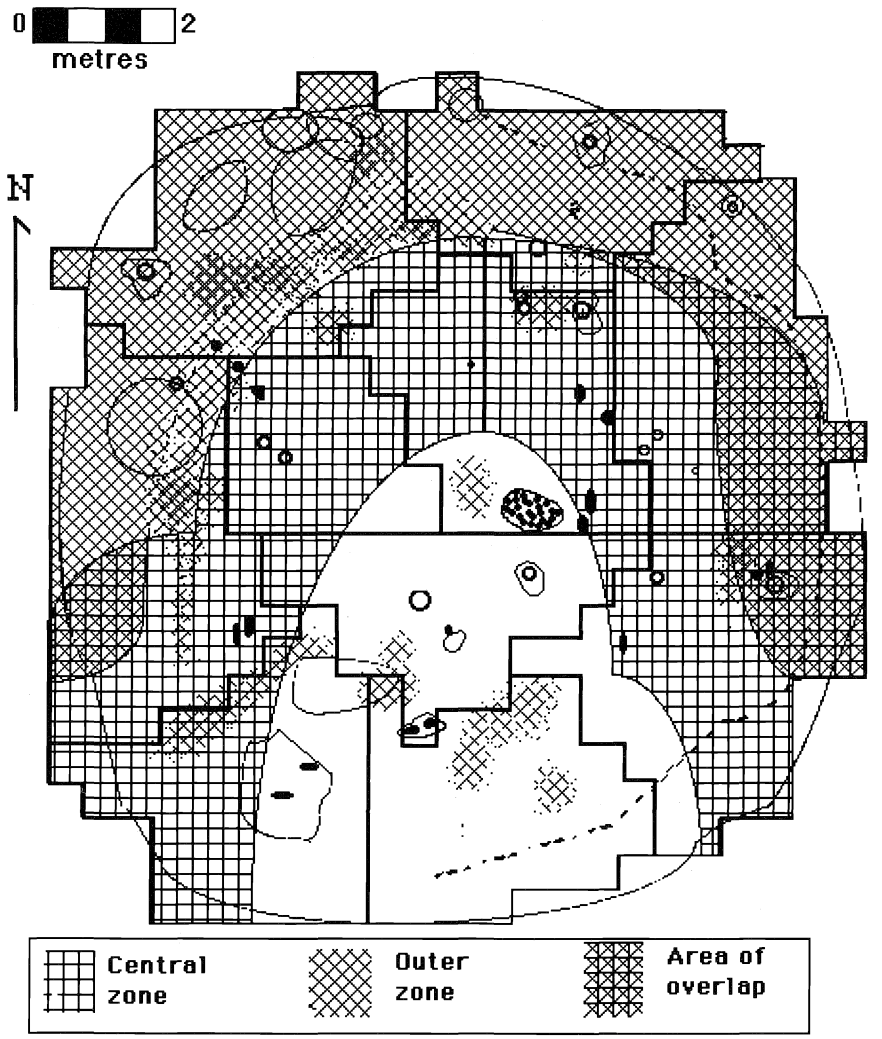

FIGURE 14

On the basis of complementary distributions of tools and artifacts such as those displayed in figures 7-11, the floor of Housepit 7 can be divided into three different zones: an outer, central, and inner zone (in the south). Most domestic groups with a hearth appear to have used parts of both the outer zone and the central zone. In contrast, only the domestic groups in the south appear to have used nothing but the inner zone which is characterized by a general lack of common types of stone tools and faunal remains. We postulate that the residents in the southern sectors may have been chiefly-like administrators of the residential corporate group that lived in Housepit 7, and that they did very little menial work.

patterning involving separate sets of tools on opposite sides of the hearths (figure 14, Spafford 1991). Moreover, a special part of the central floor in front of the southern hearths is almost devoid of artifacts, fauna, and botanical remains. This clearly represents an important difference in the nature of these domestic units, but precisely how this difference should best be interpreted is not as clear. Lack of artifacts and food remains may imply poverty; however, it may sometimes also indicate unusual wealth and power. As William Rathje (personal communication) has observed, the best cuts of meat have *no* bones and leave no food residues. Similarly, the most powerful big men and chiefs often do little manual work themselves; rather, like Nuu-chal-nulth chiefs, they spend their time administering and politicking, and they rely on supporters to provide them with material needs (Rosman and Rubel 1971: 78).

We suspect that the residents in the southern periphery of Housepit 7 may well have had unusually high status. This area can be considered the most desirable location in the structure for two reasons. First, it may be slightly warmer since the southern part of the roof would be warmed by the winter sun. Second, comparative observations of housing throughout the world display a very strong tendency for the most important residents in a structure to reside in the most remote locations or in locations farthest from entrances. Due to lighting, the south would have constituted the most remote location in housepits. Interestingly, a similar area devoid of faunal remains occurs as well in the south periphery of the medium sized housepit (No. 3), associated with the largest actively used hearth, and the sector similarly lacks many mundane types of tools such as scrapers and notches. Some status differences may therefore also have existed among the residents of Housepit 3, although much less pronounced than in Housepit 7. Unfortunately, wealth items do not occur in high enough frequencies in any housepits to make their distribution meaningful in terms of indicating the wealthiest domestic areas.

While some aspects of these broad patterns of features and artifacts are unambiguous, other patterns are more difficult to interpret and will require more research along the lines that we have begun to explore. One topic in particular has demonstrated far more complexity than anticipated: the distribution of faunal remains. In the largest housepit, for example, there are four distinct clusters of fish bones beginning in the north and extending around the periphery to the southeast. About two-thirds of these bones are from the least desirable type of salmon, pinks. Several interpretations are possible and it is not clear whether:

— the occurrence of these bones represents low-status consumption areas, with higher-status residents consuming more desirable dried and deboned salmon fillets, or whether high-status areas may have consumed less fish and more meat fillets;
— our interpretations of relative status of domestic units are in error;
— perhaps everyone in the house ate only in the north and eastern part of the structure; or
— only the lower-status members of the house were occupying the pithouse in the fall when the pink salmon runs occurred (the other families possibly being in the mountains hunting).

Similar problems arise when dealing with mammalian faunal remains, especially since bones were highly reduced for the extraction of lipids. As Diana Crader (1990) has noted, some slave quarters in the American colonies contain faunal remains from prime cuts of meat. Were these high-status slaves, or were the bones from plantation owners' meals being recycled by slaves for scraps and for making soups? Could a similar process be responsible for the clusters of mammal-bone fragments that Kusmer has recorded in what otherwise appear to be lower-status domestic units? Alternatively, might such clusters represent communal eating or butchering areas? We cannot answer these questions at this point.

Other intriguing patterns involve the occurrence in several housepits of dense concentrations of debitage in the northeast peripheries (where sunlight would be best), and the occurrence of distinctive domestic areas in the northwest peripheries (Housepit Nos. 3 and 7) possibly related to hunters or warriors, positioned as guardians near the ladder entrances of the houses.

Aside from the differences that we have noted in terms of relative abundance and diversity of food resources, wealth items, exotic fauna, and social organization between various sized housepits, there are other differences that indicate privileged access to basic resources by the residents of individual housepits. Foremost among these indicators is the differential occurrence of various species of salmon. Kevin Berry has shown that the poorer, smaller housepits contain exclusively pink salmon vertebrae, the easiest species to catch and the least desirable. Larger housepits contain a broader range of salmon species requiring more specialized locations of access and gear, especially for sockeye and spring salmon. Ethnographically, such specialized points of access to salmon were owned by individuals or families, or groups of families (Teit 1906; Romanoff 1992b).

A similar situation is recorded at The Dalles along the Columbia River

in Washington State (Spier and Sapir 1931). Both The Dalles and the Lillooet communities have analogous environmental and salmon procurement characteristics. At The Dalles, the owners of fishing sites were organized explicitly into residential corporate groups, and ownership was inherited within these groups. Thus, it appears likely that ownership of fishing-procurement locations provided the economic foundation for the creation and continuance of the large residential corporate groups that occur in the Lillooet region.

That these structures were occupied by groups with differential access to resources and had socially recognized group identities that persisted through time is demonstrated by the study of cherts and chalcedonies that Ed Bakewell, Ted Danner, Rob Gargett, and Hayden have undertaken from individual housepits. This analysis indicates that residents of different housepits used different suites of non-local lithic materials. Since most of these sources would be within the yearly seasonal range of the residents of Keatley Creek, it indicates a systematic use of different foraging ranges by the residents of different pithouses. However, even more importantly, these distinctive sets of cherts remain constant and distinct through almost the entire occupational sequence of some of the larger housepits, such as Housepits 1 and 7. This indicates not only that some of these large housepits were occupied continuously throughout their history, and that these structures were considered the property of specific corporate groups, but most remarkably that these corporate groups retained their identities over numerous centuries, if not millennia.

COMMUNITY STRUCTURES

While we have been sensitive to the possibility of community structures at the Keatley Creek site, few structures in the core of the site appear to have much potential for having served community functions. The largest housepits are evenly spaced throughout the core of the site and are surrounded by smaller structures, some of which may have been economically and socially attached to, or dependent on, the larger structures. On the periphery of the community, however, are several structures which may have served special ritual purposes. These are unusual in terms of their locations (three occur high above the site on the uppermost terrace remnants set against the mountains (Housepits 104, 105, 109), and contain unusual assemblages (e.g., several dozen bone buttons in the bottom of a large pit; unusual amounts of ochre; unusually dense and widespread occurrences of ash and calcinated bone; dog elements apparently wrapped in bark and used as a meal). Another outlying depression occurs about 100 m down-

stream from the site core and it, too, may have had a specialized function, but has not been tested. The lack of large communal structures is probably related to the use of the largest pithouses to stage most ritual and social displays during the winter.

CONCLUSIONS

While all analyses have not been completed for our work at the Keatley Creek site, the supporting details of all the scenarios that we have discussed are emerging quickly. The first volume of analysis dealing with the ethnographic use of food resources in the Keatley Creek catchment area has just been published (see Hayden 1992), and enough archaeological analysis has been completed to discern the major outlines of the most important results. There are strong reasons to conclude that the community was divided into poorer families that generally lived in small pithouses, or even cruder shelters, or that attached themselves to some of the "great houses" as common domestic tenants or even servants. Intermediate size houses appear to have had some economic advantages, or rights to moderately productive resources such as sockeye or spring salmon fishing locations of intermediate productivity. These households could have exhibited a more "corporate family" social structure than the large housepits, and wielded a significant amount of power in the communities. However, it was the large households that appear to have developed into the most powerful economic and social forces in the community. The highest-ranking administrators or owners appear to have been relatively wealthy and influential; other domestic units within the houses were individually and hierarchically arrayed. These houses, like the ethnographic ones at The Dalles, undoubtedly owned the most productive fishing locations and used surplus fish production to underwrite trade, access to positions of power, competitive feasting, and the overall development of socio-economic power. As in the ethnographic situation, wealth was undoubtedly also used to retain the services of or to underwrite the extensive training of specialists such as shamans, specialist hunters, and warriors, some of whom may have opted to live in smaller residences of their own.

REFERENCES CITED

Aikens, C. Melvin
1986 *Archaeology of Oregon.* U.S. Department of the Interior, Bureau of Land Management, Oregon State Office.

Alexander, Diana
1992 A reconstruction of prehistoric land use in the mid-Fraser River area based on ethnographic data. In *A complex culture of the British Columbia Plateau,* B. Hayden, (ed.). University of British Columbia Press: Vancouver.

Berry, Kevin
1991 Where have all the salmon run? Radiographic examinations of salmon remains from the Keatley Creek site in the upper Fraser Canyon. Paper presented at the 44th annual Northwest Anthropological Meetings, Missoula, Montana.

Cook, S. F. and Robert Heizer
1968 Relationship among houses, settlement areas, and population in aboriginal California. In *Settlement Archaeology*. K. C. Chang (ed.). National Press: Palo Alto, California, pp. 79-116.

Crader, Diana
1990 Slave diet at Monticello. *American Antiquity* 55: 690-717.

Cressman, Luther
1977 *Prehistory of the far west*. University of Utah Press: Salt Lake City.

Hayden, Brian
1977 Corporate groups and the late Ontario Iroquoian longhouse. *Ontario Archaeology* 28: 3-16.
1981 Research and development in the stone age: technological transitions among hunter/gatherers. *Current Anthropology* 22, pp. 519-548.
1990a The right rub: hide working in high ranking households. In *The Interpretative Possibilities of Microwear Studies*. Bo Graslund (ed.). *AUN* 14, pp. 89-102. Societas Archaeological Upsaliensis: Uppsala.
1990b Nimrods, piscators, pluckers and planters: The emergence of food production. *Journal of Anthropological Archaeology* 9: 31-69.
1992 (ed.) *A complex culture of the British Columbia Plateau*. University of British Columbia Press: Vancouver.

Hayden, Brian and Aubrey Cannon
1982 The corporate group as an archaeological unit. *Journal of Anthropological Archaeology* 1: 132-158.

Hayden, Brian, Gregory Reinhardt, Steven Taylor, David Crellin, and Dam Holmberg
n.d. Space per capita and the optimal size of housepits. MS. on file at the Archaeology Department, Simon Fraser University.

Hayden, Brian and June Ryder
1991 Prehistoric cultural collapse in the Lillooet Area. *American Antiquity* 56: 50-65.

Keddie, Grant
1990 The other winter lodges of the Interior Salish. *The Midden* 22(1): 6-7.

Kusmer, Karla
1993 Zoo archaeological analysis at Keatley Creek. Unpublished report on file at the Department of Archaeology, Simon Fraser University.

Lepofsky, Dana
1993 An analysis of floral remains from Keatley Creek housepits. Unpublished report on file at the Department of Archaeology, Simon Fraser University.

Naroll, Raoul
1962 Floor area and settlement population. *American Antiquity* 27: 587-589.

Prentiss, William
1993 Hunter gatherer economies and the formation of a housepit floor lithic assemblage. Unpublished Ph.D. dissertation, Simon Fraser University, Archaeology Department: Burnaby, B.C., 635 pp.

Richards, Thomas and Michael Rousseau
1987 *Late Prehistoric cultural horizons on the Canadian Plateau*. Department of Archaeology, Simon Fraser University, Publication No. 16: Burnaby, B.C., 102 pp.

Romanoff, Steven
1992a The cultural ecology of hunting and potlatches among the Lillooet Indians. In *A complex culture on the British Columbia Plateau*. B. Hayden (ed.). University of British Columbia Press: Vancouver, pp. 470-505.
1992b Fraser Lillooet salmon fishing. In *A complex culture of the British Columbia Plateau*. B. Hayden (ed.). University of British Columbia Press: Vancouver, pp. 222-265.

Rosman, Abraham, and Paula Rubel
1971 *Feasting with mine enemy*. Waveland Press: Prospect Heights, Illinois.

Spafford, Jim
1991 *Artifact distribution on floors and social organization in housepits at the Keatley Creek site*. Unpublished M.A. Thesis, Archaeology Department, Simon Fraser University: Burnaby, B.C.

Spier, Leslie and Edward Sapir
1931 Wishram ethnography. *University of Washington Publications in Anthropology* 3.

Stryd, Arnoud
1973 The later prehistory of the Lillooet area, British Columbia. Unpublished Ph.D. dissertation, Department of Archaeology, University of Calgary: Calgary.

Teit, James
1900 The Thompson Indians of British Columbia. *Memoirs, American Museum of Natural History*, 1(2).
1906 The Lillooet Indians. *Memoirs, American Museum of Natural History* 2(5): 193-300.