# The Development of Large Corporate Households along the North Pacific Rim

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**Abstract:** The North Pacific supported three different ethnic groups of complex hunter-gatherers: the Aleut of the eastern Aleutian Islands, the Koniag or Alutiiq (Pacific Eskimo) of the Kodiak Archipelago, and the Tlingit, Haida, and Tsimshian of the northern Northwest Coast. The archaeology and ethnohistory of these regions provide our best data for investigating aspects of the transition from small, egalitarian households to ranked, corporate households. We argue that this transition occurs in all areas when three conditions are met. First, corporate groups beyond the nuclear or extended family must form. Second, there must be social or reproductive means to create differential corporate group size. And third, there must be a reason why smaller corporate groups cannot or will not fission from larger villages.

**Key words:** Households, Hunter-gatherers, Social Inequality, North Pacific

## INTRODUCTION

One of the most important transitions in the history of humanity is a systemic shift from achieved status differences to hereditary status differences or rank. In the archaeological literature theories as to the origins of ranked societies have included population pressure (Binford 1969, 1983), scalar stress (Ames 1985; Johnson 1982), competitive feasting (Hayden 1990, 1995, 1997), control of resources (Coupland 1985a, 1985b, 1988a, 1988b), control of labor (Arnold 1993, 1996a), warfare (Carneiro 1970), control of trade (Bishop 1983, 1987), economic intensification (Croes and Hackenberger 1988; Matson 1983, 1985), storage (Testart 1982), and many others (e.g., Arnold 1996b; Price and Feinman 1995).

Within these explanations are two primary themes: groups and/or societies creating a new adaptation (nobility for example) because of some external pressure (Ames 1985; Binford 1969, 1983; Croes and Hackenberger 1988; Johnson 1982), or individuals taking advantage of either internal or external pressures for their own (or their kinsmen's) self interest (Arnold 1992; Hayden 1992, 1997; Maschner 1990, 1991, 1992; Maschner and Patton 1996). We take the latter approach. Theoretically, following Hayden (1992, 1995, 1997), Flannery (1986), Clark and Blake (1994) and Maschner (1990, 1992; Maschner and Patton 1996), we argue that individuals striving for status and prestige results in hereditary social inequality when certain conditions are met. This model relegates all other explanations to the level of symptoms of inequality.

The question becomes: what were the social and environmental conditions that allowed striving headmen to put themselves in a position of power and get away with it (following Binford 1983:220)? There are three organizational characteristics critical to the rise of hereditary social inequality. The first is founded in village size and household size (Hayden and Cannon 1982; Hayden and Gargett 1990). We see this as important to understanding social and political ranking because, as has been shown in a number of studies, there is a strong correlation between corporate group size, village population size, resource abundance, and hereditary inequality (Coupland 1988b; Donald and Mitchell 1975; Hayden et al. 1985; Maschner 1990, 1991, 1992). Thus, there must be an ecosystem capable of supporting a reasonably large population, there must be a reason for nucleation, and there must be a reason for the formation of multi-family corporate groups. Second, it is clear that almost unilaterally, the headman of the largest corporate group (or any other multi-family organizing unit) in an independent community is most likely the headman of the village (Chagnon 1975, 1979a, 1979b, 1988; Maschner 1992, 1996a; Maschner and Patton 1996). This is so because the leader of the largest social, political, or economic faction has the greatest number of political supporters to substantiate his or her aspirations. And third, circumscription (either environmental [e.g., Carneiro 1970] or social [e.g., Chagnon 1975]) has an important role in the rise of hereditary inequality in early villages because ranking does not de-

velop until small corporate groups no longer have the desire or option to leave. Thus, when villages form with multiple kingroups or other corporate entities, when there is opportunity for differential corporate group size to develop, and when small, less powerful groups have little opportunity to leave, hereditary inequality will develop.

We apply this approach to the northern Northwest Coast, the Kodiak archipelago, and the lower Alaska Peninsula areas inhabited at contact by Tlingit/Haida/Tsimshian, Pacific Eskimo (Alutiiq), and Aleut (Unangan), respectively. These are excellent locations for this form of study because village surface features are readily apparent, there is an excellent ethnographic record, and because in all three areas we see ranking developing along similar trajectories.

To put the conclusions first, we find specific similarities in the development of villages in all three regions. Villages are argued to first form in all areas as a product of resource abundance. Later, intensification in village formation and the formation of a ranked social organization appears to correlate with increasing levels of either violent conflict or inter-ethnic interaction as seen through the construction of defensive fortifications and long distance trade. Diachronically, increasing house floor size and house floor size variability (together), are shown to be good indicators of the development of hereditary inequality and occurs between AD 200 and AD 1200.

## THEORY

Maschner (1990, 1992) has argued that in all societies there are some individuals who strive for status and this status striving results in differential access to mates, prestige, and wealth (see also Alexander 1979; Barkow, Cosmides and Tooby 1992; Goldschmidt 1991; and many others). While strivers, aggrandizers, achievers, and despots have all been invoked in recent years (Flannery 1986; Clark and Blake 1994; Hayden 1992; Maschner 1990, 1992; Maschner and Patton 1996), little attention has been given to the actual process by which individuals put themselves in a position of high status and maintain it, even beyond death.

We argue that there is only one way in which this is possible – by having the largest corporate group (or some other supra-family integrating entity such as lineage, clan, or whatever). In nearly every society surveyed where differential lineage size has been documented (Maschner 1996a, 1996b; Maschner and Patton 1996), it was found that the headman of the largest corporate group was most often the headman of the village, thus, it was the highest ranked household in the community. But not all societies with high status headmen have hereditary inequality, which brings up a precondition. There must be a reason for a number of corporate groups to live in the same location (village) and it must be more expensive to leave the community than to be a member of a low status corporate group. Thus, when there is differential corporate group size, and smaller lineages cannot fission to new locations or less hierarchical communities, ranking develops because the headmen of the largest lineages can put themselves in a position of leadership and get away with it.

One of the biggest criticisms we have with theories of labor control, trade control, resource control, or any other kind of materialist manifestation of inequality is that no one is willing to take a stand on the actual process by which individuals gain that control. Hayden's competitive feasting argument is perhaps the closest, yet he does not indicate why some individuals are able to compete and others not (1992, 1997). Hayden argues that the largest and most powerful corporate groups developed because they control some critical resource such as salmon (1997:25) that is in turn used to put others in debt through feasting. But there is no explanation of why individuals allow themselves to be put in debt or what this might actually mean for the distribution of power. Since Hayden is discussing the control of labor in the harvesting of the controlled resource (as does Arnold 1996a), we are left with a situation where a headman is controlling the labor of people who are most likely kinspeople who work for the headman only because they expect some return on their investment. Control of a resource is only interesting if you are strong enough to prevent other kingroups from taking it away. One does not maintain control in these societies by controlling external labor, but rather, by convincing your kinspeople that it will be a great investment to support one's own political aspirations. While the headman does indeed, at least in the social world, control resources, he or she does so at the whim of their followers. Feasting is just one of many expressions of rank that are not used against one's own group, but rather, against competing groups. Feasting is simply a means of demonstrating economic, political, and military prowess to avoid direct confrontation over day to day affairs (cf. Rosman and Rubel 1971). Since it is only the largest corporate groups that are usually able to give competitive feasts, feasting is perhaps just another symptom of differential corporate group size and status striving between headmen. Thus, to be a successful leader, one must convince one's kinspeople to support your aspirations, and one must have a large enough kin-group to defend those aspirations from other kin-groups.

Maschner has argued previously that the reason there are so many symptoms (theories) of the rise of hereditary status differences is because humans have found a myriad of ways to compete with other humans (1992:90-98). But what exactly does this competition result in? It results in individuals being able to attach a greater number of kinsmen to their corporate group, increasing the headman's political and social abilities in the context of all of the other corporate groups. The headman with the greatest number of followers has the most political power and, thus, the most say in the affairs of the community. It must be emphasized that this is a completely social form of power. Social power must precede economic power otherwise there is no means by which economic control can be gained in a village-based society.[1] Since these corporate groups are usually lineage based, and since the transition from one headman to a new headman is usually within the descent group, any corporate group that is able to maintain its position as the largest, has created hereditary inequality by default (Maschner and Patton 1996).

The one means by which hereditary social power can be identified in the archaeological record is by differential house floor areas, especially when the argument can be made that the entire corporate group lives in the same household. Our model follows Hayden and Cannon (1982) in using multi-family houses as evidence for both the presence and relative size of corporate groups. We recognize, however, the limitation of conflating a dwelling (the physical structure) with a household (a social unit). Not all members of a corporate group necessarily share a single dwelling nor does co-residency automatically imply household membership for all occupants (Ashmore and Wilk 1988; Hirth 1993a; Lawrence and Low 1990:461; Wilk and Rathje 1982). This variability, in part, reflects the realities of day to day existence faced by individuals and the "cycle" of family development (Goody 1958). Ames (1996a) has shown that the sizes of Northwest Coast households did fluctuate through time, but the largest households appear to have stayed the largest throughout several hundred years of occupation, an argument made by Hayden as well (1997). These issues are not severe limitations for our investigation since much of the archaeological data from regional scale household and village studies reflects long-term patterns rather than particularistic behavior.

The significance of house-size variability has generated considerable research interest throughout North America (Ames 1996a, 1996b; Ames et al. 1992; Archer 2001; Coupland 1985b, 1988b, 1996; Hayden and Spafford 1993; Hirth 1993b; Lightfoot and Feinman 1982; Nass and Yerkes 1995, Trubitt 2000). It is generally assumed, based on broad overviews of the ethnographic record, that the larger houses were occupied by the village elite and their larger corporate group (Hayden 1997; Hayden et al. 1985). Testing of this assumption is primarily based on expectations of economic differences such as a higher frequency of exotic items, greater storage capacity, and/or control of subsistence resources associated with elite residences (Ames 1996a; Hayden 1997; Hoffman 2001; Trubitt 2000). These assumptions are supported by ethnographic and cross-cultural studies that have found a general correlation between dwelling size, household rank, political power, and wealth (Abrams 1989; Netting 1982). Individual case studies demonstrate, however, that these correlations are not universal patterns (Wilk 1983); although Ames has shown that the largest households on the lower Columbia River did indeed have the greatest amounts of storage, exotic items, and other differences (1996a), as has Hayden for the Fraser Plateau (1997).

Ethnohistoric data from the three north Pacific regions used in this study support the critical assumption that dwelling size reflects the occupants' status. In summarizing the reports from Russian traders, the historian Coxe wrote in 1787 that among the Eastern Aleuts: "The office [of village leader] … is generally conferred on him who is most remarkable for his personal qualities; or who possesses a great influence by the number of his friends. Hence it frequently happens, that the person who has the largest family is chosen" (quoted in Hrdlicka 1945:25).

On the Northwest Coast it is clear from the ethnographic record that there is a correlation between house size and household rank or status (Ames and Maschner 1999; Coupland 1988b; Donald and Mitchell 1975; MacDonald 1983; McNeary 1976). In ethnographically documented villages, where one or more houses stood out from the others in size it was most often the highest ranked residence. Coupland (1988b:270) found that a historic ratio of 1:3 to 1:5 (ranked to non-ranked houses) in a Niska village (McNeary 1976:128) was similar to prehistoric villages on the Skeena River with a ratio of one large to every 4.4 smaller houses. In the Queen Charlottes, Acheson (1991) also noticed the disparity between large and small houses as an indicator of wealth and size, and this is born out by MacDonald's work as well (1983). Archer has perhaps done the most in this realm, clearly

[1] This is a point missed by Tim Earle (1997) and all others who study hierarchical societies from the view of complex chiefdoms where power is economic and where the people they are studying have been complex for so long that they cannot talk of origins. Social power comes from kin-selection; it is a form of power that only comes from having a lot of supporting kinspeople and it is fundamentally important in village-based societies.

demonstrating both the increase in house size, and the increase in house-size variability across the egalitarian-ranked transition.

Thus, it is demonstrable that household size, especially differential household size, is a powerful measurement of differential status in societies organized into multifamily corporate groups. Therefore, we believe that once multifamily corporate groups form there will be opportunity to increase group size at the expense of, or in competition with, other corporate groups (e.g., Maschner and Bentley [in press]). What were the conditions then that allowed the headmen of the largest lineages to participate in aggrandizing behavior and begin taking advantage of smaller corporate groups?

To answer this question we must first identify when corporate groups first form and then identify the historical context of the rise of variability in house size. At that point we must attempt to describe and explain the social, political and environmental events that resulted in conditions where it was more advantageous to be lower rank than it was to remain independent.

## THE STUDY

The three areas used in this study, the lower Alaska Peninsula/eastern Aleutian Islands, the Kodiak Island group, and the northern Northwest Coast, are extraordinary for a number of reasons. First, they consist of perhaps three of the richest environments on earth. From the 10s of thousands of sea mammals and abundant fisheries of the Aleutian chain, the salmon runs of Kodiak Island that ran as many as 10 million fish a year in a single river, and the incredible herring, halibut, and salmon resources of the northern Northwest Coast, there was probably never a time when human societies with an aboriginal technology could have put any significant harvesting pressure on these marine ecosystems (Hayden 1981:529-530). The result is that all three areas were inhabited by fully sedentary and ranked hunter-gatherer societies at historic contact.

The Aleutian data are based, except where noted, on our research over the last eight years on the lower Alaska Peninsula (Hoffman 1999, 2001; Jordan and Maschner 2000; Maschner 1998b, 1998c, 1999a, 1999b, 2000a; Maschner and Hoffman 1994; Maschner et al. 1994, 1997; Maschner and Reedy-Maschner 1998), and on site evaluations conducted by the BIA ANSCA Office in Anchorage (USBIA 1991). The Kodiak data are based on the research of Richard Jordan and Richard Knecht (1988; Knecht 1995), Hausler-Knecht at Rice Ridge (1993), the work of Amy Steffian (1992a, 1992b) on the Kachemak, and the primarily Sikalidik Island study conducted by Ben Fitzhugh (1995, 1996). The northern Northwest Coast data are from eight years of research conducted by Maschner (1990, 1991, 1992, 1996b, 1997, 1998a; Maschner and Stein 1995; Maschner and Patton 1996) and the seminal studies of Gary Coupland (1985a, 1985b, 1988a, 1988b, 1996), Kenneth Ames (1994, 1996a, 1996b, n.d.), and Steve Acheson (1991).

### *The Eastern Aleutian Region*

Village-based maritime foragers occupied the eastern Aleutian region as early as 7000 BC[2] (Aigner 1976, 1978; Laughlin 1975, 1980; Dumond and Bland 1995). Although no sites in our study region predate 3000 BC, several early sites have been identified on Unalaska and Umnak Islands to the west. The earliest documented sites are assigned to the Anangula tradition and include a coastal village with oil lamps, blade technology, and semi-subterranean houses with roof entries (Aigner 1976; McCartney and Veltre 1996). A poorly understood gap with few sites separates the Anangula tradition from the Aleutian tradition which spans the period from approximately 4000 BC to Russian Contact (McCartney 1984; McCartney and Workman 1998). The Aleutian tradition is characterized by village midden sites, many of which were occupied for hundreds to thousands of years suggesting considerable stability in settlement patterns throughout the middle to late Holocene. Excavations at Anangula and early Aleutian tradition villages have all found houses that are single-family sized, and generally four to six meters in length. Each household appears to have been economically self-sufficient based on artifact analysis (Aigner 1978, 1983, 1985; Aigner and Del Bene 1982). No status differences have been documented, although the sample size is small.

The earliest Aleutian Tradition villages in the lower Alaska Peninsula study region are small, generally under 2000m$^2$ and have between 8 and 50 houses. House size between 3500 and 1000 BC, presented graphically in Figure 1 and as data in Table 1, is similar to the earlier Anangula village houses, ranging from 3x3m (circular) to 5 x 9m (ovoid). Villages have storage facilities in the form of numerous small depressions less than 2m in diameter scattered around and between the houses.

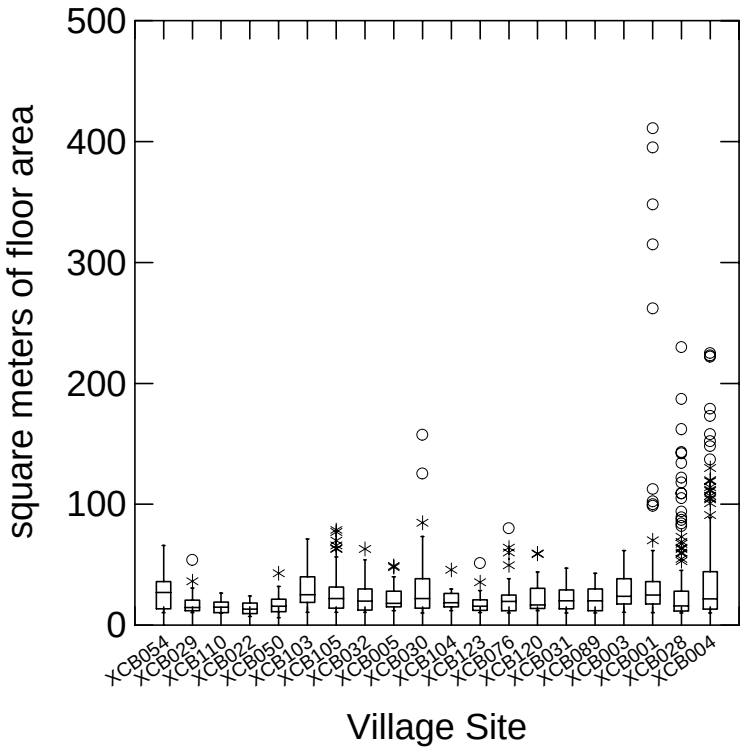
Between 1000 BC and AD 600 houses and villages on the lower Alaska Peninsula become larger. While many houses stay in the 4 x 6 m range, a few reach 6 x 12m with many in the 7 x 7m (circular) range. We interpret

[2] Calibrated years.

these larger features as the dwellings of an "emerging" village elite.[3] These large structures indicate an increase in village complexity sometime around 3000 years ago. There is also an increase in the number of external storage facilities at these sites and the presence of many depressions that might be evidence of summer tents (McCartney 1974). Village area reaches 140,000$m^2$ . The largest village has over 800 surface depressions (Maschner et al. 1997; Maschner 2000a).

During a brief interval dating between AD 700 and AD 1100, houses become smaller again, as villages and houses revert in size to the distributions seen prior to 1000 BC. But after AD 1100, villages in the region undergo a radical transformation, both in the organization of the community and in the size of the household (Figure 1). Perhaps the most visible archaeological evidence of this transformation is the appearance of large multi-family houses. These communal houses have been found on the Lower Alaska Peninsula, the Shumagin Islands, Unimak Island, and Unalaska Island (Cooper and Bartolini 1991; Hoffman 1990, 1995, 1997, 1999, 2001; Johnson 1995; Maschner et al. 1997; Veltre and McCartney 1988). Important inter-regional variability in the size of these features exists (Hoffman 1999). The Unalaska houses typically range between 20 and 40 m in length, while the largest house depressions recorded on the lower Alaska Peninsula are under 25 m in length (Hoffman 1990, 1999; Maschner 1999a, 1999b). One interesting characteristic of these communal houses are the numerous small side rooms that are attached to the main room. Historic descriptions of contact period Aleut houses indicate these side rooms were used as sleeping quarters, storage space, or as burial chambers (Merck 1980:169; Veniaminov 1984:261-264). As potential storage areas, these side rooms represent a substantial increase in storage capacity located inside the houses. The main room and side rooms combined result in an effective increase in usable floor area to three or four times the size prior to the transition (Figure 1).

Figure 1. Box plot of house floor area data for 20 villages from the lower Alaska Peninsula listed oldest to youngest. The chart shows the beginnings of household size variation by XCB-105 (900-200 BC), becoming more pronounced by XCB-030 (AD 500), and then changing dramatically by XCB-001 (AD 1150). A box plot is a summary plot that is based on the median, quartiles, and extreme values within a single variable. 50% of the values are within the box, which is the interquartile range. The highest and lowest values are marked by the whiskers. The outliers, those that fall outside of the .95 confidence interval, are marked as stars. The median is marked by a line across the box. Data are from the lower Alaska Peninsula Project and USBIA (1991).




Village size becomes much larger overall after AD 1150 with five villages between 30,000 and 60,000 $m^2$. One village has 200 surface depressions, three have between 400 and 600, and one has over 800 surface depressions. The numbers of nucleus-satellite houses in the larger villages ranges from 7 to 30, which also may indicate the number of corporate groups.[4] If even two-thirds of these houses are occupied simultaneously, these villages range in population from 250 to over 1500 individuals.[5]

***The Kodiak Archipelago***

The earliest well-documented occupation of the

[3] There is no evidence for ceremonial structures in the Aleutian region.

[4] There is every reason to believe that the majority or all of these large houses were occupied at the same time. First, they are often organized as a village, with equal spacing between depressions. Second, they are never overlapping, or, apparently, cutting through older depressions. Third, in 1997 we randomly sampled six of twenty of these large houses at a single site. All had identical stratigraphy, floor formation and accumulation, and soil development. There was no evidence of reuse or spatial variability in village occupation.

[5] Based on 4$m^2$ per person (Coupland 1988b). The authors are also aware of three sites with a single nucleus-satellite house, one with two houses, and one with four houses. But these are rare when compared with the larger villages.

Kodiak region is the maritime-focused Ocean Bay tradition (4000-1500 BC). Like the early Aleutian villages, these villages are rare, small, and located on the most productive landscapes (Erlandson et al. 1992:46; Hausler-Knecht 1993). Ocean Bay assemblages include small stone lamps, bilaterally barbed harpoons, fish hooks, microblades and blade cores (early in the tradition), and after 5000 years ago, ground slate lances (Clark 1996; Haggarty et al. 1991, Fitzhugh 1996). Thin, red ochre covered floors are interpreted as tent structures, suggesting at least seasonal mobility characterized Ocean Bay residential patterns (Fitzhugh 1996). Rice Ridge, one of the best preserved Ocean Bay sites excavated to date, however, provides evidence of more substantial structures. Hausler-Knecht (1993) describes these houses as oval-shaped, semi-subterranean, and about 5x3 meters in size. The data from Rice Ridge suggests that at least semi-sedentary Ocean Bay communities existed in some regions (resource rich), whereas residential mobility characterized other areas (Fitzhugh 1996).

The Kachemak tradition (1500 BC – AD 1000) marks the first appearance of substantial midden sites with house depressions in the Kodiak region. Kachemak villages were generally small, 100-1000 $m^2$ , but a few larger sites are documented (Knecht 1995; Jordan and Knecht 1988; Steffian 1992b). There are some material differences between Ocean Bay and Kachemak, but with toggling harpoons and labrets the only significant additions (Clark 1996: Table 1). Economically, there was an increase in diet breadth (most notably the substantial harvest of shellfish), while abundant notched-stone net sinkers indicate an increasing emphasis on mass capture technologies, particularly for the harvest of salmon.

Storage facilities become prevalent in the archaeological record and include storage pits unlined or lined with clay, wood, or stone slabs. Kachemak houses differ from the Ocean Bay houses in that they are square-shaped and include side entrances. Kachemak houses range between about 10 to 50 $m^2$ , but exhibit little intra-site variability as seen in Figure 2 and Table 2. Through time, storage facilities are increasingly located inside the houses and include construction of corner alcoves that foreshadow the multi-room houses of the Koniag period to follow.

A major escalation in village formation occurs with the arrival of the Koniag tradition after AD 1100 (perhaps even as late as AD 1400 in some areas). A distinct settlement hierarchy emerges with small (500-1000 $m^2$), medium (4000-8000 $m^2$) and large villages (12,000 $m^2$). This hierarchy has been interpreted as reflecting functional differences, such as winter aggregation sites versus seasonal encampments (Fitzhugh 1996), or due to infilling of the landscape with larger groups occupying the richest locations (Haggarty et al. 1991; Erlandson et al. 1992). In either case, the large villages, which include "mega-villages" with 100 or more houses (Jordan and Knecht 1988; Knecht 1995), indicate the presence of social units of substantial size. Houses also become larger, most notably with the addition of side rooms during the later "Developed" Koniag period after AD 1400 (Figure 2).

These complex, multi-room houses result in considerable intra-site variability in house size, with houses ranging between about 20 and 150 $m^2$. Use of the multi-room houses continued until after Russian contact. Historic documents indicate the large Koniag houses were occupied by extended families and held an average of 18-20 individuals (including slaves). The main room was used for entertaining and manufacturing activities. Side rooms functioned as kitchens, sweat baths, and bedrooms.

***The Northern Northwest Coast***

On the northern Northwest Coast we find large shell-midden sites in southeast Alaska, the northern British Columbia coast, and on the Queen Charlotte Islands forming in the Early Pacific Period about 3000 BC (Ames and Maschner 1999; Maschner 1997, 1998c). These sites are located at the most productive harvesting locations and faunal analyses indicate that some of these sites were occupied throughout most of the year (Ames n.d.; Ames and Maschner 1999; Davis 1990; Maschner 1992; Okada et al. 1989, 1992). No remains of houses have been found in any of these early shell midden sites. Site size ranges from a few square meters to several thousand. There are numerous temporary camps in coves and in rockshelters indicating that at least some of the population was rather mobile (Maschner 1997).

The first evidence of permanent houses and house depressions occurs after approximately 1500 BC in the Middle Pacific Period of northern Northwest Coast prehistory: much later than in the Aleutians and Kodiak Island. At the Boardwalk site in Prince Rupert Harbour, and at the Paul Mason Site on the Skeena River, houses are square to rectangular and average 50-60 square meters (Ames 1996a; Coupland 1985a, 1988a). This period of village formation seems to last from approximately 1000 to 200 BC, after which many areas appear to be abandoned. These Middle Pacific villages are large and well organized with one or two rows of houses on terraces above the current shoreline. A burial complex shows clear evidence of status differences at the Boardwalk site

Table 1. Summary data for the lower Alaska Peninsula village sites used in this study. Note that only depressions greater than 10m² were used in the analysis. The mean values for the lower Alaska Peninsula depressions are misleading because summer (small) and winter (large) houses were often in the same village after AD 1150. If only the depressions left by the large, corporate households are used the mean ranges between 75 and 135 m² and standard deviation between 30 and 45. Regardless of approach, the result is the same. Of special notice here is the coefficient of variation (C.V.), which is the standard deviation divided by the mean. The C.V. is a measure of the variability in house floor area. There is a substantial increase in the C.V. with the rise of large, corporate households after AD 1100. Data are from the lower Alaska Peninsula Project and USBIA (1991). All units are in square meters.

| **Site** | **XCB-054** | **XCB-029** | **XCB-110** | **XCB-022** | **XCB-050** | **XCB-103** | **XCB-105** |
|---|---|---|---|---|---|---|---|
| Period | 2200 BC | 1500 BC | 1500 BC | 1250 BC | 1100 BC | 600-400 BC | 800-100 BC |
| N of cases | 14 | 26 | 12 | 12 | 27 | 32 | 115 |
| Minimum | 10.40 | 10.20 | 10.00 | 7.07 | 6.00 | 10.50 | 10.60 |
| Maximum | 66.00 | 53.90 | 26.40 | 24.00 | 42.84 | 71.30 | 78.75 |
| Range | 55.60 | 43.70 | 16.40 | 16.93 | 36.84 | 60.80 | 68.15 |
| Sum | 417.00 | 469.70 | 184.20 | 169.63 | 454.50 | 940.10 | 2960.28 |
| Median | 26.90 | 14.60 | 14.90 | 13.35 | 15.70 | 25.25 | 21.98 |
| Mean | 29.79 | 18.07 | 15.35 | 14.14 | 16.83 | 29.38 | 25.74 |
| Standard Dev | 18.22 | 9.65 | 5.29 | 5.94 | 9.40 | 14.92 | 14.86 |
| C.V. | 0.61 | 0.53 | 0.34 | 0.42 | 0.56 | 0.51 | 0.58 |

| **Site** | **XCB-032** | **XCB-005** | **XCB-030** | **XCB-104** | **XCB-123** | **XCB-076** | **XCB-120** |
|---|---|---|---|---|---|---|---|
| Period | 200 BC – AD 100 | 50 BC – AD 400 | AD 300 - 600 | AD 300 - 600 | AD 700 - 1000 | AD 700 - 1000 | AD 700 - 1000 |
| N of cases | 70 | 18 | 109 | 7 | 31 | 49 | 13 |
| Minimum | 10.50 | 12.00 | 10.10 | 11.80 | 10.33 | 10.00 | 11.93 |
| Maximum | 63.00 | 49.00 | 157.50 | 45.70 | 51.24 | 80.00 | 59.35 |
| Range | 52.50 | 37.00 | 147.40 | 33.90 | 40.91 | 70.00 | 47.42 |
| Sum | 1659.32 | 417.00 | 3194.80 | 158.50 | 560.32 | 1118.10 | 341.48 |
| Median | 19.81 | 18.00 | 22.00 | 18.60 | 15.53 | 19.63 | 16.76 |
| Mean | 23.70 | 23.17 | 29.31 | 22.64 | 18.07 | 22.82 | 26.27 |
| Standard Dev | 12.66 | 11.83 | 23.29 | 11.82 | 8.78 | 14.77 | 17.33 |
| C.V. | 0.53 | 0.51 | 0.79 | 0.52 | 0.49 | 0.65 | 0.66 |

| **Site** | **XCB-031** | **XCB-089** | **XCB-003** | **XCB-001** | **XCB-028** | **XCB-004** |
|---|---|---|---|---|---|---|
| Period | AD 700 - 1000 | AD 700 - 1000 | AD 700 - 1000 | AD 1100 - 1800 | AD 1100 - 1800 | AD 1100 - 1800 |
| N of cases | 95 | 9 | 33 | 143 | 192 | 148 |
| Minimum | 10.11 | 10.00 | 10.70 | 10.30 | 10.00 | 10.10 |
| Maximum | 47.21 | 42.84 | 61.70 | 411.00 | 230.00 | 225.00 |
| Range | 37.10 | 32.84 | 51.00 | 400.70 | 220.00 | 214.90 |
| Sum | 2117.07 | 202.97 | 959.10 | 5693.80 | 5514.70 | 6085.70 |
| Median | 20.00 | 20.00 | 23.90 | 25.00 | 15.75 | 21.60 |
| Mean | 22.28 | 22.55 | 29.06 | 39.82 | 28.72 | 41.12 |
| Standard Dev | 9.91 | 11.28 | 14.99 | 61.87 | 33.68 | 45.86 |
| C.V. | 0.44 | 0.50 | 0.52 | 1.55 | 1.17 | 1.12 |

(Ames n.d.). But elsewhere in the region there are permanently occupied shell midden sites, oftentimes a number of them occupied simultaneously in each bay system, but the dwellings associated with them have not been discovered.

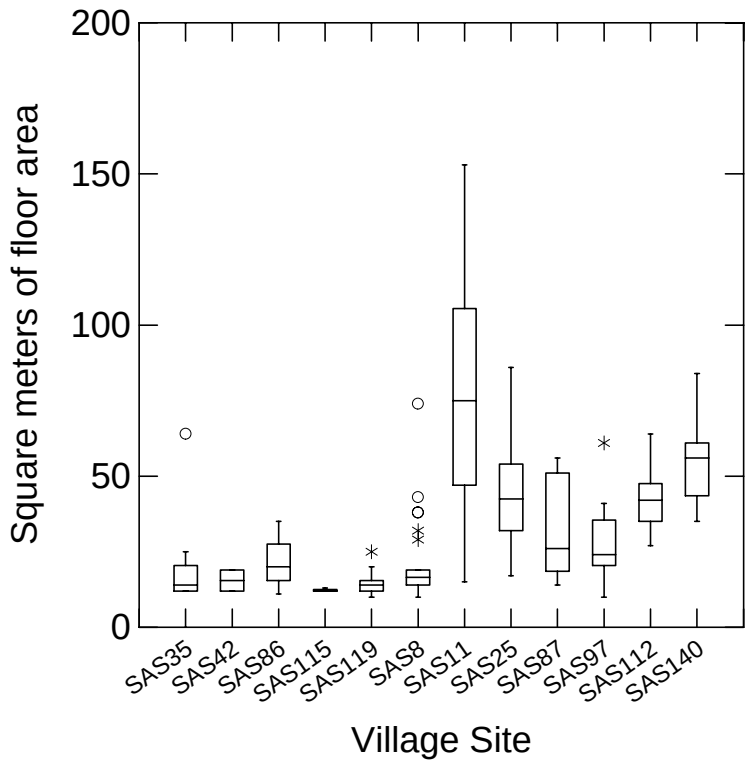
About AD 200 (but maybe a bit earlier in Prince Rupert Harbour), large, Northwest Coast style villages begin to form and are seen as a number of square to rectangular house depressions in a row along the beach (Acheson 1991; Ames and Maschner 1999; Archer 1992, 2001; Maschner 1992, 1997). These Late Pacific houses range from 60 to 300 square meters and continue to be used into historic times, as shown in Figure 3 and quantified in Table 3. Villages become larger as well, increasing from 1000-2000m$^2$ to over 6000 m$^2$. All evidence points to full sedentism at this time, although there is little evidence to argue against sedentism any time in the 3500 years before historic contact. The Late Pacific Period also witnesses a proliferation in the construction of de-

fensive fortifications on the northern Northwest Coast (Ames and Maschner 1999; Maschner 1990, 1992, 1998a, 1998c; Moss 1989; Moss and Erlandson 1992).

## DISCUSSION

In a broad survey of village-based political organizations, Maschner recognized that the most fundamental aspect of status and political power in both egalitarian and ranked villages is corporate group size (Maschner 1996a). Differential corporate group size can be seen across the North Pacific in house floor size variability. In all cases where we know the numbers, status, and floor area of the houses in a village, the largest house was inhabited by the most individuals, and the headman of this house, and the lineage itself, was the highest ranked in the community. Plainly speaking, the largest lineage has the most influence because they have the most people and the most people require the largest house. This is a critical point because, as has been demonstrated for the Yanomamö by Chagnon (1975, 1979a, 1979b, 1988), and through a number of cases elsewhere, social power can exist without any concomitant economic power. Thus, our only independent means of measuring status differences archaeologically, before any economic signatures, is through house floor area.

Figure 2. Box plot of house floor area data for 12 villages from the Kodiak Archipelago listed as Kachemak Tradition (left six) and Koniag Tradition (right six). All from J. B. Fitzhugh's dissertation (1996). Note the substantial increase in house floor area and floor area variation at the Kachemak to Koniag transition (SAS8 to SAS11 on this chart). See Figure 1 for a description of box plots.




This increase in household size, and this variability in size as an indicator of lineage rank, is seen across the north Pacific. The statistics of house floor size for all three regions through time are presented in Tables 1-3. All three areas show a major shift in household size between the Middle and Late Pacific Periods (AD 200 and 500) on the northern Northwest Coast, between the Kachemak and Koniag Periods at AD 1100-1400 in the Kodiak Archipelago, and after AD 1100 in the eastern Aleutian Islands and lower Alaska Peninsula. In all three areas we see a doubling or greater in house floor area and a tripling of the standard deviation. This is a transition from houses that were composed of 4-12 individuals to houses that were occupied by as many as 60 individuals, variability that has considerable implications for the village power structure.

Correlates to these increases in household size include the movement of some storage facilities from outside the structure to inside and a substantial increase in the size of the community. Maschner (1992, 1996b; Maschner and Patton 1996) argued that in central southeast Alaska this transition can be seen as a switch from single lineage (single corporate group) villages to multilineage (multi-corporate group) villages. We would expect that in the transition to villages with multiple kin groups, more emphasis will be placed on protecting storage facilities.

We argued above that social ranking will develop in any area where it is possible, and this possibility is founded first in resource abundance and second in social or environmental circumscription. As archaeologists, it is our job to find the conditions under which striving headmen were able to put themselves and their lineage in a position of power and get away with it. This can only occur where there are abundant resources and where smaller lineages cannot fission. So why would small corporate groups or families on the North Pacific join to form large corporate groups and then join together to form large villages?

Maschner has argued that the bow and arrow probably put an interesting twist on inter-village politics and seems to spur the construction of defensive fortifications after its arrival on the northern Northwest Coast after AD 200-500 (Blitz 1988; Maschner 1992, 1998a).

Table 2. Summary data for the Kodiak area village sites used in this study. Note that only depressions greater than 10m² square meters were used in the analysis. Of special notice here is the coefficient of variation (C.V.), which is the standard deviation divided by the mean. The C.V. is a measure of the variability in house floor area. Unlike the lower Alaska Peninsula, the C.V. for all time periods are similar even though there is a substantial increase in mean floor area from the Kachemak to Koniag Phases. This probably results from the small number of Kachemak houses, but may also be a product of the kashim or men's house being present in the Kachemak Phase. The site numbers and the data are as presented by J.B. Fitzhugh in his fieldwork and reported in his dissertation (1996). All units are in square meters.

| **SITE** | **SAS35** | **SAS42** | **SAS86** | **SAS115** | **SAS119** | **SAS8** |
|---|---|---|---|---|---|---|
| Period | Kachemak | Kachemak | Kachemak | Kachemak | Kachemak | Kachemak |
| N of cases | 7 | 2 | 3 | 3 | 12 | 26 |
| Minimum | 12.00 | 12.00 | 11.00 | 12.00 | 10.00 | 10.00 |
| Maximum | 64.00 | 19.00 | 35.00 | 13.00 | 25.00 | 74.00 |
| Range | 52.00 | 7.00 | 24.00 | 1.00 | 15.00 | 64.00 |
| Sum | 155.00 | 31.00 | 66.00 | 37.00 | 177.00 | 551.00 |
| Median | 14.00 | 15.50 | 20.00 | 12.00 | 14.00 | 16.50 |
| Mean | 22.14 | 15.50 | 22.00 | 12.33 | 14.75 | 21.19 |
| Standard Dev | 19.03 | 4.95 | 12.12 | 0.58 | 4.14 | 14.15 |
| C.V. | 0.86 | 0.32 | 0.55 | 0.05 | 0.28 | 0.67 |

| **SITE** | **SAS11** | **SAS25** | **SAS87** | **SAS97** | **SAS112** | **SAS140** |
|---|---|---|---|---|---|---|
| Period | Koniag | Koniag | Koniag | Koniag | Koniag | Koniag |
| N of cases | 16 | 22 | 7 | 8 | 7 | 11 |
| Minimum | 15.00 | 17.00 | 14.00 | 10.00 | 27.00 | 35.00 |
| Maximum | 153.00 | 86.00 | 56.00 | 61.00 | 64.00 | 84.00 |
| Range | 138.00 | 69.00 | 42.00 | 51.00 | 37.00 | 49.00 |
| Sum | 1208.00 | 1010.00 | 235.00 | 231.00 | 298.00 | 589.00 |
| Median | 75.00 | 42.50 | 26.00 | 24.00 | 42.00 | 56.00 |
| Mean | 75.50 | 45.91 | 33.57 | 28.88 | 42.57 | 53.55 |
| Standard Dev | 36.91 | 19.23 | 18.34 | 15.76 | 12.58 | 14.62 |
| C.V. | 0.49 | 0.42 | 0.55 | 0.55 | 0.30 | 0.27 |

Maschner has also seen a transition in the locations selected for village construction from areas with good resources to areas that are more defensible (1992, 1996a, 1997, 1998b).

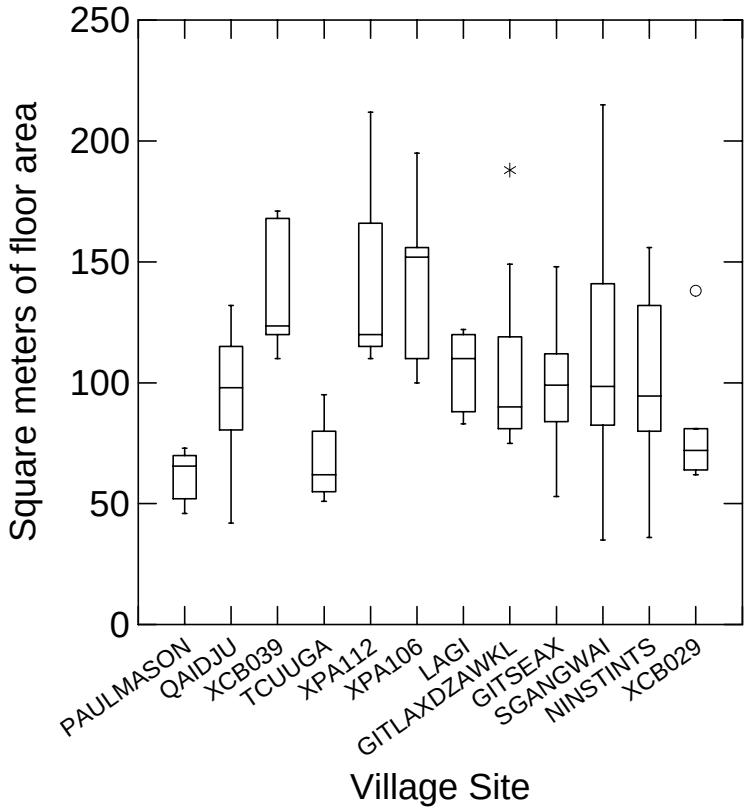
On Kodiak and the lower Alaska Peninsula the transition to large corporate households occurs at the point where the expansion of Thule culture (people or traits) is abutting Kodiak and the lower Peninsula. This occurs at the same time as an increase in the use of the bow and arrow (here we mean the recurve bow) on many islands (Johnson 1988; Workman 1969) where there is nothing to hunt with the bow and arrow except humans (Maschner and Reedy-Maschner 1998), an increase in the manufacture of armor plate and shields (Dall 1878; Knecht 1995), and an increase in the use of defensible bluff tops and islands (Fitzhugh 1996; Hoffman 1999; Knecht 1995; Maschner and Reedy-Maschner 1998; Moss and Erlandson 1989). Maschner has stated that this introduction of the 'Asian war complex' had ramifications well beyond this region (2000b). But this is not a clear relationship and will require further investigations to test as a formal hypothesis.

But perhaps it was something completely different. There is clear evidence from throughout the region that there is a region-wide increase in salmon populations, particularly red salmon, at this time (Finney et al. 2002); and in fact, most major villages in the region are directly associated with red salmon spawning streams (Langdon 1979; Maschner 1999). An alternative political explanation might include an expansion of trade networks and involve the role of elite members of the community in either production, redistribution, the control of trade, or all three (sensu Hoffman 2001). Either the distribution of resources or a desire for access to prestige goods might have created a sort of 'downtown' effect that drew families to focal villages that resulted in the large towns witnessed ethnographically throughout the region.

Whatever the cause, and all of these are quite testable with further investigations, the conditions for the rise

of ranked foragers were present because social and/or environmental circumscription kept people in the community. There must have been conditions where, whatever the aggrandizing behavior of the emerging elite, there was still reason for smaller, less well-off families to stay in the community. This is the exact condition where we would expect striving, charismatic leaders of the largest lineages to put themselves in a position of power for the sole reason that they are able to get away with it. These are also the conditions where internal social pressures would necessitate means for maintaining cohesion between unrelated households. Therefore, feasting should arise at this time as both a means for maintaining alliances but also as a form of non-violent competition.

Figure 3. Box plot of house floor area data for 12 villages on the northern Northwest Coast. The only Middle Pacific Period village in the region with a large number of house depressions is Paul Mason (Coupland 1988a). Two other Middle Pacific houses (not included) at the Boardwalk site (Ames n.d.) are the same size as the Paul Mason houses. All of the village sites in the Late Pacific Period are on average larger but, more importantly, have much greater variation in size than Paul Mason, as Coupland (1988a), Ames (1994), and Maschner (1992) have noted previously. Two villages, Tcuuga and XCB-029, have mean floor areas close to those at Paul Mason, but each has at least one house that is much larger than any at Paul Mason. See Figure 1 for a description of box plots. Data are from Acheson (1991), Coupland (1988a), and Maschner (1992).




## CONCLUSION

In historic times the north Pacific rim was occupied by three different groups of complex hunter-gatherers who shared a number of organizational and behavioral similarities. These societies developed in one of the world's richest landscapes. The excellent ethnohistoric record, the quality of the archaeological preservation, and the current state of archaeological knowledge in the area makes this a perfect region for investigating the development of ranked household organization.

We have argued that ranked households can develop in a social context before any evidence of economic differences might be discernable. This is so because one cannot maintain economic power without having the social power in place to protect it. The means to identify social power is through the size and size variability of corporate groups because the only basis for status and power will be in the number of followers available to support social and political aspirations of the headmen. Leaders who are able to increase the size of their corporate group disproportionately in relation to other groups will have a political advantage. When conditions develop where small corporate groups either cannot leave or simply choose not to, the leaders of the largest corporate groups will be able to put themselves in a position of influence and create the kinds of hereditary structures we see ethnographically.

Thus, when three conditions are met, ranked village organization will arise. First, there must be an environment capable of supporting large, permanent villages. Second, there must be a reason for households to organize at levels larger than the family. Third, there must be a reason that small corporate groups cannot fission away from the larger village. When these conditions are present, the scene is set for the headmen of the largest corporate groups to put themselves in a position of authority for the sole reason that they are able to do so. The opportunistic status striving tendencies of headmen can only be manifested when these preconditions are met. The creation of structured and corporate status differences may or may not eventually lead to economic inequalities. But the political, social, and ultimately reproductive advantages of being a leader or member of the most powerful corporate group cannot be underestimated.

Table 3. Summary data for the northern Northwest Coast area village sites used in this study. Note that only depressions greater than 10m² were used in the analysis. Of special notice here is the coefficient of variation (C.V.), which is the standard deviation divided by the mean. The C.V. is a measure of the variability in house floor area. Note that the single Middle Pacific village site has the lowest C.V., a point made by Coupland (1988b:273-274), but two Late Pacific sites also have a low C.V. even though the mean floor areas for houses are substantially larger in the all Late Pacific samples. The low C.V. in most of these villages, even though the mean floor areas are large and although there are some very large houses, might be due to the population growth constraints that result from a matrilineal form of organization, which creates a population peak of 50 to 60 individuals. Data are from Acheson (1991), Coupland (1988a), and Maschner (1992). All units are in square meters.

| **SITE** | **PAUL MASON** | **QAIDJU** | **XCB-039** | **TCUUGA** | **XPA-112** | **XPA-106** |
|---|---|---|---|---|---|---|
| Period | Middle Pacific | Late Pacific | Late Pacific | Late Pacific | Late Pacific | Late Pacific |
| N of cases | 10 | 16 | 6 | 4 | 3 | 5 |
| Minimum | 46.00 | 42.00 | 110.00 | 51.00 | 110.00 | 100.00 |
| Maximum | 73.00 | 132.00 | 171.00 | 95.00 | 212.00 | 195.00 |
| Range | 27.00 | 90.00 | 61.00 | 44.00 | 102.00 | 95.00 |
| Sum | 618.00 | 1512.00 | 816.00 | 270.00 | 442.00 | 713.00 |
| Median | 65.50 | 98.00 | 123.50 | 62.00 | 120.00 | 152.00 |
| Mean | 61.80 | 94.50 | 136.00 | 67.50 | 147.33 | 142.60 |
| Standard Dev | 9.81 | 27.42 | 26.48 | 19.21 | 56.23 | 38.38 |
| C.V. | 0.16 | 0.29 | 0.19 | 0.28 | 0.38 | 0.27 |

| **SITE** | **LAGI** | **GITLAXDZAWKL** | **GITSEAX** | **SGANGWAI** | **NINSTINTS** | **XCB-029** |
|---|---|---|---|---|---|---|
| Period | Late Pacific | Historic | Historic | Historic | Historic | Historic |
| N of cases | 5 | 10 | 17 | 16 | 18 | 5 |
| Minimum | 83.00 | 75.00 | 53.00 | 35.00 | 36.00 | 62.00 |
| Maximum | 122.00 | 188.00 | 148.00 | 215.00 | 156.00 | 138.00 |
| Range | 39.00 | 113.00 | 95.00 | 180.00 | 120.00 | 76.00 |
| Sum | 523.00 | 1067.00 | 1715.00 | 1848.00 | 1794.00 | 417.00 |
| Median | 110.00 | 90.00 | 99.00 | 98.50 | 94.50 | 72.00 |
| Mean | 104.60 | 106.70 | 100.88 | 115.50 | 99.67 | 83.40 |
| Standard Dev | 18.11 | 36.74 | 26.36 | 47.83 | 33.75 | 31.43 |
| C.V. | 0.17 | 0.34 | 0.26 | 0.41 | 0.34 | 0.38 |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