

The Archaeology of Rank

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The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings.

—*Julius Caesar* 1.2

IN THIS SCENE FROM *JULIUS CAESAR*, Cassius speaks to Brutus, “the noblest Roman of them all.” He is not explaining why Roman society is a class system ruled by a small, wealthy oligarchy. He is trying to convince Brutus to join a plot to assassinate Caesar, whose power menaces those same oligarchs, including Cassius and Brutus. Speaking of Caesar, Cassius says, “Why, man, he doth bestride the narrow world/Like a Colossus; and we petty men/Walk under his huge legs, and peep about/To find ourselves dishonourable graves.”

Cassius is not questioning Rome’s system of power and dominance; rather, he wants to kill a man who has grown too powerful: “bestrides the narrow world.” Archaeologists, on the other hand, do want to explain not only why Rome had a class system, but how and why systems of permanent inequality developed in human societies at all; how and why systems with permanent underlings evolved and where the “fault” lies, if not in our stars.

Explaining the origins and evolution of permanent social inequality among humans is one of archaeology’s fundamental tasks (Chapman 2003a). To do this, we must recognize it in the archaeological record. This chapter reviews methods archaeologists use to investigate the presence and forms of permanent inequality in ancient societies. While it can be difficult to separate systems of inequality from political and economic organization, the focus here is on inequality.

While all human beings are fundamentally alike, we differ in our personalities, interests, talents, strength, speed, endurance, intelligence, and so on. These are differences, not inequalities. Inequality exists when a society invests these differences with cultural and social meanings, prizing and rewarding some over others. For example, we are all female or male. Sex is a form of difference, but it is not inherently an inequality. It becomes a form of inequality when a society prefers one sex to the other, and members of that sex

are regularly awarded privileges, even power, by virtue of their sex.

Inequality based on sex is founded on recognizable biological differences between people. We are male or female. Inequality can also be based on social or cultural differences between people, including religious and ethnic affiliation. These are often treated as biologically based and as inevitable as sex differences but they are not.

While all societies recognize differences among their members and display some forms of inequality, not all have permanent forms of institutionalized inequality aside from age and sex. Societies also differ in the strength, pervasiveness, and scale of permanent inequality. In some, the degree of inequality may be slight; in others, enormous. Societies also vary over whether inequality operates at the levels of individuals or groups. In some societies, inequality is a continuum from highest to lowest, with each member ranked relative to every other member, while in others groups are ranked relative to other groups.

In seeking to understand the origins and evolution of permanent inequality, we endeavor to answer fundamental questions about human nature and societies. Are forms of inequality inevitable? Have societies ever existed in which there was no inequality, only differences? If so, how and why did inequality evolve? How and why do societies vary in the strength of inequality? Why are there different forms of inequality? Why do some societies have class systems and others castes or neither?

This chapter is an introduction to the archaeology of permanent social inequality, to how archaeologists go about trying to answer questions like those in the previous paragraph (see Wason 1994 for a thorough, balanced treatment of these methods). This chapter has six sections, including this introduction. In the second section, we examine what archaeologists and their colleagues in the social sciences mean by “permanent social inequality.” This means reviewing definitions and classifications of inequality and of societies. The third section reviews theories about why and

how inequality develops. The fourth discusses some methods archaeologists use to establish whether a particular ancient society had one form or another of inequality. This is accomplished by briefly discussing case studies drawn from the archaeological literature. The fifth section looks at two cases studies in which inequality has proven to be very difficult to find. The last section contains the conclusion.

PERMANENT SOCIAL INEQUALITY: DEFINITIONS AND CLASSIFICATIONS

In the introduction, I discussed some of the differences, or *differentiation*, among human beings. Societies may differentiate on the basis of kin group membership, club associations, skin color, occupation, left or right-handedness, and so on. *Inequality* refers to “the social evaluation of whatever differences are regarded by a given society as relevant,” while *dominance* is “the behavioral expression of these differences” (Berreman 1981:8). Dominance and *power* mean essentially the same thing. *Social inequality* is defined as “the combination of these two processes, inequality and dominance” (Berreman 1981:8). A society lacking inequality and dominance is theoretically possible but has never been encountered among humans (Berreman 1981:8).

Berreman’s use of “dominance” differs from how the term is more commonly used. Henrich and Gil-White (2001), for example, distinguish between prestige and dominance. Prestige is freely given or awarded to individuals by others in their social group while dominance is enforced through agonistic behavior and fear. People to whom prestige is awarded are honored, even revered. They are “*listened to*, their opinions are heavily weighed (not obeyed) because the person enjoys credit, estimation or standing in general opinion” (Henrich and Gil-White 2001:168). They contrast prestige with dominance, which is based on fear and is marked by generally different behaviors (table 28.1). Prestige may or may not carry authority. Authority is the ability to channel the behavior of others in the absence of power (Fried 1967), particularly in the absence of coercive power—the ability to force people to behave in certain ways (see below for a discussion of power). The pope as head of the Catholic Church enjoys considerable authority outside the Church, while within it, he wields great power. His authority stems from his prestige as head of the church.

Status can be based on dominance and/or prestige (Henrich and Gil-White 2001), but for humans either form of status is symbolically meaningful (Ber-

Table 28.1. Dominance- and Prestige-Related Behaviors

<i>Behavior</i>	<i>Dominance</i>	<i>Prestige</i>
<i>Low-Status Individual</i>		
Approaches often (proximity)	No	Yes
Prolonged stares	No	Yes
Occasional attack (to challenges)	Yes	No
Fears high-status individual	Yes	No
<i>High-Status Individual</i>		
Challenges and attacks	Yes	No
Is frequently imitated	No	Yes
Swaggers	A lot	A little; sometimes behaves like a subdominant
Receives gifts and services	Yes	Yes
Transivity ¹	More	Less

Source: Henrich and Gil-White 2001.

¹ “If A defers to B, and B defers to C, then A defers to C” (Henrich and Gil-White 2001:169).

reman 1981). High status is usually invested with moral worth—an aspect of prestige—which may vary culturally. In some societies it may come from greater proximity to a founding ancestor or to ruling deities, in others from greater ritual purity. Moral worthiness can justify dominance, and yet those with low moral worth (low prestige) can also dominate.

While inequality is invested with meaning, systems of inequality are archaeologically visible only through the material record, that is, the objects humans make that carry meaning. The behaviors in table 28.1 will have no archaeological impact.

Power differs from dominance because power also carries meaning in human systems. Eric Wolf (1999:5) distinguishes four “modalities” of power, including (1) the inherent power of an individual (e.g., physical power or compelling personality) that enables direct interpersonal dominance, (2) ability to impose one’s will through social interactions, which I will refer to as *social power*, (3) *tactical or organizational power* (an example of this below), and (4) *structural power*, achieved via settings and domains, particularly the ability to deploy and allocate energy flows and labor (Wolf 1999:5). The first two approximate Henrich and Gil-White’s conception of dominance, whereas the latter two have no organizational parallel in any nonhuman systems of dominance.

The theater is a useful analogy for Wolf’s four modes of power. An unknown actor who rises to stardom due to extraordinary talent is an example of the first form of power, as is a bully. The second form is

held by one who dominates and controls a company of actors through an ability to play people off against each other, manipulate their friends, spread gossip, and so on. Iago, in Shakespeare's *Othello*, also exemplifies this second form of power. The director of a play exemplifies tactical power by controlling the actors—where to stand, how to say their lines—through the “determinate setting” of the stage and the play, with power derived from a position within the theater company, not necessarily from any power inherent in his personality. Prestige contributes to a director's power, but he can also be despised. The producer of the play exercises structural power by paying the bills and controls the flow of resources; she hires and fires the director and the actor, she may own the theater and have selected its uncomfortable seats. Structural power can be vast—a U.S. president or a CEO of a large corporation can orchestrate and even create—or destroy—the settings in which the rest of us live our lives.

Using these ideas, we can distinguish between *egalitarian* (following Fried 1967; Berreman calls them *unranked*) and *ranked* (Fried 1967; Berreman 1981) societies.

EGALITARIAN SOCIETIES

Differentiation in egalitarian societies is usually based on sex, age, personal qualities, and sometimes on kinship and family relationships, with “as many positions of prestige . . . as there are persons capable of filling them” (Fried 1967:715). Aside from age and sex, there is equal access to status and positions of prestige, which are fluid from generation to generation, informal, and reflective of qualities of individuals. There are no permanent positions of power or dominance, and leaders are situational, chosen for their abilities in certain circumstances and not usually carried over into other situations. Power (or dominance) is essentially Wolf's first and second modes; it plays out in interpersonal relationships and depends on eloquence, social ability, and other personal traits. Dominance may have little or nothing to do with prestige. Bullies can exert power without prestige. High prestige may carry privileges without dominance, beyond what one can exercise interpersonally.

According to Fried (1967), egalitarian societies have an egalitarian economy in which reciprocity and generosity are valued—awarded prestige. There may be strong social expectations against accumulation of material goods; prestige may come by giving things away, by being generous, rather than by being thrifty. Reciprocal relations are kept balanced over some long

term, and no single individual or group controls access to the necessities of life, which are accessible to all members of the society. In sum, egalitarian societies are those in which there is equal access to (1) positions of prestige and (2) the means of production.

RANKED SOCIETIES

In ranked societies there is differential access to positions of high status and prestige, with fewer positions than there are people to occupy them. These positions are permanent. They always exist. Access to these positions can be *achieved* (acquired in life through effort of some kind) or *ascribed* (acquired through birth). Anthropologists do not treat sex and age as ascribed statuses. President of the United States is an achieved status (acquired through successful politics and an election) while the Emperor of Japan is an ascribed position through inheritance. There are two forms of ranked social organization: *rank* and *stratification*. These are, in many ways, quite different from each other.

In ranked societies, there is still equal access to the means of production and to resources fundamental to life. The number of high-status positions may be fixed from one generation to the next. High rank is generally ascribed, but not inevitably so, and is based on position in the kinship system. *Individuals* are ranked relative to each other based on their position in the kinship system (which may extend to supernatural beings). There are permanent leadership positions, with leaders generally enjoying high prestige, authority, and status, but without power or dominance beyond Wolf's second mode, what I term social power. High status or prestige can be used to manipulate social relationships to one's purposes; in some Polynesian chiefdoms, for example, leaders may have had real tactical and structural power.

The way in which stratified societies differ from rank societies is perhaps the most important in human social history. In stratified societies, there is differential access to positions of high status and prestige and, very importantly, differential access to the means of production and to basic, life-sustaining resources. Some group of individuals, usually a small one, enjoys tactical and structural power. According to Berreman (1981:10) *all* members of stratified society are ranked by socially defined, nonkin characteristics, with people of similar class, status, and power characteristics (i.e., similar social classes) sharing similar access to resources. Upper-class Americans, for example, have far greater access to resources, includ-

ing money, than do lower-class Americans. Implicitly comparing stratified societies with rank and egalitarian societies, Berreman (1981:10–11) defines *authority* as based on territory rather than kin group, *prestige* based on accumulation rather than distribution, and *power* through control over productive resources. As a result, whole categories of people can be exploited through “economic sanctions, threats, and physical force” Berreman (1981:11)

In rank and egalitarian societies, individual authority, if any, is based on position in a kinship system, not on social class, and prestige is based on generosity and redistribution of goods as qualities essential for a successful leader. In stratified societies, people may use their accumulated wealth to acquire or increase their power, without generosity. Finally, Berreman speaks of power. Fundamentally, only stratified societies have positions of high rank that convey power to their holder and it is only in stratified societies that we consistently encounter individuals or groups wielding Wolf’s tactical and organizational power.

The key element in all of this terminology is the concept of differential access. In egalitarian societies, there is equal access to positions of prestige and to basic resources; in rank societies there is differential access to positions of prestige but equal access to basic resources. In stratified societies, there is unequal access to both positions of prestige and basic resources, with people in high strata also having structural and organizational power. Differential access to resources can be reflected in nutrition, health, and life expectancy (Nguyen and Peschard 2003; Sapolsky 2004).

BANDS, CHIEFDOMS, STATES, TRANSEGALITARIAN, AND COMPLEX SOCIETIES

Anthropologists and archaeologists have used the definitions above, as summarized in table 28.2, to classify sociopolitical organization on a very broad scale, with summary terms for shared features considered important. The classes can be used to predict what we might expect archaeologically. Thus, if we decide that the societies found in an area 15,000 years ago were all “bands,” that carries implications about the archaeological record may look like.

Despite their utility, terms like bands, tribes, and chiefdoms obscure variability (Drennan 1996, O’Shea and Barker 1996), and many workers prefer to distinguish among small societies (essentially bands), middle-level (or transegalitarian; Blake and Clark 1999; Clark and Blake 1994) societies, and states only. Like many archaeologists, I will use “social complexity” to refer to permanent social inequality (i.e., ranking; Arnold 1996), although some argue that social inequality and complexity should be analytically separate (Paynter 1989).

ISSUES IN THE ORIGINS OF INEQUALITY AND RANKING

No coherent single body of social theory explains the origins and evolution of permanent social inequality (Diehl 2000a), with a diverse array of theoretical orientations ranging from Darwinian evolution to humanistic interpretation. Until quite recently, however, they all assumed that humans are, by default, egalitarian in their social organization, so that all recently evolved systems of permanent social inequality are departures

Table 28.2. Types of societies defined by anthropologists and archaeologists, based on socio-political organization.

Bands	Egalitarian, demographically small (25–50 people), fluid membership, band membership based on kinship, friendship, hunter-gatherers.
Tribes	Egalitarian, demographically larger (500+), membership fixed, based on kinship, hunter-gatherers, and farmers; concept of tribe controversial.
Chiefdoms	Ranked, ascribed leadership positions, demographically larger (2,000+), decision making centralized with a two-tier decision-making hierarchy, leadership lacks coercive power; chiefs usually have social power.
States	Stratified, with minimally a three-tier decision-making hierarchy; leadership has both tactical and strategic power; states usually have a territorial base.
Transegalitarian societies	Term for societies that are neither egalitarian nor ranked. There may be unequal access to prestige, but numbers of high-prestige positions fluid, positions are achieved, based on generosity, ability to attract followers, social power.
Middle-range societies	Broad term for societies falling between bands and states.
Complex societies	Can have three meanings: (1) “civilization,” (2) societies with many parts, implying social hierarchies and/or occupational specialization (the usage here), or, more narrowly (3) societies with permanent ranking. At a basic level, all human societies are complex, some more than others.

from our ancient norm. This section briefly discusses explanations for the origins and evolution of permanent social inequality.

ULTIMATE CAUSES, PROXIMATE CAUSES, NECESSARY PRECONDITIONS, AND EVOLUTIONARY PATTERNS

Mayr (1982) stresses the distinction between proximate and ultimate causes; proximate explanations show how a structure performs, whereas ultimate explanations describe how the structure evolved. Necessary preconditions do not cause inequality or other cultural traits to evolve, but their presence is necessary for their evolution to occur (see Bentley et al., chapter 8; Collard et al., chapter 13). For example, many archaeologists believe logistical mobility patterns (Binford 1980) are necessary for complexity among hunter-gatherers (Ames 1985; Rowley-Conwy 2001; Fitzhugh and Habu 2002). However, the development of logistical patterns does not trigger the immediate evolution of complexity (Ames 2005a).

Social theorists have long assumed that some variety of egalitarianism is the basic human condition (Hobbes 1651; Rousseau 1782). This assumption derives from notions of progress. Modern scholars similarly expect that when social complexity, including inequality, begins to evolve, social systems will continue to “progress,” become increasingly complex through time. Social complexity is seen as a threshold phenomenon; once it exists, there is no going back to egalitarian systems. It is indeed true that globally, social systems became more complex during the past 10,000 years, particularly in the last 5,000 (Richerson and Boyd 2000). Even at a smaller geographic scale, western North America for example, social systems were more complex in the recent past than 12,000 years ago (Ames 2005a).

However, local sequences can be exceptions to both of these expectations, often displaying shifts from more to less complex (Ames 2005a; Rowley-Conwy 2001). In fact, the assumption that egalitarianism is our default social condition has come to be challenged (Diehl 2000b). Researchers have observed that egalitarianism is hard social work (Erdal and Whiten 1996; Hayden 1995, 1998, 2001; Trigger 2003), involving repression of individual ambitions and long-term, obligatory reciprocal social rewards and sanctions, which carry strong weight in terms of moral worth and prestige. If egalitarianism is our default, why should it require hard work in every known egalitarian society? Some (Arnold 2001; Blake and Clarke 1999; Hayden

1995) attribute this to variations in personality types. Some personalities, termed “aggrandizers,” are more likely to manipulate social and economic systems to their benefit and that of their descendants. To sustain egalitarianism and reciprocity, aggrandizers must be repressed in each new generation, and the work never ends. This of course begs the question of why the aggrandizer personality type exists at all.

More recently scholars (Boehm 1992, 1997, 1999; Henrich and Gil-White 2001) have hypothesized that humans have an innate tendency to form dominance hierarchies. All of our nearest relatives, chimpanzees, bonobos and gorillas, have such hierarchies, which suggests that our common ancestor with these apes, had social dominance hierarchies. If so, how do we explain egalitarianism?

Boehm (1992, 1999) actually argues that egalitarianism never existed. What we label egalitarianism is, in fact, a kind of reverse dominance hierarchy in which factions of subdominant and low-status individuals combine to repress otherwise dominant individuals. This also happens among chimpanzees. Boehm (1999) believes egalitarianism is a learned behavior, and that once it developed it spread rapidly. Hayden (1981, 2001), among many others (Richerson and Boyd 2000), sees egalitarianism as an adaptation to the climatic and environmental extremes of the Pleistocene. Egalitarianism, with its balanced long-term social reciprocity, ensured access to and sharing of food in the Pleistocene’s highly variable, high-risk environments, in which group and individual survival required strong repression of aggrandizers whose activities would undermine the reciprocity essential to human survival. Hayden (2001) postulates that egalitarianism has existed for perhaps the past 2 million years.

Maschner (1992) and others suggest permanent inequality arises from competition among people for prestige, which is ultimately a competition for differential reproductive success. In small societies, individuals who are successful in acquiring more prestige or higher status will have more offspring. The competition may take different forms in different societies, depending on how particular cultures mark high prestige and status. Successful hunters have higher fitness. Hill et al. (1993; Smith 2004) demonstrate that among the Ache, a hunting-gathering group in South America, successful male hunters are the most likely to have sex, and presumably offspring. Maschner is not arguing that inequality is the result of natural selection, but inequality is a consequence of a naturally selected, genetic propensity to compete for mates (the ultimate

cause), which is accomplished through competing for prestige (the proximate cause). For Maschner, warfare is an important avenue for prestige competition.

Finally, Richerson and Boyd (2004) among others (Erdal and Whiten 1996; Henrich and Gil-White 2001) propose that egalitarianism rests on two sets of social instincts that evolved within the last 100,000 years or so: very ancient ones on one hand, and more recent ones, termed “tribal instincts,” on the other, which give rise to our ambivalent tendencies to develop dominance hierarchies and resist authority and power (Richerson and Boyd 2004). Permanent inequality arose through intensified food production and population growth during the more benign environmental conditions of the past 12,000 years and what Richerson and Boyd (2004) term a competitive “ratchet,” which is “intra and inter-society competition.” The roots of modern inequality in this approach rest in the granting of prestige (Henrich and Gil-White 2001; Richerson and Boyd 2004) and the more ancient dominance instincts. In their theory, granting prestige is one of the recent social instincts, evolved because it facilitates the transmission of cultural information.

DISCUSSION

Clearly we are far from an understanding of the ultimate causes of human inequality. Indeed, default egalitarianism suggests there are no ultimate causes, only proximate ones (Blake and Clark 1999; Pauketat 2004, 2005; Sassaman 2004). However, this cannot be so. As Trigger (2003) shows, while human social evolution occurs along many diverse lines, the outcomes are quite limited. In the development of ten ancient “pristine” civilizations (begun without outside influence), Trigger (2003) notes tremendous variation in evolutionary sequences, culture, and organization, and yet profound similarities in their organization, including permanent inequality. Some of these similarities may be functional, with only so many ways to organize human societies, but this does not explain the limited number of outcomes. Inequality has evolved in societies marked by great ranges in population size, economy, and so on. Trigger (2003) concludes that our evolved human nature is part of the explanation.

It seems likely that humans, as part of their ancient anthropoid inheritance, tend to organize themselves into dominance hierarchies. Egalitarianism indicates that dominance hierarchies are not inevitable, but the tendency toward dominance makes it necessary to first explain egalitarianism. Egalitarianism appears to rest on social norms that grant prestige to people

who exemplify egalitarian values. This requires the human capacity to invest relationships with moral values, which is impossible, I believe, without modern cognitive abilities. This carries the further implication that hominid societies were organized around dominance hierarchies for several million years. Such hierarchies may not have been particularly strong. Hominid sexual dimorphism has declined over that period, at least until the appearance of *Homo erectus*, suggesting a decline in the role of dominance and/or of agonistic displays for its enforcement (Klein 1999; McHenry and Coffing 2000). Boehm (1999) argues that tools, particularly weapons, undercut dominance, and in fact overt physical threats may have shifted over time toward the social manipulations and social power discussed above. Unfortunately, such behavior is archaeologically invisible.

This argument contrasts with Hayden’s (2001) suggestion that egalitarian hunting and gathering societies have existed for perhaps 2 million years. He assumes early hominid cognition differed little from that of modern humans. Hayden (2001) argues that egalitarianism is an adaptation to the very high-risk, low-productivity environments of the Pleistocene (Hayden 1981), attributing the scant evidence for some inequality among Neanderthals to the sporadic environmental richness, as opposed any symbolic capacity of Neanderthals (see Gabora, chapter 17). Even if one were to accept that the previous 2 million years (including interglacials) featured no productive environments, Hayden’s assumption that inequality arises with low-risk, productive subsistence systems and/or environments implies we should see evidence of *Homo erectus* aggrandizers, which is unlikely given the lack of evidence of symbolic behavior in Lower Paleolithic record.

I have speculated (Ames 2003) that egalitarianism and its values evolved along with the expanding territorial ranges and higher mobility of the Upper Paleolithic. Mobility is how hunter-gatherers cope with high-risk environments, maintaining durable yet elastic social relationships over sometimes great distances and even time spans. I suspect this combination of mobility and resilient social relationships—egalitarianism—are tied together with modern cognition and language (Richerson and Boyd 2000).

ULTIMATE AND PROXIMATE CAUSES

Any acceptable ultimate explanation of inequality would still need a proximate explanation for the great diversity in human culture and social organization (Trigger 2003). A myriad proximate causes has been

proposed reflecting the theoretical diversity, or fragmentation, of anthropology and archaeology. Many authors have offered classifications and critiques of some or all of them (Chapman 2003b; Flanagan 1989; Fried 1968; Hass 1982; Hayden 1995; McGuire 1992a,b; Paynter 1989; Service 1975; Wason 1994).

Summarized in Box 28.1, these theories have deep roots in Western thought. Most seek to explain the origins and persistence of institutionalized inequality—tactical power—not the origins of inequality per se. They intend to elucidate the shift from Wolf's social power to tactical power, or the development of

a permanent political economy, which Earle (2002:1) defines as “the material flows of goods and labor through a society, channeled to create wealth and to finance institutions of rule.” As Blake and Clark (1999) note, to be permanent, ranking has to last at least two or three generations. That necessitates the evolution of a political economy to, among other things, control the surplus (Hayden 1998, 2001) needed to finance conspicuous consumption (Earle 2000).

Much current theory emphasizes cultural and organizational diversity rather than uniformities. Some of this diversity can be attributed to differences in

Box 28.1. Anthropologists, archaeologists, and others have suggested a great array of final and proximate causes for the origins and development of social inequality and cultural complexity. The box contains summaries of most of the major ones.

High populations. While it is evident that complex societies are almost always larger than simple societies, the causal role of population size has long been the topic of acrimonious debate (Keeley 1988; Hayden 2001). Some scholars have identified population thresholds for different degrees of social complexity (Kosse 1990; Upham 1990; table 28.4). Currently the focus has been on community size (the number of people in regular face-to-face contact) rather than on overall population size or density. Higher population densities lead to a greater need for coordination and centralized decision making. They also produce higher levels of social conflict necessitating methods of dispute resolution (Cohen 1985). The central issue is whether population growth and/or increasing community size drives economic and social change or is a consequence of it. More recently, Boone (2000) suggests status differential is a consequence of selection arising from population collapse (Escoffier and Schneider 1999).

Specialization and regional interaction. Specialization in production has long been associated with social complexity. In one version, society becomes increasingly differentiated through growing specialization, necessitating increased coordination among the parts, and ensuring the flow of raw materials and finished goods from specialists to specialists. Elites arise as a consequence of these needs (Childe 1942; Service 1975). Elites may arise by controlling or manipulating production of key resources or goods (Haas 1982; Arnold 1987; Arnold and Munns 1994). Regional interaction spheres may also provide a field in which competition can occur (Hayden and Schulting 1997). Rank is often measured regionally rather than locally (Renfrew and TK). Some suggest that interaction spheres are a consequence of elite formation (Hayden and Schulting 1997), others that elites can form within the context of regional

interaction (Colten and Stewart 1996; Ames and Maschner 1999).

Feasting. Aggrandizers compete for followers and resources. Feasting is widely seen as a major form of competition (Hayden 1994, 1995, 2001; Spielman 2002).

Productive subsistence bases and surpluses. Surplus production has been widely seen as the ultimate cause of permanent inequality among hunter-gatherers and farmers. In this view, the economic base is productive enough to produce surpluses, which aggrandizers (either as individuals or groups) manipulate to further their own ends (Childe 1942; Hayden 1995). Surplus production may also lead to an easing of the strictures against aggrandizers (Clark and Blake 1994; Blake and Clark 1999; Hayden 1998, 2001). Control of surplus production can be either direct or indirect through control of labor (Arnold 1993, 1996) or through debt (Gosden 1989). Control of surplus production is generally seen as fundamental to a political economy (Muller 1997; Earle 1997, 2002).

Scalar stress. There is a broad, general relationship between the size of a society and its organizational complexity (Johnson 1982). Scalar stress arguments suggest that this relationship may rest ultimately in cognitive limits on human ability to process information or limits on the effective size of decision-making groups, leading to stress caused by organizational size (Ames 1985; Kosse 1990). Leadership emerges as a solution to these problems.

Sedentism. Settled populations have been widely seen as a proximate cause or a necessary precondition to the evolution of social complexity (Wilson 1988; Bar-Yosef 2002), although many aspects of

complexity are visible among pastoralists. Sedentism is associated with population growth, the development of property, scalar stress, and institutions for dispute resolution, territorial defense, and permanent leadership. The most complex hunter-gatherer groups appear to be those that are sedentary, store foods, and defend territories (Rowley-Conwy 2001).

Storage. Stored foods can be a surplus necessary for aggrandizers or that can be used in prestige competitions. It is property. It can lead to and support higher population sizes and densities and to more settled or sedentary populations (Testart 1982; Sofer 1989; Wesson 1999).

Mobility and settlement patterns. Logistical mobility is organizationally more complicated than foraging (Ames 1985; Rowley-Conway 2001; Habu 2002, 2004; Bergsvik 2002). Collectors are also, virtually by definition, at least semisedentary. Also, virtually by definition, collectors depend on food storage. Collectors are thought to evolve (1) in middle latitudes where winter food storage is obligatory for any but the lowest population densities; (2) when available means (boats, pack animals) allow transportation of large volumes of field-processed foods (Ames 2002); (3) under conditions of demographic packing that preclude the high levels of mobility associated with foraging (Binford 1980, 2001).

Patchy heterogeneous environments. There are several versions. In one, variation in patch quality leads to defense of patches with high-quality, predictable patches, and the owners of those patches become "haves" (Matson 1985; Coupland 1985, 1986). Alternatively, local resource fluctuation requires maintaining long-distance social ties to ensure access to distant resources when local ones fail. Permanent leaders emerge as the intermediaries who create and maintain these ties (Kelly 1995). Heterogeneous environments coupled with sedentism have also been thought to produce specialization in produce, leading in turn to the rise of elites to coordinate and redistribute raw materials and finished products to specialists (Service 1972).

Aquatic/maritime economies. Maritime or aquatic hunter-gatherers tend to have larger populations, be more sedentary, and have more complex technolo-

gies and mobility patterns that do terrestrial hunter-gatherers. As a consequence, maritime societies are thought more likely to evolve permanent inequality than are terrestrial groups (Renouf 1991). This is usually attributed to the greater productivity of aquatic environments. It is as likely due to the transportation advantages of boats.

Subsistence intensification. Increased food production is sometimes seen as a trigger for subsequent social changes, including the development of social inequality. It can lead to population growth, scalar stresses, production of surpluses, or to organizational changes leading to inequality (Price and Brown 1985a).

Corporate households. Evidence of households (in the form of houses) can be a precursor to or accompany evidence for social complexity in hunter-gatherer sequences (Hayden and Cannon 1982). Cross-culturally, these households may but do not necessarily have considerable genealogical and temporal depth. There is also no consistency in size. In some instances small corporate households develop; in others, such as the Northwest Coast, large households do. Large, permanent households appear to evolve to accomplish complex sequential tasks (Netting 1982).

Competition and warfare. A number of otherwise very different theories postulate that competition is the ratchet driving social change and the evolution of elites (Maschner 1991, 1992; Maschner and Reedy-Maschner 1998; Hayden 1995, 2001; Richerson and Boyd 2000; Ames 2003). Warfare is an arena for competition as well as a form of regional interaction. It also can be a means by which control is established over crucial resources or surpluses. Simple conquest may also produce stratification (Carniero 1970).

Property. Property has been seen as central to the development of social inequality, at least since Hobbes and Rousseau. Property is variously seen as a source of disputes, social friction, and control over production (Park 1992, discussion and citations in Earle 2000). The importance of property weaves its way through many of the foregoing preconditions and is explicit both in Woodburn's "delayed return" class of hunter-gatherers (Rowley-Conwy 2001).

how political economies can be organized. *Heterarchy* (Crumley 1995; Ehrenreich et al. 1995) refers to the presence of multiple systems of inequality with different sources of power in a same society.

Earle (1997) suggests four potential sources of power in a society, including our familiar social power as well as economic, military, and ideological power.

These are the basis for political economy. Economic power is "being able to buy compliance" through "material rewards and deprivations" (Earle 1997:6). Military power coerces or forces compliance. Ideologies "present the code of social order," and establish "an authority structure and institutionalizes practices of rule" (Earle 1997:8).

Earle (1997:12–13) argues that economic power is the most important route to social complexity and centralized institutions, but both Hayden (1995) and Earle speak of “many routes” to ranking. Blanton et al. (1996), Feinman (1995), and others propose these routes lay along a continuum between what they call term network and corporate strategies (Table 28.3). According to Feinman et al. (2000:453), “The network strategy . . . is associated with heavily personalized or centralized forms of leadership. Wealth is concentrated in the hands of a few, who use their network of personal connections to enhance and expand their individualized power and authority,” and aggrandizers seek to control food and/or wealth through social networks. Corporate strategies are quite different, with more dispersed economic resources, less personal leadership or personal aggrandizement (Feinman et al. 2000). Instead, “communal ritual, public construction, large cooperative labor tasks, shared power, social segments . . . [are] woven together through broad integrative ritual and ideological means, and suppressed economic differentiation are emphasized . . . [with] large architectural spaces” (Feinman et al. 2000:453). These different leadership strategies have different archaeological implications.

While it is often assumed that elite development automatically creates subdominant individuals and groups, *agency theory* (Dornan 2002; see Gardner, chapter 7) argues that elite formation is “a two-way negotiation” (Pauketat 2005:207), and asks how people participated in their own subordination or resisted it (Joyce et al. 2001). Similar questions are addressed in Darwinian theory, as there may be fitness advantages not only to having high status during food shortages, but also to being a dependent or client of high-status individuals (Boone 2000).

A significant gap in our theory building is explaining why the transition to ranking and political economies (tactical power) may *not* occur despite the likely presence of inequality, as discussed below concerning the Japanese Jomon hunter-gatherer tradition. Jomon societies may have hovered at the edge of permanent inequality and political economies—ranking—for several millennia, despite the presence of many of the necessary preconditions and proximate causes for inequality. Explaining why ranking did not evolve under such circumstances, if indeed it did not, is as important as explaining how it did.

METHODS

The rest of this chapter discusses methods and techniques archaeologists use to establish whether an ancient society was marked by inequality, and whether it was ranked or stratified. The key is in the phrase “differential access.” In rank societies, there is differential access to prestige but not to basic resources, while in stratified societies there is differential access to both prestige and basic resources. As we have seen, stratified societies are also marked by elites wielding tactical and organizational power, based on a political economy. Thus the archaeologist’s task is to measure differential access to prestige and resources and to establish the existence or absence minimally of tactical power.

If stratification is strongly developed, we will see it archaeologically. For example, the royal cemetery at Anyang, the last capital of the Shang dynasty of northern China (c. 1300 B.C.), contains thirteen shaft tombs in an enormous pit with a timbered tomb at the bottom (Chang 1986). The largest was 12 meters deep. These tombs are accompanied by some 1,200 other graves, perhaps containing the remains of people sacrificed as part of the mortuary ritual. The shaft graves

Table 28.3. Leadership strategies and their organizational and material correlates

<i>Network</i>	<i>Corporate</i>
Concentrated wealth	More even wealth distribution
Individual power	Shared power arrangements
Ostentatious consumption	More balanced accumulation
Prestige goods	Control of knowledge, cognitive codes
Patron\client factions	Corporate labor systems
Attached specialization	Emphasis on food production
Wealth finance	Stable finance
Princely burials	Monumental ritual spaces
Lineal kinship systems	Segmental organization
Power inherited through personal glorification	Power embedded in group association\affiliation
Ostentatious elite adornment	Symbols of office
Personal glorification	Broad concerns with fertility, rain

Source: Feinman et al 1996.

Note: **Bold** indicates those that may be archaeologically visible.

themselves contain sacrificial victims. Here we have clear evidence of control over labor (construction of the tombs) and over the lives of people (sacrifice at a relatively large scale). We may not always have tombs, but we may have elaborate palaces, other monumental constructions (the Great Wall of China), highly developed craft production, and so on.

In transegalitarian societies, societies in which rank or stratification are not strongly marked, or cases where rank and stratification evolved slowly and gradually, differences in wealth, status, prestige, and/or power may not be highly visible archaeologically, even if important in people's daily lives. On the Northwest Coast of North America, for example, many aspects of the daily lives of chiefs differed little from everyone else's, and consequently rank can be hard to detect archaeologically.

There may have been many experiments at ranking and stratification over the past 10,000 years or more. One might imagine efforts by aggrandizers in the Upper Paleolithic of France around 18,000 years ago to gain power and influence, to even found a chiefdom that ultimately failed. They could have lasted five years, or a century or two. Such short-lived experiments may be archaeologically invisible—we only see those that succeeded, or at least lasted long enough to leave a visible record. If Earle is correct, they succeeded because they had strong economic foundations (and perhaps were just plain lucky). The archaeological record of some areas and periods may be tantalizingly full of ephemeral evidence for ranking or social complexity generally, and it is possible that we could see signs of many experiments that went nowhere, at the threshold of archaeological visibility. It depends on our own vantage point, what David Hurst Thomas calls "monitoring position" (Thomas 1983). For example, in studying the subsistence systems of ancient hunting-and-gathering economies, our monitoring position is often hunting. Animal bones and hunting tools (stone projectile points) will be preserved while plant tissues can rot and disappear. Rank may not be expressed in parts of the material culture that preserve, or at the sites we happen to have found.

Despite these many difficulties, archaeologists have been remarkably successful at investigating and establishing the presence of inequality in ancient societies. While methods vary, at their heart is establishing who had differential access to prestige and basic resources, determining to what degree an elite controlled production, and whether it wielded tactical or strategic power. Archaeologists look for evidence of conspicu-

ous consumption (Veblen 1899), which is "the 'wasteful' expenditure of time and energy beyond what is needed for survival and maintenance in order to gain, increase, or reinforce social position and prestige" (Boone 2000:85).

Hayden (1998) distinguishes between practical and prestige technologies. Practical technologies solve problems of survival and maintenance. Prestige technology is nonutilitarian and beyond basic survival and reproduction, and Hayden (1998) argues it appears as a consequence of stable food surpluses, such that aggrandizers were already present in a culture and driving technological and social changes. The scale and scope of prestige technology (and of inequality) is limited by the "resources that can be extracted with a community's existing technology and labor" (Hayden 1998, 22).

Evolutionary ecologists (Bird and Smith 2005; Boone 2000) and some anthropologists (Henrich and Gil-White 2001; Richerson and Boyd 2004) and archaeologists (Neiman 1997; Kornbacher and Madsen 1999) take a different approach. Their focus is to explain behavior that is costly in energy and resources and consequently reduces evolutionary fitness, with a core hypothesis being the concept of costly signaling (Grafen 1990; Zahavi 1997; Bird and Smith 2005). In the costly signaling model, conspicuous consumption is an advertisement that (for humans) signals social power: the capacity to impose social costs on competitors and "dispense benefits to potential allies, clients, mates, and other conspecifics who may be in a position to assist" (Boone 2000:88). In a sense, this is not at all new. What is new is the notion that costly signaling does not generally lie. An individual can lie verbally, but the sustained capacity to expend energy in costly signaling provides a visible measure of the individual or social group's ability to control resources. An alternative hypothesis is that prestige (*sensu* Henrich and Gil-White 2001) evolved as a mechanism to increase the efficiency of cultural learning (Richerson and Boyd 2004). In any case, conspicuous consumption or costly signaling is central to human systems of prestige and rank. The amount of energy available to invest in such signaling is limited by the society's economy and environment, as Hayden notes.

For example, consider Tikal, the preeminent Classic Maya center, which is located in northern Guatemala and was the dominant Maya city during much, but not all of the Classic period (A.D. 200–900). Haviland and Moholy-Nagy (1992) summarize the evidence for the presence of elites at Tikal (table 28.4), including

housing, burials, individual belongings, and osteology (evidence from human skeletons) contrasting elites and nonelites. Their goal is simply to demonstrate the presence of an elite, rather than grades or ranks. This was supported by Feinman and Neitzel (1984), who demonstrated complicated and variable relationships between inequality, leadership, and political organization among ethnographically documented societies, by accounting for the leaders' tasks, status differentiation, political decisions, settlement patterns, and community size (O'Shea and Barker 1996). In a sample of fifty-one middle-range societies, the two most common status markers (table 28.5a, b) were special houses (including house size, decoration, special construction materials, and techniques) and multiple wives. These were followed by special dress, ornaments, bodily decoration, and burial treatment (Feinman and Neitzel 1984:57). Analysis of burials plays a major role in archaeological methods for establishing ranking; special

burial treatment was found in only 16 percent of their sample, which suggests that while burial evidence for ranking is strong, the absence of such evidence does not preclude the presence of ranking (Ucko 1969).

BURIALS: THE ANALYSIS OF MORTUARY PATTERNS

Archaeologists have long used burials and mortuary practices as evidence for social organization, as well as ethnicity and religious and spiritual practices among others (Binford 1971; Brown 1971; Goldstein 1981; Rothschild 1979; Sax 1970; Tainter 1975, 1982). The idea underlying this approach is that an individual's treatment at death will directly or indirectly reflect his or her status in life or that of the group, and so a burial population should reflect the status organization of the living, ancient society. One key measure of high status was the energy invested in the mortuary ritual (Peebles and Kus 1977; Tainter 1975). There

Table 28.4. Evidence for Stratification at Tikal

<p><i>Housing.</i> Contemporary differences in house size and house construction within a cultural tradition are widely used as a measure of ranking and stratification. Generally, differences in house size within a society reflect either differences in household size (number of people) or differences in status (high status: big houses), or both. Large, stable households have an economic advantage over smaller ones in many nonindustrial economies.</p>	<ul style="list-style-type: none"> • Larger houses in area and/or volume (see Netting 1982), more living space • Quality of construction, finishing (e.g. wattle & daub vs. stone facades) • Greater privacy: internal spaces more difficult to access (doors, hallways, etc) in contrast to one-room houses • Location: At Tikal, palaces concentrated at or near center of city
<p><i>Burials.</i> Mortuary ritual is one of the most important lines of evidence used by archaeologists to establish status differences (see text).</p>	<ul style="list-style-type: none"> • Elite graves in tombs usually in or near temples • Elite graves much larger than needed simply to contain body • Elite graves keep dirt out of face of deceased: "lower class people . . . almost always buried with dirt in their faces" • Elite tombs required planning, time, and labor to build • Elite tombs costly to furnish. Grave furnishings include heirlooms, items requiring high level of skill to make or costly raw materials (exotic) or both
<p><i>Belongings.</i> "Belongings" are artifacts recovered from residential trash and middens. High-status goods are not always or even often thrown away: they do not end up in the trash.</p>	<ul style="list-style-type: none"> • Elite residences have greater diversity of everyday objects (more kinds of artifacts) • Elite residences have more rare objects (one-of-a-kind) objects • Nonelite residences at Tikal appear to have more workshop debris (manufacturing debris): messy, dirty activities happen away from elite • Elite residences at Tikal have more bone objects (labor cost?)
<p><i>Osteology.</i> Studies of skeletons may be able to establish relative health, longevity, diet, life stress, etc., that may point to differential access to resources and to differences in lifestyles reflecting economic and power differences. Osteological studies can also establish levels of warfare (Cybulski 1993).</p>	<ul style="list-style-type: none"> • Elite apparently had better nutrition (tendency to be taller) • Elite may have lived longer (based on skeletal remains and inscriptions) • Differences in skeletal morphology suggesting differences in kinds of activities

Source: Haviland and Moholy-Nagy 1992.

Table 28.5a. Frequency of Markers of High Status in a Sample of Middle-Range Societies

<i>Trait</i>	<i>Frequency</i>	<i>Percentage</i>
Special houses	23	45
Multiple wives	20	39
Special dress	23	45
Special burials	16	31
Obeisance	17	33
Services	14	27
Servants/slaves	7	14
Special food	6	12
Special language	5	10

Source: Feinman and Neitzel 1984.

Table 28.5b. Number of High-Status Markers per Society

<i>Frequency of Traits</i>	<i>Number of Societies</i>	<i>Percentage</i>
One	18	35
Two	15	29
Three	6	12
Four	4	8
Five	3	6
Six	2	4
Seven	2	4
Eight	1	2

Source: Feinman and Neitzel 1984.

have been numerous criticisms of the general and specific approach (Ucko 1969; Cannon 1995, 2002; Hodder 1982; 1986; Lull 2000; McHugh 1990; Pader 1982; Shanks and Tilley 1982; Chapman et al. 1981), but it continues, in one form or another, to be one of the most important techniques archaeologists use to determine ranking (Ames 2005b; Brown 1995; Carr 1995; McGuire 1992a,b; O'Shea 1984; Park 1992; Schulting 1995; Wason 1994; Allard 2002, Beck 1995). Archaeologists need to consider the cultural context of mortuary ritual, since what we regard as high-value status goods may not have played that role.

Archaeologists examine mortuary rituals along many dimensions (Box 28.2), and the degree to which these crosscut age and sex categories. Costly burials associated exclusively with the elderly may reflect high status/prestige based on age or at least the possibility of acquiring wealth. Similarly, expensive burials of just infants or children may tell us about the value of children in the society but not about inequality. Generally, to establish that an elite is present, there must be a small subset of the burial population with costly burials, and that subset must include children as well as adult males and females, indicating that a group of people has regular differential access to special mortuary treatment. The sample must be large enough to support these inferences.

A good example is the archaeology of the Silla kingdom, which unified Korea in A.D. 668. Silla began as part of a confederacy of small kingdoms in the second century and started conquering the other members in the fifth century. Pearson et al. (1989) analyzed a large sample of fourth- to sixth-century burials to establish the "nature of social ranking" (how many ranks there were and how strongly differentiated) in the Silla kingdom before the rules of ranking became highly formalized. Focusing on high-status burials, the investigators were only interested in ranking within the elite, with their evidence being modes of tomb construction and the distribution of grave goods within the single most numerous class of tomb. The key problem is establishing the value of grave goods. High-ranking individuals are expected to have more and/or more expensive grave goods, as well as graves. Ancient value systems can be difficult to penetrate (Ucko 1969). Using ninth- to twelfth-century historical accounts of Silla society and social organization, Pearson et al. (1989) were able to make conservative statements about the relative value of different classes of grave goods (table 28.6), including eleven broad categories (e.g., rings) and 132 specific classes (e.g., gold finger rings). These general categories of Old Silla grave goods include items of high-status regalia (crowns, caps), clothing and adornment (girdles, pendants, bracelets, rings, earrings, necklaces, bells), weapons, and serving vessels. They also contain horse fittings, which often accompany high-status burials in Bronze and Iron Age Eurasia. The raw material was important, with the highest-status goods being made of gold, silver, gilt bronze, and jade. Pearson et al. (1989) then performed a cluster analysis (Shennan 1997) on the presence or absence of these grave goods, which grouped the sixty-two graves into five groups of differing relative proportions of some classes of grave goods (table 28.6). The chronology of the evidence being crucial, Pearson et al. (1989) ensured that the tombs were contemporary before concluding that there were indeed ranks among the Old Silla elite, rather than just social change through time. Finally they examined the distribution of the five groups of tombs in the modern city of Kuongju, where sixty-one of the tombs are located. The highest-ranking cluster, based on grave goods and tomb construction, are found almost exclusively in only one area, while the other four clusters are more dispersed in space.

The Old Silla aristocracy was clearly ranked with one rank, their cluster 5, obviously holding much higher status than others do. Their study, however,

Box 28.2. Analytical Dimensions for Mortuary Programs

1. Preparation and treatment of the body
 - a. Degree of skeletal articulation (i.e., primary vs. secondary burials)
 - b. Disposition of the burial (placed in grave, exposed on a platform, flexed, extended, etc.)
 - c. Number of individuals per burial
 - d. Orientation of long axis of the skeleton(s)
 - e. Postmortem modifications
2. Mortuary facility
 - a. Type of burial (inhumation, cremation, platform, etc.)
 - b. Form of the facility (simple excavated grave, tomb, chamber, tumulus, box, canoe, etc.)
 - c. Shape and dimensions
 - d. Depth
 - e. Construction and raw materials used
 - f. Orientation of the facility and the body within the facility (orientation toward cardinal directions, landscape feature, etc.)
 - g. Location relative to the community (burial within community, burials away from community)
 - h. Location within disposal area itself (is burial part of cemetery, where is it in the cemetery, is it part of a clear subsection of cemetery?)
3. Burial context within grave
 - a. Arrangement of bones within the grave and relation to furniture, and facility (furniture can include grave goods as well as other features of interment, e.g., coffin, ledges, ramps, etc.)
 - b. Form of the grave (what holds the body itself?)
 - c. Quantity and nature of inclusions (can include objects as well as people, animals, vehicles, etc.)
 - i. Type
 - ii. Quantity
 - iii. Source, raw materials used
4. Biological dimensions
 - a. Age
 - b. Sex
 - c. Evidence for disease, pathologies (e.g., dental caries), injuries, stress (patterns of arthritis), and circumstances of death
 - d. Nutritional evidence
 - e. Cultural/behavioral modification of the skeleton
 - f. Genetic relationships

Source: Adapted from Wason 1994; Schulting 1995.

contains a typical ambiguity (as noted by Pearson et al. 1999), in that the distinctions between the middle ranks are not clear-cut. For example, cluster 3, with more frequent gold items, was ranked above cluster 2, but cluster 2 graves have more diversity of grave goods. Without their independent evidence of the relative value of rare metals (gold, silver, etc.), it would have been much more difficult to resolve the relationship among these middle ranks.

There are methods available, include constructing Lorenz curves and Gini indexes, that can measure the degree of inequality present in an ancient society but without the necessity of establishing the presence of actual ranks. These methods may be particularly useful where ranking is emerging or not strongly developed, as is the situation in the next case study.

Schulting (1995) conducted an extensive analysis of mortuary practices on the intermontane plateau of western North America, among over five hundred burials spanning the past 2,000 years. Interested in the emergence of inequality and ranking among hunter-gatherers—whose ranking may not be archaeologically visible—Schulting aimed to determine the degree of inequality, rather than the presence and number of

ranks. Schulting (1995) used several quantitative techniques: grave lot value, Lorenz curves, and Gini indexes, which can provide consistent measures of inequality across a sample, giving the analyst consistent way to measure inequality (Brown 1995). Schulting's study depends primarily on grave goods, but his methods allow him to develop different lines of evidence from them. Following McGuire (1983, 1992a,b), Schulting (1995) assigned numerical values to particular types of artifacts, based again on archaeological, historical, and ethnographic evidence. Turquoise, for example, was assigned a value (or weighting) of 5, a harpoon, 1. These weightings were then used to calculate a grave lot value (one piece of turquoise = 5 harpoons). The grave lot value of a particular grave is the sum of the weighting for all the grave goods present. The relative wealth of graves could then be compared using this value.

A Lorenz curve is essentially a cumulative percentage graph, common in economics. Schulting (1995) based his curves on the taxonomic richness, or number of artifact classes in each of the graves he analyzed (figure 28.1), finding thirteen graves with two or fewer classes of grave goods, and at the other extreme, one

Table 28.6. Distribution of Grave Goods among Old Silla Graves

Grave Goods	Grave good cluster in order of inferred rank (five highest). Figures are percentage of graves with grave type.				
	Five	Three	Two	Four	One
Gold crown	40	10	0	0	0
Gilt bronze crown	60	0	6	0	0
Silver crown ornament	20	0	6	0	0
Gold girdle	50	10	0	0	0
Silver girdle	80	20	50	19	0
Gold bracelet	50	20	0	0	0
Silver bracelet	40	30	17	0	0
Jade bracelet	40	30	11	0	0
Gold finger ring	60	30	6	0	0
Gilt bronze finger ring	30	0	0	0	0
Silver ring	40	20	17	0	0
Gold earrings	100	10	72	12	13
Gilt bronze earrings	0	20	11	31	0
Gold, gilt bronze decorated sword	80	10	11	0	0
Silver decorated sword	40	0	6	0	0
Gilt bronze decorated saddle bow	70	0	10	0	0
Silver decorated saddle bow	30	0	6	0	0
Bronze decorated saddle bow	20	0	0	6	0
Mean	47.2	11.7	12.7	3.8	0.7
<i>Other Measures</i>					
Percentage with coffins	80	80	50	13	37.5
Percentage without coffins	10	20	50	87	62.5
Mean number of grave good types	45.8	8.3	17.1	6.6	8.3
Average mound diameter (meters)	38.6	24	21	21.4	10

Source: Pearson et al. 1989.

grave with twenty-four types of grave goods. The grave-good data are plotted as percentages (figure 28.2), forming a curve that can be compared to the straight equality line that would be produced if grave goods were equally distributed all the graves. Departures from the equality line suggest increased inequality. The graphs can be used to compare the relative degrees of inequality within a sample (figure 28.3). Although the Lorenz curve is based on the number of artifact types while the grave lot value (GLV) is based on summing the weighted values assigned to the types, the two measures closely track each other for this sample (figure 28.3).

The Gini index converts these curves to a single number between 0.0 and 1.0. (Schulting 1995; McGuire 1983), which makes it possible to compare Lorenz curves. The closer the index is to 1.0, the greater the degree of inequality. For comparisons of indexes to be meaningful, the index must be based on the same kinds of data. For example, inequality of income in dollars could not be compared with measures inequality using grave goods. Schulting (1995) used the Gini index to examine whether the degree of inequality (as measured by grave lot values and by grave lot diversity) increased during the past 4,000 or so years on

the plateau (figure 28.4). Although the sample is small (only two Middle Prehistoric sites), there is an interesting contrast between the Late Prehistoric and the Protohistoric. There is greater variation of grave good wealth in the Late Prehistoric. Protohistoric graves are more uniformly wealthy. This may be the result of the influx of trade goods making it easier to acquire wealth (Schulting 1995). Schulting (1995) suggests that while rich graves are found throughout the plateau, poor graves are least common in northeastern Washington State and most common in central Washington, in the area of the confluence of the Snake and Columbia Rivers. The differences are not strong but do suggest further lines of research.

DISCUSSION

The GLV, Lorenz curves, and Gini index measure inequality; they do not tell us whether ranking or stratification are present. To establish ranking with Schulting's data, for example, further analyses such as those used by Pearson et al. (1989) would be necessary. Conversely, it would be possible to convert the Old Silla data to Gini indexes and use them to measure inequality between and within ranks. The index also facilitates comparisons through time and space; how-

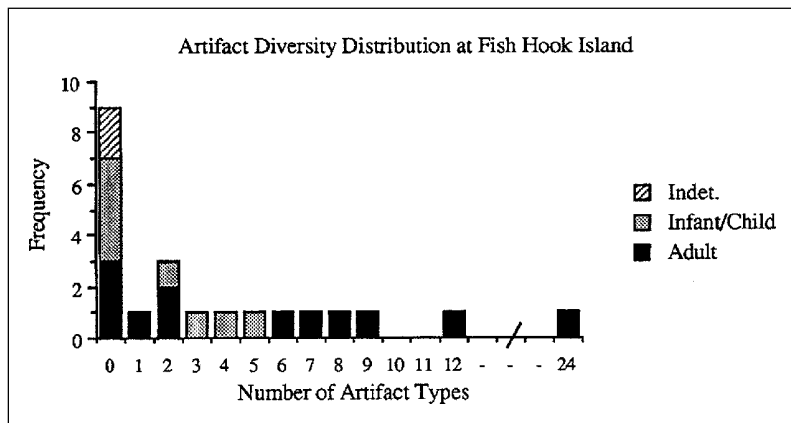


Figure 28.1 Relative frequencies of grave good types (from Schulting 1995).

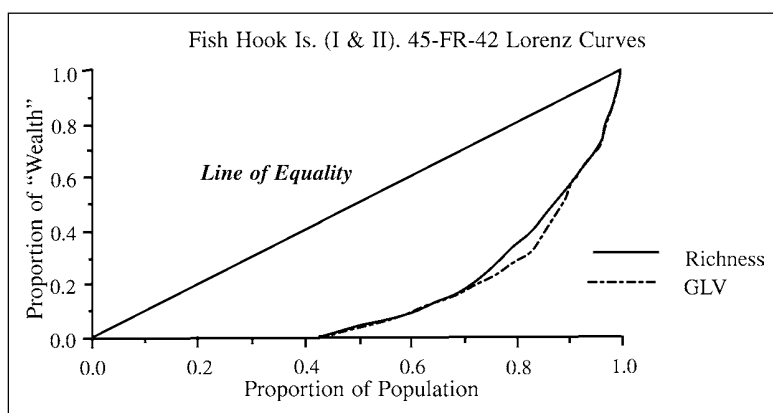


Figure 28.2. Lorenz curves based on frequencies in figure 27.1 (from Schulting 1995).

ever, the analyst must be cautious to ensure that the index is truly comparable.

HOUSES

House Size

Variation in house sizes within a society can reflect differences in household size, wealth, and status (Netting 1982, Feinman and Neitzel 1984; Blanton 1994). Feinman and Neitzel (1984) found that special houses were markers of status in 45 percent of their sample, one of two of the most common markers of high status (the other being special dress; table 28.5). Variation among houses in the Classic Maya site of Copan, where the royal dynasty was founded around A.D. 435 and ended before A.D. 820 (Webster et al. 1999), a survey by Abrams (1994) used a typology of residential sites (table 28.7) and estimated the labor costs for the construction of residential buildings at Copan in person days (table 28.8), which shows clear differences in labor costs among the five types of structures, the most costly being a palace in the

central zone of Copan (10L-22). Using clustering techniques similar to those employed by Pearson et al. (1989), Abrams identified six clusters among forty-five Copan dwellings based on their energy costs. The four lowest ranking clusters accounted for 85 percent of the structures in his sample, a reasonable proportion. Of the remaining 15 percent, 10 percent were lower- to medium-ranking members of the elite, while only 5 percent belonged to the highest ranks, including the king. Abrams's figures are readily converted to Lorenz curves (figure 28.5) and Gini indexes.

Elite residences tended to closely cluster near the center of Copan, most lying within 5 kilometers of the center, and many within 800 meters. Artifacts associated with elite residences were generally the same as those from lower-ranking households, although higher-ranking households usually had more of some classes of tools. Evidence also suggests (interestingly) little difference in foods consumed across the social spectrum at Copan (Webster

et al. 1999), although presumably the king's cornmeal was prepared differently from the peasants'. Abrams's analysis of construction costs at Copan is one of the most explicit attempts to measure the energy costs (and thereby how much energy was controlled by the elite) of elite dwellings. His analysis is supported and fleshed out by the extensive survey and excavation work of others.

House Size in Northwestern North America

Abrams developed his estimates of the labor costs of Maya structures by replicating the construction processes used by the ancient Copaneños. Most archaeologists do not have such data and rely on differences in house size as evidence for social inequality and ranking. Hayden (1997), for example, argues for rather strong degrees of inequality on the Fraser-Thompson plateau of interior British Columbia around A.D. 1200. He relies on Lorenz curves and Gini indexes based on house diameter to support his argument (although in at least one instance his curves conflate two oc-

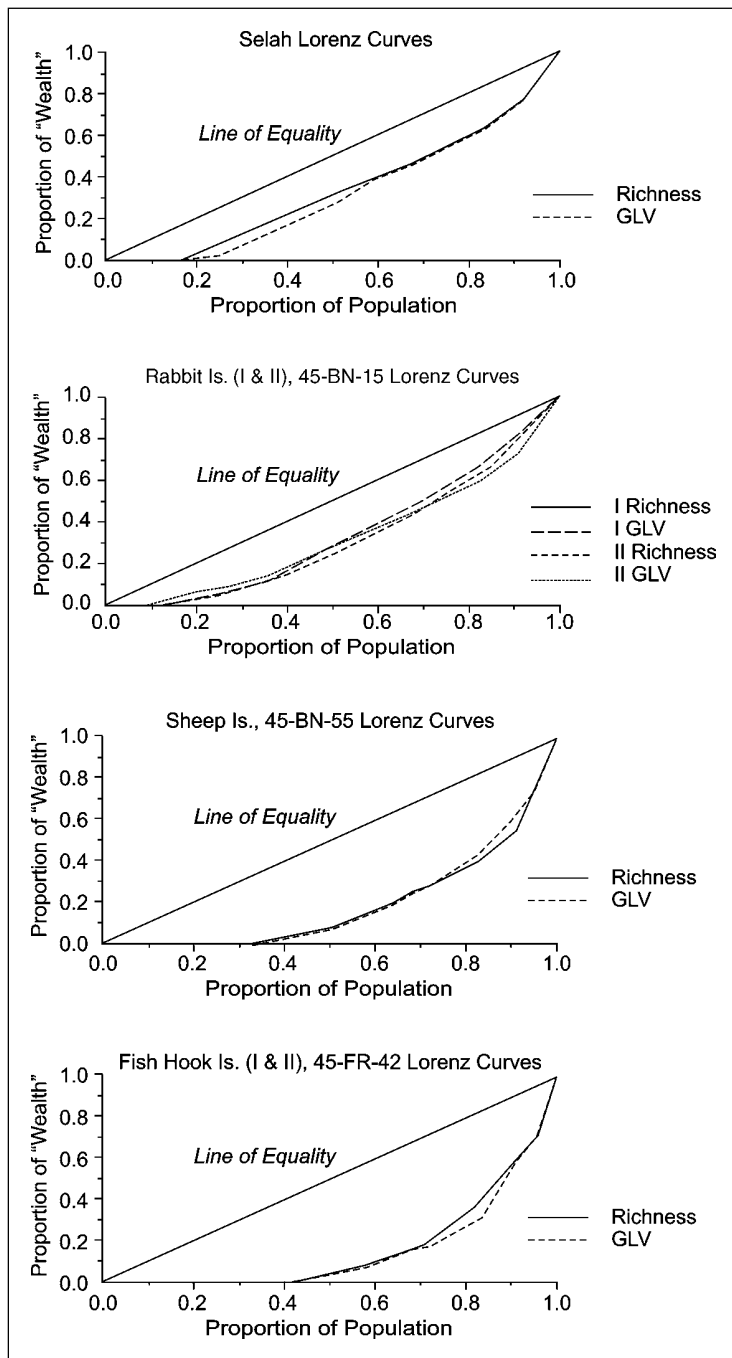


Figure 28.3. Multiple Lorenz curves allowing comparisons among sites.

cupation periods and two distinct house forms). The people of this region were hunter-gatherer-fisher folk, and have long been regarded as examples of egalitarian hunter-gatherers. Hayden uses other kinds of evidence (e.g., the presence of status markers within structures), but his hypothesis is based on house size.

Archaeologists on the Northwest Coast have also used uniformity of house size to argue for the *absence*

of permanent social inequality during certain periods. Gary Coupland (1985), for example, argues for an egalitarian social organization at the Paul Mason site, the earliest excavated village site on the Northwest Coast, because the areas of its ten rectangular houses are statistically identical. Houses with large floor areas appear in northern British Columbia and southeast Alaska after A.D. 500, suggesting to several archaeologists (Acheson 1991; Archer 2001; Coupland 1996a,b; Maschner 1991; Maschner and Bentley 2003) that this marks the development of social ranking in the region. This conclusion is at variance with burial data from northern British Columbia that indicates the developing of permanent inequality and ranking of individuals and households at least 1,000 years earlier (Ames 2001, 2005b).

This discordance between two major lines of evidence (mortuary practices and house size) suggests that the evolution of inequality on the northern Northwest Coast was not a straightforward, linear development (Ames 2001, 2005a), and highlights the importance of multiple lines of evidence. Absence of evidence of ranking is not necessarily evidence for the absence of ranking. Of the eighteen societies in Feinman and Neitzel's (1984) study with one status marker for leaders (table 28.5b), six (33 percent) had markers that were archaeologically invisible. Of those with two markers, 27 percent (4) had two visible markers and 33 percent (5) had one visible marker. The rest (6) had invisible markers. As the number of markers increases beyond two, the likelihood of having one or more with archaeological visibility increases. Of course, of the nine markers they list, only three are likely to be visible archaeologically (table 28.5).

House Contents

In addition to house size and construction costs, archaeologists have compared the contents of houses in the same way they compare grave goods among burials, with two basic measures: taxonomic richness of household contents (the number of artifact classes) and the presence (or absence) of recognized

status markers. Hayden and Cannon (1984) found that while upper-status houses might have status markers, the houses did not all have the same marker (variation from house to house), and the markers were usually not numerous in any one house. In other words, there was a great deal of interhouse variation in what status markers were present, and they seldom had any in great numbers. A relatively large sample of houses was required to confidently identify elite households. This assumes that one can determine which items are status markers. Grier (2001), in his analysis of a very large house dating to about A.D. 500 at the Dionisio Point site in southern British Columbia, concluded that the central portion of the structure was occupied by elite individuals because that area of the dwelling contained most of the high-status items recovered in the excavations. High-status items were identified as such based on the regional archaeology and ethnography.

Other lines of evidence may also indicate relatively high status. At the Ozette site in northwestern Washington, high- and low-status houses appear to be distinguished by the floors of the higher status house having been more regularly swept and thoroughly cleaned of large debris, while the lower-status house has more faunal remains incorporated into the floor middens (Samuels 2001). Samuels (2001) was able to determine this because he had other measures of status (house size, presence/absence of high-status markers of known value). Other markers of high status may include occupational specialization by elites. Some high-status individuals at Ozette may also have been specialists in certain activities, particularly as whale

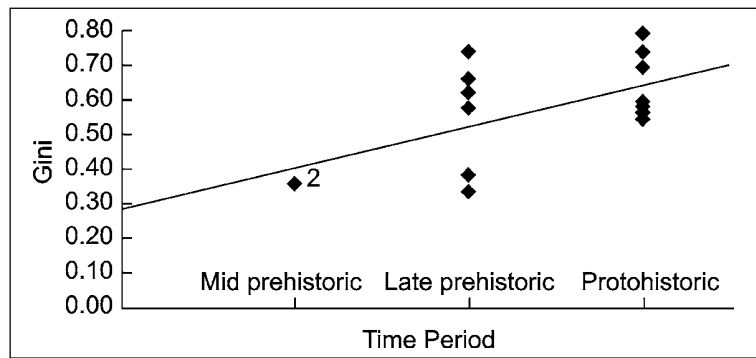


Figure 28.4. Changes in Gini indices through time on the Intermontane Plateau (from Schulting 1995).

harpooners (Huelsbeck 1989). At Dionisio Point, Grier (2001) found evidence suggesting that ground stone tool production was associated with high status. These particulars cannot be applied to other cultures, but they do suggest the kinds of contextual data that can be developed.

THE TRULY MUNDANE

Status differentials can permeate all aspects of life. For example, Sapolsky (2004) demonstrates a complex relationship between status and health among a range of social animals including humans, with stress among low-status individuals being a key factor. In modern societies, stress seems to be induced by the perception of being low status as much as its material consequences. Human skeletal remains can reveal status-related differences in health and nutrition, which is clearest in state societies, whereas lack of differential access is clear in small, egalitarian societies but often ambiguous in midlevel societies (Danforth 1999). In general status and diet are related, with high-status individuals and households likely having access to better quality, more varied, and more prestigious foods (Emery 2003). Turkon (2004) found some Mesoamerican households were more heavily involved than others in food preparation, and she hypothesized that high-status households would be less involved in food preparation and more involved in food presentation through feasting. High-status households did have more diverse diets than did lower-status households. In general, she found that “food related behavior varies more predictably in the highest status households and is less distinguishable in lower and intermediate

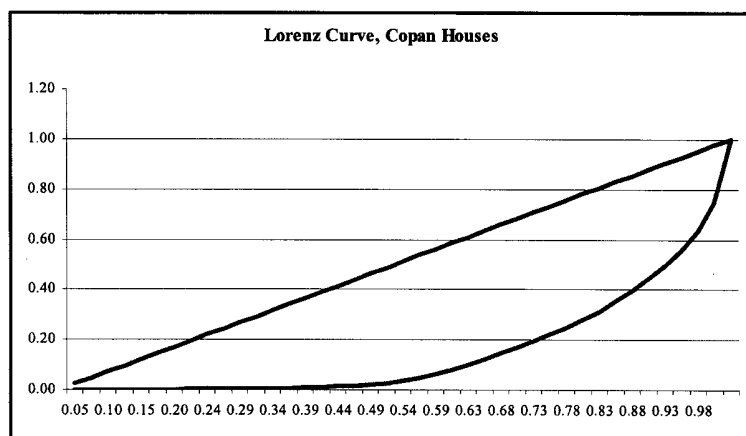


Figure 28.5. Lorenz curve based on Abrams house data for Copan

Table 28.7. Copan Site Classification

<i>Type 5</i>	Main group complex (central urban architectural complex).
<i>Type 4 sites</i>	8–100 mounds, with multiple courtyards, some mounds more than 5 m. high. Construction includes heavy use of high-quality dressed stone and vaulted ceilings. Sculpture is associated with some structures.
<i>Type 3 sites</i>	6–10 mounds, with 1–3 courtyards, mounds less than 5 m. high. Dressed stone is abundantly used for construction. Some vaulted structures.
<i>Type 2 sites</i>	6–8 mounds with 1–2 courtyards, mounds less than 3 m. high. Usually built of rubble and undressed stone blocks. There may be some cut stone used.
<i>Type 1 sites</i>	3–5 mounds with 1 structure less than 1 meter high. Buildings on surface may appear as low mounds no more than 1.25 m. high, constructed of earthen fill and rough stone retaining walls. Dressed stone does appear.
<i>Aggregate mound</i>	2–3 mounds with no formal courtyard. Structures less than 1 m. in height, earth or cobble construction.
<i>Single mound</i>	Isolated mound.
<i>Nonmound sites</i>	Scatters of artifacts with no evidence of structures.

Source: Abrams 1994; Webster et al. 1999:31, 68–69.

status households” (Turkon 2004:244). This result is reminiscent of Pearson et al. (1989) in their middle-level ranks. Lepofsky et al. (1996) found a higher diversity and density of food remains in the larger house pits at Keatley Creek, suggesting larger houses were occupied by higher-status households (although the increased diversity could have resulted from longer accumulate times). They viewed other lines of evidence, including the structured use of space for animal butchery, as supporting the house-size hypothesis.

SPATIAL PATTERNS

Inequality and ranking can be indicated by the control, use, and display of space at a number of scales. Houses set on extensive, well-groomed lawns (costly signaling) are but one example. Other examples include visible and sharp distinctions between public and private space, with access to the latter controlled and guided through gates, wall ways, multiple doors, inner courtyards, special gardens, vast and imposing rooms, and so on. At the level of communities and regions, settlement hierarchies may indicate the degree of ranking and form of power.

The existence of settlement hierarchies has long been used as an indicator of chiefdoms and states; to distinguish between the two, chiefdoms have at least two tiers and states three. These hierarchies are administrative hierarchies, indicating the number of political levels in the society, not necessarily the number of social ranks or strata. Settlement hierarchies can be constructed using evidence from cemeteries and burials, labor costs of construction, presence/absence or degree of elaboration of elite or public architecture, or some appropriate combination of evidence. However, most such analyses begin with the size of the settlement (area) or community (number of people).

Marcus and Flannery’s (1996) analysis of the evolution of political power in the Valley of Oaxaca, Mexico, is an epitome of this approach. The state, which existed in the valley by 100 B.C., was centered on the massive site of Monte Alban, strategically placed on a high ridge overlooking the center of the Y-shaped valley. In this case, the presence of a well-developed settlement hierarchy is best evidenced by a hierarchy of site size, of four tiers. Tier 1 includes only Monte Alban, the architectural center, which had an estimated population of 14,500. Tier 2 includes six sites within a day’s trip of Monte Alban of an estimated 970 to 1950 people. Tier 3 includes thirty smaller sites of about 200 to 700 people, and tier 4 consists of small villages of fewer than 200 people. Marcus and Flannery (1996) infer that the cellular structure of the regional hierarchy—tier 2 sites at the center of local site hierarchies (cells) of tier 3 and tier 4 sites—reflects regional integration centered on Monte Alban. This does not inform us about the number of social ranks or strata in the valley, but it does provide one line of evidence about political and administrative organization.

THE ROOTS OF INEQUALITY:

THE INEVITABLE AMBIGUOUS CASES

In certain cases, particularly regarding complex hunter-gatherers (King 1974; Ames 1981; Price 1981), the markers of dominance and prestige are not archaeologically visible (Table 28.7). As originally defined (Price 1981; Hayden 1995; Kelly 1995; Koyama and Thomas 1981; Price and Brown 1985), hunter-gatherer complexity was thought to include high (for hunter-gatherers) population densities, food storage, intensive food production, logistical mobility, some degree of sedentism, elaborate technology that might include art, and permanent inequality. As we have

seen, permanent inequality has been decoupled from these other traits, which are now seen as its proximate causes or necessary preconditions (Arnold 1996).

Natufian

As the culture that initiated the processes of plant domestication in southwestern Asia, the Natufian culture of the Levant, around 12,500 B.C. to 9500 B.C. (Bar-Yosef 2001, 2002), was markedly different from the preceding Late Pleistocene (40,000 to 10,000 B.P.) hunter-gatherer cultures of the region, which were mobile foragers with low population densities (Belfer-Cohen 1991; Bar-Yosef and Valla 1991; Fellner 1995; Gilead 1995; Goring-Morris 1995). Late Pleistocene sites are very small; structures and burials rare (Fellner 1995). In contrast, the Early Natufian (12,500 B.C. to 11,000 B.C.) appears to represent a significant increase in population, some level of sedentism, food storage, an intensive subsistence economy, elaboration of material culture, trade, decorated objects—all the hallmarks of complex hunter-gatherers (Bar-Yosef 1998, 2001, 2002; cf. Valla 1995). These traits developed swiftly, by archaeological standards. Late Natufian society seems less complex than Early Natufian. For example, there is no visible conspicuous consumption (Kuijt and Goring-Morris 2002). Increasing mobility and marked social changes appear to be a response to the cold and dry Younger Dryas climatic episode—an abrupt return to Pleistocene conditions (Bar-Yosef 2002).

It is controversial whether Natufian societies had permanent inequality. Burials before the Natufian are rare and occur singly (Fellner 1995; Gilead 1995), whereas Natufian cemeteries are common and large. Early Natufian practices often involved group burials in or associated with residential sites, usually interpreted as representing kin groups (Byrd and Monahan 1995), whereas Late Natufian burials are generally of single individuals and are often secondary burials (i.e., the corpse relocated, usually after being defleshed and/or disarticulated), and lacking grave goods (Byrd and Monahan 1995; Kuijt and Goring-Morris 2002). A debate was sparked by Wright's (1978) argument that ranking was present among a sample of forty-eight burials from a major Early Natufian cemetery (El Wad), which Henry (1989) invoked as support for the Natufian being an incipient chiefdom. Subsequent studies (Belfer-Cohen 1995; Byrd and Monahan 1995; cf. Valla 1995) concluded that the variability of Natufian burials, while important, did not hold evidence for permanent inequality. Byrd and Monahan (1995) rig-

orously analyzed a larger sample of burials (186) from three sites, including Wright's sample, employing four dimensions: interment type (single or group); grave construction (e.g., simple pit), body orientation, and grave goods. Byrd and Monahan (1995) found that the estimated labor (energy) costs of grave construction were not associated with that of grave goods. Grave goods were associated with 11 percent of the individuals, including children, youths, and young adults but not older individuals, even in the same group burial. Sometimes only one individual in a group burial had grave goods. The most common of the grave goods were beads of dentalium (horn from the Mediterranean coast), ranging from 1 to 368 per burial, with other grave goods including bone pendants, singly and in multiples, and bone and tooth beads.

Despite the thoroughness of this study, Bar-Yosef (2001, 2002) argues that some form of inequality existed in the Early Natufian since there was some differential access to wealth or prestige markers, such as the shell beads, the size and overall richness of Natufian sites, and their geographic distribution (Bar-Yosef 2002:113). However, multiple lines of evidence are necessary to firmly demonstrate the presence or absence of ranking. At present, these have not been explored. For example, there is variation among Early Natufian houses in construction material, size, and internal arrangements (Fellner 1995; Valla 1995; Bar-Yosef 2002). At least some Natufian houses required planning and effort (Valla 1995). A consistent pattern of differences in house size or construction cost might point to some degree of inequality. Trash and midden debris appear to be directly associated with Natufian houses (Hardy-Smith and Edwards 2004). Differences in the taxonomic diversity of domestic artifacts and dietary debris could also be such evidence, as could evidence for serving special foods, as in the foods themselves (Emery 2003; Turkon 2004).

Jomon

The Jomon tradition of the Japanese archipelago, dating from 16,500 B.P. to 2300 B.P. (Habu 2004), associated with an enormous body of data and famous for the oldest pottery in the world, is another complex hunter-gather society of interest (Price 1981; Aikens and Dumond 1986). Concerning the origins and persistence of permanent inequality, Jomon is not only complex but also complicated. The Japanese archipelago spans about the same latitudes as the East Coast of the United States, stretching from nearly tropical to northern temperate zone climates but is perhaps

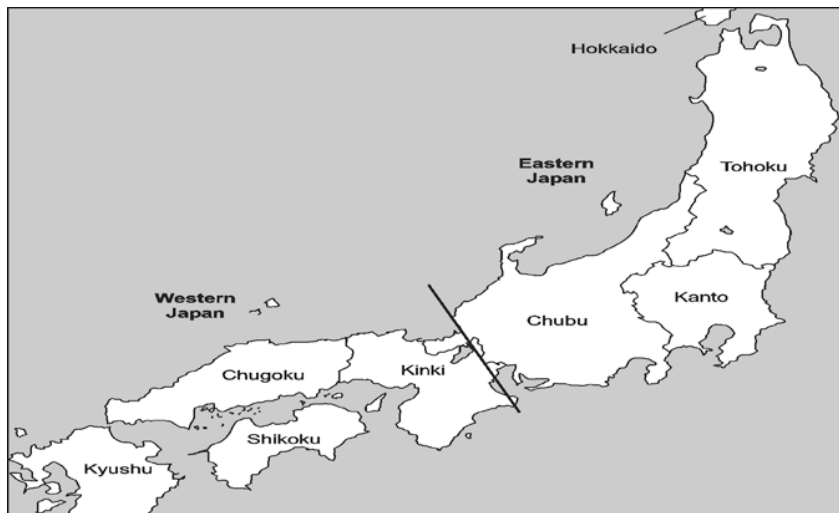


Figure 28.6. Map of Japan with regions discussed in the text.

environmentally more diverse. Jomon cultures and economies reflected this diversity both geographically and temporally at several spatial and temporal scales (Habu 2004). It is reminiscent of the variability seen in Natufian mortuary practices as well as other aspects of Natufian life but at larger scales. For the purposes of this discussion, geographic variability is discussed at two scales: eastern and western Japan (figure 28.6) and, at a slightly finer scale, the Kanto-Chubu (KC) region and Tohoku region. These are the regions where inequality most likely evolved.

Jomon populations were always larger in eastern than western Japan; they grew slowly and peaked during the Middle Jomon, especially in the KC region but in the Tohoku as well (Habu 2004; Imamura 1996; Koyama 1978). Peak population densities, particularly in the KC region, were quite high, relative to earlier and later populations. The patterns of growth and decline vary by region (figure 28.7); populations continue to grow slowly in western Japan. The decline in Tohoku was much smaller. The regional and temporal differences in population trends are typical of Jomon more generally.

Subsistence appears to intensify at least during through the Early Jomon, and storage facilities, present from the Early Jomon (Habu 2004), were sometimes remarkable for their number and size in subsequent periods. Subsistence was geared to local habitats (Akazawa 1986). The differences in population history reflect broad differences in subsistence and underlying environmental productivity (Aikens and Higuchi 1982).

The basic Jomon dwelling was a small, semisubterranean pit house. Long ovoid or rectangular structures are present in the Tohoku through the Middle Jomon

and then disappear (Imamura 1996; Habu 2004). These are usually interpreted as communal structures. Settlement sizes increase in time through the Middle Jomon, when some very large settlements are present in eastern Japan. Settlement sizes generally remain small in western Japan. These large settlements sometimes contain several score to hundreds of houses. Habu (2002) argues that logistical residential patterns evolved by the Middle Jomon, when they were at their

most complex, and simplified in the Late Jomon in eastern Japan with the decline in population.

Jomon is famous for its material culture, including pottery, but also clay figurines, ground stone, woodcarving, lacquer ware, and personal adornment. Possible prestige goods, ritual and other kinds of nonutilitarian objects become increasingly elaborate and diverse through time, particularly in the Middle Jomon and especially in the Late Jomon in Tohoku. There is evidence for specialized production in the Early Jomon in lacquer ware and other forms, but evidence for specialized production is strongest in the Late Jomon (Habu 2004). A range of raw materials and perhaps products were exchanged, including obsidian, jade, asphalt, and salt (Habu 2004). Pottery may also have circulated between several pottery style zones, and as these crosscut environments and subsistence zones, raw or processed foods may have been exchanged as well.

Jomon mortuary practices diversified through time (Habu 2004). If this diversity even indirectly reflects social differentiation of Jomon society, then it reached maximum differentiation in the Late Jomon in the Tohoku. Similarly the strongest evidence for permanent inequality appears in Late and Final Jomon burials in the Tohoku region. A minority of graves, including those of children and adults of both sexes, contain diverse arrays of grave goods.

Many of the proposed preconditions of permanent inequality are present during the Early Jomon, including collector mobility, a productive subsistence base, storage, exploitation of a diverse range of habitats, regional exchange, and even some degree of specialized production of prestige goods. Populations were growing relatively rapidly in the KC region and somewhat more slowly in the Tohoku. Early Jomon societies, at

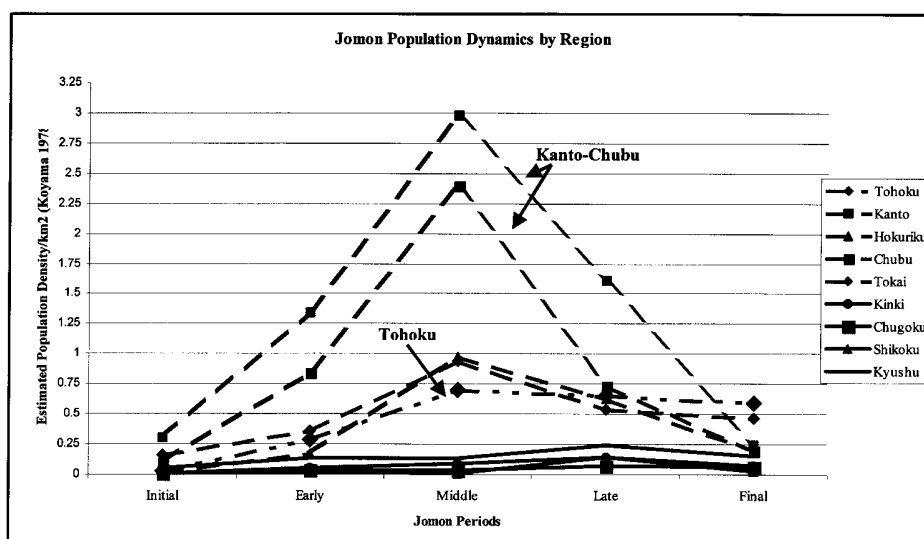


Figure 28.7. Population trends during the Jomon. Dashed lines represent eastern Japan, solid lines western Japan.

least in eastern Japan, were clearly transegalitarian in the broadest sense of the term. The presence of both small and large houses in eastern Japan might be evidence for inequality, but the latter are universally interpreted as communal structures. Population size and the complexity of Jomon residential patterns appear to peak in the KC region during the Middle Jomon (Habu 2004) with conditions conducive for inequality to evolve: high populations and large communities (population stress, scalar stress); productive resource base and storage (the activities of aggrandizers fueled by surpluses) and elaborating material culture, specialists, and regional exchange (elites coordinating redistribution, controlling the flow of prestige goods); collector strategies; and some degree of sedentism. Permanent inequality does not appear to have evolved in the period, however, but it does seem to have evolved in northern Japan by the same conditions which led to a decline in population (Habu 2004). This fits with ideas about elites as managers as well as elites evolving in response to stress. However, inequality develops in the region with the smallest population decline, not the largest. This, in conjunction with the Natufian case, suggests that the stress cannot be too severe (e.g., the Younger Dryas) or too mild (there were surely many stresses during the long Jomon).

There is never any definitive evidence during the Jomon for strong degrees of inequality or for political hierarchies (e.g., settlement hierarchies). The evidence remains tantalizing (Kobayashi 1992). Jomon cultures were transegalitarian for almost 5,000 years. In contrast, wet rice agriculture spread to the main island of Honshu by 300 B.C. or so. It seems likely that

chiefdoms developed rapidly within two hundred to three hundred years and a state within seven hundred years. While the speed of political change in Japan after 300 B.C. reflects many things, it does show the difference between the resources available from hunting and gathering and from rice farming to sustain social and political complexity. However, the productivity of hunter-gatherer economies alone does not explain why permanent inequality took so long to develop in Jomon Japan and developed so weakly. The Middle Jomon economy was probably robust enough to support an elite and maybe even small chiefdoms.

Comments on Natufian and Jomon

Demonstrating inequality can be difficult, especially in investigations of its fundamental causes, but at the same time the failure to demonstrate ranking with only one line of evidence does not demonstrate egalitarianism. Many scholars of the Natufian have concluded that because the burial analyses do not indicate inequality, Natufian societies were egalitarian (Byrd and Monahan 1995). Archaeologically, egalitarianism is generally demonstrated by negative evidence (i.e., no evidence of rank), rather than positive evidence for egalitarianism, because of the deep assumption of default egalitarianism. This is particularly problematic as we learn that the variety and diversity of ancient human cultures exceeds the known ethnographic sample.

CONCLUSION

Studies of permanent inequality, ranking, stratification, and vertical differentiation illustrate several elements I think are critical to any such analysis:

- The use of multiple lines of evidence, as independent as possible of each other, is always essential. House size, grave contents, tomb sizes, and differences in diet, for example, are all independent lines of evidence. The number of lines of independent evidence that can be developed is probably a measure of how pervasive and well developed ranking and stratification were in a particular society. This can be difficult when inequality or rank are either not well developed or archaeologically invisible, but careful use of lines of evidence that are not completely independent, as in Schulting's use of mortuary evidence (e.g., grave lot value and Gini index), can make a strong case for ranking. It is nonetheless plausible to consistently underestimate how pervasive inequality and ranking were in the past, as the absence of any evidence does not necessarily mean the absence of ranking or inequality.
 - Relative cost is a powerful proxy measure for economic control and power. Measures of cost can be based on how much labor, planning, and time were required to acquire, make, or build something. A large stone house or a large tomb took more resources, time, labor, and planning to build than a small wattle and daub house or simple grave in a house floor. Estimates of relative costs must control for time invested, which has profound implications concerning the ability of an elite to field and control labor.
 - Mortuary ritual, including both burial practices and the burials themselves, remains the principal broad category of evidence available to archaeologists on inequality and status. While there is rarely a one-to-one correlation between mortuary practice and social organization, burials can provide significant evidence about the status of individuals and groups, as well as the degree of inequality or differentiation.
 - Human osteology (the skeletons recovered from burials) can provide evidence of diet, longevity, differential stresses, and overall health and body mechanics, which are useful indirect indicators for differential control of basic resources.
 - Relevant evidence from domestic architecture includes house size, details of construction, and materials used. As with burials, temporal control is essential.
 - Relative wealth and economic control can be measured by the diversity of artifact assemblages and the presence of raw or unique items, even among very utilitarian artifacts. Elite residences may differ little from nonelites in the sorts of artifacts present: they may have more artifacts or a greater diversity of mundane ones. Where rank or inequality is not strongly developed, it may be difficult to document rank or inequality using artifact assemblages from a small sample of houses (Hayden and Cannon 1984). Evidence for food preparation and diet can be important (Turkon 2004).
 - Control of space, both public and private, can indicate high status (Samson 1990), including difficulty of access (privacy). High-status people get more space, but what constitutes a lot of space varies from culture to culture.
 - Control of space can be measured at a larger scale than house or community layout. High-status residences at Tikal and Copan tended to be concentrated near the center of the urban area. Settlement hierarchies can be evidence of administrative hierarchies.
 - Quantitative analyses are essential, such as those that measure inequality as a continuous variable (Gini index, Lorenz curves) and those that create groups in order to discover social ranks (cluster analysis).
 - While it may be relatively easy to demonstrate the presence of an elite and a nonelite, distinguishing middle ranks may be more difficult because of ambiguities inherent in the evidence for the middle position.
- Explaining the origins and evolution of permanent social inequality remains a great challenge to archaeologists. Only archaeologists can accomplish this, although we must draw on theory and evidence from a variety of places, including sister disciplines such as sociocultural anthropology. Demonstrating the presence or absence of inequality and ranking can be an even greater challenge, especially in ancient societies with evolving inequality and ranking. Pearson et al. (1989) knew that Old Silla society was ranked, perhaps even stratified, and they were fortunate to have a rich mortuary record. In many instances such as the Natufian and Jomon the issue facing the archaeologist is whether permanent inequality and incipient ranking existed at all. Multiple lines of evidence are likely to yield contradictory evidence, and different analytical techniques applied to the same data can even yield different results.
- Finally, the absence of data for ranking is not evidence for the absence of ranking. The problem becomes one of demonstrating positively that the society

in question was egalitarian. In short, archaeologists should be working not only with multiple lines of evidence, but with multiple working hypotheses as well. Conversely, some evidence for wealth or inequality is not, by itself, evidence for permanent inequality or ranking.

It is essential that we begin to understand both the modes of social evolution that produce permanent inequality, ranking, and stratification and the tempo with which these evolve or change (Ames 2005b). If we eliminate ambiguous cases, we are likely to be eliminating the most informative examples. On the other hand, if we see inequality and ranking everywhere in the archaeological record, we fall into the error of crying wolf too often.

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