Slaves, chiefs and labour on the northern Northwest Coast

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Abstract

Northwest Coast societies, at the beginning of the Modern period, were stratified. The coast's élite wielded power over a class of slaves whose labour produced at least some of the wealth upon which high status depended. While it is possible to trace the development of an élite on the northern Northwest Coast back 3000 calendar years, if not more, documenting the presence of slavery has proven far more intractable. Understanding the evolution of slavery is dependent on our understanding of the archaeology of élite formation, labour, warfare and gender. Three key lines of evidence for slavery are burial practices, evidence of warfare and raiding and evidence about changing labour demands. Slavery plausibly developed during either of two periods: c 1500–500 BC or c. AD 500–1000. The data at present do not allow us to eliminate either. Each has interesting implications for our understanding of the evolution of stratification.

Keywords

Northwest Coast; slavery; hunter-gatherers; complexity; labour; methodology.

Introduction

The societies of the Northwest Coast are the world's best-known ethnographic examples of 'complex hunter-gatherers' (cf. Ames and Maschner 1999). They were complex, even by the narrowest of definitions: 'Complexity, as I use the term here, distinguishes those societies possessing social and labor relationships in which leaders have sustained or on-demand control over nonkin labor and social differentiation is hereditary' (Arnold 1996: 78, emphasis in original). Most, if not all, groups along the coast had hereditary élites who had 'sustained or on-demand control over non-kin labour'. The non-kin labour was slaves. Slaveholders not only controlled the labour of slaves, but had the power of life and death over them as well (see Donald (1997) for a thorough discussion of Northwest slavery). Thus, Northwest Coast societies were stratified, as 'stratification' is usually defined.

Although I think Arnold's definition is overly restrictive, its advantage here is that it

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focuses our attention on leadership's control of non-kin labour. An ongoing debate among Northwest Coast scholars is whether members of the chiefly élite captured and held slaves primarily to mark their prestige and status or whether the economic production of slaves was necessary to the maintenance and support of the chiefly élite. Donald (1985, 1997) argues definitively that slave labour was essential for the support of the Northwest Coast's chiefly élite (see also Ruyle 1973). He does not see slaves as prestige markers and slaves as exploited labour as mutually exclusive, but that, ultimately, it was labour that was crucial to the élite's success.

Northwest Coast societies were stratified rather than ranking societies (as defined by Fried 1967) because of the existence of slaves on the Northwest Coast, slaves who, as Donald states, 'are clearly slaves, if the notion of slavery is at all useful cross-culturally' (Donald 1985: 242). On the Northwest Coast, there were usually three classes – title-holders, commoners, both of whom were free, and slaves. Many groups actually divided these classes further. For example, the Coast Tsimshian divided titleholders into *smkikét* (real people) and *li'qakikét* (other people). The élite were 'real people' (Halpin and Seguin 1990).

The evolution of complexity, especially of social inequality, has been a central research question in hunter-gatherer archaeology during the past twenty years, including on the Northwest Coast (see Ames (1994) for a review and citations, also Matson and Coupland (1995) and Ames and Maschner (1999)). It is now clear that some form of permanent social ranking or stratification was present on the coast 3000 calendar years ago, if not earlier. The patterns and forms of ranking changed during that lengthy period. If Donald is correct, then understanding the evolution of slavery on the coast is central to understanding the evolution of stratification there. However, archaeologically documenting slavery on the coast has proven difficult. This is due in part to the inherent methodological difficulties of recognizing slavery in the coast's archaeological record. Control of labour is central to both Arnold's definition of complexity (permanent inequality) and Donald's view of the role of slavery in Northwest Coast social institutions. In a sense then, to write an archaeology of Northwest Coast slavery is to write an archaeology of labour on the Northwest Coast, and the relationship between labour and high status. An archaeology of Northwest Coast slavery is also an archaeology of gender and of warfare. The rest of this paper is a preliminary discussion of these issues. It does not attempt to cover the entire coast; rather it examines the evolution of élites, slavery and changing production through time on the northern Northwest Coast

Northwest Coast slaves and slavery

(Unless otherwise indicated, this section is based on Donald (1997).) The numbers of slaves varied significantly from society to society on the Coast (Mitchell 1985; Donald 1997) with the highest numbers/household at the mouth of the Columbia River (Donald 1997) (Table 1). The fewest slaves were owned in the Coast Salish area of the southern coast. The numbers of slaves also varied significantly from household to household. Chiefs and high-status households probably owned more slaves than did low-status households. In a sense, this is a self–fulfilling circumstance, since slave labour produced the wealth that

was translated into high status, and that could be traded for more slaves. It is also likely, in Donald's view (1997), that the numbers of slaves in any particular household fluctuated over time, perhaps as labour demands required. At present, there are no data on the household cycle of the large, extended Northwest Coast household. It is possible that a chief's demand for slaves would vary as the household moved through its demographic cycle.

Slaves on the coast were primarily war captives, although the children of slaves in many areas were also slaves. In some portions of the southern Northwest Coast, people could sell themselves into slavery to relieve debts. In some such cases, the term of slavery was fixed. In general, though, once enslaved, people were slaves for life unless ransomed by their relatives. That was not common. Ransom could be expensive. Additionally, the taint of slavery clung to the ransomed individual, and to their relatives and descendants. People who were enslaved were usually lost.

On a day-to-day basis, the lives of slaves did not visibly differ from the lives of commoners. Slaves lived with their owners, sometimes sharing the same quarters, but sometimes having to sleep in the least desirable parts of the house. Often, these spots were near the dwelling's single door. However, the lives of slaves differed significantly from the lives of free members of a household in four crucial ways.

First, the owners of slaves could kill or trade them. Slaves could be killed for many reasons, or no particular reason. Chiefs did not have similar powers over free household members, even the lowliest commoners. The powers of chiefs over free individuals were quite ambiguous, as is often the case among so-called middle-range, or transegalitarian, societies (Ames 1995). Chiefs might have great prestige and authority, and people might defer to them, but the power of chiefs was circumscribed in many ways. Slaves could also be traded, and often were. Individuals could pass from hand to hand, ending far from home. In short, slaves were wealth and status markers, and they could be disposed of like any status marker, including being traded away, given away or destroyed.

Second, chiefs used slaves to reinforce their position. Slaves were used as bodyguards and warriors. John Jewitt, who was enslaved by the Moachat chief Maquinna in 1804, reports that Maquinna was fearful of assassination. In fact, Maquinna armed Jewitt and his fellow American slave with guns and cutlasses and set them over him at night while he slept to protect him (Jewitt 1967). In the latter part of the nineteenth century, the

Table 1 Regional variation in the percentage of slaves in Hudson Bay censuses (from Donald 1997).

	Median	*Minimum*	*Maximum*	*Interquartile-range*	*Number of groups*
North – 1840s[1]	4.8	1.4	26.1	2.8–11.8	29
Central – ca. 1850[2]	5.0	1.3	7.2	2.3–5.1	26
Southern ca. 1850[3]	3.7	0.3	17.3	1.8–5.1	16
Extreme South 1820s[4]	20.0	15.8	47.4	20.0–24.8	13

Notes
1 Tlingit, Tsimshian, Northern Wakashan
2 Kwakwaka'wakw
3 Coast Salish
4 Columbia River

Tlingit chief Shakes' only supporters were his slaves – but this seems quite unusual, if not even unique. There are no reports of chiefs using lesser titleholders or commoners in this way.

Third, slaves were outside gender. The strictness of the sexual division of labour on the coast is somewhat controversial (e.g. Donald 1997; Moss 1993); however, it is clear that slaves did the tasks of anyone, regardless of the appropriate gender for the task or of the gender of the slave. In the standard division of labour for fishing, for example, men fished while women processed the fish for immediate consumption or for storage. Either male or female slaves could be used for the latter tasks. Both male and female slaves paddled canoes.

Finally, slaves were the drudges of Northwest Coast society, doing tasks that were seen as hard, or unpleasant, such as hauling water and collecting firewood. However, there is no evidence for tasks that were the exclusive province of slaves. Interestingly, slaves may have had some control over the products of their labour. Jewitt made iron harpoons for Maquinna, and could trade or sell any excess production (Jewitt 1967).

The crucial point here is that slaves were the only labour that Northwest Coast chiefs could reliably control (Ames 1995). Their acquisition through raiding or trade could iron out shortages or bottlenecks in the household labour supply. Disposal of slaves through trade or killing could remove excess consumers. People with crucial skills could be acquired. Maquinna let Jewitt live because Jewitt was a blacksmith. I doubt such calculations were foremost in the minds of all slaveholders all the time. Slaveholding was part of the ongoing *habitus* of the Northwest Coast élite. Thus, once it developed, it was reproduced for many reasons. However, the calculus for acquiring, maintaining and expanding prestige on the Northwest Coast was the conversion of labour to wealth, which was converted to prestige (labour could also be directly converted to prestige) in a variety of ways. One route for converting labour to wealth was the production of large quantities of processed foods. Labour could be directly converted to prestige by the rapid construction of large houses or by fielding large war parties.

Large, corporate-group households were the context for the authority and power of the Northwest Coast's élite and for the labour of slaves. Households were the basic (and sometimes highest) economic, political and social unit. Chiefs were first household chiefs. While there were occasional great chiefs whose influences extended well beyond their household, these individuals were still house chiefs. There were no polities on the Northwest Coast in the eighteenth and nineteenth centuries. However, chiefs operated in regional networks of alliance, exchange, trade and competition.

Finding slaves on the Northwest Coast

Recognizing the presence of slaves on the Northwest Coast is methodologically very difficult for two reasons. First, slaves were thoroughly enmeshed in the household historically. There were no slave quarters, there were no distinctive slave tasks, no exclusively slave tools. Second, as Table 1 shows, slaves were not necessarily numerous. As a result, slaves may not be very visible in the archaeological record. Archaeologists and physical anthropologists have tried to work around these difficulties by looking at what was distinctive

about slaves: their fate. Upon death, the bodies of slaves were handled differently than those of free individuals. They might be thrown into the sea, or into the forest. Slaves were also sometimes included as grave goods or their bodies used for other ceremonial purposes.

Donald (1997) suggests archaeological evidence for slaves could include the presence of human remains at the base of ancient totem poles, since slaves were sometimes killed and placed in the hole before a pole was raised. This could also happen before a house was raised and one or more slaves placed at the bottom of the holes for the major house posts. At present, nothing resembling this has been found on the coast, or at least reported. There is, as yet, no archaeological evidence for totem poles at all, although house posts have been found.

The sex ratios in skeletal populations are also a possible line of evidence (e.g. Cybulski 1993). Women and girls were preferred as slaves. Thus, a sex ratio skewed towards males might suggest that the number of free females was depleted by slave raiding. Female slaves would replace the lost free women, but they would not be represented in the burial population. An alternative approach has been to look for the circumstances under which slaves were acquired, i.e. raiding and warfare, rather than for direct evidence for the presence of slaves. The argument is that, while not proving the existence of slavery, this at least demonstrates the possibility.

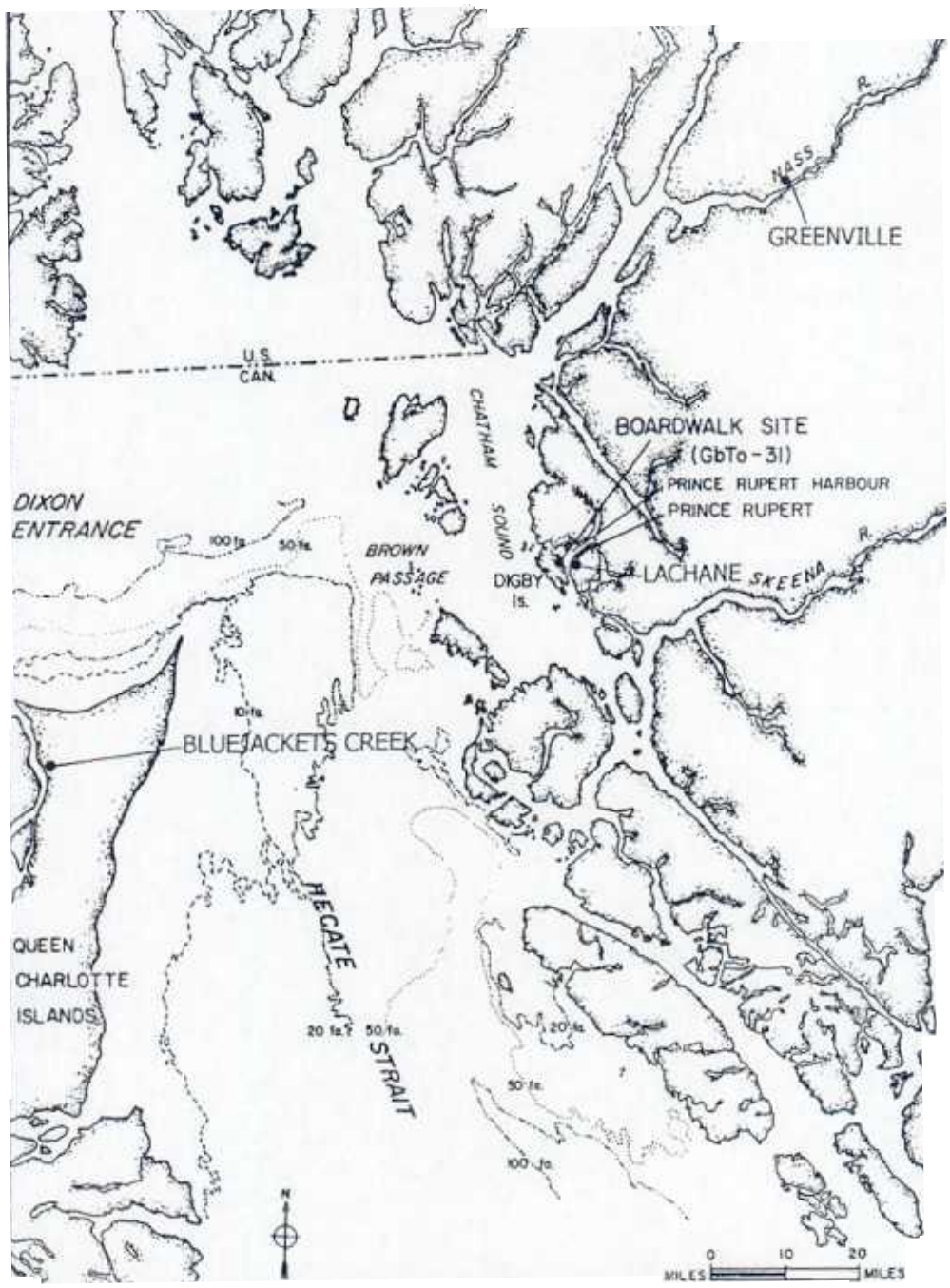
The approach taken here complements all of these. In addition to the foregoing evidence, I also look at evidence for increased demands on labour and for control of labour (or the products of labour).

Elites, slaves and labour through time on the northern Northwest Coast

Background

The area encompassed in this discussion includes the northern coast of British Columbia, the adjacent Queen Charlotte Islands (or Haida Gwaii as they are termed by the Haida and others) and Southeast Alaska. The bulk of the evidence reviewed here is from British Columbia, particularly Prince Rupert Harbour (Fig. 1). Much of the data discussed here is presented and reviewed elsewhere (Ames 1994, in press; Ames and Maschner 1999; Cybulski 1993, 1994) and the reader is referred to those publications for detail. It is important to note here, given current concerns about the excavation of burials, that these excavations were done with the permission, support and sometimes encouragement and active assistance of First Nations peoples, including Coast Tsimshian, Nisga'a and Haida. This evidence includes data from the Bluejackets Creek site on the Queen Charlotte Islands, several sites in Prince Rupert Harbour and the Greenville site near the mouth of the Nass River (Fig. 1).

The Bluejackets Creek site is located on Masset Sound on Graham Island, the largest and northern-most island in the Queen Charlotte archipelago. Excavations at the site recovered twenty-eight individuals from twenty-five graves (Murray 1981). There are four radiocarbon dates from these individuals: 4100 ± 170(S-2338),[1] 5005 ± 150 (S-2351), 4675 ± 145 (S-2349) and 5055 ± 155 (S-2353). These dates are problematic, since they are


NASS R.
GREENVILLE
U.S.
CAN.
CHATHAM SOUND
BOARDWALK SITE
(GbTo-31)
PRINCE RUPERT HARBOUR
PRINCE RUPERT
DIXON ENTRANCE
100 fa.
50 fa.
BROWN PASSAGE
DIGBY Is.
LACHANE
SKEENA R.
10 fa.
BLUEJACKETS CREEK
HECATE STRAIT
QUEEN CHARLOTTE ISLANDS
20 fa.
50 fa.
20 fa.
50 fa.
100 fa.
N
0 10 20
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MILES

generally older than other dates at the same levels. It is safer to say, based on the full suite of twelve dates from the site, that the burials date between c. 3800 BP and 5000 BP, or between cal. 2250 BC and 3850 BC.

Prince Rupert Harbour is located midway between the mouths of the Nass and Skeena Rivers (Fig. 1) on the British Columbia coast. Between 1967 and 1975, twelve shell middens were excavated, with burials recovered at ten of them (MacDonald and Inglis 1981; Cybulski 1993). Many of these burials occurred in cemeteries. Altogether, the skeletons of 285 individuals of all ages were recovered. These are dated by thirty-six radio-carbon assays that span the period between cal. 1600 BC and AD 420. The excavations in Prince Rupert Harbour also provide most of the evidence for labour demand discussed below.

The Greenville site is in the town of Greenville on the Nass River 28km above its mouth. Work there spanned 1981–3 and yielded thirty-six graves or burial features and the skeletal remains of at least fifty-seven individuals (Cybulski 1993). Cybulski recognizes three components or phases in the burial programme, the first two dating cal. AD 566–1010 and the third to cal. AD 1180–1290.

Evidence for the presence of élites on the northern Northwest Coast

Early Pacific period (4400 to 1850 BC (periods follow Ames and Maschner 1999))

Status distinctions may have existed on the Northwest Coast before 1850 BC or so (Ames and Maschner 1999). On the northern coast, evidence for this is present at Bluejackets Creek, where three individuals (17 per cent) apparently wore large stone lateral, or cheek, labrets (Murray 1981; Cybulski 1993).[2] Of these three, one was a male, one a female, while the third is too fragmentary to determine sex. The male was about 18; the female between 20 and 25, while the third was an adult. The burials have not been fully reported, but, generally, they were found in shallow graves, and most were flexed. Three individuals were buried in a seated position, and heavily stained with red ochre. There is no evidence of coffins or grave boxes. Grave goods include bone dagger blades and decorated metapodial awls, among other things (Severs 1973, 1974).

Middle Pacific period (cal. 1850 BC–cal. AD 200/500)

There is strong evidence for clear-cut status distinctions after 1850 BC in Prince Rupert Harbour (see Cybulski 1993, Ames in press). Access to burial in cemeteries associated with a village and/or shell midden was limited. Most people were probably buried elsewhere. Of those buried in cemeteries, about 13 per cent have grave goods (thirty-four out of 285). Of that 13 per cent, an even smaller percentage was buried with significant prestige items. These items include labrets (lip plugs), shell and amber necklaces, copper adornments, bone dagger blades and other items. The copper artefacts, at least, were likely produced by specialists, although whether full or part-time is not known.

Grave goods are associated with both males and females and with individuals ranging in age from pre-adolescent to elderly. However, males dominate, with a sex ratio of 3.25 males: 1 female. Young males are associated with the richest grave goods, including copper, shell and amber objects. These latter graves and objects occur only in one of the twelve sampled sites, the Boardwalk site. In addition to these grave goods, the mortuary

programme at Boardwalk, and nowhere else, included the use of burial boxes, decoration of some boxes with hundreds of sea-otter teeth used as studs, red ochre and trophy skulls. These circumstances (and other data – Ames in press) strongly suggest regional social hierarchies with ranking not only of individuals but also of the social groups attached to particular cemeteries, which were probably lineages (Cybulski 1993), and of villages.

Labret wear was restricted. After 500 BC, labrets were worn almost exclusively by men (6.3: 1). All labrets were medial labrets (worn in the lower lip). Interestingly, some labrets were deliberately broken before disposal. Such behaviour is usually associated with permanent social rank (Wasson 1994).

There is important variation between males and females beyond that mentioned above. The numbers of females with grave goods at each site is predicted by the volume of midden excavated at the site and the mean density of such graves in the harbour as a whole. In contrast, the numbers of males with grave goods is not so readily predicted, and is more variable across the harbour. Based on the sex ratio of males: females with grave goods (3.25: 1) and the variation in the numbers of males with grave goods, I have argued (Ames in press) that there were more status openings for males than females and more variation in how men's status positions could be acquired. In sum, it appears that between 1850 BC and AD 500 male status was a mix of ascribed and achieved, but that female status was entirely ascribed. Households, or lineages, and villages were also ranked, with Boardwalk seeming to hold pre-eminence.

These patterns are not reflected in relative house sizes. Several archaeologists have mapped late Middle Pacific house floors on the northern Northwest Coast (Acheson 1991; Maschner 1992; Archer 1996; Coupland 1985, 1996). The houses are almost all uniformly small, leading these investigators to conclude, based on relative house floor areas, that individual households were not ranked in this period. Very large houses do not appear in the record until after cal. AD 500. Historically, high-ranked households occupied houses that were significantly larger and more labour intensive to build (Ames 1996) than did lower-rank households. Relative and absolute house size is a good indicator of household status in northern Northwest Coast villages and towns in the eighteenth and nineteenth centuries (Fig. 2). On the other hand, extended corporate groups, such as kin groups, may have been ranked in this earlier period. I have already discussed the burial evidence. Village layout also suggests this. Three villages from this period have two house rows, one behind the other. Historically, position in the front house row reflected higher status than position in the back row. Position in the centre of a row indicated higher status than positions at the edges of the row, at least on the northern Coast.

During this period, very high status individuals controlled access to exotic goods (copper, amber) and to items made by specialists (copper). Somewhat lower statuses were marked by prestige items made from local raw materials (e.g. bone dagger blades) but which were restricted in their distribution. For example, Boardwalk is the only site where bone dagger blades were recovered in non–burial contexts, while they occur only in burial contexts in other sites.

Late Pacific (c. 500 –1775 AD)

Elite organization changes significantly during this period on the northern coast. Much of the evidence for these changes comes from the Greenville site. Of the fifty-seven individuals

recovered, Cybulski identified thirty-nine as adults or young adults. Of these, twenty-three are males and fifteen females (Cybulski 1993: table 1) for a sex ratio of 1.5:1. Sixty per cent of the adult females have labret facets on their lower incisors. Cybulski suggests that all the females in the cemetery wore labrets, since the other 40 per cent had no lower incisors, due perhaps to wearing labrets. This is in marked contrast with the earlier pattern of male dominance of labret wear in Prince Rupert Harbour, but mirroring the Early Modern period (cal. AD 1750–1850 (Ames and Maschner 1999)) when all free women wore labrets, labret size reflecting status.

Another contrast with the earlier mortuary programme in the Prince Rupert Harbour cemeteries is a virtual absence of grave goods, including labrets, copper, beads, bone objects, etc., at Greenville. The midden itself appears to contain the usual run of northern Northwest Coast artefacts.

After AD 1300, burial practices along much of the Northwest Coast changed drastically. Inhumations in middens virtually ceased, presumably replaced by the patterns of the Early Modern period, which included exposure, use of above-ground containers, inhumation away from residences and cremation. With this change in mortuary practices, we are presently unable to trace changes in élite status between AD 1300 and contact with Europeans. Excavations of sites dating to this period on the southern Northwest Coast clearly show the ongoing presence of élite individuals, however.

Large, rectangular houses appear in the record after c. AD 500 at a number of locations across the northern Northwest Coast. This development is discussed in detail below.

Direct evidence for slaves

Cybulski (1979) reports several 'unconventional' burial positions among the Prince Rupert burials. Virtually all burials in the harbour were flexed, lying on their sides. Some individuals were found extended, face down and face up, and without their limbs being arranged for interment. Additionally, some individuals, both males and females, were decapitated and left (and excavated by us) where they died. They may have been kneeling when beheaded. These people could have been captives killed in raids, or possibly killed slaves. These unconventional burials date through the Middle Pacific period and are present in several sites in the harbour (Cybulski 1979). There is also evidence for the use of humans as artefacts in the Middle Pacific. Trophy skulls are present in at least one burial and one cache at Boardwalk. Human skulls and long bones show evidence of modification, some for making tools, but others for less obvious purposes (Cybulski 1978).

Another, and important, line of evidence for slavery on the northern coast is the skewed sex ratio of the Prince Rupert skeletal sample: 185 males: 100 females. The ratios at Bluejackets and Greenville are similarly skewed.[3] The argument is that this pattern reflects the loss of free females to raiding. Female slaves would not be buried among the high-status individuals in the cemeteries, producing the skewed ratio. Cybulski (1979) also observes differences in the age profiles for males and females at the Lachane site, a major village site in the harbour. Sixty per cent of the male skeletons are of individuals 15 to 30 years of age at death, while the majority of females were over 40 years old. This again could reflect the loss of young women to raiding. Interestingly, however, the ratio of females

over 40 to below 40 at Greenville is 1.12:1 (nine individuals over 40: eight under 40), essentially balanced, in a period also marked by intense warfare and raiding.

If Cybulski's hypothesis is correct, it has implications for the scale of slavery in the period between 1850 BC and AD 500. If the sex ratio is the result of slave raiding, then at least 46 per cent of the adult female population represented in the burials was lost to raids. This translates to about 23 per cent of the total population represented by the burials. It is unlikely, however, that slave raiding focused on high-status women to the exclusion of males or people of either sex of low status. Therefore, these figures, if they represent slaving, are minimums. They seem quite high. Losing 46 per cent of high-status women makes slaving a very costly activity. However, the 23 per cent figure is not impossibly high. It is at the top of the range of variation for the percentage of slaves in populations along the entire coast in the early to mid-nineteenth century (Donald 1997: table 1). On the other hand, it does seem a very high percentage to be sustained over the long period of the Prince Rupert graves, particularly among higher-status individuals.

If we apply the same maths to Greenville, missing females constitute about 22 per cent of the total number of adults there. However, that figure is misleading. Cybulski (1993) was able to group the burials at Greenville into three phases: Early (cal. AD 566–760), Middle (cal. AD 770–1010) and Late (cal. 1180–1290). During the Early and Middle phases, the sex ratios are essentially 1:1. The skew is entirely in the late phase, which is also depositionally different from the first two (Cybulski 1993). Thus, the earlier burial phases contrast sharply with the pattern in the Prince Rupert data. The Prince Rupert sex ratio might also prove to vary with time, if we could make finer temporal divisions of that sample.

However, the skew in the Prince Rupert assemblage may also be due to causes other than slaving. It could reflect, for example, the greater opportunities for males than for females to acquire high status suggested above. In this interpretation, the number of females would indicate the size of the élite's core (the females plus an equal number of males) based on ascription. The excess males would then be those who achieved high status in alternative ways. This group is about 30 per cent of the population. The even sex ratio in the two early Greenville phases might then imply reduced access to high status for males after AD 500, an interesting implication given the shift of labret wearing from primarily a male prerogative to being an exclusively female prerogative as reflected at Greenville.

Warfare and raiding

The evidence for raiding and warfare is quite straightforward (Ames and Maschner 1999). Violence, raiding and warfare were endemic and probably continuous. The evidence includes the presence of weapons in graves and in the general assemblages of artefacts, the incidence of violence-caused trauma on skeletons and the pace of fortification. The trauma evidence shows that the incidence of conflict was relatively low on the entire coast between cal. 3500 BC and 1500 BC, rose sharply on the northern coast from 1500 BC until AD 500, and remained high after that (Cybulski 1994). The incidence of violence-caused trauma on human remains is actually lowest during the Early Modern period, according to Cybulski (1994). Fortifications were increasingly constructed after AD 500, a pattern

well-documented in the north (Moss and Erlandson 1992). Weapons include stone and bone clubs, stone and bone dagger blades, bows and arrows, and perhaps armour.

Labour demands

There may have been two or three major increases in labour demands after 1850 BC. It is difficult to assess labour requirements in the Early Pacific. Data are limited. For example, there are no data on the form of house structures, although a small circular feature has been reported from Southeast Alaska (Davis 1989). The subsistence economy between cal. 5500 BC and 1850 BC included a range of marine, littoral and terrestrial resources, harvested by an array of fairly generalized tools (Ames 1998; Moss 1998). It is not until after 1850 BC that there is strong evidence for intensive exploitation of a range of resources, including salmon. It is around this time that there is evidence for increased production, in both harvesting and processing, that would suggest higher labour demands. In addition, the available evidence also suggests that scheduling demands became more complex. However, this may reflect, to some degree, the lack of earlier data.

Several lines of evidence, taken together, suggest rather high labour demands. The presence of weir and netweights indicates bulk harvesting of fish (Moss et al. 1990). While bulk-harvesting techniques were probably employed earlier, it is likely their use increased during this period. There is evidence for the presence of wooden boxes and, by implication, of increased dependence on storage (Cybulski 1993). The rectangular, surface houses indicate the existence of corporate-group households, increased investment in house construction and perhaps expanded dependence on storage (see Coupland 1985; Ames 1994; Ames and Maschner 1999). Faunal evidence in Prince Rupert strongly suggests transport of large volumes of harvested and processed fish distances of 40 kilometres or more (Ames 1998), implying increased bulk processing, reliance on processed foods (storage) and the presence (and construction) of boats capable of hauling considerable freight. Inshore and offshore islands appear to have been increasingly used for resource extraction and for residences. This suggests expanded exploitation of hitherto marginal environments. In at least one of these cases, water must have been hauled in by boat since the island had no freshwater. It does not appear that new resources were being used, but rather new resource patches (Ames in press).

In Prince Rupert Harbour, there are increased numbers of light woodworking tools and ground stone tools, which are themselves more labour intensive to make than most chipped stone tools. The woodworking tools and other evidence presented here clearly indicate an expanded industrial role of woodworking and carpentry. At the beginning of the Middle Pacific, there is also an explosion in the number and diversity of subsistence-related tools in the Prince Rupert Harbour sites. However, these artefact changes may reflect sampling to some degree. There is evidence for specialization in this period, including working in copper and possibly woodworking. There is no evidence for technological innovations that would significantly enhance labour efficiency.

It is difficult to quantify labour demands associated with these changes. However, we can indicate the labour costs associated with increased use of weirs, baskets and nets (mass capture techniques). Lindstrom (1996) develops useful data on the costs of various fishing techniques. To keep this brief, I shall compare the two extremes of fishing technology:

spears and gill nets. She estimates a fish spear takes four hours to make. Under optimum conditions, a person can harvest ten fish per hour with a spear. In contrast, a gill net, depending on the gauge, takes between 205 and 2,220 hours to make, although nets may capture fish at a rate of a fish every two and a half minutes in optimum conditions. Additionally, a spear, once made, may require little maintenance, while a net requires continual maintenance. Other bulk harvesting techniques (weirs, basket traps) need less time to make, but are still costly, relative to a spear or hook and line. Expanded use of bulk harvesting techniques, then, imposed sharply increased labour costs at both ends of the productive chain, in making the equipment and in processing the increased catch.

Processing a large catch is an excellent example of the need to organize work as simultaneous tasks. On the Northwest Coast, fish were processed for storage by being filleted and then dried in one of three ways: exposure to sun, to wind or to smoke. Fish were not salted or placed in brine. Processing fish can easily be done as a linear task: a single person can open, fillet and hang the fish on a rack. The limit here is the number of fish one person can process before the rest of the catch begins to rot. It may not be crucial whether the task is organized as a simple simultaneous task or as a complex simultaneous task, just that there be many hands to get the work done quickly in the face of an increased catch.

Increased labour demands also occurred after AD 500 (the Late Pacific). A range of new heavy-duty tools appears in the artefact assemblages, including piledrivers and two varieties of large adze blades. The densities of adze blades of all sizes double and those of mauls and percussers increase fivefold, indicating a significant increase in heavy woodworking. It is probably no coincidence that very large wooden houses appear in the record for the first time on the northern coast. In Prince Rupert Harbour at least, there is no clear evidence for intensification of food production or storage during this period, although most researchers argue for increased levels of food production along the Northwest Coast during the Late Pacific period (Ames and Maschner 1999).

Again, one example shows the increased labour demands in the early portions of the Late Pacific – the costs of house construction. I estimated the labour costs of the Northwest Coast's wooden houses by calculating the amount of lumber per house using the board foot (a piece of lumber that is 1ft × 1ft × 1in) as a measure (Ames 1996). Figure 2 shows the range of board feet required to build houses in four villages on the northern Northwest Coast. Paul Mason is the earliest known village site with rectangular houses on the entire coast. The other three are Early Modern towns. Gitsaex and Gitlaxdwakl are Tsimshian and Ninstints is Haida. The Paul Mason houses are relatively small, requiring a mean of 6,695 board feet per dwelling and a standard deviation of only 1,007. The largest documented structure there required an estimated 7,877 board feet, the smallest 4,965. The Early Modern houses in the three other towns were larger, with village means ranging from 10,649 per dwelling to 11,566 per dwelling. However, the range in sizes per town was even greater, as is clear in the box and whisker graph (Figure 2). The smallest houses were as small as those in the Paul Mason site, but the largest structures required between 15,000 and some 20,000 board feet. A typical modern North American house requires some 10,000 to 12,000 board feet (Ames 1996)

In this case, there is a direct relationship between status and labour, as noted above. High-status households (which had high-status chiefs) occupied larger houses than did

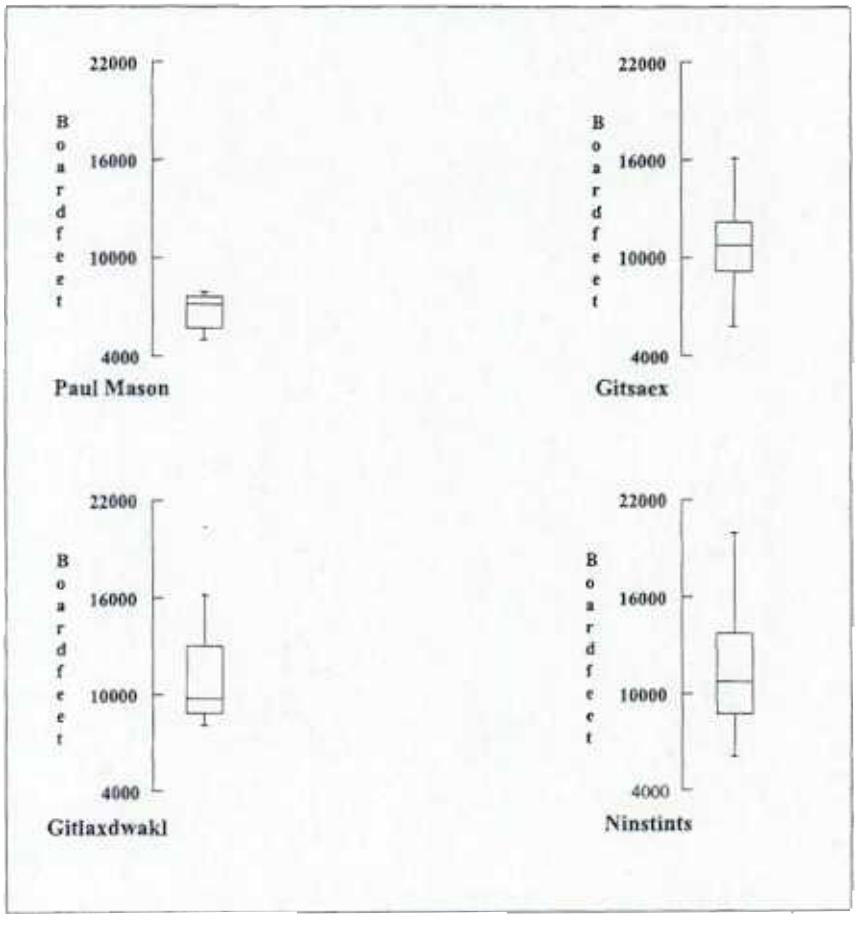

Figure 2 Box and whisker graph of the lumber used (in boardfeet) in houses in four northern Northwest Coast villages. Paul Mason dates to the Middle Pacific period; the other three are nineteenth century.

lower-status households. High-status households were usually larger, and able to field the labour to build a big house. Mean household size (based on floor area) of the three historic towns was about fifteen individuals. High-status households might have as many as twenty to twenty-five members.

Discussion and conclusions

There are two periods when it seems plausible that slavery could have been adopted by northern Northwest Coast élites: during the early portion of the Middle Pacific period and the early portion of the Late Pacific. The context for slavery had existed on the Northwest Coast since the beginning of the Middle Pacific period. This context includes the

presence of an élite, endemic warfare and expanding demands for labour. The strongest direct evidence for slavery is in the few individuals during the Middle Pacific who were left where slain or disposed at death without benefit of formal burial. These behaviours closely approximate the treatment of slaves in the Early Modern period. The skewed sex ratios may be the result of slaving, but they need to be viewed with caution, since there are strong alternative explanations for this pattern.

There is little evidence for direct élite control of labour during the Middle Pacific. The great bulk of grave goods were of locally produced materials (ground slate blades, bone daggers), although these objects were somewhat time consuming to make. One group of élite individuals, at least, did control access to exotic goods and to the products of specialized artisans. This group was buried at a single sampled site. However, a number of changes during the Middle Pacific probably increased labour demands and labour costs as well as affecting task organization within households. Among these were expanded use of bulk-harvesting technology and increased food processing for storage. Woodworking and carpentry also appear to have expanded in scale, including building houses and making containers and boats capable of hauling water and processed foods. The presence of the houses indicates the existence of corporate-group households with the further implication of simultaneous task organization. While all this points to the possibility of slavery, it does not demonstrate it.

It is in the Late Pacific that we have evidence for at least one direct tie between labour and élite status: the construction of large houses. The numbers and variety of heavy-duty tools, including woodworking tools, also increases. These suggest that larger logs were being worked and/or larger objects being made. Among these larger objects were the big high-status houses, but there were other crucial big objects as well, including the very large freight and war canoes of the Early Modern period. There are also important changes in the organization of the élite during the early centuries of the Late Pacific, as shown by the shift in labret wear patterns. During the Early Modern period, northern Northwest Coast social organization was matrilineal, and it is possible that the shift in labret wear to only females (the historic pattern) marks the emergence of matrilineality (Cybulski 1993). Raiding and warfare tactics also change, leading to increased construction of fortifications (which require labour). Maschner (1992) argues this change was caused by the adoption of the bow and arrow as a weapon. In sum, this appears to be a period of considerable flux and violence. These circumstances combine to suggest that this is a very plausible time for slavery to develop.

Documenting when slavery appeared on the Northwest Coast is important for our understanding of the relationship between the development of élites and their control of labour. If slavery did not develop on the coast until the Late Pacific, then the permanent élite of the Middle Pacific may have evolved in the absence of control over non-kin labour. The relationship of that élite and the artisans who produced the copper, shell and amber objects is currently unknown, although certain portions of the élite appear to have controlled use and disposition of the objects themselves. If they did not control labour, what did they control, aside from some prestige goods? This question becomes even more pressing in light of the evidence for ranking of extended kin groups and of villages in Prince Rupert Harbour during the Middle Pacific. As interesting as this question is, there are presently no data with which to address it.

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Notes

1 The British Columbia radiocarbon dates are taken from the Canadian Archaeological Radiocarbon Database, developed by Morlan. The web address is *http: //www.canadianarchaeology.com/radiocarbon/card/card.htm#index*. The dates used in the text are normalized dates, where Morlan made that correction. All dates were calibrated for this paper using the University of Washington, Isotopes Lab Radiocarbon Calibration Program Calib 4.1 (Stuiver and Reimer 1993).

2 Labrets are lip and cheek plugs of stone, wood or bone. Direct evidence for stone labret wear includes distinctive facets on the teeth against which the labret rested and rubbed. In this case, the wear facets are on the buccal surfaces of the first and second molars (all three individuals) and the first and second premolars (the young male). Evidence for medial labrets (worn in the lower lip) are facets on the buccal surfaces of the lower incisors. Cybulski (1993) also argues, correctly I think, that loss of these teeth may also indicate labret wear.

3 Murray also analysed the Bluejackets Creek skeletal remains. He identified six as male, eight as female, two as possibly male, one as possibly female and eleven as sex undetermined. Taking both firm and possible identifications, this produces a sex ratio of .88:1. More conservatively (removing the possibles) the ratio is .75:1. These differences in analytical results are presently unexplained in the literature. However, they present problems that need to be resolved. These problems are why I do not include the Bluejackets Creek materials in this part of the text.

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