Chapter V

CRESCENT BEACH ARTIFACT CLASSIFICATION

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The artifacts from the 1989/90 excavations at Crescent Beach are only one small section of the overall artifact analysis. Artifacts have also been analyzed from the St. Mungo, and Locarno components recovered by Percy in 1972 from Crescent Beach, and the St. Mungo components from Glenrose Cannery (DgRr 6), St. Mungo Cannery (DgRr 2), Borden's excavations at Locarno Beach (DhRt 6) and Whalen Farm (DfRs 3). This classification tries to place the variety of artifacts found within such a time span and profusion of sites into a limited number of homogenous classes. By doing so, the classification is in one place, and does not need to be repeated in the later chapters discussing the various collections. Classes not present at Crescent Beach have lower case initials indicated where they are present, e.g., lb = Locarno Beach.

The measurements given in the tables for the St. Mungo and Locarno components for Crescent Beach include both the material we excavated in 1989 and 1990 and that excavated by Percy in 1972. Pratt (1992) classified both collections together along with one from St. Mungo (Ham et al. 1986) and the St. Mungo component from the Glenrose Cannery site (Matson 1976) in her analysis of the St. Mungo culture. The Marpole component figures, however, include only the material we recovered in 1989 and 1990 and do not include the equivalent material recovered by Percy in 1972. As is discussed in a later chapter, it is difficult to compare the material excavated by C.E. Borden (1950a,1951b) with later collections so Borden's material is not included in the tabulated measurements, except where an artifact type is only present from the Locarno Beach site.

The procedure used in this classification is a compromise between the procedures used by Mitchell (1971) where the material from each component is described separately and that used by Matson (1976) where each category is described independent of its provenience. Here we have generally a single description, but separate metrical tabulations for each component.

Taxonomic Organization

The artifact classification used to organize and present the artifacts is built on the previous existing classifications from the Northwest Coast using the common basic categories of stone tools, and bone, antler, and shell tools.

There is a large amount of general agreement between most Northwest Coast artifact typologies, although nomenclature has changed somewhat since Borden (1950a) first summarized the artifact assemblage from Locarno Beach. All use the following general categories: chipped stone, ground stone, bone, antler, and shell.

In spite of some differences in presentation among the site reports, the artifact classification at the artifact level is also similar. Similar attributes are utilized with the assumption being that "like goes with like". In the Northwest Coast, the classic taxonomic description of artifact assemblage is Mitchell (1971). Succeeding classifications owe a large debt to this important work. Mitchell clearly, in turn, debts to Drucker (1943), Carlson (1954,1960), and Borden (1950a). Following Mitchell, Matson (1976) extended this classification to the previously unknown older cultures of St. Mungo and Old Cordilleran, as found at the Glenrose

Cannery site.

The current classification follows in the footsteps of these Northwest Coast prehistorians. The organization of this data allowed for the creation of a classification system that is explicit in its definition of the different artifact categories traditionally used for Northwest Coast artifacts. The first paragraph within each artifact category gives the definition of the artifact class. The second paragraph usually proposes possible functions for the artifact category. In this way, the physical appearance and the function of each artifact class are kept separate from each other. In practice, it can be difficult to tell why an archaeologist placed a certain artifact into a certain artifact category without a visual examination or at least a clear illustration of the artifact. By taking care in the description, it is hoped that assumptions about the data are clear and therefore available for discussion.

The separation of Northwest Coast artifacts into chipped stone, ground stone, pecked and ground stone, bone, antler, and shell categories reflects a commonly used traditional division based on technological differences. This type of classification focuses on the manufacturing process responsible for the final artifact. Raw material is an important part of the manufacturing process, in fact, raw material defines what technological processes can and cannot be utilized. The attributes used to define the technological artifact classes within these larger categories are the standard ones such as shape, edge-angle, and size.

In the presentation of this classification, each artifact category is introduced by a single line of information that contains a capitalized two to four letter abbreviation, and the full name of the artifact class. The abbreviations are shorthand codes that were recorded onto the artifact coding sheets in the lab, entered into a data base programme, and used for analysis.

Lithic Artifacts

In early Northwest Coast prehistoric sites, lithic artifacts usually make up the largest category. The range and variety of lithic artifacts are great and there are many different processes by which artifacts could by made (for example percussion flaking, grinding, or pecking). Some lithics receive very little modification, while others receive modification in very specific areas such as their edge, and some no longer exhibit any similarity to their original unmodified state. Lithic tools are divided into the following general categories: Chipped Stone, Ground Stone, and Pecked and Ground Stone.

I. Chipped Stone

Certain kinds of rocks share a special property because of their mineral composition. When these rocks are struck with a direct blow they fracture conchoidally, leaving behind a relatively smooth surface (Mottana et al. 1978) and a sharp edge. Prehistoric cultures exploited these inherent properties and created tools that were so successful at what they did, they dominated artifact assemblages for hundreds of thousands of years. During the fracturing process (called flaking or chipping), small pieces of rock (called flakes) are removed from the original parent piece (called a core). Both flakes and cores are easily modified into tools. Flake tools are usually separated from core tools because they are naturally separated in the process of stone tool making (another way to think of this division is to realize that core and flake tools are different end products created through the same process of flintknapping). In this report we have adhered to this tradition by first describing core tools and then flake tools.

Two categories of artifacts in this classification do not really qualify as tools. These are cores and bipolar cores. Tools are made from these artifacts, but they themselves are not tools. But, as Matson (1976:129) states, some cores may be used as pebble tools or hammerstones. In determining site function and assemblage variability, cores are important for comparing different assemblages. Therefore, they are

included in the artifact descriptions.

CORE:Core: These objects can be described as a mass parent material from which smaller pieces are detached through application of force. To be defined as a core, flakes must be systematically removed from two or more different surfaces. Sometimes, the parent material may exhibit a natural flat surface which will form a striking platform from which force can be directed to remove the flakes. These cores have a characteristic flat and rounded appearance. Some cores require a prepared striking platform before flake removal can occur.

It is likely that cores had multiple functions. Some could have been used as pebble tools or hammerstones after their function as a core was exhausted.

References for this definition include an amalgamation of the following: Chapman (1977), Crabtree (1972), Matson (1976), and Pokotylo (1978).

The following tables separate the Crescent Beach material into the three components described in Chapter IX. The tables include the material from both the 1989-1990 excavations and Percy's (1974) material for the St. Mungo and Locarno Beach components, but only the assemblage recovered in 1989-1990 for the Marpole component.

Table V-1 Cores

	Number	Median	Range	Interquartile Range
St Mungo. Total=55 All artifacts are included.				
Weight(g)	55	38.9	4.8 - 2049.4	20.4 - 70.7
Length (cm)	55	5.1	2.4 - 15.3	4.2 - 6.6
Width (cm)	55	3.5	1.5 - 12.9	2.8 - 4.4
Thickness	55	2.1	.9 - 9.8	1.6 - 2.7
Locarno Total=29 All artifacts are included.				
Weight	29	32.6	2.5 - 511.5	15.3 - 61.9
Length	29	4.8	1.6 - 9.4	3.7 - 6.1
Width	29	3.4	1.1 - 8.0	2.6 - 4.4
Thickness	29	2.0	.9 - 4.7	1.4 - 2.4
Marpole 89/90 Total=6				
Weight	3	174.3	83.2 - 396.5	n/a
Length	6	5.2	2.6 - 9.2	n/a
Width	6	2.4	1.7 - 7.3	n/a
Thickness	6	2.3	.9 - 6.3	n/a

BP:Bipolar Implement: These artifacts have been given many names including bipolar cores, piece esquilles, and stone wedges. These implements have two opposed edges that exhibit crushing and battering (Pokotylo 1978:226). This kind of tool is produced when the parent material is rested on a hard surface and struck (Crabtree 1972:42).

It is probable that many bipolar implements were first used as cores and later used as possible wedges to split bone and antler for the manufacturing of tools (Matson 1976:128). It is notable that fewer are present in the Locarno component, as well as their smaller average size, which is repeated in Fig. V- 1 (a), where the

two smaller ones are from the Locarno component and the large one from the St. Mungo component; all three were recovered in 1989-1990.

Table V-2 Bipolar Implements

	Number	Median	Range	Interquartile Range
St. Mungo Total=49 All artifacts are included.				
Weight	49	17.1	2.9 - 100.0	8.4 - 29.4
Length	49	4.3	2.6 - 9.1	3.5 - 5.3
Width	49	3.1	1.8 - 6.3	2.5 - 4.0
Thickness	49	1.2	.4 - 3.0	.9 - 1.6
Locarno Total=6 All artifacts are included.				
Weight	6	6.8	.6 - 36.6	4.3 - 12.6
Length	6	3.1	1.2 - 5.4	2.8 - 3.9
Width	6	2.4	1.0 - 4.5	1.7 - 2.7
Thickness	6	1.0	.5 - 2.0	.6 - 1.3

No artifacts belonging to this class were found in the Marpole layers in 1989 and 1990.

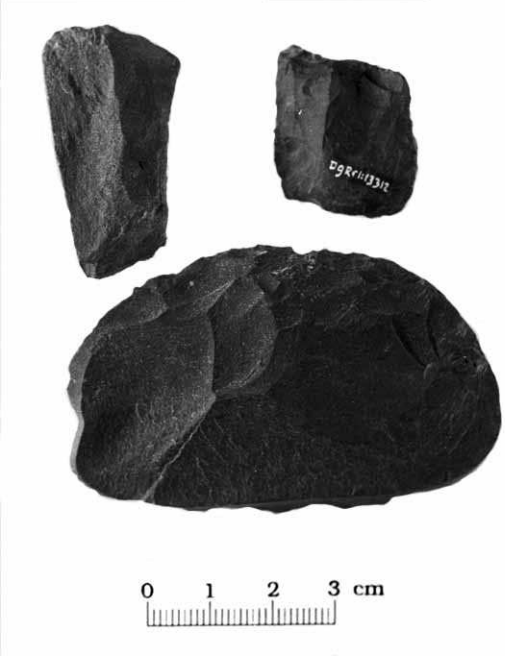

Figure V-1. Bipolar implements. Bottom from St. Mungo (12001) and top two (12219 and 13312) from the Locarno Component at Crescent Beach.

UNSHAPED CHIPPED STONE IMPLEMENTS: Within this large category a distinction can be made between unshaped chipped stone implements that are pebble core tools and those that are derived from unshaped by-products or flakes.

PEBBLE CORE TOOLS: Pebble tools are made on large cobbles (including possible cores) and will be discussed first. These artifacts are also known as cobble tools (technically, pebbles are smaller than cobbles) and they can be further separated in two categories depending on the degree of modification.

MODIFIED COBBLES: Modification of these implements may be minimal and only the wear pattern indicates that these tools were used in human activities.

HAM:Hammerstone: These implements are pebbles with evidence of battering on any part of their surface including end or edge battering (Ham et al. 1986:32). Hammerstones are present throughout Northwest Coast prehistory which suggests their usefulness (Matson 1976:137). Borden pointed out to Matson (Per. Comm. 1970s) that in Locarno Beach deposits a particular variety is present that shows a battered area close to one end of an elongated cobble. Fig. V-2 (12573) illustrates such an example (on the left) present from the Locarno component from Crescent Beach. Both of the hammerstones illustrated are from the Locarno component and were recovered in 1989/90,

Table V-3 Hammerstones

	Number	Median	Range	Interquartile Range
St. Mungo Total=4				
Weight	3	178.5	109.1 - 890.0	n/a
Length	3	8.5	6.3 - 12.5	n/a
Width	3	4.1	4.0 - 9.9	n/a
Thickness	3	3.7	2.9 - 4.6	n/a
Locarno Total=7				
Weight	2	n/a	249.8 - 645.5	n/a
Length	4	12.1	8.4 - 14.7	n/a
Width	4	6.5	5.5 - 7.1	n/a
Thickness	4	4.9	3.2 - 5.9	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989 and 1990.

ANV:Anvilstone: Anvilstones show evidence of battering and pecking on at least one flat surface, away from the edge of the tool (Matson 1976:141). These objects may have provided flat surfaces for the bipolar flaking of cores.

Anvilstones probably had many other uses as well (Ham et al. 1986:32).

Three large, but incomplete objects, belonging to this class were recovered from the Locarno Beach phase Feature 9, in the North Trench, and two are illustrated at the bottom and left of Fig. V- 3 (b), with the remaining the only St. Mungo example with a measurable dimension, all recovered in 1989-1990.

Figure V-2. Hammerstones, Mortars and Decorated Ground Stone. Hammerstones (HAM), top row, 12573, 11146, Cobble Mortars (MORT), (Locarno) upper right,1273 (top) and 11422. Decorated Ground Stone, bottom row, 11926; Formed Abrasive Stone (FAS), 7433, Marp., 14263, Marp., 11270, St. Mg. (all left to right).

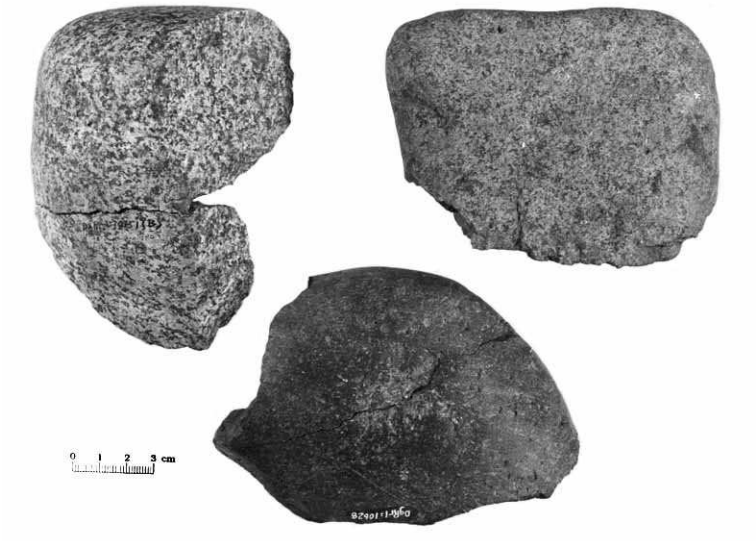

Figure V-3. Anvil Stones (AV). All from Locarno Beach component, 10751, 10628, and 11983, (left to right) with the first two from Feature 9 of the North Trench.

Table V-4 Anvilstones

	Number	Median	Range	Interquartile Range
St. Mungo Total=4 (Only 1 thickness measurable, 4.9 cm)				
Locarno Total=4, but only 1 complete				
Weight	1	770.0	n/a	n/a
Length	1	14.6	n/a	n/a
Width	1	6.9	n/a	n/a
Thickness	1	6.0	n/a	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989 and 1990.

HA:Hammer Anvilstone: Like anvilstones, these objects show evidence of battering and pecking on at least one flat surface, away from the tool's edge, but these objects also have wear on either end indicating a hammering motion was also employed (Ham et al. 1986:36).

These multi-functional tools could be used as a flat surface for bipolar percussion or could be used to hammer.

Table V-5 Hammerstone/Anvilstones

	St. Mungo Total=1 complete	Locarno Total=0	Marpole 89/90 Total=1 complete
Weight	110.0	-	126.6
Length	18.6	-	4.8
Thickness	8.1	-	2.3

FLAKED PEBBLE CORE TOOLS: The next step beyond minimally modified pebble implements are pebble tools created through the removal of flakes. These tools can be classified further according to how the flakes have been removed.

PCHU:Pebble Tool Uniface: These implements have been modified by flaking on one face of the pebble. The working edge created is usually quite steep, but narrow-angled edges also occur (Matson 1976:142).

Some of these implements may have originally been used as cores, but then deemed unsatisfactory and abandoned, or used for other activities (Matson 1976:142). Ham et al. (1986:43) suggests the edge wear on some of the tools is consistent with heavy duty chopping activities. Actual functions of these artifacts are difficult to discern because they can be used for a number of activities including scraping, or chopping. Furthermore, original function may be hard to discern because the raw materials that comprise these artifacts are very coarse grained (as can be seen in the three illustrated in Fig. V- 4[all recovered in 1989-1990]) and make use-wear analysis difficult.

Table V-6 Pebble Tool Unifaces

	Number	Median	Range	Interquartile Range
St. Mungo Total=16				
Weight	16	657.7	63.0 - 1178.4	251.0 - 802.7
Length	16	10.8	5.7 - 13.3	8.7 - 12.4
Width	16	9.1	4.5 - 11.4	7.7 - 10.4
Thickness	16	4.6	1.9 - 7.8	3.2 - 6.2

Locarno Total=12				
Weight	12	542.5	142.2 - 1724.5	389.3 - 712.3
Length	12	10.5	7.0 - 17.0	9.4 - 11.1
Width	12	8.8	5.9 - 12.8	8.0 - 9.2
Thickness	12	4.5	2.5 - 7.8	4.0 - 5.8

One was recovered from the Marpole component with a weight of 142.2 g, length of 7.0, width of 5.9, and a thickness of 2.4 cm.

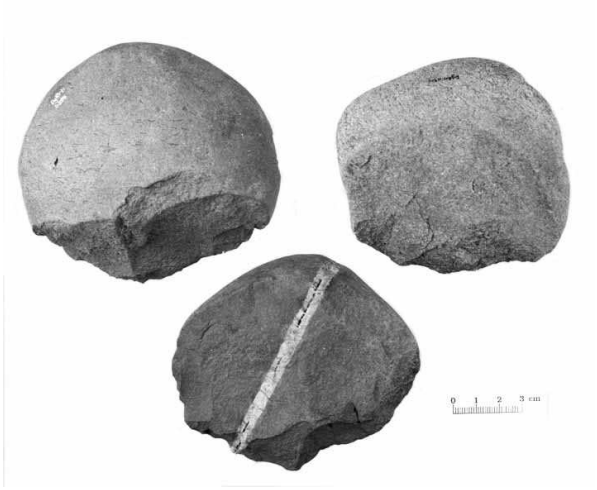

Figure V-4. Pebble Tool Unifaces. Two on left (11295, 11145) from Locarno component, the one on the upper right (11925) from St. Mungo.

PCHB:Pebble Tool Biface: These tools are of the same nature as unifacial pebble choppers except that flakes have been removed from both faces of the original pebble. The flake scars are usually large with no discernible retouch.

These implements may also be artifacts first chosen because of their potential for becoming a core, but then abandoned, or used for other functions (Matson 1976:141) which may have overlapped with unifacial pebble tools. Of the three illustrated in Fig. V- 5 (d), the one on the left is the one from Marpole, and the other two from the Locarno components, with the one at the top from Feature 9.

Table V-7 Pebble Tool Bifaces

	Number	Median	Range	Interquartile Range
St. Mungo Total=3				
Weight	3	430.0	350.0 - 910.0	n/a
Length	3	10.5	8.1 - 12.5	n/a
Width	3	8.0	6.9 - 8.5	n/a
Thickness	3	4.9	4.7 - 6.1	n/a
Locarno Total=2				
Weight	2	n/a	120.4 - 601.5	n/a
Length	2	n/a	7.8 - 10.5	n/a
Width	2	n/a	5.2 - 10.0	n/a
Thickness	2	n/a	2.1 - 4.6	n/a

One was recovered from Marpole component in 1989-1990 (left of Fig. V- 5, 6611) and had a weight of 865.0 g, length of 12.5, width of 7.8, and a thickness of 5.6 cm.

Figure V-5. Pebble Tools, Biface. From left, from Marpole (6611), Locarno (11776) and Feature 9-Locarno (10627) components.

UNSHAPED CHIPPED STONE FLAKE TOOLS: The term unshaped flakes is deceiving because by itself it implies that the objects in question are debitage. The difference between debitage and unshaped flakes comes down to the edge treatment. Debitage has not been utilized or retouched, while unshaped flakes have.

COBBLE FLAKE TOOLS: These tools may be the by-products from the production of the above mentioned flaked pebble core tools. The flakes removed in the process of making these artifacts are large and require little modification in order to be useful.

CSP:Cortex Spall: This implement is created when a primary flake is struck from river pebbles or cobbles of metamorphic and igneous material by a hammerstone or anvilstone percussion technique. The dorsal face of the tool is completely cortex covered (Hanson 1973:180).

Ham et al. (1986:60) state that cortex spall tools were used for scraping hides, but Hanson (1973:182) experimented with these tools and showed that they could also be used to cut fish, and to prepare poles, shafts, or stakes of wood for fishing and hunting activities.

There is a distinctive edge polish on cortex spalls used for hide scraping and is easily recognizable from other types of usewear (Matson et al. 1984. Matson and Magne 2007: Appendix I). It is not found on Crescent Beach specimens, although the edges of several of these artifacts are worn. The size of these artifacts are smaller, as well, than those found in the interior as well as not having the distinctive usewear. These are illustrated in Fig. V- 6, with the lower right being from the Locarno component and the rest from St. Mungo; all recovered in 1989-1990.

Table V-8 Cortex Spalls

	Number	Median	Range	Interquartile Range
St. Mungo Total = 14				
Weight	14	36.6	9.0 - 74.8	24.1 - 51.2
Length	14	5.4	4.0 - 7.6	4.7 - 6.4
Width	14	4.3	3.5 - 5.8	4.0 - 4.7
Thickness	14	1.5	.9 - 2.2	1.0 - 1.6
Locarno Total = 8				
Weight	8	38.9	9.2 - 104.7	27.2 - 52.6
Length	8	6.4	3.4 - 7.2	5.1 - 7.0
Width	8	4.5	3.2 - 5.6	3.6 - 4.9
Thickness	8	1.3	.7 - 2.2	1.0 - 1.5
Marpole 1989-90 Total = 4				
Weight	4	24.0	9.2 - 41.0	n/a
Length	4	4.9	3.4 - 5.5	n/a
Width	4	3.9	3.2 - 5.0	n/a
Thickness	4	1.1	.7 - 1.4	n/a

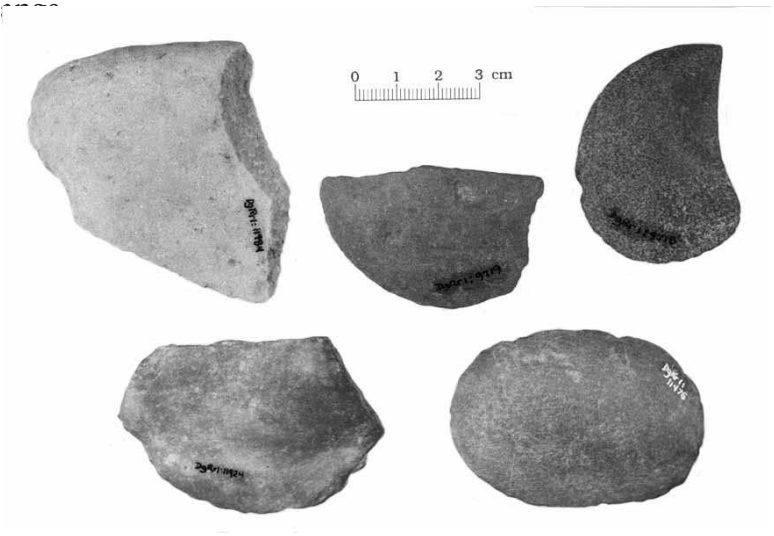

Figure V-6. Cortex Spalls. Lower right (11476) from Locarno, rest from St Mungo Component (From left, 11984,11924, 9719, 9718).

NON-RETOUCHED FLAKE TOOLS: These flake tools comprise a large category in most early Northwest Coast artifact assemblages. Flake tools that do not exhibit any deliberate or regular edge retouch are classified together as utilized flakes.

UF:Utilized Flakes: This kind of flake exhibits signs of wear along its edge but displays no methodical evidence of retouch (Kornbacher 1989:117). Wear patterns include abrasion, irregular nicks or small flake scars (Matson 1976:131). There is a gradient between utilized and retouched flakes, which will be separated for this study by defining utilized flakes as those having less than three sequential flake scars along the utilized edge. This is an arbitrary boundary and in the future, it will probably change as archaeologists experiment more with stone tools and learn how to better differentiate between utilized and retouched edges.

Utilized flakes are a large category within early Northwest Coast tool assemblages which probably reflect the many activities and tasks these objects were used for. Fig. V- 7 illustrates a range of these objects, including specimens recovered in 1989-1990 from all three components.

Table V-9 Utilized Flakes

	Number	Median	Range	Interquartile Range
St. Mungo Total = 118				
Weight	118	13.1	1.3 - 160.3	5.6 - 28.5
Length	118	4.6	1.9 - 11.3	3.5 - 5.8
Width	118	3.1	1.4 - 7.9	2.4 - 3.9
Thickness	118	1.1	.3 - 3.6	.7 - 1.3

Locarno Total = 65				
Weight	65	13.7	.7 - 90.3	5.8 - 21.5
Length	65	4.7	1.9 - 8.2	3.5 - 5.5
Width	65	3.3	.9 - 5.6	2.1 - 4.1
Thickness	65	1.0	.2 - 2.2	.7 - 1.2
Marpole 1989-90 Total = 12				
Weight	12	10.9	1.3 - 157.3	6.6 - 23.9
Length	12	4.3	2.7 - 10.4	3.1 - 5.5
Width	12	3.4	1.7 - 5.1	2.2 - 3.8
Thickness	12	1.1	.3 - 2.1	.7 - 1.3

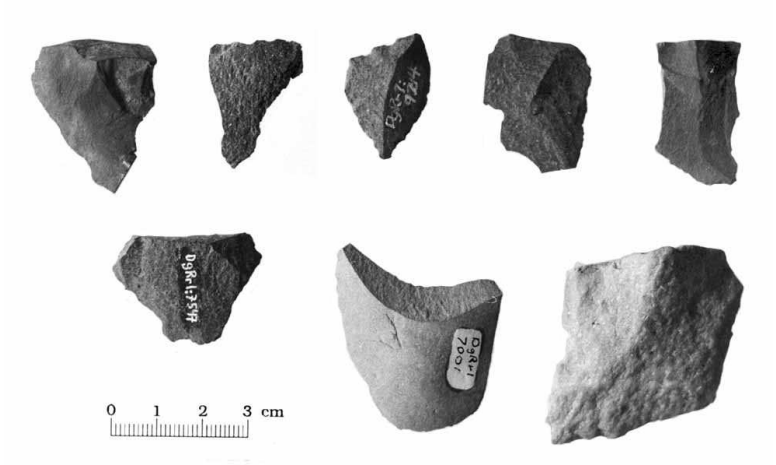

Figure V-7. Utilized Flakes. Top Row: 7549 (St.Mg.), 6533 (Marp.), 9214(L.B. 7794 (St. Mg.) 7830(St. Mg). Bottom Row: 7547 (St.Mg.), 7001(Marp.) 7343, (L.B.)

BF:Battered Flake (lb): These artifacts are the equivalent to hammerstones, except rather than a pebble or cobble, a large flake has been used. The outer margins of the flake exhibit crushing. Their function is assumed to be one of hammering.

A single object from the Locarno Beach site is placed into this class, weighing 130.2 g, 8.1 cm long, 6.5 cm wide, and 1.6 cm thick.

RETOUCHED FLAKE TOOLS: These tools, unlike utilized flake tools, show deliberate edge modification. The degree and angle of edge modification are the attributes used to place the flake tool into the sub-categories discussed below, starting with quartz crystal microliths which are a unique category not placed into the other retouched flake categories. Another attribute useful in categorizing this large group of tools is the amount of work exhibited on the edge with those worked on one face (unifacial retouch) separated from those worked on both faces (bifacial retouch). This separation is useful in helping to determine the amount of time spent on making flake tools, the idea being that unifaces are more expedient than bifaces.

QCML:Quartz Crystal Microlith: This is a special subcategory of unshaped tools based on the unique use quartz crystal. In many areas, where small quartz pebbles are the raw material, bipolar percussion has been shown to be the most common way in which these implements are manufactured (Flenniken 1981). At Crescent Beach quartz crystals are used as cores and it is likely that bipolar percussion is also used. These tools are usually little more than small unshaped flakes with retouched edges, although sometimes, the edges may only be heavily utilized. The distinction between quartz crystal debitage and quartz crystal microlith is made on the basis of the presence or absense of visible retouch or heavy utilization. Quartz is very hard and many of the flakes classified as debitage may, in fact, have been used without showing visible wear.

Quartz Crystal Microliths (and in some sites, microblades [Mitchell 1971]) are common during the Locarno Beach period but then disappear from use which is intriguing. Microblades are also associated with the earliest Marpole subphase, the Old Musqueam (Matson et al. 1980, Matson and Coupland 1995:215). Quartz microliths are also sometimes thought to be indicative of a blade tool technology because quartz crystal was a raw material used in the making of microblades such as in the Locarno Beach component at

Georgeson Bay (Haggarty and Sendey 1976). Quartz Crystal Microliths can sometimes take the form of quartz microblades, because a certain proportion of microliths struck from quartz crystals will have a prismatic blade form which is part of the definition of microblades. This is a different scenario from that resulting from the production of quartz microblades and rejecting those flakes that do not have a blade form. Few of this class from Crescent Beach have a blade form.

Quartz Crystal Microliths may have had several functions, including cutting (Flenniken 1981). As discussed elsewhere, Croes and Blinman (1980) have suggested that these were used for the initial cut through the skin when processing large numbers of salmon. At Crescent Beach, these tools may be confined to the Locarno Beach Component and later, as the single St. Mungo component example is outside the range of the 11 Locarno examples in weight, length, and width, although it is at the third quarter in thickness. Ten of the eleven Locarno microliths were found in the 1989/90 excavations; no St. Mungo microlith was recovered in those years. One of the Marpole examples was found in Layer P, the lowest Marpole layer and so may actually belong to the Locarno Component.

Microliths are seen in Fig. V- 8, and all 6 are from Locarno component layers of the South Trench.

Table V-10 Quartz Microliths

	Number	Median	Range	Interquartile Range
St. Mungo Total = 1, 1.7 x 1.4 x .4 cm and 1.0 gm.				
Locarno Total = 11				
Weight	11	.3	.1 - .9	.2 - .4
Length	11	1.2	.9 - 1.5	1.1 - 1.4
Width	11	.8	.7 - 1.3	.8 - 1.3
Thickness	11	.3	.2 - .6	.3 - .4
Marpole Total = 3				
Weight	3	.2	.2 - .3	n/a
Length	3	1.2	1.0 - 1.2	n/a
Width	3	.8	.8 - .9	n/a
Thickness	3	.3	.2 - .3	n/a

Figure V-8. Quartz Crystal Microliths. Top: 8919, 13895, 13109; Bottom: 13301,13376, 13111; all Locarno Comp.

UNIFACIALLY RETOUCHED FLAKES: These flake tools are sub-divided according to the angle of the worked edge. Implements with edge angles greater than forty five degrees are called Steep-Angled Retouched Flakes, while implements with edge angles less than forty five degrees are called Narrow- Angled Retouched Flakes. Edge retouch must involve three or more consecutive flake scars. The last attribute requirement for this artifact class is that the tools be unifacially worked.

SRF:Unifacially Steep-Angled Retouched Flake: These artifacts have one or more margins exhibiting contiguous retouch scars that are confined to the margins and do not extend over the rest of the flake's surface.

Steep-edge angles, of the retouched edges, are defined for this report as being equal to or greater than 45 degrees (Pokotylo 1978:220). The steep edge-angle is not conducive to cutting, but is conducive to activities such as skinning, hide scraping, sinew and fibre shredding, and also the heavy cutting of wood, bone or

horn (Wilmsen 1970:50).

Figure V- 9 illustrates five of this category on the lowest row, with the object in the middle from the Locarno component, and the rest from the St. Mungo component. All were recovered in 1989-1990.

Table V-11 Unifacially Steep-Angled Retouched Flakes

	Number	Median	Range	Interquartile Range
St. Mungo Total=28				
Weight	28	24.6	2.3 - 134.6	16.1 - 50.6
Length	28	5.7	2.7 - 7.9	4.4 - 6.5
Width	28	3.9	1.5 - 6.7	3.1 - 4.6
Thickness	28	1.3	.4 - 2.7	1.1 - 1.9
Locarno Total=19				
Weight	19	30.8	3.4 - 114.1	12.9 - 43.7
Length	19	5.1	2.5 - 9.9	3.9 - 5.9
Width	19	3.7	1.9 - 5.8	3.0 - 4.5
Thickness	19	1.6	.6 - 2.0	1.0 - 1.8

No artifacts belonging to this class were found in the Marpole layers in 1989 and 1990.

Figure V-9. Top:Narrow Angled Flakes; right,Locarno, rest of top row St. Mungo, Bottom: Steep Angled Retouched Flakes, Middle Locarno, rest; St. Mg.

NRF:Unifacially Narrow-Angled Retouched Flakes: The most diagnostic attribute for these tools is that one or more margins exhibits contiguous retouch scars that are confined to the object's margin. Narrow-edged angles, of the retouched edges, are defined for this report as being equal to or less than 45 degrees. This class is equivalent with the Medium Unifacially Retouched narrow-angled flakes of Matson (1976:117-118).

This acute angle is suitable for activities such as cutting (Matson 1976:117; Pokotylo 1978:220). All the objects in Fig. V- 9, except for the bottom row are members of this class, with all but the one on the upper right, which is from St. Mungo context, recovered from the Locarno component. All were recovered in 1989-1990.

Table V-12 Unifacially Narrow-Angled Retouched Flakes

	Number	Median	Range	Interquartile Range
St. Mungo Total=19				
Weight	19	15.2	4.5 - 595.5	8.1 - 22.8
Length	19	4.4	2.9 - 14.8	3.4 - 5.6
Width	19	3.3	2.2 - 11.6	2.8 - 3.9
Thickness	19	.9	.5 - 2.4	.7 - 1.3
Locarno Total=10 All artifacts are included.				
Weight	10	22.8	2.1 - 120.4	15.8 - 37.7
Length	10	5.1	2.7 - 8.2	4.8 - 6.0
Width	10	4.4	1.5 - 7.6	3.3 - 4.6
Thickness	10	1.2	.5 - 2.0	1.0 - 1.4

No artifacts belonging to this class were found in the Marpole layers in 1989 and 1990.

BIFACIALLY RETOUCHED FLAKES: The defining attribute for this artifact type concerns the modification of both faces of the implement (also known as bifacially worked). Most Northwest Coast archaeologists do not sub-group this artifact class into steep and narrow angled artifacts because they are not as common as the unifacially worked tools. Most tools in this class are narrow angled.

BRF:Bifacially Retouched Flake: Exhibits one or more edge with retouch on both adjacent surfaces that does not extend over more than one third of either face from the margin (Pokotylo 1978:223).

While these tools are less expedient than unifacially worked flakes, archaeologists believe that they were a useful multi-functional tool.

Table V-13 Bifacially Retouched Flakes

	Number	Median	Range	Interquartile Range
St. Mungo Total=2				
Weight	2	n/a	12.0 - 13.9	n/a
Length	2	n/a	4.6 - 4.7	n/a
Width	2	n/a	2.8 - 3.1	n/a
Thickness	2	n/a	1.0 - 1.1	n/a
Locarno Total=3				
Weight	3	9.5	1.7 - 10.4	n/a
Length	3	3.4	2.6 - 6.2	n/a
Width	3	2.0	1.9 - 3.0	n/a
Thickness	3	.7	.6 - 1.0	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

SHAPED CHIPPED STONE TOOLS: A shaped or formed implement is an object that exhibits extensive and intentional modification of its original form. With shaped chipped stone tools, modification of the artifact extends over most of its surface and significantly alters the original mass of material (Kornbacher 1989:105). Shaped implements, especially chipped stone often are symmetrical in plane view. Shaped implements take more time, and presumably, "... reflect deliberate shaping on the part of the manufacturer" (Sanger 1970:76). The assumption being that shaped tools were manufactured with some purpose in mind, and given the invested time and effort, shaped tools had a longer use-life and were curated (Binford 1973, 1979).

FORMED CHIPPED STONE UNIFACES: This category of formed (also known as shaped) tools exhibit working on one face of the implement. The degree of edge angle determines which sub-group the tool will be place into. As with the Retouched Flakes, the dividing angle between steep and narrow is forty five degrees.

NFU:Narrow-Angled Formed Uniface: This is a subcategory of narrow-angled retouched flakes. A distinctive attribute is in the kind of raw material which in most cases at Crescent Beach is a very good vitreous basalt which is relatively unusual in the the other flake tool classes. The retouching is very regular

and the objects are usually made on thin flakes (Matson 1976:118).

Table V-14 Narrow-Angled Formed Unifaces

	Number	Median	Range	Interquartile Range
St. Mungo Total=3 All artifacts are included.				
Weight	3	8.7	2.4 - 66.1	n/a
Length	3	5.4	3.2 - 7.4	n/a
Width	3	2.3	1.8 - 5.7	n/a
Thickness	3	1.0	.5 - 1.5	n/a

Locarno. No artifacts of this class are present.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

SFU:Steep-Angled Formed Uniface (lb): In this category, implements exhibit extensive facial retouch that extends minimally over one third of the flake surface from at least one margin. Retouch is located on one face only and edge-angles are equal to or greater than 45 degrees (Pokotylo 1978:220).

The most common activity these tools were suitable for was scraping, and there may be evidence of hafting.

A single object fitting this class was recovered from Locarno Beach (DhRt 6) in spite of their relatively high abundance in St. Mungo context at the Glenrose (DgRr 6) site (Matson 1976; Pratt 1992). The Locarno Beach example has a weight of 118.9 g, a length and width of 7.6 and 7.4 cm, and a thickness of 1.7 cm.

SFB:Steep-Angled Formed Biface (lb): In this category, implements exhibit extensive facial retouch that extends minimally over one third of the flake surface from at least one margin. Retouch is located on both faces and edge-angles are equal to or greater than 45 degrees. The fact that retouch does not extend over the entire surface of these tools delineates them from formed bifaces, as well as the steep edge angle.

Their function is thought to be scraping.

The single example among the assemblages analyzed is from the Locarno Beach site (DhRt 6). It weighed 110.5 g and has a length and width of 6.7 and 5.8 cm, and a thickness of 2.4 cm, larger than most flake tools.

FORMED CHIPPED STONE BIFACES: In general, bifaces as a category can be defined as "well- made artifacts formed by bifacially removing flakes from the complete periphery of the object so that both ventral and dorsal sides show extensive flake scars" (Matson 1976:106). Bifaces are usually symmetrical with a sharply pointed end, and acute-angled blade margins (Pokotylo 1978:216). Bifaces are categorized according to their overall finished shape. Determining whether formed bifaces were used as projectile points or knives is difficult and best avoided by placing all formed bifaces into the same category. The most common way of determining the difference between knives and projectile points focuses on the treatment of the base of the object.

> Projectile points exhibit discrete evidence of modification of their proximal ends. In most cases, this 'basal' modification has been undertaken through manufacture of corner or laterally situated notches. It is assumed that such basal modification has been undertaken for hafting purposes [Chapman 1977:413].

The size of the biface has also been used to determine the difference between projectile points and knives with the assumption being that smaller objects are projectile points because there is a maximum size one can successfully hurl through the air.

LBF:Leaf-Shaped Biface: Leaf-shaped bifaces are a very common artifact type in early Northwest Coast prehistory. The overall leaf- shape of these artifacts is the chief diagnostic attribute as shown in the lower left three in Figure V- 10, with the left-most two from the St. Mungo component and the broken one on the right from the Marpole component; all recovered in 1989-1990. Figure V- 11 shows five recovered by Percy, with the top left corner from the Locarno component and the other four from the St. Mungo.

Table V-15 Leaf-Shaped Bifaces

	Number	Median	Range	Interquartile Range
St. Mungo Total=7				
Weight	4	10.5	3.5 - 12.4	n/a
Length	6	5.4	3.5 - 6.5	5.0 - 5.7
Width	6	2.2	1.6 - 2.5	2.0 - 2.4
Thickness	6	.9	.6 - 1.0	.7 - .9

Locarno Total=1 incomplete, 4.0 x 1.9 x 0.7 cm and weighed 5.2 g.

No complete artifacts belonging to this class were found in the Marpole layers in 1989-1990. Note the incomplete one in Figure V-10 and see the BDF category below.

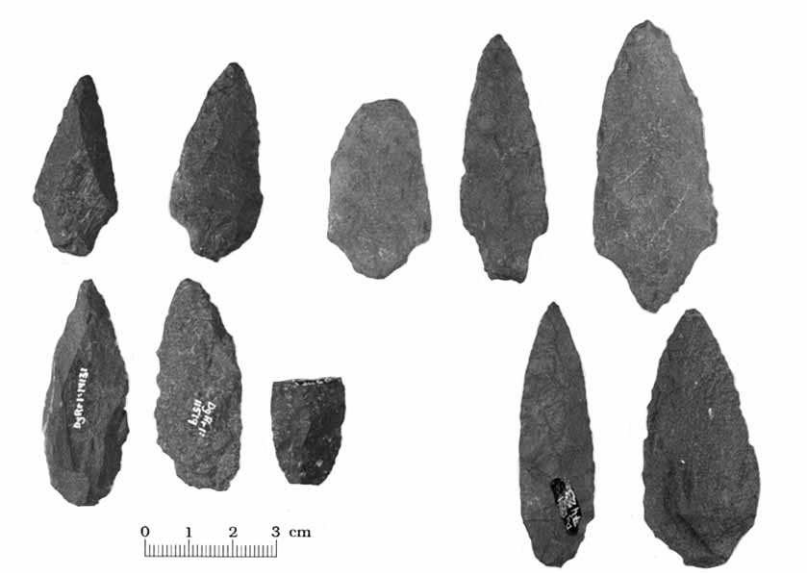

Figure V - 10. Top Row, CSBS:Contracting Points with Shoulders, (13773, Marp.;13396, Marp.;14292, Marp. 12593, Locarno; 14130, St. Mg.), Bottom Row, LBF:Leaf-Shaped Bifaces, (14131, St. Mg.; 11519, St. Mg.; 7297, Marp.); CSTB:Contracting Points without shoulders (7423, Marp.; 11807, Locarno).

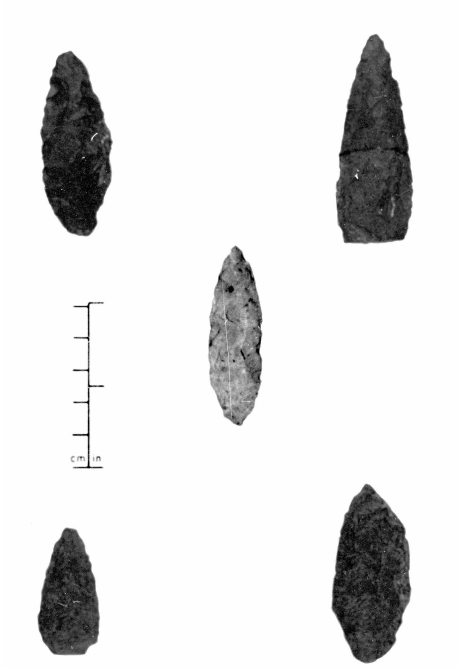

Figure V-11. LBF:Leaf Shape Bifaces. Top Left, Locarno, the rest St. Mungo; all recovered by Percy.

CSTB:Contracting Stem Biface No Shoulders: This type of biface has a leaf-shaped form, but with a contracting stem which is more distinguishable and less gradual than the Leaf-Shaped Biface's stem. In form, it lies between the leaf-shaped form and the Contracting Stem Bifaces below. Two are illustrated on the right of the lower row of Figure V-10, with the left one from Marpole context and the right one from St. Mungo. Both were recovered in 1989/1990. The bottom row of Figure V-12 illustrates two from the St. Mungo component recovered by Percy.

Table V-16 Contracting Stem Biface No Shoulders

	Number	Median	Range	Interquartile Range
St. Mungo Total=2				
Weight	2	n/a	11.4 - 18.4	n/a
Length	2	n/a	6.6 - 7.8	n/a
Width	2	n/a	1.9 - 2.6	n/a
Thickness	2	n/a	.9 - .9	n/a

Locarno Total=1 complete, 6.0 x 2.7 x 0.9 cm and weighed 13.0 g.

One specimen was recovered from Marpole in 89/90, which is illustrated in Figure V- 10, in the lower row, second from the right (7423), with a weight of 9.4 g, length of 6.1, width of 1.8 and a thickness of 0.9 cm.

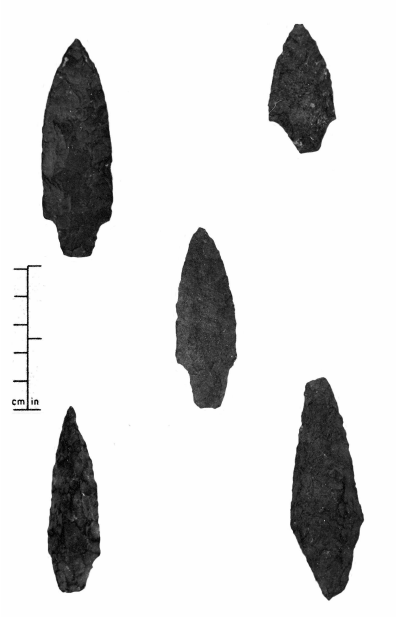

Figure V-12. Top three, CSBS:Contracting Stem Bifaces, Locarno; Bottom two, CSTB:Contracting Stem Biface No Shoulder, St. Mungo, all recovered by Percy.

CSBS:Contracting Stem Biface With Shoulders: This type of biface has a leaf-shaped form, but also have a contracting stem which is more distinguishable and less gradual than the Leaf-Shaped Biface's stem. The differences between bifaces of this type when compared to the previous category is the evidence for shoulders, although some may be much less weakly developed. These are illustrated in Figure V-10 in the top row, with the four on the left from the Marpole component, and the right-most one from St. Mungo; all were recovered in 1989-1990.

The top three in Figure V-12 are from the Locarno component recovered by Percy.

Table V-17 Contracting Stem Bifaces With Shoulders

	Number	Median	Range	Interquartile Range
St. Mungo Total=4				
Weight	2	n/a	8.8 - 25.1	n/a
Length	2	n/a	6.6 - 7.8	n/a
Width	2	n/a	2.9 - 3.6	n/a
Thickness	2	n/a	.8 - .9	n/a
Locarno Total=4				
Weight	3	9.1	8.1 - 17.5	n/a
Length	3	5.7	4.6 - 7.7	n/a
Width	4	2.3	2.0 - 2.5	n/a
Thickness	3	.8	.8 - .9	n/a
Marpole 1989-1990 Total=4, All complete				
Weight	4	7.9	4.4 - 8.1	n/a
Length	4	4.3	4.1 - 5.7	n/a
Width	4	2.1	2.0 - 2.4	n/a
Thickness	2	.7	.6 - 1.0	n/a

CNBF:(lb)Corner Notched Biface: These bifaces have a leaf-shaped form, but the basal corners have been notched. They are not a common artifact in early prehistoric Northwest Coast artifact assemblages. These implements were hafted. The one recovered from the Locarno Beach site weighs 18.6 g, is 7.1 cm long, 3.7 cm wide and 8 mm thick. It is incomplete in length (and weight).

CSSB:(lb)Chipped Slate Narrow-Angled Spherical Formed Biface: These objects are not common in early Northwest Coast prehistory. They are made from tabular pieces of slate thicker than the typical Ground Slate Knife. There is no evidence for grinding, but the margins of the artifact have been purposefully flaked. The edges may have either bifacial or unifacial retouch (Mitchell 1971:99). They are usually seen as the predecessors to Ground Slate Knives that become more apparent in the archaeological record during the Locarno Beach period. Some archaeologists would argue that these chipped slate implements are Ground Slate Knife preforms that have been abandoned, but this would be difficult to prove.

It is interesting to note that none were found at Crescent Beach although ten were found at the Locarno Beach site. This pattern does agree with the relative amounts of Ground Slate Knives found on the two sites, namely none at Crescent Beach and 23 at Locarno Beach.

Table V-18 Chipped Slate Narrow-Angle Spherical formed Biface

	Number	Median	Range	Interquartile Range
Locarno Beach site (DhRt 6) Total=10				
Weight	10	43.3	13.2 - 109.0	25.6 - 50.6
Length	10	6.0	5.2 - 8.8	5.3 - 8.1
Width	10	5.4	4.5 - 7.8	4.8 - 6.7
Thickness	10	0.8	0.5 - 1.5	0.6 - 1.3

CSDB:(lb)Chipped Slate Diamond Shaped Biface: Like their chipped stone biface counterparts, these implements have been bifacially worked. There is no evidence of grinding which is why they have been placed in the chipped stone class. They are diamond shaped and may have been hafted.

A single example was recovered from the Locarno Beach site weighing 145.4 g, 11.3 cm in length, 8.1 cm in width, and with a thickness of 1.5 cm. A much smaller object placed in the same class is from the Marpole component at Crescent Beach, weighing only .2 gm, .8 cm in length, .7 cm in width and only .3 cm in thickness.

INCOMPLETE FORMED BIFACES: When a biface was not complete, it was placed into one of the following categories depending on its completeness. If it was not possible to determine between the different types of fragments, the artifact was placed into the unidentifiable biface fragment category.

BPF: Biface Proximal Fragment:

In this group of biface fragments, no base or midsection is present, but the tip is present.

Table V-19 Biface Proximal Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=3 All artifacts are included.				
Weight	3	3.5	1.1 - 11.0	n/a
Thickness	3	.7	.3 - 1.3	n/a

No artifacts were recovered that clearly belong to the Locarno component or in the Marpole layers in 1989-1990.

BMF:Biface Medial Fragment: In this group of bifaces, no tip or base is present, but the midsection can be ascertained.

Table V-20 Biface Medial Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=3 All artifacts are included.				
Weight	3	11.4	10.2 - 25.4	n/a
Width	3	2.7	2.6 - 3.4	n/a
Thickness	3	1.1	1.0 - 1.3	n/a

No artifacts were recovered that clearly belonged to the Locarno or Marpole components in 1989-1990.

BDF:Biface DistaL Fragment: In this group of bifaces a discernible base is present.

Table V-21 Biface Distal Fragments

	Number	Median	Range	Interquartile Range
St. Mungo	No artifacts are present.			
Locarno	Total=3	All artifacts are included.		
Weight	3	3.4	1.1 - 4.3	n/a
Thickness	3	.8	.6 - .9	n/a

A single example was found in the Marpole component in 1989-1990 weighing 4.3 g and was 0.9 cm thick. Its base shape is that of a leaf-shaped point.

UNBF:Unidentifiable Biface Fragment: This is a leftover category in which an object exhibits bifacial working but is too fragmentary in nature to be placed in any other of the biface categories.

CSF:(lb) Chipped Slate Fragment: This is a miscellaneous category of chipped slate tools which are not complete enough to allow placement into other categories. Two specimens were recovered from the Locarno Beach site. One weighed 8.5 g and was 5.6 cm long, 3.3 cm wide and 0.4 cm thick, and the other 3.1 g, 6.9 cm long, 4.6 cm wide, and 1.0 cm thick.

CGSK:(lb) Chipped And Ground Stone Narrow-Angled Retouched Implement: These implements are thought to be the predecessors of ground stone knives, because they appear in the archaeological record prior to ground stone knives and do disappear after Ground Slate Knives become common. They are not as thin as Ground Slate Knives. Sometimes both faces show evidence of marginal retouch, but sometimes only one margin is worked.

Experiments with these implements have not been performed, but it has long been assumed that these artifacts functioned as fish knives. There may have had other functions as well.

Table V-22 Chipped and Ground Stone Narrow-Angled Retouched Implements

	Number	Median	Range	Interquartile Range
Locarno Beach site (DhRt 6)	Total=3			
Weight	3	63.3	37.4 - 69.0	n/a
Length	3	10.7	9.4 - 11.0	n/a
Width	3	6.7	4.5 - 7.1	n/a
Thickness	3	0.6	0.6 - 1.0	n/a

II. Ground Stone Implements

Grinding is a technique which can strengthen a rounded surface and help smooth the surface of an artifact (Crabtree 1972:68). The grinding process may result in extensive and intentional modification (Kornbacher 1989:105). The grinding process requires more time and energy invested in the manufacture of the article compared to unshaped more expedient tools. Because the grinding process does change the original shape of the raw material, all ground stone implements are considered to be shaped rather than unshaped. During Northwest Coast prehistory slate is the preferred raw material for many ground stone tools, and this is reflected in the traditional descriptive names such as Ground Slate Knife. Slate has one

strong cleavage plane and because it can be broken into relatively thin tabular pieces, it was a compatible choice for grinding and abrading.

ABRASIVE STONES: Like Anvilstones, these tools have flat surfaces, but unlike Anvilstones, these surfaces are relatively smooth. Sandstone is the favourite raw material for abrasive stones because of its naturally occurring abrasive surface. Abraders can be placed into one of two sub-categories depending on the degree of edge shaping present.

AS:Abrasive Stone: Those abraders that have been modified through usewear, and not purposely shaped, are placed into this category. This class follows that of Irregular Abrasive Stone category of Mitchell (1971:129) and the Abrasive Stone class of Matson (1976:155).

Often archaeologists recover only fragments of the original artifact and the overall finished shape is not discernible, so it may be that fragments of Formed Abrasive Stones are also included in this category. The amount of use can range from negligible to highly worn. The availability of sandstone may be one reason for differential use.

The flat surfaces of these objects are used to smooth and grind the surfaces of other implements such as Ground Slate Knives (Mitchell 1971:125). No complete examples were found at Crescent Beach during 1989-1990, so the only useful measurement is thickness. These figures appear to be similar to those tabulated by Matson (1976:155) at Glenrose. Three Abrasive Stones recovered by Percy are illustrated in Figure V-13, all from the St. Mungo component.

Table V-23 Abrasive Stone

	Number	Median	Range	Interquartile Range
St. Mungo				
Thickness	5	1.6	0.7 - 3.1	n/a
Locarno				
Thickness	14	1.0	0.5 - 4.8	0.8 - 1.6
Marpole				
Thickness	4	1.4	0.9 - 1.6	n/a

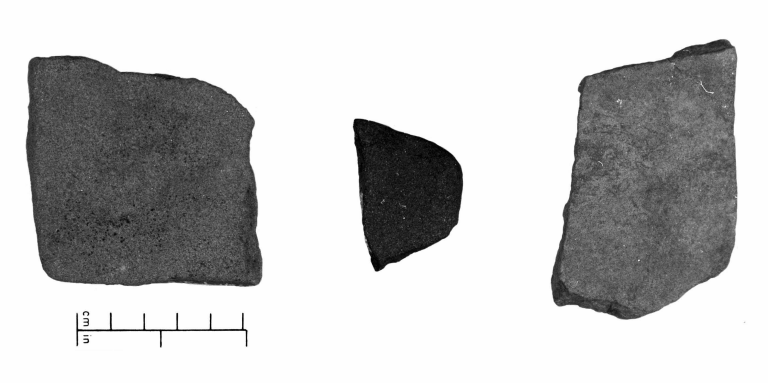

Figure V-13. Abrasive Stones (AS). All from the St. Mungo component and recovered by Percy.

FAS:Formed Abrasive Stone: In this artifact class is placed a special subcategory of objects. These implements have the smooth modified surface of other abrasive stones, but they have also been purposely modified into tear-dropped, bar, or other shaped forms. Incision and other kinds of decoration may also occur. These tend to be made of finer grained sandstone than the irregular abrasive stones.

Mitchell (1971:126) argues that a specific bar shape abrader is found often in Locarno Beach aged deposits to be used as a stylistic marker of the Locarno Beach phase.

Two objects of this class were found in 1989- 1990 at Crescent Beach. One was found (lower right object in Figure V-2) in the St. Mungo component and appeared to be about two-thirds complete, with a weight of 152.4 g, a length of greater than 9.9 cm and a width of 6.8 and a thickness of 1.7 cm. It (11270) has a trapezoidal shape with the large end intact, and worked on both sides with a groove on one face approximately 1 cm in from the edge on all three surviving edges. We classified this as a "Decorated Ground Stone" but it would be equally valid to place it in this class. Another two Formed Abrasive Stones were found in the Marpole component, with the most complete (second from right on lowest row of Figure V-2) also had a trapezoidal shape and was worked on both sides. Somewhat smaller it weighed 59.6 g, was 5.3 cm long, 4.4 wide and 1.6 thick. The second Marpole FAS is seen second from left, and is broken at the top and the bottom and is 3.5 x 3.2 x 0.9 and weighs 16.6 g. In total, five Formed Abrasive Stones were found in the St. Mungo component, with thicknesses ranging from .8 to 2.8 cm, and a median thickness of 1.3 cm. Figure V-14 illustrates three recovered by Percy from the St. Mungo component.

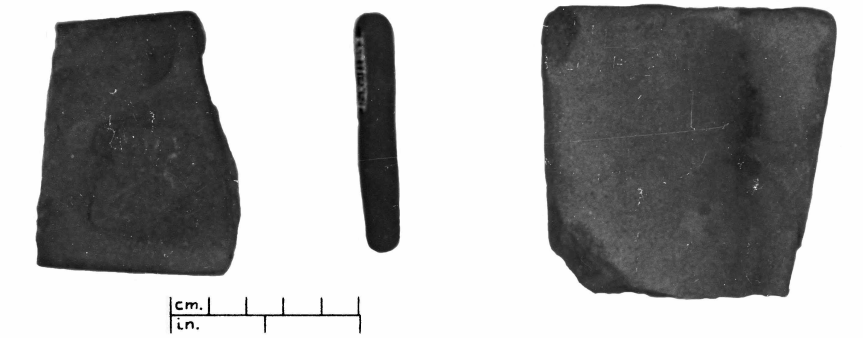

Figure V-14. Abrasive Stones (AS). All three from the St. Mungo component and recovered by Percy.

GSK: (lb) Ground Stone Knife: The earliest Ground Slate Knives were generally thought to be thicker than later knives from the Marpole period. This could change as more and more ground slate appears throughout the Gulf of Georgia and more in depth comparisons between earlier ground slate knives and later ground slate. Characteristically, these implements are thin. Both faces are ground and a bifacially bevelled edge is often present on marginal edges. As Crabtree points out, (1972:68) the grinding process strengthens rounded surfaces so a bevelled edge lasts longer than a straight cutting edge. Many complete examples of this artifact type are ulu-shaped (Matson 1976:148).

The latest experiments with these artifacts have demonstrated that they are very good knives for filleting the fish, but they are not so good for cutting through the skin (Morin 2004). None of these objects were recovered from the Crescent Beach site.

It is notable how thick these are relatively to later Ground Slate Knives. Matson (1976: 147-148) reviews dimensions listed by others, including Mitchell (1971) and finds an interquartile range of 0.2 to 0.4 cm for thickness, and a median at Glenrose of 0.3. The Locarno Beach specimens tabulated below and illustrated in

Figure V-15 thus are much thicker (median of 0.6 cm) than those found elsewhere, usually at later sites. The size of the complete objects are smaller than many of those recorded elsewhere which tend to be between 12 and 15 cm in length. Actually, some of the incomplete ones recovered at Locarno Beach appear to be larger than the relatively thick, intact ones. Incomplete lengths include measurements of 15.3, 10.0, and 9.8 cm.

Although it is tempting to think that there is an evolution of thick to thin Ground Slate Knives, there is little evidence for this at the Locarno Beach site. Although the two lowest stratigraphic examples of this class are 1.1 and 0.8 cm thick, overall, thick knives are located no deeper in this site than thin ones. Still, these thick knives are only known from Locarno components, not in Marpole or later components.

Table V-24 Ground Stone Knives

Locarno Beach (DhRt 6)

	Number	Median	Range	Interquartile Range
Weight	3	40.7	30.9 - 65.4	n/a
Length	3	8.9	8.1 - 8.9	n/a
Width	3	4.4	4.3 - 5.8	n/a
Thickness	23	0.6	0.2 - 1.1	0.5 - 0.8

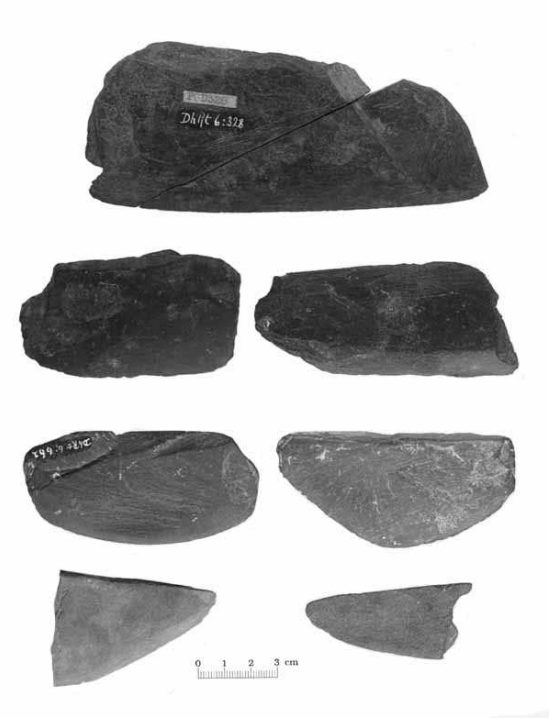

Figure V-15. Ground Slate Knives (GSK).
All from the Locarno Beach site.

SAW:Saw: These implements have a tapered cutting edge with use striae running parallel to the cutting margin (Burley 1989:90). Burley (1989:90) states that these implements are immediate use tools which have not been shaped beyond the preparation of a functional edge. Their function would be that of a sandstone saw which could be used to abrade soft material such as wood or bone.

A single incomplete object from the Locarno component at Crescent Beach belongs in this class. It weighed 46.4 g, was 6.4 cm long, 4.5 wide and .9 thick. Another object (13936) which may also be a small fragment from a Saw was recovered from the Locarno component and weighed 2.7 g, and 2.2 x 1.6 x 0.7 cm.

GROUND STONE POINTS: Within the Locarno Beach artifact assemblage, ground stone points are common and come in a variety of styles. For this analysis the artifacts have been divided into two general classes based on whether or not the implement shows evidence of facetting on either face. The reasoning behind classing the artifacts into these groups is that the un-facetted points are more expedient ground stone tools. Perhaps as our analysis continues, we will be able to ascertain whether un-facetted ground stone points evolved into facetted ground stone points, or whether un- facetted and facetted co-existed. The

outline shapes of some of these artifacts overlap with certain chipped stone points (for example leaf-shaped), but there is a number of new styles not previously seen.

UNFACETTED GROUND STONE POINTS: All artifacts in this category have been bifacially worked on both faces, but there is no evidence for facetting. The edges may be bevelled, but the bevelling does not extend very far from the outer margin.

LSGP:(lb)Leaf-Shaped Ground Stone Point: Like their cousins, chipped stone leaf-shaped bifaces, the actual form of these tools varies within the general leaf-shaped class (Matson 1976:150). The edges may be bevelled, but a stem is absent. Size can vary a great deal. These are found not only in Locarno components but also in St. Mungo components (Matson 1976:150). All three illustrated in Figure V-16 are from the Locarno Beach site.

Table V-25 Leaf-Shaped Ground Stone Points

Locarno Beach (DhRt 6)

	Number	Median	Range	Interquartile Range
Weight	3	10.8	5.1 - 17.6	n/a
Length	3	6.7	5.6 - 9.6	n/a
Width	3	2.2	1.8 - 2.5	n/a
Thickness	3	0.6	0.3 - 0.8	n/a

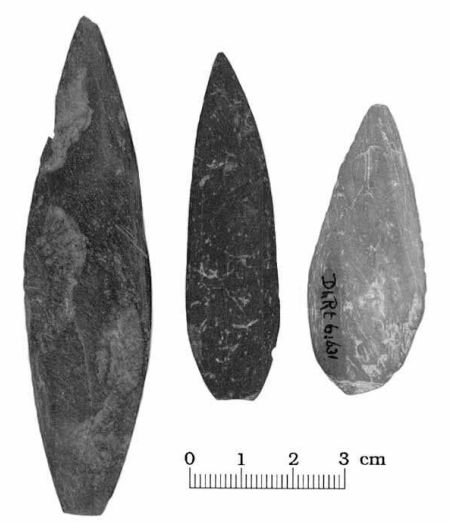

Figure V-16. Leaf-shaped Ground Stone Points (LSGP) Locarno Beach site (DhRt 6:225, 163, 631).

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CSLG: (lb) Contracting Stem Lanceolate-Shaped Ground Stone Point: This group of objects is distinguished from the leaf-shaped category by the presence of a contracting stemmed base, which was probably used for hafting (Kornbacher 1989:109). In this classification, the term 'lanceolate' is used to describe all stemmed points similar in shape to their unstemmed leaf-shaped cousins. Traditionally on the Northwest Coast, the term 'leaf-shaped' is only used to describe unstemmed points.

Table V-26 Contracting Stem Lanceolate-Shaped Ground Stone Point

Locarno Beach (DhRt 6)

	Number	Median	Range	Interquartile Range
Weight	5	19.3	7.3 - 17.9	n/a
Length	5	7.1	5.6 - 8.4	n/a
Width	7	2.3	2.0 - 2.8	2.2 - 2.6
Thickness	7	0.5	0.3 - 0.7	0.3 - 0.6

LCBG:(lb) Lanceolate-Shaped Concave Base Ground Stone Point: These artifacts have a curved concave base and maintain a lanceolate-shape. They are extremely unusual in early prehistoric Northwest Coast artifact assemblages.

A single incomplete example (Figure V- 17, left) was recovered from Locarno Beach (DhRt 6:439). Its weight was 11.6 g, and it was longer than 6.7 cm, but was 2.8 wide and 0.5 cm thick.

SSGP:(lb) Straight-Stem Ground Stone Point: From the Locarno Beach site there are three a distal fragment of this artifact types and their overall shape is a mystery. The stem is long, straight, and parallel. The margins may or may not be bevelled. In addition, a single complete object(DhRt 6:306, Figure V-17) which has a similar stem, but a triangular blade. Its dimensions are 7.2 x 3.6 x 0.5 cm and it weighs 14.7 g. It may be a small example, as the three fragments are from considerable larger objects.

The three lengths of these, all incomplete, are 5.7, 6.0 and 7.2 cm, while the widths and thicknesses are complete at 2.6, 2.8, 3.6 and 0.5, 0.5, and 0.6 cm.

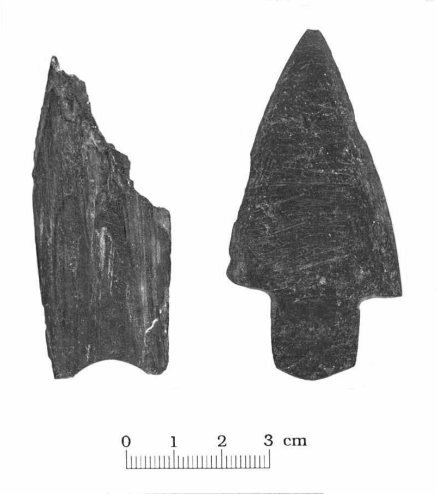

Figure V- 17. Lanceolate Concave Base Ground Stone Point (LCBG). DhRt 6:439 on the left. Straight-stem Ground Stone Point (SSGP; DhRt 6:306) on the right.

INCOMPLETE FORMED GROUND STONE POINTS: Ground stone point fragments that could not be classified into the above categories were placed into one of the following categories depending on what part of the point there were from.

GPPF:(lb) Ground Stone Point Proximal Fragment: Unfacetted proximal fragment of a ground stone point. Although 7 specimens from Locarno Beach (DhRt 6) were placed into this class, only two had widths that were judged to be complete (2.1 and 2.3 cm) and five were judged to have complete thicknesses (0.3, 0.4, 0.5, 0.6, and 0.7 cm).

GPMF:(lb) Ground Stone Point Medial Fragment: Unfacetted medial fragment of a ground stone point.

Neither of the two objects in this class recovered from Locarno Beach (DhRt 6) had any dimensions judged to be complete.

GPDF:(lb) Ground Stone Point Distal Fragment: Unfacetted distal fragment of a ground stone point. Neither of the two objects in this class recovered from Locarno Beach (DhRt 6) had any dimensions judged

to be complete.

FACETTED GROUND STONE POINTS: These artifacts are distinguished by facetting on both faces. Often the outer margins exhibit bevelled edges. The facetting of these implements would require more time and skill than their un-facetted counterparts so they have been placed into their own separate category.

This artifact type has long been associated with the Locarno Beach culture (Borden 1950a; Mitchell 1971; 1990).

LSFP:(lb) Leaf-Shaped Facetted Ground Stone Point: The shape of this implement is that of other leaf-shaped artifacts, the difference being that these tools have a hexagonal cross-section due to the multiple facets ground onto the surface.

Although the only complete artifact(DhRt 6:130) in this class measured 10.1 cm in length (second from the right on Figure V-18), four other incomplete lengths were larger at 11.7, 13.3, 15.0, and 16.7 cm, with the last two being the left two on Figure V-18.

Table V-27. Leaf-Shaped Facetted Ground Stone Point
Locarno Beach (DhRt 6)

	Number	Median	Range	Interquartile Range
Weight	1	14.1	n/a	n/a
Length	1	10.1	n/a	n/a
Width	9	2.5	1.8 - 3.8	2.0 - 2.8
Thickness	9	0.6	0.4 - 1.0	0.5 - 0.8

Figure V-18. Leaf-shaped Facetted Ground Stone Point(FSFP).
(DhRt 6:488, 482, 131, 130, 650, left to right.)

PSFP:(lb) Parallel Sided Facetted Ground Stone Point: A complete example of these tools was not present from Locarno Beach, and it has been suggested that these implements are broken facetted leaf-shaped points, but if they are, they are very large examples, as illustrated in Figure V- 19.

There is no indication of the classic leaf-shape on any of these large fragments, so they have been placed into a separate category. The longest of the seven fragments (not illustrated) was 8.1 cm.

Table V-28. Parallel Sided Facetted Ground Stone Point

Locarno Beach (DhRt 6)

	Number	Median	Range	Interquartile Range
Width	6	2.5	1.8 - 2.7	n/a
Thickness	9	0.5	0.4 - 0.9	0.4 - 0.7

Figure V-19. Parallel sided Facetted Ground Stone Points (PSFP).
(DhRt 6: 139, 429 234, 620, 676, left to right.)

GSDB:Ground Stone Disc Beads: These objects are small, biconically drilled and usually made from ground mudstone, shale, or slate. The perforations are created by drilling half way through the bead on both sides which is known as biconically drilled. Size can vary as can thickness and quality of manufacture. Marginal edges of some beads are well ground and the bead are quite round while some have squared corners and are not as round (Figure V-33).

They are most commonly thought to be have been used for personal adornment. Although Trace (1981) reported this class from his Locarno component excavations at Crescent Beach, it has been usually associated with the later Marpole culture. It was certainly a surprise to find them in the St. Mungo component. The earlier ones are small and our recovery of them in numbers is likely the result of our use of fine screens and water screening. Thom's section later in this chapter gives more details on this abundant artifact category.

Table V-29 Ground Stone Disc Beads

	Number	Median	Range	Interquartile Range
St. Mungo 89/90 Total=508				
Weight	381	.1	.1 - .4	.1 - .1
Length	461	.6	.3 - 1.1	.5 - .6
Width	383	.5	.3 - 1.0	.5 - .6
Thickness	461	.2	.1 - .4	.2 - .2
Locarno 89/90 Total=392				
Weight	374	.1	.1 - 4.0	.1 - .2
Length	392	.7	.3 - 1.7	.6 - .8
Width	374	.7	.3 - 1.6	.5 - .7
Thickness	392	.2	.1 - .5	.2 - .3
Marpole 89/90 Total =245				
Weight	200	.1	.1 - 2.8	.1 - .2
Length	245	.7	.35 - 1.1	.6 - .7
Width	245	.7	.33 - 1.1	.5 - .7
Thickness	245	.2	.1 - .4	.2 - .3

GRIN:Ground Stone Ring: Artifacts in this category are well made. The outer diameter may be slightly irregular and surface finishing varies. The centre hole is unifacially created (Percy 1974:140). Their function is not known but they may be for personal adornment.

A single complete one was found in the Locarno component, weighing 5.8 g, 3.8 by 3.4 cm and 0.5 cm thick.

ADZ:Adze: Another name for items in this category is celts. These implements are made from a hard sturdy raw material such as nephrite. The shape of the objects is achieved through originally cutting a suitable piece of material from the parent rock (using water and sandstone to saw). The general shape and final touches are achieved through grinding and polishing of all surfaces. Percy (1974:130) shows a diagram of an adze and the nomenclature used.

These implements were a very important part of the Northwest Coast prehistoric wood working kit and while they are present in early Northwest Coast prehistory, they become much more common through time. Pebble tools may have been early substitutes for adzes and mussel shell adzes are found in older material before stone celts (Matson 1976:177).

An incomplete one was found in the Locarno component weighing 22.5 g, 5.0 by 4.1 cm and 0.8 cm thick. An additional complete one made of nephrite was recorded from Layer W in the upper part of the St. Mungo component weighing 7.8 cm and being only 3.1 by 1.9 cm and 0.7 cm thick. It is illustrated in Figure V-20. The absence of any other stone adze blades being found in good context in any other Charles component makes this occurrence suspect, as does its presence near the telegraph pole in unit Lse, and being found in the screen. An inferred Blanket Pin was also found above this in what was inferred to be Locarno layers, and blanket pins are only well attested in Late components (see below).

Figure V-20. Blanket Pin (BPIN,12240), Ulna Tool (ULTL 12071,2), Adze(ADZ 12885), and Rodent Incisors (RI, 12092, 13431).

GULF ISLAND COMPLEX IMPLEMENTS: These objects were first discussed in detail by Wilson Duff (1956a), and later by Dahm (1994). The artifacts with few exceptions are made from soapstone which is a soft metamorphosed talc usually called steatite by most geologists. Gulf Island Complex objects are always well-made with highly abraded surfaces. Duff divided the objects into ten different groups, five of which were common. These sub-categories are still in use today (see for example Patenaude 1985). The most common Gulf Island Complex object is the Labret. Today Labrets are usually described separately rather than as part of the complex, but their roots do go back to the Gulf Island Complex categories. These artifacts are universally seen as diagnostic of the Locarno Beach Culture.

GIC:Gulf Island Complex: Placed into this category are all of those implements thought to be Gulf Island Complex because of some similarity to those categories first described by Duff (1956a) and later by Mitchell (1971) and Dahm (1994).

There has been little progress in determining the function of these objects. A total of three incomplete ones (illustrated in the lower row of Figure V- 21 have been found in the Locarno component at Crescent Beach; three were found in 1989-1990, weighing 2.3, 7.2, and 2.7 g, and having largest dimensions (incomplete) of 2.4 , 3.4, and 2.2 cm, and incomplete widths of 1.7, 2.0, and 1.6 cm, with thicknesses of 1.1, 1.1, and 0.7 cm. The two fragments on the left are of steatite, and are not from the same object. It is likely that these two are from what Dahm (1994) calls Composite Ornament Parts, although one might be from a Labret. The one on the right is comprised of a fine-grained sandstone. Three were recovered from the Locarno Beach site (DhRt 6) and are illustrated in the top row of Figure 21. One was incomplete (the one on the right of Figure V- 21) with a weight of 4.1 g, and the three dimensions of 3.1, 1.8, and 0.5 cm. The other two are listed in Table V-29.

Table V-30 Gulf Island Complex

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=3				
Weight	2	n/a	6.9 - 14.3	n/a
Length	2	n/a	2.8 - 3.4	n/a
Width	2	n/a	1.8 - 2.3	n/a
Thickness	2	n/a	0.7 - 1.1	n/a

Figure V-21. Gulf Islands Complex (GIC). Top Row: DhRt 6: 280, 314, 249; Bottom Row DgRr 1: 1178, 11261, 13936.

LAB:Labret: As previously mentioned, Labrets were originally included in the Gulf Island Complex, but due to their frequency, occur outside the Gulf Islands, and their function is known, they have been placed in their own separate category. These artifacts are made from other raw materials beside soapstone, including shell and wood. Labrets come in many styles including t- shaped (Matson 1976:157), hat-shaped, and elliptical-shaped. The styles may vary, but all require that the lower lip be perforated to allow insertion (Stewart 1973:92).

Their function was one of personal ornamentation. Only labrets made of stone are placed in the LAB class. For a description of Bone Labrets see Bone Artifacts.

Labrets are commonly found in Locarno Beach and Old Musqueam subphase Marpole components, although there is some evidence they may have occurred earlier (Matson and Coupland 1995:115). All the Crescent Beach labrets fall into what Dahm (1994) refers to as the 'button' type, which is equivalent to the hat-shape' terminology used by others. Figures V- 22 and 23 illustrate a number of these items, the three on the top right column of Figures V- 22 and 23 illustrating those from Crescent Beach and those on the left from the Locarno Beach site. Dahm (1994:34) gives averages for the dimensions of twelve 'button' labrets from Pender Island sites which appear to overlap with the Crescent Beach examples.

Table V-31 Labrets

	Number	Median	Range	Interquartile Range
St. Mungo None found.				
Locarno Component (1989/1990 only) Total=2				
Weight	1	17.0	n/a	n/a
Length	1	5.0	n/a	n/a
Width	1	2.0	n/a	n/a
Thickness	2	n/a	1.1 - 1.4	n/a

	Number	Median	Range	Interquartile Range
Marpole Component Total=2				
Weight	1	6.7	n/a	n/a
Length	1	2.0	n/a	n/a
Width	1	1.1	n/a	n/a
Thickness	2	n/a	1.3 - 1.4	n/a

Figure V-22. Labrets, Stone (LAB) and Bone (BLAB) Left column, Locarno Beach site (DhRt 6:423 (LAB) 286 (BLAB); Right, DrRr 1: 11746 (LAB, Locarno), 13395(LAB, Marp.), 12592 (LAB, Locarno), 13278 (BLAB), Locarno.

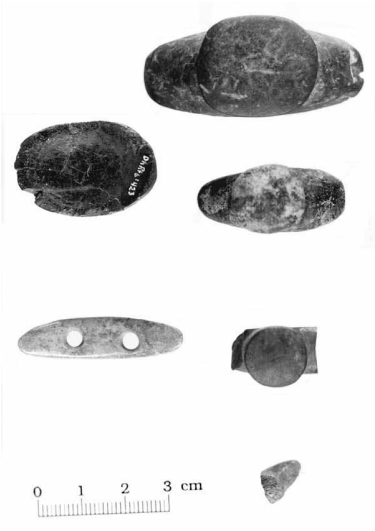

Figure V-23. Labrets, Stone (LAB) and Bone (BLAB), as in Figure V-22.

DGS:Decorated Ground Stone: One particularly interesting subcategory of this artifact class is a group of objects found in the St. Mungo components at the St. Mungo and Glenrose Cannery sites (designated as 'CQ') as illustrated by Matson (1976:126) and Matson and Coupland (1995:104). These artifacts are made from phyllite or schist which are both metamorphosed slate. Phyllite has a characteristic sheen due to its mica content. Like slate both phyllite and schist have perfect cleavage in one direction (Mottana et al. 1978:353). These pieces of Decorated Ground Stone are flat with incised lines on the peripheral edges, and with either small incised pits or lines drawn around the circumference inside the border (Matson 1976:153).

The implements of this specialized sub-class of Decorated Ground Stone, break with any amount of regular use, because of nature of the raw material, which implies that their function was not one of every day use. Kornbacher (1989:114) points out that objects included in the general class of Decorated Ground Stone should demonstrate a dominant decorative element, which in the analyst's judgment implies that these objects were not strictly utilitarian in nature, but served some aesthetic function.

A single dubious, incomplete example of the St. Mungo variety (CQ) was found in the St. Mungo component at Crescent Beach (Figure V-2 bottom left). It (DgRr1:11926) weighs 60.1 g and is 5.9 x 4.6 x 2.3 cm, with only the thickness apt to being complete, but is of the typical schist. The straight bottom edge (in Figure V - 2) is highly polished indicating that this object maybe a fragment of something with a very

different function.

MGS:Miscellaneous Ground Stone: These artifacts show evidence of surface grinding and abrading but their incomplete nature does not make further identification possible. Some are unique and their exact nomenclature is uncertain.

A single incomplete object is from the St. Mungo component, weighing 154.0 g, and a length of 10.6 g, with a width of 6.8 and a thickness of 1.5 cm, with only the last measurement a complete one. Another incomplete object was found in the Locarno component at Crescent Beach with a weight of 23.0 g, and the other three dimensions of 5.4, 3.9, and 1.0 cm. In addition the possible saw (DgRr1:13936) could also be placed in this class.

PECKED AND GROUND STONE IMPLEMENTS: The combination of pecked and ground stone processes results in an artifact with irregularly pitted or crushed areas on its surface due to a special type of percussion flaking called 'pecking'. Pecking the surface of stone involves delivering repeated blows with such intensity that the surface of the object is pulverized (Kornbacher 1989:103). Pecking is used to achieve the preliminary desired shape, an abrader is then used to ground the roughened surface to a smoother finish (Stewart 1973:41). The pecking and grinding process completely alters the original shape of the raw material, therefore, all pecked and ground stone is considered to be shaped, rather than unshaped.

MORT:Mortar: Names for artifacts in this category include cobble mortar (Mitchell 1971:123), or bowl (Ham et al. 1986:78). They are usually well-made from granite or other similar igneous raw material. The amount of pecking used to create the inner depression can vary. The degree of shaping on the outer surface also varies.

It is possible that the smaller implements with shallower depressions served exclusively as mortars in which paint could be ground, but there is no clear division between mortars and bowls. The two from Crescent Beach are made on small cobbles, from the Locarno component and illustrated in Figure V- 2. One of the few others described in the Gulf of Georgia literature was from the Locarno component from the Montague Harbour site, but it is much larger, being made on a cobble of 15 x 12 x 6 cm (Mitchell 1971:123).

Table V-32 Mortars

	Number	Weight	Length	Width	Thickness.
St. Mungo. No artifacts are present.					
Locarno	2	85.0, 85.4	5.0, 5.2	4.6 - 4.9	2.1, 2.5

No members of this class were recovered from the Marpole component in 1989-1990.

III. Bone And Antler Implements

Bone, an organic raw material, is more fragile than inorganic stone. Artifacts made from bone most often bear evidence of manufacture on their surface, usually singes of grinding and/or abrasion. Unshaped bone artifacts may be nearly impossible to distinguish from faunal remains because the only evidence for working may be an unnatural wear pattern on the artifact's surface. Often only an experienced faunal analyst can tell the difference between slightly modified artifacts, and faunal remains. Bone artifacts are usually split/sectioned or splintered fragments removed from the parent material.

This classification of bone artifacts (as well as the antler artifacts that follow) assigns functional names to the objects that have an ethnographic analogy. Function-free names for bone and antler objects have not yet

been created on the Northwest Coast. More experiment in bone tool manufacture is required before such a step can be implemented.

This classification focuses on classifying bone and antler tools, therefore, objects that are the by-product of bone and antler tool manufacturer are not included.

SHAPED BONE TOOLS: Like all other shaped tools, the original shape and texture of the bone's original material has been altered significantly. In comparison to inorganic stone, bone is more pliable, and can be shaped through many different processes including cutting, chopping, grinding, engraving, and drilling (Stewart 1973:110).

MINIMALLY WORKED BONE: These objects have been minimally shaped or modified. They are placed into sub-categories depending on whether they are end or medial fragments. Dividing these objects into these types of categories allows for comparison of artifact breakage patterns.

WBEF:Worked Bone End Fragment: In this category, broken shaped bone tool end fragments have been included. They have been placed in this category because there is not enough information provided from the fragment to place it into a more specific artifact class, but there is definite evidence of shaping.

Table V-33 Worked Bone End Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=35				
Weight	35	2.8	.1 - 23.2	.7 - 4.9
Length	35	4.5	1.1 - 13.1	3.2 - 6.9
Width	35	1.1	.3 - 5.7	.7 - 1.8
Thickness	35	.5	.2 - 2.3	.4 - .8
Locarno Total=7				
Weight	7	.5	.3 - 3.9	.3 - 2.3
Length	7	2.6	1.6 - 10.8	1.8 - 4.1
Width	7	.7	.6 - 1.1	.7 - .8
Thickness	7	.4	.3 - .5	.3 - .5
Marpole 1989-1990 Total=5				
Weight	5	.7	.1 - 3.5	n/a
Length	5	3.0	1.7 - 4.0	n/a
Width	5	.9	.4 - 2.0	n/a
Thickness	5	.3	.2 - 1.6	n/a

WBMF:Worked Bone Medial Fragment: This category includes broken shaped bone tool medial fragments. They have been placed in this category because there is not enough information provided from the fragment to place it into a more specific artifact class, but there is definite evidence of shaping.

Table V-34 Worked Bone Medial Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=80				
Weight	80	2.2	.1 - 29.1	1.1 - 3.9
Length	80	4.6	1.3 - 13.0	3.3 - 5.8
Width	80	1.1	.2 - 6.2	.8 - 1.5
Thickness	80	.5	.2 - 1.6	.5 - .7
Locarno Total=16 All artifacts are included.				
Weight	16	2.1	.3 - 16.0	1.1 - 4.4
Length	16	4.3	2.5 - 9.1	3.4 - 6.6
Width	16	1.2	.5 - 7.0	.8 - 1.8
Thickness	16	.6	.3 - 1.5	.5 - .7
Marpole 1989/1990 Total=2				
Weight	2	n/a	.8 - 6.8	n/a
Length	2	n/a	2.2 - 6.8	n/a
Width	2	n/a	1.0 - 1.7	n/a
Thickness	2	n/a	.5 - .8	n/a

RI:RODENT Incisor: These objects are more commonly known as beaver teeth. The tips usually display a great deal of polish or chipping from utilization that creates a different shape than that from 'natural' wear (Matson 1976:173). Sometimes there is no further modification, sometimes the artifact is ground or decorated. Evidence of wear from hafting may also be present.

The natural hardness of the incisor makes it a perfect tool for precision wood carving and incising.

Three of this artifact class were found in 1989-1990 at Crescent Beach, all from the St. Mungo component. Completeness is difficult to judge with these objects, which had lengths of 4.4, 2.8, and 1.4 cm, and widths of 0.8, 0.8 and 0.5 cm. Thicknesses were 0.8, 0.8, and 0.5 cm. The two largest are shown on the upper-right of Figure V- 20. It is likely that the largest is complete (Matson 1976:173) and the smallest is definitely a fragment; the medium sized one (13431) is hard to evaluate. All three have the ground distal ends of teeth modified for use as engraving tools.

ROUND BONE OBJECTS: These objects are divided into subcategories based on size and degree of surface area. Small objects with minimal surface areas, are placed into the Bone Bead category while the larger objects with minimal surface areas, are placed into the Bone Ring category. Large objects with high surface areas are further divided based on the presence of perforations present or absent on the uppermost surface. Only Bone Beads were found at Crescent Beach and Locarno Beach.

BEAD:Bone Bead: Uncommon, varying degrees of finish and size, but usually about the same size as stone disc beads, but can also come in longer, more cylindrical style. Bird bone is the dominant raw material. It is easy to make beads from bird bone because the bone is naturally hollow and can be snapped to create the desired size.

Their function is one of personal adornment.

Table V-35 Bone Beads

	Number	Median	Range	Interquartile Range
St. Mungo Total=4				
Weight	4	.3	.2 - .4	n/a
Length	4	1.0	.8 - 1.1	n/a
Width	4	.9	.8 - 1.1	n/a
Thickness	4	.2	.2 - .3	n/a

Locarno Component: No artifacts are present.

Marpole 1989-1990 Total= 1				
Weight	1	.1	n/a	n/a
Length	1	0.7	n/a	n/a
Width	1	0.7	n/a	n/a
Thickness	1	.2	n/a	n/a

WHST: (lb)Whistle: Objects in this category are long hollow sections of bone (usually bird) with one or more perforations made by incising, located on one surface of the implement (Stewart 1973:150).

They are musical instruments and while ethnographic data presents them as functioning largely in a ceremonial context, they could plausibly function in any context where music was desired.

The only object in this class is from the Locarno Beach site (DhRt 6). It weighs 1.8 g, and has dimensions of 7.9 by 0.8 cm in length and width, and about 0.6 cm thickness. It is probably made on a large bird long bone.

AWLS: This is a large artifact category that often dominates the bone tool assemblage (after worked bone and antler fragments have been removed). As noted by Percy (1974:174), objects that are classified as awls are done so because there is a great deal of polish or use-scoring at the tip of the implement with a noticeable absence of use-wear polish on the remaining portions of the object. This use-wear polish is the most important attribute when separating awls from other pointed bone objects. The two major categories of awls (Formed and Splinter) are separated according to the degree of work present on the awl and the overall finishing of the object. Note that no Formed Awls were excavated from the Crescent Beach excavations. Besides these two major categories of awls there are three sub-categories that are all defined according to specific raw materials.

SAWL:Splinter Bone Awl:The major difference between these objects and Formed Bone Awls concerns the degree of purposeful modification undergone. Splinter bone awls do not exhibit the all-over surface modification of formed bone awls. Their manufacture is much more expedient. There may be evidence for hafting.

Their functions are assumed to be of a piercing nature or as a tool used in basket making, or matting manufacturing (Ham et al. 1986:60).

Table V-36 Splinter Awls

	Number	Median	Range	Interquartile Range
St. Mungo Total=15				
Weight	0	n/a	n/a	n/a
Length	8	9.9	3.6 - 12.9	7.3 - 12.2
Width	5	1.2	.8 - 1.8	n/a
Thickness	8	.7	.2 - 1.3	.3 - .9

Locarno Total=4, but only one could be measured with a width of 1.2 and a thickness of 0.6 cm.

Marpole (1989-1990) Total=1, with a width of 0.5 and a thickness of 0.2 cm.

SRA:Split Rib Awl: This is a specialized subgroup of splinter awls. These implements are made by dividing wapiti ribs through their longest section in order to form two flat sections of bone. One end is smoothed while the other is ground to a point (Percy 1974:180). This is an unusual type of awl, not found at the Glenrose or St. Mungo sites, but fairly abundant in Percy's excavations at Crescent Beach. None were found in the 1989-1990 excavations. Four examples are illustrated in Fig. V- 24, all from the St. Mungo component excavated by Percy.

The function is assumed to be similar to that of other awls.

Table V-37 Split Rib Awls

	Number	Median	Range	Interquartile Range
St. Mungo Total=6				
Weight	0	n/a	n/a	n/a
Length	1	14.3	n/a	n/a
Width	3	1.1	.7 - 1.9	n/a
Thickness	4	.5	.3 - .7	n/a

No artifacts belonging to this class were found in Locarno Component.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

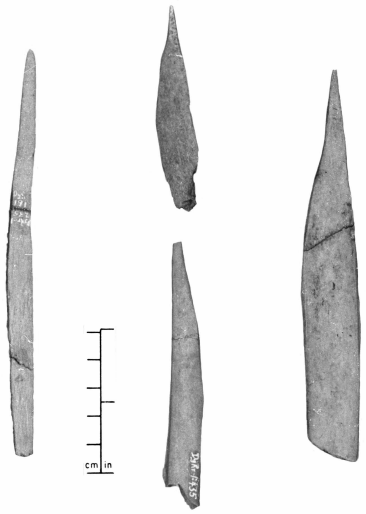

Figure V-24. Split Rib Awls (SRA). All from the Percy St. Mungo Component.

MAWL:Metapodial Awl: This is a specialized subcategory of awls in which the artifact has been formed from the cannon bone of a mammal (often deer). While surface treatment varies, the surface is extensively shaped with a tapered point. These tools are very distinctive and easy to separate from other awl types. There may be evidence of hafting.

Once again, their functions are assumed to be similar to those of other bone awls largely, because of the overall similar shape to other awls.

A single example (DgRr-1:12440) was recovered in 1989-1990 from the upper part of the Locarno component at Crescent Beach. It weighed 3.3 g, was only 5.3 cm long and 2.1 cm wide but was 1.5 cm thick. It is relatively complete, but clearly worn down to a sharp stub.

FAWL:Formed Split Bone Awl: These objects are split and sectioned bone pieces which have been ground to form long thin implements with a tapered points (Ham et al. 1986:60). The cross-section of the tip may be circular or rectangular (Matson 1976:159). The size varies with some being very heavy and large. A small group of these objects are parallel sided (Matson 1976:162). The degree of abrasion and surface finishing differs, but these artifacts exhibit more surface modification than splinter bone awls.

Ham et al. (1986:60) mention possible functions of these artifacts including: skin working, basketry, matting, blanket making, and 'maintenance activities'. They are usually seen as a woman's tool although we may be incorrectly defining their function and their users.

Table V-38 Formed Bone Awls

	Number	Median	Range	Interquartile Range
St. Mungo Total=12				
Weight	3	7.8	4.0 - 14.1	n/a
Length	8	12.9	5.4 - 17.0	6.8 - 15.8
Width	4	1.6	.7 - 2.1	n/a
Thickness	8	.6	.4 - 1.0	.5 - .9

Locarno Total=3, but only one set of measurements; a width of 1.2 cm and a thickness of 0.6.

Marpole 1989-1990 Total=1, tip end fragment, 5.2 x 1.2 x 0.5 cm and weighed 2.6 g.

KSI:(lb) Knife Slitting Implement: Burley (1989:110) describes these tools as having a flat dorsal and ventral surface with thin tapered lateral margins. They are manufactured from heavily modified long bone splinters.

Function is unknown.

Two objects belonging to this class were recovered from the Locarno Beach site (DhRt 6), neither complete. One (DhRt 6:203) weighed 2.1 g, 6.8 cm long and 1.0 cm wide, and 0.3 cm, but only the thickness is clearly complete. The other (DhRt 6:298) was 2.9 g, 7.2 cm long, 1.2 cm wide, and 0.4 cm thick, with no dimension complete.

BAWL:Bird Bone Awl: As with metapodial awls, these implements have been classified together because of a similar raw material, in this case, bird bone of varying size. One tip is well ground and polished to a tapered point. Wear polish is concentrated on the tip, while the opposite end is often broken. Usually bird bone awls are unmodified except for the tip (Burley 1989:108).

It is not unreasonable to assume that these implements may have been made with a more specialized purpose in mind, because they are not as robust as the other awl types. Perhaps their functions were more focused on piercing soft material. Two recovered by Percy are in the top right of Figure V- 25 both from the St. Mungo component.

Table V-39 Bird Bone Awls

St. Mungo Total=2, but only one set of measurements; a width of 0.7 and a thickness of 0.6 cm.

Locarno Total=1 complete, 0.2 x 2.6 x 0.4 cm and weighs 0.2 g.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

ULNA:Ulna Awl: This category is another specialized bone awl subcategory. The implements in this category have been made using a deer bone ulna. This class was first defined by Mitchell (1971:133) and later by Matson (1976:162) and those definitions are followed here. The use-wear polish on these objects is concentrated at the tip like other bone awls. There may be evidence of hafting. Their function is not known.

The sole example (DgRr 1:12071/2) that could be measured was found in 1989-1990 and is seen at the bottom in Figure V- 20. The second one is illustrated in Figure V- 25, lower right; it is from the St. Mungo component and recovered by Percy.

Table V-40 Ulna Awls

St. Mungo Total=2, with one complete (11.8 x 3.0 x 1.3 cm and 13.3 g).

Locarno No artifacts of this class were found.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

ULTL:Ulna Tool: Incomplete fragments of ulna implements. Because of fragmentary condition one cannot discern from wear pattern possible artifact classification. If the distal end is broken, it is difficult to determine the possible function.

Many archaeologists disagree on the functions of ulna tools that do not easily fit into the category of Ulna Awl. For example, Burley (1989:108) writes about ulna knives, and miscellaneous ulna tools.

A single fragmentary object fitting this class was recovered by Percy from Crescent Beach. It weighed 3.0 g, and had dimensions of 4.7, 2.4, and 0.5 cm and is shown in Figure V- 25, lower left, from the St. Mungo component.

BPIN:Blanket Pin: Complete objects round in cross section, very thin, and tapering to a point, are usually classified as Blanket Pins. Decoration on the proximal portion is optional, but the surface is usually well polished. These implements are distinguished from needles by the lack of an incised or drilled hole at the proximal end.

They were used to 'pin' together the two front sections of a blanket worn over the shoulders.

One is recorded in Unit Lse, layer R2, an inferred Locarno layer, but this area is adjacent to the telegraph pole next to the south end of the South Trench, and is inferred to be intrusive from later layers as blanket pins are usually found only in Late components (Mitchell 1971: 49, 1990:346-7). A stone adze blade, also apparently intrusive was recovered slightly lower in this unit (see above.) This broken object is illustrated in Figure V- 20.

BHKO: Bone Hook Object: This specimen appears to be an incomplete small ground Bone Hook. The basal end is blunted and the distal end is pointed. The hook may have turned upwards to form an angled shank.

The single object is from the Crescent Beach St. Mungo component and weighs 0.8 g, is 2.7 cm long, 0.8 wide, and 0.3 thick.

Figure V-25. Pointed Bones. Upper left-most two, Bipoints (BIPT), upper right-most two, Bird Bone Awls (BAWL), Middle Row, Bone Unipoints (UNPT), Bottom left,Ulna Tool (ULTL), Bottom right, Ulna Awl (ULNA). All recovered by Percy, all from St. Mungo component except for ULTL and left BIPT which are from the Locarno component.

SMALL POINTED BONE OBJECTS: Often implements that do not fit into the Awl category are placed into one of the following categories. These artifacts are smaller than awls, circular in cross section, well formed with abraded surfaces, and usually show evidence of hafting. These implements are separated based on the presence or absence of shaped tips.

UNPT:Unipoint: Artifacts in this category are small rounded bone splinters. One tip is shaped into a sharp point while the opposite tip is blunt. Length can be as much as 7 cm.

A functional interpretation is not known, but Ham et al. (1986:103) state they may be arming points for three pronged fishing spears. Two are illustrated in the middle of Figure V- 25, both from the St. Mungo component and recovered by Percy.

Table V-41 Unipoints

	Number	Median	Range	Interquartile Range
St. Mungo Total=4				
Weight	2	n/a	.2 - 1.7	n/a
Length	3	3.9	3.4 - 6.0	n/a
Width	3	.7	.3 - .9	n/a
Thickness	3	.4	.2 - .4	n/a
Locarno Total=2				
Weight	1	1.7	n/a	n/a
Length	1	3.9	n/a	n/a
Width	2	n/a	.9 - .9	n/a
Thickness	1	.4	n/a	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

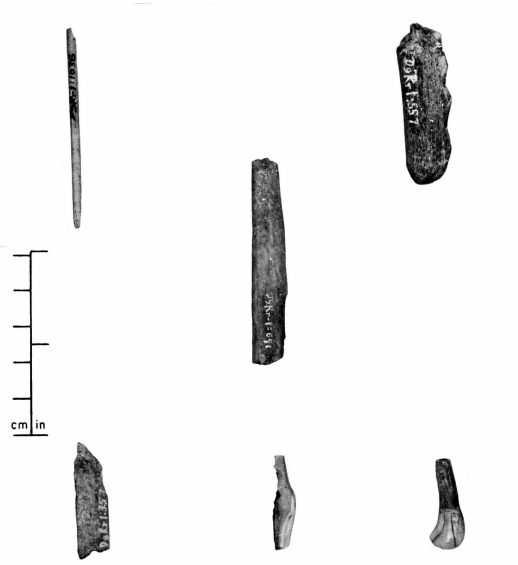

Figure V-26. Miscellaneous Bone and Teeth Artifacts. Upper left, Bone Drill (BDRL), Lower left Bone Pendant (PBP), Lower right, two Teeth Pendants (TPND, St. Mg.). Middle Fragmentary Unilaterally Barbed Harpoon (FUB,bone), Upper Right Unilaterally Barbed Harpoon (FUBA).

BDRL:Bone Drill: These implements are usually made from split deer cannon bone and have been ground to form a nearly round point at the distal end. Wear pattern includes fine scratches at the distal end (Ham 1982:220-230).

This wear is consistent with the damage expected from drilling wood. Ethnographically bone drills were hafted in a wooden handle for use in woodworking (Barnett 1955:111).

Percy recovered a single object which fits this class from the St. Mungo component at Crescent Beach. It weighed 0.5 g, and was 5.6 cm long and was about 0.3 cm in diameter and is illustrated in the upper left of Figure V- 26.

PBOF:Pointed Bone Object Fragment:

Small broken pointed objects that could not be furthered classified into Unipoint and Bipoint categories were placed here.

A single fragment from the Crescent Beach Locarno component was placed into this class. It weighed .3 g, was 3.4 cm long, .4 cm wide, and .3 cm thick.

BIPT:Bipoint: The tips of both ends of these objects are pointed. They are somewhat rectangular in cross section and surface finish is not usually complete. Constrictions for attachment are not present (Matson 1976:167).

Ham et al. (1986:104) suggest that these objects may be gorge hooks used on set lines for flounder. Figure V- 25 illustrates two on the upper left, one from Locarno and one from St. Mungo components, both recovered by Percy.

Table V-42 Bipoints

St. Mungo Total=1 complete, 3.6 x 0.3 x 0.2 cm and 0.2 g.
Locarno Total=1 complete, 4.3 x 0.4 x 0.2 cm and 0.3 g.
No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

NDL:(lb) Needle: Implements in this category have either an incised or drilled hole but the hole was not created for suspension purposes. Instead, the hole was created so a small string of twine or sinew could be threaded through the hole.

These objects could sew together soft material such as skin and their use-wear polish suggests such a function.

Table V-43 Needles

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=3 complete				
Weight	3	2.6	2.2 - 3.2	n/a
Length	3	10.1	8.9 - 15.0	n/a
Width	3	0.7	0.7 - 0.7	n/a
Thickness	3	.3	0.2 - 0.4	n/a

BONE CHISELS, WEDGES, AND POINTS: Objects in these categories have been given many different names including Bone Wedges, Chisels, gouges, bark priers, and points. From documentation alone, it is difficult to discern what the analyst is defining in this surprisingly large and very diverse artifact group. In this report, these artifacts will be defined partly on the basis of their manufacture and surface polish. Percy describes how most of these artifacts were made:

> Land mammal bones with one articular end (also known as an epiphysis) still attached were split into halves and then worked to the desired form. This method would lay bare varying amounts of medullary cavity which in some cases have been ground smooth [Percy 1974:167].

The finished shape of these artifacts are similar in that they are flat, smooth, polished pieces of bone, but in this typology artifacts have been separated into different sub-categories depending on whether or not the middle section of the bone contains a central channel which sometimes is, but not always. a medullary cavity. These objects are common in St. Mungo and Locarno components.

BONE CHISELS: These objects are the most numerous subcategory of the larger Bone Chisels, Wedges, and Points categories. Since not all Bone Chisels have been made from bone with a medullary cavity, it can be difficult to tell if a channel was present. Usewear polish is concentrated at the tip and there is evidence of wear, but not a great deal of battering. They are abraded and worked on the non-channelled surface.

BCUT:Bone Chisel With Unilaterally Tapered End: The cross section is rectangular and they taper unilaterally to a flattened point. There are different shapes of tips ranging from rounded to squared, with the rounded being more common. On many of these objects, distinctive ridges are present which run the entire length of the object on both sides of the central cavity, but in some cases, these ridges have been smoothed either by wear or in manufacture. Figure V- 27 illustrates six relatively complete ones recovered by Percy, with the upper right and left being from the Locarno component and the rest from St. Mungo. Figure V- 28 illustrates two from the 1989-1990 excavations on the left.

Opinions concerning function vary and include: use as specialized wedges, antler crafting implement, or bark prier (Ham et al. 1985:47; Matson 1976:164; Mitchell 1971:133, and Percy 1974:167). Ham et al. (1985:50) illustrates how they may have been hafted, a subject worthy of further investigation.

Table V-44 Bone Chisels with Unilaterally Tapered Ends

	Number	Median	Range	Interquartile Range
St. Mungo Total = 10				
Weight	0	n/a	n/a	n/a
Length	4	9.8	6.8 - 11.9	n/a
Width	2	n/a	2.3 - 2.6	n/a
Thickness	4	1.0	.6 - 1.0	n/a

Locarno Total = 5 No artifacts complete enough to measure are present.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990

BCBT:(lb) Bone Chisel With Bilaterally Tapered End: The tips of these artifacts have been bilaterally ground and brought to a tapered point that is very similar to the tapered ends of some adzes. They have been manufactured in a manner similar to Bone Chisels With Unilaterally Tapered Ends.

These implements may have had many functions. They were probably a part of the wood working kit.

Three objects belonging to this class were recovered from the Locarno Beach site (DhRt 6). One was incomplete in all dimensions and weighed 11.7 g, and was 6.8 long, 2.2 cm wide and 0.8 cm thick. Another was incomplete in all but thickness and weighed 8.2 g, by 8.1 cm and 1.2 cm and 0.7 cm thick. The most complete one weighed only 1.3 g, and had an incomplete length of 2.9 cm, but had intact widths and thicknesses of 1.0 and 0.5 cm.

BWED: (lb) BONE WEDGE: Similar manufacture techniques on the same kind of raw material has created an implement similar to a Bone Chisel, and artifacts in this artifact class may be a specialized sub-category of Bone Chisels. The distal ends are not as well modified as those of bone chisels, while the proximal ends show signs of heavy use.

The wear pattern on these tools suggests heavier wear and battering on the proximal end similar to the usewear pattern seen on Antler Wedges, which is why these objects have been called Bone Wedges.

A single fragmentary object from the Locarno Beach site (DhRt 6:237) has a weight of 11.6 g, is 8.8 cm long, 1.7 cm wide and 0.9 cm thick.

BONE POINTS: Bone points have a different proximal tip compared to bone chisels and wedges. The tip is not an exaggerated taper like the aforementioned objects. Bone points have been sub-divided depending on the presence or absence of a central channel. This kind of categorizing is somewhat unusual, but holds together well. Another major differentiation between these objects is whether or not there is facetting present. Some of the Locarno Beach Facetted Bone Points are replicas of their ground stone counterparts.

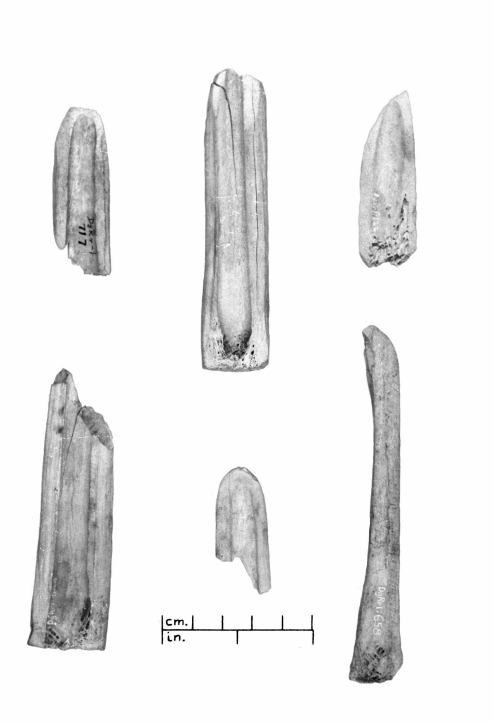

Figure V-27. Bone Chisels with Unilaterally Tapered Ends (BCUT). Upper Left and Upper Right, Locarno, the rest, St. Mungo, all recovered by Percy.

Figure V-28. BCUT (left two, 8201, 13355, both St. Mungo) and Unident. Wedge etc. Fragments (10624 UWCF, Locarno, probably from a BCUT, 8268 WBEF St. Mungo, 7357 UWCF, Marpole).

NFPT: (lb) Non-Facetted Bone Point Lanceolate Shaped: These objects have been ground very flat with no central channel found on the dorsal surface. These are much larger than their oblique facetted counterparts. Most objects show evidence of hafting with all being shouldered.

Table V-45 Non-Facetted Bone Point Lanceolate-Shaped

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=5				
Weight	2	n/a	8.0 - 10.8	n/a
Length	2	n/a	10.7 - 13.0	n/a
Width	3	2.6	2.3 - 2.9	n/a
Thickness	3	0.6	0.5 - 0.6	n/a

NFPM:Non-Facetted Point With Central Cavity: These are smaller than their facetted point counterparts. They have varying degrees of surface finishing, generally not as complete as the facetted points with central cavities. These implements are also thicker and blunter than their facetted counterparts. Percy recovered one from the Locarno component which is illustrated as in Figure V- 29 in the middle of the top row; the other four illustrated are those he recovered from the St. Mungo component.

Table V-46 Non-Facetted Points With Central Cavity

	Number	Median	Range	Interquartile Range
St. Mungo Total=4				
Weight	0	n/a	n/a	n/a
Length	2	n/a	8.8 - 9.8	n/a
Width	1	1.4	n/a	n/a
Thickness	2	n/a	.5 - .7	n/a
Locarno, Crescent Beach Total=1, incomplete.				
Weight	1	5.6	n/a	n/a
Length	1	8.9	n/a	n/a
Width	1	1.2	n/a	n/a
Thickness	1	.5	n/a	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

Locarno Beach (DhRt 6) Total=6				
Weight	2	n/a	2.3 - 7.5	n/a
Length	2	n/a	4.3 - 8.3	n/a
Width	4	1.1	1.0 - 1.3	n/a
Thickness	5	0.7	0.5 - 2.0	n/a

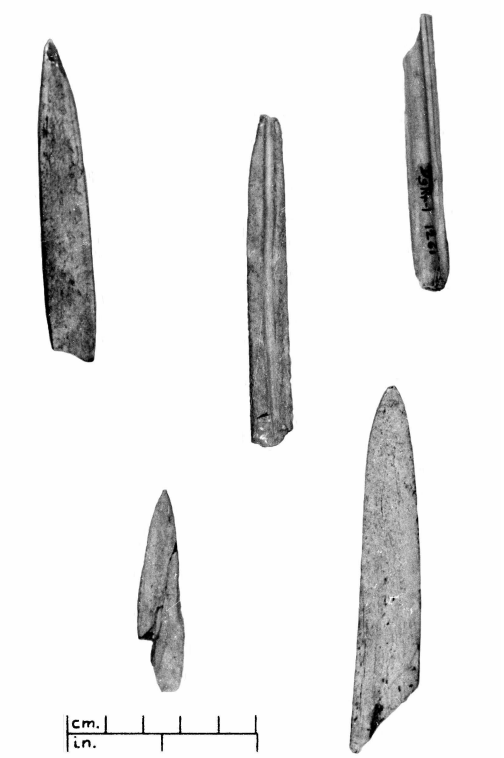

Figure V-29. Non-Facetted Points with Central Cavity. (NFPM). Middle of top row, Locarno, the rest St. Mungo, all recovered by Percy.

FBPT: (lb) Facetted Bone Point: Mitchell (1971:130) provides examples of this artifact type which has in the past been considered a stylistic marker of the Locarno Beach period. The artifact has been ground flat on the ventral and dorsal surfaces with no central channel present on the dorsal surface. Evidence for hafting may or may not be present.

Table V-47 Facetted Bone Points

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=4				
Weight	2	n/a	6.1 - 6.3	n/a
Length	2	n/a	6.6 - 8.1	n/a
Width	4	1.8	1.5 - 2.1	n/a
Thickness	4	0.6	0.5 - 0.6	n/a

FPTM: (lb) Facetted Bone Point With Central Channel: The edges of implements in this category have been ground but there is a depression in the centre of the dorsal surface that may be the result of exploitation of a natural cavity (e.g. medullary cavity). In many cases, the cavity or channel has been accentuated by a well defined and ground marginal ledge on either side of the cavity/channel. The object has not been completely flattened.

These objects are bilaterally symmetrical. Hafting evidence is not present on all of these artifacts, partially because many are proximal fragments. Two complete examples exhibit slight shoulders and have their proximal ends are brought to a tapered point.

Table V-48 Facetted Bone Points with Central Channel

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=16				
Weight	3	7.7	5.1 - 8.0	n/a
Length	3	8.6	7.1 - 9.2	5.1 - 7.0
Width	5	1.8	1.3 - 1.9	1.2 - 2.3
Thickness	9	0.9	0.4 - 0.7	0.6 - 0.65

UWCF:Unidentified Wedge, Chisel, Bone Point Fragments: All artifacts that could not be comfortably placed into the Bone Chisel, Wedge, or Point categories (due to their fragmentary nature) were grouped into this class. Most proximal ends have been broken, so the modified epiphyses are not always present. Some pieces are burnt.

In general, the tools are broken pieces of flattened long bone and a tapered margin. These are illustrated in Figure V- 28, to the right of the relatively complete wedge on the left.

Table V-49 Unidentified Bone Wedge, Chisel, Point Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=12 All artifacts are included.				
Weight	12	5.3	1.1 - 18.8	3.0 - 14.0
Length	12	5.5	3.2 - 9.2	5.1 - 7.0
Width	12	1.5	1.0 - 3.8	1.2 - 2.3
Thickness	12	.9	.4 - 2.0	.6 - 1.3
Locarno Total=2 incomplete				
Weight	1	17.8	n/a	n/a
Length	1	6.8	n/a	n/a
Width	2	n/a	1.0 - 3.0	n/a
Thickness	1	n/a	.4 - 2.0	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

BARBED BONE POINTS AND HARPOONS: These objects are defined on the basis of evidence for their being 'fixed' onto a shaft. Those objects that do not show evidence of line guards are defined as Barbed Bone Points, those with evidence of line guards are defined as Barbed Bone Harpoons. The two subcategories are defined by the type of barbs present on the object (unilateral or bilateral).

UBFP: (lb) Unilaterally Barbed Fixed Points: These tools are unilaterally barbed, well formed, and finished. Size varies as do the barbs. Artifacts in this class do not have line guards.

These artifacts are not removed from their shaft, in other words, they were fixed' to the shaft for which they were made.

A single example was recovered from the Locarno Beach site (DhRt 6:258). It is complete (Figure V- 30, on the left), apparently made on an elk metapodial bone, weighing 58.3 g, 26.5 cm long, 2.0 wide, and 1.2 cm thick.

UBH: (lb) Unilaterally Barbed Bone Harpoon: Artifacts in this artifact class are unilaterally barbed, well formed, and finished.

The barb size can vary. There must be evidence of a line guard for an artifact to qualify as a harpoon in this artifact classification.

Harpoons had a retrieving line fastened to them with line guards or some other means of preventing the line from slipping (Stewart 1973:132).

A single specimen from the Locarno Beach site (DhRt 6:282) was placed in this class, incomplete in all dimensions, weighing 1.9 g, 7.2 cm long, 1.0 cm in width, and 0.6 cm thick.

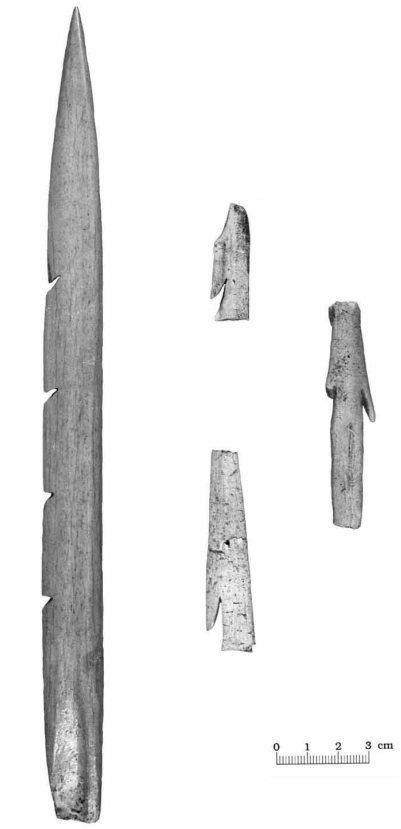

Figure V-30. Unilaterally Barbed Fixed Point (UBFP, DhRt 6:258), Fragments of Unilaterally Barbed Harpoons (FUB,DhRt 6:682, top; DhRt 6:215, bottom) and Bilaterally Barbed Harpoon (BBFP, DhRt 6:166).

FUB: (lb) Fragment Unilaterally Barbed Harpoon/Point: If the distal end is absent it is difficult to differentiate between Unilaterally Barbed Harpoons and Fixed Points, therefore, this indiscernible category has been created.

Three specimens were placed into this class, one from the St. Mungo component at Crescent Beach illustrated in the middle of Figure V- 26, and two from the Locarno Beach site (DhRt 6), illustrated in the middle column of Figure V- 30.

The St. Mungo example weighs 4.2 g, and is 5.7 cm long, 1.0 cm wide and 0.6 cm thick, and is seen in the middle of Figure V- 26 and was recovered by Percy. The two Locarno Beach examples weigh 3.1 and 8.5 g, are 6.5 and 3.8 cm long, 1.6 and 1.2 cm wide, and 0.9 and 0.5 cm thick.

BBFP: (lb) Bilaterally Barbed Fixed Point: This class includes implements that are bilaterally barbed but have no evidence of a line guard.

A single specimen was recovered from the Locarno Beach site (DhRt 6:166), illustrated in Figure V-30 on the right. It is incomplete, weighs 5.9 g, and is 7.3 cm in length, and 1.6 cm in width and is 0.9 cm thick.

THPT: (lb) Toggled Harpoon Point: These objects are part of a toggle harpoon head and are also called a cutting blades. They may be any shape although a leaf-shape is common. Edges may be bevelled unilaterally or bilaterally (Borden 1950a:16). An example is illustrated on the right of Figure V- 31 (DhRt 6:486a).

In combination with the Toggle Harpoon Head these made the most efficient style of harpoon used on the Northwest Coast for fishing or sea mammal hunting.

THH: (lb) Toggled Harpoon Head: Harpoon head with one-piece toggle. The single artifact fitting this class has a closed socket and a short unilateral spur with a deep open blade slot in same plane as spur. No hole or groove for retrieving line is present although the line may have passed through lower end of slot below lashing of cutting blade (Borden 1950a:16).

See above paragraph on toggled harpoon point for function.

A single specimen, almost complete, from the Locarno Beach site (DhRt 6: 486b) belongs in this class, as shown in the lower left Figure V- 31. It weighs 1.9 g, has a length of 3.9 cm, a width of 1.3 cm and a thickness of 0.6 cm.

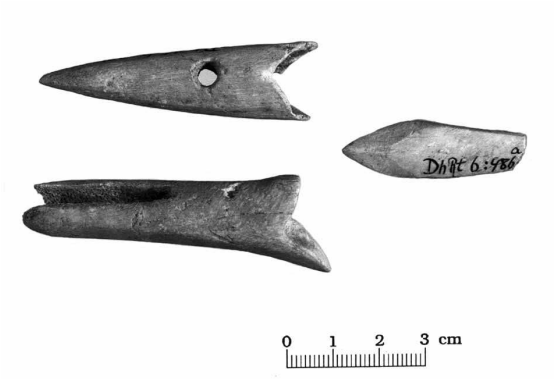

Figure V-31. Toggling Harpoons. Upper Left, One Piece Toggled Harpoon Head (THAR, DhRt 6:204). Lower Left, Toggled Harpoon Head (THH, DhRt 6:486b). Right, Toggled Harpoon Point (THPT, DhRt 6:486a).

Figure V-32. Harpoon Foreshafts (FSHT). All from Whalen Farm Site.

FSHT: Harpoon Foreshafts: Antler foreshafts have been identified at a number of sites, but not at Crescent Beach. Three are illustrated from the Whalen Farm site in Figure V- 32.

These were presumably placed between the toggling harpoons and a long wooden shaft.

BLAB:Bone Labret: Bone counterparts to ground stone Labrets exist but are not as common which may be partly due to preservation factors.

Like other labrets, their function is one of personal adornment.

Two are present in these assemblages, one from the Locarno component of the Crescent Beach site, and

one from the Locarno Beach site (DhRt 6).

The Bone Labret from Crescent Beach (DgRr 1:13278), which is illustrated at the bottom of the right columns in Figures V- 22 and 23, is essentially half a labret so that weight of 0.6 g and length of 0.9 cm doubled would approximate the original size. The width of 1.1 cm and the thickness of 0.5 would be that of the complete object. This object would fit the class of 'button' labret as described by Dahm (1994).

The one from the Locarno Beach site (DhRt 6:286) is unbroken (bottom of left columns in Figures V-22 and 23), weighs 1.7 g, 3.7 cm long, and 1.0 cm wide, and 0.4 cm thick, but is part of a composite labret and has two holes drilled in it. It would be the portion that fits between the lips and the teeth, if it is, indeed, a labret. Dahm (1994:45) refers to a composite Ornament Part made of steatite as boat shaped (flanged and drilled) that is similar to this Locarno Beach site 'Bone Labret'.

NG: (lb) Net Gauge: These objects are small, flat, thin sections of mammal bone. They are well-made, rectangular, and worked over both faces. Sometime there are small notches located parallel to each on both ends.

It has been suggested (Anne Stevenson pers. comm) that these objects were used in gauging net size

Table V-50 Net Gauges

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=2 complete				
Weight	2	n/a	1.9 - 3.5	n/a
Length	2	n/a	5.1 - 7.8	n/a
Width	2	n/a	2.4 - 3.1	n/a
Thickness	2	n/a	0.2 -0.2	n/a

GM: (lb) Ground Molar: Ham et al. (1985:91) describe these artifacts as being both human and sea otter. The roots of the teeth have been ground but there is no indication that the objects were suspended instead, he suggests that they may have been used as inlay on other objects.

The function is assumed to be decorative.

Table V-51 Ground Molar

	Number	Median	Range	Interquartile Range
Locarno Beach (DhRt 6) Total=3.				
Weight	2	n/a	1.2 - 3.0	n/a
Length	2	n/a	3.6 - 4.3	n/a
Width	3	1.1	1.0 - 1.2	n/a
Thickness	3	0.7	0.6 -0.7	n/a

BONE PENDANTS: These artifacts are all capable of being suspended. Beyond the general category of Perforated Bone Pendant there are two special subcategories defined on the basis of the type of raw material used.

PBP:Perforated Bone Pendant: These objects vary in shape, size, and degree of finish, but all show evidence for suspension and are biconically drilled (Matson 1976:169; Matson and Coupland 1995:105). These are distinctive to the St. Mungo culture where they tend to be rectangular in outline, flat, and undecorated.

The sole example from Crescent Beach is from the St. Mungo component recovered by Percy and is incomplete and does not conform closely to the definition as stated above. It is 0.7 g, 3.3 cm in length, 0.9

in width, and 0.3 cm in thickness (lower left in Figure V- 26 . The width and thickness does fit those found in other St. Mungo components (Pratt 1992:B:64; Matson 1976:169).

TPND:Tooth Pendant:

These objects are made from dog canines and molars, deer incisors and premolars, as well as small mammal canines (Ham et al. 1986:91). The perforations are biconically drilled. Some of the teeth were suspended by a thong tied around an incised groove rather than by threading a thong through an incised hole (Stewart 1973:144).

Two were recovered by Percy from the St. Mungo component and both are illustrated as the two in the lower right of Figure V- 26.

Table V-52 Tooth Pendants

	Number	Median	Range	Interquartile Range
St. Mungo Total=2				
Weight	1	.9	n/a	n/a
Length	2	n/a	2.5 - 2.6	n/a
Width	1	1.0	n/a	n/a
Thickness	2	n/a	.6 - .7	n/a

No artifacts belonging to this class are present in the Locarno component.

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

DECORATED BONE : As per Kornbacher (1989:114), objects in this category exhibit, " ...some decorative potential exclusively". Decoration is created by processes such as grooving, incising, or perforation. Intact decorated bone objects that are perceivably human or animal in form have been placed into separate categories.

The function of these tools was more aesthetic in nature rather than utilitarian. Otherwise, these objects could be placed into other categories. It could be argued that these objects should be separated because they had the potential of also functioning as status markers. This is the nucleus of certain differences between archaeologists, some of whom emphasize the decoration as the be all and end all of the object, no matter how minor a factor the decoration is to the overall context of the artifact.

DBON: (lb) Decorated Bone Object: Most of these objects are fragments showing some sign of decoration.

Two very fragmentary objects belonging to this class were found at the Locarno Beach site.

ANTH: (lb) Anthropomorphic Object:These objects are recognizably human in shape.

The function of such objects is interpreted as ceremonial or as potential indicators of status.

A single specimen was recovered from the Locarno Beach site (DhRt 6:218). It is complete, weighing 4.8 g, with a length of 3.9 cm, a width of 2.3 cm and a thickness of 1.4 cm.

ANTLER IMPLEMENTS : Antler tools, like bone tools, are organic and deteriorate rapidly. In general, antler tools are not as common as bone tools at most Northwest Coast sites. Antler tools are usually not made from split or sectioned antler as the most common antler implements recovered by archaeologists are those that exploited the natural shape of the antler and required little alteration in order to perform the

desired activity. This type of tool is also known as a an expedient tool. The most common split or sectioned antler tools become barbed points or harpoons and they are manufactured in the same way as their bone counterparts.

SHAPED ANTLER TOOLS : Like all other shaped tools, the original shape, and texture of the antler's resource material has been altered significantly in this class. In comparison to inorganic stone, antler is more pliable, and can be shaped through many different processes including cutting, chopping, grinding, engraving, and drilling (Stewart 1973:110). Soaking or boiling antler makes it significantly easier to work.

THAR: (lb) One Piece Toggled Harpoon Head: A harpoon head with a self cutting blade and line hole. A single example was found at Locarno Beach (DhRt 6:204) and illustrated in Figure V- 31 at the top left. Here, the cutting blade and toggling function is integrated into a single piece of antler. The dimensions of this example are 5.8 x 1.7 x 1.2 cm and it weighs 4.2 g.

These toggling harpoon types have an advantage over the barbed harpoons. The toggle harpoon wedges itself sideways in the animal and cannot be removed by the animal. They are considered to be the most efficient type of harpoon.

DHFT: (lb) Decorated Haft: Implements in this artifact class are made from hollowed semi- finished sections of antler. These artifacts have been intricately decorated on their ventral surfaces in both abstract and realistic designs. The slot is carried all the way through the object.

Borden (1950a:17) suggested these objects most resembled what he called dentalium purses. Other functional interpretations are not known at this time.

One (DhRt 6:853) of these is relatively complete, weighing 31.3 g, 10.0 cm in length, 2.8 width, and 2.0 cm. Two fragments were also recovered.

ATLT: (lb) Atlatl Hook: A section of an atlatl (also known as spear thrower) used to engage the butt of the spear that is to be thrown. The hook can range from very simple to complex, including both anthropomorphic or zoomorphic shapes. Can be made of either bone or antler (Fladmark 1986:46-48).

They were an intricate part of the Northwest Coast mammal hunting tool kit until they were replaced with the bow and arrow.

A single, complete example was recovered from the Locarno Beach site (DhRt 6:497). It is 7.5 cm long, 2.1 cm wide, 2.0 cm thick and weighs 14.2 g.

PUN:Punch: Mitchell (1971:141) calls the implements in this artifact class composite flaking-tool tips while Ham et al. (1986:40) call them utilized antler tines. Matson (1976:179) describes these objects as " ...antler tines modified into tapering cylindrical objects showing battering at both ends."

All three agree that these implements were probably used as pressure flaking tools in the manufacture of chipped stone tools.

A single object from this class was recovered from the St. Mungo component at Crescent Beach. It is incomplete, weighed 3.1 cm, and was 5.9 cm long, and had a cross-section of 1.1 x 0.8 cm.

SMALL POINTED ANTLER OBJECTS: These objects are not as common as their bone counterparts. These artifacts are smaller than awls, have a circular cross-section along with a well formed, abraded surface. Sometimes there is evidence for hafting on the basal end. The following classes were separated on the basis of the presence or absence of shaped tips.

AUNP:Antler Unipoint: Artifacts in this category are small, rounded, antler splinters. One tip is shaped into a sharp point while the opposite tip is blunt.

Because of their similarity to Bone Unipoints, perhaps they have a similar function.

Two objects from this class were recovered from the Crescent Beach site, both incomplete. One, from the St. Mungo component, weighed 3.9 g, was 8.6 cm long and had a round cross-section of 0.8 x 0.8 cm. The other was from the Locarno component and weighed 5.2 g and was 8.0 cm long and had a cross-section of 1.0 x 0.9 cm.

ABIP:Antler Bipoint: The tips of both ends of artifacts in this class are pointed and have circular cross-sections.

As with their Bone Bipoint counterpoint, these objects may have been used in fishing.

A single complete specimen was recovered from the St. Mungo component at Crescent Beach. It weighed 3.7 g, was 7.1 cm long and had a cross-section of 1.0 x 0.8 cm.

WEDG:Antler Wedge: In this category are included two subcategories. Both are made from antler. Because in our small sample we perceived an overlap, all were grouped together, but it should be noted that many separate Antler Wedges into two classes. One subtype utilizes the beam portion of the antler with the thinning end unifacially worked into a wedge shape (Matson 1976:178). These implements, in most cases, are not complete and have a great deal of tip damage, including wear polish, striations, and occasionally chipping or crushing (Ham et al. 1986:49). The second subtype utilizes the tine end. Unifacial wear facets are present at the tip. The proximal end is battered (Matson 1976:179).

Table V-53 Antler Wedges

	Number	Median	Range	Interquartile Range
St. Mungo Total=1 incomplete				
Weight	1	14.0	n/a	n/a
Length	1	11.9	n/a	n/a
Width	1	2.1	n/a	n/a
Thickness	1	1.1	n/a	n/a
Locarno Total=4				
Weight	0	n/a	n/a	n/a
Length	0	n/a	n/a	n/a
Width	3	3.1	2.2 - 4.5	n/a
Thickness	3	1.9	1.7 - 3.0	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

BARBED ANTLER POINTS : These objects are defined on the basis of evidence for their being 'fixed' onto a shaft and do not exhibit evidence of line guards or other line fastening aspects. These classes are further subdivided by the type of barbs present (unilateral or bilateral).

FUBA:Fragment of Unilaterally Barbed Fixed Point/Harpoon : If the proximal end is not present it is difficult to distinguish between harpoons and fixed points; so this category was created.

A single incomplete specimen was recovered from the St. Mungo component of the Crescent Beach site

by Percy. It weighs 4.7 g, is 4.5 cm long and is 1.5 cm wide and 0.8 cm thick, and is illustrated in Figure V-26, upper right.

DECORATED ANTLER : Antler objects with some indication of decoration.

ZOOA:Zoomorphic Object : These objects are recognizably animal shaped. Styles vary widely through time and the degree of finish is also variable.

The function of such objects is usually interpreted as largely ceremonial or as possible indicators of status. The implement has been fashioned into something distinctive and well made, indication the importance of the tool.

The only specimen in this class is from the Locarno component at the Crescent Beach site. Although incomplete, it weighs 5.0 g, is 9.8 long, 3.2 cm wide, and 1.7 cm thick.

MINIMALLY WORKED ANTLER : These objects have been minimally shaped or modified. They are placed into sub-categories depending on whether they are end or medial fragments. Dividing artifacts into these categories allows for comparisons of artifact breakage patterns.

WAMF:Worked Antler Medial Fragment : These antler pieces show evidence of deliberate shaping through manufacturing processes such as grinding, cutting, or splitting. Typically they are broken at both ends and thus are apparently medial pieces of antler artifacts.

Table V-54 Worked Antler Medial Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=1 incomplete				
Weight	1	15.8	n/a	n/a
Length	1	6.8	n/a	n/a
Width	1	2.5	n/a	n/a
Thickness	1	1.6	n/a	n/a
Locarno Total=2				
Weight	2	n/a	1.1 - 3.1	n/a
Length	2	n/a	3.1 - 4.0	n/a
Width	2	n/a	1.1 - 1.4	n/a
Thickness	2	n/a	.5 - .7	n/a

No artifacts belonging to this class were found in the Marpole layers in 1989-1990.

WAEF:Worked Antler End Fragment : These specimens show evidence of deliberate shaping through manufacturing processes such as grinding, cutting or splitting but because of their fragmentary nature cannot be further classified. These objects are often the broken ends of unclassifiable artifacts.

Table V-55 Worked Antler End Fragments

	Number	Median	Range	Interquartile Range
St. Mungo Total=2 All artifacts are included.				
Weight	2	n/a	12.0 - 16.2	n/a
Length	2	n/a	8.6 - 11.1	n/a
Width	2	n/a	2.0 - 3.0	n/a
Thickness	2	n/a	1.4 - 1.7	n/a
Locarno Total=2 All artifacts are included.				
Weight	2	n/a	.6 - 3.3	n/a
Length	2	n/a	1.8 - 6.3	n/a
Width	2	n/a	.8 - 1.3	n/a
Thickness	2	n/a	.7 - .8	n/a

Marpole 1989-1990 Total=1, 3.8 x 1.5 x 1.2 cm and a weight of 3.2 g.

IV. Shell Artifacts

Shell artifacts are never as numerous as stone, bone, or antler implements. This seems almost paradoxical, because shell as a raw material constitutes a large percentage of the middens excavated on the Northwest Coast. A partial explanation for the sparseness of shell artifacts may be that, as a raw material, only certain types of shell were desired and only those with access to these specific types benefited.

SHAPED SHELL ARTIFACTS : The following is based on Stewart (1973:158). To work shell one used the same technique as for making ground slate objects because both possessed a brittleness. Grinding with a whetstone produced the bevelled edge for a shell chisel or adze blade which could be re-sharpened when it became dull. Shell was cut by incising along a line and then snapping off the desired piece. Shaped Shell Artifacts are those which are largely shaped by these technologies; utilized, unshaped shells may not be recognized by archaeologists.

SPND:Shell Pendant : These artifacts are uncommon. They are made from various kinds of shell. The shapes vary and the suspension holes may be drilled or incised.

Like their Bone Pendant counterparts, these artifacts were used as personal adornment.

A single incomplete object recovered from the St. Mungo component at Crescent Beach fits this category. It weighs 0.5 g, is 1.5 cm long, 1.0 cm wide and 0.4 cm thick.

SHB:Shell Bead : Objects in this category are usually made from clam shell, but mussel shell could also be utilized. These small perforated beads are not always round, sometimes their outlines are square. They may have been cut from shell or cut into sections like cylindrical bird bone beads (Stewart 1973:166). Figure V- 33 illustrates the range of sizes in this category in its lowest row. See the next section (V) by B. Thom, this chapter for further details on Shell Beads.

These objects like their Ground Stone Disc Beads counterparts were used for personal adornment.

Table V-56 Shell Beads

	Number	Median	Range	Interquartile Range
St. Mungo Total = 116				
Weight	95	.1	.1 - .7	.1 - .1
Length	106	.4	.3 - 1.5	.4 - .5
Width	96	.4	.3 - 1.4	.4 - .5
Thickness	106	.1	.1 - .4	.1 - .2
Locarno Total = 30				
Weight	30	.1	.1 - .9	.1 - .1
Length	30	.5	.3 - 1.2	.4 - .8
Width	30	.5	.2 - 1.2	.4 - .7
Thickness	30	.1	.1 - .4	.1 - .2
Marpole 1989-1990 Total = 3				
Weight	3	.1	.1 - .1	n/a
Length	3	.4	.4 - .4	n/a
Width	3	.4	.4 - .4	n/a
Thickness	3	.1	.1 - .1	n/a

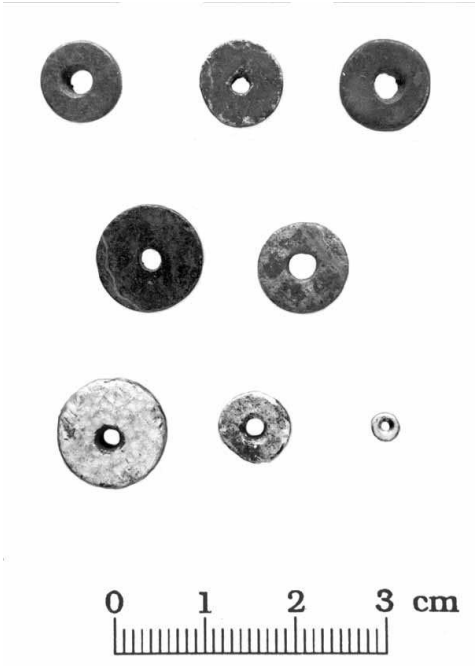

Figure V-33. Beads. Top two rows steatite, (GSDB), bottom shell (SHB). Bottom right, St. Mungo, rest, Locarno Beach.

SLAB:Shell Labret : These objects are the shell counterpart of ground stone Labrets and are not common in the archaeological record, likely due to their fragile nature.

Like other labrets, their function is one of personal adornment.

A single complete example of the 'T' form was recovered from the Locarno component at Crescent Beach. It weighs 5.5 g, is 4.8 cm by 1.8 cm and 0.9 cm thick.

SAB : Shell Adze Blade : These implements are not common. They are most often made from California mussel shell. The cutting edge is bevelled, usually bifacially (Matson 1976:177). Complete objects are rare, and it is usually a fragment of the bevelled edge that is discovered. The edge angle is less than forty five degrees. In the Gulf of Georgia area these are associated most strongly with the Charles culture.

Archaeologists assume that these tools were part of the Northwest Coast woodworking tool kit.

A single incomplete specimen (DgRr 1:11953) was recovered from the St. Mungo component in 1989-1990 from Crescent Beach. It weighs 0.8 g, is only 1.7 cm long and 1.3 cm wide and 0.3 cm thick. The complete object must have been more than 2 cm wide.

MGSF : Miscellaneous Ground Shell Fragments : This category encompasses mussel shell tool fragments lacking diagnostics to enable classification into other categories. These implements indicate their status as artifacts through modification created by shaping, worked edges, and surface abrasion. These may be fragments from Shell Adzes or scrapers.

Two fragmentary objects belonging to this class were recovered from Crescent Beach in 1989-1990; one from the Locarno component (DgRr 1:12445) and the other from the Marpole component (DgRr 1:9032). The Locarno one weighed 0.8 g, and was 1.7 x 1.1 cm and 0.5 cm thick. The Marpole component one was equally incomplete, weighing 0.8 g, and 1.9 x 1.1 cm and only 0.4 cm thick.

SUMMARY COMMENTS ON DIFFERENCES BETWEEN NORTH AND SOUTH TRENCHES

When comparing the chipped stone from the North and South Trenches there seems to be little unique to one or the other trench. There is only one artifact type unique to the South Trench and that is Quartz Crystal Microliths which are considered to be a cultural marker for the Locarno Beach phase or early Marpole phase deposits. Of the Quartz Crystal Microliths with evidence of use, none are present in the North Trench, although some quartz crystal debitage is present in the North Trench (N=8 North Trench; N= 174 South Trench). Trace (1981) recovered a number of quartz crystal artifacts in his section of the site, which was dated to the Locarno Beach Phase. There seems to be a similar situation with our artifacts, with the Quartz Crystal Microliths present only during the Locarno Beach or early Marpole phase from the South Trench, and only minimally present in the North Trench's uppermost layers, which are dated to Locarno Beach times. (More details about component assemblages are given in Chapter IX.)

The older deposits are clearly "St. Mungo" as compared to "Mayne". According to the definition of the Mayne phase (Matson 1989; Matson and Coupland 1995:115-117; Carlson 1970), this pre-Locarno phase includes microblades, labrets, and ground slate knives, none of which were present in the Crescent Beach pre-Locarno Beach layers we excavated in 1989-1990. Nor are any of these artifact types present in the much larger pre-Locarno assemblages reported by Percy (1974) and classified in this chapter. On the other hand, the material recovered is very similar to the material recovered from the St. Mungo site (Calvert 1970, Boehm 1973; Ham et al. 1986) and in similar layers from the Glenrose Cannery site (Matson 1976).

There is one unique chipped stone artifact type present in the North Trench and it may be considered a stylistic marker for the St. Mungo phase (Pratt 1992). In the St. Mungo components at both the Glenrose Cannery and St. Mungo Cannery sites, several basalt flakes (the basalt was always of a good quality) with unifacial retouch present on all edges of the artifact were found. This artifact type has been defined as Narrow Angled Formed Unifaces (Pratt 1992). In our artifact analysis so far, this artifact type has not been found in any other components except for those dating to the Charles period.

The largest apparent difference within the ground stone artifacts is the significant number of abrasive stones found in the South Trench. Although ground stone artifacts were not plentiful during our excavations, all ground stone artifacts except for one abrader and Ground Stone Disc Beads were recovered from the South Trench. This is a substantial difference implying that while ground stone technology is present in the St. Mungo phase, its importance vis- a-vis more expedient chipped stone tools is minimal. The large number of Ground Stone Disc Beads recovered from this site appears to be a direct result from the small screen size used along with water for sorting excavated material. The number of Ground Stone Disc Beads present in the St. Mungo portion of the site indicates that their presence in a site can no longer be used as an indicator of a Locarno Beach or later-aged occupation.

The low number of bone and antler artifacts make any definitive statements about the importance of these technologies moot. In the bone artifact types present, there is much more diversity in the South Trench, but preservation may play a role in this apparent difference.

The category of shell implements shows a large number of Shell Beads present throughout the time periods found at Crescent Beach. Originally, it had been suggested that Shell Beads were the predecessors of Ground Stone Disc Beads (Matson 1976). This now seems unlikely as both kinds of beads are plentiful in our St. Mungo components. It is also interesting that the three Shell Adze blades do not come from the oldest layers, for Shell Adze blades are thought to occur before ground stone adze blades. This may indicate that they are to be found only in later-aged St. Mungo deposits (as well as in some Locarno, see Mitchell 1971, 1990)

In general, although the 1989-1990 artifact assemblage is not large, we have good control over the time dimension which has revealed some interesting points to ponder such as the fact that within the large

category of chipped stone tools there is very little differentiation between the two trenches' artifact assemblages. In contrast, there is evidence for a significant difference between the two ground stone tool assemblages. The North Trench components possess very little ground stone artifacts in addition to Ground Stone Disc Beads, while the ground stone artifact types present in the South Trench are quite varied. It is also interesting that contrary to prior belief, Ground Stone Disc Beads are present in large numbers prior to the Marpole phase. Compared with many Northwest Coast site, there is a very low percentage of bone and antler tools at Crescent Beach.

Chapter V
ARTIFACT DESCRIPTIONS

iv Beads
Brian Thom

Ground stone, Shell, and Bone Beads are found in almost every midden excavated in the Gulf of Georgia area in some abundance in all the phases back as far as St. Mungo times. With the exception of the comprehensive Glenrose report (Shine 1976), no site monograph has given these beads a detailed treatment. Beads represent an artifact class of non-utilitarian items, which have the potential of reflecting social changes.

This study provides an analysis of over a thousand beads found during the 1989-1990 excavations in the undisturbed shell midden deposits at Crescent Beach - a stratigraphic context lasting over 2500 years. I begin by providing a detailed description of the qualitative and quantitative attributes of the stone, shell and bone beads. This description reveals these beads as an indicator of impressive cultural continuity – the general bead pattern is consistent over an impressively long period of time. However, the subtle stylistic changes in bead size and materials may be reflective of patterns in the overall changes in land and resource use revealed in the different periods of occupation of Crescent Beach. I conclude, through analogy from a brief experimental in replicating beads, that these seemingly humble items are intensely time-consuming ornaments to produce, and in mortuary contexts, may indeed indicate the honour and respect the given to the deceased, and perhaps something of their social status.

Description of Crescent Beach Beads

The beads that were found at Crescent Beach are grouped into three main categories based on raw material. These classes (see previous section this chapter by H. Pratt) are: Ground Stone Disk Dead (GSDB), Shell Bead (SHB), and Bone Bead (BEAD). These beads, in general, are small, round and biconically drilled (i.e., drilled from both sides). Some of the outlines are not perfectly round, but trend towards square (the result of little edge grinding) or irregular (due to partial grinding or a broken edge). Holes are generally centred in the bead, but occasionally there are beads which exhibit off-centre holes. Often the non-symmetrical beads show that the edges are incompletely ground, or that an edge is broken. I assume that the perforated off-centre beads are “flawed” because the majority of the beads are symmetrical. This indicates that symmetry is the desired result.

Within each bead type, I have classified the beads in terms of their raw material. For the Ground Stone Disk Beads, this is in terms of the type of stone used to make the bead (Table V-57). With the Shell Beads, the identification is based on the type of shell used to make the bead (Table V-58). With the Bone Beads (Table V-59), the material is determined in terms of the class of animal the bone was from.

Ground Stone Disk Beads are most commonly made of slate. Six hundred and forty seven (48.3%) of all the beads found at Crescent Beach were made of this material. Slate is a hard, black material that is generally worked to a very smooth polish on these beads. The slate beads often show signs of flaking, because of the layered nature of slate.

The next most common material of Ground Stone Disk Bead manufacture is mudstone. Five hundred and nineteen (38.8%) of the beads found at Crescent Beach were made of mudstone. Mudstone is a sedimentary material that is softer than slate. It is made up of fine granular particles and is easily worked. Although this material is relatively hard, beads made of mudstone often chip on the edges. In most previous reports, it is this class of beads that was found, often referred to as ground shale beads, e.g.,

Mitchell (1971:52).

Seven (0.5%) of the beads found at Crescent Beach were made of various unknown sedimentary material. These beads are generally well made and are otherwise similar to the mudstone beads.

Five (0.4%) of the beads found at Crescent Beach were made of steatite (see Figures V- 33 and 34). Steatite is a soft, striking green stone which is not generally found in the Fraser River lowlands. All of these steatite beads are very well made, highly polished, perfectly symmetrical with very round edges, and larger than the other ground stone beads. One steatite bead had a broken edge, but was otherwise as perfect as the others. Steatite beads of various forms, but usually relatively large, are associated with Locarno Beach components (Mitchell 1971:117; Dahm 1994).

The most common of the Shell Beads (Figure V-33) was the clam shell bead. One hundred and one clam Shell Beads were found, totalling 7.5% of all the beads found at Crescent Beach. Clam Shell Beads are generally smaller than most of the Ground Stone Disk Beads. They are very fragile and flaky. If a Shell Bead is handled roughly, it will break. It is not surprising that larger numbers of these beads were not found, given their extreme fragility. The holes of the clam Shell Beads are usually quite symmetrical, although the edges of these beads are often rough. The roughness is not necessarily due to lack of work, but probably has to do with post-finished bead breakage.

Forty-nine (3.7%) of the beads found at Crescent Beach were made of unknown shell. These are generally white shell beads, that are not necessarily made of clam. The grinding that goes into making a shell bead often wears away any trace of a feature that makes it identifiable. Beads of this material category are thus classified as unknown shell (Table V-58).

Five (0.4%) of the shell beads were made of California mussel. These beads have the distinctive purple colour that identifies them to this species. These tend to be very fragile, so that the actual numbers present in the deposit may be much higher than the number catalogued indicates.

A unique shell bead found at Crescent Beach was made of Pectin shell (see right-hand side of Figure V-35). The distinctive shiny surface of the bead allowed me to identify it to the Pectin genus.

The Bone Bead is the least frequent bead type, totalling six altogether. Three of these beads (0.2% of the total collection) were made of unidentifiable bone (Table V-59). The bone material was probably that of a mammal, but I could not be sure due to the great amount of polishing that these beads had undergone. Two of these beads (0.1% of the total collection) were identifiable to the mammal class. A single bead (0.1% of the total collection) was made of mammal bone that had been burnt. The surfaces of these beads are very highly ground. They are generally well made, with symmetrical perforations, but they often exhibit rough edges.

The quantitative analysis of the beads included measuring and recording the length, width, thickness, and weight of each bead. The lineal measurements were to 0.1 mm and weights to 0.1 g. Weight measurements that were less than 0.1 grams were recorded as zero.

A summary of different average lengths and thicknesses of beads plotted against raw material (Figure V-36) provides a general description of how large the different Ground Stone Disk Beads are in relation to each other. The slate and mudstone beads are very similar in size, with the slate beads being very slightly smaller. Unknown sedimentary beads are generally slightly larger than the mudstone and slate beads. Beads made of steatite are distinctly larger in all the dimensions, than the others in the Ground Stone Disk Bead category. The average measurements for the Ground Stone Disk Beads are listed in Table V-57.

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Table V-57. Average Measurements of Ground Stone Disk Beads.

Material	Number	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)
Slate	647	6.1	5.8	2.1	0.1
Mudstone	519	6.2	5.8	2.3	0.1
Unk. Sed.	7	7.0	6.8	2.2	0.2
Steatite	5	9.2	9.1	2.6	0.4

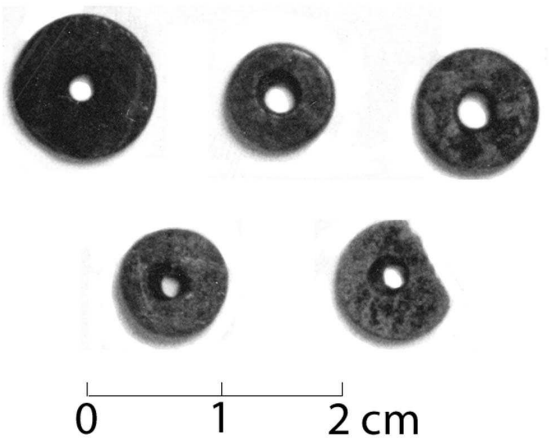

Figure V-34. Ground Stone Disk Beads - Steatite.

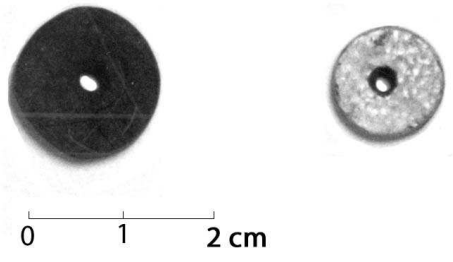

Figure V-35. Large Slate Bead (Left) and Pectin Bead (right).

Clam, unknown shell and California mussel Shell Beads are all virtually identical in size (Figure V-36, Table V-58). They are, however a lot smaller, on the average, than the average Ground Stone Disk Bead, or any of the Bone Beads. Although the Pectin bead is the largest bead class in according to average (both Table V-58 and Figure V-36) there is one slate bead (left side of Figure V-35) that is actually larger. The average measurements of the different materials present in the Shell Bead class is listed in Table V-58.

Table V-58. Average Measurements of Shell Beads.

Material	Number	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)
Clam	101	4.6	4.5	1.4	0.0
Unk. Shell	49	4.9	4.6	1.4	0.1
Calf. Mussel	5	5.0	4.3	1.1	0.1
Pectin	1	12.2	12.2	3.9	0.9

The Bone Beads are, on average, larger in every dimension than most of the Ground Stone Disk Beads and Shell Beads (Figure V-36). Their average measurements are listed in Table V-59.

Table V-59. Average Measurements of Bone Beads.

Material	Number	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)
Unk. Bone	3	7.6	7.4	1.8	0.1
Mammal Bone	2	10.3	9.9	2.3	0.3
Burnt Mammal	1	9.0	8.9	0.3	0.3

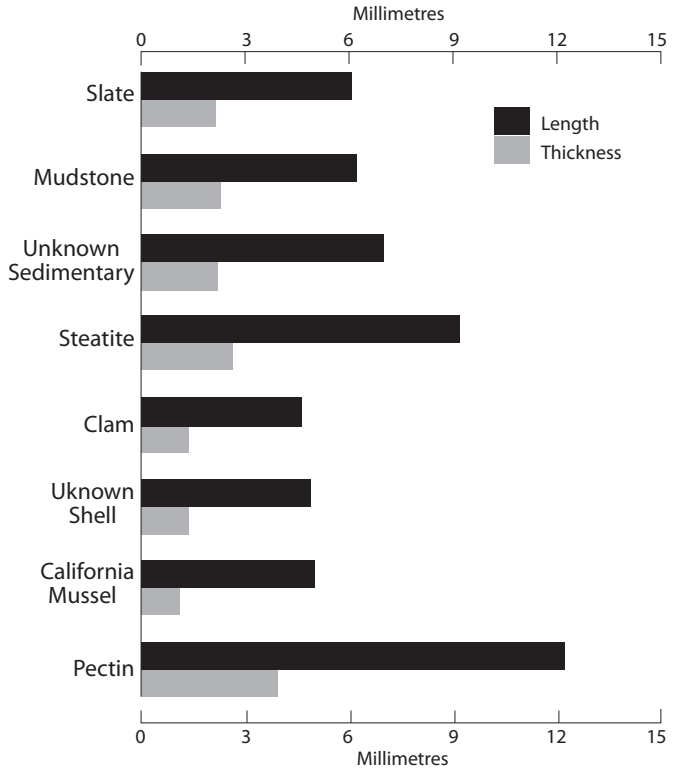

Figure V-36. Bead Size versus Material (Data from Tables V-57, 58 & 59).

Now that the beads found at Crescent Beach have been described, I will present the second focus of this analysis: the variation of beads through time.

Variation of Beads Through Time

During the 1989-1990 excavations at Crescent Beach, one thousand three hundred and thirty nine (1339) beads were found and catalogued from undisturbed prehistoric contexts. These beads come from virtually every single layer in the midden. As shown in the previous section, the beads are diverse in their qualitative and quantitative attributes. By examining the stratigraphic occurrence of these attributes, I hope to be able to find temporal patterns. More specifically, I will look for patterns which may be significant in terms of culture change, corresponding to the different culture types documented for the Gulf of Georgia region.

To investigate how the beads vary through time, I have grouped some of the adjacent stratigraphic layers together in order to have useful sample sizes. Each layer group is approximately contemporaneous in time, or at least does not span long periods of time. The layer groups are listed on the graphs in order of trenches. The South Trench is on the top of these figures and consists of the layers L through to Y. The North Trench is on the bottom and consists of layers G1 through to K. All the layer groups are in roughly sequential order, with the youngest being on the top, and the oldest being on the bottom. There are some exceptions that are useful to keep in mind. Layers H-Hb is listed below layers Q-R2. H-Hb are the layers from Feature 9, which is interpreted as a domestic feature, and dates to 3010 $\pm$ 100 RCYBP (WSU 4246), roughly contemporaneous with layers Q- R2. The other layers from the North Trench overlap the South Trench beginning at the V-V1 level, which dates at 3590 $\pm$ 85 years RCYBP (WSU 4245). Figure IV-3 , a modified Harris Diagram, illustrates chronology of the site, and Figure IX-1 is one with the culture phases marked in at the appropriate time depth. The Marpole phase begins with layer L and continues to layer P3. Layers Q through U1 and the layers of Feature 9 (layers H-Hb) make up the Locarno Beach phase (See Chapter IX for the derivation of these component divisions). The St. Mungo phase occurs in layers V- Y in the South Trench, and in layers G1-K, excluding layers H-Hb, in the North Trench.

The first examination of bead change is how Ground Stone Disk Bead size varies through time. Only Ground Stone Disk Beads were analyzed because they were the only type of bead present in all of the layers. The "size" of the beads was calculated by multiplying the length by the width by the thickness. A simple average of these was taken to give the data provided in Table V-60. This data gives a good estimate of how the average bead size changes through each of the different layers.

Table V-60. Average size of Ground Stone Disk Beads in Each Layer Group.
("Size" is Length x Width x Thickness.)

Layer Group	Size (mm^3)
L-M	95.6
N1-N2	81.9
N3-N5 Marpole	98.5
O-P3	95.4
Q-R2	73.1
BC H-Hb	76.6
S*-T Locarno	108.8
T/U-U1	112.6
V-V1	90.9
W-Y	57.2
BC G1-G3	63.4
Is-I1ii	65.8
BC I2-K St. Mungo	70.2
Average	**79.1**

From Chapter IV, the oldest, layers in the North Trench are G1-G3, and the oldest in the South Trench are W-Y. These are older than 3700 years and have the two smallest bead sizes. Bead size then increases to the largest size recorded at the Locarno Beach/St. Mungo boundary at T/U-U1. It then declines to 73.1 at Q-R2, very close to the 76.6 found in the contemporaneous Feature 9 layers H-Hb. Size then increases to average over 90 for the rest of the time.

The only available comparative data is that provided by Shine (1976) for the slate beads from the Old Musqueam subphase Marpole component from Glenrose. The median length of the some 475 measured beads was 6 mm, the length 6 mm, and the thickness, 2 mm. These figures correspond very closely with those shown in Table V-57 for both slate and mudstone beads from Crescent Beach. In all three cases, the weight is given at 0.1 g. In spite of the changes in size through time observed at Crescent Beach, the slate and mudstone beads recovered are the same size as recovered from one component at Glenrose. Interestingly enough, Shine (1976:263-4) found that, through time within the Glenrose Marpole component, beads became larger and thinner.

The next analysis (Table V-61) shows the relative frequency of Shell and Ground Stone Disk Beads. The Bone Beads were not included because they occurred in such small quantities. The beads for each layer group have been counted up in terms of what type of beads they are. Percentages of all the Shell and Ground Stone Disk Beads as proportion of total tool assemblage were then calculated, to normalize the data.

Table V-61. Percentages of Stone and Shell Beads of total assemblage per Component and as Ratios.

Layer Group Component	Stone Beads	Shell Beads	Ratio Shell : Stone
South Trench			
Marpole	0.84	0.01	0.01
Locarno	0.67	0.06	0.10
St. Mungo	0.46	0.28	0.62
North Trench			
Feature 9 (H-Hb)	0.18	0.14	0.75
St. Mungo			
Fnw,Fsw G1-G3	0.86	0.08	0.10

This analysis does show a clear relationship between change of bead type and time with the Shell Beads beginning as some of the oldest St. Mungo beads in the South Trench and continuing right to the border of the Locarno Beach/Marpole phases there. The Marpole phase is generally lacking in Shell Beads, while they were most abundant in late St. Mungo, early Locarno Beach times. Note that units Fnw and Fsw appear to be out of sequence here, supporting the notion that the beads there are associated with the burial. The burial pit, however, was only seen in Fnw (Figure III-8), yet there seems to be little difference in types of beads in the two adjacent units. The low total number of 7 beads from Feature 9 makes those figures unreliable (as it does other bead calculations from this feature). I think that this seriation shows a clear relationship between the types of beads that were made, and the cultural changes that took place.

The final analysis of the beads found at Crescent Beach looked at the frequency of the different

materials used throughout the layers. I calculated the percent of all the stone and Shell Bead materials for each layer (see Figure V-37).

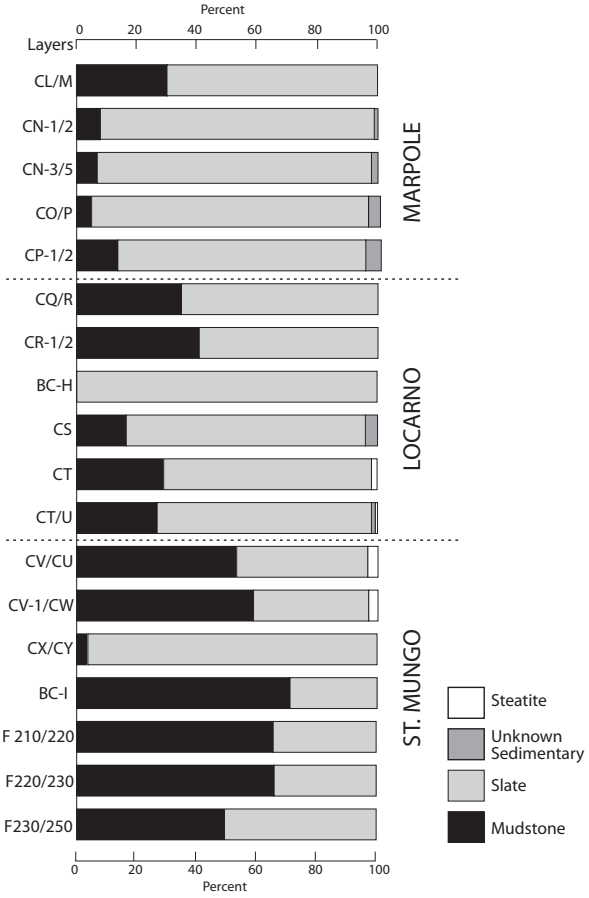

Figure V-37. Ground Stone Bead Materials by Layer Groups.

The most interesting trend seen in this analysis is the proportions of slate to mudstone beads. In the upper layers of the South Trench, from L to CT/U, have an overwhelming proportion of slate beads compared to mudstone beads, with the Marpole layers averaging less than 20% mudstone. At the layer groups CV/CU and CV-1/CW, layers of the St. Mungo phase excavated in the South Trench, this ratio is different: mudstone beads occur in larger numbers than slate beads. The group of layers CX/CY is an exception to this trend. Overall, 44% of the South Trench Ground Stone Disk Beads are mudstone. The trend, then, in the South Trench, is that both types of material start out as being equally used at circa 3700-4000 RCYBP, but by 3000 years ago, much more slate is used than mudstone.

There are more mudstone beads than slate beads found in the North Trench, which is expected, given that most of the material recovered is from the earliest parts of the St. Mungo phase. In this case, the older material from adjacent units Fnw and Fsw is grouped into levels which ought to be more temporally sensitive than the layer groups used for the beads from these two units used in the previous tabulation. The only exception to this interesting trend of more mudstone beads in the North than South Trench is the beads found in layers H-Hb. These beads are from middle Locarno Beach times (3000 RCYBP) and are slate, which is dominant in Locarno Beach layers in the South Trench. Considering how few beads occur in this layer (as detailed above), I would not weigh this finding very heavily. The trend in materials is clear; in St. Mungo times, the predominant material was mudstone and in Locarno Beach and Marpole times, it was slate.

Unknown sedimentary beads appear to be concentrated in early Marpole layers and, although the numbers are small (7), they are absent from St. Mungo layers. In contrast, steatite beads are found both in early Locarno layers (where they would be expected) and in late St. Mungo layers, where they are not. This may indicate continuity between these two prehistoric cultures.

Inspecting the Shell Bead material distribution shown in Figure V-38, one finds some other interesting patterns, although because of the low numbers of Shell Beads, they are not as reliable. First, all three of the Shell Beads from the Marpole layers are unknown shell. As indicated earlier these may really be clam shell, but are finished so that this can not be determined. The Locarno beads (n=28) are mostly of clam shell, although a few are unknown or California mussel. Surprisingly, like the steatite beads, the one Pectin Shell Bead shows up in late St. Mungo layers, as do increasingly numbers of unknown shell from the North Trench. There appears, then, a trend for highly polished Shell Beads early and late in the sequence.

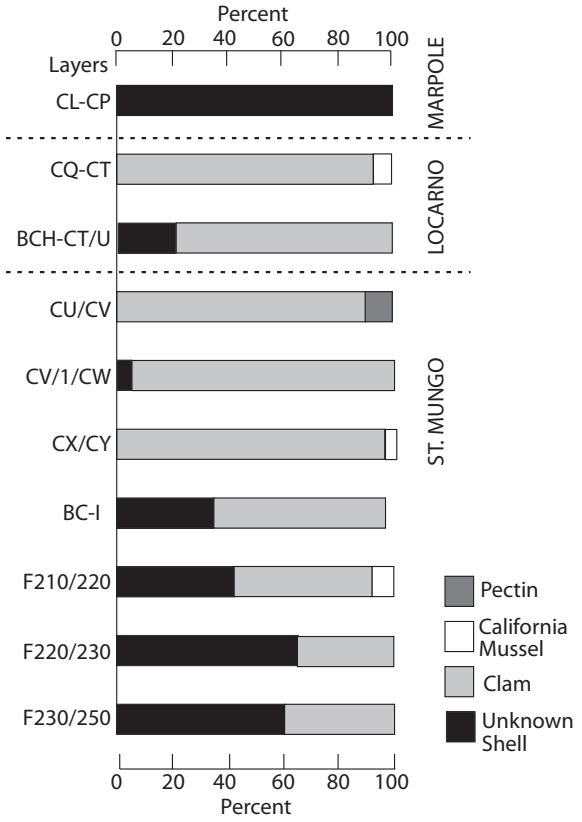

Figure V-38. Shell Bead Material by Layer Groups.

Experimental Archaeology

In a detailed study of a particular artifact class, it is important to understand how that artifact is made. To this end I replicated a Ground Stone Disk Bead using technology that is known to have existed in the Gulf of Georgia area at the time when the Crescent Beach beads are found. To make the stone bead, I used the method outlined by Hillary Stewart (1973:90-91) and reported by Shine (1976). Slate was chosen as the raw material as it was abundant in the Crescent Beach assemblage and was readily available for the reproduction. The tools used to make the bead include: an abrasive stone; a bifacially retouched flake made of basalt; and a key drill made of obsidian (see Stewart [1973:86] for a description of a key drill).

The slab of slate was first broken into a piece approximately 6 cm long and 4 cm wide. This size was easily manageable for the construction of a single bead, but would be somewhat small for the construction

of a large number of beads. The slate fragment was then ground down to a smooth finish on both sides, to a thickness of about 0.3 mm. This is the average thickness for ground slate beads, as shown by Shine (1976) and in the description of this category earlier in this chapter. Water was always used when grinding to act as a lubricant and to keep the dust down.

Next, the bifacially retouched flake was used to score lines on opposite sides of the ground slate piece to form a 1 cm square. This made the outline for a square bead into which a hole could then be drilled.

The key drill was held in one hand and twisted at the centre of the scored square to drill a hole. This was done until the hole was drilled half way through, then the ground slate was flipped over and drilled on the opposing side, giving the ground slate a biconically drilled hole.

The ground slate was, at this point, snapped along the scored lines, making a square bead. This square bead was held between the fingers and ground on it's edges, using the abrasive stone, until it was round. Making several beads at once would quicken the time spent per bead at this stage, because more than one bead could be strung together and rounded at the same time by rolling the string of beads over the abrasive stone.

To produce this one bead, once I had made the tools, took 13 minutes from start to finish. This includes maintenance time in re-sharpening the key drill. If one assumes that dozens, even hundreds of beads, were used in any one string of beads, a lot of valuable time was being used in the production of beads, time not spent in subsistence pursuits. Stewart (1973:91) suggests that if beads are found in very large quantities, the possession of time-expensive beads translates into family or individual wealth.

Crescent Beach provides an interesting example which could be used to illustrate this hypotheses. Over five hundred beads of stone and shell were found in the same one metre unit (Fnw) that a child burial (Burial 1, see Chapter VII) was found in. Such a large quantity of beads found associated with a young person indicates that 'wealth' was being bestowed upon him by his family or his community. While the utilization of abundant food resources are well documented archaeologically in this area (Matson 1976, 1989; Croes and Hackenburger 1988; among others) the volume of beads associated with this young person suggests that wealth, even perhaps status, was marked symbolically on respected individuals in the community. Though it is difficult to make any strong ethnographic analogies from this limited evidence and at this depth of antiquity, I am reminded of Suttles' (1983) observation that there is an important relationship between food, wealth and power in Coast Salish cultures, manifested through the redistribution of surplus food, feasting and the the giving of gifts, and the status claims people are able to make through participating in this system.

Summary and Conclusions

Experimental archaeology has demonstrated that beads take considerable energy and time to make, suggesting such adornment may be considered symbol of wealth. The association of abundant beads with the child burial found at Crescent Beach (Chapter VII) supports this idea, and is consistent with the archaeological record for burials of this age within this region (Thom 1995). This analysis of beads has perhaps more significantly shown that, although small, disk-shaped stone, Shell and Bone Beads are present in the archaeological record from St. Mungo to Marpole times, the frequency and raw material of different types of beads tends to change during each of the established archaeological culture phases. This suggests that while these phases have been established to reflect changes in subsistence and sociality, they may also reflect changes in aesthetic style, within a remarkable frame of continuity. Contrasted to today's fickle world, such subtle changes in ornamentation shows the resilience of aesthetic taste within these cultural traditions.

The changes in different types of beads include the presence of more Shell Beads in the St. Mungo

phase then later. In fact, these are the only beads to be recovered from the St. Mungo component at Glenrose (Matson 1976) and at St. Mungo (Ham et al. 1986). Large steatite beads have previously been associated with the Locarno Beach phase, (see, for example, Mitchell 1990:341, where shale beads are not listed as part of Locarno Beach assemblages) and this is what is found at Crescent Beach, but they are also found in late St. Mungo layers. Although Ground Stone Disk Beads have been widely noted for Marpole components elsewhere, this is the first study to show that the material used to make these beads changes through time. In fact, Ground Stone Disk Beads made of mudstone or slate had not previously been convincingly associated with the Locarno phase, although Trace (1981) did report them from the Locarno Beach component he excavated at Crescent Beach. Not only is the presence of Ground Stone Disk Beads in the St. Mungo component at Crescent Beach, a first for that culture, the clear trends of size, small to large, and material, early mudstone, later slate, are also original observations for this site. This raises the question of the significance of the reported absence of Ground Stone Disk Beads in previously reported Locarno and St. Mungo components.

Given the Crescent Beach concern with water-screening material through 3 mm screens it is easy to relate the recovery of these items because of the use of this technology, and, in part, this may be so. However, the 1980s excavations at the St. Mungo site (Ham et al. 1986) also used similar techniques, and did not recover Ground Stone Disk Beads. Furthermore, Trace (1981) did not use this approach and recovered Ground Stone Disk Beads. Given the small size of the St. Mungo beads, though, it is likely that their absence in many reports in past years is an artifact of the recovery techniques used. A case making this point is their absence in the material recovered by Percy (1974) from Crescent Beach (although he did recover some when a burial removed as a block and "excavated" in the laboratory). Thus, it is not very likely that they are only present at Crescent Beach, but rather that they will not be reliably recovered by the techniques that have been used in the past.

I trust that beads will be continued to be recovered in larger numbers and from situations where they have not been in the past through increasing use of improved field techniques. This will allow beads to be further investigated in the manner demonstrated here, and to provide further insight into the prehistory of the Northwest Coast.

Chapter V-v. Debitage Analysis

Lisa Rankin

Introduction

The debitage excavated from the undisturbed contexts at DgRr 1 was analyzed in full. Owing to both time and financial constraints the procedure chosen to analyze the debitage had to be rapid. A procedure based loosely on the analytical schemes of Magne (1985) and Kornbacher (1989,1992), allowed for us to make tabulations of some of the most important, if most obvious, debitage traits.

We identified four categories of debitage - platform bearing debitage, broken flakes, bipolar flakes, and block shatter. The platform bearing debitage category included both flakes with broken margins as well as those with complete margins, while the broken flake category is essentially what both Magne (1985) and Kornbacher (1989, 1990,1992) refer to as a type of flake shatter - that debitage with crushed or absent platforms but where the ventral and dorsal surfaces can still be identified. Block shatter, on the other hand, is debris where ventral and dorsal surfaces could not be determined (Kornbacher 1992:168). Both the platform bearing flakes and broken flakes categories were further subdivided into early, middle, and late reduction stages. The reduction stage was noted whereever possible.

All four type categories were recorded on standardized forms along with the maximum measurement of the debitage and the material type. Maximum measurements were determined with aid of a polar graph using a series of concentric circles ranging in size from 5 to 50 mm. The debitage was placed in the circle of best fit in order to establish its maximum measurement. Any measurements greater than 50 mm were not recorded with precision.

Our procedure allowed us to record the debitage based on both unit and layer provenience. Level provenience was also recorded for the North Trench materials. For this report we amalgamated the information in layers. This enabled us to look at debitage trends and patterns through time. Percentage tables were created to represent the material types present in each layer as well as the various stages of lithic reduction identified (see Tables V- 62 to V-65). The tables of materials represent all of the debitage from each of the four debitage categories, while the tables of lithic reduction were constructed using the data from the two of the base categories - platform bearing debitage and broken flakes.

Analysis

Two patterns became obvious when the tabulation tables were converted to percents per layer.
There is both a change in reduction stage of the debitage over time, as well as a change in material use. As has been the case in much of the research done on the data collected from DgRr 1, the debitage data from the South Trench is much less ambiguous than that from the North Trench and shows a more consistent patterning of change.

As stated above early, middle, and late stage reductions determined during the debitage analysis were recorded where possible. Early stage reduction was by far the most common stage at DgRr 1 - representing the primary preparation of lithic core production. Secondary, or middle stage reduction is also consistently represented, though at a much lower rate. Of particular interest here is that late stage reduction is always present in the South Trench, if in low quantities, between layer CT and the lowest layer of excavation, Layer CY (see Figure V-39). We believe the switch from the Locarno Beach phase to the earlier St. Mungo phase occurs in the vicinity of layer CT/CU. The debitage data may indicate that the site was used differently during the St. Mungo phase than succeeding phases because late stage reduction plays a more significant role in the earlier layers, possibly indicating more time was being spent at the location. This is

Table V-62. Stages of Lithic Reduction; South Trench. Horizontal lines are the divisions between Marpole, Locarno, and St. Mungo components.

Layer	Early	Middle	Late	Debitage Total
CL	76.1	23.9		71
CM	86.5	13.5		37
CN	95.2	4.8		21
CN-2	95.3	4.7		127
CN-3	100			15
CN-4/5	91.6	8.4		71
CO	88.2	11.8		17
CP	98.2	1.8		56
CP1-3	96.8	3.2		62
CQ	92.9	7.1		42
CR	91.2	8.1	0.7	136
CR-1/2	96.4	3.6		83
CS	92.8	7.2		153
CT	79.0	18.0	3.0	100
CT/CU	78.1	20.8	1.1	183
CV	79.1	20.0	0.9	115
CV-1/2	76.1	21.1	2.8	71
CW	80.3	19.0	0.7	147
CX	90.2	7.3	2.4	41
CX-1	78.7	21.3		94
CX-2	71.8	25.6	2.6	39
CY	90.2	7.3	2.5	41

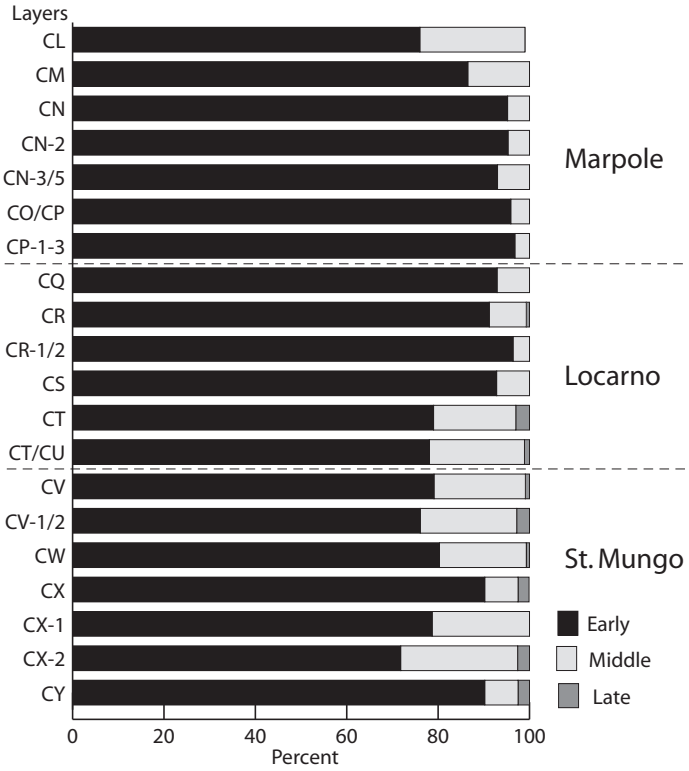

Figure V-39. Stages of lithic reduction, South Trench

consistent with evidence presented elsewhere that demonstrates that the St. Mungo component may have been "base camp" occupation while most Locarno and Marpole layers are indicative of a "limited activity" area. A possible exception to this scenario is the early Locarno layer CT, whose modest sample shows a pattern more like that of St. Mungo than other Marpole or Locarno layers.

In the North Trench, late stage lithic reduction is particularly obvious in association with Feature 9 (see Table V-63, Layer BC-H). This is consistent with our interpretation of this feature as a distinct living surface, where a greater range of habitation activities took place. The other debitage bearing layers of the North Trench come from layers associated with the St. Mungo phase and are older than Feature 9. These layers have similar quantities of lithic material per reduction stage as the layers CV to CY of the South Trench, therefore supporting a similar interpretation for these St. Mungo deposits. It is interesting that the exception to this general trend of decreasing late stage debitage is Feature 9, a winter-time Locarno habitation deposit. Layers CT and CT/CU, the oldest Locarno layers in the site are the only other non-St.

Table V-63. Stages of Lithic Reduction; North Trench by percent.

Layer	Early	Middle	Late	Indeterminate	Debitage Total
BC-H series	79.5	17.9	2.6		195
Fnw/sw 210-230cm	77.4	20.6	1.3	0.7	305
Fnw Below 230cm	81.8	16.9	1.3		319

Table V-64. Lithic Material; South Trench by percent.

Layer	Basalt	Chert	Quartzite	Other	Debitage Total
CL	68.7	7.5	13.8	10.0	80
CM	72.6	9.8	9.8	7.8	51
CN	71.4	10.7	14.3	9.1	28
CN-2	70.4	7.0	12.7	9.9	142
CN-3	76.5	5.8	5.8	11.8	17
CN-4/5	73.4	5.1	7.6	13.9	79
C0	75.0		20.0	5.0	20
CP	57.7	5.6	26.8	9.9	71
CP1-3	55.2	6.9	31.0	6.9	58
CQ	68.6	7.8	5.9	17.7	51
CR	63.0	5.4	9.8	21.8	184
CR-1/2	78.1	6.3	10.4	5.2	96
CS	71.3	0.9	16.3	11.5	209
CT	65.8	2.6	14.5	17.1	117
CT/CU	62.1	2.1	23.7	12.1	240
CV	59.6	2.6	25.0	12.8	156
CV-1/2	62.1	6.5	16.9	14.5	124
CW	53.3	3.6	26.7	16.4	195
CX	60.3	3.5	27.6	8.6	58
CX-1	58.8	2.3	30.5	8.4	134
CX-2	50.9	5.7	30.2	13.2	53
CY	59.2	10.2	24.5	6.1	49

Mungo layers to show this pattern and fit the overall trend of decrease through time.

The second significant pattern observed suggests that there was a change in preference for the type of lithic material used over time. Our tables demostrates fluctuations in the use of "basalt" (as traditionally defined on the Northwest Coast), chert, and quartzite as well as an amalgamated category for other materials which occurred in lower frequencies. Our analysis indicates that the type of lithic material used in the South Trench changes several times. As we move down through the layers we see a decreasing preference for basalt and, in the lowest, or earliest, layers, an increasing preference for quartzite. Chert and other kinds of lithic materials remain a fairly consistent alternative to basalt and quartzite, but are not as common. However, chert does seem to be more prevalent in the most recent layers of the South Trench.

Table V-65. Lithic Materials; North Trench by percent.

Layer	Basalt	Chert	Quartzite	Other	Debitage Total
BC-H series	47.5	16.0	15.0	21.7	244
Fnw/sw 210-230cm	69.2	2.6	16.4	11.8	390
Fnw Below 230cm	49.7	3.9	35.4	11.0	384

In the North Trench (Table V-65) the patterns are similar if not as obvious. Basalt is the most common lithic material used in the layers from 210-230 cm in depth (excluding Feature 9). The presence of basalt diminishes somewhat below the 230 cm depth. At these lower depths quartzite become more prevalent. These are the oldest layers of the site (4000 to 4500 RCYBP) and they contain the highest amount of quartzite and the lowest amount of basalt in any layers at Crescent Beach. Similarly, an evaluation of lithic debris at Glenrose (Matson 1976:185-189) indicated that there was more quartzite use in St. Mungo than in succeeding levels. That analysis also showed a decrease in size of flakes over time.

The layers of the BC-H series, associated with Feature 9 are distinct and add further support to our interpretation of this feature as a distinct living floor. The amount of basalt associated with this feature is much lower than in the Locarno Beach aged layers in the South Trench and chert reaches its peak abundance in this feature. Quartzite and other materials are also present in significant quantities thereby emphasizing the unique character of the Feature 9 in contrast to the rest of the site

The use of quartz crystal was of specifically noted during this analysis. Quartz crystal is processed using a bipolar technique, unlike the other lithic materials recovered at Crescent Beach and was therefore counted separately. Since it is very difficult to determine if quartz crystal flakes were utilized we counted all material, including those classified as microliths and thought to be retouched or utilized. This tabulation is presented in Table V-65.

As is easily seen in Table V-65 and Figure V-40, quartz crystal is only barely present in the St. Mungo component in the South Trench and not present at all in the St. Mungo component in the North Trench. Toward the end of the St. Mungo component in the South Trench quartz crystal is present, but only accounts for more than 1% in the last St. Mungo layer (CV) at 2.5% of the debitage. Beginning in the Locarno component in the South Trench it becomes omnipresent, accounting for greater than 20% of the debitage. In the Marpole component quartz crystal is present in all five tabulated layers, ranging from 2.5% to 10%. In the North Trench, the only quartz piece present is a piece of vein quartz found in Feature 9, Layer BC-H. The lack of quartz crystal in Feature 9 suggests that whatever quartz crystal was used for, it was not an activity that took place in the winter.

Table V-65. Quartz Crystal Tools and Debitage.

South Trench

Layer	Quartz	Debitage Total	Quartz/Debitage Ratio
CL	2	80	.025
CM	4	51	.08
CN/CN-5	27	269	.10
C0	1	20	.05
CP/CP-3	10	129	.08
CQ	0	51	.00
CR	47	184	.26
CR-1/2	16	96	.17
CS	39	209	.19
CT	1	117	.01
CT/CU	9	240	.04
CV	4	156	.026
CV-1	0	124	.00
CW	1	195	.005
CX	0	58	.00
CX-1/2	1	184	.005
CY	0	49	.00

North Trench

BC-H series	1(?)	244	.004 (?)
Fnw/sw 210/230cm	0	390	.00
Fnw > 230cm	0	384	.00

Summary and Conclusions

There are two primary results from this study. First, middle and late stage reduction was most significant during the earliest occupations of the site. By the middle of the Locarno Beach component, late stage reduction has disappeared and the middle stage has a median value of 7.1% of the debitage. Similar results were obtained by Kornbacher (1989, 1992) for the Marpole component at English Camp. In contrast the South Trench St. Mungo layers have a median value of 20.0% for middle stage and 2.4% for late stage. The exception to this trend is Feature 9 whose middle and late stage values of 17.9% and 2.6% are more like that of St. Mungo than other Locarno or Marpole layers. As broader ranges of lithic reduction stages is associated with longer durations of occupation (Pokotylo 1978), this pattern suggests that the St. Mungo occupation operated more like a “base camp” (with the exception of Feature 9), while the Locarno and Marpole occupations were more representative of “limited activity” occupations.

The second pattern conclusion is that basalt use increases through time, while the use of quartzite decreases. The highest percentages of quartzite and lowest amounts of basalt are found in the lowest St. Mungo layers in the North Trench, as would be expected. Once again, Feature 9 is an exception, with the highest amounts of chert of any layers. The special case of quartz crystal shows a grand total of six (6) pieces in the St. Mungo in the South Trench and none in the North Trench, a clear contrast with the 112 found

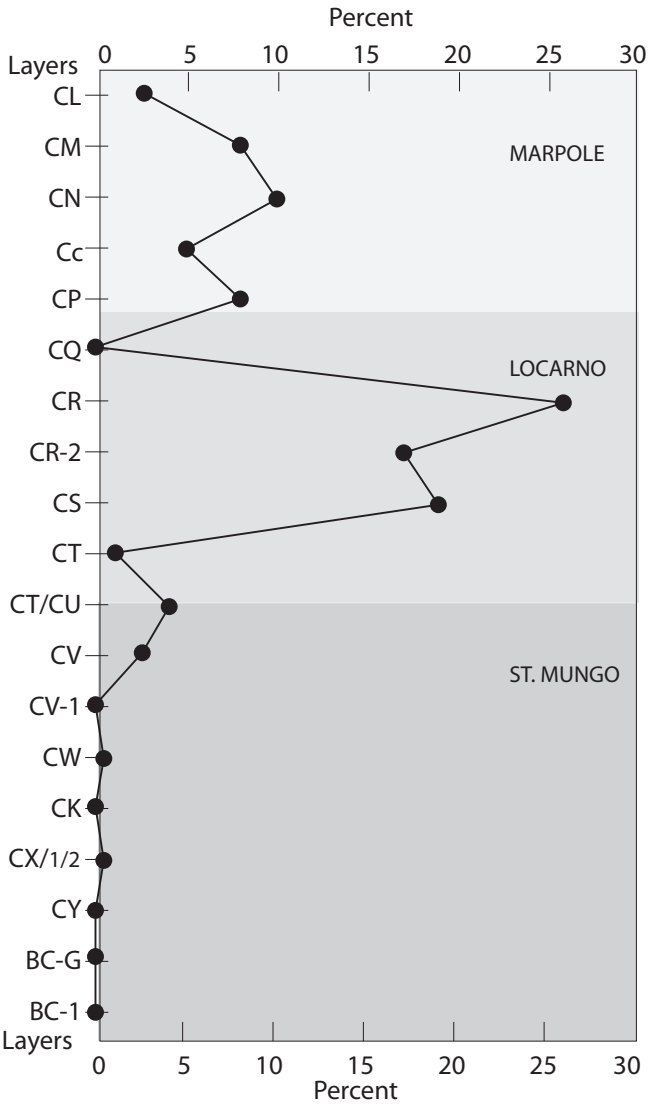

Figure V-40. Quartz cystal debitage and tools through time as percent of total debitage.

in the South Trench Locarno component. A smaller, but still substantial amount is found in the Marpole component. Curiously, a single piece of vein quartz is the only quartz found in the Locarno feature (BC-H) in the North Trench.

The results of this study demonstrate the usefulness of this approach and add another dimension to the interpretation of the site. The evidence summarized above supports three important interpretations about the nature of the deposits: that we have evidence of a change in use from that of a base camp to limited activity occupation; that there is change in preference for lithic material; and that Feature 9 in the North Trench is an exception to both these interpretations.