THE MIDDEN

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New Sites Near Agassiz

Discriminate Function Analysis of Interior Projectile Points

Pit House Comparison

THE MIDDEN

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Cover

House of the 6th layer of the Ushki 1 site (1970s). (Lebedintsev)

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In this issue

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On the Title of this Journal

In the post-Truth and Reconciliation Comission era, many of us are questioning our long-held assumptions and biases. The ASBC acknowledges the need to decolonize archaeological practice and society at large in the interest of reconciliation. One way of doing so is to raise awareness that the language(s) we use in our day-to-day lives have unintended consequences that can perpetuate colonialism and widen, rather than bridge, the gaps between Indigenous and settler communities.

A prime example of linguistic alienation that reopens old wounds is found in the namesake of this journal, The Midden. The etymological roots of this English word (from the Danish myddyng meaning 'muck heap') belie the fact that these anthropogenic landforms are much more important than simply piles of garbage. Many are feats of monumental architecture. Many are burial grounds of ancestral First Nations. All are places of history.

The Midden journal has its own, albeit shorter, history. For the past fifty years this publication has been the only quarterly journal focused on archaeology in British Columbia. To the members of this society, the name of the journal reflects the rich resources that middens offer in the way of cultural and scientific ways of understanding the past. In recognition of this legacy, we plan to keep the name for the time being while at the same time acknowledging its limitations. The ASBC is planning to gather and share terms used by First Nations from around the province that better capture the cultural nuances of these places of history.

The ASBC Pages

From the Editor

This issue comes at the end of a busy and productive summer. As we move forward into the fall we look back on the results of several projects that shed new light on the history of their regions.

Though the article summarizing the 2012 work at Ross Bay Villa comes several years after the fieldwork took place, it reminds us of the community involvement which is so important to the society.

With more recent projects such as the excavation, and archaeology day at Point Ellice House, we are providing more opportunity to get involved. We are sure to hear about these sorts of projects in upcoming issues.

In an effort to expand the opportunities to participate in the activies of the society, we welcome new members to our editorial team. Expressions of interest can be sent to the editor.

President's Letter

The 2017-2018 year has kept us busy at the ASBC. Our lecture series continued at the UVic Anthropology Department with several interesting talks and discussions on archaeology going on in the province.
We have also maintained last years growth of our membership, which as of August 15 stands at 70. Keeping these numbers up is one of our primary focuses as memberships make this Society continue, and allow us to offer what we do for the archaeological community.

This year the Gerald Merner fieldschool award of $250 was given to Larissa Dixon to participate in the Barkley Sound fieldschool. As always we accept donations to add to this grant, and hopefully one day we will be able to contribute a larger amount to multiple students each year.

This summer's Point Ellice House Archaeology Day was a big success. The ASBC's historic excavations at Point Ellice House last year led to the collaborative community event featuring the Underwater Archaeological Society of BC, the Burnside-Gorge Community Association, the Métis Nation of Greater Victoria, the BC Heritage Branch, and the Royal British Columbia Museum and Learning Team. Driftwood Brewery and the Saltchuck Pie Company provided pies and pints.

Over the last year we have hired a part-time administrator to keep on top of membership and subscriber lists, manage the website, CRA and BC Registrars Office duties. It is my opinion that for the Society to continue, with an ever changing volunteer board, we must have some individual to provide continuity and maintain the required day-to-day duties in light of the fluctuating busyness of volunteer board members.

We look forward to another engaging lecture series this fall and winter, with as many educational and community engagement events as we can muster.

Best,

Jacob Earnshaw
ASBC President

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A DELAYED REPORT:

ROSS BAY VILLA EXCAVATION 2012

by Jacob Earnshaw and Tom Bown

Summary of Project

In 2012, during the restoration of the Ross Bay Villa (DcRu-689), built in 1865, a modern driveway on the east side of the property was slated for conversion to a vegetable garden. As much of the surface material needed to be removed it was an excellent opportunity for an archaeological assessment. The Victoria Chapter of the Archaeological Society of BC (ASBC) and The Land Conservancy of BC (TLC) partnered for a small community excavation to uncover historic materials and evidence of the original garden. Restoration work including the archaeology on the property was all provided by community volunteers.

The bulk of the excavations resulted in highly, recently disturbed soils likely resulting from a 1970s or early 1980s driveway construction. Historic materials associated with grave construction of neighboring Ross Bay Cemetery tombs were uncovered in these disturbed deposits. A few small shovel tests along the fence at the back of the property turned up intact European midden deposits containing a number of interesting historic artifacts.

Figure 1: Photo taken in 2012 of one of the trenches being dug ahead of the garden restoration.

Background

(Taken verbatim from "ASBC Report on Ross Bay Villa, DcRu-689" report [MacLennan et al 2000]) The Villa, built in 1865, is one of the oldest surviving residences in the Capital Regional District. It had been built, apparently as revenue property, in the remote countryside close to Ross Bay. (The Ross Bay Cemetery was subsequently sited between the villa and the seashore.) Originally on a lot of 1.8 acres severed from the Fairfield Farm Estate, the house was at first rented to Frank Roscoe (Liberal MP for Victoria 1874-1889) and then to George Winter, coachman for the Lieutenant-Governor's residence which is half-a-mile north. After his death in 1912, the land was subdivided and stonemason John Mortimer, who founded Mortimer's Monumental Works next door, moved in with his family. Over subsequent years, a blacksmith and a prominent golfer lived there, and from 1952 to the 1980s the Hewison family called it home. Gradually, the property has been subdivided to typical large city lot size -c.90'x120'. In recent years the house had become increasingly rundown, then abandoned and vandalized. It was slated for demolition until adopted by TLC.

The 2012 Dig

This project was the second of two ASBC digs that were carried out on the Ross Bay Villa property. The first, undertaken in the first six months of 2000 largely took place on the west and south sides of the villa in an area the TLC planned to restore to landscaped gardens. Their findings indicated many years of garden use and heavy ro-

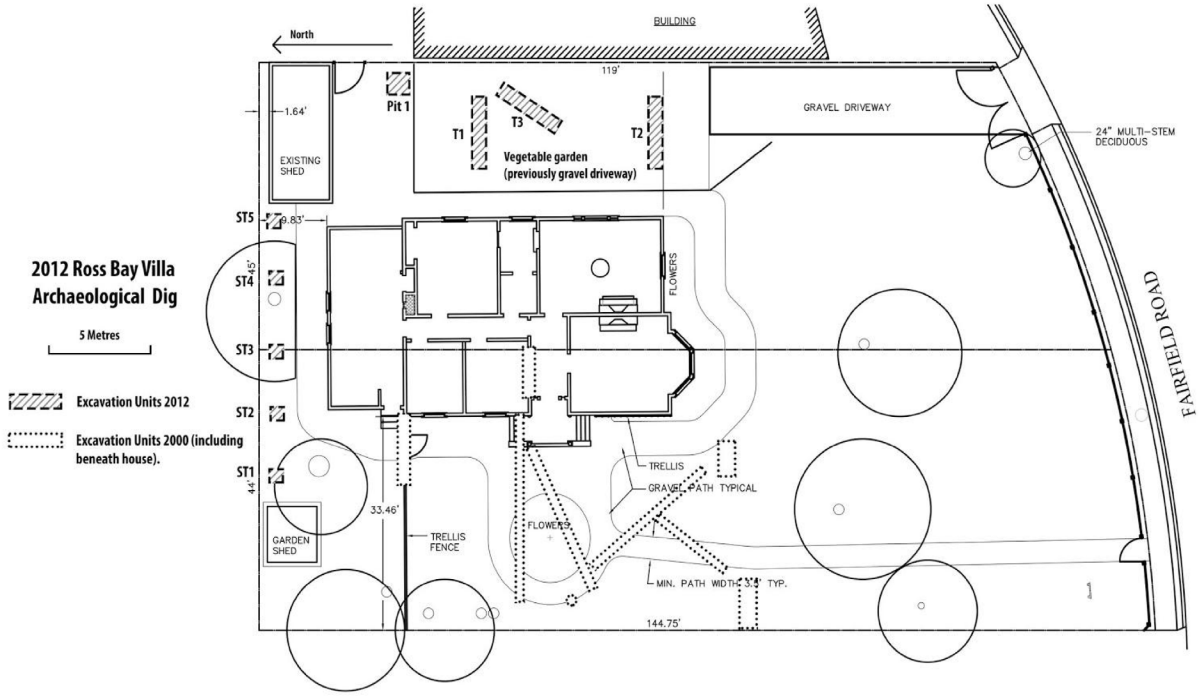


Figure 2: Map of Ross Bay Villa site, DcRu-689 showing excavation locations from 2000 and 2012

to-tilling which had greatly disturbed any potential deposits that might have existed. A number of artifacts were recovered, including a glass button, domestic fork, ceramic doll limbs, marbles, a toy cap-gun, gothic tiles and a number of broken glass bottles.

Figure 3: Earthenware plate with a transfer printed floral design likely late 19 th early 20 th century. Fragments can indicate what patterns were used in the Villa.

In March 2012, the Victoria chapter of the ASBC contacted the TLC after volunteers at the Ross Bay Villa restoration committee discussed the possibility of a new archaeological excavation at the house. A vegetable garden was planned for the immediate east side of the house in the existing driveway. There was some concern that the ground surface beneath the gravel might be partially intact or capped following the creation of the driveway. Before ground was to be broken for the deposition of garden soils, the ASBC planned for several volunteer excavation days on weekends between April 14th and May 23rd (a total of 11 work days). Twenty-one volunteers contributed an estimated 250-275 hours on the project.

Methods

A datum was established on the southeast corner of the house from which trench and excavation units were measured. Three 2 x .5 metre trenches and one 1x1 metre excavation unit were dug in the driveway on the east side of the villa. All but one were oriented east/west, with a single trench diagonal (southwest to northeast). Excavations were in 10 cm intervals to a depth of .6m to .8m, with notes taken on each level and changes in stratigraphy described. Four additional shovel tests were dug in a line along the back fence to the north of the villa.

The excavated trenches were found to be highly disturbed through the creation of the driveway. A candy bar wrapper and plastic wheels from a childs toy were found at depth of .5m, dating to the 1970s or 80s. Artifacts ranged from this period back to the late 1800s. The majority of the older material was crushed glass, nails and ceramic piping. A number of stone tiles were uncovered, likely either recovered by children from the Ross Bay Cemetery across the street or from a nearby stone mason (tombstone manufacture) that once had a workshop in the next lot.

The last day of the project was spent attempting a number of shovel tests along the fence at the back of the property. These tests resulted in a number of interesting artifacts including a fully intact garden tile from one of the original flower beds and part of a small ceramic squirrel. It is suggested that any future archaeological excavations take place as a trench along the back of this property. The presence of the fence has protected the ground from much recent disturbance, and its proximity to the back of the house has likely resulted in a higher incidence of discarded objects than elsewhere in the more manicured gardens. Unfortunately subdivision of the property early in the 20th century likely removed or destroyed trash pits or privies associated with the first few decades of the Villa.

Figure 4: Most of the artifacts recovered were fragmentary. The bottle fragments to the right date as early as the 1860s up to the mid 20 th century.
The ceramic fragments in the upper right probably date similar to the bottle fragments.

Figure 5: Gothic style garden tile partially exposed during excavation. A few were marked with Doulton. Excavated examples allowed for accurate reproductions to me made for the restored gardens.

References

MacLennan, Bill, Ken Robertson and Nick Russel
2000 'ASBC Report on Ross Bay Villa, DcRu-689'. Unpublished Report on file at the Ross Bay Villa Historic House Museum.

Archaeological and Cultural Investigations of Six Newly Recorded Sites near Agassiz

Mariko Adams, Anna Baran, Cara Brendzy, Lisa Dojack
Stó:lō Research and Resource Management Centre

Introduction

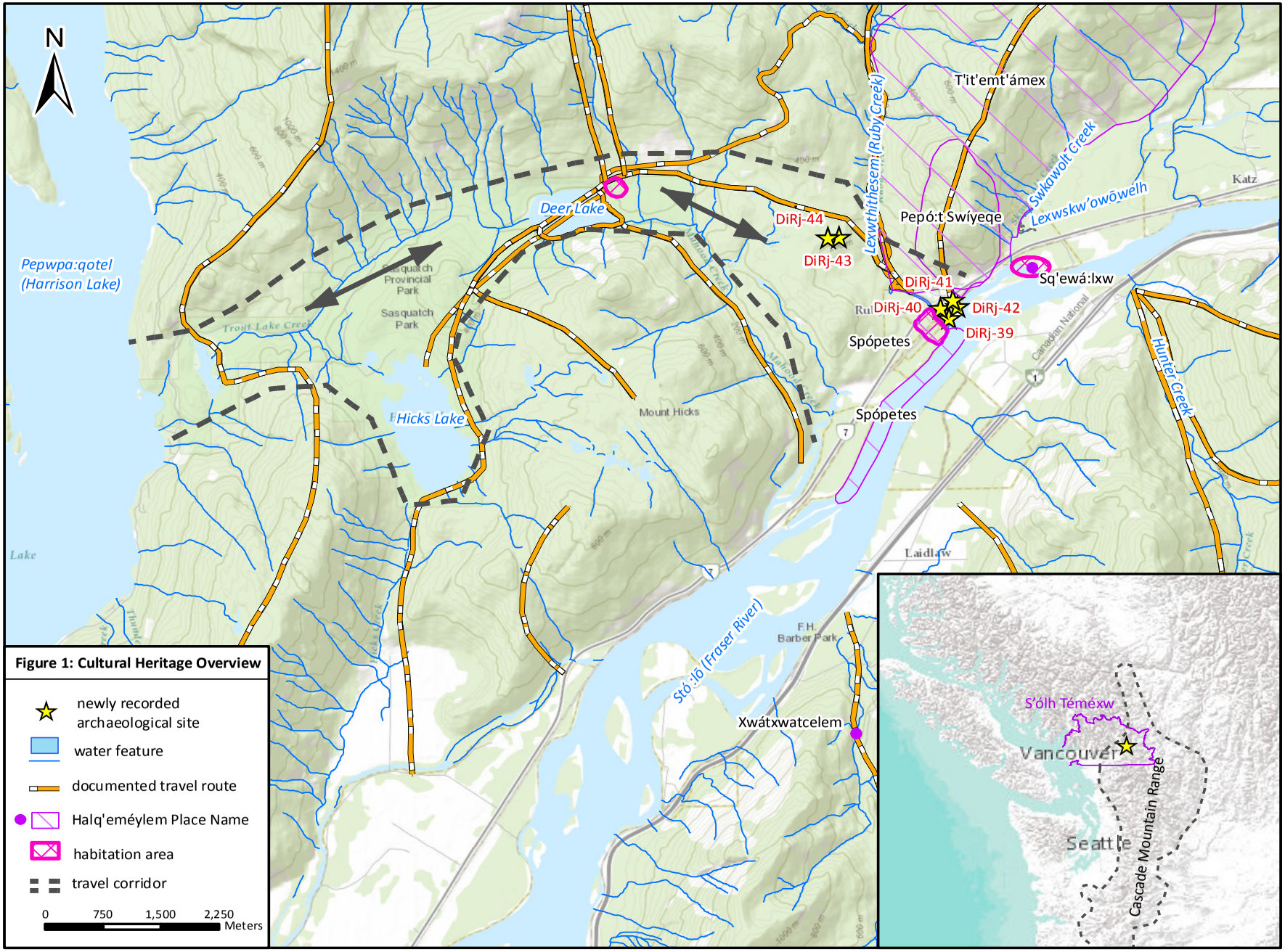
In 2016 and 2017, the Stó:lō Research and Resource Management Centre conducted development-driven archaeological impact assessments (AIAs) for two locations north of Agassiz, in S'ólh Téméxw (Stó:lō Traditional Territory). Stó:lō are the Halq'eméylem-speaking people of the lower Fraser River watershed. The assessments were conducted in an area that was traditionally occupied and continues to be occupied by Sq'ewá:lxw First Nation, one of the Stó:lō First Nations. The assessments included archaeological field investigations, which identified six new archaeological sites, as well as a review of previously recorded archaeological sites in the general area. The assessments also incorporated cultural sites and resources in the immediate vicinity, such as Halq'eméylem Named Places that have significance on the landscape, which provided a broader understanding of Sq'ewá:lxw cultural context in the area. The results of the assessments highlight a bias towards archaeological investigations in close proximity to the Fraser River and at lower elevations, as well as a relative lack of recorded mid-elevation sites. In contrast, the cultural data documents Stó:lō hunting, gathering, travel, trapping, fishing, spiritual use, and habitation spanning the totality of the landscape from time immemorial to present, from low elevation waterfront sites to high elevation mountain peaks. Further archaeological work needs to be undertaken to determine the spatial and temporal relationships among archaeological sites and in relation to cultural sites and travel corridors.

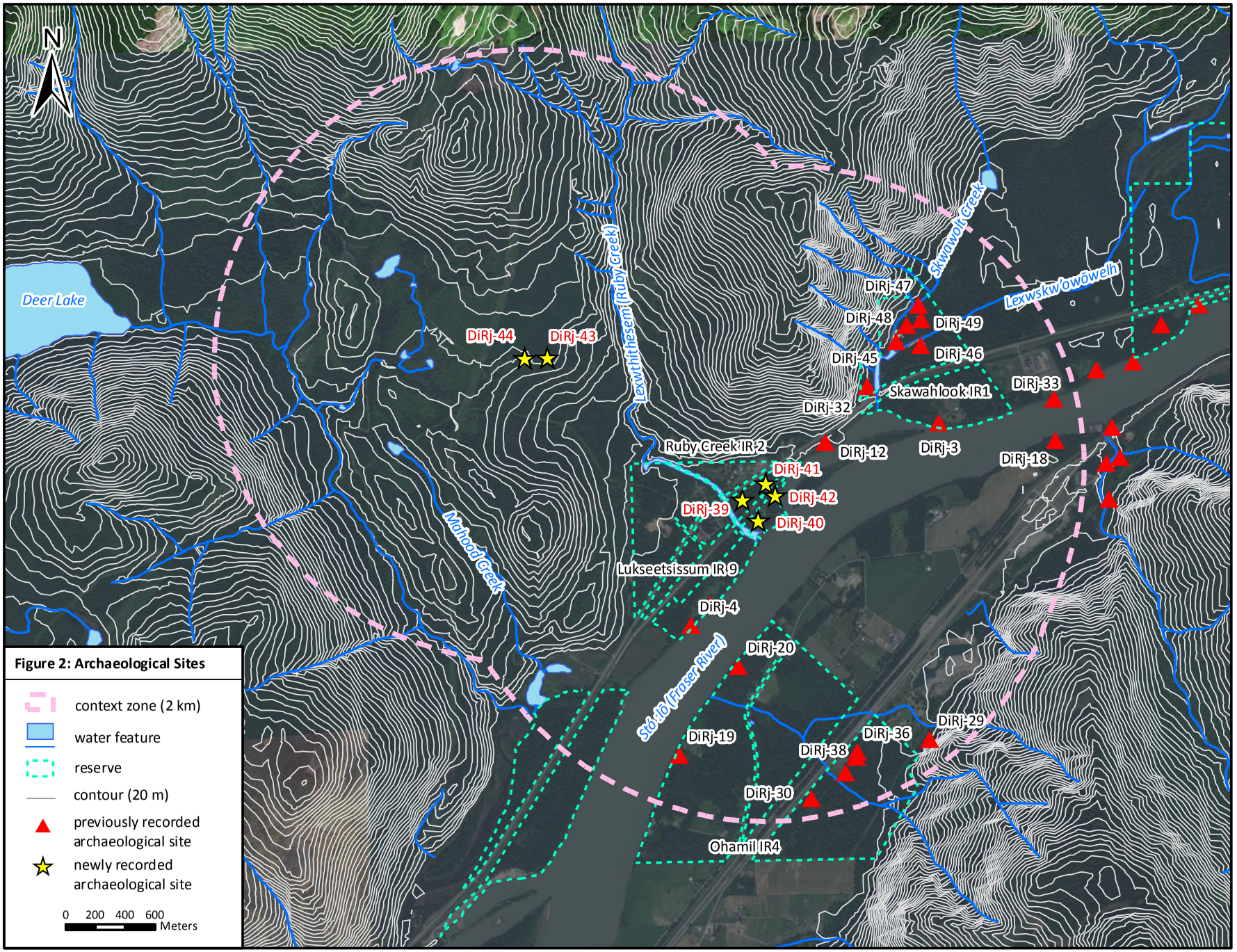
Cultural and Geological Overview

Sq'ewá:lxw (Skawahlook) First Nation derives its name from Sq'ewá:lxw, a nearby Halq'eméylem Place Name (Figure 1). Sq'ewá:lxw means "bend in the river," and refers to the confluence of Lexwskw'owōwelh (Skwawolt Creek) and Stó:lō (the Fraser River) at Skawahlook reserve (IR) 1. A small village was located near Sq'ewá:lxw, with a population estimate of 60 to 180 people in 1808 (Skawahlook 2014:8). The village would have been bounded by Stó:lō to the south, and Lexwskw'owōwelh to the north and west. Lexwskw'owōwelh refers to Skwawolt Creek and slough, and means "always get and drag canoe". Further to the east, upstream of Skawahlook IR 1, there was a larger village with long houses (Skawahlook 2014:8).

West of Ruby Creek IR 2 is Lexwthíthesam (Ruby Creek; "always big rocks rolling down"). The Ruby Creek watershed is considered the tribal watershed of the Sq'ewá:lxw people, with its access controlled by local populations, whereas Stó:lō access was shared among the general Stó:lō population (Skawahlook 2014:6). Lexwthíthesam is a known spawning ground for trout and steelhead (Sepass 1985/1986). A major village with an estimated population of 150 to 450 in 1808 was located at the confluence of Lexwthíthesam and Stó:lō (Skawahlook 2014:8). This village is assumed to be located on the east side of Lexwthíthesam. A second village, Spópetes, is documented west of Lexwthíthesam and was wiped out from smallpox but repopulated in the mid-1800s. Spópetes, meaning "blowing" or "always windy," also refers to a stretch of river downstream from Lexwthíthesam, and it is this landmark from which the second village took its name (McHalsie and Thom 1996).

Lexwthíthesam and Lexwskw'owōwelh are separated by a mountain with a high rock bluff that looks over Stó:lō. The Halq'eméylem name for this mountain


N
Pepwpa:qotel
(Harrison Lake)
Deer Lake
Sasquatch
Provincial
Park
Sasquatch
Park
Trout Lake Creek
Hicks Lake
Mount Hicks
Lexwthithesem (Ruby Creek)
T'it'emt'ámex
Swkawolt Creek
Lexwskw'owōwelh
Katz
Pepó:t Swíyeqe
DiRj-44
DiRj-43
DiRj-41
DiRj-40
DiRj-42
DiRj-39
Sq'ewá:lxw
Spópetes
Spópetes
Canadian National
Hunter Creek
Laidlaw
F.H.
Barber Park
Stó:lō (Fraser River)
Xwátxwatcelem
S'ólh Téméxw
Vancouver
Seattle
Cascade Mountain Range
Figure 1: Cultural Heritage Overview
newly recorded
archaeological site
water feature
documented travel route
Halq'eméylem Place Name
habitation area
travel corridor
0
750
1,500
2,250
Meters


N
Deer Lake
DiRj-44
DiRj-43
Lexwthithesem (Ruby Creek)
Skwawolk Creek
Lexwskw'owōwelh
DiRj-47
DiRj-48
DiRj-49
DiRj-46
DiRj-45
Skawahlook IR1
DiRj-33
DiRj-32
Ruby Creek IR 2
DiRj-12
DiRj-3
DiRj-18
DiRj-41
DiRj-42
DiRj-39
DiRj-40
Mahood Creek
Lukseetsissum IR 9
DiRj-4
DiRj-20
Sto:lo (Fraser River)
DiRj-19
DiRj-29
DiRj-36
DiRj-38
DiRj-30
Ohamil IR4
Figure 2: Archaeological Sites
context zone (2 km)
water feature
reserve
contour (20 m)
previously recorded archaeological site
newly recorded archaeological site
0 200 400 600
Meters

is T'it'emt'ámex, and it is the home of wren, or T'ámiya's home (Skawahlook 2014:8). Qwetemkayem visited this mountain and received a prophecy that the Europeans were coming (Duff 1949:19). A portion of T'it'emt'ámex is represented by Pepó:t Swíyeqe, the bluffs overlooking Stó:lō across from Hunter Creek. Pepó:t Swíyeqe is also known as the Blowing Man because it overlooks a very windy area, and the cliff face resembles "a man with his chin raised and his mouth puckered, as if he were blowing" (McHalsie and Thom 1996: 1). Pepó:t Swíyeqe may be the brother of Xwátxwatcelem, who was transformed into the wind at the mouth of Hunter Creek.

Together, Lexwthíthesam and Lexwskw'owōwelh provide overland access to spiritual sites and plant and animal resource harvesting areas (Skawahklook 2014:6). Documented travel routes run from Stó:lō along Lexwthíthesam to the mountains to the north, several of which were utilized until the mid-1900s (Schaepe 1999). One of these trails runs up T'it'emt'ámex to a spring on the mountain (Schaepe 1999), while others provided access to trap lines and hunting and resource gathering areas. Travel routes also connect Stó:lō to Harrison Lake via a valley pass containing Deer Lake, at which there is a recorded habitation area.

At the east end of this valley pass, the six newly recorded archaeological sites are located adjacent Lexwthíthesam. The sites are located approximately

TABLE 1 – Newly Recorded Archaeological Sites

Site Number	Site Type	Site Date	Date Source	Landform	Elevation (mASL)	Area
DiRj-39	surface lithic, subsurface fire-cracked rock, thermally altered sediments	510-320 cal BP	one radiocarbon sample	terrace at confluence of *Lexwthíthesam* and *Stó:lō*	28-33	*Lexwthíthesam*
DiRj-40	subsurface fire-cracked, thermally altered sediments	1,948-1,746 cal BP	one radiocarbon sample	bench above possible former creek channel	33-34	*Lexwthíthesam*
DiRj-41	cultural depressions, subsurface lithic, fire-cracked rock, faunal, thermally altered sediments	undated	N/A	located on four landforms: ridge, bench, low-lying area, flat area	27-36	*Lexwthíthesam*
DiRj-42	subsurface hearth, fire-cracked rock, stake molds	514-339 cal BP	one radiocarbon sample	bench overlooking *Stó:lō* to SE	30-31	*Lexwthíthesam*
DiRj-43	subsurface lithics, hearth	536-471 cal BP and 4,236-3,993 cal BP 5,500-3,100 BP	two radiocarbon samples, diagnostic projectile point	bench protected by series of four ridges	211-220	high bench
DiRj-44	subsurface lithics	undated	N/A	flat-topped ridge overlooking *Stó:lō*	220-225	high bench

* This date is based on projectile point sequences determined by Charles Borden to be relative chronological markers, as published in Origins and Development of Early Northwest Coast Culture to about 3000 B.C. (Borden 1975).

Table 2 – DiRj-43 Artifacts Types

Artifact Type	Count
cobble chopper	1
primary flake	2
secondary flake	17
tertiary flake	35
bifacial reduction flake	2
flake shatter	35
retouched and utilized secondary flake tool	1
retouched secondary flake tool	2
retouched tertiary flake tool	1
hammerstone	1
stemmed projectile point	1
distal projectile point fragment	1
Grand Total	99

Table 3 – DiRj-43 Artifact Mate-

Material	Total
andesite	11
basalt	82
chert	3
diorite	1
metasediment	1
rhyolite	1
Grand Total	99

10 km east of Harrison Lake adjacent the upper Fraser Valley that contains Stó:lō. Stó:lō is the largest river in British Columbia that drains into the Pacific Ocean and Harrison Lake is one of the largest drainages in the southern Coast Mountains (Clague, et at. 1983; Desloges and Gilbert 1991). Geologically, the area is a part of the East Harrison Lake Belt, which is characterized by granitic plutonic rocks with intrusive metamorphic rocks (Armstrong 1981; Ash 2001). Around ten thousand years ago, the Lexwthíthesam watershed was under the snout (ice front) of the Cordilleran ice sheet. Ice began retreating after ten thousand years ago, leaving the area ice-free with glaciofluvial sediments (Clague, et at. 1983). The "drift covered slopes" were eroded by mountain drainages until vegetation stabilized the mountain sides (Clague, et at. 1983). At this time, the sand-dominated Stó:lō occupied the Fraser Valley and continued laying deposits forming deltas to the west at the ocean's edge (Clague, et at. 1983). Surficial deposits in the area are Tertiary and older and can reach a depth of 10 m (Armstrong 1981).

Newly Recorded Archaeological Sites

The six newly recorded archaeological sites are situated in two general locations within the Lexwthíthesam watershed (Figure 1). Four sites (DiRj-39, DiRj-40, DiRj-41, and DiRj-42) are located adjacent Stó:lō near the confluence with Lexwthíthesam, at 27-36 metres above sea level (mASL) (Table 1; Baran et al. 2017). These four sites are located on terraces and benches running parallel Stó:lō and Lexwthíthesam. Two more sites (DiRj-43 and DiRj-44) are located on a high bench 1.6 km upslope of the other four sites, at approximately 211-225 mASL (Table 1; Adams and Baran 2018). DiRj-43 and DiRj-44 are located on and around a series of ridges and benches cut by an intermittent creek channel.

DiRj-39 consists of fire-cracked rock and anthropogenic thermally altered sediments throughout the site. The deepest of these, a layer of fire-cracked rock and charcoal at 195 cm dbs, was sampled and submitted for radiocarbon dating, yielding a date of 510-320 cal BP[1] . One tertiary chert flake was recovered from the surface.

DiRj-40 consists of shallow thermally-altered sediments, including one intact hearth and scatters of subsurface fire-cracked rock. Radiocarbon dating of the intact hearth returned a date of 1,948-1,746 cal BP.

DiRj-41 consists of twelve cultural depressions, including five possible cache pits. One cobble chopper and five fragmentary ungulate bones were recovered outside one of the depressions. Multiple patches of anthropogenic fire-reddened sediments containing charcoal were recorded throughout the site. A cobble tool was directly associated with one patch of reddened sediment.

DiRj-42 consists of a hearth, three stake molds adjacent the hearth, and a thermal feature. The hearth was radiocarbon dated to 514-339 cal BP.

DiRj-43 consists of a moderately dense subsurface

lithic scatter (10.1 artifacts/m2), subsurface hearths, and anthropogenic thermal features. The majority of the artifact assemblage is comprised of fine-grained volcanic debitage (Table 2-3). Opportunistic and expedient tools (i.e., cobble choppers and utilized flakes) are present, although they account for only a small portion of the assemblage. A distal tip of a projectile point and one intact, straight stemmed and shouldered projectile point was recovered from the site (Figure 2). The latter may be stylistically attributed to the Eayem Phase (5,500 BP to 3,100 BP; Borden 1975). Two thermal features were radiocarbon dated to 536-471 cal BP and 4,236-3,993 cal BP.

DiRj-44 is a subsurface lithic scatter with an artifact density of 4.4/m2. Seven artifacts were collected, including one core, one utilized flake, and five pieces of debitage. The assemblage is comprised of primarily basalt and is lacking in variability of artifact types.

Figure 2: Shouldered and stemmed point from DiRj-43.

Comparison with Previously Recorded Archaeological Sites

There are nineteen previously recorded archaeological sites within 2 km of the newly recorded archaeological sites, all of which are located in close proximity to current or historic water bodies and at low elevations from 27 mASL to 67 mASL (Table 4).

Newly recorded sites DiRj-43 and DiRj-44 are the only sites located in the 2 km context zone at medium elevations (211-220 mASL and 220-225 mASL, respectively; Table 1). In order to generate roughly half the sample size of previously recorded archaeological sites within 2 km, we had to look to a 33 km radius to identify 10 previously recorded archaeological sites, excluding culturally modified tree sites, occurring at medium elevations (between 100 mASL to 500 mASL; Table 5). Four of these medium elevation sites are located along a major body of water. The other six consist of two rock shelter sites, two cultural depression sites, one lithic site on a hillslope, and a landform that is not specified. Similar to DiRj-43 and DiRj-44, all ten medium elevation sites are within recorded resource harvesting areas, travel corridors, adjacent Named Places, or spiritual practice areas.

Of the previously recorded sites within the 2 km context zone, two have associated dates (Table 6). A diagnostic projectile point with basal notching and a triangular blade was recovered from archaeological site DiRj-8 (Oakes and Brown 2002). The artifact possesses similar characteristics to projectile points recovered from other archaeological sites in the Fraser

TABLE 4 – Previously Recorded Archaeological Sites within 2 km of *Lexwthíthesam* and high bench sites

Site Number	Site Type	Landform	Elevation (mASL)	Proximity to Newly Recorded Sites
DiRj-3	cultural depressions, surface lithics	N bank of *Stó:lō*	35-67	1,350 m from *Lexwthíthesam* 2,750 m from high bench
DiRj-4	cultural depressions, surface lithics, hearth	N bank of *Stó:lō*	30	1,000 m from *Lexwthíthesam* 2,000 m from high bench
DiRj-11	subsurface fire-cracked rock	N bank of *Stó:lō*	30	750 m from *Lexwthíthesam* 2,000 m from high bench
DiRj-12	surface lithics	N bank of *Stó:lō*	40	650 m from *Lexwthíthesam* 2,000 m from high bench
DiRj-18	surface lithics	S bank of *Stó:lō*; W bank of Hunter Creek	35	2,100 m from *Lexwthíthesam* 3,500 m from high bench
DiRj-19	surface lithics	S bank of *Stó:lō*	27-30	1,700 m from *Lexwthíthesam* 2,800 m from high bench
DiRj-20	cultural depression, surface lithics, mound	S bank of *Stó:lō*	30	1,000 m from *Lexwthíthesam* 2,400 m from high bench
DiRj-29	cultural depression	S bank of *Stó:lō*; along base of steep rock cliff	27-31	1,900 m from *Lexwthíthesam* 3,600 m from high bench
DiRj-30	mound, fire-cracked rock, trench embankment, cultural depression	S bank of *Stó:lō*	35	1,800 m from *Lexwthíthesam* 3,400 m from high bench
DiRj-32	rock shelter	rock shelter near W bank of *Lexwskw'owōwelh*	60	1,200 m from *Lexwthíthesam* 2,200 m from high bench
DiRj-33	surface lithics, fire-cracked rock	NW bank of *Stó:lō*	35	2,100 m from *Lexwthíthesam* 3,400 m from high bench
DiRj-36	subsurface lithics	unspecified; 1 km SE of *Stó:lō*; 230 m NE of unnamed creek	36	1,700 m from *Lexwthíthesam* 3,400 m from high bench

DiRj-37	subsurface fire-cracked rock, burn layers, subsurface manuports	terrace with relict slough channel to NE; unnamed drainage/creek 50 m to the south	33	1,950 m from *Lexwthíthesam* 3,500 m from high bench
DiRj-38	subsurface lithics, fire-cracked rock	raised landform south of relict slough channel	31-35	1,750 m from *Lexwthíthesam* 3,400 m from high bench
DiRj-45	subsurface hearths, fire-cracked rock	bench over *Lexwskw'owōwelh*	31-36	1,350 m from *Lexwthíthesam* 2,400 m from high bench
DiRj-46	subsurface hearths, fire-cracked rock	bench over *Lexwskw'owōwelh*	32-35	1,450 m from *Lexwthíthesam* 2,500 m from high bench
DiRj-47	subsurface fire-cracked rock	bench over *Lexwskw'owōwelh*	35	1,650 m from *Lexwthíthesam* 2,600 m from high bench
DiRj-48	subsurface fire-cracked rock	bench over *Lexwskw'owōwelh*	33	1,550 m from *Lexwthíthesam* 2,500 m from high bench
DiRj-49	subsurface fire-cracked rock	raised area S of *Lexwskw'owōwelh*	36	1,600 m from *Lexwthíthesam* 2,600 m from high bench

Valley that have dates from 2,500 to 1,400 BP and, also, to projectile points associated with the Skamel Phase (2,500-1,500 BP) in the Fraser Canyon (Oakes and Brown 2002). At the other dated site in the area (DiRj-34), two radiocarbon samples present a similar range of dates, with 1,274-1,080 cal BP and 2,703-2,360 cal BP (Smith et al. 2017). In addition, a projectile point found at DiRj-34 is diagnostic of the Eayem cultural phase, which occurred from 5,500 BP to 3,100 BP (Smith et al. 2017). Of the medium elevation sites within 33 km, only one site (DiRi-117) has a date, which is stylistically dated to the Marpole Phase (2,400-1,500 BP) based on a nipple-top hand maul that is characteristic of the period (Dojack and Brendzy 2012; Table 6). Paired with the dates from DiRj-39, DiRj-40, DiRj-42, and DiRj-43, these previously recorded sites show that the landscape was utilized at a variety of elevations throughout time.

Conclusion

The comparison of the six newly recorded archaeological sites, four at low elevations and two at medium elevations, to previously recorded archaeological sites in the general area highlights a significant bias towards low elevation sites adjacent to major water courses. While nineteen additional sites are recorded within 2 km of the newly recorded sites, all of these are at low elevations. To find only half that number of mid-elevation sites, we must look over 30 km away. By contrast, the cultural data set highlights Stó:lō use of a wide variety of landscapes and environments, from valley bottom to mountain peak. The twelve medium elevation sites all fall within recorded cultural areas and sites. To address this bias, we suggest that cultural resource management assessments should focus equal attention to travel routes and other traditional use areas at all elevations, as well as landforms that are in close relation and easily accessible to water bodies at lower elevations.

TABLE 5 – Previously Recorded Archaeological Sites within 33 km Occurring at a Medium Elevation (100-500 mASL)

Site Number	Site Type	Landform	Elevation (mASL)	Proximity to Newly Recorded Sites
DgRk-19	cultural depression, subsurface lithics	promontory sloping steeply to S, overlooks *Ts'elxwéyeqw*, unnamed stream 100 m E	480-500	32.3 km from *Lexwthíthesam* 32.8 km from high bench
DhRi-1	surface and subsurface lithics	W shore of *Pépslexwqo* (Silver Lake) at base of large hill	350	14.5 km from *Lexwthíthesam* 16.2 km from high bench
DhRk-75	surface lithics	unspecified, 690 m SE of Hicks Lake	345	6.8 km from *Lexwthíthesam* 6.3 km from high bench
DiRi-99	subsurface lithics, rock shelter	rock shelter facing NW, steep slopes above and below site, site is only flat part in area, good protection from wind	360	10.5 km from *Lexwthíthesam* 12.1 km from high bench
DiRi-100	subsurface lithics	terrace S of and 15 m above *Tl'akwelem* (Silverhope Creek)	170	10.7 km from *Lexwthíthesam* 12.3 km from high bench
DiRi-101	subsurface lithics	terrace N of and 10 m above *Tl'akwelem*	180	11.1 km from *Lexwthíthesam* 12.7 km from high bench
DiRi-102	subsurface lithics	terrace S of and 15 m above *Tl'akwelem*	170	10.2 km from *Lexwthíthesam* 11.9 km from high bench
DiRi-117	surface and subsurface lithics	hillslope, 400 m S of Q'ówqèwem (Kawkawa Lake)	167-174	15.4 km from *Lexwthíthesam* 16.9 km from high bench
DiRj-31	cultural depressions, surface lithics	lower levels of a S facing hillslope, adjacent 2 intermittent creeks	100	4.5 km from *Lexwthíthesam* 5.5 km from high bench
DiRl-19	surface lithics, rock shelter	rock shelter 125 m W of Weaver Creek at base of rock bluff	345-350	19.2 km from *Lexwthíthesam* 17.7 km from high bench

The dates from the newly recorded sites, in combination with dates from previously recorded sites in the context zone (Table 6), indicate that both low and medium elevation sites were occupied over thousands of years. On a high bench, DiRj-43 was occupied contemporaneously with DiRj-39 and DiRj-42, located along the Fraser River. Our results, supported by the cultural data set, demonstrate that there is a weak correlation between elevation and time of use. More radiocarbon dating needs to take place to better understand temporal occupation of the landscape and connections between archaeological sites.

DiRj-43 and DiRj-44 are located in a well-defined travel corridor from Stó:lō to Harrison Lake by way of Lexwthíthesam. DiRj-39, DiRj-40, DiRj-41, and DiRj-42 are located at the mouth of this travel corridor, on the Stó:lō side. No other archaeological sites are recorded within this travel corridor and limited archaeological work has been undertaken in this area. A habitation site is recorded in the cultural data set as being located at Deer Lake, a passage midpoint, and additional cultural heritage sites and areas are recorded throughout the travel corridor. Based on the results of our study, our prediction

TABLE 6 – Archaeological Sites with Dates (Low Elevation within 2 km, Mid Elevation within 33 km)

Site Number	Site Type	Site Date	Date Source	Landform	Elevation (mASL)	Proximity to Newly Recorded Sites
DiRi-117	surface and subsurface lithics	2,400-1,500 BP	diagnostic nipple-top hand maul	hillslope, 400 m S of Q'ówqèwem	167-174	15.4 km from *Lexwthíthesam* 16.9 km from high bench
DiRj-8	cultural depressions, surface and subsurface lithics and fire-cracked rock	2,500-1,400 BP	diagnostic projectile point	N bank of *Stó:lō*	18-Aug	2.7 km from *Lexwthíthesam* 4.0 km from high bench
DiRj-34	subsurface lithics, fire-cracked rock, faunal, rock shelter	2,703-2,360 cal BP, 1,274-1,080 cal BP	two radiocarbon samples	rock shelter near E bank of Hunter Creek	46	2.3 km from *Lexwthíthesam* 3.9 km from high bench
		5,500-3,100 BP	diagnostic projectile point			
DiRj-39	surface lithic, subsurface fire-cracked rock, thermally altered sediments	510-320 cal BP	one radiocarbon sample	terrace at confluence of *Lexwthíthesam* and *Stó:lō*	28-33	*Lexwthíthesam*
DiRj-40	subsurface fire-cracked, thermally altered sediments	1,948-1,746 cal BP	one radiocarbon sample	bench above possible former creek channel	33-34	*Lexwthíthesam*
DiRj-42	subsurface hearth, fire-cracked rock, stake molds	514-339 cal BP	one radiocarbon sample	bench overlooking *Stó:lō* to SE	30-31	*Lexwthíthesam*
DiRj-43	subsurface lithics, hearth	536-471 cal BP and 4,236-3,993 cal BP	two radiocarbon samples,	bench protected by series of four ridges	211-220	high bench
		5,500-3,100 BP	diagnostic projectile point			

is that there are numerous unrecorded archaeological sites located at higher elevations within this travel corridor. Further archaeological work needs to be undertaken in this travel corridor to explore the relationship between travel corridors and expected site types and distribution, spatially and temporally.

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Footnotes

1. Radiocarbon dates calibrated using IntCal 13 at 2 sigma. Refer to Adams 2018 and Baran et al. 2017 for uncalibrated dates and original lab reports from Beta Analytic.

Author Profiles

Cara Brendzy, B.A., B.App.GIS - Project Archaeologist / GIS Specialist

Cara has been working with the Stó:lō Research and Resource Management Centre since 2008 as an archaeologist and GIS Specialist. She received her BA in archaeology degree from SFU in 2002 and a Bachelor of GIS degree from SAIT Polytechnic in 2005. Cara works as a project archaeologist on a wide variety of industry projects and alongside Stó:lō communities conducting traditional use research. She also contributes to GIS projects and research for traditional use studies, resource management, and archaeology. Cara also administers the Stó:lō Heritage Investigation permitting system.

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Lisa has been working with the Stó:lō Research and Resource Management Centre since 2012 as an archaeologist. She received a MA in anthropology with a concentration in archaeology from UBC in 2012 and her BA in archaeology from SFU in 2009. Lisa works as an archaeologist alongside Stó:lō communities on a wide variety of projects, conducting fieldwork, planning/preparation, research, report writing, survey, excavation, artifact analysis, and data collection. Lisa has extensive experience in using ground penetrating radar (GPR) to identify archaeological features and unmarked burials.

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Mariko, or "Mad Dog" as she is known in the archaeology community, has worked for Stó:lō Research and Resource Management Centre since July 2017 as an archaeologist. She has three years of experience working in archaeological consulting and five years of experience working in collections management. In 2015, she graduated from UBC with a Bachelor of Arts degree in Honours Anthropology with a focus in Archaeology. Mariko has worked in a variety of areas in BC beyond the Fraser Valley, including the Fraser Canyon, Lower Mainland, Squamish, North Harrison, west coast of Vancouver Island, and the Peace River region. Currently, Mariko works alongside Stó:lō communities on an array of projects that include supervising fieldwork, research, report writing, artifact analysis, data collection, and using ArcMap to create maps and analyze GIS data

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A Discriminant Function Analysis of Projectile Points from Interior British Columbia

Adam Hossack

Purpose

In 2009 Greg Morrissey explored the classification of various projectile point forms from the Interior Plateau of British Columbia as either arrow or dart tips. Utilizing a variety of discriminant functions, Morrissey (2009) evaluated projectile points from archaeological contexts in the Interior Plateau spanning the Middle and Late Prehistoric Periods. This analytical method mathematically determines whether the dimensions of projectile points are most similar to those of ethnographically collected dart tips or arrow tips. This research determined that arrow- and dart-based weapon systems coexisted in this region for many centuries and that the bow and arrow may have appeared in the Interior of British Columbia as much as 1,200 year earlier than previously thought.

Figure 1: Typical Shuswap Point (Plan View) (University of West Florida 2018).

Figure 2: Typical Plateau Point (Plan View) (University of West Florida 2018).

A major outcome of Morrisey's research project was that, after evaluating various analytical techniques, it could be consistently demonstrated that while both Shuswap and Plateau Horizon points showed significant percentages classified as both arrow and dart tips. This suggests that both the bow and atlatl weapon systems presumed to employ these projectile point tips were in simultaneous use for long periods of time. Graph-based analysis, however, showed that a bimodal distribution of metric values indicative of discrete arrow and dart subtypes was not observed for either type (Morrissey 2009:126).

The Plateau Horizon (2,400 – 1,200 BP) is generally accepted as the time period in interior British Columbia in which the shift from atlatl to bow took place (Chatters and Pokotylo 1998:78; Rousseau 2004:17). Morrissey expected that Shuswap point (Figure 1) and immediately antecedent Plateau point (Figure 2) collections analyzed in his study would contain a significant percentage of both dart and as arrow tips. This was indeed the result, but as the difference between the two equation's results in the discriminant function analysis was small and the various graphs employed failed to reveal evidence of a bimodal distribution, he concluded that it is difficult to be sure to which group the points truly belong to (Morrissey 2009). Thus, while the results of Morrissey's discriminant function analysis suggest that the use of the bow and atlatl overlap in interior British Columbia during the Shuswap and Plateau point horizons, his modality analysis suggests that arrow and dart subtypes were not present. This research outcome is a major one, but the graph-based approach to identifying modality in the data sets leaves some ambiguity.

Building on Morrisey's (2009) research, this study evaluates the identity of Shuswap and Plateau points as either arrow tips, dart tips, or an intermediary form that could function as either. Metric data on these projectile point types was gathered from a wide variety of sites in Interior British Columbia, including those used in Morrissey's (2009) thesis, as well as additional sites with projectile point data accessible through the Government of British Columbia's online Remote Access to Archaeological Data (RAAD). A larger sample size may offer different results for the discriminant function analysis. A robust test for inferred bimodality will then be applied employing Hartigan's dip test for unimodality within the R Statistical Computing Environment (R Core Team 2013). The results of this meta-analysis will be contrasted with those from Morrissey's study in order to confirm or refute its finding that subtypes of these points are not present.

History of Investigations

Until relatively recently it was commonly assumed that bow and arrow technology was introduced relatively late in northwest North America. The bow and arrow was assumed to first appear during the 2,400 – 1,200 BP Plateau Horizon when it supplanted thrown spears or "darts", whose power may have been augmented through the use of spear-thrower sticks or atlatls (e.g. Blitz 1988:131; Chatters and Pokotylo 1998:78; Rousseau 2004:17; Shott 1993). By the 21st-century a number of studies began to question this conventional wisdom and suggested that the bow and arrow may have arrived in interior British Columbia as early as 3,500 years ago, during the Shuswap Horizon (Hayden 2000; Rousseau 2008). Morrissey's (2009) study was conducted in this intellectual climate and his results support a relatively early arrival date for the bow and arrow.
Beginning in the late 1970's, attempts were made to use known collections of ethnographically-collected arrow and dart tips to establish a concrete model of the morphological differences between these two types of projectile points based on metric attributes. David Hurst Thomas undertook the first such study in 1978, using comparative collections from as far afield as New Guinea and Australia. His study laid the groundwork for future researchers by establishing that only projectiles whose means of propulsion (thrown by hand or fired from a bow) had been reported by the primary source from which they were collected could be included, but as a result suffered from a small sample size of dart tips (n = 10). Bradbury refined Thomas's unpublished work and published the results of both studies in 1997 but made use of the same comparative sample and thus was still hampered by a small sample of dart tips.

In 1997 Michael Shott developed discriminant functions based on the analysis of one, two, three and four metric attributes. Notably, Shott's (1997) sample (n = 39) included nearly four times the number of dart tips than Thomas' or Bradbury's studies. Experimental trials resulted in the conclusion that Shott's three-attribute and one-attribute discriminant functions are the most effective, resulting in correct identification of arrow tips and dart tips 86% and 88% of the time, respectively (Shott 1997, Snarey and Ellis 2010). With this result in mind, this study makes use of Shott's one-attribute discriminant function to evaluate assemblages of Shuswap and Plateau projectile points. The attribute evaluated by this function is shoulder width, which would from Shott's results appear to have the greatest effect on the penetrative effectiveness of a projectile considering the widely differing forces of impact of arrows versus darts. It is also more often observable in incomplete artifacts than other metric attributes, such as overall length (Erwin et al. 2005:51, Morrissey 2009:44, Shott 1997:99). Shott himself noted the effectiveness of the rule of thumb that projectile points wider than 20mm at the shoulder are most often darts, despite the technical complexity of his four discriminant functions (Shott 1997: 99).

Until the publication of Morrissey's study, no attempt had been made to apply Shott's metric techniques for the distinction of arrow tip from dart tip projectile points to assemblages from interior British Columbia, and the debate over the date of the introduction of the bow and arrow remained largely speculative. The main purposes of this study were to develop a more accurate understanding of what is and what is not an atlatl point in the archaeological record of interior British Columbia, and to determine if and to what extent those two weapon systems overlapped in space and time. Morrissey's study confirmed the conventional view that the Plateau point type includes specimens that could function as both arrow and dart tips, while the subsequent Kamloops point type is predominantly an arrow tip. Surprisingly, it also resulted in the observation that the assemblage of the Plateau point's immediate predecessor, the Shuswap point, contained an even higher percentage of arrow tips than the Plateau point. With no evidence for bimodality in the Shuswap or Plateau assemblages, our understanding of when the bow was introduced in this region and how long it was in concurrent use with the atlatl remains imperfect.

Method

Shott's one-attribute discriminant function works by comparing the shoulder width of a projectile point with the range of variation seen in ethnographical-

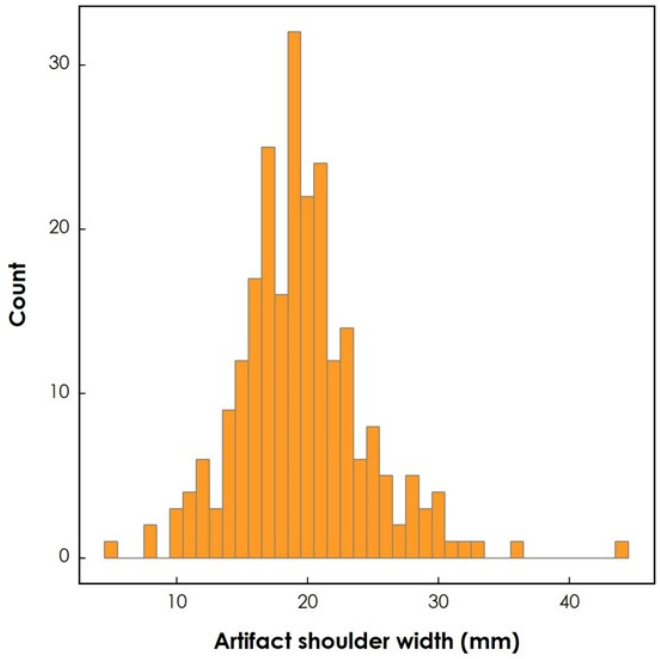

Figure 3: Shuswap Point Shoulder Width Values Histogram. Hartigan's dip test results for Shuswap point shoulder width data: p-value=0.9566 Failed to reject the null hypothesis (unimodal distribution).

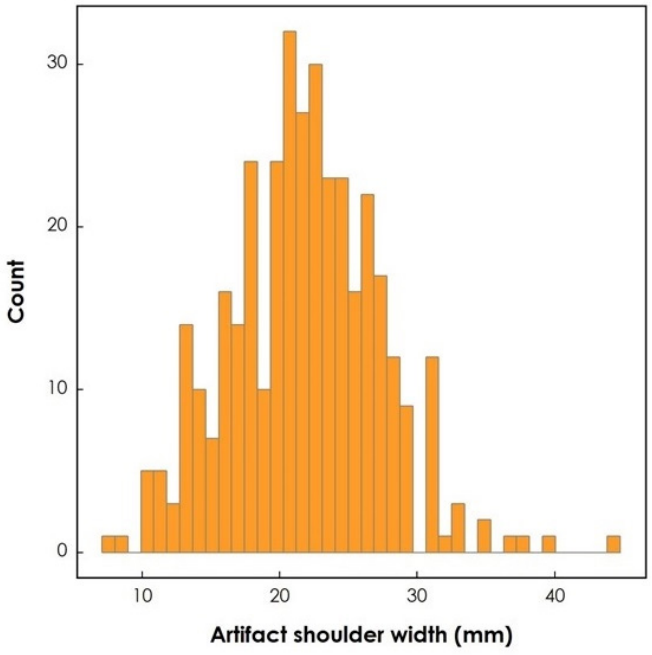

Figure 4: Plateau Point Shoulder Width Values Histogram. Hartigan's dip test results for Plateau point shoulder width data: p-value=0.9949
Failed to reject the null hypothesis (unimodal distribution).

ly-collected specimens known to be either arrow or dart tips. The range of variation of these two classes are expressed as the formulas:

Dart: 1.40(shoulder width) - 16.85=X
Arrow: 0.89(shoulder width) - 7.22=X

The values generated by these formulae express the degree to which the observed shoulder width best matches the known ranges of variation with the larger X value representing the type, either arrow or dart, that it most likely belongs to (Shott 1997). Shuswap and Plateau point shoulder width data was collected from 149 sites recorded on the RAAD online database. These data were then subject to discriminant analysis in order to determine whether a larger and more varied sample would yield significantly different results than Morrissey's study. Finally, the assembled width values of both projectile point types were subject to a test for inferred bimodality, assuming multimodality represents bimodality, employing Hartigan's dip test for unimodality within the R Project for Statistical Computing software framework.

The dip test measures multimodality in a sample of the maximum difference, over all sample points in the data set, between the empirical distribution function and the unimodal distribution function that minimizes that maximum difference. Other than unimodality, it makes no further assumptions about the form of the distribution indicated by the acceptance or rejection of the null hypothesis. A high p-value, approaching 1.0, indicates high confidence in unimodality (Hartigan and Hartigan 1985). In this case, a low p-value rejecting the null hypothesis of unimodality is assumed to indicate a distribution other than unimodality.

Results

Projectile point shoulder width data was collected for a larger number of projectile points from RAAD (Shuswap points: n = 240; Plateau points: n = 367) than in Morrissey's 2009 study (Shuswap points: n = 229; Plateau points: n = 366), which are also included in this study's assemblage. These data (Appendix A, available online at: https://ln.sync.

com/dl/1884a7fe0/kkxur6yj-x9kqh8w2-q6j79uhu-3snmdpxw) were subject to Shott's one-variable discriminant function analysis and the results of this analysis are presented in Table 1 below:

Table 1: Discriminant Function Analysis Results

Shuswap Points (n = 240)	
% classified as darts	52.08%
number classified as darts	125
% classified as arrows	47.92%
number classified as arrows	115
Plateau Points (n = 367)	
% classified as darts	68.94%
number classified as darts	253
% classified as arrows	31.06%
number classified as arrows	114

Of the 240 Shuswap points analyzed 52.08% (n = 125) were classified as dart tips by Shott's one-variable discriminant function, while 47.92% (n = 115) were classified as arrow tips. The Plateau point results are even more interesting, with a strong majority (68.94%) of this type, which immediately chronologically follows the Shuswap type, being classified as dart tips and only 31.06% being classified as arrow tips. These results are roughly analogous to Morrissey's 2009 results, where his one-variable analysis classified 54.59% of the Shuswap point assemblage as dart tips and 45.41% as arrow tips, while 72.13% of his Plateau assemblage were classified as dart tips and 27.87% as arrow tips.

The nearly even split of the Shuswap Horizon assemblage into dart and arrow tips is indicative of the presence of arrow and dart tip subtypes, or the generalized use of these points as either dart or arrow tips as circumstances demanded, rather than this projectile point type's exclusive use as either arrow or dart tips. It is interesting to see that this trend continues into the following Plateau Horizon, but with a stronger tendency toward dart tips. With the presence of significant percentages of both dart and arrow tips in both Shuswap and Plateau assemblages confirmed, a Hartigan's dip test for unimodality was applied to both shoulder width data sets. The results of these tests strongly indicated unimodality, as shown in Figures 3 and 4 and test results below:

Conclusion

With the increasing body of evidence for use of the bow and arrow in the Northwest prior to 1,200 BP, a more complex picture of the adoption of this technology is emerging. It has been noted that the bow and arrow has several drawbacks that call its technological superiority to the thrown dart into serious question. In particular, the amount of technical knowledge, skill and effort required to build and maintain effective bows and arrows, the lower lethality of these lighter weapons when used to hunt large game, and the greater difficulty of procuring appropriate construction materials make it a far more likely scenario that small groups of people practicing broad-based subsistence strategies would use the bow to compliment the dart when appropriate rather than abandon the dart outright. To this end, changes in projectile tip morphology could be seen as reflective of a weighted preference toward one weapon system or the other rather than as proof positive of the presence of either one or the other.

The presence of significant percentages of arrow and dart tips in both the Shuswap Horizon and Plateau Horizon periods strongly suggests overlapping usage of both weapon systems through time and calls into question status quo archaeological knowledge. The strongly unimodal distribution of metric values within each projectile point data set supports Morrissey's 2009 conclusion that distinct arrow tip and dart tip subtypes of Shuswap and Plateau points did not exist. This study's analytical results indicate that these point types, sized as they are within a range that allows them to function as either dart or arrow tips, were generalized forms intended to be used for either weapon system as circumstances demanded.

In the absence of morphological subtypes of arrow and dart tips in these periods, a more refined understanding of the date of introduction for the bow and arrow in interior British Columbia will be reliant on other types of data. It would be advantageous for future researchers to make use of point thickness, use wear, and impact damage analyses to develop a more

detailed understanding of the first appearance of arrow tips in Shuswap and Plateau point assemblages. These types of analysis are also useful for identifying other tool types within these point assemblages, such as hafted knives or harpoon tips, that may confuse the results of studies that assume only the presence of arrow and dart tips.

Author's Note: Those unable to access the online projectile point data table may contact me at adam.hossack@stantec.com to request a copy.

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A Translation of Alexander I. Lebedintsev's "On the Origin of Pit Houses in the Northern Far East"

Translation by Richard L. Bland
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Pit Houses of Extreme Northeast Asia

Pit houses have a long existence. They were used by numerous cultures around the world, at least seasonally, constructed in different shapes and used as protection against the severe winter weather. This article by Alexander I. Lebedintsev will discuss the various types of pit houses in extreme Northeast Asia and arrange them chronologically.

Human beings began early on to enjoy shelter from the weather, possibly as much as two million years ago in caves (Berger et al., 1993). By the Upper Paleolithic people had begun creating their own shelters, thus avoiding the restrictions of having to find a fixed location. In this way they could go where they wanted, when they wanted, as long as there were available materials (brush, wood, stone, bone) for constructing a dwelling. In regions or seasons of cold weather the cave must have seemed like an attractive alternative to a brush wickiup. Without a cave, even a pit in the ground, covered by available material was more comfortable than a windy surface dwelling. From some such scenario came the notion of constructing pit houses (see Hoffecker 2005).

These dwellings are found on about every continent including, of course, North America, which has its share of semisubterranean dwellings or pit houses that very likely have their ancestry in Northeast Asia. We can follow them, selecting samples at random, from the very closest point to Asia, Cape Prince of Wales (Harritt 2013). Moving southeast from there we find pit houses in British Columbia (Fladmark 1982). Then in Wyoming Craig Smith (2003: 162) reports on "The excavation of 41 pit structures or housepits at 21 sites in the Wyoming and Big Horn basins of Wyoming dating to the mid-Holocene." In the western United States they were common in the Southwest in Basket Maker cultures (Gilman 1987). As a last example we find pit houses among the Cherokee (Carr 2017) in the southeastern United States.

Since the human population of North America evidently came from Northeast Asia, many of their ideas about house construction obviously did as well. The following discussion by Alexander Lebedintsev deals with pit houses in Northeast Asia.

One of the terms generally used by the author for native dwellings that are partially dug into the ground is uglublennoe zhilishche, which translates to something like "deepened dwelling" or "embedded dwelling." I have translated this term as "pit house." Lebedintsev uses other terms, such as podzemnoe zhilishche ["underground dwelling"] and polupodzemnoe zhilishche [semisubterranean dwelling], which I have also generally translated as "pit house."

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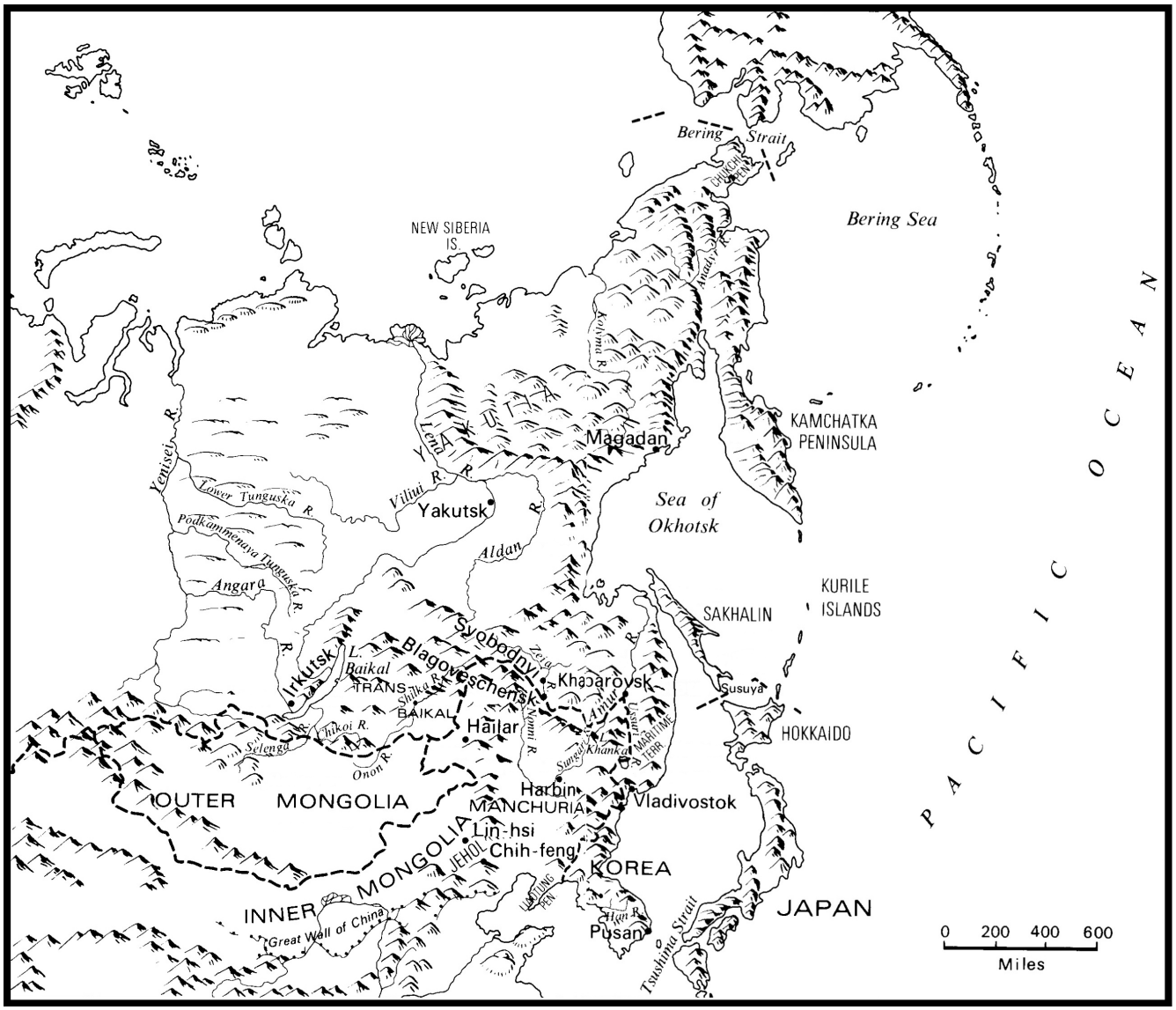

Map of Northeast Asia (reproduced after Chester Chard. Northeast Asia in Prehistory. University of Wisconsin Press, 1974: 16–17).

On the Origin of Pit Houses in the Northern Far East[1]

(Translated from Russian to English)

Alexander I. Lebedintsev[2]

Introduction

In this article by Alexander I. Lebedintsev the problem of the appearance of pit houses in the northern Far East is examined. The earliest pit houses appeared in Kamchatka in Layer VI of the seasonal Ushki late Paleolithic site as a result of the adaptation of its inhabitants to the surrounding environment. The basis for the settlement of the population at this site was fishing. Severe climatic conditions were another factor in the appearance of such houses. The structural features of these dwellings identified are a corridor-like entrance and a structure of four posts in the center of the house. Similar pit houses with a central rectangular frame on posts continued to be preserved in the Neolithic in Kamchatka, as well as among the settled tribes of hunters and fishermen in the southern Far East. The broad distribution of pit houses is connected with the development of maritime cultures. Similar conditions of life and constant and intense cultural-economic contracts determined the appearance of pit houses of the same type. A difference is noted in dwellings of the Northeast from similar houses in the Amur region and Primor'e. The primary features of pit houses of the Northeast are defined. Based on structural features two types of pit houses are distinguished: earlier—small in size with a depth of 0.3 to 0.8 m and a corridor-like entrance; and later—large semisubterranean rectangular or octagonal with a depth of 1 to 1.5 m and an entrance through the smoke hole in the roof. Pit houses of the Northeast preserved features of the earliest Siberian pit houses. Their development occurred independently from that of houses in the southern Far East. The different variations in construction of a pit house could have appeared as a result of independent development of the peoples of the Northeast.

One of the most important objects of material culture reflecting the adaptability of people to natural conditions, forms of their daily life, social relations, and ethnic connections are settlements, living and domestic structures.

The problem of the origin of pit houses in the Northeast is very interesting but still poorly worked out. A description of pit houses is given in the works of S. P. Krasheninnikov (1949), I. E. Veniaminov (1840), V. V. Antropova (1971), R. S. Vasil'evskii (1971), G. A. Menovshchikov (1959), and S. I. Rudenko (1947), as well as in the Historical-Ethnographic Atlas of Siberia (1961). W. I. Jochelson (1908) was occupied with special research of pit houses of Northeast Asia. The new archaeological materials received today permit revising previous assumptions about the origin of pit houses in Northeast Asia.

The most ancient pit house discovered in the southern Far East was in the upper layer of the Ustinovka late Paleolithic site-workshop by A. P. Okladnikov, who assigned it to the Mesolithic (Derevyanko 1976: 259; Okladnikov 1969: 216; 1966: 352–371; 1977: 115–117; Andreeva 1973: 28, 29). However, in Kamchatka pit houses had already appeared during the late Paleolithic (Dikov 1977: 52–56). They were discovered in Layer VI of the Ushki site, while in Layer VII of this site only surface dwellings were found. Pit houses were seasonal, which is attested by alternation of carbonaceous and sterile layers in the cross section of the hearth (Figure 1).

The creation of pit houses in the Northeast was brought on by several factors. One of them was economic: the basis of settlement of the ancient population of the Ushki site consisted of fishing, since Ushki Lake had an abundance of fish. Hunting was a secondary occupation. Another factor was the severe climatic conditions. It is supposed that pit houses first appeared in the Northeast as a result of the adaptation of Upper Paleolithic people to the environment.

N. N. Dikov, due to especially careful excavations, was able to trace and reveal the form and structural features of these distinctive Paleolithic dwellings. Interesting, in our view, is the presence in the early Ushki pit houses of a corridor-like entrance and a structure of four posts supporting a covering roof.

Figure 1. House of the 6th layer of the Ushki 1 site (1970s).

The earliest pit houses had already appeared in Siberia in the Paleolithic. These were at the Mal'ta site on the left bank of the Belaya River and Buret' on the right bank of the Angara River (Istoriya Sibiri, 1968: 44–59). The semisubterranean dwellings had a foundation rectangular in plan. The depth of the depression reached 1 m. A feature of these dwellings was the use of the bones of large animals (mammoths and rhinoceroses) as structural material. The construction was the same as in Eskimo* pit houses built of ribs, vertebrae, and jaws of whales. It is noteworthy that the dwelling at Buret' had a narrow corridor that came out and was directed toward the river.

It is possible that this type of pit house, rounded or rectangular in form with vertical walls, existed long before the appearance of such dwellings in the southern Far East. Eskimo dwellings of the Northeast were apparently a variant of this type of dwelling at a later time.

In light of new data R. S. Vasil'evskii's supposition that pit houses "appeared in the northern part of the Okhotsk coast under the influence of tribes of the lower Amur" is doubtful (Vasil'evskii 1971: 145). The early tribes of the Northeast were already constructing pit houses in the Paleolithic, using in their construction an arrangement of an entrance and other elements of early Siberian Paleolithic dwellings. With the transition of the ancient tribes of the southern Far East to a settled form of life, this simplest construction of pit houses of the Paleolithic Ushki site could obtain the farthest distribution and development in Early Neolithic cultures (the Novopetrovskaya and Malyshevskaya) (Derevyanko 1970). A. P. Derevyanko set out the key features of construction of Neolithic pit houses in Primor'e:

1) the presence of a pit 50 to 80 cm deep in the ground; 2) two closed rows of posts (one placed by the walls of the pit and served as the primary frame of the walls and support for the outer binding [attachment], the

second—in the center of the dwelling—support for the interior binding);
3) a pyramidal roof fastened at the lower ends to the outer binding, the upper to the interior binding;
4) an entrance into the dwelling by a special log through the smoke hole located in the center of the roof of the dwelling (Derevyanko 1970: 164).

It should be added to the above-stated that during the Neolithic rectangular pit houses predominated in the southern Far East.

However, A. P. Derevyanko, in the features of construction of Neolithic pit houses of Primor'e, does not indicate the slope of the depressions along the edges of the dwelling nor the slope of the poles in the frame of the roof of the dwelling (Sidorov and Derevyanko 1972: 382). If the frame of the roof had a slope, then the construction of the Novopetrovskaya dwellings was close to that of Ushki pit houses.

The structural features of the early Paleolithic dwelling continued to be preserved into Neolithic pit houses in Kamchatka. Thus, construction of a dwelling at Kultuk (-III) had a central rectangular frame and was supported not on four posts but rather on twelve (three in each corner). The upper ends of the poles of the ceiling were supported on the frame (Dikov 1977: 82–84). Dwellings of this type, with structures consisting of a central rectangular frame on four, and in a double dwelling on six posts, were found in the Nikul'skoe fortified site (Dikov 1977: 95–101). Such pit houses were preserved in the Neolithic period among the settled tribes of hunters and fishermen of the southern Far East.

The most widespread use of pit houses in the Far East is connected with the development of maritime cultures. Similar conditions of life and constant and intensive cultural-economic contacts brought about the appearance of the same type of pit houses in this region. W. I. Jochelson noted the following characteristic features of pit houses on the coast of the northern part of the Pacific Ocean:

1) a pit for the dwelling, of round or irregular form, deepened from 3 to 6 feet, usually dug into a mound so that rain water could drain down the slope of the hill;
2) the walls were made of logs set vertically in the pit. They form a rectangle or irregular octagon, or have a round form; the walls extend a half or a third above the pit, but these above-ground parts of the walls are covered with earth removed from the pit, like a berm, or enclosed by earth in the form of a mound;
3) the roof is supported by four or more posts standing in the middle of the dwelling, and a sloping roof descending to the walls;
4) a square hole in the roof serves as a door, window, and for exhaust of the smoke. A log with notches, serving as a ladder, was placed for entry into the dwelling (Jochelson 1908; 22).

Such type of pit house can be assigned to later Koryak and Itel'men dwellings.

Subsequent development of pit houses in the Northeast is connected with the formation of the Bering Sea (Old Eskimo) and North Okhotsk (Old Koryak) maritime cultures (Dikov 1974: 161).

The Old Eskimo culture went through several stages: Old Bering Sea-Okvik, Birnirk, and Punuk, which received their names based on locations of the most typical for them sites (Ocherki istorii Chukotki. . ., 1974: 47, 48). During the Old Bering Sea and Okvik cultures there were small rectangular pit houses with wooden walls and a long narrow corridor (Menovshchikov 1959: 9). Sometimes dwellings were joined to each other by corridors. For the Punuk culture, which existed initially simultaneously with Birnirk and then replaced it, large dwellings built of whale bones were characteristic (Menovshchikov 1959: 10). G. A. Menovshchikov gives a description of all the types of Old Eskimo pit houses (Menovshchikov 1959: 40–44). Characteristic for them was a post system and rectangular structure; they used wood (driftwood), stone, whale bones, and sod as structural material. The hole in the roof served only for light and ventilation. The necessity for a smoke hole in the roof disappeared since the dwelling was heated by oil lamps. The dwelling had either one entrance, a winter one, or two, a winter one and a summer one. The entrance through the roof by a log with notches was absent.

The dwelling of the coastal Chukchi, whose construc-

tion was borrowed from the Eskimos, was similar. A description of Chukchi pit houses is given by C. G. Merck, member of the Northeast Geographical Expedition of 1785–1795:

These pit houses are always located on eminences or on mounds near one another . . . Outside, the pit houses are covered with sod, are rounded and rise above the ground level only a few feet. On the side, on top, there is a square hole through which they descend into the pit house. Around this outside entrance, with the exception of the place for the passage, stand whale jaws in a circle approximately one and a half fathoms in cross section and to seven feet high. On top they are covered with whale ribs, and on top of them—sod.

Through the mentioned entrance you get first into an outer entrance hall, or passage, equal to the length of the pit house, which has a height of about six feet, in width a fathom or more, and is a little deepened in comparison with the level of the floor of the pit house.

Concerning the pit house itself, it is rectangular within, approximately 14 feet in length and width and approximately 8 feet or more high; however, it is somewhat lower on the two sides as a result of the curved roof. The pit house is set down in the ground approximately five feet, and on top there is another earthen berm three feet high laid on top of whale jaws installed along all the sides of the rectangular pit house. Between the jaws, vertebrae are laid in the ground, and at others, ordinary stones. On the above-mentioned whale jaws are located for the formation of the roof at a distance from the entrance four identical jaws separated from each other, that are transversely covered with ribs at full length (Etnograficheskie materialy. . ., 1978: 106–108).

Another center of cultural development of sea mammal hunters was the northern part of the Okhotsk coast. R. S. Vasil'evskii distinguishes two groups of pit houses of the Old Koryak culture (Vasil'evskii 1971: 142, 143). Dwellings of the first group (the sites in Rassvet Bay on Zav'yalov Island and at the Orochan locality) were comparatively small in size (6 to 8 m in diameter), not very deep (25 to 50 cm), and oval in plan. The entrance in the form of a narrow opening was located above the floor of the dwelling and most often was directed toward the sea. The hearth, constructed of rectangular or square stone slabs, was located in the center. R. S. Vasil'evskii believes that these dwellings are the earliest type of pit houses of the Old Koryak culture. Dwellings of the second group (sites on Cape Travyanoi and the Yama and Siglan rivers) are larger is size (to 16 m in diameter), embedded 1 to 1.5 m in the ground, and reminiscent of an octagon in plan (Figure 2). In the center of the dwelling four primary posts were joined by crossbars, forming a square frame. The remaining eight posts were driven in at the corners and walls of boards were installed between them, which were joined with joists. In the center of the roof of poles and boards a bell in the form of a funnel was constructed. N. V. Slyunin gives a description and clarifies the assignment of this bell:

The top of the yurt, covered with snow, has a peculiar device and is like a loose umbrella turned with the handle up. This broad cornice forms in this way a large depression on the roof, where dog harnesses, reindeer hides, and supplies of fish and meat are stored. Such arrangement of the roof was remarkably practical: since strong north and northeast snowstorms prevail on the Penzhina coast, the yurt would undoubtedly have been covered with snow if it were not for the named cornice. The wind, passing between the boards, carries away all the snow, and thus the roof of the yurt, and consequently also the entrance into it, are always clear and free.

Such construction of the yurt had strategic significance: thick earthen walls with a palisade of boards served as excellent defense against attack by an enemy and at the same time made it possible for the Koryak to shoot at the enemy with bows through small holes in the walls (Slyunin 1900: 384, 385).

A square hole in the roof, in the middle of the bell, was simultaneously for light, smoke, and entry.

A characteristic feature of Old Koryak dwellings was the long narrow flat-roofed corridor, turned toward the sea, that served as a summer entrance, as well as a tunnel for a draft when the hearth was burning. In

Figure 2. Hearth of the upper house at the Ol'skaya site (Old Koryak culture, 2004).

winter they descended into the dwelling by a log with notches. The dwelling was covered with grass and earth. Such type of dwelling was spread among the Koryak of the western coast—the Kamentsy, Itkantsy, Parentsy, and Alyutortsy (Rekinniki site) (Antropova 1971: 53). There was a similar dwelling among the settled Koryak of the eastern coast, but without the funnel-shaped bell. V. V. Antropova notes that it was smaller in size, deeper in the ground, and the walls were constructed of one row of boards.

Pit houses also existed among the Kerek (Leont'ev 1976: 160). The depth of the pit reached 1.5 m. In the center of the dwelling was a rectangular structure of posts with crossbars, on which poles were supported. The hole in the roof was used for smoke and light. The corridor-like entrance was inclined. Characteristic for the dwelling was the presence of several hearths of round or oval form. They could be entirely or partially lined with stones. The largest hearth was located in the center or closer to the exit. A. A. Orekhov believes that dwellings of the semisubterranean type, rounded or oval in plan, spread from north to south (Orekhov 1980: 11).

A similar house was evidently at the Kanchalan site, but its description is not complete. This was connected with unskilled excavations of this site by V. V. Naryshkin (Dikova 1964: 51, 52).

Old Itel'men pit house-dwellings of hunters and fishermen of Kamchatka were described by S. P. Krasheninnikov (1949: 374). The depth of the pit reached 1.5 m; in the center of the dwelling were four posts with joists joining at the top; a rectangular hole in the roof served as an entry; the hearth was located in the center by one of the long walls between the vertical posts and was opposite the tunnel for the draft. G. W. Steller reports additional information about the arrangement of the Old Itel'men semisubterranean house: along the edges of the pit stakes were driven in flush with each other, and the tunnel for the draft exited toward the river. N. K. Starkova proposes that in the past this tunnel for the draft was the primary, possibly even the only, entrance to the dwelling (Starkova 1976: 51).

As a result of work conducted by T. M. Dikova at W. I. Jochelson's excavations, new materials about Old Itel'men pit houses were obtained (Dikova 1976: 199–203). Two different houses were excavated on Cape Siyushk. House 1 was slightly deepened (15 to 20 cm), had a rounded form, and corridor-like entryway oriented toward the lake. Three hearth pits were located in the center and by the entrance. In the center of the dwelling was possibly a rectangular structure of posts and a frame, on which the roof poles were supported. The dwelling was laid around with stones on the outside. House 2 differed from the first in that it was square with rounded corners. The hearth was faced with stones on three sides, except the side facing the corridor-like entrance, and the floor was plastered with a layer of white clay. On the outside the dwelling was not laid around with stones. The presence of sloping holes along the edges of the dwelling point to the fact that in the center or above the hearth there would have been a rectangular structure, but no traces of posts remained.

Thus, the dwellings on Cape Siyushk were slightly deepened, had a rectangular structure in the center, a sloping roof of poles, and a corridor-like entrance; the roof was conical or pyramidal in form.

Consequently, the type of Old Itel'men semisubterranean dwelling described by S. P. Krasheninnikov and W. I. Jochelson was much later that the Old Itel'men dwelling on Cape Siyushk.

The dwelling excavated by N. N. Dikov on Cape Nizkii is unusual for maritime cultures of Chukotka (Dikov 1978: 222, 223). This was a semisubterranean house with a flooring of slabs and boards, which insulated the dwelling. The square hearth was faced with three layers of stone slabs. A slab barrier, which isolated the hearth from the wooden floor, was propped with short logs, forming a square frame. The logs served as a kind of fixture for the arrangement of the hearth on the wooden flooring.

The discovery of dwelling in the Anangula site, which is dated to eight thousand years, is very significant for the research of pit houses in the Northeast. Determining the construction of the dwellings was very difficult because of the absence of plans and incomplete excavations. The depth of the pit reached 75 cm. The dwelling was rounded in form and clearly contoured by ash layers. The hearth, faced with stones, was located in the center opposite the entrance. The entrance was corridor-like. Placement of the hearth opposite the corridor-like entrance was also characteristic for Layer VI of the Ushki Paleolithic site. R. S. Vasil'evskii noted that this type of pit house is considered the earliest in the Northeast (Vasil'evskii 1973: 22, 23). It was this kind of dwelling that could have been the primary type for pit houses of maritime cultures.

The earliest pit houses, possibly originating as early as the Paleolithic in Kamchatka, acquired distinctive development in the Far East. The same building structure can be traced from the Neolithic in sites of the lower Amur (at Kondon village) (Okladnikov 1964: 200), the middle Amur (at Novopetrovka village and at Osinovoe Lake) (Derevyanko 1972: 156–166), and in Primor'e (on the Rudnaya River) (Okladnikov 1959: 49, 50).

However, these dwellings differed from those of the Northeast: the walls were vertical and protruded above the ground, the floor was plastered with clay, and the quadrilateral hearth was faced with boards plastered with clay. However, no entryway was discovered. A. P. Okladnikov and A. P. Derevyanko suppose that a hole in the roof could have served as an entrance.

These features of the dwelling in the southern Far East are also preserved in the Iron Age (Derevyanko 1973: 256, 257).

In our view, primary attention should be turned to the entrance and the placement of the hearth of the dwellings, since they least of all underwent changes and often retain features of the earliest dwelling—the fundamental principles. The presence of a corridor-like entrance distinguishes the early pit houses of the Northeast from the south. Hearths could be rounded or rectangular and located in the center or offset toward the corridor-like entrance.

The primary features of pit houses of the Northeast:
1) the presence of a pit (a depth of 0.3 to 0.8 m or 1

Figure 3: House depression at the Spafar'eva site, Tokareva culture (2008).я культура (2008 г.).

to 1.5 m);
2) the dwellings are primarily round, but there are also rectangular ones with rounded corners (3 to 10 m in diameter);
3) the roof is conical or pyramidal;
4) the presence of posts along the edges of the pit for reinforcement of its walls;
5) rectangular structure with crossbars in the center of the dwelling;
6) the entrance is corridor-like or through a smoke hole in the roof.

The appearance of a corridor-like entryway into the dwelling of the Uril'skaya culture at Rybnoe Lake and in the Pol'tsovskaya culture is possibly the result of independent development of the earliest type of pit houses in this region (Derevyanko 1976: 142). It is notable that the corridor into the dwelling at Rybnoe Lake begins in one of the corners, which is unusual for pit houses of the Northeast (Derevyanko 1973: 147).

There is no general classification of pit houses based on materials from investigations of them. We suggest the following gradation of dwellings based on degree of depth:
1) slightly embedded in the ground due to the alignment of the place for construction of the dwelling;
2) embedded in the ground 0.3 to 0.8 m;
3) semisubterranean, embedded to 0.8 to 1.5 m;
4) pit house, embedded to 1.5 to 2 m.
The term "uglublennye" ["deepened," "embedded"] is the most suitable for these dwellings; the term "podzemnye" ["underground"] is wrong, and "polupodzemnye" ["half underground," "semisubterranean"] is not quite accurate.

Based on the structural features in the Northeast, it is possible to distinguish two types of pit houses. Dwellings of the first type—older—are rounded or subsquare, were embedded 0.3 to 0.8 m, the roof was conical or pyramidal and constructed of sloping poles, the hearth was lined with stones and could be round or oval, the floor was earthen, and the entryway corridor-like. Assigned to dwellings of the second type are late Koryak and Itel'men semisubterranean dwellings of strict rectangular or octagonal form that were embedded to 1 to 1.5 m and the walls rose above the ground by a third or half. Koryak dwellings had an eight-pitched roof, while among the Itel'men it had the form of a truncated pyramid, the floor was earthen, the hearth was rectangular, and the smoke hole in the roof served as the entrance.

Thus, the pit houses of the Northeast preserved features of the most ancient Siberian pit houses. Their formation was independent of development of dwellings in the southern Far East. Pit houses with corridor-like entryways probably existed in the Northeast from the earliest times, and the different variants of construction of the pit house could have occurred as a result of independent development by the peoples of the Northeast.

The distribution of pit houses with corridor-like entrances in Priamur'e, on Sakhalin, and in Japan was evidently due to close contacts of northeastern Paleo-Asiatics with peoples of the southern Far East in later times. Thus, the Nivkhi and Ainu, who were in constant contact with the Koryak and Itel'men, had pit houses with corridor-like entryways.

Further investigations of pit houses in the Far East and especially on the west coast of the Sea of Okhotsk will undoubtedly provide new materials for resolving problems of the emergence and spread of these dwellings in this region, as well as contribute to working out problems of the ethnic history of the peoples of the Northeast.

Footnotes

1. This article was taken from Noveishie dannye po arkheologii Severa Dal'nego Vostoka [The Most Recent Data Based on the Archaeology of the Northern Far East]. Magadan: SVKNII, 1980. Pp. 69–78.

2. Dr. Alexander Lebedintsev is head of the Archaeology and History Sector at the Northeast Science Research Institute, Far-Eastern Branch, Russian Academy of Sciences in Magadan, Russia.

* On the use of "Eskimo" - the translator has chosen to use this term as in Alaska and Chukotka (the region discussed in this article) those native peoples related to the Canadian Inuit are called and identify themselves as "Eskimos." Since Dr. Lebedintsev's article speaks of the "эскимосское жилище" [Eskimo dwelling]

Abbreviations

KSIA—Kratkie soobshcheniya Instituta arkheologii [Brief Reports of the Institute of Archaeology].

RAO—Ezhegodnik Russkogo antropologicheskogo obshchestva [Annual of the Russian Anthropology Society].

SA—Sovetskaya arkheologiya [Soviet Archaeology].

SVKNII—Severo-Vostochnyu kompleksnyi nauchno-issledovatel'skii institut Akademii nauk [Northeastern Interdisciplinary Scientific Research Institute]. Tr.—Trudy (Works).

Paleolithic-Mesolithic-Neolithic

The Mesolithic or "Middle Stone Age" period falls between the Paleolithic ("Old Stone Age") and the Neolithic ("New Stone Age"). The Paleolithic is generally described as the era of flaked stone, the Neolithic as the era of ground stone and ceramics, and the Mesolithic somewhere in between. The Mesolithic shows traits of some flaked stone use, some ground stone. A major problem with these designations is the fact that cultures transitioned from Paleolithic through Mesolithic to Neolithic at different times and in different ways. In addition, some scholars do not accept a Mesolithic as a real period. The Paleolithic slowly comes to an end in many places somewhere in the neighborhood of 12,000 years ago. The Mesolithic (if one wants such a period) followed for a few thousand years. During this period the herds of large animals began disappear. The economy turned to smaller animals and more diverse subsistence. This is followed by the refinement of tools, development of ceramics, and incipient agriculture, depending, of course, on where the culture was located. These, in a thumbnail, are the major problems with these archaeological time periods.

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Dr. Alexander I. Lebedintsev worked at the famous Devils Gorge site (the earliest Eskimo site) on Wrangel Island in 1976. He has worked all through eastern Chukotka from the Arctic Ocean to the Sea of Okhotsk. He now heads the Archaeology and History Sector at the Northeast Science Research Institute of the Far-Eastern Branch of the Russian Academy of Sciences in Magadan, Russia (lebedintsev@neisri.ru).

Richard Bland
Dr. Richard L. Bland worked for many years in Alaska, primarily in South Alaska and the Aleutian Islands. The work involved survey, recording, and excavation of sites left by early Aleuts, interior Native Americans, fox farmers, gold miners, and so on, for a variety of government agencies. He is now a courtesy research associate at the Museum of Natural and Cultural History, University of Oregon, Eugene (rbland@uoregon.edu).

Society at Work

Society Opposes Hydro's Plan to Dam Peace River

By Nick Russell, Vol. XIV, No.1. February 1982

The Archaeological Society of B.C. presented an impassioned brief to the B.C. Utilities Commission in January, urging due consideration be given to the heritage potential of the upper Peace River valley, threatened by the proposed Site C dam.

The five-man Commission, holding hearings expected to last some four months, I listened patiently to one of the shortest briefs they had ever received (one scant page, compared to some tomes of 500 pages), and a short oral presentation, made by executive member Nick Russell and president Shirley Veale.

The brief described how Asia and North America were connected for most of the last 60,000,000 years, and how early man wandered across that land bridge some 30,000 years ago, gradually spreading across northern B.C., only to be stopped by the Rockies.

Subsequently, man discovered a route through that barrier, via the upper Peace River valley, and possibly emerged thence to people North America. Probably, suggested the presentation --backed up with notes from many archaeologists--people have been using that route for much of the last 10,000 years.

Citing Heritage Conservation Branch reports and site surveys, the Society contended that some 200 important heritage sites will be wiped out if the dam and its lake are built --more sites than have ever been excavated in the entire province. The solution was --ideally-- to leave the valley undisturbed, to be protected as a major migration route, and --much less ideally-- to dedicate 1% of the total project cost to heritage research and interpretation.

Skeptical Hydro lawyers pointed out that a mere 1% represented $26,000,000, and tried to persuade the ASBC speakers to put a dollar value on the heritage sites. Resisting that temptation, the speakers did point out that not only were there mammoth sites and ancient campsites in the pondage area, but white man's earliest site on the entire B.C. mainland --Rocky Mountain Fort--was also doomed.

Purpose of the presentation was simply to draw attention to the heritage importance of the area, which has not been exactly a top priority in the debate of whether B.C. needs another giant dam.

The A.S.B.C. presentation was shown later on Channel 10 TV.

Looking Back from 2018

This article captures the sentiments and notions of its time. It's interesting to note that thirty six years and many field studies later the number of sites has more than doubled - over 400 pre-1846 sites, a dozen historic sites, and several hundred palaeontological sites have been identified within the footprint of the Site C project. Some of the sites that were identified prior to Russell's article have suffered due to erosion, so recent work at these sites has provided a good opportunity to capture what may have been lost to natural forces. New technology is being employed to date components which would previously have gone undated. *GH*

Conferences and Events

Joint Annual Meeting of the Archaeological Institute of America (AIA) and the Society for Classical Studies (SCS)
January 3-6, 2019
San Diego, CA
https://www.archaeological.org/meeting/about

Canadian Archaeological Association
Quebec City, 2019
Details TBD

Society for American Archaeology: 84th Annual Meeting
April 10-14
Albuquerque, NM
http://saa.org/AbouttheSociety/AnnualMeeting/tabid/138/Default.aspx

Society of Ethnobotany Annual Meeting
May 8-11, 2019
Vancouver, BC
https://ethnobiology.org/conference/upcoming

Society for Historical Archaeology 2019 Conference on Historical and Underwater Archaeology
St. Charles, Missouri January 9-12, 2019
St. Charles Convention Center
https://sha.org/conferences/

To include your event or conference here, please contact the editor at asbc.midden@gmail.com