

Housepit Archaeology at Lillooet, British Columbia : The 1970 Field Season

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INTRODUCTION

In the summer of 1970, the author, supported by a National Museum of Man research contract, directed ten weeks of archaeological excavations near Lillooet, British Columbia. This field season represented the second phase of a continuing project designed to investigate the historic and prehistoric semi-subterranean pithouse dwellings of the region. This paper presents a descriptive summary of the results of these excavations.

Five habitation sites of both historic and prehistoric age were investigated. These sites are located along a 16 kilometer (10 mile) section of the east (or south) bank of the Fraser River from opposite Seton Creek in the south to Gibbs Creek in the north (Fig. 1). Two sites (EeR1 19 and EeR1 22) received extensive excavation whereas the three remaining sites were only sample excavated. Twelve historic and prehistoric components were defined at the five sites. Nearly 3,800 artifacts and 18,600 pieces of chipping detritus were recovered (Table 1).

TABLE 1.
MATERIAL CULTURE QUANTIFICATION PER SITE

<i>Site</i>	<i>Artifact Count</i>	<i>Detritus Count</i>
EeRk 7	90	655
EeR1 19	2,671	13,045
EeR1 22	913	4,895
EeR1 26	47	0
EeR1 27	77	1
Total	3,798	18,596

Specialists in various disciplines contributed to this project. Dr. L. V. Hills of the Department of Geology, University of Calgary, was the consulting geologist. Dr. David Huntley of the Department of Physics, Simon Fraser University, joined the field crew for several weeks for a magneto-

meter and resistivity survey of several pithouse sites. Dr. L. B. Davis of the University of Montana has processed all obsidian specimens for hydration "dates." Mr. Robert Drake of Bio-Holocene Research Services, Calgary, is studying the invertebrate remains from the excavated sites and Dr. John Westgate of the Department of Geology, University of Alberta, is analyzing the volcanic ash samples from EeR1 22. The author, in consultation with Dr. G. Meade of Union Oil of Canada and Mr. Ron Getty of the University of Calgary, identified the faunal remains.

RESEARCH OBJECTIVES

Two major research objectives have been defined for the project:

- (1) To construct a local sequence of archaeological units which can be compared with data from the nearby Lochnore-Nesikep Locality; and
- (2) To investigate the history of the semi-subterranean pithouse dwelling of the region with emphasis on variations in structural attributes or styles at any one point in time, and on isolating those cultural factors which may be responsible for the observed variations in pithouse attributes.

The Lillooet area was selected for investigation because of the frequency and variation in size of the local housepit sites. An intensive site survey of the region laid the foundations for the present work (Stryd and Hills in press).

GEOGRAPHIC SETTING

The research area consists of a 29 km section of the Fraser River valley between Lillooet and Pavilion Creek in south-central British Columbia (Fig. 1). The hills and mountains that border the river valley define the eastern and western limits of the research area.

This area lies within the rainshadow of the Coast Range and receives less than 40 cm of annual precipitation. Summers are hot and dry whereas winters are mild and moist. Soils and vegetation typify an arid environment but both exhibit considerable altitudinal variation.

Ethnographically, this area was inhabited by the Interior Salish-speaking Lillooet and Shuswap. More specifically, the Fraser River division of the Lillooet inhabited the southern portion of the research area whereas the Pavilion band of the Bonaparte Shuswap occupied the northern area. Fountain Creek represents the approximate dividing line between these two groups.

GIBBS CREEK SITE (EeRk 7)

The Gibbs Creek Site is located on the east bank of the Fraser River at the foot of Chipuin Mountain 16 km (10 miles) northeast of Lillooet. The site is situated along the north bank of Gibbs Creek at an altitude of 470 m, 210 m above the Fraser. Three oval housepits constitute EeRk 7 but surficial cachepits (storage pits) are absent. The depressions were dug into the western slope of the mountain, resulting in a well-defined, deep eastern edge and a poorly-defined, shallow western edge. The depressions have the following width measurements (measured from the middle of the rim): 6.2 x 6.6 m; 8.2 x 8.8 m; and 10.4 x 10.8 m. Because these depressions were dug into a mountain side, each depression varies greatly in maximum depth.

The largest housepit was tested by three 2 x 2 m squares and one 1 x 4 m square. Excavations were conducted in arbitrary 10 cm thick levels with all matrix screened with 1/8" mesh.

A shallow culture-bearing deposit was exposed in the first 30 to 40 cm below surface within the housepit. These deposits, which lay on top of a poorly defined living floor, were characterized by a consolidated rocky matrix. Much of the rock is intrusive, coming from the mountain slope. Directly below this cultural zone till was encountered.

EeRk 7 is a single component prehistoric habitation site. The site assemblage contains 90 artifacts as well as 655 pieces of chipping detritus. Retouched flakes (unifacial and alternate) and utilized flakes dominate the artifacts which also include one unifacial side-notched projectile point (Fig. 4 a), five formed bifaces (knives), a bone awl, plus a chip of ground green basalt.

The unstepped living floor has a saucer-shaped cross-section with low sloping walls and does not resemble the steep-sided pit illustrated by Teit (1900:193). An unlined hearth (1.75 x 0.95 m) was centrally located on this floor. Post holes and moulds could not be detected.

Several small pieces of birchbark were the only floral remains collected. Animal bones were rare and represented deer, beaver and fish (presumably salmon).

FOUNTAIN SITE (EeR1 19)

The Fountain Site is located 14.5 km (9 miles) north of Lillooet on a broad river terrace along the south bank of the Fraser River. This terrace lies 200 m above the Fraser at an altitude of 430 m. Deeply incised Fountain Creek runs just east of the site. Historic cultivation has disturbed

much of the terrace surface and as a result chipping detritus as well as artifacts are scattered over several acres. The entire distribution of surface material has been designated as EeR1 19.

Excavations were undertaken at EeR1 19 because of the possibility of pithouse remains beneath the plow zone. Sam Mitchell, a Fountain Indian, states that the early historic Fountain winter village was located in the vicinity of EeR1 19. Teit (1906:199) reports that eleven large pithouse structures were standing at Fountain in about 1860.

Excavations consisted of facing a 57-meter long cut-bank along an abandoned roadbed. After removal of all slumpage, the cut-bank, which varied in height from 30 to 130 cm, was faced some ten to fifty centimeters back from the edge of the bank in arbitrary 10 cm thick levels. In addition, two 2 x 2 m squares were placed a few meters west of the roadbed.

Three geologic units were evident in the road cut. These are, from bottom to top: (1) coarse glacial outwash mixed with alluvial gravels; (2) 10 to 30 cm of consolidated glacial lacustrine sediments; and (3) loose silt-derived colluvium. Only the colluvial zone contained cultural material. This zone had a triangular cross-section with the apex of the triangle pointing north towards the Fraser. This indicates that the colluvium originated from the higher elevations of Fountain Valley located to the south of the site. The cultural stratigraphy within the colluvial zone is relatively simple, but continuous aboriginal excavation of various depressions into earlier cultural deposits has resulted in considerable artifactual mixing and localized stratigraphic complexities.

The Fountain Site assemblage consists of 2,671 artifacts and 13,045 pieces of chipping detritus. Three components are defined for EeR1 19 on the basis of artifact typology (notably projectile points) and the absence or presence of the microlithic prepared core and blade industry. Because of extensive mixing of cultural material at the site, many artifacts could not be assigned to a specific component and it was impossible to quantify artifacts and chipping detritus per component.

Component 1:

Assemblages from several strata located directly below the ground surface comprise the youngest component at the site. Cultivation has resulted in a shallow disturbed plow zone directly below the surface. Small triangular side-notched projectile points are characteristic of this component (Fig. 2, a-1). I propose that these points be known as "Kamloops side-notched points" since they are frequent in the Kamloops Phase. This type

has the following formal attributes: a triangular outline, straight or somewhat convex blade sides, symmetric narrow side-notches, straight or concave base, fine pressure flaking, and narrow necks (width between the notches) indicating use as an arrow point. Several variants of this type are known to exist, notably an unnotched form (Fig. 2, m, o) and one with a flared base (Fig. 2, n-o).

One hundred and eighteen Kamloops side-notched points were collected from the Fountain Site. In addition, three other points are attributed to Component 1. These are small and triangular corner-notched points with pronounced barbs, expanding stems and concave or convex bases (Fig. 2, p-4). Retouched and utilized flakes are the most frequent artifact class, comprising an estimated 50% of all Component 1 artifacts. Other implements include unifaces (scrapers), bifaces, drills, gravers, flake cores, cortex-flake tools, hammerstones, grinding stones, and mica flakes.

A considerable amount of cultural material was present on the ground surface as a result of cultivation. These artifacts were assigned to Component 1, and include four Kamloops side-notched points, 332 cortex-flake tools, and five grinding stones.

While cortex-flake tools occur throughout the site, they are most numerous in Component 1. These artifacts have been studied by Coulson (1971). Cortex-flake tools are relatively large and crude flake implements derived from river cobbles and pebbles. The naturally sharp edge created opposite the bulb of percussion by the removal of the spall from the core usually exhibits "use-wear" polish and striations. Some are retouched along this edge to create a stronger working edge. These implements probably served a number of functions, including cutting, hacking and scraping.

Chipping detritus is plentiful. Black vitreous basalt is the most common raw material although the use of various chalcedonies is more frequent in this than in any other component on the site. Two flakes of obsidian were recorded. The cortex-flake tools were made of diorite, quartzite, basalt, grandiorite and metamorphic rock.

Several cache-pits and shallow saucer-shaped depressions are associated with this component. Many are ill-defined or truncated by later cache-pits so that an exact count is impossible. No definite pithouse remains were encountered.

The floral and faunal material collected from Component 1 was not varied. Rolled and sheet birchbark was plentiful, but faunal remains were notably lacking. Most of the faunal remains which were obtained originated from within the various cache-pits. Identified faunal species include

deer, pack rat, fish (salmon?) and bird (sp.). Two specimens of *Margaritifera* (sp.), a fresh-water bivalve, were also identified.

Two crushed burials were recovered from beneath the abandoned road-bed. These interments are assigned to Component 1 on the basis of stratigraphic location. The burials had been placed in a single burial pit, one overlying the other but separated by about 20 cm of fill. The burial pit, which measured 60 cm in diameter and was at least one meter deep, had been dug into the basal stratum of glacial gravels.

Burial 1:

The flexed burial lay on its right side and was facing south with the skull crown pointing west. A plaited sagebark mat covered the skeleton, which in turn was covered with Douglas fir (?) bark. Between the mat and the bark lay a stitched birchbark container which held a chalcedony drill, one quartzite crystal, fourteen gypsum crystals, several mica flakes and thirteen pieces of worked gypsum. The gypsum is probably derived from the Fraser River silts (L. Hills, pers. comm. 1971). Seven of the gypsum inclusions had been shaped into long thin rods, several of which were notched or grooved, presumably for suspension. Because these rods glisten in the sunlight, they probably served as ornamental objects.

In addition to the artifacts from the birchbark container, a zoomorphic whale bone club (material identified by C. E. Borden), a utilized basalt flake and some red ochre was recovered from underneath the sagebark matting close to the hands of the skeleton. The flat club had been broken into two pieces prior to its placement with the burial. Dimensions of the reconstructed club are 45 x 6 x 1.8 cm. A gill, eye and mouth with an upper and lower row of teeth are incised into both sides of the narrow end of the club (Fig. 5, f-g). The elongated nose resembles that of a sturgeon whereas the presence of teeth suggests that a salmon may be depicted. The eye and mouth are lined with red ochre.

The burial was badly crushed, probably due to the weight of vehicles using the overlying road, and could not be removed from the field. The crushed condition prevented accurate determination of age and sex. Overall bone size indicated the presence of a mature individual.

Burial 2:

This burial was flexed and orientated facing south with the crown of the skull pointing east. Like Burial 1, Burial 2 also "looked up" Fountain Valley. The skeleton lay on its left side, on top of and covered with Douglas fir (?) bark. Although exhibiting less crushing than Burial 1, this burial

also could not be removed from the field for analysis because of the advanced state of bone deterioration. Grave inclusions were absent except for a concentration of as yet unidentified seeds near the right humerus. Age and sex remain undetermined although bone size again indicated the presence of a mature individual.

Component 2:

This component consists of the cultural material from several strata located directly below Component 1 at the southern end of the site. Retouched and utilized flakes again were numerous. The assemblage also included unifaces, bifaces, drills, mica flakes, cortex-flake tools, projectile points and organic artifacts. Three triangular corner-notched points with convex sides, small barbs, and wide necks (Fig. 2 s-u) are assigned to this component on the basis of typology. Although organic artifacts and mica flakes occur in all three components of the site, they are most numerous in Component 2. Stitched and decorated birchbark fragments were recovered (Fig. 5, a), including one piece with a tattooed geometric design (Fig. 5, b) and a complete birchbark dip-net ring (Fig. 5, h).

At the southern end of the cut-bank was a small cooking "oven," 30 cm deep and 65 cm wide, and containing burnt soil and charred pine cones. The cones were identified by Hills as those of the white-bark pine (*Pinus albicaulis*). This evergreen grows at high elevations and produces an edible nut within a small cone that does not open readily at maturity. Dawson (1891:22) reports that historically these cones were gathered in late summer for roasting in a fire to release the nuts.

Associated with a possible pithouse floor are two small post/stake moulds, a well-defined hearth, and a possible cooking "oven." The hearth of charcoal, ash and firecracked rock was 2.15 m in length (N-S) but had been truncated by a younger post mould. This vertical mould measured 17 cm in diameter and extended to a maximum depth of 35 cm below the hearth. A small mould, 8 cm in diameter and 12 cm long, had a pointed base and might have been a stake mould. The cooking "oven" was contiguous with the hearth and consisted of a small bowl-shaped depression, 26 cm in diameter and 15 cm deep, lined with firecracked pebbles and charcoal.

Component 3:

This component is made up of the cultural material from several layers of dark brown colluvium located north of Component 2 and directly below Components 1 and 2. Component 3 is characterized by the presence

of a microlithic prepared blade and core industry. Eighty-seven microblades (Fig. 2, jj-ww) of basalt and chalcedony as well as a single complete microblade core (Fig. 2, ii) were recovered, making this one of the largest assemblages of microblades from the British Columbia Interior Plateau. Many of the microblades are distally and/or proximally squared and a few exhibit unifacial retouch. The microblades resemble those from the Lochnore-Nesikep Locality (Sanger 1968b). The microblade core can be classified as a "wedge-shaped" core which is typical of the Plateau Microblade tradition (Sanger 1968b:114). A second "wedge-shaped" core of chalcedony was surface collected in 1969. In addition, five microblade core fragments were recovered through excavation.

Other artifacts attributable to Component 3 include round and oval flake unifaces with steep retouch (Fig. 2, v-x), bifaces of various outlines, retouched and utilized flakes, cortex-flake tools, mica flakes, bilaterally notched unifaces (Fig. 2, v), drills, graters, ridge flakes (?), a chip of ground nephrite and twelve projectile points (Fig. 2, y-hh). All the points but one are made of basalt, including several examples of non-vitreous basalt. The points are corner-notched with small barbs, expanding stems, and straight to concave bases. Nearly all are fragmentary so that the point outline is lost. Lateral stem grinding is present on several specimens, and one point has a serrated blade edge (Fig. 2, ee). One small leaf-shaped point of chalcedony was made on a microblade (Fig. 2, jj). Chipping detritus of non-vitreous basalt was plentiful.

A few fish and deer bones were the only faunal remains observed. Floral specimens include birchbark rolls, fragments of Douglas fir bark and several concentrations of unidentified seeds.

MITCHELL SITE (EeR1 22)

The Mitchell Site is located on a small outwash terrace along the east bank of the Fraser River, 6.5 km (4 miles) north of Lillooet (Fig. 1). The terrace has an altitude of 370 m and lies 160 m above the Fraser River at the western foot of Fountain Ridge. Terrace stratigraphy includes a basal unit of glacial outwash gravels, which comprise much of the terrace, and an upper unit of mixed glacio-lacustrine silts and clays, aeolian sediments and fine colluvium. EeR1 22 consisted of two well-defined housepits along an east-west axis across the terrace. Both depressions are circular in outline and have low rims. Surficial cache-pits are absent. The site is devoid of arboreal vegetation although Douglas fir is the dominant species immediately adjacent to the site.

HOUSEPIT 1

The most easterly depression, Housepit 1, measured 10.75 m in diameter and 1.1 m in depth. The rim projected a few centimeters above the surrounding ground surface. Housepit 1 was investigated by a one-meter wide north/south cross trench which extended beyond the pithouse rim in both directions. Several additional areas within the depression were selected for excavation. Arbitrary 10 and 20 cm thick levels were dug by trowel and shovel and all excavated matrix was screened by 1/8 inch mesh. In addition, a 2 x 2 m square was excavated by cultural stratigraphic levels to serve as a control column.

Housepit 1 had been dug into the upper stratigraphic unit of the terrace. Our excavations reached a maximum depth of 180 cm below ground surface within the depression. Six major living floors, subsequently lettered A to F, were evident on the resulting stratigraphic profile (Fig. 3). These floors were characterized by an orange-brown consolidated silt.

The excavations revealed two side by side series of stratified pithouse floors rather than the anticipated single series. The first series, consisting of Floors A to C, was located directly below the surface depression. Floors D to F, which comprise the second series, were located below and slightly south of the southern rim of the surface depression. Floors E and F exhibited abrupt truncations at their northern end, the result of more recent aboriginal excavation activities. Although no floors or walls were visible directly below Floor C, the truncation of Floors E and F as well as the presence of extensive cultural material below Floor C indicates that aboriginal excavation and occupation did take place there. Large areas of each floor were covered with charcoal and ash, which is interpreted as the remains of a burnt and collapsed superstructure.

A thin layer of white volcanic ash was situated between Floors E and F. It too was truncated at its northern end. This ash was identified by Westgate as Bridge River tephra. Three variants of this ash exist although the variant of the sample has not been identified.

Six components based on stratigraphy and cultural content can be defined. Table 2 quantifies the material culture per Housepit 1 component.

Component 1:

Component 1 consists of the historic assemblage associated with Floor A. Thirty-seven artifacts of glass, metal and porcelain were recovered, notably a stemmed iron projectile point (Fig. 4, d) and two small circular blue-glass trade beads. Chipped stone implements dominate the remaining

TABLE 2
MATERIAL CULTURE QUANTIFICATION
EeR1 22, Housepit 1

Component	Assemblage	Artifacts		Debitage		Artifact-Debitage Ratio
		N	%	N	%	
1	Floor A	191	22.3	602	12.8	1:3.91*
2	Floors B and C	233	27.2	1,235	26.2	1:5.30
3	Below Floor C	171	20.0	1,927	40.9	1:11.27
4	Floor D	126	14.7	543	11.6	1:4.31
5	Floor E	72	8.4	356	7.6	1:4.94
6	Floor F	15	1.8	44	0.9	1:2.93
Uncertain		48	5.6	0	0	
Total:		856	100.00	4,707	100.0	1:5.50

*Ratio does not include artifacts made of metal, glass and porcelain.

artifacts and include retouched and utilized flakes, projectile points (Fig. 4, b-c, e), unifaces, macroblades (Fig. 4, f), bifaces, graters and drills (Fig. 4, g). Also included in this assemblage are an incised bowl fragment of a trumpet-type soapstone pipe (Fig. 5, d), two polished bird bone beads, and a fragmentary piece of ground bone decorated by four circular perforations and a series of small incisions along one margin (Fig. 5, e). Black vitreous basalt is the most common lithic material, constituting more than 80% of the total assemblage.

Several features were recorded in association with Component 1. The well-defined floor was slightly concave in section and was covered with several centimeters of charcoal and ash. The low sloping walls resulted in an overall saucer-shaped depression, similar to that of EeRk 7.

Fourteen post holes and moulds were associated with Floor A. All were circular or oval in plan, ranging in diameter from 8 to 18 cm. Moulds of two of the large central roof support posts may have been located. An unexpected aspect of these central post moulds is that they seem to exist in pairs. That is, there are two sets of two moulds each, each mould being of approximately the same size. These moulds may represent two successive construction phases of the roof or they may be indicative of a type of roof construction different from that described by Teit (1900:192). These vertical moulds measured between 16 and 18 cm in diameter and had been excavated to a depth of between 30 and 40 cm below the floor.

The remains of two small wooden posts were exposed *in situ* just north and south of the pithouse depression. They were located about 20 cm below the present-day ground surface on what is assumed to have been the ground surface during Component 1 occupation. Both posts, which measured just under 20 cm in length, were totally decomposed above the buried ground surface. Post diameters were 5 and 8 cm. The southern post sloped towards the northwest; the other post did not slope.

Three oval cache-pits had been dug into the northwest, southwest and southeast quadrants of the floor along the wall. The shallow northwest cache-pit measured 60 (N-S) x ? (E-W) x 15 cm deep, and the southeast cache-pit measured 140 x 150 x 30 cm. Both of these cache-pits contained fish remains. A burnt and fragmentary antler digging stick handle with a cut rectangular hole was recovered from the southeast pit. The third cache-pit (70 x 90 x 70 cm) contained fish, deer, horse and small rodent bones, including some articulated fish remains wrapped in plaited sagebark matting. A fragmentary beaver incisor gambling die marked with six sets of incised lines came from the bottom of this pit.

Organic preservation was excellent and faunal remains were plentiful. Deer and fish bones were noted in all the Mitchell Site components. Horse, cow, coyote, beaver and several small rodents were also identified from this component. The presence of horse limb elements within the cache-pit and the occurrence of at least two coyotes, considered a famine food (Teit 1906:225), may indicate a period of food scarcity during the Component 1 occupation.

Component 2:

Because of similarities in artifact types, the assemblages associated with Floors B and C have been combined into a single component. Nearly half of all the artifacts are unifacially retouched flakes; utilized flakes, bifaces and projectile points are other frequent implements. Triangular corner-notched projectile points with convex sides and small barbs (Fig. 4, h-m) are typical of this component as are small unifactes with continuous steep retouch (Fig. 4, n) and leaf-shaped bifaces. The component also contains bone awls, a cortex flake tool, two reground beaver incisors, and two fragments of ground nephrite.

A series of stratified hearths were centrally located between Floors B and C. These hearths, which averaged 90 x 75 cm, are marked by an orange to white ash as well as firecracked rock, but without charcoal. A small rock hearth, 60 x 50 cm, was exposed on Floor B. Charcoal and

firecracked rock abounded and a unifacial chopper lay near the edge of this feature.

Both Floor B and C are concave in section and covered with charcoal. Aboriginal excavation of Floor A had obliterated the wall which was associated with Floor B. The wall associated with Floor C was high and steep so that the overall depression resembled the steep-sided pit illustrated by Teit (1900:193). The wall was 50 cm high and formed an approximate 100° angle with the floor. Some inward slumpage of this wall was evident along the northern section of the depression.

Component 3:

The small but distinctive assemblage which came from below and to the north of Floor C constitutes Component 3. The matrix was a consolidated silt and clay which could only be excavated with a geologist's hammer. The artifact-debitage ratio of 1:11.27 for this component is considerably higher than the ratio for all other components (Table 2). Many of the implements and flakes can be easily identified by a calcareous incrustation.

Retouched and utilized flakes again are the most numerous artifact classes. Unique to this assemblage are three kinds of artifacts: (1) elongated and triangular stemmed or corner-notched projectile points of basalt (Fig. 4, o-q); (2) crudely flaked speckled-chert and basalt bifaces which are triangular in outline; and (3) large retouched and utilized basalt and cryptocrystalline flakes. Other implements include several bifaces and unifaces, one bone awl, a ground nephrite chip, a *Dentalium* bead, a chalcedony flake core, a bifacially split quartzite pebble, and a cortex-flake tool.

Component 4:

Component 4 consists of the assemblage associated with Floor D. Except for one fragment of ground nephrite and a single piece of mica, all implements are of chipped stone. Retouched and utilized flakes comprise over 80% of all artifacts. Seven of the eight projectile points exhibit some kind of notching, primarily side notching, and the overall point form is triangular (Fig. 4, s-w). In addition, this assemblage contains a lanceolate "Plano-type" projectile point of yellow-white chert (Fig. 4, r). The point exhibits oblique parallel flake scars and convex sides. The shallow concave base is bifacially thinned but grinding is absent. One of the lower lateral edges has a pronounced inward taper, forming a single rounded shoulder.

Component 5:

The assemblage associated with Floor E is designated as Component 5. In a preliminary report (Stryd 1970), this assemblage was provisionally included within Component 2, primarily on the basis of similarities in projectile point morphology. Subsequent re-evaluation of the cultural stratigraphy and analysis of the recovered material indicates that this assemblage is probably older than Component 2 and that it may represent a period of transition between the Floor F and Floor C occupations of the site. As such, this assemblage is now given a separate component designation.

In addition to the frequent artifact classes (utilized and retouched flakes), several bifaces, a projectile point, a bone awl, and two fragments of worked bone were recovered. One of the bone fragments was decorated by two incised lines and a single oval perforation (Fig. 5, c). Both projectile points are corner-notched (Fig. 4, x-y).

The top of a long post mould was recorded in this component. This mould extended 75 cm downward through the volcanic ash layer and through Component 6 into terrace deposits. An unusual aspect of this mould was its almost triangular cross-section with a 17 cm wide base and a 8 cm wide top.

Component 6:

The assemblage from Floor F constitutes Component 6. Although the volcanic ash layer physically divided the stratigraphic unit from which this assemblage originated, this assemblage is so small that for present purposes the cultural material from above as well as below the ash will be considered as forming a single assemblage and component.

This assemblage is the smallest assemblage from EeRl 22. The artifacts include five unifacially retouched flakes, two bifaces, two utilized flakes, a projectile point, a bone awl, a scapula knife fragment, a worked bone fragment, and a worked antler fragment. The crudely-flaked point of non-vitreous basalt exhibits side-notching and a concave base (Fig. 4, z). The long-bone splinter awl is the only artifact from below the volcanic ash.

HOUSEPIT 2

The westerly housepit at EeRl 22, Housepit 2, was located approximately 3.5 m west of Housepit 1. It measured 7.5 m in diameter and 55 cm in depth. Housepit 2 was tested by three 2 x 2 m squares placed within the depression. These squares were dug in 10 cm thick arbitrary levels. Twelve

square meters of the only living floor exposed were "stripped" by careful hand trowelling to record all cultural material *in situ* on that floor.

Housepit 2 had been dug through the upper natural stratigraphic unit of silt and sand into basal terrace gravels. Thirty to fifty centimeters of culture-bearing sands were exposed below ground surface, overlying a well-defined living floor. Scattered cultural material was encountered beneath this floor but no stratigraphic evidence for earlier living floors or other forms of aboriginal excavations was discernible.

A single component of historic age was present, consisting of thirty artifacts and 116 pieces of chipping detritus in association with the living floor. Fourteen artifacts of metal and glass were obtained; other implements include several retouched and utilized flakes, three bifaces, two cortex-flake tools, a fragmentary hand maul, and a uniface. Black vitreous basalt is the most common lithic material, comprising 87% of the total assemblage.

Twenty-one retouched and utilized flakes as well as 72 pieces of debitage were found directly beneath the living floor and may indicate the presence of an earlier prehistoric occupation. Because of the absence of corroborative stratigraphic evidence as well as the small sample size, this assemblage is provisionally included with the floor assemblage in the historic component of Housepit 2.

Several features were recorded. The flat, unstepped floor was covered with 10 to 15 cm of charcoal and charred timbers of various sizes, presumably the burnt and collapsed pithouse superstructure. The bases of three of the four large roof support posts were exposed *in situ*, as were several smaller uprights. The three large posts varied between 15 and 20 cm in diameter. A litter of firecracked rock covered much of the floor as did scattered patches of fir needle "matting." These needles may be the remains of the original floor cover or may have fallen onto the floor when the roof collapsed.

Animal remains include that of deer, fish, bird (sp?) and small rodents.

WILKINSON SITE (EeR1 26)

The Wilkinson Site is located on a wide terrace along the east bank of the Fraser River just south of Lillooet (Fig. 1). The site has an altitude of 270 m and lies about 60 m above the Fraser. Aeolian sands support a scattered ponderosa pine (*Pinus ponderosa*) vegetation with a bunch grass (*Agropyron*) association.

EeR1 26 consisted of a single well-defined housepit with five associated

surficial cache-pits. The housepit measured 11.9 m east/west by 11.5 m north/south and was 0.93 m deep. The round cache-pits were located within a 15 m radius of the house and averaged 1.7 m in diameter and 0.45 m in depth.

Four 1 x 2 m squares tested the interior of the housepit. All squares were dug by stratigraphic levels to culturally-sterile terrace sands.

Fifteen centimeters of cultural deposits were recorded directly below the surface. These deposits lay on top of a well-defined living floor which was easily identified by its grey-brown colour. The unconsolidated matrix consisted primarily of wind-blown sands.

EeR1 26 is a single component site of historic age. The site assemblage consists of 47 artifacts of metal, glass, porcelain, kaolin and shell (*Margaritifera* sp.?). Chipping detritus was completely absent. An artifact of special note is a possible headband of woven copper strips. Vertical warps of copper were twilled with cotton wefts to form a long and narrow woven band. The copper strips are extremely thin and narrow (1 mm) and appear to be machine cut.

Features include the unstepped living floor, part of the central hearth, and one small post hole. Pithouse walls were not exposed. The centrally located hearth consisted of some carbon-stained and burnt soil but without rocks. The shallow post hole measured 17 cm in diameter and was located a few centimeters northeast of the hearth.

MALM SITE (EeR1 27)

The Malm Site is located 200 m north of EeR1 26 on the same river terrace. The aeolian sands support a vegetation similar to that of the Wilkinson Site.

EeR1 27 consisted of a single circular housepit 7.9 m in diameter and 0.75 m deep. Seven round cache-pits similar in size to those at EeR1 26 were scattered within a 15 m radius around the house.

The depression was investigated by a one-meter wide north/south cross-trench which extended beyond the rim of the housepit. Excavations were carried out in 10 m thick arbitrary levels with all material screened by 1/8 inch mesh.

The excavation of EeR1 27 revealed a shallow cultural deposit directly below the surface and on top of a well-defined living floor. The culture-bearing aeolian matrix varied between 15 and 30 cm in maximum thickness. Much of the floor was covered with an extensive charcoal and ash deposit which is interpreted as the burnt and collapsed pithouse roof.

Like the Wilkinson Site, EeR1 27 is a single-component site of historic age. Seventy-seven artifacts originated from within the pithouse; no cultural material was recovered from outside the depression. Included in this assemblage are a kaolin pipe bowl, two circular blue-glass trade beads, and a metal projectile point. Stone and bone tools are absent although an unworked black basalt flake was recorded.

In addition to the unstepped living floor, two features were exposed. The first is the pithouse wall. This 60 cm high wall formed a 100° angle with the living floor, resembling the steep-sided pithouse illustrated by Teit (1900:193). Although the pithouse had been dug into a relatively unconsolidated material, the walls were not braced with either rock or wood.

The second feature was the basal portion of a large roof support post. The post measured 42 cm in length and 17 cm in diameter and sloped towards the outside of the depression at an approximate 78° angle. It had been placed in a shallow hole which had been dug through the house floor into terrace gravels to a depth of 10 cm below the floor.

An unworked marine snail, (*Margarites succinctus*), was identified from this component and represents the only faunal remains at the site.

DISCUSSION AND CONCLUSIONS

This section is divided into four arbitrary headings: chronology; material culture systems; pithouse construction; and subsistence patterns.

Chronology

A chronology of the twelve archaeological components is presented in terms of the Late, Middle and Early Period framework formulated by Sanger for the Lochnore-Nesikep Locality (Sanger 1967b:188-9). This scheme is based on six radiocarbon age determinations, site stratification, material culture content (primarily projectile points and uniface typology and the presence or absence of microblades) and comparison of that content with dated cultural material from the Lochnore-Nesikep Locality.

All excavated components are attributable to the Nesikep Tradition (Sanger 1969). The earliest evidence for occupation in our excavation sample originates from Component 3 at the Fountain Site. The microlithic assemblage from this component resembles the material culture from the Lehman Site, Zone II and the Lochnore Creek Site, Zone I, both of which are located in the Lochnore-Nesikep Locality. These components have several material traits in common, including well-formed unifaces,

notched unifaces, large corner-notched points, serrated points, microblades, points on microblades, and a high incidence of the use of non-vitreous basalt. Sanger (pers. comm. 1970) thinks that the Fountain Site component represents a transitional development between the two Lochnore-Nesikep components. Zone I of the Lochnore Creek Site is placed within the Upper Middle Period; Sanger considers a date of 720 ± 130 B.C. (GSC-407) as the most reasonable of several radiocarbon assays from this zone (Lowden *et al* 1969:32-3). The Lehman Site, Zone II, is assigned to the beginning of the Lower Middle Period at about 3000 B.C. (Sanger pers. comm. 1971) although a problematic C¹⁴ determination of 4700 ± 110 B.C. (I-2367) has been received for this zone (Sanger 1967b:191). I would, therefore, *provisionally* estimate the age of Component 3 at the Fountain Site to lie between 2000 and 1500 B.C. although a considerably earlier date is possible if the C¹⁴ determination for Zone II of the Lehman Site is valid.

All components of the Mitchell Site except Components 1 and 4 are assigned to the later half of the Upper Middle Period, *ca.* 1000-1 B.C. This assignment is based on three radiocarbon dates and the stratigraphic position of the components in relation to the Bridge River volcanic ash. This ash has been dated at between 720 ± 140 B.C. (GSC-531) and 170 ± 150 B.C. (GSC-577) (Westgate *et al* 1970:25). A date of 825 ± 85 B.C. (S-582) was obtained on Floor F located less than 10 cm below the volcanic ash while a date of 600 ± 80 B.C. (S-581) was received for a charcoal sample from Floor E located less than 15 cm above the ash. Floor C was dated to 235 ± 85 B.C. (S-580).

Corner-notched atlatl points, uniaxially retouched flakes, and the absence of microblades are some of the material characteristics of this time period. The radiocarbon age determinations for these components are significant in that they indicate that microblades were probably out of use by about 800 B.C. This date is eight centuries earlier than the date suggested by Sanger for the termination of the microblade tradition (Sanger 1967:191).

The small assemblage associated with Component 2 at the Fountain Site dates to the beginning of the Late Period. Two radiocarbon assays of A.D. 445 ± 70 (S-584) and A.D. 460 ± 70 (S-583) were obtained for this component. The Gibbs Creek Site component was dated to A.D. 1030 ± 90 (GaK-3284).

Component 1 at the Fountain Site and Component 4 at the Mitchell Site date to the Kamloops Phase, *ca.* A.D. 1250-1800. The Kamloops Phase is the only cultural phase which has been defined for the southern

Interior of British Columbia and represents a prehistoric way of life very similar to that described by Teit for the ethnographic Upper Thompson, Fraser Lillooets, and southern Shuswap (Sanger 1968a-146-9). The Kamloops side-notched point, numerous retouched flakes, the absence of microblades and the high incidence of vitreous basalt are some material characteristics of this phase.

The historic period from about A.D. 1800 is represented by the Wilkinson Site, the Malm Site and Component 1 at the Mitchell Site. The large number of aboriginal artifacts (chipped stone tools, etc.) at the Mitchell Site component may be indicative of an early historic date prior to the wholesale introduction of non-aboriginal materials. The other two historic components probably date from the 1850's or later when large amounts of metal, glass and related Euro-American materials were introduced to the area.

Utilizing my estimates of site age prior to any radio-carbon dates, Davis has worked out a *provisional* obsidian hydration rate of 2.2 microns²/1000 years B.C. for the Lillooet area. This rate is based on eleven obsidian hydration rim counts and is subject to revision.

Material Culture Systems:

When the assemblages of the twelve excavated components are viewed as remnants of a regional technological tradition, a number of attributes common to all these components emerge. Such attributes define the tradition and are an indication of how its bearers were able to technologically adapt to the specific regional environment. The major diagnostic characteristics are:

(1) the overwhelming preponderance of stone as a raw material for the manufacture of artifacts: The relatively good organic preservation at both the Fountain Site and the Mitchell Site prevents us from simply relying upon the concept of differential preservation to explain the under representation of artifacts made of bone, antler and organic fibre. At EeR1 19, for example, birchbark, Douglas fir bark, animal bones, seeds and even some human skin and hair were preserved but only one implement of bone or antler was recovered. This seems to indicate that non-lithic materials, especially bone and antler, were quantitatively not a major raw material for artifact manufacture. This does not mean, however, that these materials were not qualitatively significant.

(2) the high incidence of basalt as a raw material: At the three prehistoric sites, basalt comprised 98% (EeRk 7), 70% (EeR1 19), and 84% (EeR1 22) of the total site assemblage. Non-vitreous basalt is more com-

mon in the older components, notably EeRl 19, Component 3, with numerous artifacts made of this material. Vitreous basalt, although present in all components, is more prevalent in later occupations. There seems to be a transition from the use of non-vitreous basalt to the use of vitreous basalt so that the percentage of these two materials in any component may be of temporal significance.

(3) the frequency of chipped stone implements: Percussion and pressure flaking shaped 97.8% of all artifacts at EeRk 7, 97.3% at EeRl 19 and 90.3% at EeRl 22. The presence of both microblades and macroblades attests to the use of indirect percussion. Other techniques employed for the manufacture of lithic artifacts include grinding, drilling, sawing and pecking but these artifacts are not of quantitative importance.

(4) the dominance of flake and blade tools over core tools: I estimate that less than 5% of all lithic artifacts are based on cores. Many bifacial implements, which traditionally are made on cores, exhibit remnant positive bulbs of percussion or striking platforms and were made on flakes.

(5) the frequency of chipping detritus: At EeRk 7 and EeRl 22, where exact material culture quantification was possible, the artifact-debitage ratio per component ranged from 1:2.93 to 1:11.27. These ratios can be interpreted to indicate that sufficient amounts of good quality raw material was constantly available for chipping and that as a result the knapper could afford to be selective and discard large amounts of material.

(6) the preponderance of retouched and utilized flake in all prehistoric assemblages: Flakes without well-formed outlines but exhibiting either "use-wear" or marginal retouch constitute the two most frequent artifact classes of this technological tradition. In several components they comprise more than 75% of the total assemblage and never do they represent less than 50% of the assemblage. The historic use of retouched flakes was noted by Teit (1906:203) who stated that "... most skin-scrapers were simply thin pieces flaked off from pebbles of various kinds, and were slightly chipped on one edge only." Although these two artifact classes may be formally unimpressive, they should not be overlooked or dismissed with a mere mention of their presence when defining the parameters of material culture systems.

Several additional observations can be made regarding the recovered material culture. The presence of ground nephrite in Component 3 of EeRl 19 may represent the earliest occurrence of worked nephrite in the southern Interior. It is possible, however, with the extensive cultural mixing present at EeRl 19, that this nephrite chip is intrusive from a younger component. The fragment is too small to determine whether or not it is

part of a nephrite adze blade. Therefore, our earliest evidence for the use of the adze blade in the southern Interior still comes from Zone I of the Lochnore Creek Site, (Sanger 1967a:206), dating to the first millenium B.C. (Sanger 1967b:188-9).

Macroblades were encountered in association with the EeRl 22 historic component and Component 3 at EeRl 19. No macroblade cores were recovered. The historic macroblades are relatively large with lengths in excess of 5 cm. The Fountain Site macroblades are notably smaller and may have been a byproduct of microblade production. There is no evidence for the utilization of macroblades during the time interval between the macroblade-bearing components. As such, the historic blades may represent a recent innovation rather than the terminal phase of a long and *continuous* tradition of macroblade production.

The EeRl 19 microblades closely resemble the microblades from the Lochnore-Nesikep Locality. The terminal date for microblade usage probably is somewhat earlier than initially suggested.

Unifaces (unifacially retouched flakes with well-formed outlines) are more frequent in Component 3 of EeRl 19 than in any other component. At EeRl 22, for example, unifaces comprise less than 4% of each assemblage. The converse is true for the frequency of unifacially retouched flakes with amorphous outlines. This suggests that the unifacially retouched flake replaced the uniface as the predominant "scraping" implement in later times. A similar observation was made by Sanger for the unifaces at the Lochnore-Nesikep Locality (1966:17, 19). Because of the temporal gap between EeRl 19, Component 3, and all other components, we cannot fully document this transition nor can we state with any certainty when it took place. But the small number of unifaces in the EeRl 22 components indicates that this transition was well under way if not completed by the first millenium B.C.

The great reliance which is traditionally placed on projectile point typology for the elucidation of historical relatedness necessitates that this topic be briefly discussed. Based on a sample population of 190 projectile points, the following observations can be made:

(1) stem grinding is prevalent on the earlier points (EeRl 19, Component 3) but is completely absent on points from the later components. Sanger also made this comment with regard to the projectile points from the Lochnore-Nesikep Locality (1966:19). No firm date can presently be offered for the termination of stem grinding but this practise was absent by 800 B.C.

(2) finely flaked points made on microblades seem to be one aspect of

the regional microlithic assemblage. They are not frequent but are nevertheless present. Such points have been reported for the Lehman Site, Zone II (EdRk 8) and the Lochnore Creek Site, Zone I (EdRk 7) (Sanger 1966) as well as the Fountain Site, Component 3.

(3) the sequence of projectile point types documents the replacement of the atlatl with the bow and arrow. Evidence for this transition is based on the assumption that small light points with narrow necks functioned as arrow points whereas larger and heavier points with wider necks served as atlatl or spear points. Table 3, which summarizes the metric data for point neck width, clearly defines two clusters of neck widths. The difference between the two clusters is statistically significant at the .01 confidence level and in my opinion they represent the distinction between arrow points and atlatl-spear points. The greater standard deviation for the atlatl-spear cluster is to be expected since these projectiles can vary considerably in shaft diameters.

TABLE 3
PROJECTILE POINT NECK WIDTHS
(in mm)

	<i>N</i>	<i>Range</i>	<i>Mean</i>	<i>S.D.</i>
Arrow	99	5.1-10.6	7.36	1.5077
Atlatl-Spear	43	9.8-27.3	15.77	3.2859

When the atlatl-spear/arrow distinction is applied to each of the components, it becomes apparent that the bow and arrow is a recent innovation. The first arrow points appear in Component 4 of EeRl 22. Only two arrow points are present in this component and the possibility of intrusiveness should not be overruled. This component also contains atlatl-spear points and indicates that both the atlatl and the bow and arrow may have been in use at the same time. Arrow points are the exclusive point form in EeRl 19, Component 1 and EeRl 22, Component 1. Present data indicates that the introduction of the bow and arrow took place during the time period represented by Component 2 at the Mitchell Site, *ca.* 200 B.C. with the total disappearance of the atlatl by at least Kamloops Phase times (*ca.* A.D. 1250).

Pithouse Construction:

All sites with the exception of the Fountain Site yielded valuable information about pithouse construction. Numerous post moulds and post holes

were recorded, especially at the Mitchell Site, giving some insight into the number, size and patterning of uprights within the pithouse. Because whole floors were not exposed, nothing can be said about the antiquity of the four-post roof construction described by Boas (1890:633), Dawson (1891:7) and Teit (1900:193).

Hearth deflector slabs, stone retaining walls, stepped living floors and central floor "wells" were recorded by Sanger for the Lochnore-Nesikep Locality. These structural features were not observed in this season's excavations. Initial indications are that these structural attributes as well as many other attributes such as overall size, geometric shape and maximum depth do not have temporal significance. Instead, local environmental conditions and possible familial traditions of pithouse construction seem to be more instrumental in determining the structural attributes of the dwelling.

The horizontal extent of past living floors is an indication of pithouse size as well as the size of the family unit that inhabited the dwelling. Utilizing Teit's (1900:192) historic data for mean pithouse diameter and mean number of pithouse inhabitants, one can obtain a range from 1.94 to 2.91 square meters of floor space per person. When these averages are applied to Floor A of Pithouse 1 at EeR1 22 (the only living floor for which accurate dimensions are available), a population estimate of between 11 and 17 people emerges.

As additional information is accumulating on pithouse construction, it is rapidly becoming apparent that Teit's illustration of the Thompson semi-subterranean dwelling is somewhat idealized. Sanger has suggested to me that the pitch of the illustrated roof may be too steep to permit access to the roof entrance. The archaeological data indicates that not only is there considerable variation in the exact placement and angle of the various roof support posts, but also that the illustrated steep wall is more frequently a low sloping wall. Turnbull (1971) also noted low sloping walls for several of the pithouses he excavated along the Arrow Lakes.

Subsistence Patterns:

Only a minimal amount of information was obtained relating to subsistence. Although faunal remains were quite numerous, they did not display much variation. The preponderance of deer bone and fish remains in all components indicates a marked dependence on deer and fish (presumably salmon). Sanger states that there is evidence for the utilization of deer, fish and rodents from the beginning of the Nesikep Tradition, ca. 5,000 B.C. (Sanger 1969:196). Other faunal species seem to have been

of secondary significance. Cow at EeRl 22 and EeRl 26 and horse at EeRl 22 is, of course, related to the introduction of domesticated ungulates by Euro-Americans.

There is little direct evidence for the utilization of vegetal foods. Berry seeds were noted in association with the Kamloops Phase burials at EeRl 19. Berry seeds were also found in Component 3 at EeRl 19. Component 2 at EeRl 19 contained *Pinus albicaulis* cones, indicating at least 1500 years of antiquity for the exploitation of high altitude ecozones. The grinding slabs at EeRl 19 probably were used for processing seeds, berries and related foodstuffs.

In conclusion, most of the information obtained this season related to the cultures of the later Upper Middle Period and Late Period, ca. 1000 B.C.-1800 A.D. This time span is poorly represented in the archaeological sequence of the Lochnore-Nesikep Locality, which is the most comprehensive survey of the regional prehistoric cultures to date. Continued excavation of sites attributable to this time should eventually document in detail those developments which led to the emergence of ethnographic Plateau culture.

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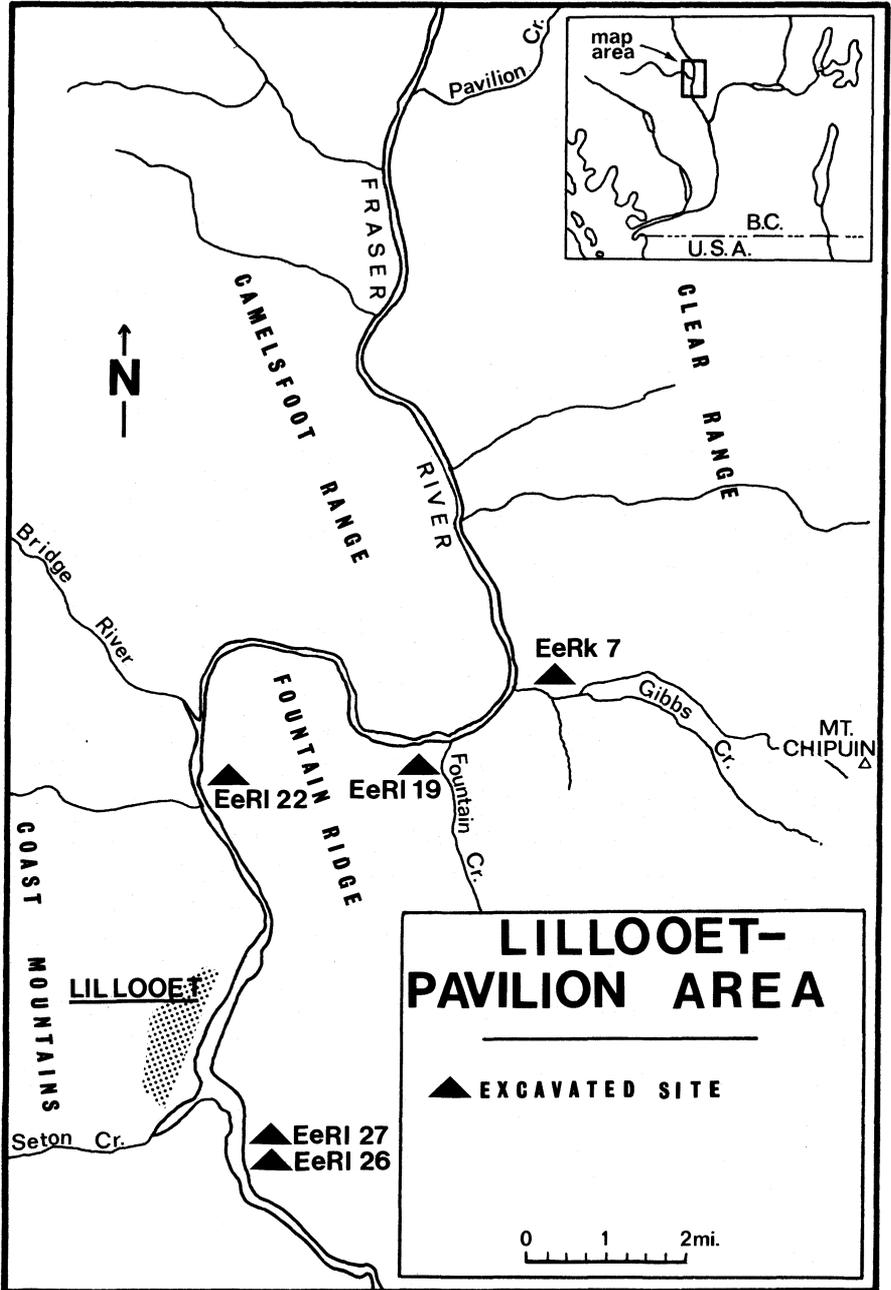


FIGURE 1
Map of the Lillooet-Pavilion Area of British Columbia

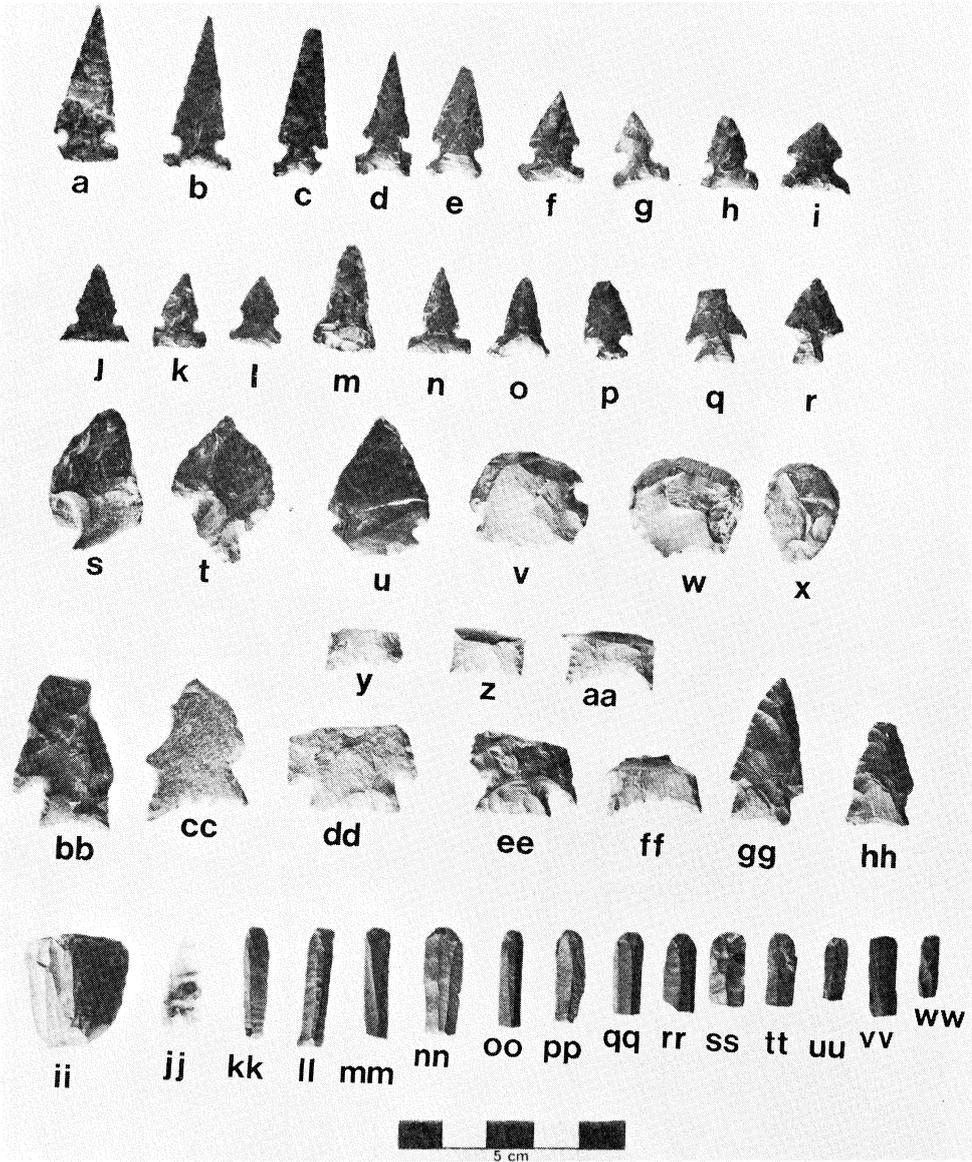


FIGURE 2

Selected Artifacts from the Fountain Site (EeR1 19)

a-o Kamloops points, Component 1; *p-r* corner-notched points, Component 1; *s-u* corner-notched points, Component 2; *v* notched uniface, Component 3; *w-x* oval unifaces, Component 3; *y-hh* corner-notched and stemmed points, Component 3; *ii* microblade core, Component 3; *jj* point on a microblade, Component 3; *kk-ww* microblades, Component 3.

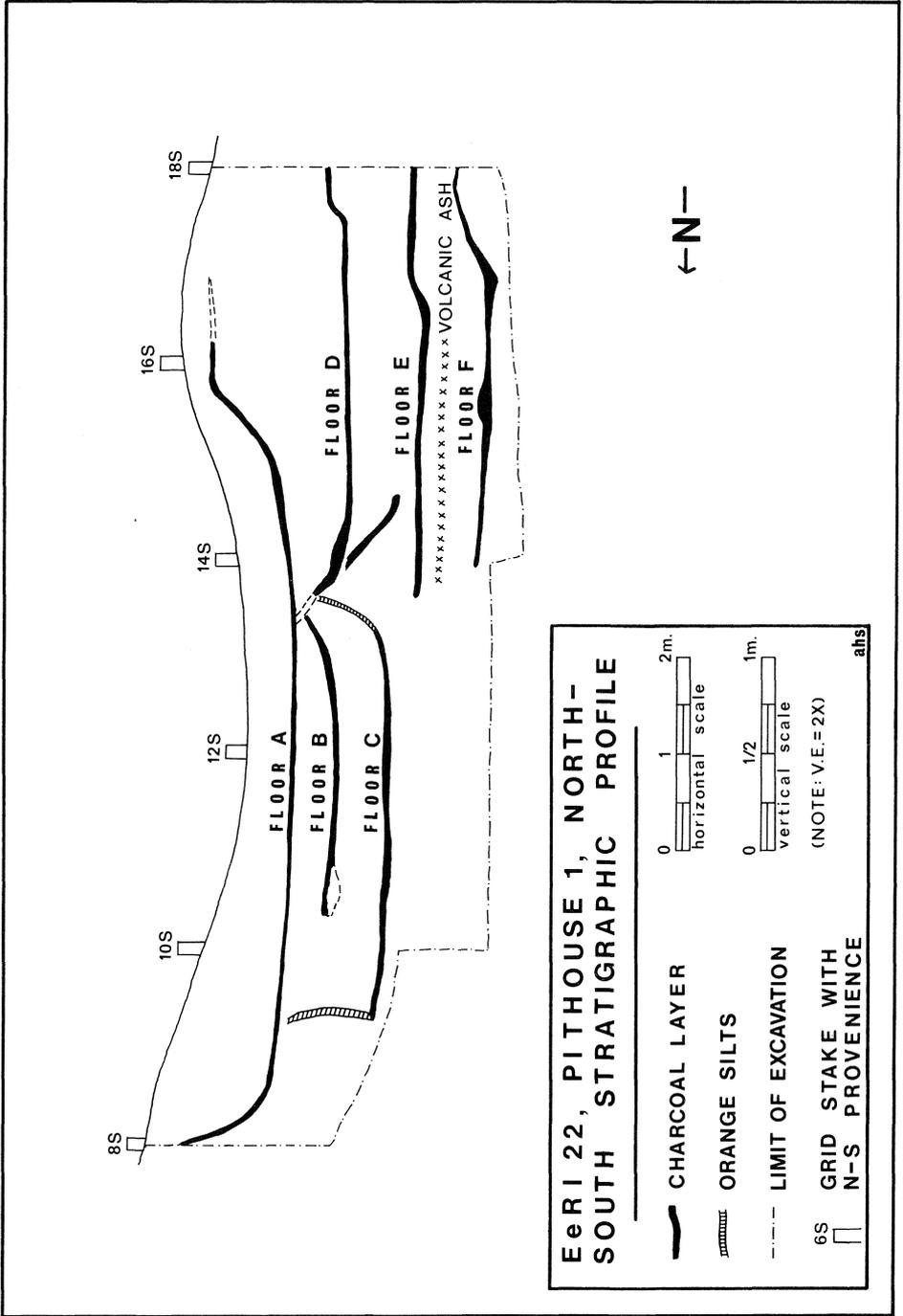


FIGURE 3. EeR1 22, Pithouse 1, North-South Stratigraphic Profile

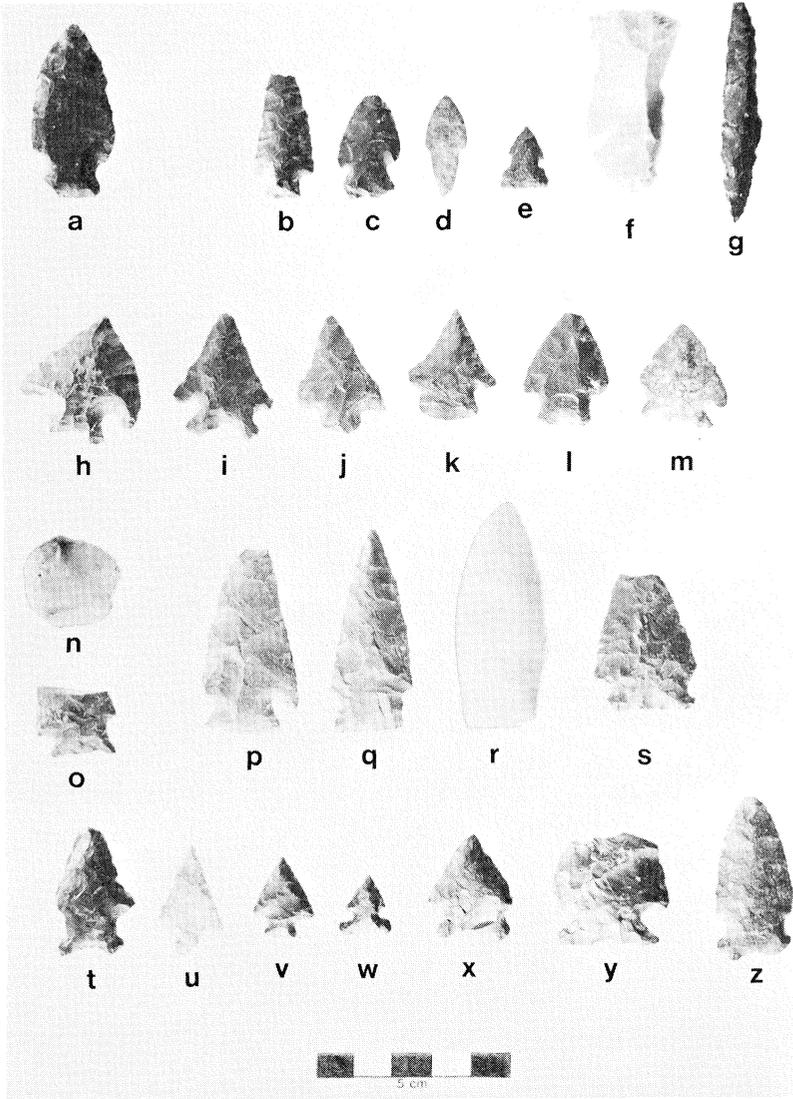


FIGURE 4

Selected Artifacts from the Gibbs Creek Site (EeRk 7) and the Mitchell Site (EeR1 22)

a is from EeRk 7, all others are from EeR1 22. *a* corner-notched point, EeRk 7; *b-c* points, Component 1; *d* iron point, Component 1; *e* Kamloops point, Component 1; *f* macroblade, Component 1; *g* drill, Component 1; *h-m* corner-notched points, Component 2; *n* oval uniface, Component 2; *o-q* corner-notched and stemmed points, Component 3; *r* "Plano-type" point, Component 4; *s-v* corner-notched and side-notched points, Component 4; *w* Kamloops point, Component 4; *x-y* corner-notched and side-notched points, Component 5; *z* side-notched point, Component 6.

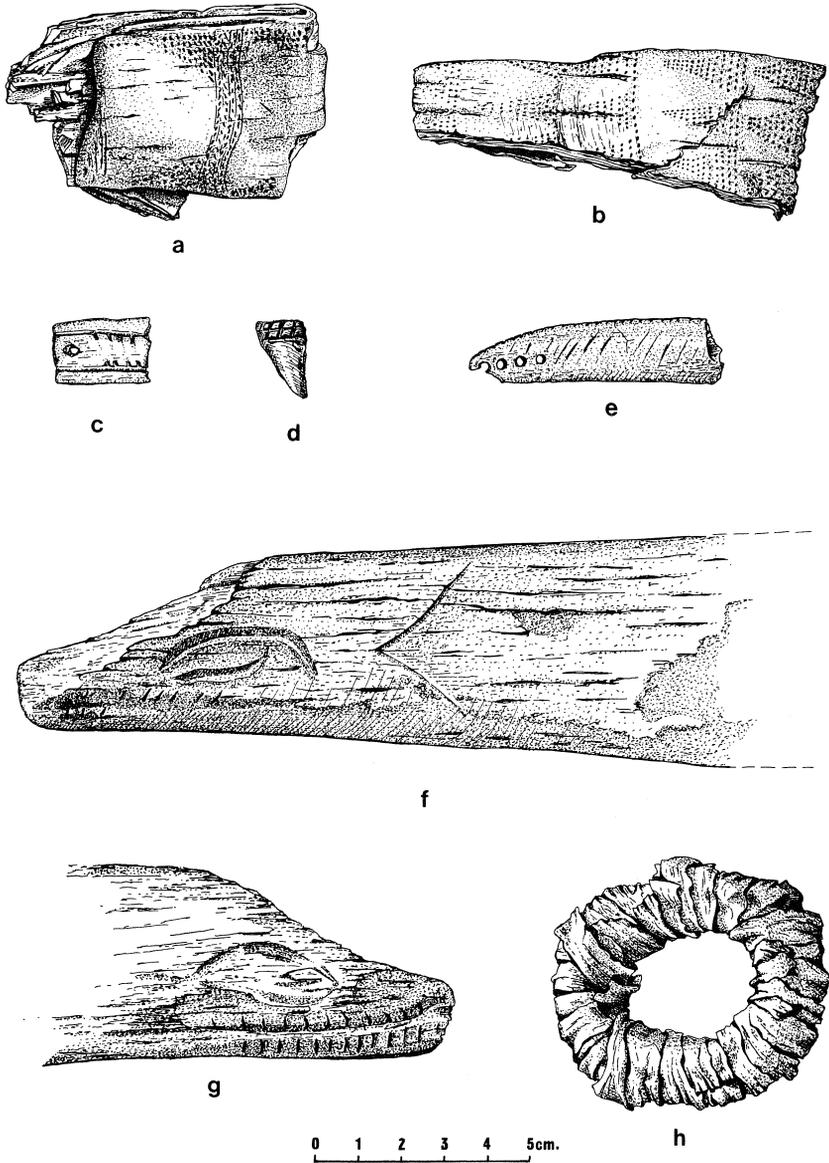


FIGURE 5

Selected Decorated Artifacts of Stone, Bone and Bark

a impressed birchbark, Component 2, EeR1 19; *b* tattooed birchbark, Component 2, EeR1 19; *c* incised and perforated bone, Component 5, EeR1 22; *d* incised soapstone pipe bowl fragment, Component 1, EeR1 22; *e* notched and perforated bone fragment, Component 1, EeR1 22; *f* and *g* the two sides of the incised whalebone club, Burial 1, Component 1, EeR1 19; *h* birchbark dip-net ring, Component 2, EeR1 19.

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