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# Why California?

## The Relevance of California Archaeology and Ethnography to Eastern Woodlands Prehistory

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*Temperate latitude hunter-gatherer populations became extinct or were replaced by agriculturalists throughout much of the world prior to the development of anthropology. In California these populations survived into the nineteenth century, where they became the subject of memory or salvage ethnography by early American anthropologists, including A.L. Kroeber and his students and colleagues. As a result, an extensive ethnographic literature exists describing these groups, complementing an equally impressive ethnohistoric record from first Spanish and later Anglo sources. These records contain insights of great value to archaeologists working with temperate latitude hunter-gatherers around the world. Archaeological work on California sites, ongoing for a century, offers a third important source of information about these peoples. Archaic period hunter-gatherers in eastern North America exhibit many apparent similarities with California groups. Archaeologists studying hunter-gatherer societies worldwide, and in Eastern North America in particular, can learn a great deal from the California ethnographic and archaeological literature.*

Archaeologists exploring eastern North American prehistory need to develop an appreciation for the voluminous ethnographic, ethnohistoric, and archaeological information that exists about the native inhabitants of California. Researchers in these two areas have much to offer each other, and archaeological fieldwork and analysis in each region could benefit by a greater awareness of ongoing work in the other area. A survey of recent syntheses of prehistory and ethnography from California and eastern North America, however, indicates that information flow between these areas is fairly minimal (cf., Arnold et al. 2004; Chartkoff and Chartkoff 1984; Fagan 2003; Heizer and Whipple 1971; Heizer 1978; Moratto 1984; with Anderson and Sassaman 1996; Hudson 1976; Fogelson 2004; Milner 2004; Sassaman and Anderson 1996; Stoltman 1978; Smith 1986). The reasons for this are undoubtedly related to





the geographic separation of the two areas, and the natural tendency of researchers to focus on matters close at hand. An awareness of developments in other geographic areas, however, has the potential to greatly augment research productivity within specific regions.[1]

With the exception of limited areas in the southern part of the state inhabited by agricultural groups such as the Mohave (Kroeber 1925:725, 815), most of the native inhabitants of California were hunter-gatherers.[2] Although sporadically visited in the sixteenth and seventeenth centuries, California remained uncolonized until 1769, when Spanish settlement and missionization began, primarily in the lower part of the state (Castillo 1978:99-107; Moratto 1984:118). While Spanish and later Mexican rule disrupted some groups, widespread destruction of native populations and lifeways throughout the region did not occur until the mid- to late nineteenth century, after American occupation (Castillo 1978:108; Rawls 1984). It was during this time that the field of anthropology emerged in the United States, with its emphasis on the salvage ethnography of the then-vanishing native cultures. As a result, a considerable body of ethnographic data documenting these groups was collected (e.g., Heizer and Whipple 1971; Kroeber 1925; Heizer 1978; Powers 1877), virtually the only such record for temperate latitude hunter-gatherers. In recent years ethnohistoric research has focused increasingly on the period prior to the rise of modern anthropology, supplementing the ethnographic record (e.g., Allen 1998; Johnson 1988, 2000; Laylander 2000).

It is thus to the California record that researchers working in other temperate settings must turn if they wish to better appreciate and understand the potential variability in material culture, lifeways, and sociopolitical complexity that can occur in such regions. This is particularly critical when one considers the amount of archaeological ethnographic and ethnoarchaeological research on hunter-gatherers in nontemperate settings and its impact on archaeological thought (e.g., Binford 1978; Bartram et al. 1991; Gargett and Hayden 1991; Kelly 1995; O'Connell 1987; Yellen 1977). Much of this research has occurred in tropical or desert areas, or in high latitudes, among groups like the !Kung, Inuit, or Australian peoples, who for a variety of reasons may not be the most appropriate exemplars of temperate latitude hunter-gatherers (cf., Lee and Devore 1966; Leacock and Lee 1982).

In the Eastern Woodlands of North America, where in many areas horticulture appears to have assumed a fairly prominent role in subsistence by approximately 3000 B.P. (Asch 1985:202; Cowan 1985:241), hunting and gathering societies comparable to those in contact-era California in subsistence emphasis, social and technological organization, and population density occur much earlier in time, in the Archaic period, about 10,000 to 3000 B.P. (Baumhoff 1963:229-30; Marquardt 1985; Sassaman 1993:135-36, 180-85, 2005; Willey and Phillips 1958:134). Exploring California ethnography, ethnohistory, and archaeology, it is argued, can lead to a better understanding of the Eastern Woodlands Archaic, and to prehistoric temperate latitude hunter-gatherers worldwide (see Arnold et al. 2004:1-9 and Sassaman 2004:238-49 for superb discussions of this general argument).

### Subsistence

Principal subsistence staples for contact-era California groups included acorns, fish, and large mammals (Baumhoff 1978:16). Appreciable population densities were achieved in many

areas of the state (e.g., Cook 1976; Kroeber 1925:886), primarily through the development of highly effective food procurement and storage technologies (Baumhoff 1963:161; Chartkoff and Chartkoff 1984:228-31). The relationship between human population levels and the occurrence and availability of wild plant and animal food resources has been the focus of extensive examination in California, providing a wealth of material that can be instructive in interpreting the Eastern Archaic archaeological record. Population density in many areas of California, for example, appears closely linked to specific aspects of the environment, such as the extent of mast-producing forest cover, or of stream beds suitable for spawning fish (Baumhoff 1963). In some areas, such as in the lower Klamath culture province, fish resources appear to have limited population size, while in other locales (e.g. the San Joaquin area) various combinations of game, nut, or fish resources had this effect (Baumhoff 1963:185, 218). The procedures employed in California may be useful in estimating potential population densities in similar environmental settings in the Eastern Woodlands.

Detailed descriptions of large-scale nut and fish procurement and storage exist from many California groups, and can be used to develop possible archaeological correlates of these activities. The use of fish weirs, acorn leaching pits, milling stones, acorn granaries, fish drying/smoking racks, and other such devices are well documented in California (e.g., Kroeber 1925), and it is widely assumed that comparable technologies were used by Eastern Archaic populations. The development of effective storage technology, permitting overwintering with relatively minimal subsistence stress, is hypothesized to have been a critical factor behind major population increases in California in the later prehistoric era (Chartkoff and Chartkoff 1984:228). Similar population trends observed in the Eastern Woodlands, notably a dramatic increase in the numbers of sites and presumed settlements in the Late Archaic period (e.g., Anderson 1996; Sassaman and Ledbetter 1996), may be due in part to similar innovations. The storage of nuts and dried fish in deep pits, where they may keep for a year or more, is well documented in California (Fagan 2000:234). Large pit features, decidedly uncommon in the earlier Archaic period Eastern Woodlands, become increasingly common on Late Archaic and Woodland sites, where they are inferred to have been used for storage. At Stallings Island and other Shell Mound Archaic sites pit features can be quite large, capable of holding up to 750 liters of material, indicating the importance attached to effective food storage (Sassaman 1999; Sassaman et al. 2005).

Marine resource exploitation strategies by coastal California groups such as the Miwok, Costanoan (Ohlone), and Chumash are well documented both ethnographically and archaeologically, including details on the diversity of species exploited, and how they were collected, processed, stored, and distributed (e.g., Chartkoff and Chartkoff 1984; Grant 1978:517; Gamble 1983; Heizer and Whipple 1971; Hudson and Blackburn 1983; Kroeber 1925; Moratto 1974a, 1974b, 1984). These descriptions are invaluable for interpreting preagricultural coastal adaptations in the East, for which there are no living analogs, save the contact-era Calusa of south Florida, who are more properly considered to occupy a subtropical setting (Marquardt 1988; Widmer 1988). The California record also provides descriptions about relations between coastal and interior populations, and the extent to which resources in each zone were exploited and exchanged (e.g., Beeler and Klar 1977; Glassow 1979). Year-round occupation on or near the coast appears to have been common in California (summarized in Heizer 1978; Heizer and Elsasser 1980; Kroeber 1925). In the East, in contrast, while year-round occupation of the coast is sometimes considered (e.g., Russo 1991, 1996a; Trinkley 1980), models of seasonal transhumance between the coast and the interior are more typical and have been advanced for all periods from the Late Archaic through the Mississippian, encompassing both nonagricultural and agricultural populations (e.g., Brooks and Canouts 1984; Crook 1986; Larson 1980; Milanich 1973; Stoltman 1972).[3]



The California record can also be instructive in examining and interpreting coastal archaeological sites, in the Eastern Woodlands and beyond. Ethnohistorical, ethnographic, and archaeological accounts clearly indicate that some coastal California groups lived in large communities with well-built structures located both near and well away from food refuse dumps or middens (e.g., Arnold et al. 2004; Kroeber 1925; Gamble 1983; Moratto 1984). Until recently, coastal excavations of Archaic sites in many parts of the East, in contrast, have all too often been little more than test pitting/stratigraphic operations directed to the areas of densest shell deposits. Since excellent preservation typically occurs in these areas, such excavations are valuable for reconstructing native subsistence practices, and for sampling related items of material culture. This excavation strategy is, however, of limited utility in delimiting household or community size, structure, and organization. The few complete structures that have been found to date in coastal Late Archaic and Woodland period sites on the South Atlantic coast, parenthetically, have typically come from locations removed from dense shell deposits (e.g., Mathis 1993; Trinkley 1984, 1986:145-47). Where structures have been found associated with shell middens, both on the coast and in the interior of the East, large excavations have typically been required to delimit them effectively (see Sassaman and Ledbetter 1996). We simply do not know, on the basis of existing archaeological evidence, whether multistructure communities were present in coastal settings during the Late Archaic in the Southeast, although the existence of such communities is widely inferred, most often from the distribution of shell deposits (Russo 2004). The California literature indicates such communities were almost certainly present in coastal settings in the East (something also clearly indicated by the ethnohistoric literature from the region), and that we should be excavating much larger areas, both in and away from shell middens.

## Perishable Materials

The ethnographic record from California details the existence and use of whole classes of artifacts that were important in everyday life yet leave little direct evidence in the archaeological record, save where unusual preservation occurs. Woven containers and other textile products, for example, were widespread, and Kroeber (1925:819) noted that "basketry is unquestionably the most developed art in California." Extensive written records and ethnographic collections document this technology and its uses (summarized in Elsasser 1978). Basketry and textiles were used for winnowing and leaching acorns, in fish and bird traps, in cooking (e.g., for hot rock or stone boiling) and serving containers, for storage containers for a wide range of substances (including water), and for clothing (Ebeling 1982:173; Elsasser 1978). The diverse uses of basketry clearly indicate that an absence of archaeologically visible remains of this nature, a pattern typical of many Eastern Archaic

sites, need not imply a cloth- or container-impoverished material culture. Instead, the presence of such items should be considered probable in the Archaic cultures of the East, and efforts redoubled to find evidence for their manufacture and use. Indeed, the quantities of such materials found in dry caves and rockshelters in the East (e.g., Scholtz 1975), or waterlogged settings like Windover (Andrews et al. 2002), indicate such technologies were likely common during the Archaic.

Other perishable material culture documented from California include such items as watercraft (D. Hudson 1976, 1981; Arnold and Bernard 2005), musical instruments (Wallace 1978), clothes, and hunting and fishing implements. Of particular value for analyses of archaeological settlement data, an extensive literature exists describing the layout and construction of domestic houses, sweat houses, granaries, and communal and other special purpose buildings (Chartkoff and Chartkoff 1988:328; Kroeber 1925:804-19). As such, the California literature provides a valuable source of information archaeologists can use to examine how similar artifacts and facilities may have been manufactured and used by Eastern Woodlands groups.

## Ceramics

In much of California, fired clay pottery was either not present or was comparatively unimportant even though the technology had a long history in nearby regions like the Southwest and during the interval when the Fremont culture was present in the Great Basin. The use of soapstone slabs and vessels for containers and in hot rock cooking, in contrast, was fairly widespread over California (e.g., Gayton 1948; Kroeber 1925:822-23; O'Neale 1932; Williams and Rosenthal 1993), with evidence for extensive quarrying dating back 1,000 or more years at sources like those on Santa Catalina Island (Howard 2000). Comparison of the use (or lack thereof) of pottery and soapstone with developments in the Archaic period in the Eastern Woodlands are striking and informative. Pottery technology arose toward the end of this period in the lower Southeast, some 1,500 years before the technology was adopted widely across the region at approximately 3000 B.P., an occurrence used to mark the beginning of the Woodland period in many areas (Anderson and Mainfort 2002; Sassaman 1993). Early southeastern ceramics include the Stallings fiber-tempered and Thom's Creek sand-tempered series of Georgia and South Carolina, the Orange fiber-tempered series in Florida, and the Wheeler fiber-tempered series in the lower Midsouth (Bullen and Stoltman 1972; Sassaman 1993). In some areas of the East during this same era, soapstone slabs and vessels were present (the latter becoming widespread only after ca. 3800 rcbp), and are thought to have served as substitutes for pottery or basketry in hot rock cooking and storage (Sassaman 1993, n.d.; Truncer 2004, 2005). The Eastern Woodlands is thus a region where hunting-gathering peoples, like those in California, existed for thousands of years without pottery, and who also used soapstone and alternative container technologies, notably basketry and presumably carved wooden bowls and other containers.

In both California and the Eastern Woodlands, it remains a major mystery and research challenge as to why pottery wasn't widely adopted soon after its appearance locally or in nearby areas. Sassaman (1993:217-28) has argued that Eastern Archaic individuals who



maintained exchange networks in soapstone and other commodities believed to have appreciable prestige value suppressed or discouraged technological innovations like ceramics. The adoption of pottery, in this view, could have reduced the demand for soapstone, and undercut exchange networks. These networks were traditional sources of social power, used to develop and maintain alliances, individual status, and group identities (Sassaman 1993, n.d.). The regionwide decline in long-distance exchange that occurred in the Early Woodland period in the East, concurrent with the widespread adoption of ceramics, are thus viewed as interrelated. In California, however, while soapstone was also widely exchanged, there is no evidence to suggest that this exchange was coupled with or linked to the suppression of ceramic technology. Instead, people seem to have resisted ceramics, since soapstone had a lengthy tradition of serving local populations well, both functionally and as an integral part of exchange and social networks maintaining contacts and alliances between peoples.

Likewise, some (but admittedly not all) localities in the East with appreciable Late Archaic soapstone use also tend to be areas where early pottery use is most prevalent, such as in portions of the South Appalachian area and Florida. The spread of ceramic technology, in fact, is thought by some researchers to have followed major Late Archaic exchange networks (cf., Jenkins et al. 1986 and Walthall 1980 with Sassaman 1993:222-25). Some encouragement or tolerance of ceramic technology, rather than active suppression, appears indicated. People in the Eastern Woodlands during the Late Archaic were thus aware that ceramic technology was an option, but for well over a millennium most chose not to use it. At the Late Archaic Poverty Point site, where baked clay objects presumably used in earth ovens are ubiquitous (indicating people certainly knew how to fire clay), ceramic vessels are exceedingly rare, far less common than soapstone (Gibson 2000:116-25; Gibson notes that there are ten times as many soapstone as ceramic vessel sherds in the Poverty Point collections).

Why was pottery never adopted over much of California, and only slowly in the East? Perhaps in part because existing technologies were able to both meet the needs these people faced and accommodate existing traditions of exchange and interaction. Container technology based on basketry and gourds, and perhaps hot rock cooking/stone boiling in hide-lined pits, was apparently sufficient in both regions for a time (e.g., Hudson and Blackburn 1983:35, 207-9; Sassaman 1993:135-38). With the advent of the Woodland period, however, groups in the East become differentiated from those in California by the widespread use of pottery, by the adoption of agriculture in some areas and, apparently, by the widespread adoption of stew/broth cooking involving the simmering of foods in ceramic vessels directly over or in fires, factors that may well be interrelated (Braun 1983; Goodyear 1988). Pottery may have thus been adopted widely in the East because it enabled people to prepare traditional as well as new domesticated foods in a way that was appreciated (i.e., culturally perceived as desirable, for reasons of taste, convenience, ease of preparation, or other factors), and that perhaps also allowed them to maximize the food value of what they were cooking, by leaving it in the stew pot instead of vulnerable to partial loss over open flames. Where agricultural domesticates were present, the new cooking technology may have also required less labor, freeing up time for other pursuits that were becoming important, such as agriculture or public ceremony. Traditional cooking technology was maintained in each area until new demands were placed on society as a whole.

As an aside, some scholars have argued that the adoption of pottery in the East was an adaptive response directly linked to population pressure, a need to develop new cooking technologies to maximize caloric return (e.g., Braun 1983; Goodyear 1988). In this view, a variation of Binford's (1968) "population disequilibrium" hypothesis for the origins and spread of agriculture, population pressure forced the adoption of new resources and technologies, quite literally to ensure people got enough to eat. These technological innovations are thought to have first occurred in circumscribed settings, such as in the coastal areas of the Eastern Woodlands (i.e., Stallings, Orange, Thom's Creek ceramics), or in the densely packed social settings of the Midsouth (i.e., Wheeler ceramics). Implicit in the argument is the assumption that ceramic technology spread throughout the region as a response to population pressure, a strategy to facilitate subsistence maximization.

Evidence for population pressure in the Eastern Woodlands is equivocal during the Archaic, however, and areas where such evidence is greatest are not often or invariably associated with early pottery. In the Midsouth, for example, an area with appreciable evidence for warfare during the later Archaic (Milner 1999; Smith 1996)—something that may be due in part to subsistence stress (although prestige-based competition may have also fostered this conflict)—Wheeler series fiber-tempered pottery was adopted late, at the very end of the Archaic period. These facts, and the high population densities known or inferred for many California groups who never adopted the technology, argue against both population pressure and neocvolutionary arguments conferring utility or selective advantage to ceramics.

So why was pottery adopted in the East but not in California? In the East pottery may have facilitated the adoption of new subsistence strategies (agriculture) and collective ceremony (manifest in the widespread occurrence of earthworks and mounds). In California, where neither appear to have occurred,[4] the utility of the existing archaeologically perishable basketry technology, as well as its elaboration (as noted by Kroeber), which further implies an enormous social investment in its production and use, seems to have retarded or obviated the need for a ceramic-based container technology (Hudson and Blackburn 1983:35, 207-9; Sassaman 1993). Control over soapstone exchange, the California literature suggests, appears to have been unrelated to whether other container technologies were adopted. Instead, cultural preferences in cooking procedures (i.e., simmering vs. roasting or open flame cooking), the kinds of foods being processed (domesticates vs. wild plants), the amount of social investment in existing technologies (i.e., basketry, soapstone) tied to the maintenance of tradition, and the adoption of new forms of subsistence and ceremony with their concomitant labor and scheduling requirements appear to have shaped events.

## Social Organization

While documenting discrete categories of material culture is important to archaeological interpretation, the extensive ethnographic and ethnohistorical records documenting the social organization and intra- and intergroup relations of California native societies is arguably of greater significance. Detailed ethnographic documentation of mid-latitude temperate hunting-gathering groups, particularly those exhibiting the population densities and organizational complexity seen in California, simply does not exist anywhere on the planet apart from this



region and the adjacent Northwest coast (Murdock 1967). While several thousand years ago temperate latitude hunter-gatherers were widespread around the world (Lee and DeVore 1966; Price and Brown 1985), ethnographic examples are so rare that California groups are sometimes viewed as atypical, when they are considered at all, by ethnographers or archaeologists whose views on foraging societies are perhaps conditioned more by the !Kung or the Arunta than the Chumash, Miwok, or Pomo. California received only brief mention in the original "Man the Hunter" symposium, although the editors of the conference volume did note that a problem ethnographers faced when working with hunter-gatherers in areas like California was that, since the cultures were extinct, there was "no means of testing and rechecking hypotheses" (Lee and Devore 1966:15).

Considerable variation in social organization occurred in native California. Systems characterized by fairly rigid, unilineal corporate groups, headed by hereditary leaders or "chiefs," occurred widely in the central and southern parts of the state; in the north, loosely organized, highly fluid corporate groups lacking formal ranking and instead headed at most by wealthy individuals ("big men") were more prevalent (Bean 1978:674-75; Kroeber 1925). Social differentiation or ranking varied appreciably; in some groups leaders were clearly set apart by dress and household accoutrements, while in other groups leaders are harder to recognize. Larger settlements in some groups exhibit a "neighborhood" structure, and are composites of smaller organizational units (Chartkoff and Chartkoff 1984:149, 227, 327). Sequential ("consensus-based" or horizontal), as well as simultaneous ("stratified" or vertical) hierarchies (sensu Johnson 1982:405-9), thus appear to characterize the sociopolitical organization of some California groups.

Trade, ritual, and alliance systems served to integrate local California populations, and structured relations between groups (Bean 1978:675). These topics are well documented ethnographically, facilitating analyses of territoriality and boundary maintenance, and relationships between wealth, control of resources, and social ranking. Resource management was a principal activity of leaders in many California societies, to ensure the efficient production, storage, and exchange of subsistence and other resources (Bean 1978). Ritual "specialists," for example, directed anadromous (salmonid) fishing operations:

> [T]he anadromous fish resource in native California . . . required intelligent and competent organization and control of fishing practices to ensure efficient harvest. . . . [R]itual specialists directed and controlled fishing and dam building activities, regulated the opening of the salmon fishing season, and managed the use of the spawning runs, in many ways increasing the potential effectiveness with which native populations utilized the salmon resource. Anadromous fish were perhaps the most intensely managed and ecologically manipulated food resource utilized among these societies. [Swezey and Heizer 1977:24-25]

Other aspects of food production appear to have been highly structured by California societies, something that is not surprising given the high population densities in the region. Controlled burning, for example, was widely used to increase both plant and animal yields (Levy 1978:491; Lewis 1973; Timbrook et al. 1982). While food resources were plentiful and fairly stable, fluctuations did occur, caused in part by short- and long-term changes in climate (Baumhoff 1963; Johnson 2000; Jones et al. 1999). Trade and alliance networks were commonplace throughout California and are assumed to have existed, in part, to

overcome these perturbations (Bean 1978:675; Chartkoff and Chartkoff 1974:231-34). A not incidental benefit for participants would be the use of exchanged items to develop and maintain individual prestige and social position; alliance-based status maximization/risk minimization strategies embedded in prestige goods exchange are widely inferred to have existed in tribal and chiefdom societies worldwide, including in the Eastern Archaic (Bender 1985; Braun and Plog 1982; Halstead and O'Shea 1989).

Although ranking or social classes were not well developed, in most California groups the population was divided into three or four broad status categories: elites, commoners, poor, and (sometimes) slaves (Bean 1978:678). These were not closed classes, however, for upward and downward mobility was possible. While wealth and leadership positions tended to stay within specific families or lineages, the maintenance of power depended upon community support or consensus. This was usually manifest by the overt or tacit acceptance and approval of the leader's activities by local councils, secret-society officials, shamans, or other wealthy individuals (e.g., Bean 1978:678; Kroeber 1925:832-34). The functions of the chiefly leader were varied, but included economic administration "to control the collection, distribution, and exchange of food stores, money, and valuables for the benefit of the group" (Bean 1978:678). Through intermarriage, ritual alliances, gift exchange, and control over trade, leaders sometimes amassed considerable wealth, part of which was used to maintain the extralocal social networks essential to status enhancement.

The Chumash offer an example of a complex hunter-gatherer California society whose leaders were comparable, in some respects, to elites in early historic Eastern Woodland chiefdoms, and who may illustrate possible conditions well back in time in the East, perhaps back into the Archaic period (cf., Hudson 1976; Johnson 1988, n.d.). Chumash chiefs were patrilocal, while the rest of Chumash society was matrilocal (Johnson 1988, n.d.). This postmarital residence pattern promoted solidarity among elites, who were thus able to form fraternal interest groups to protect their interests; the matrilocal residence pattern, in contrast, would tend to dampen intragroup conflict and competition with established leadership groups, and facilitate external warfare (Johnson n.d., citing Ember 1975). The Chumash postmarital residence pattern favored elite polygyny, another means to develop and maintain alliances. Chumash leaders are also described receiving tribute, and similar organizational structures and levels of tribute mobilization could have occurred in Archaic societies in the East (Crespi 1769, cited in Johnson n.d).

A considerable ethnographic and ethnohistoric literature thus documents the nature of status differentiation and particularly elite activities in California. These data may be valuable in examining Eastern Woodlands Archaic groups which in some areas, notably the rivers of the midcontinent, are characterized archaeologically by evidence for considerable achieved status differences, prestige goods-based exchange and competition, and widespread intergroup interaction, reflected not only in goods exchange but also in evidence for warfare (e.g., Brown 1985; Phillips and Brown 1983; Smith 1996; Stoltman 1978; Winters 1968). Interestingly, mortuary evidence for ranking/hereditary inequality is absent in the Archaic of the Eastern Woodlands (Sassaman 2005), nor is there much evidence for it in most of California (Arnold and Green 2002; Arnold et al. 2004:30, 38; Lambert 1994, 1997; Moratto 1984). In the Chumash area, where simple chiefdoms are assumed to have been present in the late prehistoric era, status differences have been seen in mortuary assemblages (e.g., Gamble et al. 2001), although the interpretations are controversial (cf., Arnold and Green 2002; Gamble et al. 2002). More unambiguous (or at least less controversial) mortuary evidence for status differences have been observed in northern coastal areas, where societies resembling those on the Northwest Coast are found (Hildebrandt and Levulett 2002).



Symbolic dimensions of life are also well documented in California, where an extensive literature documents ritual and ceremonial behavior. The region has been described as having "some of the densest concentrations of rock art in the world and many of the most elaborate polychrome panels in the Americas" (Arnold et al. 2004:21-22). The interpretations that have been advanced, that the art functioned in both sacred and secular arenas (Hyder 1989; Lee and Hyder 1991), are likely to be of interest and utility to Eastern archaeologists, given the discovery in recent years that Archaic through Mississippian peoples produced appreciable rock art, particularly in caves and rock shelters (e.g., Crothers et al. 2002; Diaz-Granados and Duncan 2005; Faulkner 1986).

## Intergroup Exchange

Both local (intragroup) and long distance (intergroup) trade was widespread in California, and an extensive body of ethnographic, ethnohistoric, and archaeological literature exists documenting this activity (e.g., Chartkoff and Chartkoff 1984:231ff; Davis 1974; Heizer 1978; Kroeber 1925). Control over trade was closely linked to political power, and a number of detailed analyses of this relationship have been conducted, employing both ethnographic and archaeological materials (e.g., Basgall 1978; Heizer 1978; Hughes 1978). Trade typically occurred between small groups or trading parties in a one-on-one arrangement and for small quantities of material. Simultaneous large-scale exchange between several groups or numerous individuals occurred less frequently, at trade fairs usually held in conjunction with major ritual events, such as mourning/funeral ceremonies, or at festivities to celebrate alliances (Bean 1978:675; Heizer 1978:690). Intergroup exchange appears to have typically been across rather than within major environmental zones, and focused on the movement of resources into areas where they did not occur naturally (Davis 1974:10). Trade also sometimes occurred in neutral areas, at group boundaries, and regional trails themselves tended to run between rather than within group territories (Chartkoff and Chartkoff 1984:214; Davis 1974:6).

Salt, hides, and food, all archaeologically more or less invisible goods, were among the most commonly exchanged materials (Davis 1974:11). Researchers in the Eastern Woodlands, where copper and marine shell tend to dominate discussions of Archaic exchange, would do well to remember this fact. Marine shell beads are the most common trade item likely to be archaeologically visible and documented ethnographically in California (Heizer 1978:681). Shell beads served as tokens of wealth, acting somewhat akin to what we think of as money, and were used as items of adornment, possibly as personal markers. As such, shell served both as prestige items and as currency, used in "banking" or social storage strategies to guard against resource shortfalls or to promote the creation of allies when needed (Chartkoff and Chartkoff 1984:233; Davis 1974:8; O'Shea 1981). Both luxury goods and necessities were exchanged between groups, and a conscious effort was made to maintain exchange rela-

tions, even if local substitutes were available for some items (Heizer 1978:691). As noted, exchange was part of a conscious risk-management strategy of maintaining contacts to call upon in case of need, to reduce conflict and, where this failed, to maintain allies. As noted below, however, when this function was most needed, during the extreme environmental stresses associated with the Medieval Climatic Anomaly, long distance exchange routes appear to have been disrupted (Jones et al. 1999) rather than providing the risk buffering theorized by archaeologists.

Analyses of Eastern Woodlands Archaic period trade could thus undoubtedly benefit from a careful consideration of California exchange networks. Archaeological evidence for trade over wide areas is well documented in the East from the Middle Archaic period onwards by the occurrence of extralocal materials such as shell, copper, or lithic materials on archaeological sites (Jefferies 1995, 1996). The occurrence of these so-called "exotic" goods at considerable distances from their sources is usually interpreted in terms of direct or indirect exchange, prestige reinforcement, and alliance formation and maintenance (e.g., Bender 1985; Stoltman 1978; Struever and Houart 1973:77), although their possible role in risk minimization networks has also been considered (Braun and Plog 1982; Brose 1979). Columella shell beads and copper artifacts, for example, may have been the Eastern Archaic equivalent of "money" (e.g., Winters 1968), used in much the same way as shell in California. Most exchange in each region was likely in commodities leaving few archaeological traces. If food was actually exchanged between groups in the Eastern Woodlands during the Archaic period, how was it prepared, stored, and transported? In California, ethnographic accounts detail not only the movement of food and other perishable resources, but also the organizational frameworks within which these exchanges took place.

## Warfare

Descriptions of warfare between California groups provide possible parallels for the conflicts indicated by weapons trauma observed in Eastern Woodland burials dating well back into the Archaic period (Johnson n.d.; Lambert 1994, 1997; McCorkle 1978; Milner 1999; Smith 1996). As sociopolitical complexity and group size increased from north to south in California, apparently so did the intensity of warfare (Johnson n.d.; McCorkle 1978). Warfare came about because of

> disputes over critical resources areas; failure to accept or give hospitality; revenge for perceived instances of witchcraft; retaliation for violent acts on one's kin or community; and fights over women or girls who were abducted (Driver 1961:365; Laylander 2000:173-177). [Johnson n.d.:3]

Economic motives are thus not the only cause of warfare, since revenge and witchcraft accusations could also trigger hostilities (Johnson n.d.:34).

Conflicts between groups situated appreciable distances from one another and areally extensive defensive and offensive alliance networks are reported in the historical accounts from California, suggesting the scale of conflict in the Archaic East could have also been over vast areas and involving many different peoples (Johnson n.d.; White 1974). For the most part conflict took the form of small-scale skirmishing, ambushing, and raiding, behavior like



that assumed to have been present across much of the East from the Middle Archaic onward; larger conflicts involving appreciable numbers of people could also occur, although usually without extensive casualties inflicted at any one time (Johnson n.d.). Also occurring were "arranged battles and individualized contests in front of the assembled warriors" (Johnson n.d.:29). In some complex California societies like the Chumash, much of the conflict was apparently internal, between communities (McCorkle 1978, cited in Johnson n.d.). Body part trophy taking and scalping is fairly commonly reported in the historic accounts from California, another parallel with the Eastern Woodlands (Rivera [1775]1967:135, cited in Johnson n.d.; see also Blackburn 1975; Lambert 1994, 1997, n.d.). Interestingly, archaeological evidence for this is comparatively uncommon (Lambert 1994, n.d.). This may suggest that even higher levels of warfare were likely occurring in portions of the Eastern Woodlands during the later Archaic period, where weapons trauma is common.

Causes of warfare exist in the California accounts. Johnson (n.d.) has argued that resource unpredictability led to conflict over access to critical resource areas, such as "seed-gathering grounds" (Longinos [1792]1961:58). Acorns are often mentioned explicitly as a critical resource whose control could spark conflict (Johnson 2000:305-6, n.d.). Demographic consequences of possible warfare are also available from California, notably the presence of more females than males in early mission records (Walker and Johnson 2003). How alliance networks were created and maintained are also indicated: communities with high rates of intermarriage tended to fight each other less than communities where intermarriage was less prevalent (Johnson n.d.).

## Climate Change/Environmental Impacts

The impact that changes in climate, such as extended droughts or periods of above or below average rainfall, can have on temperate latitude hunter-gatherers has been examined in great detail in recent years in California (Arnold 1992, 2001; Boxt et al. 1999; Jones et al. 1999; Kennett and Kennett 2001; Raab and Larson 1997; Roberts 2000). During the Medieval Climatic Anomaly from approximately A.D. 900-1300, for example, evidence for protracted droughts and other severe weather conditions had a dramatic impact on coastal California hunting-gatherer populations, including

> patterns of site abandonment, increased rates of disease, malnutrition, and interpersonal violence . . . settlement pattern hiatuses, shifting dietary regimes, sharply increased rates of violence, disruption of regional trade networks . . . [that were caused by] competition among prehistoric peoples for the resources which were severely diminished by the climate changes discerned. [Boxt et al. 1999:33]

The California record convincingly documents that hunter-gatherer populations are every bit as vulnerable to climatic fluctuations as agriculturalists, and raises some questions about the "risk-minimization" value of exchange networks, at least as far as buffering the impacts of subsistence shortfalls are concerned. When climatic impacts are long-term and widespread, they typically affect large areas, overwhelming the ability to find relief from neighbors, even at great distances.

The California studies offer parallels by which the effects of Eastern Woodlands climate change can be examined (e.g., Anderson 2001; Fiedel 2001). In California, for example, the Mid-Holocene drying trends are thought to have caused interior populations to move to the coast (Fagan 217, 235-36; Hillebrandt and Jones 1992). Similar trends are observed in the Eastern Woodlands, when a retrenchment into river valleys of the Midsouth is thought to have occurred (Dye 1996; Smith 1986). The Medieval Climatic Anomaly in Eastern North America, unlike the situation in California, appears to have been a period highly favorable to local populations. This is the period of the emergence and greatest expansion of the Mississippian culture; only in the subsequent Little Ice Age do populations in the East appear to undergo severe stress over large areas, something reflected by increased evidence for warfare (Anderson 2001; Milner 1999).

## Conclusions

Because it was one of the last temperate regions in the New World occupied by European-derived agricultural populations, an extensive historic and ethnographic record survives detailing the lives of the original inhabitants of California. In part because of the natural productivity of the region, agriculture never caught on, although highly sophisticated manipulation of wild resources occurred. As a result, the ethnographic record from California offers a rare opportunity to examine mid-latitude hunter-gatherers, an adaptation that was superseded by agricultural food production in most other areas of the world.

For many parts of California the wealth of ethnographic and ethnohistoric detail is staggering. This is particularly evident when the data are viewed from an Eastern Woodlands perspective. Native populations along the Atlantic coast were largely extinct by about 1720, and by 1840 few groups were left east of the Mississippi, and those that were present were refuge populations like the Seminole or eastern Cherokee. In California, maps of former group territories are available for many areas, detailing not only the locations of villages but also estimates of the numbers of people and structures present within them (e.g., Kroeber 1925). Furthermore, while much of the salvage ethnography that was conducted in California had its limitations, it was done only one or two generations removed from extensive direct contact. In the East, many native groups were exterminated or removed soon after sustained contact, and well before anthropologists turned their attention to these peoples. As this paper has tried to demonstrate, native California offers a good view of what life in the Eastern Archaic may have been like.

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The writing of this paper was inspired by John Speth and Richard I. Ford, who convinced me of the value of the California archaeological and ethnographic literature to the understanding of Eastern Woodlands prehistory. In its original form this was a class paper written in 1985 that, while sometimes cited by colleagues like Ken Sassaman (e.g., 1993), remained unpublished until the occasion of Richard Ford's festschrift prompted me to re-examine it.



I came to Michigan because of the reputation and students of one great Museum of Anthropology director, James B. Griffin. I am grateful that another great museum director, Richard I. Ford, took me under his wing, and am proud to be counted as one of his students. Dick patiently and wisely advised me through coursework and dissertation, and many of the ideas in the latter came from or were made better through his efforts. Thanks, Dick.

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## Notes

1. My graduate experience at Michigan under instructors such as Dick Ford, John Speth, Henry Wright, and many others was filled with intellectual exposure to research and writings from around the world. Invariably, when asked by a professor which topic or geographic area I considered myself most deficient in—like California archaeology and ethnography, for example, which is how an early version of this paper came to be written—that was what I was assigned to concentrate on in my coursework, research papers, or assistantship duties.
2. In this paper I use the term hunter-gatherer to refer to those human societies dependent upon wild as opposed to domesticated plants and animals; this way of life has also been called foraging (e.g., Kelly 1995:30-31).
3. My colleague Ken Sassaman, who reviewed a draft of this paper, noted that potential analogs may exist for marine mammal hunting and large game fishing (e.g., swordfish) between California groups and eastern cultures like the Maritime Archaic (cf., Bourque 1995; Arnold 2001; Davenport et al. 1993).
4. Large shell middens found in coastal California areas like San Francisco Bay, however, may have been a form of monumental architecture reflecting social and status organization, much as southeastern Archaic period ring and U-shaped middens are now assumed to have been much more than debris accumulations (Lightfoot 1997; Luby and Gruber 1999; Sassaman 2004:248-49; Russo 2004).

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