

Thinking about Household Archaeology on the Northwest Coast

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In the 1970s, Northwest Coast archaeology was riveted by the extraordinary excavations at Ozette, where archaeologists were able to recover portions of entire houses that had been catastrophically sealed by mudslides. These excavations confirmed many aspects of early European portrayals of the interiors of Northwest Coast houses and demonstrated the utility and importance of the house as a central unit of archaeological methodology and analysis. In 1982, Wilk and Rathje published their edited issue of the *American Behavioral Scientist* that introduced household archaeology as a concept and method (Wilk and Rathje 1982a). In 1985, Gary Coupland applied the concept of household archaeology to the Northwest Coast, specifically to the Paul Mason site in northern British Columbia (Coupland 1985). Also, in 1985, I published a paper in which I argued that Sahlins' concept of a domestic mode of production was a framework within which to discuss changes in labor organization and production on the Northwest Coast and among complex hunter-gatherers generally (Ames 1985). Subsequent years have seen an increasing number of papers on household archaeology on the Northwest Coast, including papers in edited volumes (e.g., Coupland and Banning 1996; Isaac 1988; MacEachern et al. 1989; Matson 2003) and journals (Ames et al. 1992, Coupland et al. 1993) and field projects explicitly designed as household archaeology projects (e.g., Ames et al. 1992, 1999; Coupland 1985, 1993; Grier this volume; Losey 2002; Matson 2003). A range of topics has been investigated, including the role of household leaders in production, specialization, and household control of resources, among others. However, during this productive period, there has been little explicit theory building about households and the archaeology of households.

It may be no accident that Hendon's review of household archaeology in the *Annual Review of Anthropology* (Hendon 1996) cites only one paper dealing with the Northwest Coast (Moss 1993), and that was a paper on the division of labor, not explicitly about households. She does, however,

offer a criticism of household archaeology in general which may be applicable to our work on the Northwest Coast:

Interest in the household should not become merely a convenient justification for excavation of houses ... The functional orientation of most current research in household archaeology does not provide a compelling reason for why the domestic group should matter to our reconstructions of the past, especially since much of this research has not even done a particularly good job of establishing what households do. (Hendon 1996:55)

While I am far more sympathetic to "functional" approaches to household archaeology than is Hendon (e.g., Ames 1996), I would maintain that despite our efforts of the past 20 years, and even with the available ethnographic record (e.g., Mitchell and Donald 1988), we do not really know what Northwest Coast households did and how they did it. I would also suggest that, if we want to contribute to a broader, cross-cultural and evolutionary understanding of households, we need to develop explicit theory about households on the Northwest Coast and elsewhere. Such theory need not be developed *de novo*. A considerable body of theory and ethnographic observations about houses and households has developed over the past century or more, but most particularly during the last 20 to 30 years (see below). Most, if not virtually all, of this theory has been developed and tested through research on peasant farmers. One issue to be addressed here is the extent to which this theory can be applied to hunter-gatherers, such as those on the Northwest Coast.

It has become increasingly evident since about 1980 that large populations, permanent settlements, specialization in production and social inequality, among other traits, evolve among hunter-gatherers as well as among agriculturalists, although the message has yet to completely penetrate anthropology or archaeology (i.e. Pauketat 1996). Households also clearly evolve among hunter-

gatherers as well as farmers. Indeed, the appearance of permanent and/or substantial dwellings in the archaeological record is often one of the major changes in the archaeological record of ancient hunter-gatherers, and is sometimes accompanied by, or presages, other significant economic, social, and cultural changes. In Japan, for example, pottery has long been used to mark the Jomon period. However, the appearance of small pithouse settlements is what most clearly signals the evolution of Jomon lifeways. Subsequent Jomon history is marked, in part, by increasing variation in both settlement and house sizes. In Southwest Asia, small but substantial houses are among several innovations marking the abrupt shift from the Late Paleolithic Kebaran culture to the Natufian (Bar-Yosef 1998). The presence and absence of houses may indicate shifts from between foraging and collecting (e.g., Habu 1996), or increasing levels of sedentism (e.g., Ames 1991) and even herald the evolution of social inequality (Ames and Maschner 1999), or not, as the case may be.

In Wyoming, substantial numbers of pit dwellings are present in the record between about 4800 and 3300 B.C., and then become comparatively rare (Larson 1997). On the Columbia Plateau, relatively sedentary, long-lived households develop by c. 5000 B.C., and become plentiful for a time after 3200 B.C., but there is no evidence of other profound social or economic changes for another 2,500 years or so (Ames 2000). If households are significant actors in social, economic and political evolution, as many believe (Gillespie 2000), than we also need to account for cases in which households do not play that role.

A number of researchers, for example, have argued that the roots of permanent inequality, of ranking and stratification, lie, at least in part, in household production and actions (e.g., Boone 2000; Diehl 2000; Gillespie 2000; Pauketat 1996). However, an issue of long standing is whether the household economy, the domestic economy, must be transformed into a political economy that transcends the household for this to occur (Sahlins 1972). Arnold (1996) and I (Ames 1995) have both argued that such a transformation is required to turn the variety of pathways to power described, for example by Hayden (1995), into ranking among hunter-gatherers. I do not wish to pursue that point here, but what is clear is that large-scale political economies, polities, commonly do evolve among farmers, and do not among hunter-gatherers. Rare exceptions may include the Calusa of Florida (Marquardt 1999), and perhaps the Chumash of southern

California (Arnold 2001). There were certainly no formal polities on the Northwest Coast during the Modern Period (Ames and Maschner 1999), although chiefs did operate in regional interaction spheres (Adams 1973).

Why don't polities commonly develop among complex hunter-gatherers? Indeed, why do (archaeologically) clear-cut status distinctions not evolve more commonly among hunter-gatherers? The Jomon period, for example, spans at least 12,000 years, and is marked in some areas by high population densities, large settlements, and an intensive subsistence economy (Imamura 1996). There is ongoing debate, however, about whether ranking developed among Jomon peoples or not (e.g., Kobayashi 1992), let alone polities. While it is difficult to estimate Jomon populations, it is likely that population densities were high enough in some parts of Japan for small polities to evolve. They certainly were along parts of the Northwest Coast (Ames 1995), and yet polities did not develop, at least permanently.

Most archaeologists would probably argue that the energetics of hunting and gathering economies simply cannot support large-scale polities. However, this does not explain why small-scale ones do not often develop. It may also be that there is something about the structure of hunter-gatherer economies or social organization that prevents the widespread development of extra-household political institutions. Tringham (2000) has recently made the intriguing suggestion that household production itself limited political development in Bronze Age Europe, preventing the urbanization and state development that occurred in nearby Southwest Asia. The basic argument of this paper is that these questions, and questions developed below, cannot really be addressed until we gain a much better understanding of hunter-gatherer household economies.

Households and Houses

The growth of household archaeology on the coast parallels developments elsewhere in archaeology in particular and in anthropology in general. Household studies in anthropology arose in the 1970s as part of a focus on micro-scale social, political, ecological and economic processes (e.g., Ellen 1982; Yanagisako 1979). These studies were conducted in Western industrial contexts as well as in so-called third world societies. One of the major concerns of these latter studies has been peasant farmers. That work stresses a "bottom-up" approach

to a range of questions. Generally, household studies are seen as complimentary to what might be termed a more top-down, macro-scale approach to the same issues (e.g., Fricke 1986, Maclachlan 1987). This research has strong ecological foundations; Wilk even entitles his recent book on the topic *Household Ecology*.

For Wilk, (following Fricke 1986):

[The] household is the logical level of analysis for human ecological studies. Here the individual patterns of choice and strategic behavior can be placed within larger social structures and economic-ecological contexts. Societies adapt in only the most abstract sense of the word, but households adapt in concrete and observable ways. ... [T]he rational adaptive actions of individuals and households can lead to irrational and destructive consequences at the level of larger systems such as communities and ecosystems. This suggests that households are a crucial link between the micro- and macroscale of human systems. (Wilk 1997:31)

Netting (1993) adds an almost Darwinian sensibility to this approach in his analysis of smallholding farmers, arguing that this particular form of household will develop many times independently under conditions of intense agricultural production. The wide temporal and spatial distributions of smallholders are, then, a form of convergent evolution. Netting further argues that small householders will develop in societies markedly different in their overall social and political organizations. This version of household studies underpins the discussions in this and previous papers (Ames 1995, 1996) and has its ultimate roots in Sahlins' concept of a domestic mode of production (Ames 1985; Sahlins 1972). It stresses production and consumption, strategic behavior, decision-making and the evaluation of decisions against consequences (e.g., Fricke 1986).

An alternative line of development in household studies has its roots in Lévi-Strauss' concept of *Sociétés à maisons: House societies*.¹ According to Lévi-Strauss, the *House* in these societies is "a corporate body holding an estate made up of both material and non-material wealth, which perpetuates itself through the transmission of its name, its goods and its titles down a real and imaginary line, considered legitimate as long as this continuity can express itself in the language of kinship or of affinity and, most often, both (Lévi-Strauss 1982, 174)." Lévi-Strauss' concept is based in part on his understanding of the Kwakwaka'wakw (formerly Kwakiutl) *numayam* (Lévi-Strauss 1982), and

Northwest Coast societies, at least in the nineteenth century, fit his definition of House societies (e.g., Marshall 2000, this volume). However, most discussions of House societies focus on the ethnography of farmers in South Asia and the western Pacific (papers in Carsten and Hugh-Jones 1995 and Joyce and Gillespie 2000).

This particular approach has taken a couple of directions at least, including what Carsten and Hugh-Jones (1995) term an "anthropology of architecture" which for them will be quite similar to an anthropology of the body, and, while difficult to summarize succinctly, is not strongly materialist, instead emphasizing semantic systems (Sandstrom 2000). A somewhat different, more materialist approach is developed in Joyce and Gillespie (2000) in a recent edited volume. While it is well beyond the scope of this paper to review this literature, it has some points relevant to this paper and this volume.

Houses live longer than any of the humans that comprise them. This long life span is central to most discussions of Houses. Gillespie puts it this way: "(T)he operation of the house over time (is) the result of strategic decision making whose goal is to reproduce a corporate body linked to a perpetual estate" (Gillespie 2000:33). The corporate decision-making is generally seen as grounded in what Sandstrom (2000, 57) terms the "down to earth factors of how people make a living." This echoes much of the household literature cited above (e.g., Fricke 1986). The estate may include both corporeal and non-corporeal property (e.g., land and songs).

Houses are manifested by houses and the people who occupy them. The material house is the organizing focus of the House, not rules of kinship or affiliation. The houses may or may not be the large, imposing structures of the Northwest Coast or European aristocracy, but the material house is still central. *House* membership may be fluid through time, although the house may always be "full" (Marshall 2000). Recruitment becomes a crucial strategy for House reproduction (e.g., Adams 1973).

Finally, House societies appear generally to be hierarchical, although there is debate about this point. They are thought to be most common among so-called "middle range" societies, or societies where class divisions are not fully or completely evolved. *Houses* are often ranked; and they sometimes only exist in the higher ranks of societies.

These factors raise three evolutionary questions: How to account for the evolution of House societies (assuming such things exist)? How to

account for their persistence? And, lastly, how to account for their role, if any, in the evolution of social hierarchy? I would, however, echo Gillespie (2000) and argue against seeing House societies as yet another intermediate stage between egalitarian societies and states. I also believe that the answers to these questions rest in the kind of approaches advocated by Wilk, Netting, Fricke and others.

Household and House studies thus share some overlap, although their respective practitioners do not often or extensively cite each other. However, households and Houses are conceptually quite distinct. A House can include one or more households. Many households may not persist beyond the deaths of their founders, while Houses, by definition, do. *Houses* are generally larger, with many members, while household sizes can vary from a nuclear family and up. Despite these differences, the concepts are heuristically useful, because, as will be seen below, they allow us to frame interesting evolutionary questions.

The concept of House societies shares some features with Hayden and Cannon's closed corporate group (Hayden and Cannon 1982). While they do not actually define what a corporate group is, they stress several features including long-term durability. Corporate groups last longer than the life spans of individual members. They strongly affect members' lives: "Residential corporate groups are much more closed and exert a pervasive influence on all aspects of individuals' lives, including their marriage, their post marital residence, their economic production, their feasting and celebrations, and their pastimes and pleasures" (Hayden and Cannon 1982, 135). Finally, corporate groups control crucial resources, particularly land, echoing the concept of the House estate. As with household and House theory, the corporate group is seen as an analytical level between the household and the community. Hayden and Cannon also see corporate groups as playing central roles in the evolution of social and political complexity, a view strongly held among many workers on the Northwest Coast. This parallels some discussions that Houses may be crucial actors in the evolution of social inequality, at least in some circumstances. However, for them, the corporate group is closed in terms of recruitment, while Houses are open—kinship may be the terminology of membership, but people affiliate themselves with houses for strategic reasons (Gillespie 2000).

Hayden and Cannon (1982) specify three types of corporate groups: 1) those where several families live together in the same structure, such as are

found on the coast; 2) those in which families occupy separate structures, but these structures are physically close to each other in patterned ways, as in compounds, and 3) large amorphous residential corporate groups, such as the neighborhood or barrio. The first two types are essentially isomorphic with households. Their own research was on the latter form of corporate group among Maya peasant farmers in Highland Guatemala

In archaeology, in general, household studies played an early role in the development of ethnoarchaeology (e.g., Hayden and Cannon 1982; Kent 1984; Kramer 1982). But their major role has been in research on the evolution of agricultural economies and civilization in Mesoamerica (e.g., Flannery 1976) and more recently in Mesopotamia (e.g., Wattenmaker 1998) and the southeastern USA (e.g., Rogers and Smith 1995, Muller 1997). In Flannery's *The Mesoamerican Village*, the household is both a methodological focus and a means of establishing a phenomenological scale for archaeological data. Flannery begins with households, then moves on to communities and then to regions and so on. Flannery's work thus has much in common with household studies in socio-cultural anthropology and in other social sciences. The household is central, but is one among several scales, and analysis plays these scales against each other. Be that as may be, the main thrust of household studies has never been hunter-gatherers of any variety, and the form of household archaeology adopted by researchers on the coast has very strong ties to studies of peasant farmers. The concept of House societies has also not played an important role in archaeology beyond the archaeology papers (Kirch 2000; Marshall 2000; Tringham 2000) in Joyce and Gillespie's edited volume of House societies (Joyce and Gillespie 2000). The concept is implicit in papers by Coupland (Coupland 1988, Coupland 1996) and myself (Ames 1995) although neither Coupland nor I frame our discussion in those terms, nor do we cite Lévi-Strauss' founding publications on the topic (e.g., Lévi-Strauss 1982)

In sum, households, and in some cases Houses, evolve among hunter-gatherers. They may be central to the development of social and economic complexity, both as the context in which complexity evolves and perhaps in limiting or shaping the directions such evolution may take. While we know a great deal about households and Houses among farmers, we know very little about them among hunter-gatherers. I agree with Sandstrom (2000), that the "down to earth factors of how people make a living" is key to understanding that evolution.

Household Archaeology, Houses, and Households

As observed above, household archaeology generally has its roots in the archaeology and anthropology of small-scale farmers, particularly of peasants (e.g., Blanton 1994, Netting 1993). There are very strong links between ethnographic studies of peasants and the archaeology of households, particularly in Mesoamerica (e.g., Wilk 1997, Wilk and Ashmore 1988) where household archaeology began (Wilk and Rathje 1982a).

Research issues central to this approach arise from the articulations among the following factors (e.g., Fricke 1986, Netting 1993, Wilk 1997):

- The demography of households, including their domestic cycle, or life cycle, household biological reproduction and recruitment and how these affect the organization and reproduction of labor;
- The strategies employed for managing risk;
- The organization of households, including division of labor by age and sex, specialization, household leadership and inequality within households;
- Systems of land tenure;
- The ecology of farming, including but not limited to technology;
- The ways in which the household articulates with larger scale social and economic systems, including the mobility of household members to and from the household.

The rest of this paper looks at three of these: household demography, risk management, and articulation with larger scale systems. These topics are discussed because they are directly relevant to the evolutionary questions asked above: why and how do households and House societies evolve? What accounts for their long-term persistence? And what, if any role, do they play in the development of permanent social inequality?

Risk and the household cycle

An underlying and controversial problem in studies of peasant farmers that is relevant here has to do with the aims of household production: are these household economies basically risk averse, in that household members “consistently and predictably select production strategies which enable them to lessen the risk of production failure” (Gallant 1991, 7). In other words, do they habitually elect to minimize returns to maximize safety? This

is an aspect of underproduction that Sahlins describes as part of the Domestic Mode of Production. Alternatively, do they make decisions to maximize returns that may involve increased levels of risk. Here risk refers to both the likelihood and the cost of subsistence failure. In this instance, surpluses are produced which are “invested” for long-term purposes. For the Northwest Coast, this issue translates to what were the basic goals guiding the management of Northwest Coast household economies.

This is a different way of approaching risk than is common to hunter-gatherer studies in which definitions of risk are usually drawn from evolutionary ecology and optimal foraging theory. In these approaches, risk refers to variation in outcomes, and the scale of risk is the individual forager. At the household level, this is risk in terms of variation in outcome and in terms of the costs of failure (Bamforth and Bleed 1997). The scale of risk is the household, and decisions are made at that scale. Crucial to managing risk at the household scale is the household cycle.

Central to all studies of the peasant household is the notion of a household cycle, or a household life cycle (Gallant 1991). The household’s life cycle, at its simplest, spans the period from its founding, generally by a young, childless couple, through its “death” with the deaths of its final members. The circumstances of the household—its needs, its ability to field labor, its ability to respond to crises—will vary according to the age and makeup of the household at particular times. The amount of food (caloric demands) a household consisting of a man and woman in their early twenties will require will be quite different than those of a household with four children aged 3 to 10. The labor the latter household can field will be quite different than the labor the same household fields when those children are aged 10 to 17.

Tringham (1991) has applied the concept of the household cycle to understand the site formation processes of house construction and abandonment in the Neolithic of the Balkans. The concept can perhaps be applied in a similar way to sites on the Columbia Plateau and in Japan, for example, where there may be a great many pithouses, but they appear not to have been all occupied simultaneously. Initially, at a residential locality, new houses may be dug and roofed at the beginning of a household, and abandoned at its death. At some point, old houses may be reoccupied by new households, and then abandoned. The household cycle could produce a pattern of occupation, abandonment, reoccupa-

tion, and abandonment resulting in a very complex residential site, but without a great many families being involved.

However, the utility of the concept goes far beyond this. Standard demographic issues must be factored in, including life expectancy, fertility, fecundity, morbidity, etc. Though these issues are difficult to tackle archaeologically, it is possible to do so, as Muller's (1997) recent work on the household cycle among Mississippian farmers demonstrates. For Muller, the central statistic for Mississippian households is the producer/consumer ratio—how many producers there are in a household to the number of consumers. This ratio will change through the household's life cycle. The number of producers and consumers will increase for a time. As children grow, their contribution will exceed their consumption, but as children leave home, and as the founding couple age, the numbers of producers will fall more quickly than the number of consumers.

Gallant (1991:102) defines what he terms "the household vulnerability cycle." This cycle includes those periods when the household is particularly exposed to subsistence risk because of the interplay between the household's demographic cycle and the demographic effects of the subsistence economy, i.e. the ratio between consumers and producers. A related issue is that of optimum household size, or, how big a household is big enough.

A problem in applying the notion of household cycle to the Northwest Coast is that models of the cycle are based on households composed of single, small families: a couple, their children, perhaps an elderly dependent or two, and maybe an adult sibling. Northwest Coast households were much larger: with multiple families, and sometimes more than 100 members. Such household sizes might suggest that Northwest Coast households were large enough that they were buffered against the cycle's effects. Thus, while one family had no children, or several small ones, another might have several strapping teenagers, anxious to work at household tasks. While this may be plausible, we do not know it. We do not really know the demography of the Northwest Coast household.

However, Northwest Coast households may have been subject to a cycle of vulnerability. Data developed by John Adams for Gitksan households suggests household extinction was a very real possibility. Adams' data are for the period between 1920 and 1967. As will be seen, however, these data are relevant to the premodern period.

Gitksan houses, and the lineages they contained, appear to have been in regular danger

of becoming extinct because of "the variability of birth and death rates" (Adams 1973:30), i.e. the household cycle. Because of this, the Gitksan made considerable efforts to ensure the persistence of Houses and of lineages. Adams' monograph is, in fact, an exploration of the implications of variable household size and household vulnerability for Gitksan social organization. The mean size of a Gitksan House in 1920 was 20 members. This mean, however, provides a false sense of the true distribution of household sizes (Fig. 1). The actual size is skewed to the small end of the distribution. The lineages within these houses were quite small, and from Adams' discussion, are essentially extended families of no more than three generations time depth. The mean number of such lineages/house in 1920 was three (Fig. 2).

While these data are for the twentieth century, they are applicable to the premodern period as well, at least in terms of basic household demography of these households. The range of Gitksan household sizes in 1920 is similar to household size estimates I made several years ago (Ames 1996) for historic and premodern houses along the Northwest Coast, based on floor area (Figs. 3 and 4).⁴ The houses in my sample span the last 3,000 years. Since the households are generally the same size, then they should be subject to very similar demographic problems. These figures suggest that many Northwest Coast households were not so large as to be immune to the domestic cycle and to a cycle of vulnerability. If premodern household sizes had the same size distribution as the Gitksan households in Adams' sample, then the bulk of households were exposed to the risk of household failure. Adams even suggests that Gitksan households were not economically or socially viable below a certain population threshold, and so once below that level, would spiral to extinction.

If that is the case, then a crucial aspect of managing a household and a House would be maintaining or increasing its population to avoid extinction. There is a generally strong relationship between household (and house) size and status on at least the central and northern coasts in the nineteenth century: large Houses lived in physically large structures, and large households generally held higher status than smaller households did. In part, this may be a direct reflection of labor: a larger household has more labor to produce the goods that can be converted to wealth and status. However, a larger household is also more likely to be relatively immune to the household cycle and to demographic vulnerability. Hence, all things be-

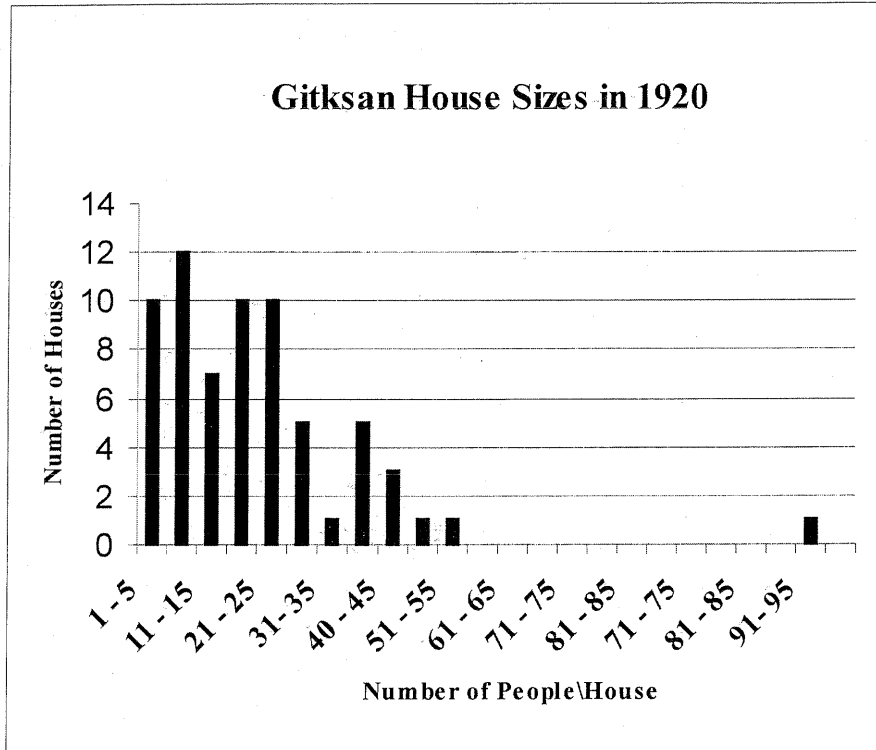


Fig. 1. Gitksan House Sizes in 1920.

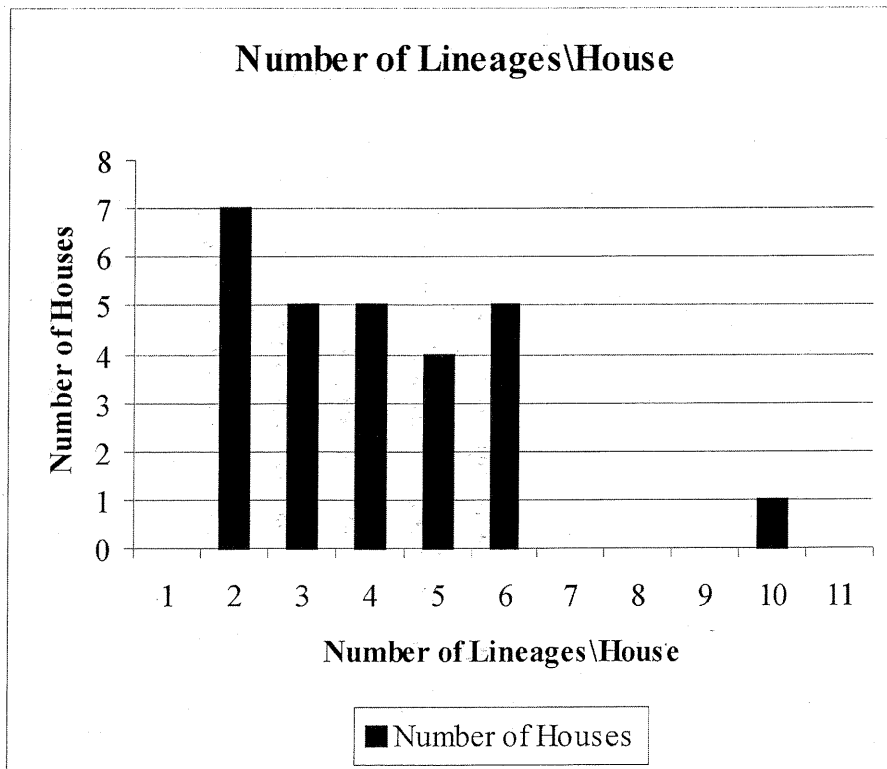


Fig. 2. The Number of Lineages/House.

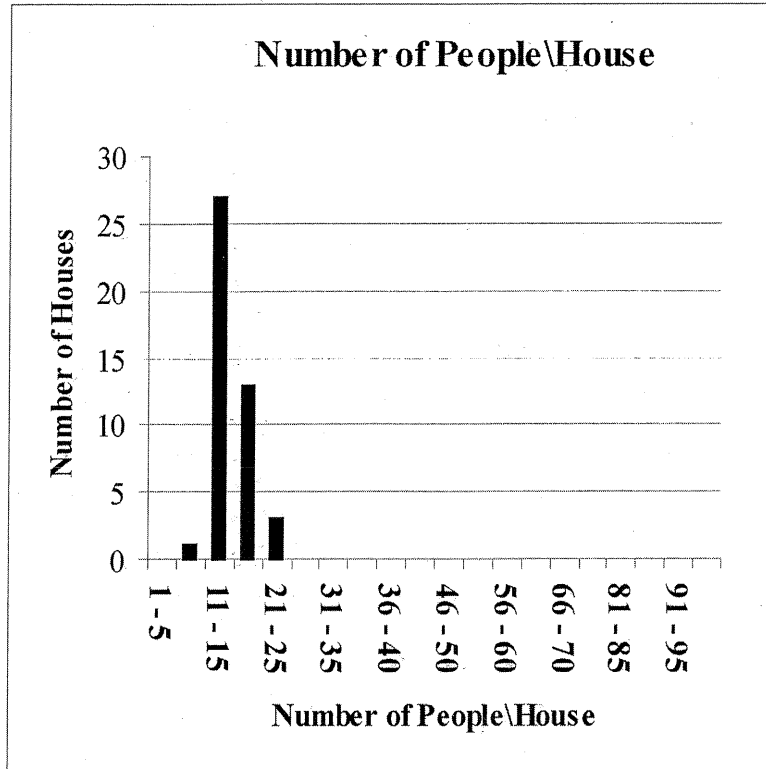


Fig. 3: Archaeological Estimates of Household Populations for three ethnographically-known Villages.

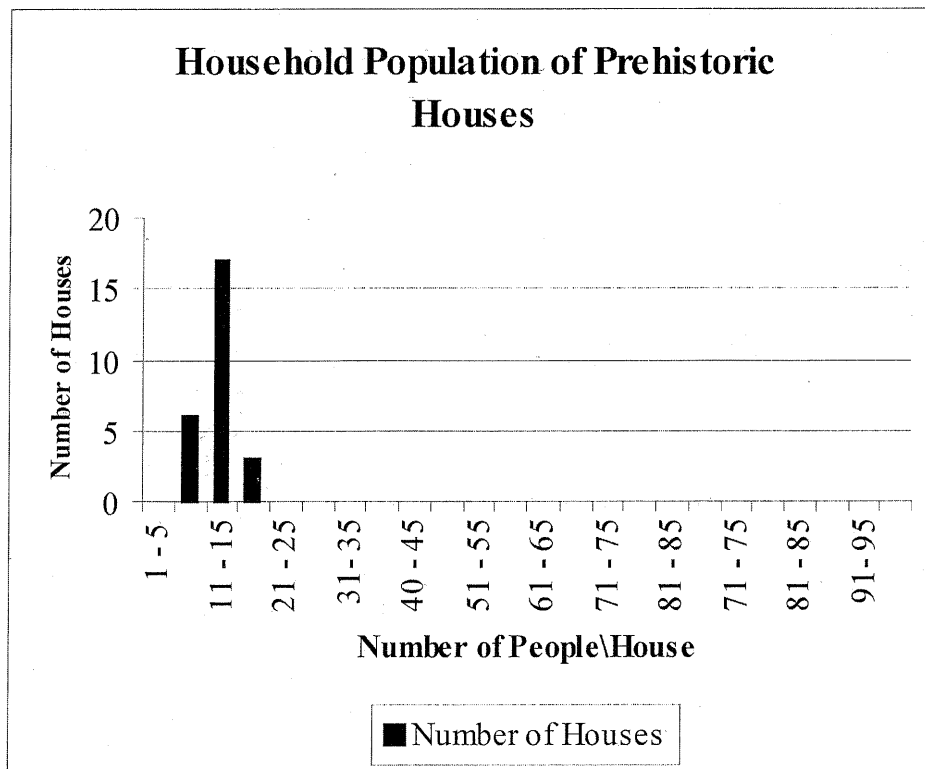


Fig. 4. Estimated Household Populations for Premodern Houses.

ing equal, a large household is also more likely to persist through time as a House, and to maintain its estate, than is a small household.²

There is some evidence to suggest that some households in the Pacific Northwest may have been quite long lived. Hayden et al. (1996) have claimed that three households at Keatley Creek, in south-central British Columbia, persisted for at least a millennium. Households and perhaps Houses may have persisted for 400 years at two sites on the Lower Columbia River, the Meier site (Ames et al. 1992) and Cathlapotle (Ames et al. 1999). In three excavated houses at these sites, we observed houses timbers being replaced in almost exactly the same places for the entire dated use life of the structures. Marshall (2000) has made similar observations for Nuuchahnulth houses on Vancouver Island, arguing that this is evidence for the existence of Houses. Cybulski (1993) and I have also suggested that corporate groups, or lineages, at the Boardwalk site, in Prince Rupert Harbor, northern British Columbia, may have existed for 400 to 600 years (Ames 1996). Given what we know about the household cycle, a critical question becomes how is this apparent durability achieved?

Hayden et al.'s claim is of particular interest to this discussion. They argue that residents of three of the excavated pithouses (Houses 1, 5 and 7) at Keatley Creek, in the British Columbia interior, were members of residential corporate groups that had different territories and access to different lithic sources over periods in excess of a millennium. These households would therefore certainly qualify as Houses by any of the definitions in that literature. Hayden (Hayden 1997, Hayden et al. 1996) estimates the population of House 7 at approximately 45 people (at 2m²/person). This frankly seems high to me, but, regardless, it is still too small to be reproductively viable over a long time period (Wobst 1974). Thus, if Hayden et al. (1996) are correct, these households were able to successfully replenish themselves, recruiting new members over 1,000 years. In this regard, it is worth noting that Adams found that 15.5% of Gitksan lineages extant in 1920 had died out by 1967 (Adams 1973). It is important to note that Adams did not speak of Houses dying out, he discussed lineages. In fact, he comments on the efforts made by other Houses to prevent a House from becoming extinct. In any case, I do not know if the 15.5% is a "typical" attrition rate or not, but it is a useful number to think with.

I used it to model the attrition of Gitksan lineages and Houses across a millennium (Fig. 5),

assuming a 15.5% rate of lineage extinction/50 years, and three lineages/House (Adams 1973) for 100 lineages and 33 Houses. While stressing that this is an exercise, or "thought experiment," it has some useful implications. The first is that it is theoretically possible for Houses to persist for a millennium. In the model, there are three lineages and one House left at the end of 1,000 years. Interestingly, when running the model with three houses, as at Keatley Creek, two houses are left after 250 years, and one after 300 years. The third house persists another 250 years, but that is an artifact of the model (through rounding numbers up). It essentially becomes extinct 500 years after the model's starting point. The common life span for a single House in this model is 200 to 250 years. These comments are not offered to dispute Hayden et al.'s empirical conclusions, but to suggest that for these Houses to last for a millennium, recruitment is the overriding issue, particularly with small numbers of houses where stochastic processes such as accidents will be important in their survival.

The second implication follows directly from the last. The shape of the curve clearly shows that to maintain a certain number of Houses—a clear goal in Gitksan society at least—recruitment is a constant issue. This is supported by Adams' study. Clearly, some "recruitment" would occur by maintaining birth rates higher than death rates. However, presumably Adams' extinction rate of 15.5%/47 years includes births. His population data for the Gitksan for this period shows a net increase of 170 people between 1921 and 1949. Thus, in the absence of rapid population growth, recruitment through births is probably insufficient to stave off lineage, and perhaps House, failure. Among the Gitksan, for the period of Adams' study, adoption was the primary formal way for lineages to gain new members. This implication supports the statements of Gillespie (2000) and others about Houses, that while kinship is the idiom of membership and recruitment, Houses work to attract and hold members any way they can. The curve, coupled with Adams' population data, also suggests that long-term persistence of Houses (beyond statistical luck) may require recruitment beyond the immediate community. The model includes 33 houses, perhaps three to 10 villages. Moving populations around among those villages would forestall failure among some Houses and accelerate it for others, and this is likely to be what occurred (cf. Adams 1973). However, this does not necessarily preclude long-term extinctions among Houses and an overall reduction in the number of Houses. One form

of extra-community recruitment on the coast was slavery (Ames 2001)

Formation of new Houses would also counteract the overall effects of House extinction. A number of authors, myself included (Ames 1995), have noted that house chiefs had little power to control the actions of their followers, that people on the Northwest Coast could “vote with their feet.” Stearns (1984) suggests that this freedom was the ultimate limit on the power and authority of Northwest Coast chiefs. However, this may not have been as straightforward as it appears, and the failure rate of new Houses was probably quite high. They plausibly had few members, and, as a consequence, were more likely to fall victim to the house cycle than larger, established Houses. While in some parts of the coast, they may have had access to productive resource localities when they formed (Maschner 1992), readily available resource locations are likely to have been the property of failed

Houses, and therefore perhaps ecologically more marginal than the estates of established houses. It seems possible, therefore, that over the long run, Northwest Coast societies consisted of a core of large, successful Houses, with well-established estates, that generally persisted for long periods of time and a second group of smaller, less stable Houses that lasted only a few generations or a century or two. Clearly the core group would include the highest status Houses (e.g., Donald and Mitchell 1975). This core group would not be immune, however, to failure. Houses could be extirpated through warfare, a demographic glitch, or a run of bad luck or poor management. As a consequence, some of the more marginal Houses could seize the opportunity and move into the core.

The examples cited above (Meier, Cathlapotle, Boardwalk, Keatley Creek) represent successful Houses and households, assuming the interpretations of them are correct. They were successful in

Declines in Lineages and Houses through Time

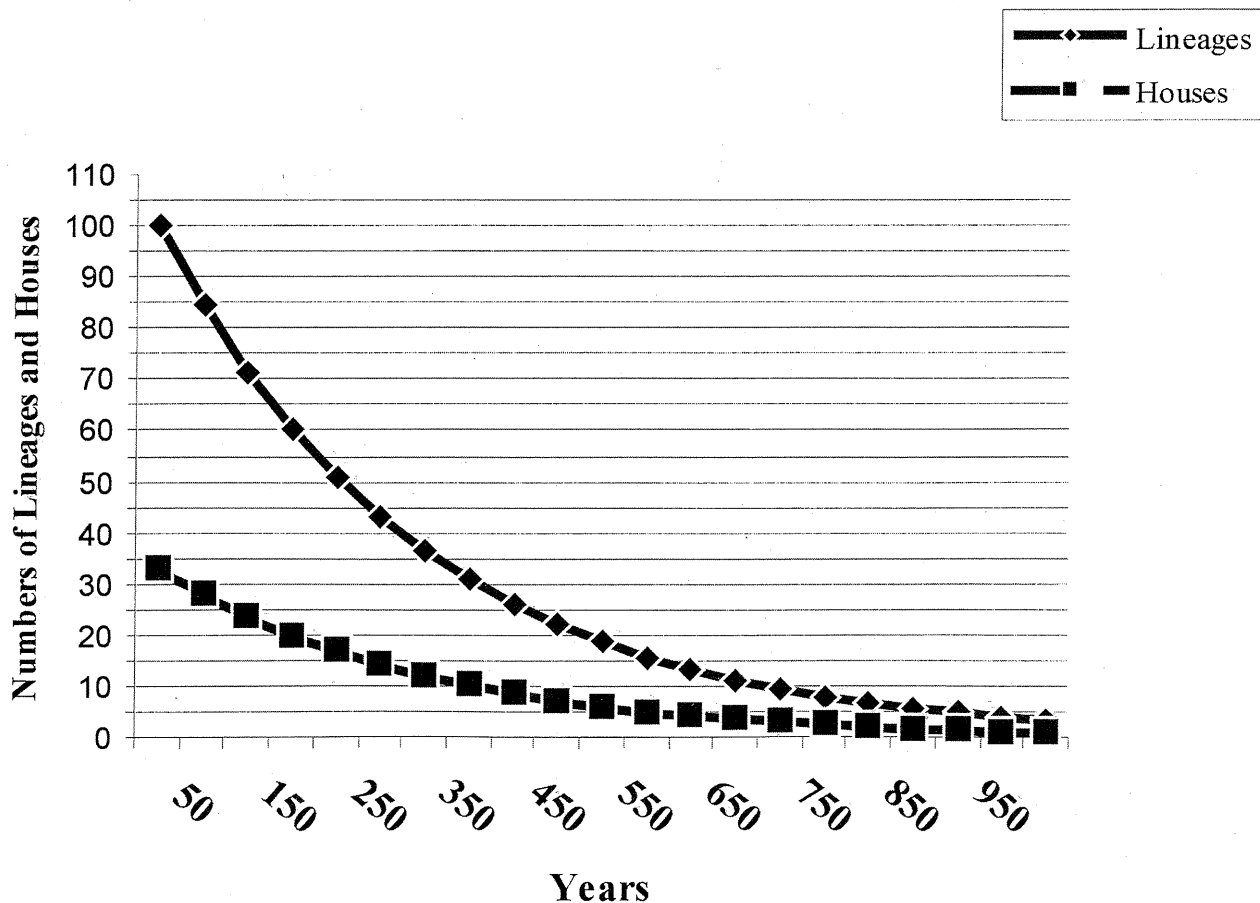


Fig. 5. Rates of Lineage and Household Extinction based on the Gitksan case (Adams 1973).

that they persisted for centuries although they all ultimately failed. The Meier and Cathlapotle households failed because of introduced epidemics, such as smallpox (Boyd 1985), and contact with Europeans. The Keatley Creek and Boardwalk households failed for other reasons (e.g., Hayden and Ryder 1991). However, the point here is that the archaeological record of households and Houses may largely be a record of success, of Houses that for lengthy periods employed successful strategies to recruit members and manage risk.

Some households probably did not persist long enough to be archaeologically visible while others may have lasted two or three generations, and be visible as a short-lived structure. Archaeologically, these latter will be hard to distinguish from settlement pattern shifts. There may be cases, however, where the archaeological record includes houses with both long and short use lives, particularly where they are architecturally identical. In this case, the short use lives may reflect short-lived households or Houses.

At the beginning of this section, I observed that one of the issues in studying peasant households is the degree and under what circumstances they are risk averse or risk seeking. These are polar strategies with quite different outcomes. Risk averse strategies essentially maintain low, but predictable, rates of return in subsistence and economic pursuits, while risk seeking strategies may result in high rates of return, but also high rates of failure. Risk averse strategies are those that seek to minimize variance in returns, while risk seeking strategies aim to take advantage of variance in order to get high returns. Peasants are generally thought to pursue risk averse strategies.

A second, somewhat related concept to risk is "cost of failure." Variation in outcome may remain the same through time, but the costs of failure can vary according to circumstances. To take whaling as an example, whalers may harvest a whale every tenth trip more or less (risk—variance in outcome), but in most circumstances, that failure may have little overall impact on the household, but under some conditions (prolonged famine), success or failure may be critical.

It seems plausible that risk management strategies would vary, depending on where a House was in its history. A small, new or struggling House might employ risk seeking strategies, gambling that a big return would attract new members through a number of ways, while a large, established House might be risk averse, taking a cautious approach

to management. However, it is also plausible that a large house would pursue a mixed strategy. Archaeologists generally accept that Northwest Coast households were large because the household economy was based on complex simultaneous tasks (e.g., Ames and Maschner 1999) that sometimes needed to be carried out in short periods of time. However, these relatively large households also permitted labor to be deployed in both high risk and risk averse tasks. Whaling on the coast is one example. Whaling was a high risk (high variance), but very high return occupation. The cost of failure, however, was probably generally quite low (no one would starve if the whaling crews returned empty handed). Most household subsistence activities could focus on tasks that were both low risk (low variance) and low cost of failure, with some individuals, generally high status ones, pursuing the high-risk ventures.

High-risk, high return strategies could benefit a high status household by producing surplus food that could be used to create economic and social debt and status advertising. Diehl (2000) and Boone (2000) both predict, using modeling derived from evolutionary ecology, that in variable environments, establishing patron-client relationships among households will benefit both patron and clients, leading to competition among patrons for clients and among clients for patrons. Boone predicts that surplus production will be used as "advertising" in this competition. Intense competition will place a high value on high risk, high return strategies. Thus faunal remains and other indicators of economic activity associated with houses are, to some degree, likely to reflect long-term decision making based on individual Houses' circumstances as opposed to long-term, coast-wide or even regional economic trends (e.g., Maschner 1992).

It is clear that households and Houses failed continuously and eventually all did so. Some of this failure was probably due to bad luck, combinations of the household cycle and other circumstances that even the best management could not survive. In any case, another key to long-term persistence may be how households articulated with larger scale entities, such as communities and interaction spheres.

Articulation with larger scale social and economic entities

By definition, peasants are members of polities. Many ancient hunter-gatherers, including those on the Northwest Coast, were not. However,

central to the concept of the household economy as it has developed is how the household interacts with larger social, economic, and political entities. Northwest Coast household studies have tended to focus on the household, rather than on its role in larger social, economic, and social systems. Northwest Coast archaeologists have looked at larger scale social and economic fields (*sensu* Ames 1991; Madden 1983; Welsch and Terrell 1989) including interaction spheres (Ames and Maschner 1999; MacDonald 1969; Suttles 1990) and obsidian networks (Carlson 1994). These fields are generally regional in scope. However, it seems clear from the archaeological record that there may be at least one or two levels intermediate between the household and the interaction sphere (Ames 1998, Ames and Maschner 1999).

The community may be one such level. Chang (1968) proposed the community as the primary social entity that archaeologists study, with the archaeological settlement as its physical manifestation (Chang 1968) and the concept has seen consistent use in studies of the Neolithic (e.g., Kuijt 2000) and the development of states (e.g., Schwartz and Falconer 1994). Varien (1999) productively used the concept of community in his analysis of mobility patterns in the Mesa Verde region of the Southwest, arguing that the mobility patterns of households and communities may be different. He defines households similarly to Wilk, Rathje, Netting and others cited above. For Varien, "[A] community consists of many households that live close together to one another, have regular face-to-face interactions, and share the use of local social and natural resources" (Varien 1999:19). He suggests that communities seldom exceed 2,000 people and will usually be smaller. He stresses that while communities included multiple households, the crucial actors are individuals.

The obvious communities on the Northwest Coast are villages and towns, although some single dwellings on the coast were large enough to house an entire community (Ames 1996). The ethnographic record of the coast suggests that these communities were primarily aggregations of Houses: Houses had estates, not larger communities, although communities (villages and towns) sometimes controlled territories for certain purposes. *Houses* were generally the highest political and economic entity. Consequently, we have thought little about the role of the community and how households interact in communities. However, the community was the stage or theater for the tangible expression of the relative status and prestige of Houses, through, for

example, differences in house size and the public display of titles on poles and painted houses on at least the northern and central coast during the Modern period. Additionally, our earliest firm evidence of rectangular houses on the coast, the Paul Mason site, is also our earliest firm evidence for linear villages, the distinctive spatial form of Early Modern Northwest Coast villages (Ames and Maschner 1999). Further, the community is implicit in most archaeological studies of households and status on the coast. We generally sample at the community (settlement) level. Except for projects aimed explicitly at sampling individual houses, most projects focus on the settlement, and our results only really make sense when they can be comparatively analyzed at that or larger scales. Finally, some communities, or at least settlements, on the coast appear to have been as stable, if not more stable, than the households that comprised them.

I have elsewhere (Ames 1998) suggested that Northwest Coast economies are to be understood at two levels above the site or settlement: the locality and the region (or interaction sphere). Some resources, for example eulachon on the northern Coast, are "regional" resources in the sense that a region was dependent on them while local resources were those exploited locally, but which played no regional role. The definition of "locality" is fuzzy, but is conceptually important to understanding Northwest Coast households and Houses. This importance can be shown with a brief case study: the Boardwalk site and Prince Rupert Harbor in northern British Columbia (Fig. 6).

Boardwalk is one of 12 excavated sites in Prince Rupert Harbor. Ten of these sites were excavated as part of the Canadian National Museum of Civilization's North Coast Prehistory Project (NCPH). The other two, including McNichol Creek (see Coupland, this volume), have been excavated more recently. Of the 10 NCPH sites, I analyzed the artifacts recovered from nine, eight of which are in Prince Rupert Harbor (Ames 2005). As part of the NCPH effort, 280 burials were excavated at eight sites (Cybulski 1993, 2001).

Boardwalk is on Digby Island, across Prince Rupert Harbor from the city of Prince Rupert itself, which is on Kaien Island (Fig. 6). Boardwalk is a large midden, about 220 m x 50 m, averaging 2 m. in depth. It is immediately adjacent to the Parizeau Point site, a somewhat smaller midden. A third major midden in the vicinity is the Dodge Island site, a deep midden on an island in Dodge Cove next to Boardwalk. Another major residential

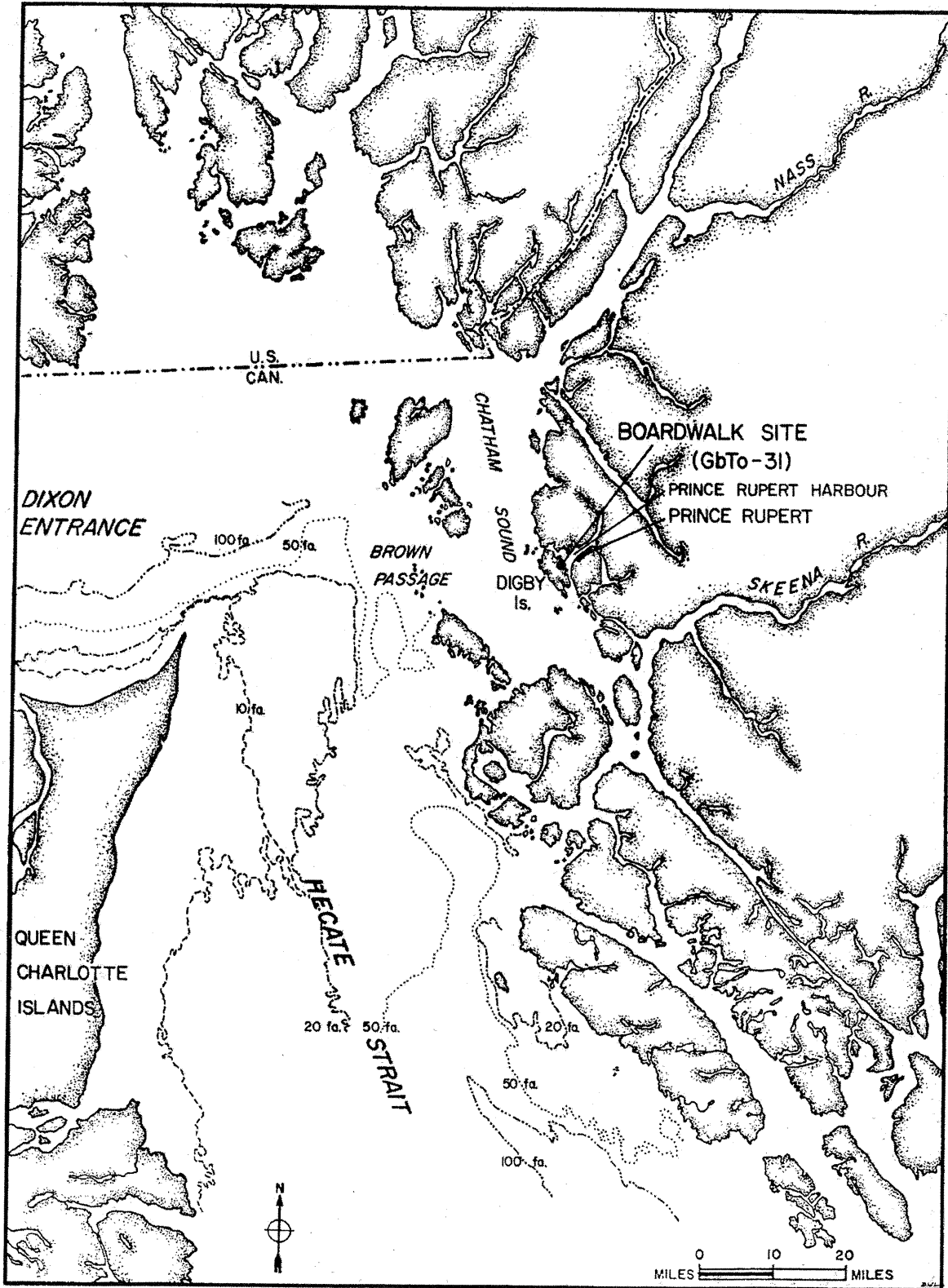


Fig. 6. Map showing location of Prince Rupert Harbor and the Boardwalk Site (used courtesy of Canadian Museum of Civilization).

site of interest here is Lachane, which is located on Kaien Island immediately across the harbor from Dodge Cove.

The earliest well dated occupation in the harbor occurred around 3800 B.C.. Lachane appears to have been first occupied c 3000 to 3400 B.C. and Boardwalk c. 2800 B.C.⁵ Boardwalk achieved its largest extent by about 2000 B.C.. The site's topography suggests it was at least a two-row linear village (see Ames and Maschner 1999). The site has two broad platforms separated by a low ridge of shell midden. A higher midden ridge is behind the rear platform. These platforms or terraces are thought to have been for house rows. There are two visible house depressions on Boardwalk, at the rear of the site, which may date to c. 500 B.C.. Lachane also appears to have had platforms and back ridges, although the site's surface topography had been altered before excavation and it has now been destroyed.

These sites—all shell middens—are similar in many ways, including in the artifacts, features, and faunal remains. However, they all differ from each other in a variety of ways and at different scales, Boardwalk the most markedly. For example, of the nine sites I analyzed, Boardwalk consistently has more complete or unbroken tools/m³, more tool taxa/m³, but fewer tools/taxa. In other words, its artifact assemblages are consistently the most diverse in the harbor. One of Boardwalk's analytical units contained the highest densities of decorated and zoomorphic objects and the greatest diversity of such objects of the 26 analytical units employed in my study (Ames 2005). This same analytical unit has the highest densities of items

of personal adornments per cubic meter as well. Boardwalk lacks certain heavy-duty wood working tools that are found in abundance at the neighboring Parizeau Point site. It is the only site to have classes of artifacts in non-burial midden deposits that occur elsewhere in the harbor exclusively in burial contexts. In sum, Boardwalk contains the richest occupational deposits of any in my analysis. It also has the highest densities of burials/m³ in its cemeteries.

The back ridges of the residential sites dating before c. A.D. 600 were used as cemetery areas. The earliest such burial is dated to c. 1560 B.C. at a site called Kitandach. The earliest at Lachane date to c. 1530 B.C. and at Boardwalk to just before 900 B.C.. The use of shell middens for cemeteries was common on the coast before about 1,000 years ago or so. The harbor-wide burial program included internment in graves with no grave goods (about 87%) and burials with grave goods (c.13%). The sites differ markedly among themselves in the grave goods present (Table 1; Ames and Maschner 1999). The available data suggest the presence of ascribed ranking of individuals in the harbor by c. 900 B.C., if not actually several centuries earlier. They also strongly suggest contemporary ranking of households or lineages, as reflected by inter-cemetery differences, and of residential sites, as reflected by inter-settlement differences. The evidence also indicates that this pattern was stable over at least 1,500 years, if not longer.

In terms of households, and the development of household organization on the northern coast, the appearance of ranking in the harbor is contemporary with the earliest, well-documented village on

Table 1. Distribution of grave goods by site in Prince Rupert Harbor (Ames 2005).

BALDWIN: LABRET, SLATE MIRROR, BIRD BONE TUBE, COBBLE TOOLS, QUARTZ FLAKES
BOARDWALK: LABRETS, COPPER, SHELL, AMBER, ZOOMORPHIC PENDANT, CANINES, BONE POINTS/DAGGERS, ANKLE BRACELETS, GROUND SLATE POINTS/DAGGERS, BONE POINT PENDANT, OTHER BONE, COBBLE TOOLS, ABRADERS, TROPHY SKULLS, SEA OTTER TEETH, OCHRE.
DODGE ISLAND: LABRET, SLATE POINT/DAGGER, OBSIDIAN FLAKE, WORKED BONE.
GARDEN ISLAND: LABRET, WORKED BONE
LACHANE: AWLS, HARPOON/ PENDANT, SLATE POINT/PENDANT, BONE TOOLS, COBBLE TOOLS

the northern coast, the Paul Mason site. This site contains evidence of 12 rectangular structures, 10 of which form two rows facing the Skeena River in its Kitselas Canyon. These rectangular structures are probably evidence of households on this portion of the Northwest Coast by c.1500 B.C.. Coupland (1985, 1988) has suggested that because these 10 structures display no significant difference in floor area, they indicate that ranking had not yet developed at the time this village was occupied. Archer (2001) mapped and dated house depression in Prince Rupert Harbor on the surfaces of 14 middens in Prince Rupert Harbor and came to conclusions similar to Coupland's. Archer argues that ranking developed in the harbor around A.D. 100. However, the data sketched here demonstrate the opposite: that ranking existed in Prince Rupert Harbor a millennium earlier. There appears to have been at least three levels of ranking: the level of individual, of cemeteries, and of settlements or communities.

These data raise the distinct possibility that the form of Northwest Coast household that we investigating, and discussing in this volume, evolved at the same time as did the ranking system.³ It is possible that the two are the opposite sides of the same organizational coin. In other words, ranking did not evolve out of this particular form of household on the coast, but that the two coevolved from some previous form of organization. Further, they evolved in a broader context than just the household. One plausible part of this context is long-term inter-house competition for members, clients and patrons.

Summary and Conclusions

This paper rests on the belief that despite 15 years of productive research and an increasing number of publications, Northwest Coast archaeologists still know relatively little about Northwest Coast households, particularly about how and why they operated as they did. This is despite the centrality of households in some theories about the evolution of social inequality on the coast (e.g., Ames and Maschner 1999).

Some of our relative ignorance is a consequence of the excavation and analytical scales and demands imposed by household archaeology itself. Other archaeologists (e.g., Coupland 1996, Hayden 1997) have also commented on this. Northwest Coast houses are big and costly in time and money to excavate. They are generally complex as archaeological deposits and often rich in artifacts, ecofacts

and features, imposing considerable analytical costs (e.g., Samuels this volume, Smith this volume). Along the Lower Columbia River, for example, crews under my direction have taken a decade to extensively sample three houses, one at the Meier site (Ames et al. 1992, Smith this volume) and two at Cathlapotle (Ames et al. 1999). The Meier house is approximately 30 x 14 m, while the smaller of the sampled Cathlapotle houses is 20 x 10m and the larger is 69 x 10 m. It will take many years to develop a large excavated sample of such structures from many parts of the coast.

However, empirical overload is only one part of the difficulty, and not the primary one. A lack of theory is the primary problem. There is no theory about hunter-gatherer households. One can search Kelly's magisterial book on hunter-gatherers for such a discussion in vain (Kelly 1995). It is therefore our opportunity to develop such theory.

The theory does not need to be made from whole cloth. I have briefly reviewed two major streams of theory in this paper: household theory (e.g., Fricke 1986; Netting 1993; Wilk 1997) and House theory (e.g., Carsten and Hugh-Jones 1995; etc.). As different as these approaches can seem to be, they have some common, or at least somewhat overlapping, assumptions about households and Houses:

- They are central, even fundamental, institutions for their societies;
- They are links (either in reality or analytically) between micro and macro social levels (the individual person and broader institutions);
- They are important social/historical actors—or they are real units of adaptation (depending on one's theoretical predilections);
- *Houses* (and perhaps households) as social actors (or adaptive actors) are significant for understanding the evolution of permanent social inequality and for social and economic change.

These assumptions explicitly or implicitly underlay most of the household archaeology done on the Northwest Coast. However, they need to be treated more as testable hypotheses, rather than as assumptions or assertions framing research. Additionally, they do not, in and of themselves, tell us much about how and why households actually accomplish those things. Nor do they answer the three questions posed earlier in this paper:

- How to account for the evolution of House societies (assuming such things exist)?

- How to account for their persistence?
- How to account for their role, if any, in the evolution of social hierarchy.

Turning to the first question, it seems clear that households and perhaps Houses evolve in a wide range of social and economic contexts. Netting (1993) stresses that small households, what he calls householders, will evolve under conditions of intensive agricultural production, particularly where landholdings are small. Larger households are more likely, according to him; to evolve under what might be termed extensive agricultural practices, as in, for example, swiddening. Wilk and Rathje (1982b) argued that large households evolve where “economic opportunities” are diverse or scattered, either in space or time (also see Watanabe 1968) and require simultaneous task organization, while small households evolve under conditions where linear task organization is more effective. What is important here is not basic economic form but such things as whether the economy is land and labor intensive or extensive and how tasks are distributed in time and space.

Houses clearly evolve among both hunter-gatherers and farmers, although at present the Northwest Coast represents the only well documented ethnographic example of the former. However, Natufian burial practices (e.g., Byrd and Monahan 1995) may suggest the presence of Houses among those ancient hunter-gatherers, and Hayden’s work suggests their presence at Keatley Creek. It seems clear the issues of property and resource control and transference central to Houses crosscut economies. The concept of House as an entity to control and transmit property is quite close to Woodburn’s concept of delayed–return foragers (Woodburn 1980).

The second question is about persistence: how do Houses, and long-lived households among hunter-gatherers, persist for long-periods of time. It seems quite likely that many, if not all, households on the Northwest over the past 3,000 years or so were affected by their demographic cycle, despite the relatively large size of households and Houses on the coast. Recruitment of new members was no doubt an on-going problem for all Houses, but particularly the smaller ones. In fact, I think we can assume that ongoing recruitment was a basic parameter of household management on the coast. However, archaeological data from the coast, as well the model developed here, suggests that very long-term persistence of some Houses is plausible. The model suggests that while the live span of a single Gitksan House can be expected to be about

250 years, that out of 100 Houses, three can be expected to last 1000 years. Boyd (1985) estimates the population of the northern Northwest Coast at the beginning of the nineteenth century at approximately 45,000 people. If the average House had 20 members, there were some 2,250 Houses on the northern coast at that time. The model developed here suggests that of that number, about 418 would be left after 500 years and 78 after 1,000 years. The actual number would be the result of good management and good luck. The point here is that long-term persistence of Houses is possible. On the other hand, 2,172 Houses would have failed during that millennium, and their membership redistributed to old and new Houses.

I suggested that one consequence of this circumstance is that Northwest Coast societies were probably two-tier affairs, with a core of successful, long-lived Houses, and a second group of more recent Houses. I also suggested that the odds of survival were generally stacked against the latter.

Long-term House success would depend, in part, on managing the demographic cycles of households and Houses and on managing risk, risk both in terms of variability in the outcome of resource procurement but also in terms of the costs of failure, which would vary according to, among other things, the household cycle. While in most analyses of risk, the unit of analysis is the individual, here the household becomes the level of risk taking. Household management could be risk averse, risk seeking or a mix of both. Large, successful Houses probably pursued a mixed strategy in order to generate the economic surpluses they needed. Many observers assume that peasant households will generally be risk averse. However, there seems no pressing theoretical reason to make that assumption about Northwest Coast or forager households.

Finally, the last question asked was about the role of Houses in the evolution of social inequality. One of the implications of the discussion of House longevity is that long-lived Houses would accumulate higher prestige and rank simply by virtue of their longevity, which would probably be a consequence in part of their long-term success in recruiting members to sustain themselves. Modeling (Boone 2000; Diehl 2000) also suggests that patron-client relations contribute to household survival in variable environments, creating inequality. However, the archaeological data presented for northern British Columbia at least raises the possibility that Houses on the Northwest Coast evolved at the same time as linear villages and the earliest form of the ranking system. There-

fore, Houses, I would suggest, were not actors in the initial evolution of inequality of the coast, but were a part and a consequence of that evolution (see Ames and Maschner 1999). It also seems clear that this development had strong extra-household dimensions, at the level of the community and the locality or sub region.

This discussion leaves unanswered the question as to why polities did not precipitate out of these larger-scale dynamics on the Northwest or among other complex hunter-gatherers. I suspect the answer to that question will emerge as we learn more about how Northwest Coast households and Houses did what they did.

Notes

¹House, "H" capitalized (and italicized at the beginning of a sentence), refers to the House in Lévi-Strauss' sense, whereas house, lowercase "h", refers to the dwelling.

²Missing from the archaeological estimates are houses with more than 25 people, of which there are a number in Adams' data set. This could be due to 1) estimates based on floor area underestimate household sizes, or 2) the very large houses are a development of the Modern period. However, the absence of large houses from the estimates does not materially affect the arguments in this paper. The point here is merely that premodern and modern households were generally the same size.

³Coupland et al. (2001:243) suggest that the long-term success of Houses was due to human agency, to "the strategic use of social mechanism by opportunistic individuals like Ligeex [see Martindale this volume] and Ts'baasa. In the case of Ligeex and the Gispaxlo'ots, high rank was achieved through trade marriage and warfare." This success was achieved, as Martindale shows, during the fur trade era. However, it is likely that before contact individuals like Ligeex tried to expand the scope of their power and influence.

⁴It is possible that there much earlier occupations—c. 8000 b.p.—at Boardwalk. However, that possibility remains only a possibility at present and is not relevant to this discussion in any case. Therefore, I use the standard dates for initial occupation at the site.

⁵It is possible that ranking predates these households. There are suggestions of status differentiation in burials excavated at the Blue Jackets Creek site on the Queen Charlotte Islands. These burials date to between 2250 B.C. and 3850 B.C. (Ames 2001).

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