

Chapter 10

Comparative Analysis and Conclusions

In Chapter 1 three hypotheses were advanced to account for the variability observed in prehistoric mortuary practices on Gabriola Island, as expressed by the False Narrows midden burials and the inland bluffs cave/crevice burials: that the two samples represent different biological populations; that they represent diachronic changes in burial practices within the same population; or that they represent different social groups within the same biological population. In this chapter, each of these hypotheses is evaluated in turn.

Hypothesis I: Population Variation

That the two burial samples represent different biological populations was initially considered the least likely of the three hypotheses, given the small geographic distance separating the midden and bluffs sites. Logically, one would expect a strong correlation between geographic proximity and the likelihood of intermarriage between two groups, and, as Wright (1931, 1978) has shown, very little gene flow is necessary to break down genetic boundaries between groups. In the ethnographic period there was a significant amount of mobility and intermarriage between different groups of Coast Salish, which served to expand the web of kinship ties and allow individuals access to resources beyond the exclusive territory of their local group. Osteological analysis of human skeletal material dating to the protohistoric and early historic period has provided corroboratory evidence for this pattern of mobility, revealing little biological differentiation within ethnolinguistic divisions, but such biological distance as is evident is strongly correlated with geographic distance (Cybulski 1975). However, as

Barnett (1938:122) cautions, it is unclear how common this pattern of mobility was in the prehistoric period. The possibility exists that it was largely a post-Contact phenomenon in response to devastating population reduction and the consequent disruption of traditional culture patterns. One therefore cannot dismiss *a priori* the possibility that two distinct local groups with somewhat overlapping territories/ catchment areas are represented in the two prehistoric burial contexts on Gabriola Island. Analysis of biological distance between the two samples using non-metric dental and skeletal traits was employed to address this question.

Observed frequencies of the selected dental and infracranial traits in the False Narrows midden burials (DgRw 4) and the inland cave/crevice burials (199-F1 and 199-F9 combined) are presented in Tables 10.1 and 10.2 respectively. The MMD statistic and associated Chi Squares were calculated for each data set separately, according to the methods described in Chapter 3; the resulting values are shown in Table 10.3. The two data sets yielded similar results: both distance scores are essentially zero (negative results, while mathematically possible, are generally interpreted as equivalent to zero), indicating that the two samples cannot be distinguished at least with respect to the traits selected for this analysis. Based on these results, the two burial samples appear to have been drawn from the same biological population. However, as Saunders (1989) has cautioned, absence of distinctions in biodistance analyses is not necessarily indicative of genetic homogeneity, since nonmetric traits are phenotypic observations whose expression may be affected by environmental influences. Such cautions are especially warranted in cases like the present analysis, where sample sizes are very small and relatively few traits are considered.

Table 10.1 Dental discrete trait frequencies.

Trait	DgRw 4			DgRw 199		
	n	k	p	n	k	p
Mesiodens	33	2	0.06	26	2	0.08
UI1 winging	20	2	0.10	14	2	0.14
UM2 two roots	26	5	0.19	17	3	0.18
UM3 reduction	31	3	0.10	17	2	0.12
LI1 agenesis	37	4	0.11	71	5	0.07
LM1 three roots	36	4	0.11	70	3	0.08
LM1 enamel extension	35	24	0.69	35	24	0.69
LM1 cusp 7	13	1	0.08	10	1	0.10
LM2 protostylid	20	2	0.10	11	1	0.09
LM2 cusp 6	19	11	0.58	12	5	0.42
LM3 reduction	38	3	0.08	59	8	0.14

Table 10.2 Infracranial discrete trait frequencies.

Trait	DgRw 4			DgRw 199		
	n	k	p	n	k	p
Circumflex sulcus - L	17	16	0.94	24	19	0.79
Septal aperture - L	25	6	0.24	40	8	0.20
Supratrochlear spur - L	27	2	0.07	48	2	0.04
Trochlear notch bipartite - L	22	17	0.77	40	21	0.53
Third trochanter - R	17	4	0.24	17	6	0.35
Vastus notch - R	15	3	0.20	43	12	0.28
Tibia distal notch - R	20	4	0.20	32	15	0.47
Os trigonum - R	16	2	0.13	20	3	0.15
Calcaneal facets separate - R	22	15	0.68	42	24	0.57
Bipartite anterior facet - R	20	2	0.10	35	6	0.17
Cuboid medial facet double - R	10	2	0.20	28	5	0.18
MT-1 prox. facet double - R	15	2	0.13	20	2	0.10
Atlas double condylar facet - L	20	4	0.20	45	3	0.07
Atlas bridging - L	18	4	0.22	35	3	0.09
Axis f. transversarium open - L	17	1	0.06	28	2	0.07
LV-5 spina bifida	20	2	0.10	27	1	0.04
Transitional lumbosacral vert	18	4	0.22	19	4	0.21
Sacral access facet - L	11	3	0.27	16	6	0.38

Table 10.3 Mean measures of divergence and calculated significance.

Data Set	MMD	ΣX^2	DF	Probability
Dental Traits	-0.0669	3.89	11	> .975
Infracranial Traits	-0.0178	16.68	18	> 0.50

Hypothesis II: Chronological Variation

In the past diachronic change has been the most popular explanation offered to account for mortuary variation in the Northwest Coast culture area, although often based on less than rigorous evidence for the actual antiquity of the remains in question. The False Narrows burial assemblage is a case in point. Although often cited as a classic example of middle Marpole burial practices, there are no absolute dates on the burials themselves, and just two radiocarbon dates have been obtained on the site as a whole, only one of which has previously been reported in the archaeological literature. A date of 1670 ± 90 BP (calibrated age AD 240 ± 90 years) was obtained on a charcoal sample collected from "undisturbed context" in the False Narrows II (FN II) component deposits of excavation Unit 6 (Burley 1989: 33). The chronology of the remaining three site components was determined from a combination of considerations, including diagnostic artifacts, stratigraphic position relative to FN II, and location with respect to other physiographic features.

The earliest component, FN I, restricted in location to the upper bench on the inland periphery of the site (excavation units 1, 2, and 3), was assigned a mid-Marpole time range of approximately 100 BC to AD 100. Despite considerable variation in depth of interment (ranging from 11-190 cm BS), all of the burials recovered from Unit 1 (a revised total of 46 individuals) were attributed to this component, as were two burials from Unit 5, also located on the upper terrace (no burials were encountered in Units 2 or 3). The remaining three archaeological components were identified in Unit 6, which was located on a lower bench adjacent to the shoreline. The basal deposits of this unit were attributed to a transitional late Marpole/early Gulf of Georgia component (FN II), the middle deposits to a late prehistoric Gulf of Georgia component (FN III), and the upper plough zone to a mixed historic/late prehistoric component (FN IV). Of the 13 burials (revised total) recovered from Unit 6, four were attributed to the FN II component and nine to FN III. Three additional burials were recovered from a backhoe trench and were not assigned to a specific component.

Some time after excavations at False Narrows had ceased, a burial with elaborate artifact associations was exposed by pothunters in the vicinity of Unit 1 and salvaged by a party of archaeologists. Like the other interments from this area of the site, Burial 52 was assigned to the mid-Marpole FN I component (Burley 1989: 55). However, a later radiocarbon assay

of a whale bone artifact associated with the skeleton produced a date more consistent with the FN II component: 1640 ± 50 BP (Burley 1992 personal communication). This result calls into question the chronological placement of the other FN I burials, particularly those very shallow interments (<50 cm BS) which comprise more than two-thirds of the sample for which depth below surface was recorded. The problem is unlikely to be resolved without recourse to additional radiocarbon dates, since the archaeological context of Burial 52, due to the circumstances of its discovery, is so uncertain that cannot be directly correlated with the other Unit 1 burials in terms of either depositional strata or depth of interment. Unfortunately, permission to directly date human bone samples from the site was withdrawn by the Nanaimo First Nation before the analysis was complete, so the question of whether the False Narrows burials represent a "classic" mid-Marpole mortuary assemblage, as has long been thought, or a later Marpole or even an early Gulf of Georgia assemblage is open to debate. Grave goods are of little utility in addressing the problem, since the majority of the burials (71%) had no associated artifacts, and even when present they are dominated by shell beads, once thought to be a Marpole "marker" but now known to occur in both older and younger burial contexts (see discussion in Chapter 2).

Better evidence is available for the chronology of the cave/crevice burials from Gabriola Island. A total of 17 radiocarbon dates have now been obtained on these burial features (Figure 10.1), and with the exception of two questionable dates from 199-F1 (on a wood sample of unknown source and a mandible fragment with root contamination), which coincidentally provide the youngest estimates for the entire study area, the dates obtained all fall within the Marpole and Locarno periods of south coast prehistory, covering a time span of nearly 2,000 years from approximately 1500-3300 BP. If one chooses to accept the two problematic dates, and also takes into consideration the previously-recorded historic cave burial DhRx 29 (see Chapter 2), which was not included in this analysis, the pattern of cave/crevice disposal on Gabriola Island can be seen to continue through the Gulf of Georgia period and into the historic era.

Although the two False Narrows dates fall near the younger end of the range of dates from the bluffs burial features (see Figure 10.1), which might suggest a chronological component to mortuary variability, when burial practices are viewed from a broader regional perspective the custom of midden

interment is clearly coeval with cave disposal: the midden interments at Duke Point, radiocarbon dated at 3490 ± 125 BP, are contemporaneous with or perhaps slightly older than the earliest cave/crevice burials from 199-F1, dated at 3240 ± 50 , while the late Marpole/early Gulf of Georgia burials from False Narrows and Departure Bay are contemporaneous with the most recent of the dated cave/crevice burial features. One cannot therefore invoke diachronic change to explain the different burial practices on Gabriola Island.

Hypothesis III: Social Differentiation

Although analysis of variation in the presence, number, and type of grave inclusions is a common avenue for exploring social status differences in archaeological remains, this approach has not seen widespread application on the Northwest Coast, apart from Burley's examination of ranking in the False Narrows burial assemblage (1989:59-62), and Burley and Knüsel's (1989) broader study of burial patterns in the Gulf of Georgia region, which drew heavily on the False Narrows sample. The severe impact of post-depositional disturbance on the integrity of the cave/crevice burial features limits the degree to which their grave inclusions can be compared with the False Narrows sample. Not only does the disarticulated condition of the skeletons make it impossible to associate artifacts with specific individuals, but the extensive evidence for pothunting at several of the burial features precludes quantitative analysis of grave goods since it cannot be determined to what extent the original complement of artifacts has been depleted by relic collectors. Therefore grave inclusions from the two burial contexts can only be compared qualitatively, in terms of artifact types.

In his 1989 monograph, Burley distinguished between utilitarian artifacts, wealth, and ritual objects, which correspond roughly to Binford's (1972) technomic, socio-technic and ideo-technic categories. Distinctions between the three categories are not always clear-cut and rely to a certain extent on subjective interpretation. For example, a zoomorphic pendant may indicate either wealth or spirit power, or both; decorated tools, while utilitarian, may also symbolize the harnessing or channeling of the owner's power (Burley 1980: 68; Stryd 1982: 181). Given the strong correlations between wealth, rank, and spirit power in traditional (and presumably prehistoric) Salish culture, these ambiguities are not unexpected. In Table 10.4 I have followed Burley's (1989: 59-62) categorization of the False Narrows burial artifacts, while acknowledg-

ing the possibility of alternate interpretations, particularly with reference to the "ritual" objects (zoomorphic "beetle" pendant, whale bone armlets, incised elk tines) associated with Burial 52, which Burley considered the richest burial, and consequently highest ranked individual in the assemblage.

Burial 52 is problematic for several reasons. It was not recovered during controlled excavations at the site, but was collected after the 1967 field season from a pothunter's pit near Unit 1, which yielded most of the allegedly middle Marpole burials. Because of the circumstances of its discovery the archaeological context of the burial is unclear, and the bones themselves have since been mislaid (Gordon's 1974 thesis contains no reference to this individual) so even the basic demographic description (adolescent male) cannot be confirmed. Burley's explanation of the meaning of the associated grave goods has undergone substantial revision over the years, from a warrior's armour (1980: 67) to a dance costume (1989: 60); in the former interpretation, wealth and status were seen as deriving from the physical power of the warrior; in the latter, from the ritual knowledge conveyed by a number of spirit helpers (whale, elk, beetle).

I would argue that even if the enigmatic artifacts represent a dance costume, it does not necessarily follow that the individual with which they were interred was either wealthy or powerful. An equally plausible scenario, particularly in view of the putative subadult age of Burial 52, is of an individual who died during initiation into one of the dance societies, and was subsequently buried in his dance costume. There are ethnographic accounts of the physical ordeals imposed on initiates, in which they were repeatedly beaten, smothered, and choked into unconsciousness in an attempt to call forth a spirit helper and bring out his song of power (Barnett 1938: 137). Burial 52 may therefore represent not a wealthy, powerful, high ranking individual, but a novice who died while attempting to attain the spirit power that would have aided in the acquisition of these qualities. Since traditionally a novice's first dance costume would not be re-used after induction (G. Manson 1992, personal communication), the burial of a deceased initiate in his dance costume may not be anomalous.

As Table 10.4 illustrates, all three artifact categories (wealth, ritual, and utilitarian) are found in both midden and cave/crevice burial contexts. Artifact types within categories vary somewhat, perhaps as a reflection of broader time span of the cave/crevice sites, but at least with reference to the wealth and ritual categories, the numbers of different artifact types found with burials are roughly equivalent, taking into

Table 10.4 Grave inclusions: False Narrows midden (FN) and bluffs cave/crevice sites (CC).

ARTIFACT TYPE	FN	CC	ARTIFACT TYPE	FN	CC
wealth			utilitarian		
dentalia	p	p	chipped stone projectile point	(site)	p
shell disc bead	p		ground slate projectile point	p	p
teredo bead	p		bone point	(site)	p
shell pendant	p	p	slate knife	(site)	p
copper pendant	p	p	bone unipoint	(site)	p
stone pendant		p	hammerstone	(site)	p
ground stone disc bead	p		unilaterally barbed point	(site)	p
stone barrel bead		p	unilaterally barbed harpoon	p	p
perforated stone oval		p	harpoon foreshaft		p
shell nose ornament		p	obsidian microblade	(site)	p
ritual			pièce esquillée	(site)	p
scallop shell rattle	p	p	abrader	(site)	p
mica	p		atlatl weight		p
chipped stone lanceolate biface	p		bark shredder		p
zoomorphic (beetle) pendant	p*		nephrite celt	p	p
incised elk tines	p*		bone splinter awl	(site)	p
whale bone armlet	p*		shell adze blade	(site)	p
antler spoon		p	worked rib	(site)	p
worked canid jaw		p			
carved art object		p			

* associated with Burial 52

account the ambiguous nature of the Burial 52 associations. Within the utilitarian category, however, a much greater variety of artifact types were found in the cave/crevice burial features than with the midden burials, although many of these implements were also found at False Narrows in non-burial contexts. To some extent this difference may reflect the disparate nature of the sites. At False Narrows, the burials were interred in midden mounds comprised of food remains and other occupational debris in which lost or discarded tools are a natural constituent; the difficulty in determining whether utilitarian implements were deliberately placed in a grave or were accidental inclusions in the surrounding grave fill could result in the rejection of all but the most obvious utilitarian artifact associations. With the exception of the rockshelter at 204-F1, however, all of the cave/crevice features examined in detail appear to be single purpose burial

sites, and all of the artifacts found therein were consequently interpreted as grave goods.

The sites are similar not only in the range of artifact categories included as grave goods, but in the fact that each apparently includes individuals from different ranks of society. As was noted earlier, the majority of the False Narrows burials have no associated artifacts, while a minority contain abundant and elaborate grave goods; significantly, the "rich" burials include individuals of both sexes and children as well as adults (Burley 1989: 62). Similar variability is apparent in artifact distributions and demographic profiles within the cave/crevice burial complex, although here the unit of comparison is of necessity the burial feature rather than the individual burial: some (e.g., 204-F2) contain no grave goods; some (e.g., 199-F9) have a few utilitarian items; and some (e.g., 199-F1) contain a wide range of items from all three artifact

categories. As was the case at False Narrows, this variability in artifact associations does not appear to be correlated with age or sex, since each burial feature contains a demographic cross-section of the population.

The artifactual evidence, therefore, does not support a conclusion that the two burial assemblages represent different social classes within the same population, since both appear to be subdivided internally along lines of rank and wealth.

Alternate Hypothesis: Manner Of Death

It is apparent from the above that neither temporal, biological, nor social differentiation can adequately explain the diversity in mortuary patterns on Gabriola Island. However, physical examination of the skeletal remains themselves revealed some intriguing differences between the two assemblages, the most striking of which is in the prevalence and nature of pathological conditions. Detailed evidence for pathology in the five excavated cave/crevice burial features was presented in Chapters 5-9. To summarize: a minimum of six individuals (one from 204-F1, five from 199-F1) suffered unhealed cranial fractures indicative of *peri mortem* trauma that probably resulted in death; this number represents 4.1% of the estimated MNI of 147 individuals in the total cave/crevice sample, or 12.8% of the 47 adult and adolescent crania for which this variable could be recorded. At least 18-19 individuals (17 from 199-F1, one from 199-F9, and one possible case from 204-F2), or 13% of the total sample, exhibit periosteal, dental, or cranial lesions suggestive of active and often severe treponemal infection.

In contrast, the sixty-four individuals (32 observable skulls) from the False Narrows midden sample exhibit no evidence of *peri mortem* cranial trauma, although well-healed cranial fractures were observed in five individuals, four adult males and one adult female. Neither do the False Narrows skeletons exhibit the key signs of treponemal infection: *caries sicca* of the cranial vault, Moon's molars, or Hutchinson's incisors, and while periosteal new bone deposits were observed on the long bones of eight individuals (Table 10.5), none exhibits the gross periosteal expansion, focal superficial cavitations, or endosteal deposition that characterize these lesions in the cave/crevice sample. In two of the cases from False Narrows (Burials 4d and 4e) the localized periosteal lesions are more typical of chronic leg ulcers (Hackett 1976: 434-435); in two other cases (Burials 4-66 and 44a) the periosteal deposits are accompanied by thinning and rarefaction

of the underlying cortical bone, suggesting a disease process unlike treponemal infection. The remaining four individuals exhibit what is often termed "non-specific periostitis", and while these manifestations may occur in early or quiescent stages of treponemal disease, they may also result from other infectious diseases (Ortner and Putschar 1981; Hackett 1976).

These data suggest to me that the manner or cause of death (including violence and infectious disease) may have been a discriminating factor in the selection of mortuary treatment on Gabriola Island. There is strong ethnographic evidence that the circumstances surrounding death can be an important variable in determining appropriate mortuary rites. Ucko noted that among those singled out for special treatment in some African tribes were: "...lepers, those killed by lightning, those who die in childbirth, those who have died violently in battle, those who have drowned, those who are said to have died of smallpox or dropsy,...[and] the suicide." (1969: 271). Binford's (1972) survey of mortuary practices in 40 groups drawn from Murdock's (1957) World Ethnographic Sample found that in 20% of the examples (n=8) cause of death was one of the distinctions symbolized in mortuary ritual. Shay (1985) obtained similar results from a survey of the Human Relations Area Files: in 30 of the 53 groups examined (57%) cause of death was one factor governing burial treatment. Although I could find no specific references in Nanaimo or Coast Salish ethnography to such a correlation, this is not surprising considering the cursory nature of the available data, and the strongly normative approach adopted by many of the early ethnographers.

As Saxe (1970) notes, illness may be treated as a form of non-volitional social deviancy in non-Western cultures, and when people die of their illnesses, or in other proscribed ways, the "deviant" social persona, defined by the cause or manner of death, is usually the one selected for expression in mortuary ritual. One of the methods frequently employed to distinguish socially marginal individuals in the mortuary domain is by segregating their graves spatially from those of the rest of the community (Binford 1972; Hertz 1960; Shay 1985; Charles 1995). The atypical location of the cave/crevice burial features is thus consistent with distinctions based on manner of death in cross-cultural comparisons.

The prevalence of burning in the cave/crevice burial features is another characteristic that distinguishes the two burial samples. Burning/cremation was not originally recorded for any of the False Narrows burials, and my reexamination of the skeletons uncovered only three examples: Burial 4/4d, a young adult

Table 10.5 Periosteal lesions, False Narrows midden burial sample.

Burial	Age	Sex	Bones Affected	Description
4-66	adult	F	distal femur, L tibia	thin plaque to irregular spongy deposits
4/4d	30-35	F	R fibula shaft	localized spindle-shaped swelling
4e	40-45	F	distal tibia shaft	localized spindle-shaped swelling
23a	45-55	M	femoral shafts	thin sclerotic plaque
36	40-50	M	humerus, femur, tibia, fibula	thin flat plaque of porous bone
37	25-35	F	femur, tibia, fibula, patella, sacrum, calcaneus	spongy patches to sclerotic striae to thick sclerotic plaque
44a	40-50	M	R ulna, L tibia, distal fibula	sclerotic nodules to plaque
4a	infant	?	all limb bones	shell of porous woven bone; dense, ivory-like patches on femoral shaft

female with slightly burnt right tibia and femur; Burial 5, a young adult male with a burnt right tarsal; and a slightly burnt child's thoracic vertebra, not associated with a designated burial. Evidence for burning is variable in the cave/crevice features examined in detail. The three smaller burial features exhibit the lowest frequencies, with from 0 (204-F6) to 10% (204-F2) of recovered bone fragments affected, but it is substantially more common at the two larger burial features, 199-F9 (77.5%) and 199-F1 (85.1%). Although it is difficult to extrapolate from burnt bone fragments to numbers of bodies cremated, at a rough estimate at least half and perhaps all of the bodies from the cave/crevice features were exposed to fire to some extent.

In general burnt human remains are rare in prehistoric midden sites in the Gulf of Georgia culture area, although sporadic occurrences have been reported from at least eight sites in the region: Whalen Farm (Thom 1992), Beach Grove (Lawhead 1980), and Tsawwassen (Knüsel and Oliver 1988), all on Roberts peninsula; Montague Harbour (Mitchell 1971), Long Harbour (Johnstone 1991), and Pender Canal (Weeks 1985, 1986) on the Gulf Islands; and Somenos Creek (Brown 1996) and Departure Bay (Arcas 1994a) on Vancouver Island. Affected individuals have been attributed to Locarno, Marpole and Gulf of Georgia components. Based on this small sample, there appears to have been considerable variability in the circumstances, intensity, and thoroughness of burning. The examples from Montague Harbour, Long Harbour, and Departure Bay are very similar, consisting of very incomplete, scattered fragments of charred

or calcined bone, in each case consistent with a single individual. Other examples (Beach Grove, Somenos Creek, and possibly Whalen Farm and Tsawwassen) appear to be primary inhumations that were burnt *in situ*. Grave goods consisting of burnt dentalia beads were reported with one of the two affected burials from Beach Grove (Lawhead 1980), and a complex mortuary sequence was reconstructed at Somenos Creek, involving primary interment in a pit, burning of the body *in situ*, filling the grave, and erection of a cairn over top (Brown 1996). The Pender Canal burials have yet to be fully described, but preliminary reports by Weeks (1985, 1986) include references to at least two burnt/cremated burials.

Although rarely found in prehistoric midden burials, evidence of burning was apparently much more common in yet another mortuary context, the large earthen burial mounds/cairns that first appear during the late prehistoric (Gulf of Georgia) period. Most of the excavated examples of these features were explored in the late 19th and early 20th centuries, and details of their structure and contents are often sketchy, but extant reports comment specifically on the prevalence of burning: "...many, if not all, of the human remains found in the prehistoric mounds of British Columbia were cremated, although some were only partially burned." (Pickford 1947: 239); "Ashes and charcoal were found over the skeletons, all of which were charred." (Smith and Fowke 1901: 62).

It is sometimes difficult to determine whether burning was the result of purposeful cremation, intended to reduce the skeleton to fragments before final disposal; whether it was incidental to other aspects of

mortuary ritual, such as the burning of food offerings or burial goods at the grave-side; or the result of accidental exposure to fires constructed for other purposes, such as food preparation. The latter explanation was invoked for both the Montague Harbour and Tsawwassen examples, based on patterns of burning on the skeletal elements themselves, but given the evidence for primary interment and *in situ* burning at other sites, mortuary ritual seems clearly indicated. Certainly the evidence from the mound/cairn burials, and the frequent association of hearths with burials at midden sites such as Tsawwassen (Curtin 1999) and Pender Canal (Carlson and Hobler 1993), suggests that fire played an important role in mortuary ritual.

In the cave/crevice burial features on Gabriola Island, burning is not only very prevalent, but in some cases appears to be directly correlated with observed pathological conditions. Four of the five crania from 199-F1 with *peri mortem* fractures appear to be unburnt except for localized oval areas of discolouration or charring adjacent to the injury. The cranium with *caries sicca* also exhibits focal charring on the occipital bone, the site of the most recent, active lesions. Another skull with a possible mastoid inflammation is charred on the affected temporal bone, and four additional skulls with no apparent pathology exhibit very localized oval patches of charring on the parietals. No such patterning is apparent on the pathological long bones: many appear to be completely untouched by fire, while others are calcined and highly fragmented.

Discussion

Taken together, the demographic, radiometric, artifactual, skeletal, and physical evidence suggest that the individuals selected for interment in the cave/crevice burial features were a demographic cross-section of the local population, representing both sexes, all age classes, and various ranks of society, but sharing one important characteristic: their cause of death somehow necessitated that special distinctions be made in burial treatment. Not only were they interred in a location physically separate from the traditional midden burial area, but their spiritual severance from the community necessitated a more elaborate mortuary ritual than usual involving widespread use of fire. Direct association of charring with specific cranial lesions suggests that the burning involved a ritual cleansing or purification, or perhaps a spiritual healing process, but given the presence of grave goods indicative of wealth and status it appears that the individuals who died thus were not viewed as socially deviant.

Although treponemal disease and *peri mortem* trauma were the focus of this investigation, it is certainly likely that other culturally significant causes of death not as readily evident on the skeletal remains were also represented in the cave/crevice assemblage. It must also be emphasized that evidence of healed cranial trauma or mild or inactive treponemal infection would still be expected to occur in the traditional midden mortuary setting, so long as these afflictions were not regarded as causing the death of the individual in question.

Of direct relevance to this interpretation of the data from Gabriola Island is the multiple burial of 10 individuals recovered from the Duke Point midden (DgRx 5) in 1978 (see Section 2.4), in which Cybulski (1991b) has diagnosed treponemal infections (venereal, congenital, and endemic syphilis) affecting at least six and possibly all ten individuals. The close proximity of this site to Gabriola Island, its midden context, and the diagnosed pathology make it potentially of great significance to the interpretation of the cave/crevice burial features, particularly given Cybulski's insinuation (based on their burial in a mass grave) that they were deliberately killed to prevent further transmission of the disease (Cybulski 1991b: 17). If his interpretation is correct, the prevalence of *peri mortem* trauma and treponemal lesions in the cave/crevice burial features would take on a radically different significance.

Unfortunately, the Duke Point skeletal collection could not be reexamined for comparison with the Gabriola Island material since its current location is unknown. Therefore any evaluation of Cybulski's diagnosis and conclusions must be wholly dependant on his written description of the remains and the photographs and radiographs included in this report. As Cybulski acknowledges, most of the reported osseous changes are suggestive but not pathognomic of treponemal disease; however one individual (Person 5, a young adult male) does exhibit the periosteal thickening and focal cavitations considered by Hackett to be diagnostic of treponemal infection. Cybulski's extension of this diagnosis to the remaining individuals (even to those with no skeletal pathology, or with a dental anomaly not previously identified with treponemal disease) appears largely influenced by their interment in a common grave, but his reasoning on this point seems tautological: i.e., he argues that they must have all suffered from the same disease because they were all buried together, but then hints that they were killed and buried together because they all had the same disease.

There is little doubt that individuals buried together in mass graves died at the same time and likely of the same cause, as a result of some catastrophic event such as a village raid, an epidemic disease (smallpox being a case in point), an accident such as a capsized canoe, a natural disaster such as a mudslide, or perhaps even, as Cybulski implies, as a deliberate social sanction intended to cleanse the community of "deviants". However, central to his interpretation is the assumption that the pathological conditions affecting these ten individuals would have been identified as the same disease by the local community. Yet the three diseases Cybulski identified have conspicuously different modes of transmission, are marked by sequential stages of involvement each characterized by different physical manifestations, and separated by periods of latency that may last several years, during which time the infected individual exhibits no signs or symptoms of disease. Moreover venereal syphilis in particular is noted for the wide range of possible manifestations: "Of all diseases it is the most subtle. It is a master of disguise. There is no symptom which it cannot cause, no syndrome for which it may not be responsible"

(Boyd 1943: 174). To my mind, Cybulski's interpretation of the Duke Point mass burial presupposes an unlikely degree of biomedical and clinical sophistication on the part of the local populace, including a very modern understanding of the principles of contagion.

There is also the issue of the grave goods associated with the two children from the Duke Point mass burial. If, as Cybulski supposes, these ten individuals were regarded as deviants to be killed for the good of the community, it seems unlikely that the children would have been buried with symbols of wealth/status. Following Shay's (1985) reasoning, negatively-evaluated deviants within the community would be expected to evince "shallow" social personae in their mortuary treatment, so inclusions of wealth would be unlikely under these circumstances. If, however, they died together as a result of a natural disaster or cataclysmic accident, there is no reason to invoke a common disease process to account for the observed skeletal lesions, and the presence of one or more individuals with treponemal disease in a midden burial context does not contradict the interpretation of the cave/crevice burials.

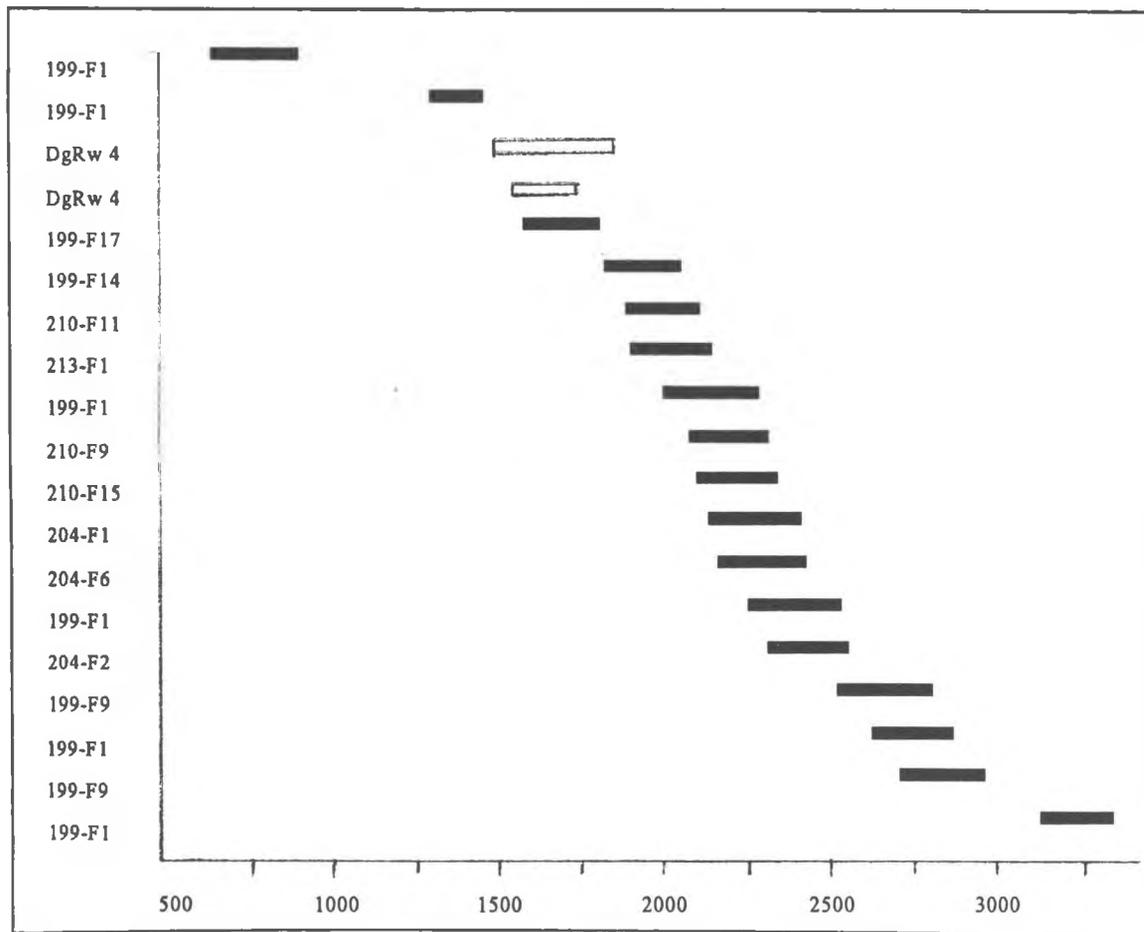


Figure 10.1 Uncalibrated radiocarbon dates (2 sigma range): cave/crevice burials (black bars); DgRw midden (open bars).

Summary

This report presents the results of an investigation of prehistoric mortuary variability on Gabriola Island, comparing demographic, biological, and archaeological attributes of an existing sample of midden burials from the False Narrows site (DgRw 4) with a recently discovered burial complex located inland from False Narrows, amid fallen sandstone and conglomerate boulders at the base of a series of steep bluffs. Preliminary field work included intensive survey of a 3-km stretch of the bluffs, which resulted in the discovery of 44 previously unrecorded burial features, bringing the total inventory of known features in the area to 49. Many other features may still be undiscovered, obscured by fallen blocks or sedimentation, or deliberately concealed by stone walls constructed to seal the entrances. Five burial features were later examined in detail, and the human skeletal material collected from these sites comprise the basic data set for comparison with the False Narrows midden sample.

It was initially estimated that at least 84 individuals had been interred along the inland bluffs of Gabriola Island, based on skeletal elements visible on the surface of the burial features at the time of the survey. The results of the excavations demonstrated, however, that surface remains were a poor indicator of the contents of these features. The five excavated features were found to contain the remains of at least 147 individuals, or more than ten times as many as first estimated. Extrapolating from this figure, it is possible that as many as a thousand people were interred in the caves and crevices along the Gabriola Island bluffs.

Radiometric analysis did not support early conjectures that the cave/crevice burials were late prehistoric or historic in age. Bone samples collected from 11 of the features yielded radiocarbon dates ranging from approximately 1500 to 3300 years BP, which coincides with the Locarno and Marpole periods of south coast prehistory. These dates are also compatible with the artifacts found associated with the burials. Skinner's (1991) suggestion that the bones may have been removed from their original primary context sometime in the late prehistoric period and redeposited in the cave/crevice features where they were subsequently burned is also not supported by the current analysis. Several of the cave features contain intact, articulated skeletons, indicative of undisturbed primary burial context, while the patterns of burning on other remains are not consistent with the cremation of dry, defleshed bone. Although the skeletal material in the excavated features was, with few exceptions,

completely disarticulated, patterns of dispersal of reconstructed skeletal elements, and of skeletal elements from the same individual, where identifiable, suggest that burials were interred individually rather than *en masse*. Apparent cutmarks on a few elements offer tentative evidence of partial dismemberment of some individuals prior to interment. Faunal remains, predominantly shellfish and fish but also including some avian and mammalian species, accompanied the human skeletal material; for the most part these are interpreted as food offerings provided for the dead, although some specimens represent natural carnivore accumulations.

The incompleteness, disarticulation, high degree of fragmentation, and generally poor preservation of the human skeletal remains from the cave/crevice features, in conjunction with significant post depositional disturbance of the primary burial context, resulting from both natural (slumpage, ceiling collapse, root intrusion, rodent burrowing, carnivore scavenging) and human agency (pothunting, tourism), placed severe limitations on the information that could be recovered, and the confidence with which conclusions could be drawn. With these caveats in mind, the comparison of the cave/crevice burials with those from the False Narrows midden did not support any of the three initial hypotheses suggested to account for the differing burial treatments. Both midden and cave/crevice interments occur contemporaneously in the Nanaimo area for a period of at least 2,000 years and perhaps longer. Biodistance analysis employing both dental and skeletal discrete traits revealed virtually no variation between the two samples. Each sample includes individuals of both sexes and all age classes, indicating that demographic parameters were not a key factor in mortuary differentiation, while artifact associations suggest that each sample comprises a cross-section of status/rank positions within the community.

The most striking differences between the two burial samples were in the high prevalence of specific pathologies and the frequency of burning seen in the cave/crevice sample. This evidence suggests that cause of death, including but not necessarily limited to *peri mortem* trauma and treponemal disease (possibly venereal syphilis), was the principal dimension selecting for inclusion in the cave/crevice burial sample. This interpretation is not contradicted by the evidence for treponemal disease in midden interments from the Duke Point site, assuming that those individuals, while perhaps suffering from treponemal disease, died from

an unrelated cause. Intensity of burning appears extremely variable both between and within burial features: some elements seem to be completely unaffected, others exhibit localized patches of discolouration or charring, while still others appear to have been thoroughly consumed by fire. The high degree of fragmentation and disarticulation makes it impossible to assess burning patterns within individual skeletons, but the direct association of burning with some of the more obvious pathologies hints that it functioned within the realm of mortuary ritual and may also be correlated with cause of death.

Suggestions For Future Research

The current study has demonstrated a greater range of prehistoric burial practices in the Gulf of Georgia region than was previously suspected. Determination of the geographic and temporal boundaries of the cave/crevice mortuary variant would be a valuable focus of future research. At present the documented evidence for this variant is limited to the Marpole/Locarno periods on Gabriola Island, but considering that the physiographic feature with which these burials are associated (the bluff/escarpment system) extends southward through the Gulf Island chain, there is a strong possibility that similar undocumented burial features occur elsewhere in the Gulf of Georgia region. At least two rockshelter burial sites have been previously reported on Valdes Island, immediately southeast of Gabriola (Cassidy et al. 1974), and there are also hints of the practice further to the north: a rockshelter burial site on Denman Island in Pentlatch territory (Eldridge 1987b), and some rock crevice interments apparently associated with historic box burials on Berry Island, in Kwakiutl territory (Curtin 1990a). Given that past regional site inventory surveys have tended to focus on shoreline midden sites, the potential for as yet undiscovered inland sites, particularly well-concealed burial features, may be especially high.

The geographical and temporal distribution of prehistoric treponemal disease on the Northwest Coast is also an intriguing problem in need of further investigation. Currently the best evidence for the disease comes from the two Nanaimo area sites discussed in this report, Gabriola Island and Duke Point (Cybulski 1991b), which are close both geographically and chronologically, each dating to the Locarno period of prehistory. Isolated cases have also been tentatively identified from undated contexts at Nanaimo Harbour (Wilson 1990b) and Crescent Beach (Conaty and Curtin 1984), but outside of the Gulf of Georgia region,

the only reported prehistoric evidence consists of *caries sicca* lesions in a 2,300-year-old skeleton from Prince Rupert Harbour on the north coast (Cybulski 1990). Based on this evidence, the disease appears to have been relatively restricted in both space and time, but examination of larger skeletal samples from the Marpole period cave/crevice burial features, as well as from other areas of the Northwest Coast, is necessary to confirm this impression.

The Gabriola Island cave/crevice burial sites do not occur in isolation, but are found in close proximity to a petroglyph site (DgRw 198) and at least two extensive inland shell middens, DgRw 196 (now virtually destroyed) and DgRw 209 (apparently virtually intact). Possible cultural/chronological associations between these sites might be a profitable avenue for future archaeological investigation.

Although the current study focused on differences in mortuary treatment between the midden and cave/crevice assemblages, variability within the cave/crevice complex is also pronounced, including both primary and secondary interments, burnt and unburnt remains, "rich" and unelaborated burials. Future research might focus on the explanation of this internal variation. The question of whether individual burial features represent family or clan groupings or perhaps chronological sequences of interment might be also explored if appropriately large samples were available for study.

The Gabriola Island data may also be relevant to broader questions of the role of rock features in mortuary practices in general. The association of human burials with constructed rock features of variable size and structural complexity has a long history in the Gulf of Georgia region (Thom 1995). Some of the recorded variants include grave pits lined and capped with layers of cobbles, simple interments partially covered with a rock slab, box burials capped with a single boulder, cobble or boulder cairns of various size, and in the most elaborate examples, cairns surrounded by concentric rock alignments and covered with earthen mounds. The time depth of rock associated burials may be as great as 4,000 years, but the most complex cairn/mound features appear to have a more restricted temporal distribution, from about 1500 - 500 years BP (Thom 1995: 70). Whether the placement of the Gabriola Island burials within natural rock features was symbolically analogous to placement within constructed rock features can only be a matter for conjecture at this point, but the Gabriola Island cave/crevice burials do share one additional, potentially significant attribute with the later mound/cairn burials: high prevalence of associated burning. Few of the human

remains from the mound/cairn sites have been studied in detail; they certainly warrant closer examination.

The study of human remains from archaeological contexts continues to provide information on aspects of previous lifeways that are generally inacces-

sible through other lines of enquiry. On the Northwest Coast, the full potential of mortuary analysis has not yet been fully realized, but the present study has shown that even previously-studied collections can yield new and important insights on the problems of prehistory.