
The Pender Canal Site and the Beginnings of the Northwest Coast Cultural System

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ABSTRACT. Data from the Pender Canal site excavations relevant to the time and place of origin of the Northwest Coast cultural system are presented with calibrated and new marine reservoir corrected radiocarbon dates. The emphasis is on the evidence for art, ceremonialism, and personal adornment present in the 4500 to 2600 cal B.P. time period, and their relevance as indicators of early socio-cultural complexity.

RÉSUMÉ. Les données provenant des fouilles du site Pender Canal pertinentes à l'heure et le lieu d'origine du système culturel côte nord-ouest sont présentés avec des dates de radiocarbone corrigées réservoir marine calibrées et nouvelles. L'accent est mis sur les éléments de preuve pour l'art, cérémonialisme et parure présent dans le B.P. période 4.500 à 2.600 cal, et leur pertinence en tant qu'indicateurs de la complexité socio-culturelle précoce.

SINCE AT LEAST THE TIME OF KROEBER (1939), the Northwest Coast (NWC) has been recognized as one of those culture areas that achieved a high degree of socio-cultural complexity without benefit of agriculture. Because of this absence, the NWC peoples have usually been labeled as hunter-gatherers even though a more descriptive label would be fisherfolk, meaning that fishing was more central than either hunting or gathering to the cultural system as a whole. The ethno-historic inhabitants were descended from nomadic bands that spread to the coast between 14,000

and 10,000 years ago (see Carlson and Dalla Bona 1996). The abundant preservable marine resources led to population increase and to seasonal sedentism with permanent villages where the preserved foodstuffs could be stored for winter use, and as indicated by the data presented here, led by 4000 B.P. to the development of ceremonies and artwork, and to wealth accumulation in the form of personal ornaments. Data from salvage excavations at the Pender Canal sites (DeRt-1 and DeRt-2) undertaken from 1984 through 1986 (Carlson 1984, 1985, 1986) have now been more precisely dated with a total of 78 radiocarbon dates. Data from these excavations have previously been incorporated into a number of specialized analyses: Burchell (2006), Carlson (2005, 2016), Chisholm (1986), Dahm (1994), Garvin (1987), Hanson (1987), and Morin (2015), with important implications for our understanding of NWC prehistory. The Pender Canal dates used in previous reports and publications were usually uncalibrated, and the direct dates on human remains lacked a local marine reservoir correction. These 78 dates have now

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been calibrated, and the local marine reservoir correction calculated and included in the direct dates on human remains. The intent of this paper is to apply the corrected dates to the early component in the Pender sequence at DeRt-2 that we know now dates between 5200 and 2600 cal B.P., and to point out the relevance of this component in the development of the socio-cultural complexity typical of the NWC cultural system, particularly regarding art, ceremonialism, and personal adornment. The data sample employed in this paper is centered on the dated burials and their directly associated grave goods.

The Pender Canal Sites

Two adjacent non-contiguous sites (DeRt-1 and DeRt-2) together known as the Canal Site are situated in the Gulf Islands off the mouth of the Fraser River in British Columbia, in what is now known as the Salish Sea (Figure 1). Both are badly eroded remnants of shell middens partially destroyed by the construction of a ship canal between North and South Pender islands in 1902–1903. DeRt-1 at the northern end of the canal



FIGURE 1. Map of the central part of the Salish Sea showing location of the Pender Canal Site, DeRt-2.

is the younger site, is a true midden (i.e., trash dump), and is not considered further in this article. DeRt-2, at the southern end of the canal on its western edge not far from the head of Bedwell Bay, is the older site and provided the data used in this article. The topography of DeRt-2 consists of two low mounds (Figure 2). Mound 1 appeared before excavation to be an ordinary shell midden composed of waste, but turned out to be a 16 m x 20 m remnant of a low 2 m thick burial mound. All of its contents, other than a smattering of younger materials in its upper levels, are arguably related to this function as a burial mound. The lower and middle portions of this mound, referred to as the Main Midden (Carlson and Hobler 1993), now date between 5242 and 2661 cal B.P. (Table 1). Human burials and associated artifacts from Mound 1 (Table 2) are the sources of data for the determination of socio-cultural complexity during this time period. Mound 1 was probably at the elevated inland edge of a major winter village destroyed by canal construction and rising sea levels. Mound 2 is a trash mound similar to deposits at DeRt-1, and dates to a younger time period. The salvage excavations were undertaken jointly by the B.C. government Heritage Conservation Branch (now the Archaeology Branch) and the Department of Archaeology at Simon Fraser University because of on-going erosion caused by boat traffic and rising sea levels, and a proposal to sell the land for a housing development.

Radiocarbon Dates

All the radiocarbon dates from both DeRt-1 and DeRt-2 are graphed in Figure 3. The radiocarbon dates of interest in this article are the calibrated and marine reservoir corrected

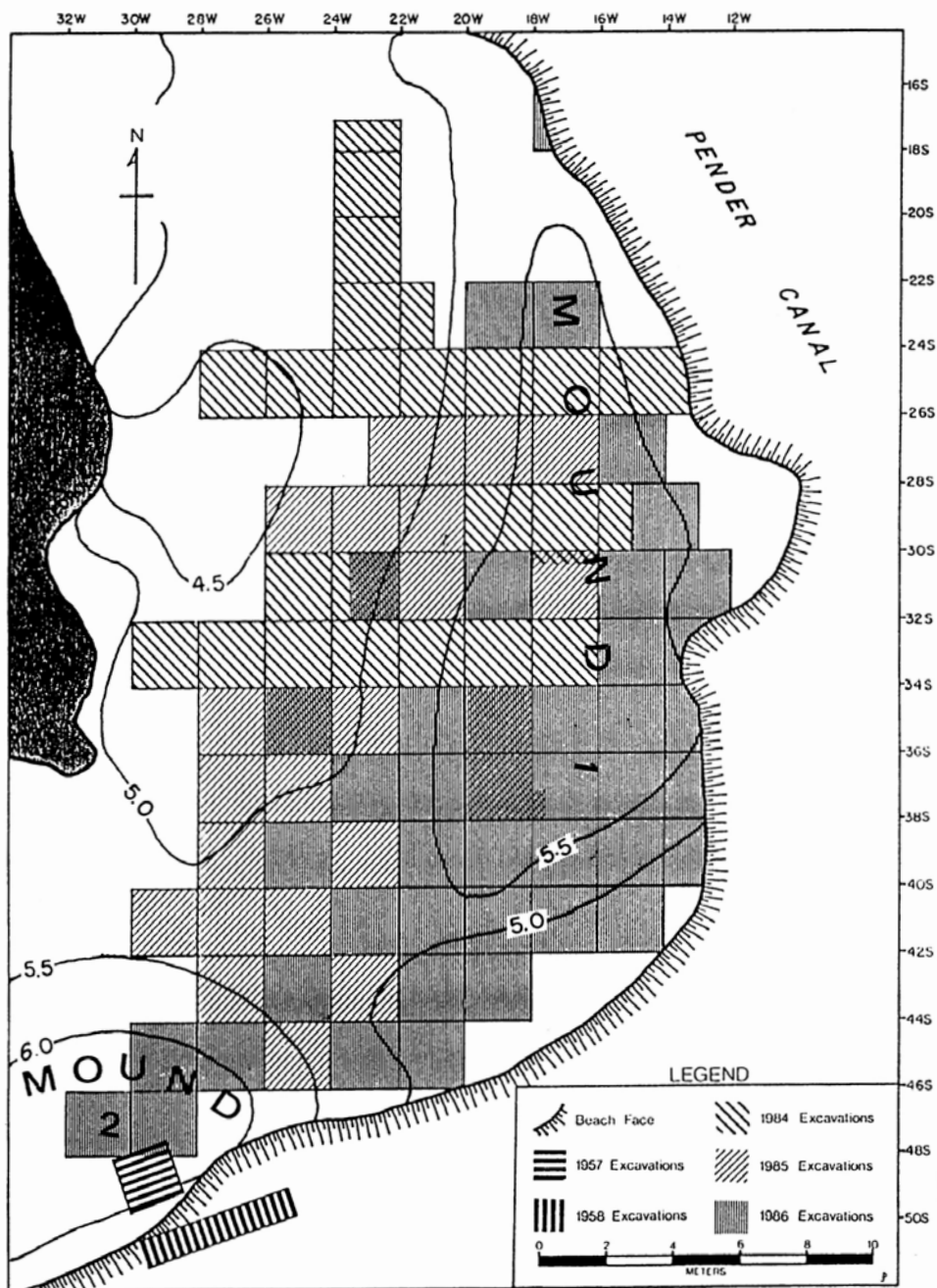


FIGURE 2. Map of DeRt-2 showing extent of excavations and location of Mounds 1 and 2.

TABLE 1. Radiocarbon dates on early burials from DeRt-2.

Burial No. DeRt-2	Average Burial + Artifact Dates cal B.P.	Burial Dates cal B.P., 1 σ	Artifact Dates cal B.P., 1 σ	Burial Dates	Lab No. Burial Dates	Lab No. Artifact Dates
				Not Calibrated B.P., 1 σ		
84-12a	5242	5242 \pm 280	–	5170 \pm 220	RIDDL-100	–
84-23	4477	4477 \pm 105	–	4580 \pm 550	RIDDL-218	–
84-33	4289	4289 \pm 255	–	4430 \pm 170	RIDDL-104	–
84-31	4145	4145 \pm 308	–	4320 \pm 220	RIDDL-96	–
84-34b	4143	4143 \pm 225	–	4320 \pm 150	RIDDL-105	–
84-29	3943	3973 \pm 102	3913 \pm 87	4197 \pm 27	MAMS-22461	MAMS-22449
85-22	3931	3931 \pm 130	–	4165 \pm 60	SFU-541	–
85-1a	3811	3811 \pm 221	–	4070 \pm 150	RIDDL-268	–
84-41	3646	3646 \pm 195	–	3970 \pm 140	RIDDL-107	–
84-12b	3600	3600 \pm 103	–	3910 \pm 40	Beta279223	–
84-5c	3447	3447 \pm 245	–	3780 \pm 180	RIDDL-103	–
85-38a	3257	3257 \pm 157	–	3630 \pm 140	RIDDL-274	–
84-27	3246	3246 \pm 263	–	3620 \pm 200	RIDDL-99	–
86-55	3242	3276 \pm 93	3208 \pm 75	3638 \pm 23	MAMS-22689	MAMS-22460
85-36	3220	3220 \pm 218	–	3600 \pm 160	RIDDL-272	–
85-30	–	3409 \pm 220	–	3750 \pm 160	RIDDL-271	–
85-30	3206	3121 \pm 109	3094 \pm 52	3515 \pm 23	MAMS-22680	MAMS-22906
84-46	3184	3184 \pm 196	–	3570 \pm 140	NUTA 6729	–
85-38b	3139	3143 \pm 18	3136 \pm 48	3531 \pm 23	MAMS-22683	MAMS-22453
85-13	3135	3244 \pm 95	3026 \pm 42	3610 \pm 22	MAMS-22678	MAMS-22451
85-35	3112	3128 \pm 114	3097 \pm 47	3520 \pm 22	MAMS-22682	MAMS-22907
86-32b	–	3167 \pm 115	3065 \pm 68	3549 \pm 24	MAMS-22908	MAMS-22459
86-32b	3109	3136 \pm 177	3069 \pm 68	3530 \pm 120	NUTA 6738	MAMS-22453
86-32a	3083	3084 \pm 107	3082 \pm 53	3487 \pm 23	MAMS-22687	MAMS-22908
85-8	3054	3200 \pm 104	2909 \pm 34	3574 \pm 23	MAMS-22684	MAMS-22450
86-37	3044	–	3044 \pm 70	–	–	MAMS-22456
85-17	–	3127 \pm 222	–	3520 \pm 170	RIDDL-275	–
85-17	3026	2963 \pm 103	2990 \pm 51	3393 \pm 22	MAMS-22679	MAMS-22452
85-37	2967	2967 \pm 199	–	3380 \pm 150	RIDDL-273	–
84-34c	2953	2953 \pm 365	–	3370 \pm 280	RIDDL-102	–
85-31	–	3182 \pm 104	2907 \pm 35	3560 \pm 21	MAMS-22681	MAMS-22458
85-31	2918	2597 \pm 199	2989 \pm 51	3090 \pm 150	NUTA 6730	MAMS-22457
86-20	2837	2869 \pm 88	2806 \pm 35	3314 \pm 23	MAMS-22686	MAMS-22454
84-35	2831	2831 \pm 296	–	3270 \pm 220	RIDDL-108	–
86-10	–	2552 \pm 123	–	3040 \pm 60	SFU-545	–
86-10	2786	2990 \pm 102	2818 \pm 69	3414 \pm 23	MAMS-22685	NUTA 3787
84-37	2661	2661 \pm 285	–	3140 \pm 220	RIDDL-97	–

TABLE 2. Early dated burial types and associations at DeRt-2.

Burial No.	Average Date cal B.P.	Age	Sex	Burial Type	Rock Feature	Associated Fauna	Associated Artifacts
84-12a	5242	A	U	S	–	–	–
84-23	4477	A	U	S	–	–	–
84-33	4289	A	F	UP	10	–	Labret, labret wear
84-31	4145	A	F	F, L	–	Mammal	Gorget, 2 labrets, labret wear
84-34b	4143	A	F?	UP	–	–	–
84-29	3943	A	U	S	14	Dog, deer, fish	Abrader, bone object ^a , bowl
85-22	3931	A	M	F, R	–	Fish	Inlay, mica beads, 3 microblades, whatzit, bone pin
85-1a	3811	CH	U	F, L	7	–	–
84-41	3646	A	U	S	3	–	–
84-12b	3600	A	M	F, R	4	–	Labret wear
84-5c	3447	CH	U	S	2	–	–
85-38a	3257	A	F	F, R	11	Fish	Spoon, inlay, whatzit, chopper
84-27	3246	A	F?	UP	4	Fish, mammal	Spoon, hammerstone, core, ochre
86-55	3242	A	M	F, R	–	–	Bone point ^a
85-36	3220	A	F	UP	Cist	–	Spoon over mouth
85-30	3206	A	M	F, R	11	–	Bone point ^a , 2 abraders, whatzit, hammerstone, biface, bead, edge-ground cobble
84-46	3184	A	M	F, R	–	Deer, 6 dog mandibles	Bowl, 8 chipped points, bone point, hammerstone, raw soapstone
85-38b	3139	CH	U	S	–	–	Spoon ^a
85-13	3135	A	M	F, R	8	Dog, deer	Wedge ^a , abrader, flake
85-35	3112	A	M	F, R	3	–	10 fish hook barbs ^a
86-32b	3109	A	M	F, D	13	Dog, deer, fish	Wedge ^a , bone point, chisel ^a , core, 2 flakes, abrader, fishhook barb, raw soapstone, whatzit
86-32a	3083	A	F?	F, D	13	Dog	Bone point ^a , flake, whatzit
85-8	3054	A	F	F, R	3	–	Labret, wedge ^a , core
86-37	3044	A	F?	F, R	10	Dog	Whatzit, 2 bowls, gouge ^a
85-17	3026	A	M	Ext	13	Bird	Whatzit, 5 wedges ^a , 3 abraders, 2 net sinkers, saw, shell bead, stone rod
85-37	2967	A	F	UP	Pit	Deer	Spoon over mouth
84-34c	2953	A	M?	F, R	–	–	–
85-31	2943	A	M	F, L	2	–	Bone gouge, 3 bone awls ^a , bone fishhook barb ^a , 2 abraders
86-20	2837	A	F	F, R	3	Fish, deer	Wedge ^a , microblade, biface, abrader, incised whalebone
84-35	2831	A	F	UP	10	–	Bone point
86-10	2786	A	M	F, L	6	–	Wedge ^a , chert point, bone point, 3 bone awls, fishhook barb, anchor
84-37	2661	A	F	UP	Cist	–	Bowl upright in right hand

^aDated artifact.

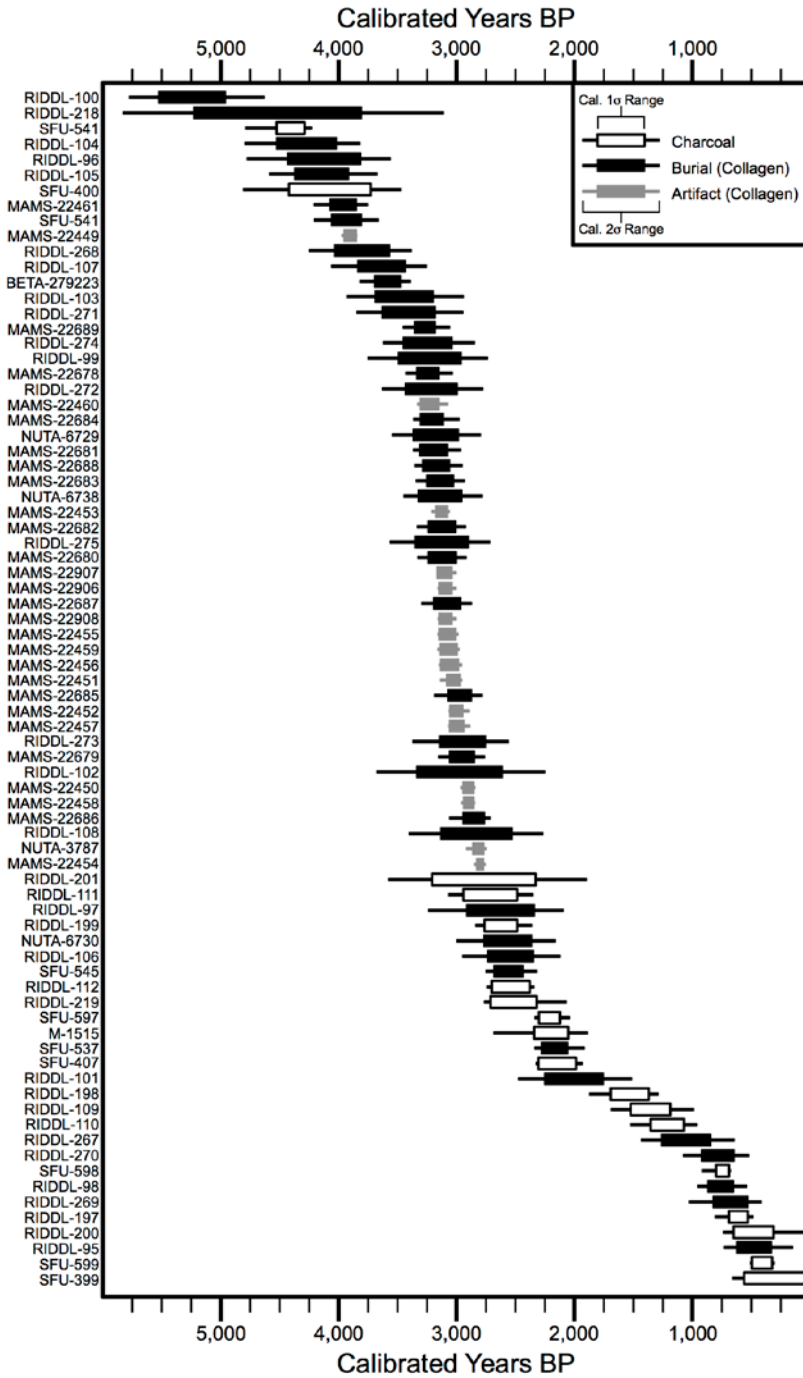


FIGURE 3. Calibrated radiocarbon dates from DeRt-2.

dates on burials from Mound 1 at DeRt-2 with median dates between 5242 cal B.P. and 2661 cal B.P. There are 54 dates in this time range of which two, 4092 ± 345 cal B.P. (SFU-400) and 4434 ± 225 cal B.P. (SFU-541), are on charcoal from the bottom of Mound 1. Thirty-six are direct dates on the human remains (Table 1). Isotopic analyses (Chisholm 1986) had indicated the presence of an overwhelming amount of marine protein in the local diet that would cause the radiocarbon samples to date too old, thus necessitating a local marine reservoir correction. This correction has now been achieved by dating 16 artifacts made from terrestrial mammal bone that were directly associated with 13 of the human burials (Table 3), and then comparing these dates with dates on the human remains (e.g., Yoneda et al. 2002). This approach resulted in an average ΔR value of 226 ± 72 years with

the burials producing dates that were, on average, 631 years older than the associated terrestrial mammal bone artifacts. The technical details of this dating are in preparation and will be presented in greater detail in a future publication. The original uncalibrated radiocarbon dates on human remains, the calibrated dates containing the marine reservoir corrections, the calibrated dates on the associated artifacts, and the laboratory numbers are listed in separate columns in Table 1. The additional column at the left lists an average date for each burial that will be the same as the calibrated/marine corrected date if there is only one date for the burial, but if there is more than one such date on the human remains and associated artifacts, these dates are averaged to obtain the single date in this column. The dated burial types and their associations are listed in Table 2. All the dates used to generate

TABLE 3. AMS radiocarbon dates for the terrestrial mammal bone artifacts and associated burials used to generate the local marine reservoir correction.

Artifact #	Artifact Lab ID	Artifact		Associated		Associated Burial			ΔR^1
		^{14}C Age	\pm	Burial	Burial Lab ID	Date	$\Delta_{\text{Burial-Artifact}}$		
362	MAMS 22449	3606	24	84-29	MAMS 22461	4197	591	186	
963	MAMS 22450	2808	24	85-8	MAMS 22684	3574	766	361	
1270	MAMS 22451	2895	24	85-13	MAMS 22678	3610	715	310	
1481	MAMS 22452	2870	23	85-17	MAMS 22679	3393	523	118	
1561	MAMS 22906	2932	18	85-30	MAMS 22680	3515	583	178	
1722	MAMS 22907	2934	18	85-35	MAMS 22682	3520	586	181	
1811	MAMS 22453	2970	24	85-38	MAMS 22683	3531	561	156	
2494	MAMS 22454	2709	23	86-20	MAMS 22686	3314	605	200	
2974	MAMS 22455	2923	24	86-32b	MAMS 22688	3549	626	221	
3309	MAMS 22456	2909	24	85-31	MAMS 22681	3560	651	246	
3546	MAMS 22457	2869	26	85-31	MAMS 22681	3560	691	286	
3600	MAMS 22908	2929	17	86-32a	MAMS 22687	3487	558	153	
3608	MAMS 22458	2805	24	85-31	MAMS 22681	3560	755	350	
3611	MAMS 22459	2921	25	86-32b	MAMS 22688	3549	628	223	
3706	MAMS 22460	3016	26	86-55	MAMS 22689	3638	622	217	

¹Taking 405 years as the global average marine reservoir offset.

an estimate of the local marine reservoir correction were AMS dates generated in 2014 and 2015. These dates are summarized in Table 3.

The averaged dates form a continuous sequence of dated burials (Table 1) from 4477 cal B.P. to 2661 cal B.P., but with an outlier on fragmentary remains at 5242 cal B.P. that provides no information other than human presence, and is not given further consideration. There is less than a 200 year interval between the averaged median date for all the other burials, and less than a 100 year interval between 22 of the burials. The sequence of dates combined with the similarities in artifact and burial types throughout is firm evidence for cultural continuity from 4,500 to 2,700 years ago, and is strongly indicative of a permanent settlement.

Cultural Chronology

The time period of the earliest component at DeRt-2 is the period of both the Mayne phase and its transition into the succeeding Locarno Beach phase.

Charles Borden (1970) published a diagnostic artifact inventory for the Locarno Beach phase in the Fraser Delta sequence that was later extended to the Gulf Islands; Terry Clark (2013:44) has compiled a more recent list of artifact content, and Dale Croes (2015), a list that includes basketry. The Mayne phase (Carlson 1970) was originally defined at the Helen Point site as ancestral to the Locarno Beach phase on the basis of both the continuation of certain artifact types, and the absence of others, such as sawn nephrite adze blades in the earlier component. The Mayne phase beginning about 5500 cal B.P. also marks the beginning of the transition from chipped stone to ground slate projectile points that become much more common

in the Locarno Beach and later phases. Terry Clark (2013), using advanced quantitative techniques, has recently reconfigured the local sequences in this region by combining the Mayne and Locarno Beach components that date after 3500 B.P. into a single taxon, the Locarno Beach phase, and extending this phase to 1500 B.P. on southern Vancouver Island where it overlaps temporally with the Marpole phase (Carlson 1960) on the Lower Fraser and Gulf Islands. These differing taxonomies are a product of utilization of different types or frequencies of artifacts as diagnostics, the probable lack of prehistoric cultural uniformity beyond the village level, and the non-random sampling of archaeological deposits. The DeRt-2 data continue to support the relationship and separation of Mayne and Locarno Beach phases as originally defined, and would place the beginning of the Locarno Beach component at about 2600 B.P.

Pender Burials

Adult males, females, and children are all present in the dated early burial population at DeRt-2 (Table 2). Burial forms range from flexed on the left (FL) or right (FR) side or back (FB); upright (UP) either seated or stacked in a crude rock cist or pit of which some are bones piled in a nearly anatomical position with the skull at the top, and others seem to have originally been seated; extended (Ext); and scattered (S). The latter consists of incomplete clusters of bones of individuals that are probably parts of earlier burials disturbed by later interments, although some could be partial re-burials. There is one double burial: Burial 86-32a, b is an adult male and female buried together. Burial 85-38b is the scattered remains of a child that was probably disturbed when 85-38a,

an adult female, was buried. Other burials (84-12a, b; 84-34b, c) with the same number but with different letters were discovered at the same time, but upon full excavation were determined to be separate interments. The different burial configurations could indicate differences in wealth or status, but there is no evidence for extremely wealthy individuals, possibly because most material wealth was in the form of perishable objects as during the ethnographic period throughout the NWC.

Rock Features

Rock features (Table 2) were associated with 20 of the dated burials. These features range from a single large rock, to multiple rocks around or over part of the burial, to crude rock slab cists used to keep the bones more or less upright, to piles or cairns of three to 14 rocks at the side or head or partially over the skeleton. Burial 84-27 is of particular interest as it consists of a small stone cairn at one end of the pit, and a pile of bones with the skull and a spoon at the top near the center of the pit; the pit is the size and shape to accommodate a flexed burial. This configuration suggests burial, and then exhumation after the flesh had decayed, and then rearrangement of the bones with the skull at the top for feeding. The number of rocks with each burial is given in Table 2.

Associated Artifacts

Artifacts accompanied 24 of the dated burials (Table 2). Although these artifacts were found in direct contact with burials, many more were found scattered throughout Mound 1. The probable custom was to place much of an individual's belongings on or near the grave as well as in contact with the corpse. Subsequent reburial and/or

later disturbance would have resulted in breakage and scattering of the grave goods. Many of the artifacts are related to tool making: sandstone abraders, stone files, antler wedges and bone chisels for working wood and bone, multi-purpose chipped stone choppers and flake cores, bone awls, hammerstones, and quartz crystal microblades probably used for carving. Small stone line sinkers and bone barbs for composite fish hooks suggest specialists in fishing, and bone and chipped stone projectile points, knives, and discoidal scrapers suggest specialists in hunting. Beads, labrets, and soapstone and bone ornaments, often called "whatzits" (Duff 1956), indicate wealth and status. However, the even more informative burial inclusions are objects indicative of the burial ritual of feeding the ancestors.

Feeding the Ancestors

The most widespread NWC social event ethnographically was the potlatch that involved gifts of food to the assembled guests by feasting, and in the more competitive forms, destruction of property and giving of other gifts as symbols of wealth and social status (Barnett 1939; Codere 1966; Drucker 1963; Suttles 1990). Feasting is a highly significant social event worldwide, and feasting appears to be the central aspect of traditional potlatches before the A.D. 1880s (Hayden 2014). Potlatches accompanied life crises of which the most widespread and probably the oldest is the memorial potlatch undertaken at various times after death (Birket-Smith 1967). Whereas 3,000 years ago at DeRt-2 the archaeological evidence indicates the dead were fed using spoons and shell bowls, and probably other containers of wood, horn, or basketry that have since perished, today feeding the dead is still

widespread on the NWC, but is usually accomplished by sending food to the ancestors by burning (Barnett 1955). First Nation students in my archaeology class in 1997 at Alert Bay all stated that this practice still takes place among all Kwakwaka'wakw bands. Among the Tlingit (Victor-Howe 2007), a memorial feast is still held using heirloom spoons to symbolize feeding the ancestors. The widespread manufacture and use of elaborately carved spoons on the NWC is indicative of their function as symbols of the potlatch.

At DeRt-2 we recovered three kinds of data from burials indicative of the custom of feeding the dead (Table 2): (1) clamshell bowls usually found upright near the mandible of the deceased; (2) bones of mammals, birds, or fish found directly associated with the human skeletons; and (3) ritual spoons made of antler usually found over the mouth or near the skull of the deceased (Table 2). One fish-form stone bowl found in the upper levels of Mound 1 probably served this same purpose.

Shell Bowls

The large valve of the local horse clam (*Schizothaerus* sp.) was present in all cases where a single bowl was used. The smaller valve of the butter clam (*Saxidomus giganteus*) accompanied the larger valve in one case. Shell bowls were found with 16 burials: single bowls with 13, and two, three, and six bowls with one each. In the latter case (86-8), four bowls were found near the mandible and two more on the associated rock cairn. In all but two cases the bowl was found near the skull. In one of the two cases the bowl rested upright in the right hand of a seated female burial (84-37) in a stone cist. In the other case the bowl was found over the right hand

of a flexed female burial (85-19). Shell bowls were found with five females, three males, one juvenile, one child, and three un-sexed adults. Four of the burials with shell bowls were dated (Table 2). The undated examples can be placed on associational grounds in the same period between 4000 and 2600 B.P. No shell bowls were found with burials post-dating 2600 B.P.

Faunal Remains

Faunal remains found in direct contact with the skeleton, that appear to have been placed intentionally with the burial rather than being intrusive from general midden debris, were found with 13 dated burials (Table 2). Deer or elk bones were with six burials; *Canis* (probably dog) with four; fish with five; bird with one; and unidentified mammal with two. Their context indicates these offerings were intended as food for the dead. Rodent bones were found with one burial but could be intrusive and have not been included. It is possible that all the faunal remains in the midden were considered as food to be regenerated for use in the land of the dead, and that was the reason the dead were buried in middens (Carlson 1999:44). Broken artifacts could have been thought to be regenerated in the land of the dead in the same way.

Ritual Spoons

Eleven antler spoons with handles exhibiting carved motifs, including fragments, were recovered. The spoons range from 21–27 cm in length and 2–3 cm in width, and were carved from a single piece of deer or elk antler. Carved images are found on both the bowl and handle of one spoon, but only on the handle of the others. Several of the spoons exhibit shallow indentations

that may have held decorative inlays of a material that has not survived. The presence of one unfinished spoon suggests that the spoons were made at DeRt-2. There are two additional spoons from DeRt-2 in the collection of the Royal British Columbia Museum, and four more of the same type had been found as a cache at Old Musqueam at the mouth of the Fraser River that date to about 2600 B.P. (uncalibrated) (Borden 1983:139–140). All these spoons are clearly ritual objects, rather than objects used for mundane daily purposes. The images carved on the spoon handles appear to be expressions of a longstanding NWC belief system involving spirit power, transformation, regeneration from bone, and shamanism (Carlson 2011, 2016). Five of the DeRt-2 spoons were found with dated burials (Table 2). A fragment of one spoon was directly dated at 3136 ± 48 cal B.P. and the associated burial (85-38b) at 3143 ± 18 cal B.P. (Table 1). All five of the spoons date within the 290 year period from 3257 to 2967 cal B.P. Five spoons were associated with adult female burials, and one with a child. Five of the spoons are fragments found in midden debris not directly associated with a burial. Their condition and provenance suggest they originated with burials that had been disturbed.

Spoon 1. This spoon (Figure 4) is very fragmentary and was found with the scattered remains of a child (85-38b) that had apparently been disturbed by the later interment of an adult female (85-38a). Superposition indicates the child was probably the slightly older interment even though the radiocarbon dates could suggest otherwise. The carving on the handle is of a solid bird form at the tip; two fish-forms below are open at the back indicating they

represent facemasks. The next image is of a humanoid with heavy eyebrows, a protruding tongue, ear ornaments, and an open back indicating it is a facemask. A slot through the face below the chin was probably for a carrying thong. The arms (one missing) and legs of the mythological being represented were originally on the sides of the bowl, but because of fragmentation, could not be reattached. Circular joint marks at the shoulders and hips are on the back of the bowl of the spoon, and are the earliest known expressions of this symbol that is still found in NWC art today. These marks and the arms and legs at the sides indicate that the bowl of the spoon was

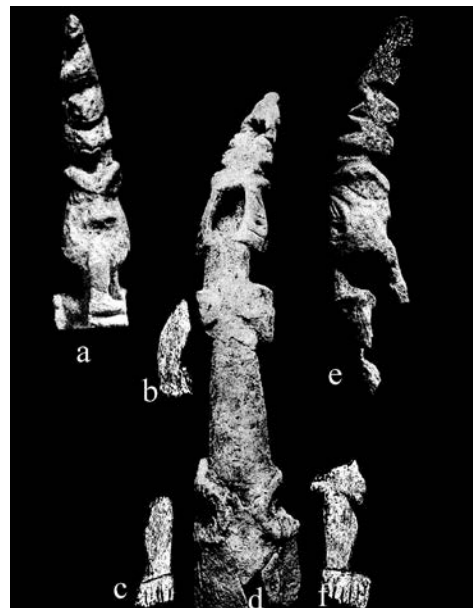


FIGURE 4. Spoon No. 1. (a) front of mask with protruding tongue surmounted by fish form masks and solid bird form; (b, c, f) arm and legs of masked figure originally attached at joint marks; (d) spoon back showing open back of mask, and circular joint marks at shoulders and hips; (e) profile view of mask showing ear ornament.

conceptualized as the body of the mythological being whose face was represented by the mask with protruding tongue on the handle. This spoon is directly dated at 3136 ± 48 cal B.P. (Table 1).

Spoon 2. This spoon was found protruding from below the left femur of an adult female (85-38a). Two solid 3-D owl images showing beaks, wings, and tails are at the end of the handle above an inverted human figure with closed eyes, ears and ear ornaments, arms across the chest, a split-image fish-form belt, and legs below this belt (Figure 5). A slot for a carrying thong is below the face. The burial with this spoon has a date of 3257 ± 157 cal B.P. (Table 1). An identical spoon is shown on the web page of the Pender Museum Society.

Spoon 3. This spoon was found near the skull of an adult female (84-27) whose bones had been stacked in a semi-anatomical position near the center of a pit of the size and shape for a flexed burial. A small cairn with several artifacts (Table 2) was in the northern end of the pit. A bird form is at the tip of the spoon handle, and below that a probably male humanoid in the hocker position with elbows resting on his knees, and with a pronounced backbone (Figure 5). This burial dates 3246 ± 263 cal B.P. (Table 1).

Spoon 4. This spoon (Figure 6b, c) was found over the mouth of an adult female (85-36) whose bones had been stacked with the skull at the top in a rock-lined pit or cist. The carving on the handle is of a rockfish with a pronounced backbone being confronted by the image of a wolf mask that probably represents a sea wolf. The rockfish is solid, whereas the wolf's head is hollow with an open mouth and a rectangular opening at the

base for the head of the wearer, indicating it is a forehead mask very similar to those still in use among several NWC ethnic groups, including the Salish-speaking Twana (Castile 1985:386–387). This burial is dated at 3220 ± 218 cal B.P. (Table 1).

Spoon 5. This spoon (Figure 6a) was found at the top of a semi-anatomical stack of badly fragmented bones of an adult female (85-37) in a deep, narrow pit. At the tip of the handle is a hollow



FIGURE 5. Handle of Spoon No. 3 (upper) with hocker figure with pronounced backbone, and human figure from Spoon No. 2 (lower).

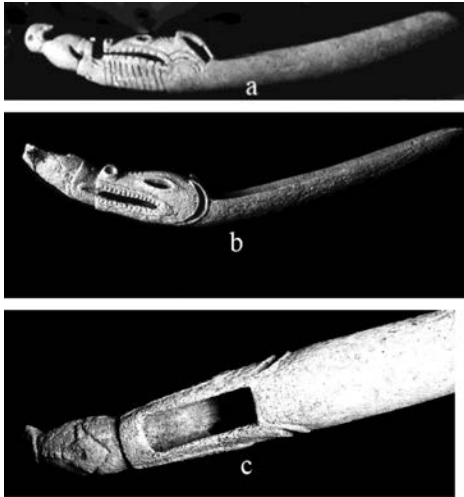


FIGURE 6. (a) Spoon No. 5 showing eagle and mountain goat masks. (b) Spoon No. 4 showing sea-wolf mask confronting a rockfish. (c) bottom of Spoon No. 4 showing opening on base of mask.



FIGURE 7. Side, front, and back views of the handle of Spoon No. 6 (upper) showing masked dancer with ear spools and cedar bark skirt. Fragmentary handle of Spoon No. 7 (lower) showing salamander with protruding tongue, joint mark, and ribs.

bird-form, probably an eagle mask. Below it is the image of a mountain goat mask with beard and horns that is hollow and open at the base. This burial is dated 2953 ± 365 cal B.P. (Table 1). It is very similar to Spoon No. 4 and could have been made by the same artist.

Spoon 6. This spoon (Figure 7) was found near the skull and femur of a partial adult female burial (85-25) that has not been directly dated, but on associational grounds, can be placed at about 3000 B.P. At the tip of the handle is the head of a bird with a pronounced neck and a body with wings at the sides, and an opening between the legs for the passage of a carrying thong. Below the bird is a humanoid with heavy eyebrows, ears and ear spools, an open mouth, and circular joint marks at the shoulders. A slot below the mouth could also be for a carrying thong. On the lower back of the humanoid are the images of four vertical strips that resemble the cedar bark skirts still used by masked dancers. At the front of the mask are short incised lines that may indicate a cedar bark fringe, from which are suspended two vertical strips that may represent either the legs or the forearms of a squatting dancer. Full-body masks with cedar bark fringes are still used by some NWC dancers today, and this image may represent such a dancer.

Spoons 7, 8, 9, 10, and 11. These fragments of spoon handles with carved images probably were originally with burials that were disturbed by subsequent interments. The fragments of Spoons 7, 8, and 9 are very similar and exhibit a carved image of a salamander, a figure found frequently in Salish religious art (Hickock et al. 2010). The largest fragment (Figure 7) shows the

head with protruding tongue and part of the body with ribs and joint marks. A spoon from DeRt-2 in the collections of the Royal B.C. Museum is nearly identical and is complete. Spoon 10 is a spoon handle missing both the bowl and the tip. At the broken tip end is what is probably the neck of a bird (judging from Spoon 6) from which the head is missing. The front and back of the handle exhibit multiple incised rectangular forms resembling feathers. Along both sides of the handle are running zig-zags carved in relief that probably represent lightning. This spoon handle is all that remains of an image of what is probably a thunderbird. Spoon 11 exhibits two blocked out, but never completed images. None of these spoon fragments have been dated, but they probably belong to the same period as the others between about 3000 and 3300 B.P., although the salamander spoon fragments, found in the late midden deposits, may be slightly younger.

Socio-cultural Complexity

What is socio-cultural complexity as it applies to the NWC? A. L. Kroeber (1939) used it to rank the differing ethnographic sub-areas of the NWC. This ranking can be summarized as high complexity in the north, medium complexity in the center, and lower complexity in the Coast Salish region to the south. He also speculated that these rankings were not static, but changing, with a much earlier climax in the Coast Salish region “about the mouth of the Fraser River and the opposite shore of Vancouver Island.” The Pender Canal sites are on a small island exactly in this location (Figure 1). Although Kroeber compared whole cultures, those aspects he singled out as indicators of socio-cultural complexity, are art and ceremonialism (Kroeber

1939:30). Many anthropologists and NWC archaeologists have weighed use of the concept of socio-cultural complexity more recently than Kroeber: Matson and Coupland (1995), Ames and Maschner (1999), Moss (2011), Clark (2013), and others. However, since the best empirical evidence for such complexity from the Pender sites is art and ceremonialism, Kroeber’s usage is followed here. Socio-cultural complexity refers to the presence of institutions above and beyond those essential to subsistence.

The development of socio-cultural complexity in areas of the world such as the NWC must be viewed as an historical process. The point at which the somewhat amorphous concept of complexity is reached is relative to what has gone before. At the beginning of the NWC sequence the archaeological record indicates that the ancestors of the ethnographic peoples were small nomadic groups subsisting by fishing, hunting, and gathering who settled the NWC some 14,000–10,000 years ago, and whose culture was limited by this way of life (Carlson 2008a, 2008b; Carlson and Dalla Bona 1996). At the other end of the sequence are the ethnographic cultures (Suttles 1990) linked by common sets of beliefs and practices while retaining differences in languages and other traits related to varied histories, habitat differences, and idiosyncratic circumstances. The development of this system has been modeled previously (Carlson 1996:Figure 2).

The NWC socio-cultural system as it is known ethnographically (see Suttles 1990) can be summarized as consisting of a number of integrated sub-systems: a subsistence base centered on marine resources but including hunting and gathering; an economic system based on preserved, stored seafood, particularly

salmon, that provided a surplus that supported part-time specialists in arts and crafts, religion, and governance, and included raiding and slavery; a settlement pattern combining seasonal habitations and permanent villages; a technology using grinding and polishing of stone and bone, and extensive use of cedar for houses, canoes, and other necessities; a socio-political system with social rank based on kinship and wealth with wealth display; a religious system based on individual spirit power, shamanism, secret societies, and beliefs in transformation and regeneration expressed in art and myth; and a ceremonial system involving gift-giving feasts on appropriate occasions, and masked dancers.

The Social Surplus

Elaborate art and ceremonialism are dependent on what V.G. Childe (1954) called the “social surplus”, the excess produce that could be channeled to the support of specialists in aspects of culture other than subsistence, thus freeing them from the time- and energy-consuming food quest. Full time specialists seem to be largely lacking in NWC ethnography, but there were many part-time specialists in arts and crafts, religion and ceremonialism, hunting, fishing, and governing (see Suttles 1990; Ames 1995). Specialization in arts and crafts and participation in ceremonial activities could have been facilitated by available uncommitted time during the late fall and winter after the winter food supply had been obtained, preserved, and stored.

Was there a social surplus? The emphasis has long been on the anadromous salmon obtained during their late summer and early fall mass migrations from the sea up the coastal rivers. Salmon

have probably been viewed as most important because of their spectacular appearance in large numbers at the right time of year, and their capacity for preservation and storage for winter use. The fact that herring, halibut, cod, oolachon, and clams were also preserved by drying or smoking (Barnett 1939:236; Drucker 1950:170–171) and would thus become part of the winter food supply and the social surplus, has not been emphasized, but was likely important none the less.

The estimation of the relative importance of salmon has been largely based on bone counts in archaeological sites. A thorough evaluation of this method, by comparing salmon bone frequencies from excavated sites in Alaska through British Columbia to Puget Sound, reached the conclusion that if this method were correct, salmon use would have varied from “barely utilized to extreme specialization” (Coupland et al. 2010). Additional analyses by Hanson (2008) of salmon bone frequencies from pre-contact sites on or near the lower Fraser River, the largest salmon resource in the world (Northcote and Atagi 1997), found only small frequencies of salmon bones in the early village sites there, and higher frequencies in the later post-Marpole sites. Martindale (2011) found few salmon bones and fish bones of any sort in major winter village sites on islands off the mouth of the Nass estuary, whereas Cannon (1991, 1996) found huge quantities of salmon bones as early as 6000 B.P. at Namu on the central B.C. coast. The conclusion to be drawn from the low frequencies of salmon bones at some sites is not that salmon did not constitute a significant economic resource, but that bone frequencies are dependant on where the salmon were processed and the bones discarded (Carlson 2012). The pattern

that is emerging is that salmon bone frequencies are high in village sites on the small rivers of the central coast, such as Namu, where salmon were processed, and low in village sites on or near rivers with major runs, such as the Fraser and Nass, where the fishery was up-river, with the preserved remains lacking bones transported later to the major villages for winter consumption.

The isotopic analysis (Figure 8) indicates that the protein in the diet of the individuals buried at DeRt-2 was overwhelmingly marine in origin. This method confidently separates the six groups shown in Figure 8, but unfortunately cannot separate salmon from herring because the isotope values of these two species are so similar. We must assume that a large part of this value was from salmon. Underwater reef net features at the entrance to Bedwell Bay (Easton 1985) are undated, but

since netting is known in this region by 3,000 years ago (Stevenson 1998) it is not unreasonable to speculate that this location is where migrating salmon were netted in quantity, processed, and dried for winter consumption, and their bones discarded. It is also possible that the inhabitants of DeRt-2 traveled to the Fraser River to participate in the salmon harvest, as did many Gulf Island groups during the early historic period (Duff 1952:25–26; Grier 2003). Since salmon bones are rare at DeRt-2 (Garvin 1987), it is probable that the migrating salmon were cleaned, filleted, and dried, and their bones discarded where they were caught, before being transported to the village for winter storage and consumption. An extensive fish weir complex indicating mass harvest of salmon on the lower Fraser River, dating to ca. 5000 B.P. is well documented (Eldridge and Acheson 1992; Stevenson 1998).

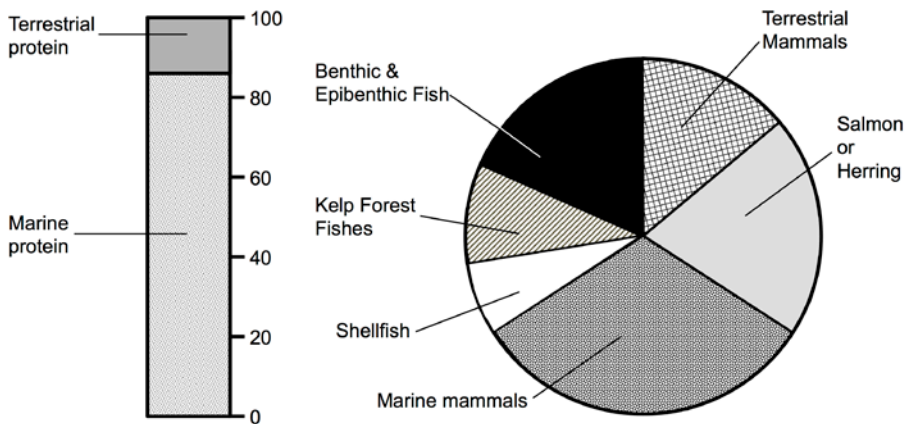


FIGURE 8. Summarized dietary protein contributions at DeRt-2 based on previously published human stable isotope values (Schwarcz et al. 2014) and unpublished faunal isotope data prepared by Szpak. The bar on the left represents the relative contribution of all marine and all terrestrial protein. The pie chart on the right represents the mean contribution of seven major classes of dietary protein. Note that because of the similarities in the isotopic compositions of salmon and herring, these two sources are lumped together. These contributions were estimated using the Bayesian mixing model SIAR (Parnell et al. 2010).

Herring (*Clupea pallasii*) has probably not been given the role it deserves as a major preservable, storable resource abundant during the spawning season and harvested most often in the late winter and early spring (McKechnie et al. 2014) when dried salmon stores could have been running low. Ethnographic sources (Barnett 1939:236; Drucker 1950:171) indicate herring was widely used and preserved by drying, and archaeological sources (McKechnie et al. 2013:6) indicate herring bones constituted 40 percent of identified specimens in numerous sites, and 60 percent in a few regions. Specialized traps for large scale herring capture are present on Vancouver Island by 1300 B.P. (Greene et al. 2015). Herring bones are present but rare at DeRt-2 (Garvin 1987), probably because of the use of quarter-inch mesh screens; a complete herring was found in Mound 1 in association with an undated isolated human skull (6-22). Despite the scarcity of bones in some sites, it is probable that stored salmon supplemented by herring constituted a significant social surplus.

The isotopic analyses (Figure 8) of the Pender remains also revealed, contrary to expectations, that a larger proportion of the protein in the diet came from marine mammals than from salmon/herring. The Coast Salish in general are known to have taken all kinds of fish and hair seals wherever they found them, and a few hunted sea-lions and whales, but the only group who regularly hunted sea lions were the Penelekuts of Kuper Island (Suttles 1952:18). Sea mammal bones are rare at DeRt-2 (Garvin 1987). No sea mammal hunting equipment was found in direct contact with Pender burials, although large foreshafts for socketed harpoon heads, and stone and bone points suitable for arming such heads (but no large har-

poon valves) were present in the midden, and indicate sea mammals were hunted.

NWC Archaeology and Ethnographic Analogy

Inference, indication, and analogy (Thompson 1958:4–8) can normally be applied to the interpretation of archaeological data. On the local level, ethnographic analogy is probably the most important factor in drawing inferences from the archaeological data, depending in part on the evident similarities of the archaeological with the ethnographic data. However, there are problems with using Coast Salish ethnographic data that are related to cultural changes in late prehistory and population decimation prior to ethnographic research. Firstly, at the end of the Marpole phase there was a major climate change, and a probable decline in the Fraser River salmon fishery (Carlson 2008; Lepofsky et al. 2005) that resulted in a more dispersed population with smaller villages, and a simplification of culture including a decline in the quantity and quality of arts and crafts (Borden 1983). Secondly, the small pox epidemic of 1782–1783 reduced the Coast Salish population by at least two-thirds (Harris 1997:18). Thirdly, there was a major change in religion either about that time or possibly earlier, after the end of the Marpole phase (Carlson 2011:650). The advent of the Sxwayxwey religion in the central Coast Salish region (Suttles 1982, 1983), with its emphasis on purification and cleansing and a change in ceremonial regalia to a single specialized mask type, could have been triggered by either of the preceding events. Wooden masks similar to the images of masks at Pender are found ethnographically among the Klallam and Twana (Castile 1985:385–388) and may be survivals of the older usage, but the

Sxwayxwey mask is paramount among the Central Coast Salish (Barnett 1939; Suttles 1983). Older customs probably survived beyond the Coast Salish region so it is necessary to look there for analogs for the archaeological material.

Art and Ceremonialism

How does art serve as an indicator of socio-cultural complexity? We know from ethnography that decoration is not the primary function of NWC art. Art objects were both means of communication and symbols of wealth and power. Power, while frequently secular in practice, was nevertheless sanctioned by the supernatural, and art motifs communicated the supernatural sources of that power. Northwest Coast art objects are among the best material expressions of socio-cultural complexity because they are not idiosyncratic individualistic objects, but are patterned following cultural norms and with few exceptions existed in a social context. There seems to be no word for art as we conceive it in Native NWC vocabularies. Things we categorize as graphic and plastic art were conceptualized as part of the socio-cultural complexes in which they functioned. Ethnographic NWC art is inextricably linked to both religious beliefs and social rank, and prehistoric art objects provide inferential evidence of such. Boas (1966) observed that spirits were conceptualized as present in all animate and inanimate objects throughout the NWC, and this belief was materialized by creating objects we call art. Although there was considerable variation in Coast Salish religious practices (Anglebeck 2016) there was widespread similarity in basic religious beliefs throughout the NWC (Carlson 2011). The art present in the early component at DeRt-2 is limited to carved images on

spoons used in the ritual of feeding the dead, and to small soapstone ornaments of which some bear geometric designs, and is the largest sample of early NWC art so far discovered.

The spoon itself in the burial context is a symbol of the importance of gifts of food that is recognized ethnographically by the potlatch in both memorial and other social situations. The custom of feeding the dead is evidence of the belief in spirits inhabiting a different reality. The carvings on the spoons illustrate ceremonial costumes such as the humanoid and animal transformation masks and cedar bark skirts, spirit powers such as salamanders, owls, and other birds and animals, and basic religious beliefs in transformation, regeneration, and spirit power. Attributes indicative of these beliefs, in addition to the human and animal images themselves, are protruding tongues indicative of the locus of spirit power (Krause 1956:197), ribs and backbones indicating the locus of the individual being (Kan 1989:50–52, 309) and source of regeneration after death, joint marks probably symbolic of the joining of the long bones that may indicate the importance of kinship, and masks that indicate transformation beliefs (Carlson 2011:639–655). The presence of specialists in art is suggested by the similarities in some carvings. Spoons 4 and 5 are so similar they indicate the same artist. The fragmentary salamander spoons are also sufficiently similar as to indicate the same thing. The spoons and their context indicate a society with specialists in art and individuals who participated in ceremonial activities such as masked dancing.

Personal Ornaments

Personal ornaments (Figure 9), found both with some burials (Table 2) and



FIGURE 9. Personal ornaments from Mound 1 at DeRt-2. (a, b) labrets dated 4289 and 4145 B.P.; (c, d, e) soapstone “whatzits” of which (d) is dated 3931 B.P.; (f) ear or lip spools; (g) ear spool; (h–i) shell ornaments consisting of “whatzits” (h, j), gorgets (i, k), and T-shaped labret (l); (k) is dated at 3931 B.P.

disassociated, were present throughout Mound 1. Many of the personal ornaments are made of soapstone that had to be imported from the middle Fraser River region, although some are of local shell and bone, and others are of the purple-hinged rock scallop (*Crassodoma gigantean*, *Hinnites multirugosus*) more common on the outer coast than locally. Artifacts of imported materials are predictably of greater value than those made of local materials. Surprisingly, there is only one little tusk shell (*Dentalium preciosum*), an imported species that became important as wealth in younger periods, and only one obsidian artifact, a microblade segment identified by XRF as from the Paulina East Lake source in Oregon. Personal ornaments such as labrets, ear ornaments, beads, and “whatzits” are indicative of social complexity in that they were meant to be seen and thus signal wealth and social status. Shale disc beads and small shell disc beads, that date to the same time period as the early DeRt-2 ornaments, have been found with burials at other sites in the Salish Sea region in such huge quantities as to clearly indicate their function as wealth (Coupland et al. 2016).

Raw soapstone, unfinished and broken soapstone ornaments, stone files and abraders, and highly polished, well-made ornaments are found throughout Mound 1. There are 211 soapstone ornaments of which 57 are beads, 16 are oval ear or lip spools, six are round ear spools, seven are button-like labrets, four are T-shaped labrets, and the remainder are “whatzits” of various types and conditions of which some are unfinished. There are eight shell labrets, five perforated shell discs, seven shell “whatzits”, and 16 bone “whatzits”. While labrets are known to be lip plugs worn ethnographically by women on the northern NWC

as signals of high status, and the beads are of a size meant to be seen by stringing, the method of use of other small (ca. 2 to 4 cm) ornamental “whatzits” has no specific ethnographic analogs. Some may have been inlays in wooden tools or carvings, and others were probably parts of elaborate composite labrets (Keddie 1981) or ear ornaments.

Evidence for labret and “whatzit” use is found with both adult males and females in the period between 4000 and 3000 B.P. (Table 2). Two labrets (one simple button labret and one T-shaped) were found with an adult female, and one simple button labret was found with another; all date to just before 4000 B.P. Labret wear is present on the teeth of one adult male dating to 3600 B.P., and a simple button labret was found with an undated male. A button labret was also found with a female (85-8) dating to just before 3000 B.P. Round soapstone ornaments and oval soapstone ornaments that could be either ear spools or lip spools were not found with dated burials, but judging from the ear ornaments represented on spoon handles (Figures 4, 5, and 7), these ornaments were in use by 3200 B.P. Labret use in the Salish Sea region was superseded in younger periods by skull deformation as a signal of high status.

“Whatzits” were directly associated with four dated male burials, one female burial, and one probable female burial (Table 2). The earliest “whatzits” were found with an adult male (85-22) dating just after 4000 B.P., and with later burials up to 3026 B.P. (Table 2).

Comparisons and Conclusions

It is evident that the socio-cultural system indicated by the data from the Pender Canal site is more complex than that of the initial inhabitants, and

that some of the sub-systems present during the ethnographic period were already present at Pender by 4000 B.P. The presence of a marine-based subsistence system, with fish as most important, marine mammals second in importance, and both much more important than either land mammals or shellfish, is clearly indicated by the isotopic data on protein in the Pender diet (Figure 8). Presence of a surplus is more difficult to demonstrate other than to point out the incredible wealth of the marine environment, and that both salmon and herring, a large portion of the protein in the diet, are preservable and storable, as are halibut and clams. There is no evidence for the raiding and slavery that were significant parts of the ethnographic system. The settlement pattern is difficult to document at this period because of sea level rise that would have obliterated villages and camps at the water's edge; however, the presence of a designated burial area in use over several thousand years, and the images of large wooden masks requiring storage, indicate a permanent settlement. An established technology in stone, wood, bone, and antler is well attested to by the artifacts found.

The numerous beads and ornaments indicate wealth display, and the labrets and variations in burial configurations (see Burchell 2006) may indicate social rank, although there is no evidence of extreme wealth. Although there has been much written on the determination of whether social rank is achieved (considered to be a feature of equalitarian societies) or ascribed (meaning hereditary), this evolution should be no mystery, as once the economic surplus was transformed into inherited goods, the logical outcome is ascribed rank based on wealth.

The Central Coast Salish socio-political system (Suttles 1990:463–465) was based on bilateral kinship, with kin groups interacting in both cooperative and competitive endeavours in and between acephalous villages within a network of similarly constituted villages. This system has aptly been labelled “anarchic” meaning that it is neither egalitarian, nor a chiefdom, nor chaotic, but a system in its own right (Angelbeck and Grier 2012). There is nothing in the Pender data to indicate that this system was not already in place at the beginning of, and throughout the occupation there.

Religious beliefs are indicated by the practice of feeding the dead that is an indication of a belief in a separate reality populated by the dead, and by images of masks that indicate ceremonial behavior and a belief in transformation. A belief in regeneration from the bones, the locus of the life force and source of re-birth as in shamanism, is indicated by rib and backbone motifs. The protruding tongue probably indicates a locus of spirit power. The practice of feeding the dead is an indication of the importance of gifts of food that is the central theme of the ethnographic potlatch (Hayden 2014). All these data indicate the complexity of Pender society and a close similarity with the ethnographic system.

The Pender data suggest some growth and change in culture between 4000 and 3000 B.P. The use of labrets and shell ornaments and the custom of feeding the dead are present by 4000 B.P. During the succeeding half-millennium, these customs became further elaborated with the addition of the use of shell bowls for this purpose, and the proliferation of additional kinds of soapstone ornaments. During the next 500-year period (3500–3000 B.P.), these customs persisted and further elabora-

tion is indicated by the addition of the use of carved antler spoons to feed the dead. Ceremonial paraphernalia and religious beliefs are carved or incised on the spoon handles and constitute the earliest known NWC figural art (Carlson 2011, 2016). Further elaboration of personal ornaments is indicated by the presence of large ear or lip ornaments. These customs persist into the next 500-year period (3000–2500 B.P.), but change toward its end when use of the site became intermittent.

The Pender carvings are the earliest known expressions of NWC art that carry ideograms of beliefs in spirit power, transformation, and regeneration. Figural art continues to be found in the Coast Salish region into the succeeding Locarno Beach and Marpole phases and becomes more varied and more elaborate, and then became simplified after the Marpole phase (Borden 1983). Images of bird masks similar to those used in Kwakwaka'wakw secret society performances, and the image of a masked dancer with a bird rattle (Carlson 2005:Figures 4, 8, and 9), are found in these cultural phases in the Coast Salish region and not elsewhere. The carved figure on the Skagit atlatl dated at 1700 ± 100 ^{14}C years B.P. (Fladmark et al. 1987) is not only exquisitely designed and carved, but is an image whose closest analogue is the complex Kwakwaka'wakw transformation mask of the ethnographic period. Nowhere else on the NWC is there evidence for the quantity and quality of art found in the Mayne through Marpole sequence of the Salish Sea/lower Fraser region.

Figural art is found later in other NWC regions and was probably influenced by Coast Salish art. To the north at the site of Namu on the central B.C. coast (Carlson 1996; Hester and Nelson

1978) the burials dating between 5000 and 1000 B.P. yielded neither art nor evidence of feeding the dead, and only one small pendent of a rockfish from the midden. The later central coast sites at Kwatna have several art objects of which the earliest (1800–800 B.P.) is an antler figurine (Carlson 1983:Figure 7:2) that is probably a trade item from the Coast Salish region. Further north at Prince Rupert Harbour (Ames 2005; MacDonald 1983), the earliest figural art begins about 3500 B.P. and the earliest ribs and joint marks by 3000 B.P.; other artifacts such as a bone comb (Mac Donald 1983:Figure 6:13a) with a wolf head, protruding tongue, and ribs, that has a very Salish look, date about 1200 B.P. On Haida Gwaii at the BlueJackets Creek site the earliest art is geometric and is present on a bone dagger with cross-hatching and a raised dot and circle design (Severs 1974) that may be earlier than a similar design on a soapstone ornament from Pender (Figure 9d). To the west of the Salish Sea at the Hoko River (Croes 2015) and on western Vancouver Island (Folan and Dewhirst 1980; McMillan 2000) zoomorphic carvings appear after 2000 B.P. To the south on the lower Columbia River, ribs, backbones, joint marks, and protruding tongues appear on human figurines in late prehistory (McClure 1984:171; Strong et al. 1930) as does rock art depicting masks (Hill and Hill 1974). These distributions indicate that the NWC was an interaction sphere in which art from the Salish Sea region spread and influenced art in adjacent regions. By ethnographic times, art and ceremonialism involving masks first known from the early Pender remains are found throughout much of the NWC, where they became much more elaborated while becoming considerably changed in their region of origin.

It can be concluded that DeRt-2 between 4000 and 2600 B.P. was part of a permanent settlement with subsistence based on marine resources and a “social surplus” that supported the production of both works of art and ceremonial activities involving masked dancers and gifts of food, and that these are indicators of a society and culture more complex than any known earlier in this culture area. Comparisons with other NWC regions indicate that the development of art and ceremonialism in the Salish Sea/Fraser River region influenced the development of art and ceremonialism in adjacent regions that eventually culminated in the elaborate art and ceremonies of the ethnographic period throughout most of the NWC.

The preceding cultural-historical model of the beginning of art and inferred ceremonialism in the Fraser River/Salish Sea region of the Northwest Coast, as a central ingredient of socio-cultural complexity and its later spread, is based on the facts that it is earlier there and occurs in much higher frequency than elsewhere on the NWC, and that when art objects do appear in adjacent regions there are similarities in style to those found in the Fraser River/Salish Sea region. This model suggests that art and the indicated ceremonialism spread from this core area in an ever-widening circle, and that this diffusion continued even after it declined and changed in its region of origin. Obviously, there are many gaps in this complex model that will hopefully someday be filled and validate the many hypotheses involved. Most cultural historians will recognize that ethnographic analogy, with all its limitations, is heavily involved in this model, and that inferences derived from similarities in the archaeological and ethnographic data are indeed inferences.

Skeptics will question the interpretation of 3,500 year-old art motifs using ethnographic data. It must be remembered that one of the effects of art is communication of both form and meaning of art objects from generation to generation. Both the evaluation of ethnographic records, such as has been done here and as Martindale (2006) has done with the Tsimshian adawx, is convincing proof of both the value and necessity of the use of ethnographic data in reconstructing the past.

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