

## Chapter X

### REANALYSIS OF BORDEN LOCARNO BEACH COMPONENTS

#### i) The Locarno Beach Type Site.

Heather Pratt

The Locarno Beach culture was first defined by Charles E. Borden on the basis of excavations at the Locarno Beach and Whalen Farm sites. As part of the overall investigation of the nature of the Locarno Beach culture, we re-evaluated these early collections, which have never been fully described. Borden (1950a, 1951b) did initially produce fairly complete preliminary reports and later published a check-list definition (1970). Mitchell (1968) developed a detailed presence-absence attribute list which was reproduced (with changes) by Matson (1974). Matson (1974) also published some preliminary counts for these Locarno components (and DhRt 4, the Musqueam NE site), and Mitchell (1968, 1971, 1990) produced a detailed summary of this culture, partially based on the Locarno Beach and Whalen Farm components. Steifel (1985) also undertook faunal analyses of Locarno components including material from both Locarno Beach and Whalen Farm, using a sample of existing faunal remains and midden samples.

All of these various investigations were preliminary, neither of the Whalen and Locarno Beach (DhRt 6) components had been fully reported, and counts for all but a few exotic artifact types were either lacking or in the case of Matson (1974) - clearly had some problems. In addition the early solid carbon dates for these two sites reported by Borden (1970) and Mitchell (1971) did not agree with those reported from other Locarno components. In an attempt to alleviate these problems we re-analyzed the collections using the artifact classification described earlier in this volume. This artifact analysis included examining the level bags (known as "AssMat" bags for "Assorted Materials") from the Locarno Beach and Whalen Farm sites to see whether previously undetected tools were present that had not been recognized in the late 1940s or had been overlooked when the artifacts had been catalogued. Charcoal samples from the original excavations were also located and three submitted for dating in the hopes of clarifying the age of the components.

In addition to the Locarno component at the Whalen Farm site, designated by Borden as "Whalen I", the enigmatic Whalen II component is also present there. Borden thought that Whalen II represented a culture that existed between the Marpole and Stsilex cultures (Borden 1970) and this component is reported on in detail in the next section of this chapter by Thom. Others, including Mitchell (1971) and Burley (1980), believed that the Whalen II culture was simply a variant of the Marpole culture. This component, too, needed a fuller description than previously existed before this issue could be definitively settled.

#### The Locarno Beach site.

The Locarno Beach site (DhRt 6) is located on the north coast of the community of Point Grey, which is a part of the city of Vancouver (Figure II-1). It is located on the eastern end of Spanish Banks separated from the beach that bears its name by Northwest Marine Drive. During the summer of 1989 we began to organize both the collection and the field notes from Borden's excavation in the spring and summer of 1948 of the Locarno Beach site (Borden 1950a:14-17). The original Borden field notes, as well as photographs and maps, helped us in this endeavor. The artifacts from the original 1948 excavation were organized into artifact types, measured, and weighed. A number of artifact types were found that were present from our assemblages at Crescent Beach, so these were added to those created for the Crescent Beach artifact assemblage and are denoted by "lb" in Chapter V.

A second problem soon presented itself with the Locarno Beach artifact assemblage. There were two separate trenches excavated, and although both of them were presumably supervised by C.E. Borden, one trench (Trench 4) was excavated solely by volunteers. Borden gives little information about Trench 4 in his field notes and we could not locate any diagrams or maps of the trench, although there are a few photographs (Figure X-1). Uncertainty about where the Trench 4 artifact assemblage fit in with the Trench 1 artifact assemblage resulted in the decision to separate the two trench's artifacts in Table X-2.



Figure X-1. Locarno Beach site Trench 4 (1948).

The spring of 1948 was very rainy and the trenches suffered considerable damage due to cave-ins. Uncertainty about the provenience of the artifacts found within the cave-in slumped material lead us to group all cave-in artifacts together and not include them with the other artifacts found during excavations. It appears that only the 'better' artifacts were collected from the trench cave-in events, leading to their over representation in the overall artifact collection. Artifacts recovered from the cave ins are listed in Table X-3.

Although some existing catalogued artifacts were not included in our tabulations because of their uncertain provenience, some new artifacts were added by inspection of the AssMat bags collected during the 1948 field season. Those artifacts were collected and catalogued if they had good provenience (i.e., we could understand the writing on the AssMat bags), and incorporated into our artifact counts.

There is the possibility of an existing Marpole phase component from the top strata at Locarno. This was recognized in later salvage excavations at other locations of the Locarno Beach site, such as by Arcas in 1993. Whether this component also exists in the collection reported here is unclear at this point.

Borden (1970) reported two radiocarbon dates from his early Locarno Beach excavations, one from Locarno Beach of  $2430 \pm 160$  RCYBP (S-3) and one from Whalen Farm of  $2450 \pm 160$  RCYBP (S-18) (Wilmeth 1978:17, 83). These dates were used to support a duration of between 2000 and 2800 RCYBP for the Locarno Beach phase (Borden 1970). Mitchell's (1971, 1990) syntheses on the other hand, including a

number of more recent radiocarbon dates, indicated a time range of 2500 to 3200 RCYBP and some later dates suggest 3300 RCYBP as a beginning time. Matson and Coupland (1995:156) indicate a beginning date of 3300 to 3500 RCYBP, as does Chapter XI of this volume. The original Borden dates appear to be anomalies for Locarno Beach, or may indicate that these assemblages included Marpole material.

Table X-1 Locarno Beach site (DhRt 6) Radiocarbon Dates.

<u>Lab Number</u>	<u>Provenience</u>	<u>Date (RCYBP)</u>	<u>Notes</u>
S-3	95" below datum	2430 $\pm$ 160	Solid Carbon method
SFU 767	70-90" below datum	2840 $\pm$ 80	Borden collected charcoal
SFU 766	102" below datum	3280 $\pm$ 70	Borden collected charcoal
Beta 70602	Layer 7	2460 $\pm$ 80	Arcas excavation, EU1/RC-1
Beta 71115	Layer 11	2730 $\pm$ 90	Arcas excavation, EU4/RC-2
Beta 71116	Layer 11	3120 $\pm$ 90	Arcas excavation, EU7/RC-11
Beta 67252	Layer 12	3160 $\pm$ 90	Arcas excavation, RC-NE4
Beta 70604	Layer 9	2290 $\pm$ 90	Arcas excavation, EU9/RC-1
Beta 69094	Layer 12	2000 $\pm$ 80	Arcas excavation, RC-NE1
Beta 70603	Layer 8	1630 $\pm$ 80	Arcas excavation, EU3/RC-2

We submitted to the Simon Fraser Radiocarbon Laboratory two charcoal samples collected in situ from two of the lower layers present at Locarno Beach. We received dates (Table X-1) of 2840  $\pm$  80 RCYBP (SFU 767) from the upper sample and 3280  $\pm$  70 RCYBP (SFU 766) from the lower sample. The charcoal used for SFU 766 was associated with what Borden described in his field notes as an ashy layer encircled by fire cracked rock but that for SFU 767 was not associated with any particular feature. These two dates are in accord with other Locarno Beach dates indicating a beginning by 3300 RCYBP of this culture.

The original early solid carbon dates run by the Saskatchewan lab (Wilmeth 1978:71,83) indicating a period of 2800-2200 RCYBP for the Locarno Beach phase should now be rejected. The sample from Locarno Beach was from charcoal 95 inches below surface (2430  $\pm$  160 RCYBP) and, according to our dates, should be around 3000 RCYBP. Note that it is S-3, the third date run by Saskatchewan, and is a credible date considering this and the problems now known to exist with the solid carbon method. The solid carbon method was replaced by gas counting methods by the late 1950s (Taylor 1987:82). Other laboratories by then were finding it difficult to reproduce Libby's results using the solid carbon method with one major problem being "contamination of sample preparations with fission products from the detonation of thermonuclear devices in the atmosphere" (Taylor 1987:82). If this problem was occurring at Saskatchewan, that would mean the assays would date too recent, as in this case. Gas counting and liquid scintillation methods not only avoided this contamination problem but were also able to use smaller samples and generally gave greater precision (Taylor 1987:83).

Both of the samples we submitted were large and we have retained half of the samples submitted for future dating clarification (if needed). The two new dates place the bulk of type site collection clearly in the now expected 2500 to 3300 RCYBP period. Excavations in 1993 on the lot next to Borden's original excavations (Arcas 1993) produced seven new dates (Table X-1). It is difficult to correlate these with Borden's original excavation, as a Marpole phase component exists on this part of the site, but four of the seven dates date to the Locarno component, ranging from 2460  $\pm$  80 RCYBP (Beta 70602) and 3160  $\pm$  90 RCYBP (Beta 67252) in general supporting Mitchell's dates (1971) and our dating of this site. The richest Locarno Layer (11) has dates of 2730  $\pm$  90 (Beta 71115) and 3120  $\pm$  90 (Beta 71116) RCYBP. The sole

anomaly is the Beta 69094 date for Layer 12 of  $2000 \pm 80$  RCYBP which cannot be regarded as a correct date for this phase. Our re-dating of Borden's original material, supported by the Arcas excavations, helps to answer questions concerning the age of the Locarno type site component. Now we turn to the less easily resolved issue pertaining to the nature of this assemblage.

#### Component Summaries

The following two tables (X-2 and 3) present the artifacts grouped into the artifact types as described in Chapter V. Table X-1 lists the artifacts excavated from Trenches 1 and 4, while Table X-2 lists the artifacts retrieved from the on site cave ins.

From these tables we can see that while chipped stone is still present at Locarno Beach, its numbers as a whole are not as large when compared to St. Mungo components. The Table X-2 artifact counts include those artifacts gathered from Borden's "AssMat" bags. Almost all of these artifacts were chipped stone expedient tools such as Utilized Flakes, Narrow-angled Retouched Slakes, and Steep-angled Retouched Flakes, which were not reported in the early, preliminary reports. It is also interesting to note that the number of Quartz Crystal Microliths (QCML) present is one, which in comparison to the number of QCML's found at Crescent Beach is surprising low. This may be an artifact of field procedures because although only QCML's were found at Crescent Beach, at Locarno, quartz crystal was used for other tools including a steep-angled formed uniface and a very large core, indicating that quartz was present. Furthermore, the relatively small 1993 Arcas excavation in the adjacent lot (Arcas 1993) recovered eight Quartz Crystal Microliths through 6 mm (1/4") mesh screens. Similarly, their richest Locarno Layer (11) has a much higher percentage of retouched flakes than we recorded for Borden's collection (Arcas 1993:32-40).

There is more diversity in projectile point styles recovered by Borden at Locarno, but most are of styles also found in St. Mungo components. The larger number of chipped slate artifacts, although not necessarily statistically significant, suggests the growing importance of slate as a raw material. One general comment concerning the chipped stone assemblage is that on whole it consists of expedient items.

Diversity within the Locarno ground stone tool assemblage is much greater than that found in St. Mungo components. Abrasive stones are plentiful and far more are shaped, although no decorated abraders were discovered at the Locarno Beach site. Ground Slate Knives suddenly appear and are plentiful. They come in many sizes and thicknesses, although not as thick and as unfinished as one might be lead to believed from previous publications. The numbers of ground stone projectile points is slightly higher than chipped stone (42 versus 37), but the diversity in styles is quite interesting. We have defined two general categories for ground stone points. One group of points is similar to their chipped stone cousins except for their smooth abraded surfaces. The most common styles are leaf-shape and contracting stem. Among the other group of ground stone points, the surfaces have been facettted indicating a significant difference in time and effort to make the facettted points. The facettted points are slightly less common. Gulf Island Complex artifacts are not common and only one small stone Labret was discovered in situ. It is unfortunate that small screen mesh was not used to screen some of the midden material, because both ground stone disc beads and quartz microliths near absences in the assemblage are likely the result of excavation techniques. Although Quartz Crystal Microliths were recovered by Arcas (1993), small beads were not, leaving the question of their possible presence at the Locarno Beach type site still open since the Arcas excavations used 6 mm (1/4") screens. (1/4) screens, making their absence at the Locarno Beach site still in question. Fine-grained field techniques were not introduced until after 1948 on the Northwest Coast (and as the 1993 excavations indicate, are not universal at this time), and the techniques used at Locarno Beach in the late 1940s, which included screening, were good for their time.



Table X-2.

## Locarno Beach (DhRt 6) Artifacts

Artifact Type	Trench One	Trench Four
<i>CHIPPED STONE IMPLEMENTS</i>		
Core (CORE)	8	-
Hammerstone (HAM)	14	1
Battered Flake (BF)	1	-
Utilized Flake (UF)	52	-
Quartz Crystal Microlith (QCML)	1	-
Unifacially > Angled Ret. Flake (SRF)	13	-
Unifacially < Angled Ret. Flake (NRF)	11	-
Bifacially Retouched Flake (BRF)	6	-
Steep-Angled Formed Uniface (SFU)	1	-
Steep-Angled Formed Biface (SFB)	3	-
Leaf-Shaped Biface (LBF)	9	6
Contracting Stem Biface No Should. (CSTB)	5	-
Contracting Stem Biface With Should. (CSBS)	4	4
Corner Notched Biface (CNBF)	1	-
Excurvate Biface (EB)	1	-
Biface Proximal Fragment (BPF)	2	1
Biface Medial Fragment (BMF)	2	-
Unidentified Biface Fragment (UNBF)	2	-
Chipped Slate < -Angled Spherical Biface (CSSB)	8	3
Chipped Slate Diamond Shaped Biface (CSDB)	1	-
Chipped Slate Fragment (CSF)	2	-
Chipped and Ground Stone < -Angled Retouched Implement (CGSK)	1	2
<b>Subtotal Chipped Stone Implements</b>	<b>148</b>	<b>17</b>
<i>GROUND STONE IMPLEMENTS</i>		
Abrasive Stone (AS)	19	6
Formed Abrasive Stone (FAS)	8	3
Ground Stone Knife (GSK)	14	9
Leaf-Shaped Ground Stone Point (LSGP)	2	1
Contracting Stem Lanceolate-shaped Ground Stone Point (CSLG)	4	3
Lanceolate-shaped Concave Base Ground Stone Point (LCBG)	1	-
Straight-Stem Ground Stone Point (SSGP)	1	2
Ground Stone Point Proximal Frag. (GPPF)	5	2
Ground Stone Point Medial Fragment (GPMF)	1	1
Ground Stone Point Distal Fragment (GPDF)	1	1
Leaf Shaped Facet. Ground Stone Pt. (LSFP)	9	1
Parallel Sided Facetted Ground Stone Point (PSFP)	3	4
Ground Stone Disc Bead (GSDB)	2	-
Adze (ADZ)	1	1
Gulf Island Complex (GIC)	3	-
Labret (LAB)	1	-
Miscellaneous Ground Stone (MGS)	22	4
<b>Subtotal Ground Stone Implements</b>	<b>97</b>	<b>38</b>

Table X-2 Locarno Beach (DhRt 6) Artifacts (Cont.)

Artifact Type	Trench One	Trench Four
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<i>BONE IMPLEMENTS</i>		
Worked Bone Medial Fragment (WBMF)	37	10
Worked Bone End Fragment (WBEF)	24	5
Net Gauge (NG)	1	1
Ground Molar (GM)	3	-
Tooth Pendant (TPND)	3	-
Whistle (WHST)	1	-
Splinter Awl (SAWL)	1	1
Formed Split Bone Awl (FAWL)	17	1
Metapodial Awl (MAWL)	2	-
Bird Bone Awl (BAWL)	15	-
Ulna Awl (ULNA)	9	-
Ulna Tool (ULTL)	1	-
Knife Slitting Implement (KSI)	2	-
Unipoint (UNPT)	5	-
Bipoint (BIPT)	2	-
Pointed Bone Object (PBOF)	1	-
Needle (NDL)	3	-
Bone Chisel With Unifacially Tapered Distal End (BCUT)	3	1
Bone Chisel With Bifacially Tapered Distal End (BCBT)	2	1
Bone Wedge (BWED)	1	-
Non-Facetted Bone Point Lanceolate-Shaped (NFPT)	3	2
Non-Facetted Bone Pt. With Central Cavity (NFPM)	3	3
Facetted Bone Point (FBPT)	3	1
Facetted Bone Pt. With Central Channel (FPTM)	17	1
Unidentified Bone Wedge, Chisel, or Point Fragment (UWCF)	6	2
Unilat. Barbed Fixed Bone Point (UBFP)	1	-
Unilat. Barbed Bone Harpoon (UBH)	1	-
Frag. Unilat. Barbed Point/Harpoon (FUB)	2	-
Bilaterally Barbed Fixed Bone Pt. (BBFP)	1	-
Toggled Harpoon Point (THPT)	1	-
Toggled Harpoon Head (THH)	1	-
Decorated Bone Object (DBON)	1	1
Anthropomorphic Object (ANTH)	1	-
Bone Labret (BLAB)	1	-
Subtotal Bone Implements	175	29

Table X-2  
 Locarno Beach (DhRt 6) Artifacts (Cont.)

Artifact Type	Trench One	Trench Four
<i>ANTLER IMPLEMENTS</i>		
Worked Antler End Fragment (WAEF)	2	-
Worked Antler Medial Fragment (WAMF)	1	-
Self-Armed Toggle Harpoon Valve (THAR)	1	-
Decorated Haft (DHFT)	3	-
Atlatl Hook (ATLT)	1	-
Subtotal Antler Implements	8	0
<i>SHELL IMPLEMENTS</i>		
Misc. Ground Shell Fragments (MGSF)	4	0
Total Number for each Trench	435	85

There is a wide variety of bone implements in this assemblage. Some of the more unusual artifact types include: two Net Gauges, a Whistle, and a Knife Slitting Instrument. Within the awl category, Formed Awls (FAWL) are more common than the more expedient Splinter Awls. Along with the large number of FAWL's there is also a large number of Bird Bone Awls present. The Bird Bone Awls are very small and delicate and their precise function is a mystery. Within the bone chisel class there are two styles present, one with a bilaterally tapering end bit, which looks very much like some ground stone adze blades. There are abundant bone points present. Once again, as with the ground stone points, there are two general categories, one for non-facettted points and one for facettted. There is overlap among the bone chisel, point, and wedges categories. Barbed points are also present. Although Locarno Beach as a cultural phase is famous for its Composite Toggle Harpoons, only one was recorded at the Locarno Beach type site, and it is a one piece bone toggle harpoon head with a closed socket and a slot to receive a cutting blade of bone. There is no hole or groove for the retrieving line. There is also one small Bone Labret present.

There is a paucity of complete antler artifacts from Locarno. The most common antler artifact type is the Decorated Haft, of which we found two complete examples and one fragment. Borden (1950a:17) describes these objects as resembling dentalium purses. The second most interesting artifact type is an antler harpoon comprised of a small one-piece toggle with a closed socket and opposed bilateral spurs. There is a drilled line hole at right angles to the spurs. Unlike the bone one-piece toggle harpoon head, this one does not have a cutting blade. The third interesting antler artifact type is an atlatl hook shaped into a human form with a cone-shaped hood or hat. The absence of Antler Wedges is interesting. Ground shell fragments are not common at Locarno and none are complete enough to hazard guessing at possible functions.

The group of artifacts (Table X-3) from the cave-ins are of the same type as those from the excavated portion of the site. The only unique artifact is a Leaf-Shaped Chipped Slate Point.

In conclusion, our analysis of the Locarno Beach site tells us a great deal about the artifact assemblage excavated. Chipped stone artifacts are common (40% of the artifact assemblage), but are usually not as well made nor quite as common as in earlier artifact assemblages. Ground stone technology is replacing chipped stone as the preferred technology and within the ground stone tools we see some continuity in projectile point styles (leaf-shaped and contracting stem), but we also see some ground stone points requiring more time and effort in their manufacture (the facettted styles). Even with these more technologically demanding

Table X-3. Locarno Beach (DhRt 6) “Cave-In” Artifacts.

Hammerstone (HAM)	3
Steep-Angled Formed Uniface (SFU)	1
Leaf-Shaped Biface (LBF)	1
Contracting Stem Biface No Shoulders (CSTB)	6
Contracting Stem Biface With Shoulders (CSBS)	2
Chipped Slate Narrow-Angled Spherical Biface (CSSB)	1
Abrasive Stone (AS)	4
Formed Abrasive Stone (FAS)	3
Ground Stone Knife (GSK)	6
Leaf-Shaped Ground Stone Point (LSGP)	1
Contract. Stem Lanceolate Ground Stone Pt. (CSLG)	1
Triangular Shaped Ground Stone Point	1
Straight-Stem Ground Stone Point (SSGP)	1
Leaf-Shaped Facetted Ground Stone Point (LSFP)	3
Parallel Sided Facetted Ground Stone Pt. (PSFP)	1
Facetted Ground Stone Point Fragment (PSFP)	3
Adze (ADZ)	2
Miscellaneous Ground Stone (MGS)	5
Worked Bone Medial Fragment (WBMF)	9
Worked Bone End Fragment (WBEF)	9
Net Gauge (NG)	2
Splinter Awl (SAWL)	2
Bird Bone Awl (BAWL)	4
Knife Slitting Implement (KSI)	1
Unipoint (UNPT)	3
Bone Chisel, Unifac. Tapered Distal End (BCUT)	3
Facetted Bone Point (FBPT)	3
Unidentified Bone Wedge, Chisel, Pt. Frag. (UWCF)	5
Fixed Unilaterally Barbed Bone Point (FUB)	2
Worked Antler End Fragment (WAEF)	1
Total Number of Cave In Artifacts	91

points, we still see the ever-present leaf-shape form. Bone artifacts are abundant in numbers and kinds. Perhaps this is a great period of experimentation with raw materials for we see bone points mimicking the facetted ground stone points and bone points of many new styles. We also see more evidence of fishing technology although ‘goodies’ such as toggle harpoons are not common. There is not much evidence within the artifact assemblage for non-utilitarian goods. Some of this may be due to the excavation procedures used at the site (it was a salvage project excavated under tight time constraints), but in comparison with Marpole phase components, the variety of personal adornment and status markers such as beads and decorated objects are not common.

The Locarno assemblage from the Locarno Beach site is strikingly different from that recovered from the Crescent Beach site. For instance, no Ground Slate Knives were recovered from our excavations at Crescent Beach, nor from Percy’s, although Trace (1981) reports three from his. This difference can not be a result of different collection biases. Similarly, Ground Slate Points are much more frequent from Locarno Beach than from the same age deposits at Crescent Beach and this difference must be real. Similarly,



Facetted Ground Slate Points and fragments thereof, are common at Locarno Beach and absent in the Matson and Percy Crescent Beach Locarno component excavations. Both Ground Slate Knives and Facetted Ground Slate Points are also known from other Locarno Beach components, including Whalen Farm I (next section of this chapter), Montague Harbour I (Mitchell 1971), and Georgeson Bay (Haggarty and Sendey (1976). On the other hand, many other differences between Crescent Beach and DhRt 6 Locarno collections can not be so easily assigned to cultural differences, but instead are likely to be differences in collection and excavation procedures. The absence (or near absence, since the 1993 investigations recovered some) of Quartz Crystal Microliths at Locarno Beach is a least partially the result of collection procedures which is probably true for the absence of small beads of any type. The differences in chipped stone is likely partially the result of different emphases. That we were able to find a number of chipped stone tools in the “AssMat” bags indicates that these were not recognized as important and points to the inference that many other implements in this class were simply not collected. One wonders whether this is also true for other categories, such a pieces of modified bone, that appear to be under represented.

In sum, some differences between the Locarno Beach site assemblage and other Locarno component collections reflect real differences in material cultures. Other assemblage differences are undoubtedly heavily influenced by changes in field techniques and different collection biases. Still other differences might be one or the other. The result is a collection that is very difficult to compare with other collections. It is clear that large, complete “nice” artifacts can be compared with similar ones from other collections. One ought to be able to make certain quantitative comparisons such as the ratio of Ground Slate Points (complete) to Ground Slate Knives (fragments, large). One can also make certain inferences about items which are rare or missing at Locarno Beach, such as beads and Quartz Crystal Microliths, that they were present in much larger frequencies in the deposit then they are found in the catalogued collection. These problems do not mean that this collection has only a historic value but rather that any comparisons must be carefully made with these problems kept in mind.

## Chapter X

### ii) The Whalen Farm Site (DfRs 3), 1949-50: Re-contextualizing Borden's Whalen Farm.

Brian Thom

The Whalen Farm site (DfRs 3) excavated by Charles Borden in the summers of 1949 and 1950 has been an important locale in the development of culture history in the Gulf of Georgia region. Based partly on these excavations, Borden (1970) presented his "Fraser Delta Sequence", which has largely stood the test of time. One of Borden's cultures, the Whalen II phase, has, however been the cause of much scrutiny and uncertainty since it was first proposed. This chapter, drawing from a larger, undergraduate honours thesis (Thom 1992b), revisits Borden's excavations, providing a description of the excavations at Whalen Farm, including new radiocarbon dates, and situating those excavations in the comparative context of the archaeology of the region. This analysis reveals that the enigmatic Whalen II component may be understood as a variant of the well established Marpole culture type, and that certain early excavation biases may have confounded earlier interpretations of this component.

I begin by providing a description of the site and the surrounding geography. I summarize the history of archaeological investigations at the site, focusing on Borden's 1949-50 excavations, but also including work done by H. I. Smith (1901, 1903, 1907, and 1925), Seymour (1976) and Hammon (1985, 1986). The history of Borden's interpretations of the site, and criticisms which he received concerning his Whalen II phase concept are then briefly examined. Having made complete tabulations of the artifacts from the site, including the Locarno Beach phase Whalen I, I attempt to define the place of Whalen II in the established culture sequence, by comparing them with other components excavated in Gulf of Georgia. By re-contextualizing this site, I try to interpret it in terms of more recent theories about the development of Northwest Coast cultures. Finally, I discuss the problems and rewards of studying old archaeological collections as a method of conducting research in the field of anthropology.

By providing this information, I hope that the data from the Whalen Farm components, the Locarno Beach Whalen Farm I and the Marpole variant Whalen Farm II, can be usefully incorporated in future interpretations of Fraser Delta prehistory. I believe my work can provide a model for further research in analyzing other old archaeological data by showing how some of the problems can be surmounted and the value still inherent in these collections can be realized.

#### I. The site

The Whalen Farm site is located on the eastern shore of the Point Roberts peninsula in the Southern reaches of the Lower Fraser Delta area of British Columbia (Figure II-1). It extends from the base of the Roberts Uplands (Maple Beach, Washington) in the south, across the international border into the low lying area of Boundary Bay, British Columbia (See Figure X-2). The eastern part of the site is about 75 meters from the high tide mark of the waters of Boundary Bay. The western extent of the site is about 500 meters from that shore. The site runs almost due north and south for about 300 meters north of the border and 500 meters south.

Several midden ridges make up this site. The ridges range in size from very low mounds, just a fraction of a meter above the surface level, to large knolls, which rise at least three meters above the level ground. These midden ridges basically follow the contour of Boundary Bay, running roughly parallel to the shore. Apart from the large midden ridges, there is midden deposit underlying most of the community of Maple Beach, Washington, and the southern portion of the community of Boundary Bay, British Columbia.

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Figure X-2. Air Photo taken of Whalen Farm environs in 1932 (A 4508).

The site has been significantly damaged since urban development got under way in the area 1956. Figure X-2 is an air photo taken in 1932. Today the area is developed with houses and cottages. When Borden excavated the site in 1949-50, the area was largely undeveloped, and looked much like the agricultural setting in the photograph.

Unfortunately, I was unable to locate any map made by Borden showing the complete extent of the site or exactly where his excavations were in relation to the overall area. The contour map which Borden drew for the area is shown in Figure X-3 with a second larger scale contour map shown as an inset in Figure X-3. To approximate the area of exaction, I located the barn Borden recorded in Figure X-3 and extrapolated from there (Figure X-4). Note the exact position is yet undetermined because of the extensive urban development. Figure X-5 also shows the locations of the subsequent excavations which were undertaken by Seymour (1976) and Hammon (1985).

The land upon which the site sits is part of the lower deltaic flood plain. The flat is made up primarily of tidal sands and silts (Williams and Roberts 1989:1659). This part of the Fraser Delta formed relatively recently. Prior to 5000 years ago, Roberts Uplands would have been Roberts Island. As the flood plain grew since 5000 RCYBP the area which is now Tsawwassen filled in with tidal sands, connecting Roberts Island to the Mainland (Mathews 1977:16). Williams (as reviewed in Chapter II) provides an estimated date of 2250 RCYBP for the stabilization of the sea-level in this area (Williams and Roberts 1989; Williams 1988). Thus, stabilization of the sea-level would have allowed people to inhabit the area by at least 2250 +/- 50 RCYBP. This is supported by basal-depth Locarno components at both the Whalen Farm site and at the north end of the Beach Grove site, approximately three km to the north (Ball 1979). William's date was estimated by work conducted on Lulu Island, and should only be considered as an estimate, but since there was not much rise in sea level in the previous 1000 years, we can be confident the Roberts upland was connected to the mainland by 3000 RCYBP.

The general ecological characteristics described for Crescent Beach in Chapter II are also appropriate for the Point Roberts area, as both are highland areas at the entrances to Boundary Bay. A possible

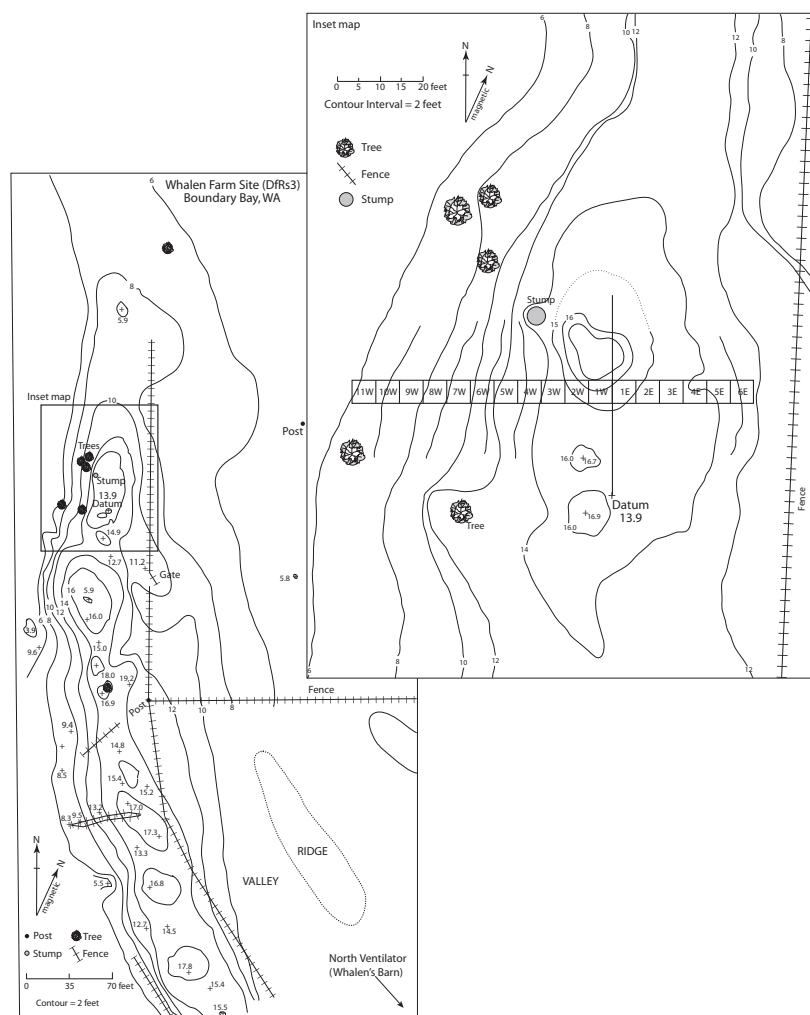


Figure X-3. Contour Map of Borden's 1949-50 Whalen Farm excavations.

difference is the relative absence of rocky foreshore areas today near the Whalen Farm site compared with Crescent Beach. The abundance of bay mussel (*Mytilus trossulus*) in the site, though, indicates that rocky foreshore areas were present nearby during occupation.

## II. Archaeological Investigations

The first archaeological investigations at the Whalen Farm site were carried out by Harlan I. Smith, under the auspices of the Jesup North Pacific Expedition. His first reporting of the Whalen Farm site is in his report "The Cairns of British Columbia and Washington" (Smith 1901). A large scale map of the area shows there to be shell heaps and cairns on the east bank of Point Roberts (Smith 1901: facing 56). The cairns which he investigated were at the southern end of the shell heap (Smith 1901:57). He describes the cairns as pits from five feet to fifteen feet in diameter by from three to five feet deep (Smith 1901:61). The pits, which contained skeletons, were located in the shell-heaps and covered or surrounded by boulders. Elsewhere (Thom 1995) I have conducted a regional analysis of burials with cairns which suggested that this practice was largely done between 2500 and 1000 years RCYBP.

Smith's second report "Shell-Heaps of the Lower Fraser River, British Columbia" (Smith 1903) only briefly mentions that shell-heaps are found at various places on the peninsula between the bottom-lands and Point Roberts (Smith 1903:140). In 1907, Smith gives another report on the site on the Point Roberts peninsula (Smith 1907). He provides a very useful description of how the midden ridges before the

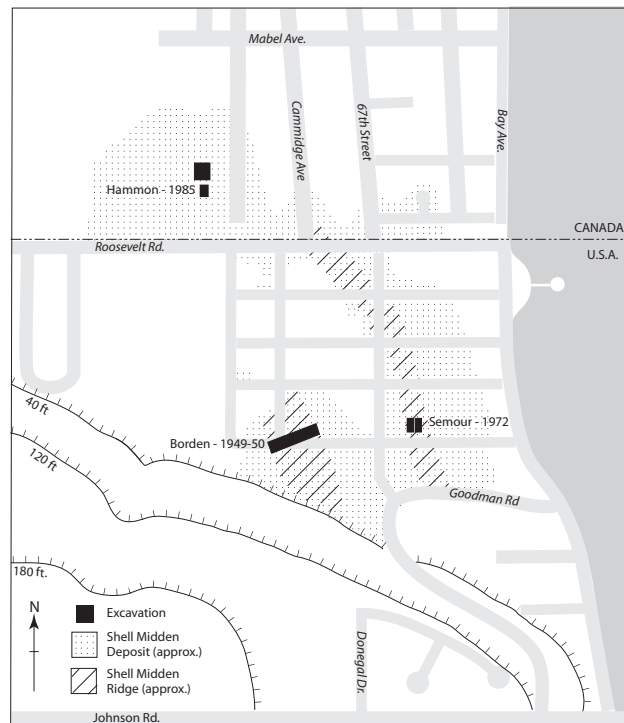


Figure X-4. Modern (1992) map locating Whalen Farm Excavations.

transformations of the recent urban development in the area:

A shell-heap in the form of a ridge extends from a point on the United States side of the line, at the present southeastern shore of Point Roberts, along the eastern shore of the point for about a mile to the northward, and ends on Canadian soil. About half a mile from its beginning at the beach, where it fills the space to the bluff, it turns back westward from the present shore line, and at its northern end it a comparatively long distance from the sea. Branching from the rear of this, and running parallel with it, is another shell-heap, probably an older one. The northern ends of these swing out in a line following the general trend of the beach, and some distance in front of the bluff. (Smith 1907:363)

It is now difficult to distinguish the two ridges because of the expansion of the communities of Boundary Bay and Maple Beach, but the general trend of the ridges can still be discerned, as shown in Figures X-2 and 4.

The third report on the Whalen Farm site written by Smith (1925) under the auspices of the Victoria Memorial Museum (National Museum of Canada). It is a brief article describing a pair of what he calls “antler prongs” which were brought to him by Mike Whalen. The article describes the shell heap, and records some of its early urban destruction, writing that “Mr. Whalen said they were found in digging in the road cut in the large and well-known shell-heap...” (Smith 1925:315)

Of particular note in his description of the shell heaps are “a row of several very large and deep pits, parallel to the beach, [which are] apparently house sites” (Smith 1925:315). A sketch map showing rectangular house “platforms” exists in his field notes (Smith 1921). This is an important observation, as house platforms on the surface of the site were not recorded by Borden or later excavators. The 1925 article goes on to describe the “antler prongs”, which appear from the line drawings to be very similar to the ethnographically known clam diggers (Eells 1985:166-167).



On Monday, June 20, 1949 C.E. Borden made his first field notes entry (Borden 1949) with his arrival at the Whalen Farm site. They laid out a trench in 5' x 5' units which cross-cut the midden ridge. The horizontal datum point was established from a fence post (indicated in Figure X-4). There were 11 units west of this datum line and 6 units east with only the two east-most units not excavated to sterile. These two (5E and 6E) did not average more than a foot of midden material. All of Borden's excavations took place within this trench with the exception of one 5' x 5' unit at E100-105', N 25'.

The crew excavated mainly with pointed mason trowels, grapefruit knives, spoons, and dentist's tools. Three dimensional provenience was taken from the datum points when an artifact was found in situ. The provenience was estimated when the artifact was found in the 1/4" hardware cloth that were used to screen all the material.

Borden collected associated materials - small soil and midden samples - into paper bags which he labeled "AssMat" and stored for future analysis. Ideally, provenience information (horizontal, vertical and description of layer), a description of what was in the bag, the date the bag was filled and any associated photo-record number was placed on the bag. Unfortunately, only about 25% of the AssMat material has useful provenience information on the bag, or available in the field notes. I found only 29 artifacts in the AssMat bags with good provenience after sorting through all of them.

Natural layers of the stratigraphy in the midden were not followed while excavation, but were meticulously noted in the site profiles. When possible, a description of the natural layer from which the artifact came is given on the catalogue sheet, and a similar description of each natural layer is noted on the site profile, but no codes or numbers were given to correspond the two.

Stratigraphic profiles were considered very important, and were made in great detail. The part west of the datum of the north-facing site profile is given in Figure X-5. An enlarged portion of this profile is given in Figure X-6. The two components of the site were distinguished by a difference in the constituents of the layers. The top component (designated Whalen II by Borden) is distinguished by a general pattern of thick layers of large shell-fish, such as horse-clams (*Tresus nuttallii* and *T. capax*) and butter-clams (*Saxidomus giganteus*), and some bay mussels (*Mytilus trossulus*). The lower component (which Borden designated Whalen I) contained far more bay mussels, with a few instances of cockles (*Clinocardium nuttallii*). The lower component of the midden ridge was excavated to the sterile beach sand, which was up to 12 feet below the top of the midden (R1 datum point). A change in the artifact assemblage corresponds with this change in midden constituents and thus distinguishing the two components of the site. The original site profile is marked with a distinctive blue pencil crayon, a line which Borden made to distinguish the Whalen I and Whalen II components. Some ambiguity exists in the deep, east-most units, where the line was erased (though still visible).

On the original profiles in the laboratory, the estimated position of every catalogued artifact is placed on the profile. This was done after the 1950 field season, and is precise enough to locate most artifacts in one of the components. Detailed information that was associated with each artifact, including an illustration, was recorded on a standard catalogue form. An example of one of these completed forms is given in Figure X-7.

One of the main objectives of this research project was to look at the catalogue and profiles, and quantify the artifacts from the site into assemblages based on the site's stratigraphy. Table X-4, shows the frequency of each artifact type in each component of the site. The artifact classes that were used for Table X-4 are based on a classification scheme developed by Pratt and described in Chapter V. I measured and weighed all the catalogued artifacts and entered them into a database using the codes detailed in Chapter V. There were a few artifacts that did not fit into existing classes. These are illustrated in Figure X-8 and described in Appendix III of my Honours thesis (Thom 1992b) which is available on line at the U.B.C.

Chap. X-ii, December 14, 2008

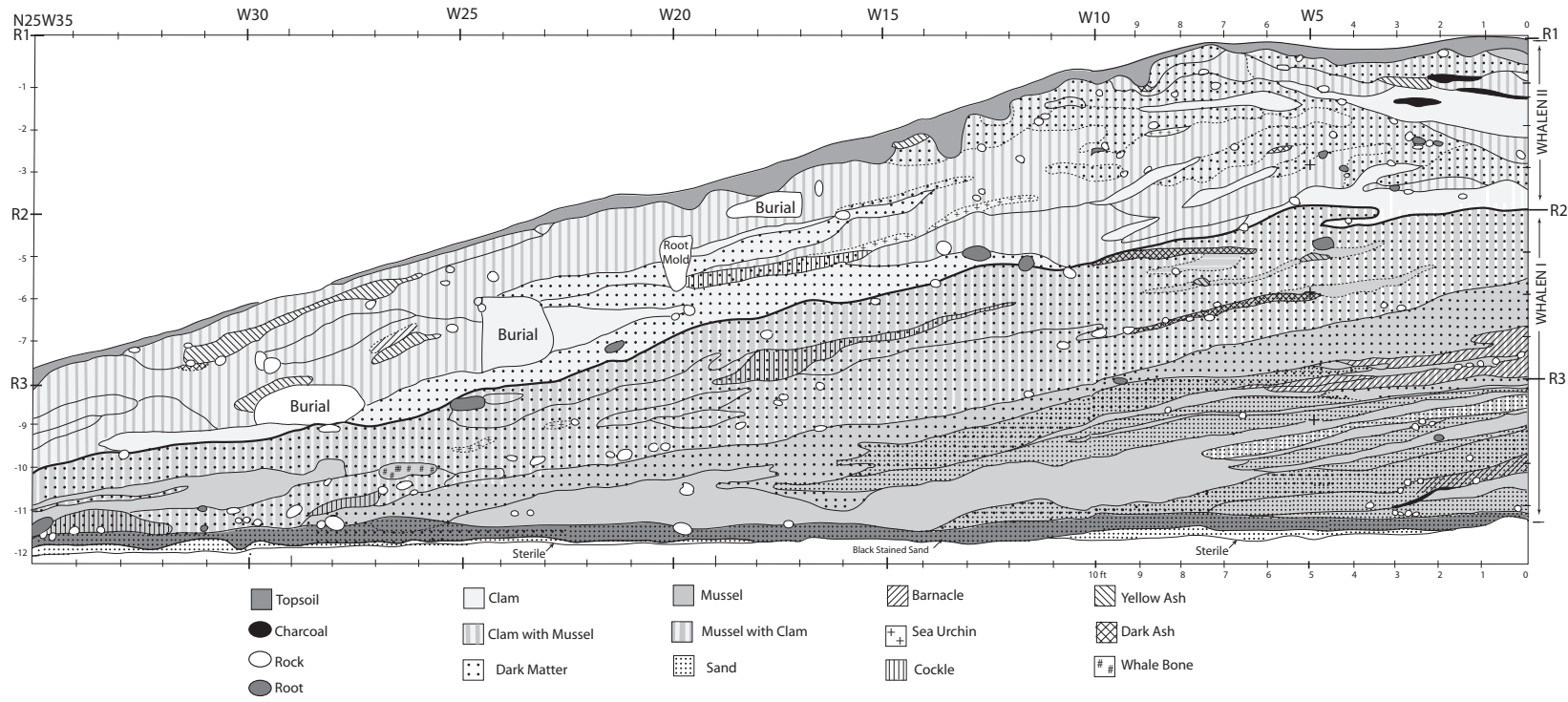


Figure X-5. Profile of north wall of trench, from Unit 1W (W0') to Unit 7W (W35'), 1950.

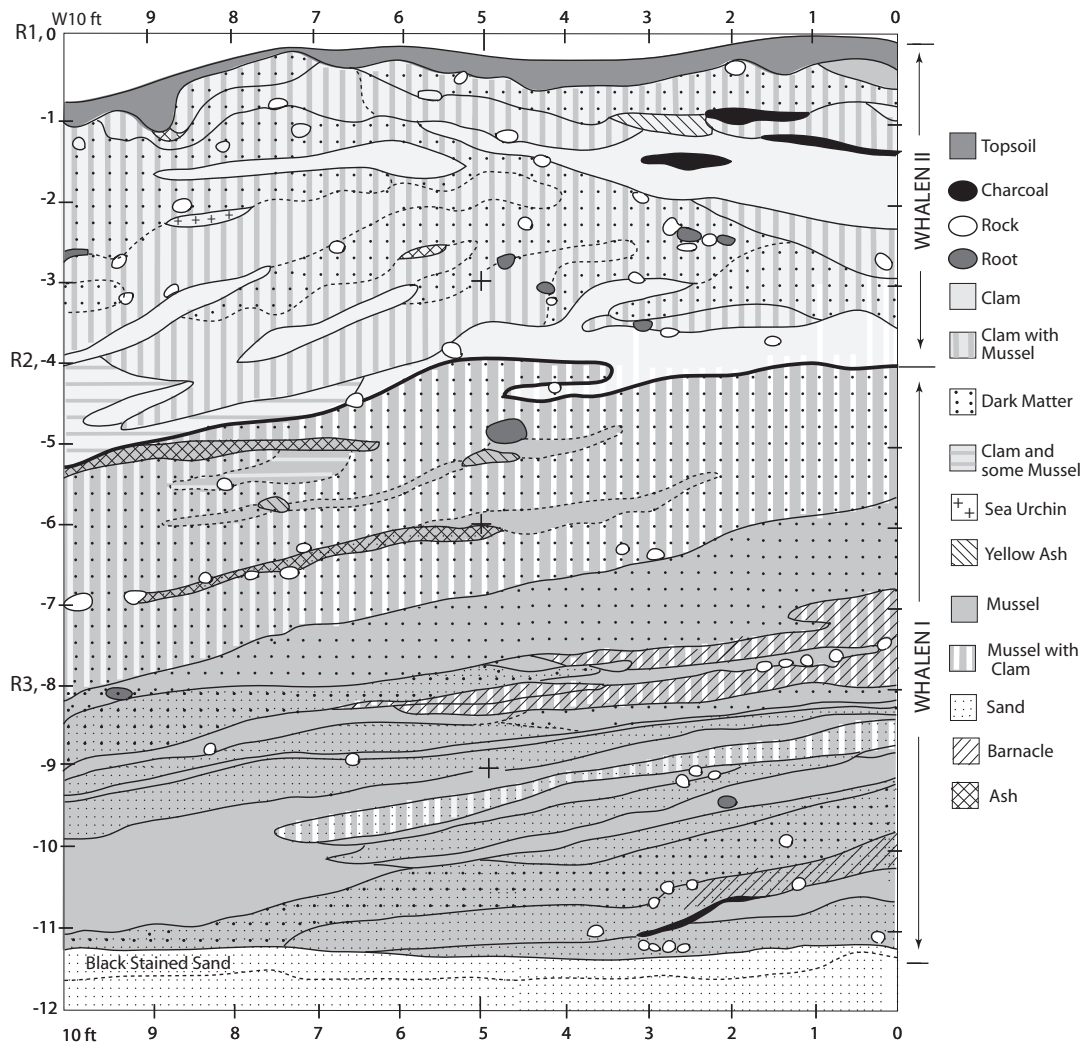


Figure X-6. Profile of North Wall of Trench from W 0' to W 10'.

Laboratory of Archaeology's website. Using this classification scheme allows for the comparison of these excavations with the other sites analyzed in this volume.

Several features were also recorded in Borden's field notes and catalogue, but never published in any of his reports. The features include fire hearths, post molds and burials. The fire hearths clusters of small cracked & crackled cooling stones (Borden 1949:17) were said to have been found in virtually every layer. Several of these were noted and recorded, but it seemed that the abundance of these stones, made only the densest concentrations of them (i.e., over 25 stones) worth recording. Five of these dense clusters

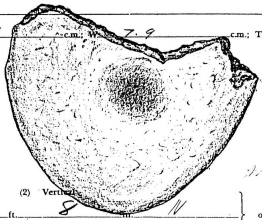
Chap. X-ii, December 14, 2008

TABLE X-4. Artifact Tabulation For Whalen Farm 1949-50 Excavations By Borden.

<u>Artifact Type</u>	<u>Whalen I</u>	<u>Whalen II</u>	<u>Artifact Type</u>	<u>Whalen I</u>	<u>Whalen II</u>
<u>Chipped Stone</u>			<u>Metapodial Awl (MAWL)</u>		
Biface Medial Frag. (BMF)	-	2	Bone Needle (NDL)	1	-
Bottom Notched Biface	-	1	Non-fac. Bone pt w/o Cntrl Cavity (NFPM)	-	3
Biface Proximal Fragment (BPF)	-	1	Facetted Bone pt w/ Central Cavity(FPTM)	-	2
Bifacially Retouched Flake (BRF)	1	1	Net Gauge (NG)	1	-
Corner Notched Biface (CNBF)	1	2	Bone Knife Slitting Implement (KSI)	1	1
Core (CORE)	4	1	Pointed Bone Object Fragment (PBOF)	-	2
Contracting Stem Biface w/Shoulders(CSBS)	-	2	Perforated Bone Pendant (PBP)	1	-
Cortex Spall (CSP)	-	1	Rodent Incisor Tool (RI)	-	3
Bifacial Retouched Flake (BRF)	-	1	Splinter Awl (SAWL)	1	3
Contracting Stem Bif. No Shoulders(CSTB)	3	1	Tooth Pendant (TPND)	2	1
Leaf-shaped Biface (LBF)	1	7	Bird Bone Tube	4	3
Microblade	1	11	Ulna Awl (ULNA)	3	2
Unifac. Narrow-angled Ret. flake (NRF)	1	-	Unidentified Worked Bone Fragment	4	7
Quartz Crystal Microlith (QCML)	1	-	Worked Bone End Fragment (WBEF)	10	14
Side-Notched Biface	-	2	Worked Bone Medial Fragment (WBMF)	14	15
Utilized Flake (UF)	-	3	Worked Dogfish Spine	25	3
Unifac. Steep-angled Retouched Flake(SRF)	-	1	Bird Bone Whistle (WHST)	2	8
Total	(13)	(37)	Total	(79)	(75)
		(50)			(154)
Percent of component	(7%)	(15%)	Percent of component	(41%)	(30%)
<u>Pecked And Ground Stone</u>			<u>Antler</u>		
Adze (ADZ)	3	6	Harpoon Foreshaft (FSHT)	2	-
Anvilstone (ANV)	2	-	Frag Unilat. Barb. Fix. Antler Point(FUPA)	-	3
Abrasive Stone (AS)	22	48	Socketed Harpoon Valve (THH)	-	1
Decorated Ground Stone (DGS)	1	1	Toggling Composite Harpoon Valve	2	6
Formed Abrasive Stone (FAS)	10	12	Worked Antler End Fragment (WAEF)	3	4
Facetted Ground Stone Point (LSFP)	6	1	Worked Antler Medial Fragment (WAMF)	2	1
Gulf Island Complex (GIC)	-	2	Antler Wedge (WEDG)	1	-
Ground Stone Point Medial Frag. (GPMF)	1	1	Total	(10)	(15)
Ground Stone Point Proximal Frag.(GPPF)	2	1			(25)
Ground Stone Disk Bead (GSDB)	2	2	Percent of component	(5%)	(6%)
Ground Slate Knife (GSK)	1	3			
Hammerstone (HAM)	3	8	<u>Shell</u>		
Leaf-shaped Ground Stone Point (LSGP)	3	3	Dentalium Shell	-	4
Hand Maul	-	1	Shell Bead (SHB)	-	1
Miscellaneous Ground Stone (MGS)	8	7	Miscellaneous Ground Shell Frag. (MGSF)	10	5
Mortar (MORT)	2	2	Olivella Shell Bead	-	4
Unfinished Sinker	2	2	Shell Adze Blade (SAB)	10	3
Worked Sedimentary Stone	2	7	Ground Shell Pendant (SPND)	3	1
Total	(70)	(107)	Side-Notched Shell Point	1	1
		(177)	Total	(24)	(19)
Percent of component	(36%)	(42%)			(43)
			Percent of component	(12%)	(8%)
<u>Bone</u>			Total for each Component		
Birdbone Awl (BAWL)	2	1		196	253
Bone Chisel (BCUT)	1	-	Site Total		449
Bone Bipoint (BIPT)	1	1			
Decorated Bone Object (DBON)	-	2			
Formed Split Bone Awl (FAWL)	6	3			



THE UNIVERSITY OF BRITISH COLUMBIA  
 ARCHEOLOGICAL SURVEY  
 ARTIFACT RECORD

Site Whalen Find No. 769  
 Trench No. I Mus. Cat. No. \_\_\_\_\_  
 Pit No. \_\_\_\_\_ Photo \_\_\_\_\_  
 Description Pebble w/ pit in center of each face broken  
 Measurements: L 5.4 cm; Th 3.4 cm.  
 Sketch of Find: 

Location: (1) Horizontal (2) Vertical  
 (1) 23 ft. 8 in. 11 in. of Datum  
 (2) a. Elevation of Horizontal Line of Reference in relation to Datum -7 ft. 11 in.  
 b. Depth from Horizontal Line of Reference 12 in.  
 c. Depth on: N Face 19 in.; S Face 17 in.  
 Description of Stratum: limas, barn, sd  
 Relation to Stratum: Inclusive \_\_\_\_\_ Intrusive \_\_\_\_\_ Precedent \_\_\_\_\_  
 Inferior Strat. K. sd, mus, p. iron, hums Superior Strat. dx. sd, mus, p. gravel

ASSOCIATED SPECIMENS  
 Object Find No. \_\_\_\_\_  
 ASSOCIATED FEATURES  
 Feature No. \_\_\_\_\_

Remarks: in screen 9.4B

Recorded by Sh. [illegible] Checked by Sh. [illegible] Date 11-2-53

Figure X-7. Example of Borden Artifact Form.

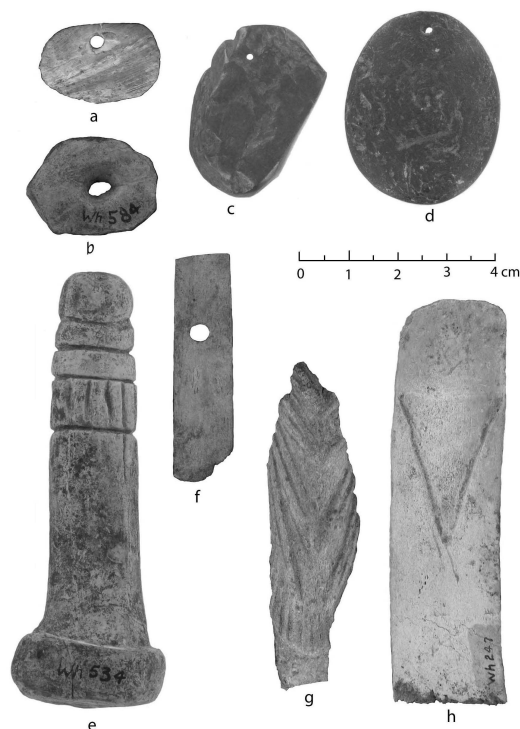


Figure X-8. Unique Whalen Farm II artifacts. a, Shell pendant (Wh 128). b, c, d Ground Stone Pendants (Wh 584, 755, 608). e, Decorated Ground stone (Wh 534). f, G.I.C. (Wh 161). g, h, Decorated Bone (Wh 188, 247).

of cooking stones were singled out in his field notes, occurring in both components of the site.

The post mold features were somewhat better documented. Eleven post molds were mentioned in the field notes, and recorded with some provenience. A total of four post molds were found in the Whalen II component. The description of these is incomplete in the field notes, but the data is given in Table X-5. It is very difficult to make any inferences about house structures or other such features from the sketchy account of the post molds at the site. At least five more were mentioned without any provenience and a number of others appear on the profiles. With posts as wide as eight inches in both components, this can be interpreted as evidence for the construction of some type of structure, although from Borden's data alone, I would not like to conclude anything more beyond that. In conjunction with Harlan Smith's 1921 observations of house pit features on the surface of the site (Smith 1925:315), however, I think there is very strong evidence for houses having been constructed at this site at some time, probably at least during the Whalen Farm II component, a position also taken by Borden (1970). In the N25' profile a hard packed floor is seen from E0 to E12' at 55 to 60 below datum, sloping toward the east, either at the Whalen Farm I/II boundary or slightly below it. This same floor shows up on the other side of the trench, although not for as long a stretch.

The skeletal remains were documented carefully with standard burial forms, careful scale drawings, and many feet of 35mm film dedicated to documenting the burial features. The information recorded on the burial forms, the burial location on the site profile and all burial illustrations are provided in (Thom 1992b). It should be noted here that not all of these burials are presently accounted for in the Laboratory of Archaeology at U.B.C.



Table X-5. Post Mold Data (Borden 1949).

Whalen II				
Number	Diameter	N/S of Datum	E/W of Datum	Depth
1	4.0"	?	7'2"W	R1/4"-15"
2	6.0"	?	9'3.5"E	R2/24"
3	3.0"	?	9'3.5"E	R2/24"
4	5.5"	?	9'3.5"E	R2/24"
Whalen I				
5-9	8"	20'1"-24'6"N	8'6"E	R3/13"-24"
10	?	21'1"-21'7"N	32'1"-32'5"W	R2/38"-47"
11	?	21'1"-21'8"N	16'1"-16'7"E	R3/43"-53"

An interesting pattern observed with respect to the human remains is their positions of internment. Of these burials, all of those attributed to the Whalen II component (n=10) were buried in a flexed or semi-flexed position, and six of them were on their right side, facing east. Two burials were too disturbed to be certain of any alignment, and the last one was partially burned, and faced northwest. Four of these (all ones following the normal pattern) contained grave goods. The three burials in the Whalen I component were also in a flexed or semi-flexed position, but faced west with their head either north or south.

The faunal material from the Locarno component at Whalen Farm has been analyzed by Stiefel (1985) and fish portion – dominated by salmon vertebrae and flatfish (mainly Starry Flatfish) – is summarized in Chapter VI by Matson. The portion of the Locarno component analyzed is that seen in Figure X- 5, W0' to W35' (Stiefel 1985:89). Of the 48 identified mammal bones, 12 are harbour seal, and only 1 deer, with skunk, raccoon and muskrat remains occurring in numbers between 5 and 15. In contrast with this minimal mammal assemblage, 436 bird remains were identified, with 255 being from diving ducks and 122 dabbling ducks (Steifel 1985:122). A total of 28 different bird species were identified. The dominance of diving species indicated to Steifel that the main season of occupation was winter (Steifel 1985:123). No analysis is available for the Whalen Farm II component. The kind of problems I discuss below in analyzing the artifactual remains are also true for faunal remains.

In 1952, Borden was asked by Professor Sphinx of the then new University of Saskatchewan Radiocarbon Laboratory to submit any archaeological charcoal samples he would like dated. Borden took this opportunity to get absolute dates from several of his sites, including both components of the Whalen Farm site. McCallum and Dyck (1960:77) report the date from the Whalen I component (sample S-18) at  $2450 \pm 160$  RCYBP. This sample (Table X-6) was collected in 1949 at a depth of 10 to 12 feet. The second sample from this site was taken from mid-way through the Whalen II component at a depth of 3 to 4 ft below datum (Wilmeth 1978). The date for this sample (S-19) was reported as  $1580 \pm 140$  RCYBP (McCallum and Dyck 1960; Wilmeth 1978). The laboratory numbers show how early in the development of radiocarbon dating these dates are.

These first dates greatly pushed back the expected age of occupation of the area, previously thought to be somewhat older than 200 years (Borden 1950a). However, as reviewed by Pratt in the first section of this chapter, the solid carbon method used then to date charcoal samples was not always accurate (Taylor 1987:82). An example of the sort of errors involved is in the first section of this chapter where redating the Locarno Beach site (DhRt 6) showed the early Saskatchewan date S-3 was approximately 600 years too recent. For this reason I took a 5.28 gram charcoal sample from the lower layers of the Whalen II

component (Unit 3E, 36 -50" below datum level R1), and submitted it for dating at the Washington State University Radiocarbon Dating Laboratory (Table X-6). The sample had been in an AssMat bag since it was originally taken on June 26, 1949, but did not seem to be contaminated in any way.

The results of this dating came out to be  $2110 \pm 65$  years RCYBP (WSU 4340), calculated on the Libby half-life of  $5570 \pm 30$  years. By taking the date from the lower levels of the Whalen II component, I hoped to see if the earliest occupation of the upper component was well within the Marpole times, or if it is closer to the end of it, as the previous date of  $1580 \pm 140$  RCYBP indicates. The new radiocarbon date shows that the Whalen II component of the site was being occupied in early Marpole times, during what Matson (Matson et al. 1980; Matson and Coupland 1995) has termed the Old Musqueam subphase.

Table X-6. Whalen Farm Radiocarbon Dates.

<u>Lab No.</u>	<u>Date</u>	<u>Provenience</u>
Bordens Excavations (U.S. Portion)		
S-18	$2450 \pm 160$ RCYBP	10-12 ft depth, Whalen I, Solid Carbon method
S-19	$1580 \pm 140$ RCYBP	3-4 ft depth, Whalen II, Solid Carbon method
WSU 4340	$2110 \pm 65$ RCYBP	Unit 3E, 36-50" below datum, Whalen II, dated in 1991
Hammon's excavations (Canadian Portion)		
Beta 14123	$2360 \pm 120$ RCYBP	Top of Unit 1 (Hammon 1986:4)
Beta 14124	$2100 \pm 70$ RCYBP	Near Bottom of Unit ??? (Hammon 1985:97, 1986)
Beta 14125	$2060 \pm 110$ RCYBP	Bottom of Unit 2 (Hammon 1986:4)

I now turn to subsequent investigations of the Whalen Farm site, after Borden has completed his. During a casual visit to the site in 1955, Wilson Duff (1956b) discovered that a large portion of the midden was being removed by bulldozer to make way for a new sub division. He found some skeletal remains exposed by the bulldozer and promptly excavated them. He inferred that it was from the Whalen II component and found two decorated antler hafts associated with it as well a beaver tooth incisor and stone blades associated with the hafts.

In 1972, the Department of Archaeology at S.F.U received a phone call from a resident of Maple Beach informing them of his plans to bulldoze one of the few remaining intact portions of the large Whalen Farm midden (Seymour 1976). Brian Seymour and a volunteer crew went to the deposit which was to be destroyed and undertook salvage excavations (Figure X-4). Two 2x2 meter pits were laid out and eventually extended with two 1x2 meters on the west side. An additional 1x1 meter test-pit was opened to the southwest of the main pits. The 1x1 test pit was largely disturbed and only excavated to 70 cm. The two other pits were excavated to 4.3 meters below the surface level. The material excavated was interpreted as being from a single component.

Faunal remains were systematically collected. The most numerous mollusca were cockle (*Clinocardium nuttallii*), butter clam (*Saxidomus giganteus*), horse clam (*Tresus nuttallii*) and bay mussel (*Mytilus trossulus*). The fish remains were not identified. Neither the fish or the mollusca were quantified. There were 427 bird-bones found, but none were identified. Other faunal remains were quantified by counting the number of bones present. Dog remains represented 82.5% of the identified bones, 8.8% deer, 5.6% elk, 0.6% harbour seal, 0.6% porpoise, 1.3% unidentified sea-mammal and 0.6% marten (Seymour 1976:85-87).

Burial remains from three individuals were found. The one complete burial was identified as a male

from age 12-14 years. It was “tightly flexed, lying on its back with legs leaning toward the west. The vertebral column was aligned in a North/South manner with the head to the south” (Seymour 1976:87). A boulder cairn covered the burial which is reminiscent of the ones earlier described by Smith (Smith 1901). The other two sets of human remains were scattered.

The artifacts found at this site are summarized on Table X-7. In this table I have classified the artifact types from the Borden excavations using the system used by Burley (1980). This enables me to make comparisons with the Hammon and Seymour excavations, using the Burley classification scheme (discussed further below). Seymour considered the material he recovered from the Whalen site to be from a Marpole component, given the types of artifacts present. No radiocarbon sample was submitted for the site, so an absolute date does not exist, but, as shown in the next section of this chapter, the component does appear to be Marpole-like. As this part of the site is on a ridge closer to the current shore, one would expect this midden ridge to be more recent than the one excavated by Borden, since it would have emerged later from the bay (Figure X-4). Note that the western portions of the trench (Units 8W to 11W on Figure X-4) excavated by Borden had the Whalen II material all the way to the sterile sands.

The last excavations which have taken place at the Whalen Farm site were by the Delta Museum, under the direction of Dimmity Hammon. Hammon submitted an extensive report to the B.C. Archaeology Branch (Hammon 1985) and published a short note on her findings in the *Midden* (Hammon 1986). As indicated on the map in Figure X-4, this excavation took place on Canadian soil. She has submitted the site number of her excavations as DgRs 14, which is different from the number used for excavations by Borden and Seymour on the American side, which was DfRs 3. In spite of the different numbers, I believe that these are all components from the same large site.

Hammon excavated in two 2x2 meter blocks, surrounded by a slit trench as well as a 1 x 11 meter trench. She began by excavating in natural layers, but found that too much vertical control was being lost, so switched to 5 cm arbitrary levels. The excavations showed only one distinct component. It was dated (Table X-6) at  $2360 \pm 120$  RCYBP, (Beta 141123) at the top of Unit 1,  $2100 \pm 70$  RCYBP (Beta 14124) possibly from lower in that Unit, and  $2060 \pm 110$  RCYBP (Beta 14125) at the bottom of Unit 2. These dates place the component in the early Marpole time period, the Old Musqueam subphase, as does the date submitted from Whalen Farm II.

The artifact remains from this component are summarized on Table X-7. Again, these have been re-classified according to the types outlined by Burley (1980) for comparison with other components.

Seven features were noted through-out the site, and were described as activity area, primarily for food processing (Hammon 1986:4). Five of these features were hearths or cooking stone piles, and largely consisted of fire-cracked rock, charcoal, and crushed mollusc shells. One feature was speculated as being a steaming or storage pit (Hammon 1985:48), but no further evidence was given to support that. The other was “a large pit dug into the sand”, and interpreted as a “shellfish processing centre” (Hammon 1985:50).

Ten burials were described in the 1985 report, but were left unmentioned in the 1986 publication. Only two of these were complete burials. Of the incomplete burials, seven of them were identified as adult, and one juvenile. The first complete burial (Burial 1) was identified as an adult male. It was fully flexed, facing east or northeast (exact direction not known because the skull was fragmented). It contained no grave goods. The second burial (Burial 2) was identified as an infant found very near the top of the midden. It was buried in a flexed position lying on its right side, facing north. Again, no burial goods were found.

Susan Crockford completed a faunal analysis of the materials from the excavations at DgRs 14 (Crockford 1985). The largest proportion of bones recovered and identified were that of dog. Dog MNI were computed as 4 adult, 5 juveniles and 1 sub-adult. Low frequencies of deer and elk was recorded. Ducks and geese were the most common bird species. Salmon and flatfish together overshadowed all other

Table X-7. Whalen Farm Component Summaries according to Burley's (1980) Classification.

Artifact Type	Wh I	Wh II	Seym	Hamm	Artifact Type	Wh I	Wh II	Seym	Hamm
<u>Chipped Stone</u>					<u>Bone</u>				
flake edge tools	1	5	16	4	barbed point	-	-	-	-
slate/sandstone disc	-	-	1	-	small unipoint	-	2	4	4
piece esquillee	-	-	-	-	bipoint	1	1	-	-
microblade/core	5	12	3	11	mammal bone awl	6	4	2	7
chopper/chopping tool	-	1	2	6	bird bone awl	3	4	-	-
corner-notch/basal-notch pts	1	3	2	3	needles	1	-	1	-
leaf-shaped points	1	7	-	2	chisel/wedge tools	1	-	-	-
contracting stem point	3	5	-	2	ulna awl	3	2	3	-
expanding stem point	-	-	-	-	decorative or decorated object	1	2	2	2
triangular point	-	-	1	-	bird bone point	-	-	2	4
formed bifacial cutting and/or scraping tools	1	1	4	3	bird bone tube	4	3	1	-
perforators	-	-	-	-	incisor tool	-	3	-	-
Total	12	34	29	31	ground canine and other tooth				
Percent by Component	12%	21%	37%	33%	pendants	2	1	-	-
					unbarbed fixed bone point	-	5	-	-
					Total	22	27	15	17
					Percent by Component	21%	16%	19%	18%
<u>Ground Stone</u>					<u>Antler</u>				
triangular point	-	-	-	-	toggle valve	2	6	1	2
stemless points	3	3	1	-	unilaterally barbed harpoon	-	-	3	4
stemmed point	-	-	-	-	barbed points	-	3	-	3
facetted large point	6	1	-	1	wedges	1	-	8	1
celts/adze blades	3	6	1	4	haft	-	-	-	-
decorative and decorated objects	3	3	1	2	pendants	-	-	-	-
labrets	-	-	-	-	decorated or decorative objects	-	-	-	2
shaped abrasive stones	10	12	8	-	Total	3	9	12	12
irregular abrasive stones	22	48	5	12	Percent by Component	3%	5%	15%	13%
handstones	-	-	-	-					
stone saws	-	-	-	-	<u>Shell</u>				
Total	47	73	16	19	edge tool	10	3	-	2
Percent by Component	45%	44%	21%	20%	pendant/gorget	3	6	-	3
					Total	13	9	0	5
<u>Pecked Stone</u>					Percent by Component	13%	5%	0%	5%
hand maul	-	1	1	-					
hammerstone	3	8	2	4	Component Total				
perforated stone	2	2	1	5		104	165	78	93
notched stone	-	-	-	-					
mortar/bowl	2	2	2	-					
Total	7	13	6	9					
Percent by Component	7%	8%	8%	10%					

types of fauna, making up of 80% of all fauna, and 95% of all fish. Seasonality was difficult to discern, but the best estimate was that this portion of the site was occupied for short periods of time in the spring or early fall. This was proposed because of the specialization in salmon and flatfish, and little else. Hammon concludes that the site was used for food processing, with subsequent single event activities occurring on the midden on a limited basis (Hammon 1986:5), reflecting an overall seasonal settlement pattern of the Marpole culture.

All the past archaeological investigations at the Whalen Farm site presented here can be used to construct a current interpretation of the site as a whole. First, the past interpretations of the site will be discussed and then evaluated given the data now known, in order to provide a currently viable interpretation of the Whalen Farm site and the role of Borden's Whalen II phase in the culture history of the region.

### III. Site Interpretations

#### Past Interpretations

After completing the 1950 field season, Borden published three articles which outlined the prehistory of the Fraser Delta area (Borden 1950a, 1950b, 1951a). The first one, was the most extensive of the three, gave lists (but not quantities) of artifacts found at the sites, arranged them in a relative chronological sequence, and make inferences about what migrational influences may have influenced the assemblages. The second article seems to be written for a more general readership and its content is much the same as the first. The third note was a half-page summary of the first article, appearing in *American Antiquity*.

In these early articles and in others into the 1960's, Borden focussed on the problem of the connection of the southern Northwest Coast Indians with what he called the northern Eskimo. Up until the early 1960's he assumed that ground slate, toggling harpoons, and labrets are inexorably connected with the Eskimo, indeed the appearance of these items ultimately reflected the efficient exploitation of maritime resources. Borden assumed this marine adaptation to be the first culture which inhabited the central Northwest Coast, the Locarno Beach phase, then represented by the Locarno Beach site and Whalen Farm I, a culture which was subsequently interrupted by population movements from the interior, represented by Whalen Farm II. The dates of the maritime adaptation had been pushed back to at least 9,000 RCYBP as of Borden's 1962 article "West Coast Crossties with Alaska" (Borden 1962:10). Borden realized that if the Eskimo were to have laid the foundations of the Northwest Coast culture, they would have had to be in the area at least 9,000 years ago. He states explicitly that there is no evidence to support such a hypothesis (Borden 1962:12). He asserts that this marine adaptation is firmly rooted in local tradition (Borden 1962:12). This is a clear reversal of his original claim in 1950 for an Eskimoid origin for Locarno Beach.

Borden then examines the issue of the similarity of the ground slate industry, and labrets being of Eskimo origin. By looking at the dates in which each of these features are present in both areas, Borden drew the conclusion that they were first developed in the central Northwest Coast, and subsequently diffused north to the Eskimo of Alaska. This is a reversal of the prior notion that the Eskimo were the prime source of the original southern Northwest Coast cultures. However, the source of these characteristics shifts in Borden's thinking, from being of Eskimo origins to having probable Asian influences, via the people of the boreal area of Eurasia and North America (Borden 1962:15). Borden makes this claim cautiously, stating that very little evidence exists to support the idea, originally proposed by Gjessing (Borden 1962).

Of particular interest to the question of the Whalen II culture was Borden's examination of microblade and core complexes which he thought were found only in the Whalen Farm II culture on the coast. This complex, he argues, was introduced into the New World from Asia. He traces the distribution of



microblades from the Bering Strait region around 4000 BC, to the Yukon, into the intermontane region of B.C., down the Fraser river to the Gulf of Georgia region at Whalen II, AD 300 (Borden 1962:16-17). The most important aspect of this microblade information is the route the interior provides from the north and ultimately Asia. For Borden, this data revealed the use of an interior corridor, which connected the Old World with the central Northwest Coast, through which the microblade tradition diffused.

The next set of articles established Borden's important cultural historical sequence for the Fraser Delta (Borden 1968, 1970). In these articles, the Whalen II phase is formally defined as a separate cultural period in central Northwest Coast prehistory. In Borden's 1970 article "Cultural History of the Fraser-Delta Region: An Outline" the Whalen I component is one of two components Borden listed for the Locarno Beach phase (which he dates as ca. 800-200 BC). The main distinguishing features of this cultural phase are the reliance on toggling harpoons for fishing and sea mammal hunting, and a highly developed slate grinding industry for the manufacture of piercing and cutting implements (Borden 1970:97). Other noted industries are a small chipped stone industry (leaf-shaped, stemmed points, scrapers); bone projectile heads, points and barbs; ground giant mussel (*Mytilus californianus*) blades, chisels and adzes; small nephrite adzes and antler wedges; hammerstones; and needles, pendants, earspools and labrets (Borden 1970:97-99). Borden gives no sense of relative abundance of these artifacts for the Locarno Beach phase, but the overall diagnostic importance of the toggling harpoons and ground slate is stressed.

The Whalen II phase (which Borden dates ca. AD 350-800) is distinguished by Borden (1970) as a migration of people from the interior to the coast. This happened, in Borden's view, while the Marpole culture persisted in other parts of the lower Fraser River delta. Negative elements, traits which do not appear, such as ground slate, stone bowls and stone carving, are cited as among the most prominent aspects of the Whalen II phase. New traits to the coast include microblades, *Olivella* beads, and side and corner notched chipped projectile points with expanding stems.

For the Whalen II phase, Borden theorizes the fusion of elements and complexes (especially the composite toggling harpoons) from the Locarno Beach phase, with Marpole phase's large-scale woodworking traits. This integration is integral, as it reveals the phase to be a transformation period from the Marpole to the Stsela phase.

The period from 1970, when the *B.C. Studies* article was published, to 1983, when Borden's final paper appeared, was a time of great expansion in the knowledge of Fraser Delta prehistory. Both the Whalen II phase and Borden's diffusion theories received heavy criticism. The first attack came from Mitchell, in his dissertation entitled *Archaeology of the Gulf of Georgia Area, A Natural Region and its Cultural Types* (Mitchell 1968) and the widely-cited published version (Mitchell 1971).

Mitchell cites five reasons why the Whalen II phase should not be considered a part of the Fraser Delta cultural historical sequence (Mitchell 1971:56). They are summarized as follows: 1) Microblades are indeed found in Marpole phase sites. 2) *Olivella* beads are present in historic and Gulf of Georgia phase assemblages. 3) Given the size of the assemblage, the absence of ground slate at Whalen II should be not entirely unexpected, and ground slate is generally rare at sites away from the Fraser River (i.e., Beach Grove). 4) No further Whalen II assemblages have been found. 5) The chronology of the Fraser Delta area has been expanded enough that there is no need to fill the gap of time between the Marpole and the Gulf of Georgia phases with Borden's proposed Whalen II phase. Mitchell tentatively assigns the Whalen II component to the late Marpole phase, in particular as a member of the Beach Grove variant.

Seymour (1976) classifies the material from his 1972 Whalen Farm excavations as Marpole phase. This conclusion is based on the findings of:

unilaterally barbed, fixed antler points; small triangular, chipped basalt projectile points; a stone-bowl fragment with an anthropomorphic design; a nephrite adze-blade; a polished lignite pendant; and several incised siltstone fragments...

and further supported by the absence of such traits as large, thick, ground slate points, heavy ground slate knives, and large bone points indicative of the Locarno Beach Phase.

(Seymour 1976:97).

Although no radiocarbon dates are available for this excavation, these traits do seem to fit a Marpole pattern. The material from this site was the Whalen Farm component used by Burley in his analysis of the interassemblage variability of the Marpole phase (Burley 1980:46-53), and this has been taken to show the Marpole-likeness of the Whalen II component itself. In Matson's (1974) multivariate analysis of Gulf of Georgia components, he found no component very similar to Borden's Whalen II.

Gail Thompson (1978) argues that Borden attempted to use the Whalen II phase to "simulate a synthesis" of elements of the Locarno Beach phase and Marpole phase, by positing the introduction of a new population into the area (Thompson 1978:15). This is a product of Borden's synthesizing, not actual population movements. She also finds that suggesting that certain elements [i.e., ground slate and toggling harpoons] disappear and reappear in the archaeological record is not plausible and greatly weakens developmental inferences (Thompson 1978:15).

D. Burley (1980:37-38), in his monograph *Marpole*, attempts to dispel the Whalen II phase much along the lines of Mitchell, but also includes the possibility of sampling bias in Borden's excavation. In Knut Fladmark's (1982:121) synthesis of Northwest Coast culture history, reference to Borden's proposed Whalen II phase was left out, stating that "current researchers have generally rejected" it.

Leonard Ham (1982:93,356-7) provides another interpretation of the Whalen II component. Ham (1982:93) offers up the theory that the Whalen II component may represent a seasonal assemblage of the later Gulf of Georgia culture, and not a separate phase. Ham (1982:356) says that the assemblage corresponds with three other Late winter components found at Deep Bay, Shoal Bay and Crescent Beach. These three components have provided no evidence of permanent plank houses, have wood working tools, two piece toggling harpoon valves, chipped stone and a lack of ground stone. While this hypothesis may be correct, Ham is cautious to make definitive conclusions, stating that adequate samples of faunal remains to evaluate subsistence and seasonality from both components would be needed in order to satisfactorily evaluate it (1982:357). Indeed, as the present analysis has shown, ground slate knives actually turn out to be present in both Whalen Farm components, house structures have been reported on the surface of the site (Smith 1921), and post molds found by Borden may suggest the more ancient presence of houses in Whalen II (Borden 1970).

As reviewed above, Hammon excavated on the Canadian side of the Whalen Farm site. She offers the following explanation from her research: "although the dates from DgRs 14 [her 1985 excavation] are 500 years earlier than those from Whalen II, the assemblages are essentially the same, suggesting a functional difference from other Marpole Phase sites" (Hammon 1986:6). She makes the connection of the similarity between the sites by claiming that ground slate knives are absent from both collections (Hammon 1985:121). She interpreted the faunal analysis of her 1985 excavations as showing that this part of the site was not a fish processing centre. The lack of ground slate, and the lack of evidence for it being a fish processing site let her to conclude that the Whalen Farm site is a functional variant of the Marpole culture.

This interpretation by Hammon does need to be evaluated. However, as shown in the artifact assemblage tabulations in Table X-7, the results of her 1985 excavations do not appear to be that similar with Borden's Whalen II component, particularly in the percentages of chipped stone, ground stone, pecked

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stone, bone, antler and shell. Both components do share the rare-for-Marpole presences of microblades and composite harpoon valves and share the absences of Marpole style unilaterally barbed harpoons and mauls.

Interestingly, the Whalen II component from Borden's excavation (Table X-6) has more than double the proportion of ground stone than those reported by Seymour and Hammon. Chipped stone shows the opposite tendency, with Seymour and Hammon having significantly larger percentages of chipped stone. The relative amounts of bone, antler, and shell artifacts are much the same for all three components. Crockford's faunal report states that the site had abundant flatfish and salmon (Crockford 1985:38), similar to what has been reported for Beach Grove (Matson et al. 1980; Matson and Coupland 1995:211-218), a nearby Marpole winter village site.

Hammon also proposes that the change from Whalen I to Whalen II in Borden's excavations could be explained by the changing adaptations from island to mainland. She bases this on the notion that Point Roberts was an Island up to 1,000 years ago. As reviewed earlier, recent geological investigations indicate that Point Roberts has been a peninsula since at least 2250 RCYBP, and archaeological investigations at the north end of the Beach Grove site shows that occupation occurred there at 3000 RCYBP indicating likely attachment to the mainland by that time.

The final article Borden wrote discussed the Whalen Farm site and was completed in the morning of December 25, 1978. That afternoon Charles E. Borden died. Nowhere in the article does he mention a diffusion or migration of people from the interior to the coast during the Whalen II phase, although he hints at it when describing "the appearance in the Delta of the Whalen II culture" (Borden 1983:158). Here, Borden argues the most important aspect which distinguishes his Whalen II phase from the preceding phases is the fusing of a Locarno Beach complex and a Marpole complex. These complexes are represented by "sea-mammal hunting and fishing with composite toggling harpoons" from the Locarno Beach phase and "large-scale wood-working with the full complement of heavy-duty tools, including, aside from wedges and adzes, the extremely effective pestle-shaped stone hand maul...which first appeared in the Marpole phase" (Borden 1983:158). Borden states that the fusion of these complexes reflects part of the cultural synthesis which continued in the Gulf of Georgia phase, and "thus became an integral part of the efficient food procurement and manufacturing systems of the recent Coast Salish" (Borden 1983:158). The results of the new radiocarbon date submitted in 1991 would support Borden's final interpretation, in a sense, as the date of  $2110 \pm 65$  RCYBP would make at least the lower portion of the Whalen II component an early Marpole variant, which probably shared many of the technological traits of Locarno Beach.

Borden's interpretations of the Whalen Farm site changed over the years of his research, yet maintained to the end, some semblance of the features outlined in the original 1950 article. They are a part of a school of thought which explained culture change diffusion. Though the culture history of this region is now better understood as a long-term in situ development of the culturally complex Coast Salish (Matson and Coupland 1995), it is important to reflect on the possibility of there having been locally significant cultural shifts, continuities and variable expressions throughout the vibrant Marpole period.

### Current Interpretations

In this section I attempt to put the Whalen Farm components excavated by Borden, in context with the results of other archaeological research in the region. I test the Whalen II hypothesis, as was developed over 39 years by Borden, that the Whalen II material forms a distinct cultural unit. I find, like many other researchers, that the Whalen II phase is not a unique culture type, but in fact, a variant of the Marpole phase.

To test these ideas, I took all the Whalen Farm artifacts out of storage, gone through, counted and attributed them to either the Whalen I or Whalen II component (Table X-3). Having this quantified data

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allowed me to compare the collection with other assemblages from other sites. These analyses are reported in more detail elsewhere (Thom 1992b). These include the 29 artifacts found when I went through the AssMat bags to look for additional artifacts that had not been catalogued or published by Borden.

The data also needed to be organized in a standard form to be able to compare it with other material. Table X-7 shows the Whalen Farm data, from excavations by Borden (1949-50), Seymour (1976) and Hammon (1985), organized by the 51 different artifact classes outlined by Burley (1980). By organizing the artifact classes in this manner, I was able to compare the data presented here with a larger body of work compiled by Matson (1974), Burley (1980), and Thom (1992a). Burley presented data from eighteen known Marpole components in his analysis of interassemblage variability. Matson (1989) has done similar variability tests with the Locarno Beach phase, and it is this data that I used. I have also (Thom 1992a) compiled data from twenty Gulf of Georgia sites in my analysis of interassemblage variability within the Gulf of Georgia phase. In addition using the information from these papers, I also converted artifact frequencies from Kenney's excavation at Willow Beach (Kenney 1974), and McMurdo's excavation at Helen Point (McMurdo 1974), to Burley's 51 types. By comparing these assemblages, I hoped to get an clear idea of how similar (or different) the Whalen Farm components are to other components the Locarno Beach, Marpole, and Gulf of Georgia phases.

To make this comparison, I used a multi-dimensional scaling routine (Matson 1974). The idea behind this routine is to show how similar (or different) collections of artifacts are from one another, by comparing the relative frequencies of individual artifact classes from each site. To provide such analysis, I have run the data through a program developed by Matson (n.d.) which uses Torgerson's metric multidimensional scaling technique (Matson and True 1974, Torgerson 1958). This program calculated city-block distance measure (Sneath and Sokal 1973:122-126) based on the artifact frequency data, transformed into percentages. This technique was successfully used for variability studies in the Gulf of Georgia area by Matson (1974), followed by Burley (1980), again by Matson et al. (1980), Thom (1992a), and others.

I first ran the Whalen and selected Marpole components against the selected Gulf of Georgia components to see where the Whalen components would cluster. Time was clearly the main determinant in this analysis, with the Gulf of Georgia sites clustering in one part, and the Marpole in another. All three Whalen components tested (Whalen II, Seymour, and Hammon) fall well within the Marpole cluster. This would discount these Whalen components from being of the Gulf of Georgia culture type, as suggested by Mitchell (1971) and Ham (1982) and emphasizes their Marpole-likeness.

Some very important differences in the artifact assemblages of the Marpole components and the Gulf of Georgia components should be pointed out. The first is that the proportion of chipped stone in the Marpole components is an average of 33% compared to 6% in the Gulf of Georgia components. Bone tools and ground stone are dominant in the Gulf of Georgia assemblages, making up an average of 37% and 25% respectively compared to the Marpole percentages of 19% and 12% respectively. These differences between Marpole and Gulf of Georgia are as expected as they have been noted previously by Mitchell, Burley, Matson, and Thom (Burley 1980; Matson 1974; Mitchell 1971, 1990; Thom 1992a).

The Whalen II component itself shows a relative deficiency in chipped stone tools, with only 18% of the component being made up of these. Matson (1974) noted that Whalen Farm II was at the low end of a dimension that was highly correlated with 12 lithic types which he interpreted as "reportage". An alternative interpretation is that this dimension represents the date when the component was excavated, with lithics being under represented in the older, less completely reported investigations. Only 5% of the Whalen Farm II component is made up of ground stone tools (apart from abrasive stones, which reflect stone, bone, antler and shell grinding technology), which is low for a Marpole component. The percentage of bone tools in the Whalen II component is well within the range of the Marpole average at 12% of the



assemblage. With the exception of chipped stone tools, the Whalen II assemblage looks to be very Marpole-like in its frequency of different artifact types.

Following the clear separation of the three different late Whalen components from the Gulf of Georgia phase, tests for determining their place within the Marpole phase were run. Matson did a similar scaling and additional clustering of Marpole components and found significant variation through time (Matson et al. 1980; Matson and Coupland 1995:211-219). He inferred that this variation reflects culture change through time in the Marpole phase, and proposed three different sub-phases: Old Musqueam, Beach Grove, and Garrison (from oldest to most recent). I selected components which came from each of these sub-phases, and scaled them with the data from the Whalen II component, Seymour and Hammon. In the initial runs of the test, the Marpole sub-phase components did not sort out along temporal variation, as I expected. However, this was not totally unexpected considering some important differences in the collection techniques used during excavation at the various sites. The occurrence of flake edged tools in Borden's Whalen Farm collection is suspiciously low, consisting of only 3% of the Whalen II component and only 1% of the Whalen I component. This unusual lack of flake edged tools was also noted in a re-investigation of Borden's excavation at the Locarno Beach site (Pratt, Chapter X-i, this volume).

Taking this very real bias into consideration, I ran the Marpole sub-phase data through again, leaving out the flake edge tool category for all sites. The resulting graph of the first dimensions clearly showed the temporal variation of the three different sub-phases.

However, the location of the samples from the Whalen Farm site are anomalous. Both the Hammon and Seymour Whalen Farm components clearly cluster in the Garrison sub-phase group, in spite of the older dates from Hammon's material. Further, Matson (Matson and Coupland 1995:212) shows the Seymour material as part of the Beach Grove Subphase. The Whalen II component is not quite as clearly located, rather it lies between the Garrison and the Beach Grove variants. It is likely that the extensive trimming of the data, such as eliminating flake tools, necessary to include the Borden Whalen Farm material has weakened the reliability of this sort of analysis.

The actual percentage of the artifact classes from the Whalen II component are compared to the average percentage of the artifact classes from the Beach Grove sub-phase identified by Matson and Coupland (1995:217) as follows:

- chipped stone - 16% : 30.9%
- ground stone - 42% : 39.8%
- pecked stone - 2% : 3.7%
- bone - 13% : 16.3%
- antler - 10% : 8.8%
- shell - 1% : 0.7%

Other than chipped stone, which is close to Garrison sub-phase in frequency (16% : 20.8%), Borden's Whalen II component appears most like the Matson and Coupland's reported Beach Grove variant. I think that the position of the Whalen II component as a variant of the Beach Grove sub-phase is reasonable, and fairly predictable, given the range of dates, and the newly tabulated artifact assemblage, and their close geographic location.

On the other hand, Whalen II includes evidence of an Old Musqueam subphase component. Our new date is of Old Musqueam times, and the three dates reported by Hammon supports the occupation of the Whalen Farm site at this time. Further, the presence of microblades is associated with the Old Musqueam subphase. The presence of such things as toggle valve harpoons are also found more abundantly in Old Musqueam than in later Marpole subphases (Matson and Coupland 1995:217). Moreover, even though in

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this analysis Whalen II appears to be lacking in relative abundance of chipped stone, Borden (1950a, 1970) reported it to have abundant chipped stone, which is also an early trait. Since Borden's other early collections (see first part of this chapter) have very low amounts of chipped stone compared to later excavations it is likely that he is correct, but because of differing standards the relative quantities do not show up in this analysis. Finally, although radiocarbon dates dramatically changed archaeological dating for the better, the early solid carbon dates were not very reliable. Thus one does not know how much weight to give S-19, given the redating of S-3 discussed by Pratt earlier in this chapter which shows that it was about 600 years too recent. It is quite possible S-19 is similarly in error and that most of Whalen II belongs temporally to the Old Musqueam subphase.

The relative weight of these two cultural affiliations (Old Musqueam vs Beach Grove subphases) is difficult to evaluate, particularly because of the collection biases. If one trusts the S-19 date and Whalen II's general comparative artifact composition, one may weigh the Beach Grove relationship as the more important one, as I do. Matson (Matson and Coupland 1995:219) on the other hand, views the newly obtained Old Musqueam radiocarbon date from the basal layers of Borden's excavations, the other dated components and the indicator artifacts in the assemblage as being key in an Old Musqueam interpretation.

The distinctiveness of the Borden Whalen II component compared with the Hammon and Seymour assemblages is also reasonable given that the excavations took place at different locations within the site, as well as changes in recovery methods that have occurred over the intervening 35 years. Different slices of the time this large site was occupied within the Marpole phase, as well as changes in site function over area could account for these differences in assemblages.

I think that although the multivariate testing was not very conclusive at all points, it did demonstrate that the Whalen II component as excavated by Borden, and the other two assemblages excavated by Seymour and Hammon at that site, belong in the Marpole phase. The Whalen II component itself is clearly not a unique culture type, as Borden had proposed.

The quantifying of the artifacts has shown that Borden's Whalen II assemblage is not as unique as previously thought. One of the important distinctions which Borden claimed made the Whalen II component unique was the lack of ground slate, particularly ground slate knives. In fact, Borden's Whalen II component shows three ground slate knives and seven pieces of miscellaneous ground stone. This is certainly not a lack of ground slate.

Another problem Borden cited was the lack of stone carving associated with the Whalen II component. Yet, he described a beautiful miniature pestle with intricate carvings all along it which came from that component. Also, Borden shows in his field notes a carved stone bowl, which looks very much like a frog, which was surface collected from a road cut in the midden not too far away from the trench they were excavating (Borden 1949). Seymour also found a very nicely carved stone bowl, with a face on one side (Seymour 1976:90). This too, comes from the Marpole-aged component of the Whalen midden.

Mitchell (1971:56) and Burley (1980:21,38) note that microblades are found in Marpole sites, although not as a common element. Microblades were thought to be unique to Whalen Farm, by Borden, hitherto unknown later than Locarno Beach times (Borden 1970:107). Matson and Coupland (1995:215) show them to be present in three out of five Old Musqueam subphase Marpole components (not including Whalen II). Side- and corner-notched projectile points, which were again thought to be unique to Whalen II have been noted as a occurring Marpole trait by Mitchell (1971:56) and Burley (1980:38).

Borden's idea of the fusion of cultural elements (Borden 1970, 1983) over vast periods of time is a notion which has to be rejected. His idea was that the wood-working complex ('unique' in the Marpole phase), and the composite toggling harpoon complex (unique in the Locarno Beach phase) were fused in the Whalen II phase. As noted by Thompson (1978), such 'fusing' of temporally distant cultural elements

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reflects an outmoded theory of cultural adaptation and change. Rather, the new date obtained from the lowest portions of the Whalen II component suggest that the site was continuously occupied from Locarno Beach times on into Marpole, and that objects like composite toggling harpoons were likely used continuously into early Marpole times, and gradually faded out, while woodworking implements gradually increased in use. Rather than cultural 'fusion', the Whalen Farm site provides an example of in-situ cultural development, where technologies gradually come in and out of use through time. The boundaries of the phases or culture types are shown to have changed gradually, rather than being defined by a sharp line of culture change as would be reflected by a population migration.

The final, and probably most important problem with the idea of a Whalen II phase is the fact that no other similar "Whalen II-like" components have been found. There have been several sites found which date contemporaneously with the Whalen II component (i.e., Belcarra Park II, Burley 1980:38), and all lie within the bounds of the Marpole culture type. If there had been other similar assemblages, thoroughly reported, with characteristics like the ones described by Borden, then the Whalen II phase might have been considered by other scholars. As it stands, with the many sites that have been excavated in the Gulf of Georgia area, none have been described to be similar to the component defined by Borden.

I think a modification of the model proposed by Ham, offering the Whalen II component as a seasonal variant of the Marpole phase (rather than Gulf of Georgia as suggested by Ham 1982) is worth further evaluation. Whalen II is clearly a Marpole component. However, the assemblage is still somewhat unusual and its distinctive aspects need to be explained. The ecological data of the Boundary Bay area shows that the area would have been a good one to exploit seasonally, especially in early fall through to late spring.

Although faunal analysis by Crockford on the material excavated by Hammon (Hammon 1985) does not provide any positive evidence for seasonal resource use, instead, its similarity with that reported from Beach Grove (Matson et al. 1980) support a winter village use. However the low-lying park area excavated by Hammon was quite different and distant from the large ridge Borden and crew quarried in 1949-50, and may have reflected a different site use from a different time.

To summarize this analysis, the evidence found supports Borden's critics (i.e., Mitchell, Burley, Thompson) and we can conclude that Whalen II is a variant of the Marpole phase, not a unique culture type. One of the most important problems with this component is that a complete report of the site, including artifact descriptions and counts was previously lacking. Without such a report, the Whalen II phase has remained an enigma in British Columbia archaeology. Based on the evidence here, a reasonable alternative is that the Whalen II assemblage includes an Old Musqueam subphase assemblage, and has similarities with other Beach Grove subphase components. Its uniqueness may be reflection of relatively continuous occupation at that location for at least 1000 years incorporating these two aspects.

#### IV. Value of Studying Old Archaeological Collections

In the Laboratory of Archaeology spaces within the U.B.C. Museum of Anthropology building lie the results of archaeological investigations undertaken by C. E. Borden and his students since 1946. Many of these older collections produced only preliminary reports (i.e., Borden 1950a), before the next project was undertaken. The collections from the one summer's digging were catalogued and stored with the intention of further studying them someday. Rapidly increasing urbanization in British Columbia helped maintain this cycle of briefly reporting what was found, and moving on to the next project.

Indeed, endangered sites provide a seemingly endless supply of new archaeological data to retrieve, leaving no time to look at the old material. Borden felt this pressure throughout his career, as he was busy summer after summer with new projects (Williams 1980). After finishing two seasons of excavations at the Whalen Farm site, Borden spent the next season doing salvage work in Tweedsmuir Park and not spending

it in the laboratory looking at the materials from Whalen Farm.

Borden was very conscientious about keeping good records in the field, and supplementing them with maps and photographs. Each artifact, when found, immediately received an identification number and its location was measured three-dimensionally with reference to datum point and bench mark (Borden 1950b:242). A 1:1 scale illustration was also made of almost every artifact on the catalogue sheet. This proved very useful when trying to identify artifacts that had lost all or some of their catalogue markings. The Laboratory of Archaeology (which was founded by Borden) at the University of British Columbia managed to keep the collection relatively intact, including the important documentation, through several building changes, departmental alignments, and caretakers over the 42 years before I analyzed it.

In order to understand and analyze the collection, one must grapple with the concept of sample bias. The problem, according to one anthropologist, is to determine what sort of explicit or unacknowledged sampling procedure was used (Parezo 1987:3). These biases exist in the techniques of the excavator and in the history of the collection (and documentation) in the museum.

Borden excavated at the Whalen Farm site to recover as complete a picture as possible of the life and culture of ancient people at various periods of their history and follow their migrations and attempt to determine the nature of their relationships with other groups (Borden 1950b:241). To do this, Borden excavated as much of the midden as two field seasons would allow, with an emphasis on retrieving artifacts. The midden was excavated in arbitrary levels, so that the temporal relationships of the artifacts could be determined. Features like hearths and post molds, and skeletal remains are also recorded, as well as small samples of food remains, taken from many of the levels. This material provides some insight into the styles of houses, burials, and diet; all features of the ancient way of life. Charcoal in the associated materials bags has been subsequently used to establish absolute dates for the site. Looking at all these kinds of material culture from one site, and comparing them with material culture from other regions and time periods allowed Borden to formulate his Whalen II hypothesis.

Some items which would be of great research value today were not collected by Borden in 1949-50. For example, Borden used a 1/4" dry screen to go through the midden fill. Although this was state of the art at the time, many small artifacts such as beads or microliths would have fallen through. Virtually all of the stone tool debitage was ignored at the site, making workshop activity reconstruction impossible. In addition to debitage, flake edged tools were all but absent in the collection. I tried to account for the absence of this important category of artifacts by deleting from my comparisons. This allowed the statistical analysis of the whole assemblage to be carried out but introduced questions about the validity of the results which I was unable to fully answer.

As Parezo has described, there are four additional problems which may occur during the collection's life at the repository, including new artifacts showing up, one catalogue number on two artifacts, artifacts going missing, and artifacts getting separated from the collection (Parezo 1987:7). All four of these biases were encountered with the Whalen Farm collection.

Twenty-nine new artifacts were found in the associated materials bags, which had to be fully catalogued using the system set out forty-two years ago. Subsequent finds donated to the museum from the site were also put in with the collection, but were left without provenience or catalogue number. These had to be sorted and accounted for.

A number of catalogue numbers were assigned twice to different artifacts. My solution to this problem was to take the artifact illustrated in the catalogue, and record the other as disturbed. Only three artifacts with good provenience had gone missing from the collection of over 500 pieces. The well documented catalogue, complete with illustrations, helped find and organize other artifacts which had wandered to different trays in the storage bays of the Laboratory of Archaeology.

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Some artifacts had been completely separated from the collection, and put on display in various museum exhibits. The vast majority of these could be retrieved from the display cases in the Museum of Anthropology without any difficulty. Four had been stuck onto a display panel board with silicon. It was extremely difficult to get the artifacts off the board, and during hours of careful picking I was not able to free them from the silicon residue. Two were in a travelling exhibit (somewhere in the Yukon, when I was analyzing the collection, I believe) and impossible to recover. The problems of missing or travelling artifacts did not affect my final interpretation, because the catalogue showed what they were and their provenience information.

These problems are also only too apparent with the Locarno components from Whalen Farm and Locarno Beach sites. I sincerely hope that the problems do not seem too daunting, compared with the intrinsic research value of a scientifically sampled archaeological collection. Studying this sort of material culture can and will provide people with answers to current and important research questions.

## V. Conclusions

The objective set out at the beginning of this work was to investigate the nature of the controversial Whalen II phase, as proposed by Charles Borden in his development of the Fraser Delta sequence. By giving a detailed description of the archaeological history of the Whalen Farm site, and providing a data base of quantitative information, I believe that this problem has been largely addressed.

First, some caveats on the conclusions drawn from this study. The sample of faunal materials from the site probably will prevent the seasonal resource use hypothesis from being tested more thoroughly. Other biases in the sampling of artifacts may not have been as clearly reflected as the lack of chipped stone. For instance, I find it suspicious that 13 burials were recovered, but only four ground stone disk beads are present in the collection. Judging from the vast quantities of beads that have been recovered with from other nearby sites, like the Crescent Beach site, Beach Grove (Matson et al. 1980) and Tsawwassen site (Arcas 1999), I suspect that a great many more beads should have been found. Another sampling problem comes in the fairly large number of artifacts that could not be attributed to a precise stratigraphic location. Adding these artifacts would have increased the reliability and utility of the sample. Finally, reconstructing the location of the original field work, in the wake of urban development, proves to be an educated guess at best.

Despite these caveats, this analysis has shown that the Whalen II component, from which the Whalen II phase was derived, can be confidently attributed to the Marpole phase, with supporting radiocarbon dates of  $2110 \pm 65$  RCYBP and  $1580 \pm 180$  RCYBP. Both these dates fall within the accepted temporal bounds of the Marpole phase (Mitchell 1990; Matson and Coupland 1995:213-218; Thom 1998). The artifact assemblage, now fully described, is not as anomalous as previously thought. The quantitative comparison of this with other Marpole components suggests that the Whalen II component is comprised of a very similar proportions of artifacts to what is normally found among Beach Grove and Old Musqueam subphase components.

The apparent absence of ground slate and stone carving in the Whalen II component has been explained through a complete tabulation of the artifacts from the site. The relative lack of chipped stone, especially flake edged tools reflects the sampling biases of the times when Borden was doing field work. The presence of microblades and composite toggling harpoon valves no longer poses a puzzle when set in the context of the early Marpole Old Musqueam subphase date recorded from the lowest levels of the Whalen II component. The Whalen II component is, however, not exactly like other similarly dated Marpole components. Lower than expected quantities of chipped stone may reflect a certain sampling bias on the

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part of the collectors.

The seasonal nature of site occupation which has been widely documented for the prehistoric and ethnographic Coast Salish area (esp. Abbott 1972 and Ham 1982), and provides a valid model that may explain some of the distinctive aspects of the artifact assemblage described here. Ham (1982:356) has proposed that the Whalen Farm site was occupied seasonally during the late winter, when key resources are abundantly available.

The array of objects which seem to come from widely diverse time periods (Borden's notion of cultural fusion ) or areas (Borden's models of cultural diffusion and migration) are explained here as a result of long-term, in-situ, cultural development. The deep stratigraphy of the site indicates that there had been virtually continuous seasonal occupation of the site from at least circa 3000 to 2000 RCYBP. Indeed, Borden also described the Whalen I component, a member of the Locarno Beach phase, from this site, which I have tabulated in Tables X- 4 and -6 as well as in Thom (1992b). This earlier Whalen Farm component, along with Borden's original Locarno Beach excavations (described by Pratt elsewhere in this volume), provide important background for the further interpretation of the Locarno Beach phase, and the overall development of Northwest Coast cultures.