

## The Archaeology of Complex Hunter-Gatherers

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*Archaeologists' reconstructions of paths to complexity have all too often excluded complex hunter-gatherers. However, recent theoretical contributions and long-term field research programs in several regions of the world have now significantly advanced our understanding of complex hunter-gatherers. A discussion of definitions of complexity and a review of current models of the emergence of complexity provide a framework for analyses of complex hunter-gatherers and important cultural phenomena such as sedentism, political integration, prestige economies, feasting, and ideology.*

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**KEY WORDS:** hunter-gatherers; cultural complexity; hierarchy; labor; political economy.

### INTRODUCTION

After a long period during which complex hunting and gathering cultures were virtually invisible in the archaeological literature, significant discussions of these important prehistoric societies have appeared in recent years. The surge of interest in the culture and politics of the more complex nonagricultural groups identifies a range of problems and potentials that will continue to shape archaeological theory and method in the years to come. The purpose of the present article is to examine a number of issues with an important impact on contemporary critical thinking. Such a discussion cannot also be a detailed review of the specific evidence for complex hunter-gatherers (CHG) in various parts of the world or an analysis of all of the complicated inferential problems associated with evaluating complexity archaeologically, although I illustrate many points by drawing upon a range of archaeological examples from New and Old World CHG cultures.

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Issues that are not explored in depth here should frame future treatments of the subject.

The current acceleration of interest in CHG has been dramatic. The existence of complexly organized prehistoric hunter-gatherers barely flickered in the archaeological consciousness prior to the mid-1970s, and just one or two major works on CHG appeared annually in internationally distributed books and journals from 1973 through 1980. However, since 1981, from 5 to 10 major works per year on CHG have been published, the majority since 1985. David Clarke (1976), Tom King (1978), and Eugene Ruyle (1973) were among the first to stimulate others to think at length about the interesting problems presented by the more complex hunter-gatherer groups and to set the scene for the publication of broader and more theoretical works. The latter began to appear during the early 1980s, including the *Affluent Foragers* volume edited by Koyama and Thomas (1981), and important papers by Hayden (1981), Yesner (1980), Woodburn (1980), and Testart (1982). Many archaeologists were encouraged by these contributions to initiate long-term local and regional research programs in areas such as Australia, Japan, the Northwest Coast, Alaska, California, Europe, Southeast Asia, South America, and the Near East, and to bring them to the attention of a wider audience during the middle and later 1980s. These works, along with Price and Brown's (1985a) influential volume, spurred many other important theoretical efforts and CHG case studies during the later 1980s to the mid-1990s. These form the basis for much of the present discussion.

Initially we must consider what constitutes "complex" as it pertains to hunting and gathering, farming, or pastoral societies. When we disarticulate the many features that are epiphenomenal to complex organization, that is, the many historical particulars of diverse cultures such as forms of symbols and art, kinds of residences, population numbers, technology, settlement system, ritual practices, and so on, the basic structure of "complexity" is laid bare. Its essentials, in short, are *organizational*. *Complex*, as I use it here, distinguishes those societies possessing *social and labor relationships in which leaders have sustained or on-demand control over nonkin labor and social differentiation is hereditary* from those societies in which these relationships are absent. Complexity, then, relates most fundamentally to two organizational features: (1) some people must perform work for others under the direction of persons outside of their kin group, and (2) some people, including leaders, are higher ranking at birth than others. Complexity should *not* be used to refer to any fixed numerical threshold of population or social units, since establishment of such thresholds always requires allowances for many exceptions, although clearly a larger group with more distinct and interdependent social units certainly can be, and often is, more

complex than a group with fewer people and units. Furthermore, a basic definition of complexity should not be linked with any specific activity, subsistence economy (i.e., farming), degree of sedentism, architectural form, artistic expression, or resource base, as discussed below. Complexity, I argue, is most parsimoniously and correctly expressed in terms of these two simple features: labor relationships and ascribed ranking and leadership, and it is my goal to explore how these phenomena were expressed in different hunter-gatherer societies in the past.

The “complex” societies that shared these features of course exhibited important variability. Within the CHG membership, there was variation in the extent of leaders’ authority, the size of constituencies, degrees of disparity in wealth across rank, kinds of labor-consuming projects, and so on. There are many ways that this variability might be measured, but it is not my present objective to attempt to do so. I believe that first we need to find some way to agree about what “complex” is, what made CHG complex, and how they differed from less complex hunter-gatherers; then we will be in a position to measure variability within the different classes. We also need to set definitional standards before we can properly assess models accounting for the evolutionary processes experienced by groups that reached this plateau. Although some archaeologists may insist that a single definition of complexity is not possible, we must continue to try to arrive at a consensus, and I hope that most will agree that we should do this by reference to social structural features rather than material indicators, population numbers, and the like. Otherwise we will face many more years of vague assertions about “complexity” from archaeologists struggling to compare cases from diverse world areas. References to specific traits and conditions continue to produce confusion. I argue here that the primary, culturally meaningful distinction between CHG and other hunter-gatherers is marked by the aforementioned organizational features. Because the appearance of these new social relations is among the profound cultural changes in human history, further research about the differences between simpler and more complex hunter-gatherers and the transitions in organization that occurred as complex societies evolved is essential. I again take up a detailed exploration of the definition of complexity in a few pages, discuss misconceptions about complexity, and, most importantly, tie this discussion to theories of emergent complexity and several other fascinating issues associated with the study of CHG.

The major sections of this article address various developments in the study of complex hunter-gatherers, highlighting important intellectual advances of the past decade. These sections, in turn, examine old myths about complex hunter-gatherers, expand upon a definition of complexity (with specific archaeological consequences), review theories of emergent com-

plexity, and explore the topics of sedentism, political integration, prestige economies/feasting/status, and ideology.

Several archaeologists and ethnographers have worked diligently during the past decade to expose and discard a few aging *myths* about the origins and organization of complex hunter-gatherer cultures (discussed below in *Dispelling Old Myths*), particularly in North America, Australia, and Europe (Ames, 1994; Arnold, 1992a, 1993; Barnard and Woodburn, 1988; Bender, 1989; Hayden, 1992; Ingold *et al.* 1988a, 1988b; Lourandos, 1988; Marquardt, 1988; Price and Brown, 1985a; Rowley-Conwy, 1983), but also in Asia, the Near East, South America, Russia, and elsewhere (e.g., Feldman, 1987; Henry, 1989; Higham, 1989; Higham and Thosarat, 1994; Koyama and Thomas, 1981; Rolland, 1985; Shnirelman, 1994). According to customary characterizations in the broader literature, complex hunter-gatherers are one or more of the following: (1) merely a stage on the path to agriculture or state-level societies, as in unilinear models of cultural evolution; (2) a cultural phenomenon resulting solely from contact with agricultural peoples; or (3) exceptional and not meriting incorporation into mainstream theory. Various scholars have now demonstrated that CHG have appeared in diverse geographical and ecological contexts in prehistory, including many societies that originated well outside the narrow constraints imposed by these descriptions. Failure by a good number of anthropologists to appreciate the importance of these groups means that theories of cultural variability and evolutionary processes, including ideas that continue to be transmitted to current generations of students, remain flawed.

Defining CHG societies is a challenge, as is assessing how definitional choices condition analysis. But until archaeologists can agree on the phenomena to be examined, it remains difficult to compare societies and developmental trajectories in a meaningful way. We start by addressing the inclusiveness of the term “complex” (see *Defining Complex Hunter-Gatherers*). Some archaeologists prefer to differentiate delayed-return, largely sedentary, simple chiefdom groups—the most complexly organized of the CHG—from others, confining further considerations of complexity to societies at this plateau. Conversely, some archaeologists link hunter-gatherer complexity with one or more specific developments in technology or art, eschewing reference to organizational features. The trait approach has serious problems, however, often forcing proponents to lump cultures as different as western desert Australians together with Northwest Coast groups, if, for instance, they share a form of ritual or artistic elaboration. Such approaches are rarely satisfactory. Others define complexity so generally that any hunter-gatherer peoples exhibiting virtually any nonegalitarian behaviors are included. This open-ended definition encompasses such a range of fundamentally different societies that the term loses meaning; *all* hunter-

gatherers become CHG and little is gained in our efforts to understand variability.

Existing definitions of complexity frequently mix causes, consequences, correlates, and conditions. Clarifying meanings of such terms, as well as what is meant by complexity itself, is important; how these are defined is critical in establishing both data recovery methods and interpretations of CHG organization. Another important part of defining complexity is evaluating its antecedents and its structure, including what are meant by concepts such as egalitarianism and various forms of hierarchy, as addressed by Flanagan (1989), Johnson (1982), Spencer (1993), and others (summarized under Defining Complex Hunter-Gatherers).

Considerable attention has recently shifted toward research on the *emergence* of CHG. Explanations of the evolution of complex organization center principally around three independent or combinable processes: population growth, managerial/functional roles of elites precipitated by external or scalar stress, and human agents who take control of resources, labor, or external contacts (including exchange) to elevate their status. The discussion in *Theories of Emergent Complexity* centers on several provocative models of emergent complexity, including cases from a number of regions.

The relationship between CHG and *sedentism* is another important issue (see Sedentism). Some attempts to reconstruct the settlement behavior of complex groups have met with greater success than others because only recently have archaeologists recognized the need to decouple sedentism and complex organization. Normative approaches have often affected the ability of archaeologists to ask appropriate questions about past settlement systems and to identify important variability in degrees of sedentariness among CHG. We must acknowledge that, for instance, some of the world's most complex hunter-gatherers, the peoples of the Northwest Coast, were involved in several major residential moves per year, while other hunter-gatherer peoples exhibiting similar or lesser degrees of social complexity had fully sedentary settlement systems [e.g., southeastern U.S. Archaic mound-building cultures (Russo 1994)]. There are two important points here: signs of increased labor investment in architecture do not necessarily imply either sedentary practices or greater social complexity (although they may), and semisedentary or even seminomadic settlement patterns do not preclude the existence of societal complexity. Moreover, models of economic patterns, such as the immediate-return and delayed-return foraging systems classification developed by Woodburn (1980), and models constructed around the implications of storage facilities (e.g., Testart 1982), are closely linked to the issue of sedentism, and these are best addressed

together in discussions about the impacts of economic strategies on the development of CHG.

Certainly some CHG have exhibited moderately sophisticated forms of *political integration*, that is, there is reasonably good evidence for multicommunity chiefly authority among a few CHG societies. Among the Northwest Coast groups, on the other hand, most scholars argue that chiefly authority was confined to single communities and sometimes single households, although the fact that these households were often extremely large and included kin, nonkin, and slave labor has sometimes been underplayed. If consensus were ever to be reached that Northwest Coast CHG were chiefdoms without multicommunity political integration, then there would be a need to reassess further the chiefdom concept as it has been defined by Carneiro (1981), Johnson and Earle (1987), and others (see Feinman and Neitzel, 1984). I explore various perspectives on the importance of integrated political organization among CHG groups under Political Integration.

Archaeologists take notably different approaches to examining *prestige economies* in CHG societies, *uses of status markers (valuables)* during the regulation of exchange and status-validating events, and *feasting* (see Prestige Economies, Feasting, and Status). Theory derived from ethnographic and sociological research has influenced archaeologists in their efforts to analyze these developments in prehistoric and early contact-period native cultures. Several innovative studies centering on the evidence for feasting, circulations of status-rich valuables, specialized production and distribution of status markers, and the like are of particular interest. It is apropos as well at this juncture to explore the issue of CHG and investigations of *ideology*, including some postprocessual approaches (see Ideology). Several recent reports indicate that research on CHG ideology, art, and ritual, as well as the engendering of CHG societies, may contribute substantially to the goals of a contextual archaeology, even though ventures into postprocessualism by hunter-gatherer specialists are still relatively rare.

### DISPELLING OLD MYTHS

However "complexity" is defined, the juxtaposition of "complex" with "hunter-gatherers" is a relatively new addition to the jargon and clearly would have struck many traditional archaeologists in years gone by as an oxymoron. Indeed, one does not have to search far to find published work contemptuous of the notion that hunter-gatherers ever were complex (Smith, 1993, p. 17; see also Lee, 1990, p. 231, 1992). Perhaps this stems from the fact that although many New World ethnographers and archae-

ologists began to be aware decades ago that cultures in the American Northwest Coast region were rather extraordinary, other prehistoric complex hunter-gatherer groups in many parts of the world were relatively or completely unknown, not having received even the most minimal archaeological attention until the last two decades.

In some regions these groups had little exposure because early ethnographers did not publish their work. This was clearly the case for certain California groups, including the Chumash of coastal southern California, who early during the 20th century were informants for the eccentric linguist-ethnographer John P. Harrington. Harrington generated more than 200,000 pages of notes on several California societies, particularly the Chumash, but he hoarded his data and published little. Others began to compile and publish the details of his Chumash notes only during the 1970s (e.g., Blackburn, 1975). Furthermore, systematic and interpretive archaeological works on Chumash prehistoric sites were not brought to the attention of other scholars inside or outside of California until the early 1980s. Much the same history of research characterizes the Yokuts and Gabrieliño areas of southern California as well. Comparatively more was published about the ethnography, but rarely the prehistory, of several of the more complex northern California groups such as the Pomo, Nomlaki, and Tolowa (Gifford, 1926; Goldschmidt, 1976; Gould, 1966; Loeb, 1926).

Certainly what we know now about the varying degrees of complexity of, for instance, Jomon, Natufians, Preceramic coastal Peruvians, cultures of coastal Thailand, and Archaic peoples of the U.S. Midwest (Brown, 1985; Cohen, 1981; Feldman, 1987; Henry, 1989; Higham, 1989; Koyama and Thomas, 1981; Quilter and Stocker, 1983) was unshaped by any synthetic or interpretive archaeology just two decades ago, even though individual sites were beginning to be excavated and finds of great significance made. Furthermore, the contact-era Calusa, the groups of the Alaskan and north Atlantic coasts, and the Kamchatka region have only recently been documented in a systematic way by archaeologists (Crowell, 1994; Marquardt, 1988; Maschner, 1991; Renouf, 1991; Shnirelman, 1994; Widmer, 1988; Yesner, 1994a). For these reasons, as well as many others, old myths about hunter-gatherer organization, particularly the following three, continued to be perpetuated through the early 1990s.

*Myth 1: Complex Hunter-Gatherers—If They Existed at All—Existed Only as a Step Along the Path to Agriculture (or States/Civilizations).* Anthropologists usually appear to consider hunter-gatherers who lived in “wilderness areas” at contact different from hunter-gatherers who directly gave rise to farming societies in the past. The taming of the wild landscape by transitional hunter-gatherers/incipient farmers was the foundation of European history (Wolf, 1982); thus the idea easily took hold among Western scholars

in several disciplines that the hunter-gatherers who persisted without adopting farming into the later centuries of this millennium in the Americas, Australia, and elsewhere were more “primitive” than their earlier pre-farming European counterparts. Many anthropologists have not yet fully rejected this notion. Although the foragers who immediately preceded horticulturalists are not usually defined as complex hunter-gatherers per se (but see Henry, 1989; Higham, 1989), the assumption that pre-farming societies were more complex than other hunter-gatherers is apparent, for instance, in general discussions of early cultivators (e.g., Harris and Hillman, 1989; Moseley, 1975; Rindos, 1984; several contributors to Price and Brown, 1985a; Wolf, 1982). There is, however, no empirical evidence to support such an assertion. Many quite complex CHG societies, including certain California societies and most of the Northwest Coast groups, were present in areas where agriculture never developed. An a priori argument that they could not have been more complex than pre-farming hunter-gatherers cannot be defended (see also Wobst, 1978).

Important progress will be made if the notion that pre-farming hunter-gatherers were rather complex (*some* of them were) can be separated from teleological notions of agricultural inevitability or superiority (which implies that perhaps all—or none, if this idea is taken to its logical conclusion—were complex). That is, some CHG are correctly placed within unilineal sequences from generalized hunter-gatherers to more complex hunter-gatherers to complex farming societies and beyond, but various investigators’ assertions that any given predecessor to farming was a “complex” hunter-gatherer group must, of course, be tested. Such archaeological inquiries are appropriate (and have been carried out) for Jomon, the Natufians, U.S. Archaic groups, and in Mesolithic Europe, Preceramic coastal Peru, and other areas where farming later arose. The variable complexity documented for these societies does not in any sense permit the conclusion that hunter-gatherer societies in parts of the world where agricultural systems never emerged were “simpler” or less capable in their technology, politics, crafts, etc., than those who eventually burst upon the farming scene. Yet with the exception of the Northwest Coast groups, CHG in the richer wilderness zones of the world are still lumped with all other foraging peoples and usually completely ignored in general discussions of emergent complexity.

These “wilderness” hunter-gatherers (those who were *not* antecedents to farmers) include hunter-gatherer-fisher groups within some extraordinarily rich coastlines and riverine areas, such as California, southwestern Florida, and the Russian and North American sides of the North Pacific (e.g., Ames, 1994; Arnold, 1992a, 1995; Coupland, 1988; Drucker, 1951; Hayden, 1990, 1992; Marquardt, 1988, 1992; Maschner, 1991). These peoples were not hampered in their sociopolitical development by an absence

of, for instance, domesticated *grains* to store; they intensified, processed, exchanged, and stored large quantities of foods, ranging from acorns, bulbs, and seeds to whale meat and dried salmon; and manufactured large quantities of other goods, including beads, baskets, blankets, boats, and much more. In the most general terms of sociopolitical and economic development, labor control, and permanence of leadership, they appear to have been every bit as complex as many of the pre-farming CHG and early farming societies (Bean and Lawton, 1976; Kan, 1989). In fact, their plant resource bases even came to resemble those of farming groups in some cases (and their maritime foci often provided extremely rich sources of animal proteins). Bean and Lawton (1976), and more recently Blackburn and Anderson (1993), have described the many intensification techniques and technological developments by native Californians that stimulated plant growth, permitted larger wild seed harvests, and allowed storage and consumption of massive acorn harvests. These examples illustrate quite clearly that hunter-gatherers can create "protoagricultural" economies, manipulate the resource base, and generate large storable surpluses without ever domesticating plants or animals.

California is one of the areas consistently overlooked by scholars researching the prehistories of complex foragers elsewhere in the world, even though Cohen (1981) and others emphasized the region's importance years ago. Indeed, Koyama and Thomas (1981) specifically set out to compare early CHG in Japan and California, systematically evaluating the two regions' high population densities, rich resource bases, and the like. During the late 1980s, however, Yesner (1987, pp. 288, 300–302) still claimed that complexity never characterized California's hunter-gatherers and that the Channel Islands, a focal area of the coastal Chumash, were ecologically and culturally marginal. Yesner has since become aware of research demonstrating notable sociopolitical integration and biomass richness in the region (e.g., Arnold, 1987, 1991, 1992a, 1995; Blackburn, 1975, 1994; King, 1978; Lambert and Walker, 1991). The Calusa also continue to be under-cited in discussions of the world's most complex hunter-gatherers, but as Marquardt (1988, 1992) and his colleagues continue to publish the results of their long-term project in Florida, this is changing. Global politics often play a determining role in the availability of data as well. Archaeologists working in regions such as the former Soviet Union have waited years to establish dialogues with Western colleagues and distribute results in English-language publications (e.g., Shnirelman, 1994).

Anthropologists are no doubt aware that most scholars in closely allied fields have little understanding of hunter-gatherer societies. This is clearly a function of our discipline's failure to educate historians, sociologists, and other social scientists about the range of variability found in nonfarming

societies. In *The Sources of Social Power*, sociologist Michael Mann makes clear that stereotypical notions about simple hunter-gatherers are deeply ingrained and the predisposition is very strong to reject any suggestion that hunter-gatherers could be complex. Mann (1986, pp. 34–43) traces the sources of social power (as he understands them) into prehistory, categorically excluding hunting and gathering peoples from any association with power and complexity at all times and in all places. He asserts that hunter-gatherers had no concept of power (power did not exist in prehistory); there were no elites in hunter-gatherer society; “their social structure was extremely loose, ad hoc, and variable;” and they had “virtually no means of specialization beyond sex and age.” Indeed, he believes that all archaeological theories about social evolution are wrong (Mann, 1986, p. 62). Scholars embracing such views are hardly receptive to discussions about institutionalized hierarchy or the political economy of CHG.

Some anthropologists at least indirectly encourage misrepresentations such as these through their own attempts to construct an image of hunter-gatherers as peaceful, group-oriented, communal societies. Both Meillassoux (1981) and Lee (1990, 1992), for instance, have recently presented oversimplified descriptions of foragers that mask the extraordinary variability and dynamism of the world’s distinctive hunter-gatherer cultures; they make them a single, simple type. Meillassoux (1981, pp. 15–22) asserts that hunter-gatherers survive by feeding hand-to-mouth; they share unstable, band-type membership; they are unable to recognize paternity; they have no long-term kin ties and no apprenticeships; they are not sedentary; and they have no authority structures. Lee (1990, p. 231) argues that all prestate societies, including all hunter-gatherers, exhibit no political authority, have no private property, make all decisions by consensus, and produce foods and goods exclusively for use rather than exchange. Yet recent contributions by other scholars sharing a Marxist-communalist perspective make clear that adherence to this paradigm does not necessitate such extreme characterizations of hunter-gatherer life (e.g., Saitta, 1994; Saitta and Keene, 1990). Burch and Ellanna (1994a, p. 219) also critique both Lee (1990, 1992) and Barnard and Woodburn (1988) for simply denying the existence of stratified hunters and gatherers.

*Myth 2: Complex Hunter-Gatherers Became Complex Only Through Their Contact with Farming Groups or Other Advanced Societies.* Ingold et al. (1988a) include several chapters on relations between foragers and their more complex neighbors. In particular, the notion that contact with farmers may have stimulated increased complexity among hunter-gatherers is addressed in these works. In some cases, intercultural contact did affect the degree of social complexity exhibited by foraging groups, while in more “pristine” circumstances, some hunter-gatherers clearly developed sophis-

ticated social, economic, ritual, and/or political organization without any influence from farmers or others already incorporated into larger political systems (e.g., Ellen, 1988; Lourandos, 1988; Palsson, 1988; Woodburn, 1988). Conversely, some hunter-gatherers apparently *remained* foragers because contacts with more powerful neighbors did not allow them to be otherwise (Peterson, 1991).

Bender and Morris (1988, p. 7) have suggested that the high degree of complexity of groups in California and the Northwest Coast may have been products of Euroamerican contact. This can be refuted by archaeological evidence for complex organization that dates to at least several hundred years before colonial contact in these regions (e.g., see Ames, 1994; Arnold, 1992a). Bender and Morris (1988, p. 7) do correctly contend that, more generally, the potential for inequality is blind to modes of subsistence. It is not farming, per se, but manipulations of marriage, exchange, ritual, initiation rites, and especially labor that may allow social stratification to develop. This is a position increasingly shared by scholars from many intellectual traditions (Arnold, 1993; Hayden, 1993a, 1994; Matson and Coupland, 1995; Rindos, 1984; Saitta, 1994; Upham, 1990).

*Myth 3: Complex Hunter-Gatherers Were Oddities and Exceptions and Are Therefore Not Important to Incorporate Centrally into Models of Social Evolution.* Archaeologists do not express, in so many words, the view that CHG ought to be ignored in cultural evolutionary models. Nonetheless, passive support for the idea is quite pervasive. Introductions, forewords, prefaces, and concluding chapters of books on the evolution of society, the emergence of domestication, and the like, routinely omit reference to CHG. The problem most commonly arises when scholars whose careers have centered on understanding the origins of the state or civilization write short, summary pieces on current cultural evolutionary theory. Their statements almost universally reflect normative thinking rather than raise the specter of complicated variability where CHG might fit within evolutionary schemes. From among dozens of examples, I cite Haas (1990) to illustrate this point. Haas (1990, pp. xv–xvi) writes in the foreword to Upham's (1990) book (which includes chapters about CHG), "With agriculture came greatly increased sedentism . . ." and "with the emergence of sedentism, new forms of social interaction proliferated." In a few short sentences, this passage directly and unilinearly links farming, sedentism, and new levels of social integration. Haas may not have meant to say that hunter-gatherers were excluded from experiences such as sedentary lifeways or more complex social forms, but this is what is communicated. In case after case like this one (see almost any text or overview), CHG are ignored or repudiated, too exceptional to merit inclusion in a discussion of rising complexity.

Johnson and Earle (1987) are among the few who have set a good example by including CHG in their cultural evolutionary scheme. Although they are conservative in their assessment of Northwest Coast complexity, adhering to Carneiro's (1981) position that chiefs are not chiefs unless they have multicomunity authority, they are succeeding in influencing many new generations of students to believe that there are pathways toward complexity that include quite complex hunter-gatherer groups at their end points.

### DEFINING COMPLEX HUNTER-GATHERERS

The preceding discussion illuminates a few recent problems and debates in the study of CGH, and regardless of one's view on the degree of sociopolitical integration that constitutes "complex," the rationale for rejecting these tired myths should be obvious. Now, however, I return to the task of establishing explicit definitions of hunter-gatherers, complexity, and other terms as they are used throughout this analysis.

*Hunter-gatherers* are peoples with exclusive or predominant dependence on wild, collected foods, including aquatic resources. Lee (1992), contributors to Ingold *et al.* (1988a, b), and others have outlined the problems associated with various definitions of hunter-gatherers, and it is beyond the scope of this work to engage that debate fully. To review how hunter-gatherers in the transition toward agriculture can be distinguished from the earliest farmers is also beyond the goals of this discussion, except to say that people doing more extensive manipulation of domesticable plants than low-intensity gardening are no longer foragers. The archaeologists conducting research in any given region are presumably in the best position to identify which phases of that culture were dependent on wild foods and which were beginning to be partially dependent on domesticates, and we need to accept the distinctions that they make. Readers can consult Zvelebil (1986) and Gebauer and Price (1992) for interesting discussions of these issues. In the end, I strongly endorse a definition of hunter-gatherers based solely on mode of subsistence. Whether a group is mobile or sedentary, simple or complex, or participating in substantial external trade is irrelevant to its being defined as a hunter-gatherer group; such variables must be disengaged from subsistence.

Some 10 years have passed since Price and Brown (1985a) published *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, and this important volume represents a good point of departure for a discussion of earlier definitions of *complexity*. Contributors to that volume present evidence for a wide range of types of cultural complexity, from the documen-

tation of apparently ranked or stratified hunter-gatherer organization (e.g., Ames, 1985; Cohen, 1985; Hayden *et al.*, 1985) to minimal assertions that increases in numbers of sites or the first appearance of art signify a form of complexity (Mellars, 1985). Soffer (1985) suggests that social hierarchy came into being by 20,000 B.P. in northern Eurasia, basing this conclusion largely on the first appearance of objects in burials. Thus, quite different phenomena are linked to the term "complex" by these various authors; some are more sound approaches than others. It should be clear that there can be substantial problems associated with using site densities or numbers of burial accompaniments to infer social complexity when such features are treated apart from their organizational implications. Rather than representing variable degrees of complexity within a range of hunter-gatherer cultures that we would all agree were quite complex, this volume encompassed a broad range of hunter-gatherer cultures, some of which gradually developed new traditions and technologies during earlier spans of preagricultural human history. We should recognize, then, that some of the cultures described in these chapters were more "complex" than their antecedents in the sense that new cultural attributes were appearing for the first time, rather than complex as measured against a particular standard.

Let us examine some of the definitions of complexity in *Prehistoric Hunter-Gatherers* and other recent definitions in greater depth, beginning with those least oriented toward organizational features. For reasons that remain difficult to comprehend, Walters (1989) has defined increased social complexity in Australia in terms of reductions in stone tool-making and minor increases in fishing activity. Neither cited data set even begins to support an argument for intensification in Boserupian terms. This study typifies simplistic thinking about what actually makes societies more complex; Walters and other archaeologists are occasionally guilty of linking virtually any change in subsistence, technology, modest population growth, etc., with "complexity." In contrast, Lourandos' (1988) review of the evidence for Australian intensification more appropriately begins to assess organizational relationships. He links increasing complexity, which he recognizes through the emergence of large polygynous households involved in the production of surpluses, to ceremonial development in several areas of Australia and Papua New Guinea.

Some scholars attribute "complexity" to hunter-gatherer groups based on the creation of art, the appearance of sturdy houses, or the development of small- to moderate-scale communal works. In these cases, a singular development of some significance has occurred. Here we may include Upper Paleolithic producers of art (Mellars, 1985), Upper Paleolithic mammoth bone house dwellers of the Russian/East European steppes (Soffer, 1985), and Australian peoples who expanded fishing (Williams, 1987) or group

harvesting associated with ceremonial development (Lourandos, 1985, 1988). What these examples share is reference to a specific development that suggests newly elaborated behavior in a particular realm: communal ritualism, greater architectural investment, or increased dependence on a specific food resource whose take could be augmented.

However, there is no evidence that any major impetus toward new forms of social complexity (e.g., labor control, permanent leadership, hereditary ranking), or what Service (1962) defined as a higher level of sociopolitical integration, occurred in such cases. That is, no broad structural changes have arisen. Such organizational changes would reverberate through kin relations, the ways people control the labor of others, the inheritance of property, and more. Most anthropologists would agree that the later Holocene Australians and the late Pleistocene hunters of northern Eurasia were more complex than their predecessors, but they would not grant that they exhibited signs of marked organizational complexity shared by certain more recent hunter-gatherers. Hayden (1993b, pp. 125–127) has suggested, however, that Upper Paleolithic European populations may have been competing for status, converting stored surpluses to wealth, and marshalling the labor of others for hunting large mammals and for large-scale processing of ungulate meat. He also argues, like Bender (1990), that Paleolithic cave art was part of an elaborate process designed to attract this kind of labor. But his contention that this constitutes evidence for complexity akin to that of the Northwest Coast groups, with ascribed status, awaits verification. Mass kills of ungulates and “specialized” reliance on a few large game species of course does not necessarily involve permanent leadership. The analogue best suited to Upper Paleolithic hunting may be early historic bison hunting on the American Great Plains, where seasonally aggregated hunters followed temporary leaders who organized the timing of the hunt to ensure that the huge herds did not stampede or move away from prime hunting localities. Plains hunters were generally not alienated from the products of their labor, permanent hierarchy did not develop, and the groups continued to disperse seasonally. It seems at this stage that more data must be gathered before we can determine which model of leadership might apply to Upper Paleolithic political structure.

Woodman (1985) and Price (1985), employing data from northwestern Europe and southern Scandinavia, suggest that semiegalitarian kinds of organization with temporary tribal-like leadership, or perhaps sequential hierarchical leadership, accompanied the subsistence intensification of the Mesolithic era in these regions. These societies, as well as perhaps the Natufians (Henry, 1989), exhibited increasing populations, new kinds of food gathering, and/or new forms of housing, but again, there is no indication of the kinds of organizational evolution that led to status ascription,

regional political integration, or permanent power and authority over the labor of nonkin.

Brown (1985) provides a definition of complexity based on his long-term studies of early pre-farming cultures in the United States. He identifies hunter-gatherer groups as "complex" if they have relatively large populations residing consistently on a circumscribed landscape (a defined territory and semisedentary settlement system or well-demarcated seasonal rounds), temporary leadership, and/or behaviors tethering populations to the landscape and legitimizing their claims to it, such as communal cemeteries or small monuments. These include the Glacial Kame cultures of the upper Midwestern United States (Brown, 1985), as well as cultures with similar features such as the mound-building groups of Adena and Poverty Point (Bender, 1985; H. Jackson, 1991), the later Mesolithic peoples of Scandinavia and Europe (Price, 1985; Rowley-Conwy, 1983, 1986), possibly the Jomon of Japan (Koyama and Thomas, 1981), the Khok Phanom Di people of estuary-rich coastal Thailand (Higham and Thosarat, 1994), many California cultures such as the Nomlaki and the Pomo (Gifford, 1926), some northern and western Alaskan societies (Burch and Ellanna, 1994a, b), and the whaling cultures of the coastal Arctic before contact (Sheehan, 1985). Several of the high-latitude coastal groups of the American north Atlantic and Pacific are difficult to place (Crowell, 1994; Renouf, 1991; Yesner, 1994a, b), but they may exhibit signs of these same intermediate organizational characteristics. Russo (1994, pp. 106–107) lucidly shows how Archaic mound-building groups in Florida, much like many of the above groups, may have been relatively sedentary and may have been involved in certain types of landscape alteration, but they were not, as a consequence, necessarily sociopolitically complex in the sense of having permanent leadership or hereditary ranking.

Brown (1985) also links complexity to evidence for trade over long distances and communal burials. A specific list of features provided at the outset of his chapter includes sedentism, storage, ranking, art, and increasing use of domesticated plants. This listing of traits usefully highlights specific archaeological expectations, but the inclusion of art, for instance, or any other specific phenomenon as a marker for complexity, is inconsistent with the view that organizational attributes (such as the appearance of hereditary ranking or the process of institutionalizing new relations of labor control by leaders outside the core kin group) should be used to define complexity (see Brown and Price, 1985). Burch and Ellanna (1994b, p. 5), who have recently discussed hunter-gatherer complexity from an organizational perspective, suggest that complexity is the degree of internal differentiation and specialization of the components of a system (see also McGuire, 1983; Service, 1962). Their definition was developed specifically

to include the middle range of hunter-gatherer societies, such as coastal Alaskan groups. Its organizational approach is sound, but like many similar definitions, it does not establish thresholds that allow us conclusively to assess or measure complexity—How internally differentiated or specialized must a society be to qualify?

Some anthropologists assign the label “complex” only to a narrower spectrum of hunter-gatherer groups exhibiting permanent leadership, inherited status and wealth, large community size, strong intraregional ties, significant investments in construction activities or technologies (for instance, massive residences or sophisticated boats), and new forms of labor organization (e.g., craft specialization, slavery, or large-scale corporate group undertakings). These organizational features are often (but not necessarily) accompanied by elaboration in the arts or ritual. Barnard and Woodburn (1988; Woodburn, 1980) have described delayed-return (DR) hunter-gatherer systems, in which investments of labor in subsistence activities by groups who have rich, seasonally concentrated harvests of wild foods result in delayed rather than immediate returns, requiring, then, certain facilities and the leadership to coordinate activities (and resembling traditional agricultural economies). We should note, of course, that not all DR economies are particularly complex, but all of the most complex CHG have one form or another of a DR system. Examples of these most complex of the CHG with DR economies and complex labor organization are the Nootkans (Drucker, 1951), the Chumash (Arnold, 1991, 1992a, 1993; Blackburn, 1975; Johnson, 1988; Lambert and Walker, 1991), the Calusa (Marquardt, 1988, 1992), certain Alaskan Northwest Coast groups (Maschner, 1991), the interior British Columbian peoples of the Lillooet area (Hayden, 1992), and a number of the other later Northwest Coast groups (Ames, 1985, 1994; Coupland, 1988; Donald and Mitchell, 1994; Matson, 1992; Matson and Coupland, 1995; Tollefson, 1987). Also belonging here are the Preceramic peoples of coastal Peru (Feldman, 1987; Moseley, 1975; Quilter and Stocker, 1983), and possibly the Yokuts of California. This use of “complex” subsumes most of the attributes of simple chiefdoms, as defined by Arnold (1993), Earle (1987), and others. Burch (1994, p. 454) concurs by recognizing that the most complex hunting-gathering groups were simple chiefdoms and he defines them as nonsegmental storing societies with integrative offices. Hayden (1993a) prefers to identify three levels of complexity in the CHG realm, based on variability in the range of power held by leaders, and although we agree on many details, his classification includes some groups that would not strictly be considered complex by my definition.

I argue here that assessments of complexity should highlight the central role that certain kinds of *organizational and integrative activities* play,

particularly how social relations and labor-absorbing tasks are different in these cultures than in the less hierarchically oriented and less specialized groups. Hayden (1992, 1994) makes this point in his studies of feasting, competition, and labor control, as does Cohen (1985, pp. 104–105). Cohen defines CHG in terms of the elaboration of decision hierarchies, development of interregional alliances, regulation of social relations through ceremony, organization of human labor for capital investment, and development of banking systems that convert surpluses into wealth. Although I find this list of features somewhat too specific, it is useful because it refers to organizational attributes of social relations and labor consumption (see also Bender, 1989; Price, 1984).

To summarize the main points of this extended discussion, I advocate adopting a standard definition of complexity, which first and foremost means institutionalized control by some individual(s) over nonkin labor (Arnold, 1993). Societal complexity also means hereditary inequality and leadership. The study of complexity involves analyzing these organizational matters in diachronic terms, that is, characterizing the dynamics of increasingly (or decreasingly) complex relations through time, which of course depends on multiple inferences that we do not have the space to explore fully here [but certain of these inferences are discussed below and by Arnold (1993)]. Archaeologists defining complexity should, on the other hand, abandon reference to *specific* traits or developments such as art forms, monuments, or storage economies; these are ultimately too limiting. This is not to say that such developments are insignificant, for of course they may be important in specific regions (Testart, 1982; Yesner, 1980). What we need to understand, however, are the organizational changes they may or may not herald, such as the emergence of a leader's ability to extend control over labor. The initiation of permanent leadership roles with enforceable rights to extract labor from nonkin (that is, where there are tangible costs associated with noncompliance with labor demands) marks the important shift from Big-Man to simple chiefdom kinds of organization (Arnold, 1993; see also Barnard and Woodburn, 1988, p. 30).

Such important changes in labor relationships might be recognized archaeologically by, for instance, the appearance of massive changes in craft production and exchange relationships on a regional scale. This may suggest a shift away from a subsistence economy to a centrally organized political economy anchored by elite regulation of labor, as in the Channel Islands (see Arnold, 1992a, 1993, 1995, 1996; Arnold and Munns, 1994). Another pair of cases in which new labor relations can be demonstrated is the appearance of slaves and/or sacrificed individuals in the burial assemblages of the Northwest Coast and the Calusa (Ames, 1994; Marquardt, 1988). Both regularized craft production and slavery represent evidence for prob-

able *sustained* control over labor rather than situational or seasonal control over labor that would typically be linked with temporary leadership. A third kind of archaeologically visible change in labor organization indicating the initiation of elite control over broader labor pools is the advent of the attached specialist production of durable valuables (e.g., those that are deposited as finished objects only in elite homes or burials), or the large-scale involvement of labor in ritual practices, massive harvests, or mound constructions. However, the latter may be easily misinterpreted and inflated; compare, for instance, the various views on the labor likely involved in the construction of Archaic-era mounds at Poverty Point and elsewhere in the southeast (Gibson, 1994; H. Jackson, 1991; Russo, 1994) or in Neolithic Wessex (Renfrew, 1973). These cases suggest that some examples of ritual monument construction may signal the presence of a seasonal or situational labor force, while others may indicate more stable leadership and more sustained control over labor. Generally, data from mortuary contexts, along with data from household architecture and contents, hold the greatest promise to verify hereditary social stratification [see Higham and Thosarat (1994) for a useful mortuary analysis], while data from production contexts and residential settings, and occasionally from cemeteries (as above), may reveal the most about changing control over labor. An assessment of complexity for any given region must, to be complete, draw upon data from most or all of these kinds of sources.

It should be clear by this juncture that a standard meaning for complexity should be adopted so that, first, societies as divergent structurally as the Calusa and the prehistoric desert groups of Australia are not merely lumped together as “complex” hunter-gatherers on some vague and overly broad continuum. Second, this definition should incorporate distinctions in organizational features of societies rather than specific technologies, arts, or activities. Price and Brown (1985b, p. 16) make this point, and it is among the most important contributions of their edited volume. Third, the definition of complexity that is anthropologically meaningful, has empirical consequences, and is not too particularistic is restricted to those groups exhibiting inherited leadership and status, where leaders have sustainable control over the labor of nonkin. (Leaders do not have to exhibit multi-community authority; although chiefs do have this authority in most chiefdoms, analyses of the Northwest Coast groups make it clear that chiefs’ authority over labor can be powerfully exercised *within* communities.) This definition implies that other hunter-gatherer groups are significantly and demonstrably different from the groups herein labeled “complex.” Improvements to this definition are both inevitable and welcome; however, to date, most attempts to identify meaningful distinctions between complex and generalized hunter-gatherers have defined too many thresholds and become

too particularistic and/or have not incorporated fundamental justifications drawn from anthropological observations.

### Causes, Consequences, Correlates, and Conditions

As archaeologists have sought to make sense of complexity in the pre-historic record, its causes, consequences, correlates, and conditions have often been mixed. Standardization of these terms is long overdue as well. According to Price and Brown (1985b), complexity is essentially “intensification,” which can be manifested in various ways, from the adoption of more effective tools to sedentism, specialization, and the reorganization of labor [the last being closest to what Boserup (1965) means by intensification]. They advocate looking at conditions (such as circumscription, rich resources, large population), consequences (e.g., intensified production, new technologies, craft specialization, changes in decision-making), and causality (including population growth, environmental change, or internal transformations). Some authors mix and match conditions, consequences, correlates, and causality in the process of defining “complex,” however, usually bewildering readers.

*Conditions* refer to the environmental and historical circumstances, or context, in which complex organization emerged. Matson (1994) calls them “prerequisites” for complexity. For many complex hunter-gatherer groups, conditions may include abundant subsistence resources (Hayden, 1990, 1992), low risk levels, favorable climates, sufficient population densities for certain kinds of social interaction and communication to occur, the presence or absence of outside threats such as warfare, and the like. Kelly (1991) outlines several rather specific conditions, such as the degree of patchiness of food resource distribution and the way population is concentrated on the landscape.

*Consequences* refer to the intended or incidental results of increasingly complex organization. Consequences can include changes in household size or composition, new processes of distributing resources, cessation or intensification of violence, new power relations within and between affines, more complicated social and economic webs, or those noted by Price and Brown (1985b), including intensified production, new technologies and specializations, and changes in decision-making.

As used by archaeologists in most contexts, *correlates* seem to represent the *material* indicators of phenomena, meaning that they are generally manifestations of consequences (although they may be material indicators of causes or conditions, as well). Yesner (1994a), Ames (1985), Price (1985), and others present lists of these correlates, which include evidence for

sedentism, new technologies, changes in burial styles, elaboration in storage facilities, population growth and/or aggregation, increased warfare, more exotic goods, increasing differentiation in residences, more artwork, and the like. A perceptive reader no doubt notes that this list significantly overlaps the list of consequences, and as a whole, archaeologists are remarkably inconsistent in their use of these terms. Some archaeologists use "correlate" very broadly to refer to any phenomenon, material or organizational, related to complexity. That is, correlate means essentially the same as "feature" or "attribute." In their classic works on complex characteristics in selected New World societies, Creamer and Haas (1985) and Peebles and Kus (1977) include both material and organizational correlates.

Ultimately, most archaeologists investigating complexity aim to outline its *causes*, that is, they attempt to identify one or more stimuli that sufficiently account for the cultural transition to complexity. Productive discussions of causality must of course effectively link processes of cultural change with archaeological data. Archaeologists have cited causes such as population growth, individual political ambition, warfare, and management, to note a few (explored more fully under Theories of Emergent Complexity). As I have noted, the most fundamental changes marking the threshold of complexity involve the institutionalization of new labor relationships and ascribed hierarchies among people. The means by which people can begin to control other peoples' labor and the transformations that accompany regularly delayed consumptions of resources are examples of these processes. Because aspiring leaders are major consumers of labor (Arnold, 1993; Price, 1984), and overtly compete for labor (Hayden, 1994), evidence in the archaeological record for fundamental changes in labor practices is among the most important hallmarks of emergent complexity.

### THEORIES OF EMERGENT COMPLEXITY

In order to evaluate the significance of the appearance of ranking and institutionalized leadership, it is essential to explore the organizational rules of the predecessors of complex groups. Common assumptions about the purported "egalitarian" organizations of nonhierarchical groups have been rightfully challenged in recent years. Flanagan (1989) emphasizes that certain kinds of nonegalitarian relations are present in all hunter-gatherer societies. It is his conclusion that there are no fully egalitarian societies (Flanagan, 1989, p. 261), although there are egalitarian contexts within societies at many levels of integration. Societies can, nonetheless, be roughly classified as more or less hierarchically structured, and it is useful to examine the possible reasons for this variability.

Inequality based on sex and age pervades so-called “simple” societies. “Gerontocratic polygyny and gerontocratic authority ensure the dominance of old men” over younger men in most such societies, although the younger men (at least some) eventually achieve dominance later in life (Flanagan, 1989, p. 258). The egalitarian ethic of noncomplex societies is “an egalitarianism of men” (p. 253). That is, male hunter-gatherers are customarily perceived by anthropologists as sharing roughly equally in the distribution of power (they are approximate equals), but women’s positions vis à vis males are largely ignored and obvious power inequities between females and males are not treated as violations of egalitarian norms. The perpetual invisibility of females in analyses of power has recently been displaced in part by studies directed at exposing patterns of gender hierarchy and sexual stratification (Gero and Conkey, 1991). While many feminists seek to separate gender roles from biology (denaturalize them), strict classical Marxists have wanted to show that hunter-gatherer societies did not exhibit gender-based inequality since the exploitation of women presumably originated with the institution of private property and the state. In their earlier expressions, these intellectual traditions consistently associated hunter-gatherers with egalitarianism, simplicity, and gender symmetry (Flanagan, 1989, p. 254), deeply flawed notions because, among other problems, they mask the extraordinary variability found now and in the past among hunter-gatherer societies.

If seeds of inequality are present in all societies, then, many anthropologists contend, it is reasonable to turn to basic demographic and environmental conditions to search for stimuli toward expressions of vertical hierarchies. Brumfiel and Earle (1987) distinguish functional and political models of social evolution. Functional models center on problem-solving related to population pressure, climate, communication, resource decline, and the like, focusing on the conditions associated with complexity, while political models emphasize human strategies and power struggles. I recently analyzed the current models of emergent complexity in the hunter-gatherer and theory literatures (Arnold, 1993), including functional models based on population growth, warfare, and elites as managers and facilitators of social services and economic growth (risk management approaches), and political models in which elites take active roles in the emergence of hierarchical relations (human agency theory). Several of the most lasting and stimulating ideas emerging from these theoretical advances are of interest here.

Hayden (1990, 1992, 1994), working in the Fraser River Valley of British Columbia during the past decade, argues that competitive interactions among aspiring elites generated greater complexity among certain hunter-gatherers. Hierarchic strivings of elites were only fully stimulated, however,

amidst conditions of abundant and invulnerable food resources. I call Hayden's theory the *prosperity model of competitive action*. He suggests that in food-rich areas, favorable conditions lead to halts in traditional sharing practices that go unchallenged, and ambitious individuals (accumulators) begin to work harder and to restrict access to new capital investments in site facilities such as fishing platforms. He argues that accumulators develop a hearty appetite for personal gain through commanding excess resources, and food surpluses are eventually transformed into stores of other scarce and desirable goods (Hayden, 1994, pp. 225–227). “Accumulators” manage, then, to seize super-rich food resource areas, but never at the expense of others. They entice other people to cooperate in producing surpluses that they use in competitive feasting cycles, employing newly developed status foods (e.g., dog) to assert and validate their standing. (In this sense, these are classic DR economies in which there are many opportunities for some to begin to manage stored goods and the labor of others). This process eventually creates permanent inequality through the burden of debts that are difficult to repay (cf. Gosden, 1989).

Such insights into competitive contexts are provocative and Hayden is able to draw upon many sources of ethnographic data to support the model. On the other hand, he insists that complexity will emerge only where resources are abundant and conditions highly favorable (a quite widely accepted view, in fact). If Hayden is correct, where significant food resource fluctuations occur, complexity is not possible. He assumes that sharing will always be reinstated—and thus inequalities quashed—when severe food shortages affect a region. To support his argument, he employs ethnographic data from an impressive range of sources, including the modern Maya. That particular socioeconomic situation does not closely parallel typical CHG conditions, however, and thus the relevance of a few of the examples he cites may be debatable.

Nonetheless, I and most other scholars interested in these questions agree with Hayden that accumulative elites exist in CHG societies and that they are capable of being politically and economically aggressive. What appears incongruous with such a characterization of elite behavior is Hayden's contention that centuries (or millennia) elapse before complexity emerges from these competitive processes. The capital investment, feasting, giving, and debt cycles he describes, perpetrated by highly motivated individuals, ought to produce institutionalized inequalities in just a few generations [Arnold (1993, pp. 89–91) discusses a punctuated equilibrium model to account for the pace of emergent complexity]. Hayden's model is otherwise consistent with human agency and practice theory (Roscoe, 1993) in its focus on the means by which a few concentrate power in their own hands, but the slow pace of elite emergence he envisions transforms it into a passive proc-

ess in which accumulator-elites are seemingly ineffectual during their lifetimes.

Contrasting with the idea that conditions of abundance are essential to elite emergence, Keeley (1988), Halstead and O'Shea (1982), Cohen (1985), and others have identified population pressure and social and environmental stress as the key stimuli. Archaeologists and ethnographers have documented several CHG cultures that were subject to profound spatial and interannual variability in food resources, episodic severe resource deficiency, and other occasional stresses (e.g., Donald and Mitchell, 1994; Shnirelman, 1994; Yesner, 1994b). Circumscription or population pressure has been linked to important organizational changes among some of these groups in Russia, Alaska, and the Northwest Coast.

Many, perhaps all, archaeologists conducting CHG research concur with the assertion that a *baseline* of richness of subsistence resources is essential for the concentrations of population associated with increasing complexity; that is, it is a necessary condition of complexity. Renouf (1991), for instance, notes that spatially concentrated marine resources in the Port aux Choix area of Newfoundland permitted an otherwise unusual degree of sedentism along this part of the North Atlantic coast, establishing places where wealth could accumulate, substantial residences could be constructed, and managers could organize activities. In this instance, and in other cases from California, the Northwest Coast, Alaska, Europe, Russia, and so on, there is wide support for the abundance-complexity link (Brown and Price, 1985, p. 436). Few see resource richness as an absolutely *uniform* condition in these areas, however. That is, while each region where complex hunter-gatherers appeared exhibits overall food resource richness and abundance, there were periods in every part of the world when that richness was occasionally diminished by climatic events or cultural practices. What Hayden argues is that such periods were never times of ascending social complexity; what others contend is that, in some cases, such periods were precisely the times that certain members of society were able to stimulate the reorganization of labor and the development of ranking.

Studies on the California Channel Islands show that the upwelling-dominated, cool Pacific waters that supported some of the richest fishery and marine mammal breeding areas of western North America were also characterized by aperiodic and occasionally moderately severe disturbances (Arnold, 1991, 1992a, c; Arnold and Tissot, 1993). We have linked the emergence of opportunistic elites, increased craft production, control over ocean-going canoes, and institutionalized inequality with shifting marine conditions, drought, and large populations at ca. A.D. 1150–1300. This model combines human agency theory and aspects of risk management to construct a labor-control theory of emergent complexity (Arnold, 1992a, 1993). Archaeologists

working in other regions also have suggested that some form of difficulty with the regional resource base, rather than unmitigated richness, led to increasingly hierarchical social and labor relations. For instance, Cannon (1994) argues that emergent ranking is a consequence of variability in salmon productivity (rather than perpetual abundance) in the Northwest Coast region. He suggests that because salmon populations occasionally suffered locally significant declines, people with poor access to fish were forced to move to neighboring territories, and their acceptance into another community was contingent upon assenting to diminished status and contributing extra labor to their new household unit.

Assessment of the models developed by Cannon (1994) and Hayden (1994), as well as models to explain the rise of complexity advanced by Ames (1985), Maschner (1991), and Cohen (1985), reveals important common ground. These models do, however, treat time and space on different scales, sometimes ignoring the effects of the timing of cultural and environmental events and the occasionally pronounced regional heterogeneity of responses to such events. Let us briefly explore these issues. First, it seems reasonable to suggest that if outside threats, environmental difficulties, or other problems affect subregions of a territory quite differently, then we should expect that people may act opportunistically in one district and revert to sharing norms in another, depending on local conditions; that is, there may not be a single pan-regional response to disruptions. Second, if the onset of disturbances follows initial institutionalization of hierarchical relations, such conditions may only strengthen elite holds on labor power, ritual, capital investments, and the like. If, on the other hand, stresses precede elite emergence, such circumstances may either provide ideal opportunities for aspiring elites to intervene and shape outcomes or, conversely, the necessity to stem elite aspirations and reinstitute egalitarian ethics (Hayden, 1995). Third, of central importance in understanding these varying outcomes is the specific process by which aspiring elites were gaining power and control. If they were manipulating the circulation of esoteric nonfood goods that lost importance under conditions of food stress, then elite hold over others would likely disintegrate. If, however, elites were developing means to control transportation (Arnold, 1995), exchange, or labor power (Arnold, 1993, 1996), any of which might be critical to solving a developing problem, then elites should be able to consolidate dominant positions.

That is, if there are advantages to the group as a whole for some to maintain their organizational leadership roles, then perhaps ownership rights to resources or technologies are less easily revoked (see also Hayden, 1996). Local circumstances, the precise timing of stresses, the density of the resident population, forms of elite power: all of these are important

to evaluate critically. The duration of stresses may be quite important too, a point taken up by Arnold (1993), following Keeley (1988).

Human participants in social change are of course situated within specific historical and environmental conditions, contending with varying degrees of population pressure, varying resource abundances (interannually), important technological developments that provide opportunities for labor manipulation, the ebb and flow of pressures from external social units, and the dynamics of domination and resistance within a region. Models of social change must at some stage consider the actions of commoners as well as emergent leaders and how these conditions affect the heterogeneity of power across social units (Brumfiel, 1992, 1994; Paynter and McGuire, 1991; Spencer, 1994). Emergent conditions of social inequality may be unabashedly exploitative (Coupland, 1988; Maschner, 1991; Ruyle, 1973), indirectly exploitative under favorable conditions—where growing inequities are little noticed or few are adversely affected—(Bender, 1989; Hayden, 1990, 1992; Matson, 1992), nonexploitative (Saitta, 1994), or opportunistically exploitative in the sense that labor control is instituted under periodically stressful conditions (Ames, 1985; Arnold, 1992a; Cannon, 1994).

Both Hayden (1994) and Yesner (1994b), along with Helms (1994), Redmond (1994), and Spencer (1994), believe that chronic warfare plays a major role in the maintenance of permanent chiefly authority, although they disagree regarding its significance in processes of emergent complexity. But as important as warfare and less overt forms of conflict were in many New World chiefdoms, they were not universal phenomena. Instead, violent conflict is most productively viewed as one of several major strategies by which some elites gained control over the labor of kin and nonkin followers. After all, as Helms (1994, p. 57) notes, warfare in some of the chiefdoms of Panama was more about political aspirations of “rivalrous men” than community economic needs. I suggest that men’s conscripted participation in war activities was part of the general labor demand strategy devised by Panamanian chiefs. Similarly, elites who manipulated ideology and commoner participation in ritual activities that contributed to the establishment of institutionalized inequality (e.g., Matson and Coupland, 1995, p. 150) were seeking to gain control over labor, as also recognized by Bender (1989) and others (see additional discussion under Political Integration).

## SEDENTISM

In years gone by, complexity has often been closely linked to sedentism; that is, a complex society was typically assumed to have been sedentary and any group that led a settled life must have been rather socially

complex. Few hunter-gatherer groups were ever presumed, until quite recently, to have been either sedentary *or* complex; consequently, an exploration of these concepts and their implications for CHG is worthwhile and may provide greater insights into variability than cases drawn solely from farming societies. Sedentism customarily refers to degree of residential stability through the course of an annual cycle. *Fully sedentary* indicates a single place of residence used regularly throughout the year, although short collecting forays may of course occur periodically. The latter generally involve only expediently constructed shelter, and not a residence per se (Binford, 1990, pp. 121–122; see also Rafferty, 1985). Mitchell (1994, p. 7), after Murdock and Wilson (1972), defines people as *semisedentary* if their settlements are “occupied throughout the year by at least a nucleus of the community’s population, but from which a substantial proportion of the population departs seasonally to occupy shifting camps,” which is consistent with the definition proposed by Binford (1990, p. 122). *Seminomadic* groups occupy camps much of the year and a fixed settlement for one or more seasons [typically during the winter among high latitude groups, according to Binford (1990)], and *nomadic* groups are of course quite mobile throughout the year. What the following discussion shows is that there is considerably more variability in settlement patterns among the most complex CHG than most archaeologists would imagine, and this variability is significant, undermining many cherished notions about the relationships among sedentism, economy, and degrees of complexity.

Traditional hunting and gathering activities among most typical foraging groups required populations to remain relatively mobile to secure adequate supplies of wild foods that became available across different ecological zones during various seasons. Collected foods were rarely of appropriate type or sufficient quantity to store for long periods, and adequate combinations of foods did not exist within single small zones of hunter-gatherer territories to provide full supplies of proteins, calories, minerals, lipids, etc. Consequently, most hunter-gatherers throughout prehistory did not become sedentary.

Certain hunter-gatherer groups did become increasingly tied to smaller, well-defined territories through time, as landscapes became more packed and other factors intervened (Brown, 1985). Some of these groups developed major earthmoving projects in order to establish strong ties to important points of land [whether or not they became sedentary (see H. Jackson, 1991)]; some of these projects were sacred burial or effigy mounds, while others appear to have served more purely economic functions. Here I include the Adena (Bender, 1985), the Archaic groups of Horrs Island in Florida (Russo, 1994), the Calusa (Goggin and Sturtevant, 1964), and the Poverty Point culture (Gibson, 1994; H. Jackson, 1991).

Although some groups increasingly invested labor and more sturdy materials into construction of mounds and/or houses, such structures sometimes represented only partial-year occupation. It is important to assess sedentariness independently of measurable labor investments in structures, including huge house structures in the Northwest Coast (Ames, 1991; Drucker, 1951; Matson and Coupland, 1995, p. 259, 271) and structures whose form was a function of a harsh climate (see also Binford, 1990, p. 149). For instance, Upper Paleolithic houses constructed of mammoth bones appear to represent pragmatic uses of available building materials in extremely harsh conditions (Soffer, 1985) and do not alone constitute evidence either for sedentism or increased complexity.

Thus, the assessment of settlement fixity or mobility through structure size, type, or materials should be done only with caution. Ames (1994) characterizes the evidence for sedentism in the Northwest Coast region largely in terms of whether or not major house structures were present. A firm demonstration of prehistoric sedentism would, however, require additional presentation of evidence for year-round occupation (e.g., seasonality of faunal remains); many of the sources Ames cites likely did not provide such data. As discussed below, Mitchell (1994) argues that few Northwest Coast groups were fully sedentary.

Sedentism does have some general but not necessary links to delayed-return (DR) systems (defined in *Defining Complex Hunter-Gatherers*) and storing economies among CHG. The implications of storage (Binford, 1990; Ingold, 1986; Rowley-Conwy and Zvelebil, 1989; Testart, 1982) and of DR systems (Barnard and Woodburn, 1988; Woodburn, 1980) for sedentism have been explored quite thoroughly in recent years. We must be aware that because a majority of hunter-gatherer groups had some form of DR economy, a DR system cannot serve as a simple equivalent of CHG organization. Burch and Ellanna (1994b) make a similar point in their review of recent research on contemporary hunter-gatherers. In short, there are both simpler delayed-return and more complex delayed-return economies, and only some of the latter groups are also CHG. There are also many hunter-gatherer groups who stored regularly, only some of whom were sedentary or CHG.

For many archaeologists, the process linking increased residential stability and increased cultural complexity is capital investment in fixed facilities such as fishing platforms (Hayden, 1992; Hayden and Spafford, 1993) or eel capturing loci (Lourandos, 1988). An obvious but not universal corollary of these innovations is the development of storable surpluses (Hayden *et al.*, 1985) and/or the initiation of major feasting cycles (Bender and Morris, 1988, p. 12; Hayden, 1994). For other archaeologists, the process linking sedentism and complexity is investment in defensive fortifications,

as in the Puget Sound area (Tollefson, 1987). Maschner (1991) considers the coalescence of Alaskan Northwest Coast communities to be linked primarily to defensive activities associated with the introduction of the bow and arrow, but also to the need to gather for mass harvests of fish and to efficiently consume stores of fish.

The kinds of surpluses generated by the oceangoing canoe-based economies of groups such as the Makah of the Olympic Peninsula region and the Chumash of coastal California promoted rather sedentary residential patterns. Huelsbeck (1988a, b) suggests that large surpluses of oils and whale meats were produced in stable communities along the Olympic Peninsula coast, and Arnold (1985, 1987, 1990, 1992a-c; Arnold and Munns, 1994) describes the massive, specialized bead production and associated industries that were centered at permanent, year-round coastal villages in the Channel Islands Chumash region. Rich fishing grounds and resource hot spots obviously can draw large populations to specific locations and facilitate permanent and semipermanent settlement (Renouf, 1991; Widmer, 1988; see also Palsson, 1988). But for every example linking economic complexity and sedentism, selected Northwest Coast cultures provide important counterexamples, making it clear that there are no necessary relations among surpluses, complexity, and degree of sedentism (Mitchell, 1994; see also Ames, 1991). Moreover, cases drawn from the Central Arctic and the North American Plains demonstrate that there is also no absolute linkage between intensive use of storage facilities and degree of sedentism or complexity (Binford, 1990, p. 145). Keeley (1988) and Brown and Price (1985) have successfully disarticulated complexity from sedentism, but most other archaeologists (this author included) have been guilty at one time or another of linking the two phenomena rather uncritically.

The Haida and Bella Coola may have been among the most sedentary of the Northwest Coast groups, possibly with nearly year-round habitation at one village site (Mitchell, 1994). These groups most closely approximate stereotypical notions of Northwest Coast complexity and occupation of substantial permanent structures in stable villages. The Tsimshian and the Tlingit, on the other hand, who were in general terms no less complex, were much less sedentary, with large winter houses *and* one or more other seasonal residences, apparently much like the Nootkans, who moved their massive houseboards on large freight canoes at least twice a year (Drucker, 1951). Mitchell (1994) indicates that the northern Puget Sound peoples least resemble the customary picture of Northwest Coast settlement. They moved three to five times per year, including shifting to a winter village, short-term spring camps, a Fraser River residence in the summer, and a late summer camp more than 120 km inland, placing them in the "semi-

nomadic" category, yet they were unambiguously participants in the fully developed "Northwest Coast Pattern" (Matson and Coupland, 1995).

Mitchell's (1994) analysis encourages a much more flexible and sophisticated assessment of the dimensions of residential stability for CHG groups, including measuring frequency of moves per year, distance moved, percentage of the population moving, reuse of sites, and presence or absence of dwelling dismantlement. Clearly, the larger the values associated with the first three of these variables (number of moves, distance, percentage of population moving), the more mobile the group, but we should also recognize that consistent reuse of sites and travel with houseboards indicates that the settlement pattern in both the Salish and the Tsimshian areas of the Northwest Coast was highly regularized and spatially restricted. Moving from one established seasonal village to the next, with permanent houses or house frames in each village, certainly constituted a different kind of mobility than that exhibited by many other mobile hunter-gatherers. The question we must ask for each CHG culture is, What was the *nature* of sedentariness/mobility? Most fully or semisedentary societies did become fairly complex for some of the reasons outlined above, but some Northwest Coast seminomadic peoples were more sociopolitically and economically complex than some sedentary groups in other regions of the world (e.g., Archaic Florida). This variability and heterogeneity in residential fixity is important, and its refusal to covary consistently with overall measures of complexity must be embraced rather than ignored (Feinman and Neitzel, 1984).

### POLITICAL INTEGRATION

There may be two primary levels of political authority in CHG societies. We should note that the power to have others do one's bidding, if confined to a fairly narrowly defined kin group, is not "political" and does not imply organization beyond authority customarily vested in elders and heads of families. The first level of legitimate *political* authority involves the power to govern people other than close kin, that is, to be able to order nonkin (or quite distant kin) to implement requests and to have them comply because there are social, economic, or perhaps corporal costs associated with noncompliance (Arnold, 1993; Earle, 1991; Hayden, 1994; Price, 1984). This certainly includes institutions such as slavery and attached specialization, although it more frequently refers to the authority to control ordinary kinds of labor, and may occur within large corporate households or within or between villages. Many Northwest Coast groups, several California societies, and the Calusa, among other CHG, exhibit these kinds of activities and this level of political authority (Arnold, 1992b; Donald, 1985;

Hayden, 1992; Loeb, 1926; Marquardt, 1988; Mitchell, 1985; Mitchell and Donald, 1988).

A second political layer, found among some CHG, is multicomunity governance. The authority to demand contributions for feasts from several communities, to control production or distribution activities in multiple villages, to call extracommunity warriors for offensive/defensive maneuvers, or to call upon outsider labor to engage in various projects might be included here. The contact-era Calusa (and likely the prehistoric Calusa) clearly exhibited a multivillage level of integration (Marquardt, 1988), and the prehistoric Chumash apparently exhibited this kind of political integration as well (Arnold, 1992a; Blackburn, 1975; King, 1978). Carneiro (1981) and Johnson and Earle (1987) insist that multivillage integration must be present in order to classify a society as a chiefdom. Whether Northwest Coast peoples exhibited any such supravillage political integration is subject to considerable debate. Tollefson (1987) argues that the Snoqualmie of the Puget Sound region were a chiefdom during the 1800s, exhibiting regional political integration involving at least eight villages under the authority of a chief. Kan (1989, p. 281) states that centralized political leadership was absent throughout the Northwest Coast, a position also taken by Matson and Coupland (1995, p. 29) and most others. Nonetheless, many Northwest Coast specialists are confident of the exceptional social and economic complexity of these groups and do not view the absence of a second tier of political authority as an obstacle to classifying them as equally as socially, culturally, and economically complex as other simple chiefdoms (even if they do not choose to apply the term "chiefdom"). Precontact political conditions are difficult to reconstruct, of course, and the nature of postcontact society may have had powerful effects on the development of models for prehistoric culture, as it has in the "egalitarian" Puebloan Southwest and elsewhere.

According to a majority of Northwest Coast archaeologists, the chiefs in this region were in any case not political office-holders. That is, formal "offices" apparently did not exist, and chiefs could not absolutely compel assistance from ordinary villagers even though they stood at the apex of a class-divided society that included large numbers of slaves at the base. Some scholars prefer, then, to characterize them as tribally organized rather than chiefdom societies (Mitchell, 1983). "Chiefs," or titleholders, owned resources and controlled wealth, but had only "intellectual authority" (L. Donald, personal communication, 1994) over others in their kin groups and villages. However, it strikes many who work outside the Northwest Coast that because titleholders had absolute authority over slaves, they clearly held substantial power over a major nonkin labor force within their communities. This was certainly legitimate political power, the power to have decisions implemented by others (accompanied by the threat of serious con-

sequences for noncompliance), but it may not have been centered in a political office in the traditional sense. Are a lack of multicomunity integration and a purported absence of formal leadership “offices” important enough to set apart the Northwest Coast groups from some of the other very complex CHG? These questions must be addressed in the coming years.

Several important reviews of issues pertaining to political economy and theoretical trends in analyses of political authority have appeared recently, although in most there is little more than a passing remark about CHG societies. Cobb (1993) has reviewed research on the political economy of prestate societies, and Trigger (1993) and McGuire (1993) have traced the histories of classical Marxist and structural Marxist traditions in archaeology. Central in each of these reviews is the nature of political integration and the relationship between political authority and developments such as labor control and social inequality. Cobb (1993) unfortunately overlooks CHG in his otherwise quite thorough analysis of the political economy of nonstratified groups. He questions whether “true conditions of exploitation and institutionalized dominance” exist within precapitalist groups (Cobb, 1993, p. 49). Because such a question is readily answered by reference to the slavery endemic in Northwest Coast society, for instance (see Ames, 1994; Donald, 1985; Mitchell, 1985), and by the presence of hostages and war captives who had to provide labor for high-ranking Calusa leaders—and who were sometimes sacrificed (Marquardt, 1988)—I conclude that Cobb did not know about these phenomena among CHG or considered them too unimportant to mention. Spencer (1994), Brumfiel (1994), and others have examined the internal and external components of political leadership. Each has also reaffirmed the linkage between political power and labor control (Spencer, 1994, pp. 33–37) as well as the importance of consolidating internal labor control strategies *and* brokering contacts with other polities (whether through trade, alliances, or warfare).

Although the terms *sequential and simultaneous hierarchy* were introduced some time ago by Johnson (1982), these concepts have enjoyed a recent revival among archaeologists interested in the intermediate stages of cultural evolution. Within any society, multiple situations arise that require action from decision-makers, and among groups where the authority to shape courses of action in several realms is *not* centralized, we see, according to Johnson, a pattern of sequential hierarchy. That is, several different persons in turn (in sequence) assume temporary decision-making/leadership roles. The authority to assert leadership is situational and short-term leaders base their limited power on charismatic influence or special skills rather than fully institutionalized positions. Simultaneous hierarchy, on the other hand, refers to a political structure in

which the authority to make decisions originally held by an individual in only one sphere extends to synchronous influence over other realms. The concentration of authority in one person (or sometimes a small coalition) constitutes fundamental political centralization. It is quite different from the authority of one or more elders in a lineage who control only the activities or labor of members of their own kin group.

According to many archaeologists, the power-building process is inherently economic. Political power derives from the alienation of foods and/or prestige goods from the control of producers (Brumfiel and Earle, 1987; Cobb, 1993; Upham, 1990). In other words, "the emergence of hierarchy always involves the transfer of goods from the hands of direct producers to political elites" (Brumfiel, 1992, p. 556), which is another way of saying that manipulation of the labor process in some form is nearly always a key to political centralization, an idea I fully endorse. Spencer (1993, pp. 48–69) shows that followers are often bound to leaders through elite control over labor, but his primary intent, unrelated to economic analysis per se, is to link Johnson's concept of simultaneous hierarchy with the provocative evolutionary model of Boyd and Richerson (1985). He presents a "group selection" model of the emergence of chiefdom political authority, equating simultaneous hierarchy with permanent chiefly authority. Sequential leaders are temporary leaders of activities such as warfare, exchange, and religion. Permanent leaders increase the size of their factions, knit together the various leadership functions that were formerly parts of sequential spheres, and link internal and external authority. The mechanism by which this happens is that followers begin to admire and emulate successful leaders and accept a "leadership package," according to Spencer (1993, p. 69). The reasons that people assent to be followers relate to principles of selection and group survival, and there is some suggestion that risky conditions may have fostered such changes (Spencer, 1993, p. 70), at least in prehistoric highland Mesoamerica.

Some archaeologists believe that politics and the economy play little part in the emergence of unified leadership in CHG societies. Aldenderfer (1993), for instance, argues that ritual power is the source of institutionalized power in hunter-gatherer societies. He assumes that group ritual in the name of group objectives creates hierarchy. Followers are pressed to conform with ritual demands and the individuals in charge of group rituals come to control more than one resource (which is loosely equated with more than one sequential hierarchy). However, data from the Gabrieliño of California are at times misinterpreted in the construction of this model, and lineage-based power is confused with permanent leadership (Aldenderfer, 1993, pp. 22–31). Moreover, Aldenderfer's assertions about processes of power ascendancy in the prehistoric Northwest Coast are not

supported by archaeological evidence recently reviewed by Ames (1994) and others. While there is good reason to believe that ritual was important in the process of political development in some regions, although certainly not all, the problems with the cases cited weaken the contention that ascendancy of ritual leaders by simple acclamation or emulation was sufficient to establish elite power among CGH.

Tonkinson (1988, pp. 155–156) shows clearly how ritual authority in some societies does not extend easily into mundane affairs (that is, into other sequential hierarchies), using examples from several western Australian groups. Moreover, he suggests that among some of the northern Australian peoples, the presence of clan structures, rather than the actions of temporary leaders in the ritual sphere, may be responsible for stimulating more stable leadership. Lourandos (1988, p. 151) echoes this view, indicating that among the northern Australian Tiwi (and several New Guinean highland societies), ascendancy in complexity to the Big-Man level is associated more closely with the formation of large polygynous households and changing social relations.

The extension of ritual power into other arenas, where it does lead eventually to the overt construction of institutionalized political leadership, is, as I have suggested above, probably best seen as one of several paths by which leaders may gain control over group labor (Arnold, 1993, 1996; Bender, 1989; Ellen, 1988, p. 132; Hayden, 1994; Price, 1984). An excellent example of this is given in Bender's (1989, 1990; Bender and Morris, 1988, p. 7) model of increasing social complexity among gatherer-hunters of the Upper Paleolithic. Bender identifies cave art and its attendant rituals as a means by which ritual leaders appropriated the labor of initiates. Ideology may of course have been quite effective in disguising labor manipulations by leaders. In any event, power—whether based on control of knowledge, the economy, resources, or ritual—speaks to unequal labor relations among people, and new forms of power indicate the emergence of social and labor relationships that did not exist before.

### PRESTIGE ECONOMIES, FEASTING, AND STATUS

Several recent studies of DR economies and hunter-gatherer groups have evaluated the nature of feasting systems, elite control over the production and distribution of prestige goods, and processes of status ascription. Where these studies establish links to other phenomena such as subsistence intensification, population aggregation, status competitions, the creation of indebtedness, and the like, quite important advances have been made.

The more complex of the Australian groups (Lourandos, 1988, 1993) developed a number of different kinds of large-scale harvesting practices in association with group-level ceremonial festivities. Lourandos indicates that intergroup competitions led to surplus production among several of the Australian and Papua New Guinean societies. Incentives existed to generate at least short-term surpluses, ostensibly to support seasonal feasting, rituals, and trade. Social change might be archaeologically identifiable at this level of intergroup relations, according to Lourandos (1988, p. 150). These particular groups, however, exhibited only Big-Man or simpler kinds of integration, never superseding a kin-based organization of labor (Lourandos, 1988, p. 151) and retaining temporary (sequential) leadership of aggregations of people for immediate consumption of bountiful harvests of wild foods such as eels.

H. Jackson's (1991) trade fair model for the Archaic-era Poverty Point site (and applications of the model to the Arctic, Australia, and other areas) suggests that seasonal feasting served as a focal activity for large temporary aggregations of hunter-gatherer groups from dispersed regions. Fairly mobile forager groups congregated to take advantage of major harvests of wild foods and to socialize, trade, and select marriage partners, but such events did not in these cases foster sedentism or the development of institutionalized leadership. From Jackson's perspective, feasts were a consequence of broadly constituted social needs and the need to take advantage of temporary, localized resource richness. In other words, feasts promoted short-term aggregations of otherwise dispersed hunter-gatherer groups, but not territorial circumscription, elite authority, or increased sociopolitical complexity.

Hayden (1992), in contrast, views feasts in the interior British Columbia region as a critical tool used frequently by aspiring (and established) elites to lure follower support. Elites employed the labor of families and slaves and skimmed interest from transactions involving a variety of sources. Feasts were thus a forum, a very competitive one, to give gifts, attract labor commitments, and establish debt (Hayden, 1994). These strongly contrasting perspectives on the roles of feasts emerged, of course, from studies of quite different prehistoric situations. Certainly the feasts Jackson and Lourandos describe were panregional events, while the Fraser River feasting involved the activities of territorially focused, semisedentary groups hosting feasts in their own communities. In his 1990 article, Hayden observes that the highly competitive nature of feasting in rich hunter-gatherer environments was explicitly a matter of developing and extending power. Successful feasts depended not only on having great quantities of staple foods to distribute, but also on the development of prestige foods. These sets of foods were given to kin, affines, followers, and similarly situated elites in other groups within the area. Although guests may have traveled

from tens to hundreds of kilometers, the site of the feast was not an otherwise unoccupied area, as was reportedly true of the Poverty Point-like seasonal trade feasts. The elites in Hayden's Fraser River groups and other similar contexts were *hosting* feasting events during which they established obligations for future returns from neighbors. Competitive feasts involving circulations of prestige foods and goods created spirals of debt and complex labor interdependencies within a fairly stable social web.

Processes of producing and distributing prestige goods were not confined solely to foods and feasting, as such. A number of CHG economies involved relatively massive exchanges or displays of durable prestige goods, including craft items of shell, stone, wood, textiles, and animal products. Gift-giving of valuables at ceremonial events established important bonds between elites and others (Gosden, 1989). Trade in nonceremonial contexts also facilitated the movements of such goods. Indeed, many archaeologists argue that the rise and/or maintenance of complexity is firmly linked to elite-managed circulations of prestige goods such as ornaments, bracelets, semiprecious stones, beads, carvings, and weavings, including very rare and valuable items. Too much emphasis on whether the trade of such goods occurred over long distances has obscured the most important issue, which is whether and how the trade was controllable. If treasured "valuables" have relatively close points of origin and their *distributions* can be controlled at the source, at manufacturing loci, or through transportation technology (see Arnold, 1995), then there is no reason that they cannot be used to establish prestige, along with, or instead of, valuables of exotic origin.

A case study illustrates this point. In California's prehistoric record, there is significantly reduced circulation of exotic prized materials such as obsidian from the Middle to the Late Period throughout the southwestern part of the state; it was during the Late Period that groups such as the Chumash reached their pinnacle of complexity. Late prehistoric Chumash trading efforts seem instead to have focused on massive movements of prestige goods and foods of fairly immediate southern California origin, including shell beads of several types, some of which functioned as standards of value and others as elite symbols (Arnold, 1991, 1992a, c; Arnold and Munns, 1994). Truly long-distance exchange was of little importance. In short, studies of the nature and organization of internal craft specialization among CHG pertain more directly to our understanding of the operation of prestige economies in California, the Northwest Coast, and elsewhere (e.g., Arnold, 1987, 1992c; Chatters, 1989).

The largely hunting-gathering coastal populations of the Khok Phanom Di region of Thailand developed pronounced differentiations in status through participation and success in ceramic craft specialization and exchange (Higham and Thosarat, 1994), but these distinctions were confined

to single generations. Big Men and Big Women, taking advantage of the richness of the nearby estuarine environment and able to manipulate surpluses of various foods and goods, including fish and rice, shell jewelry, spectacular ceramics (period MP5), and more, were able to elevate their status during their lifetimes, but they were not able to pass wealth and higher status to their descendants, according to Higham and Thosarat (1994, p. 110). They conclude that there was no development of social stratification or permanent leadership in this culture. The point here is that the advent of specialization and the manipulations of valuables do not, of course, necessarily result in institutionalized social differentiation in all cases, no matter how rich the environment or how sedentary the society. What is important is the development of some permanent change in the ability of leaders to control nonkin labor and to augment the status of their lineage, which apparently did not occur at Khok Phanom Di.

Where major events such as trade fairs or ceremonial feasts are known to have occurred regularly, at least two significant types of transactions arise that involve foods and/or manufactured craft goods. It is important to identify these different kinds of exchanges of material goods and to analyze their implications. First, foods distributed to guests during feasting events represent significant stores of calories—gathered earlier through labor marshalled by the host, or host and guests—that are removed from circulation. Replacing feast foods (that is, restocking storage facilities for the next event) requires new sets of labor contributions, representing, of course, an important future transaction between hosts and allies and kin. Second, durable prestige goods distributed during feasting or trading activities may remain in circulation for quite some time. Each change of ownership normally has economic, political, or ritual significance, but until the items need to be replaced, there is no further labor involved in the production process. Such items must of course occasionally be removed from circulation in order to continue to stimulate labor. Price (1984) suggested that feasting, burials, and other ceremonies are ways continually to absorb the labor value invested in prestige goods. In her view, as well as mine (Arnold, 1993), because elites compete for labor, not just resources, they must find ways to build a labor force and then make steady use of that labor (and reward that labor) so that it is not attracted elsewhere. Taking durable prestige items out of circulation with increasing frequency stems inflation and stimulates labor, production, and innovation. The most common means of removing items from circulation are ritual donation or destruction during ceremonies (e.g., tossing beads into the fire, burning Chilkat blankets), burial with the deceased, or deposition in hoards (caches). These processes provide elites with choices they make as each type of surplus arises: Is it politically desirable to *consume* surpluses or to *reinvest* them externally?

Elites who choose to deposit prestige valuables in their own burials or in ritual hoards, or who distribute quantities of staples and prestige foods during hosted ceremonies, operate in what we may call a *consumption* mode. Consumption removes items from circulation in ways that validate elite family status, such as disposition in lineage interments, or in ways that recognize elite rights to associate with the supernatural, such as ritual deposits and gifts to supernatural entities during public ceremonies. Large-scale consumption of foods by guests during feasts is obviously a means to rapidly and often spectacularly deplete stores, and it also means that labor must again be marshalled during the upcoming year to replace stores for the next feast. Allocations of foods, if unaccompanied by gifts of other kinds of durable goods, may or may not place guests at feasts into substantial debt. Guests in some cases donate foods to the feast and may believe that what they consume is an expected return for their efforts. This is not to say that foods are unimportant at feasts (see Hayden, 1990), but to recognize that most distributions of staples at feasts have different implications for rank and debt than gifts of durable prestige goods. There is the practical matter of sustaining many people concentrated in one place for an extended period, and most foods consumed are relatively ordinary; beyond that, of course, some prestige foods such as fermented beverages may serve special purposes and, if they are rarely available outside these contexts, they may function more like unrepayable gifts of prestige goods (see also Dietler, 1990).

Elites who, on the other hand, choose to bestow durable valuables to allies or dependents through formal gift-giving during special feasts or in trade select what I call a *reinvestment* mode, with different social and political consequences. Presentations of valuables through formal gift-giving indicate that elites are investing directly in their ties to constituents or elite counterparts in other communities. The aim of all such activities is to accrue prestige and elevate standing in the community or region, and of course allowing certain valuables to circulate among allies has favorable consequences for elites. Rather than vicarious participation in displays of valuables, where followers only see and do not handle them, selected higher-standing kin and allies are included in the process of their care and disposition; they are entrusted with objects such as exotic or expensive craft items. According to Hayden (1994), primitive valuables often become the media for facilitating major social transactions such as securing marriages and alliances, and thus they may circulate in several contexts, but also they may arise from, and embody, the transformed value of surpluses of ordinary food items. Giving away treasured valuables, particularly in highly socially charged contexts, also establishes significant debt and may generate a substantial return of interest on the gift. Reinvestment seems to be a relatively

common strategy in social contexts such as CHG societies [Hayden (1994) notes that hosts of competitive feasts in the Fraser River area give as much away as possible to earn interest for themselves], while self-promoting consumption is more customary among established complex chiefdoms with strong links between chiefs and the supernatural. These strategies may of course be combined. The Chumash deposited moderate quantities of valuables in elite burials, including Olivella shell beads, expensive shell tube beads, and exotic steatite vessels, and the historic-era Northwest Coast potlatchers occasionally destroyed great numbers of treasured blankets, copers, and other objects in competitive frenzies, but many other valuable items in both regions seem to have been reinvested through broad circulation rather than consumed.

Big-Men with lower levels of power and authority in places such as the northwestern part of California generally neither consumed nor reinvested. Tolowa men owned wealth goods, such as dentalia necklaces, large obsidian blades, and woodpecker scalp headdresses, but they consistently displayed rather than destroyed, buried, or made gifts of these treasures at feasts and other ceremonial events (Gould, 1966). It was important for them to provide food generously at such events (through labor provided by their wives and daughters), but they had no obligation to relinquish valuables. Upon the death of a wealthy man, his valuables usually were divided among various children. The Tolowa data may belie important distinctions between the actions of Big-Men and the actions of leaders with more permanent power in feasting and ceremonial contexts.

Bender and Morris (1988, p. 12) suggest that the development and maintenance of storage facilities—often linked to both sedentism and complexity (Tostart, 1982)—were in fact epiphenomenal to increasing ceremonial obligations. They suggest that storage facilities were first developed by aspiring, competitive elites who orchestrated feasting cycles that required great stores of food for distribution to sizable groups of guests. Traditional adaptational/functional approaches, of course, link the emergence of storage to increased harvests of staples to buffer ordinary seasonal and interannual variation. As populations grow and/or resources decline, initially, stores satisfy needs to ensure community survival; later, they might be converted by aspiring elites to other ends. There is an important distinction between the two views. The appearance of storage capacity in the archaeological record means that the potential had developed for a surplus to be regularly accrued and consumed—But how can we determine in what context?

Realistically, for most prehistoric cases, it will be difficult to establish upon whose initiative a storage facility was constructed and who, or how many, had a say in disposal of surpluses. Did storage facilities originate with the elite agenda and feasting practices? Or were surpluses of staples

being deposited in storage facilities, with people coming together seasonally to consume excesses, leading eventually to more formalized feasting cycles? This debate has implications for the origins and perpetuation of ranking, labor manipulations, and ceremonial cycles; it is certainly worth further investigation. Hayden's (1990) effort to document whether major staples or low-volume prestige foods were among the first items to be manipulated by elites is a good starting point for such studies. It should be clear that data from many CHG societies can provide information particularly essential to the general understanding of prehistoric prestige economies, status, feasting practices, and emergent complexity.

### IDEOLOGY

Relatively few archaeologists use data from CHG societies to make a contribution to the study of ideology and power in ways interesting to post-processual or Neo-Marxist anthropologists, but Bender (1985, 1989, 1990) has recently published several such studies. She criticizes traditional approaches that "desocialize" and underplay inequality in gatherer-hunter societies. Because such groups are not broadly recognized as potential controllers of resources and are not seen as firmly tied to territories in the same way that farmers are, gatherer-hunters are often viewed as having failed to develop moderately advanced social institutions (Bender, 1989). She shows the several errors of this view, employing data from gatherer-hunter groups of North America and Europe, including their art, earthworks, ritual, ideology, feasting, and labor-use patterns (Bender, 1985, 1989). Upper Paleolithic art, for instance, was likely a means to appropriate the labor of initiates for ritual feasts and status displays, and ideology was used to disguise these manipulations of labor (Bender, 1989). Moreover, the art of that era was equally as effective in tethering people to segments of the landscape as monuments and farming were elsewhere, contributing to the development of ritually-based authority. Such ideas, particularly this view of cave art, reinforce Giddens' (1979) definition of ideology as the ability of dominant members of society to make their own "sectional interests" appear to others to be universally important. Although the evidence for ascribed hierarchy in the Upper Paleolithic remains ambiguous, the focus on labor and organizational issues in these studies is both interesting and productive.

Conkey (1985, 1991) discusses portable art and paths of ritual communication among Magdalenian hunter-gatherer cultures of Europe. The aggregation sites of the Magdalenians were important "contexts of action" and "contexts of power," places where negotiations of social relations may

have occurred, although a few archaeologists challenge these inferences. Aggregation sites such as Cueto de la Mina, Spain, are also locales where evidence for gender-based division of labor may be found among seasonally settled populations of both genders (Conkey, 1991, p. 72 ff.). In contrast to Bender (1989), and more in accord with the seasonal aggregation model proposed by H. Jackson (1991) for Archaic New World hunter-gatherers, Conkey (1991) does not suggest that Magdalenian groups developed new forms of labor control or higher levels of integration, *per se*, through their seasonal gatherings or their uses of art. These studies make important contributions to the analysis of sacred landscapes and forager ideology, even though Upper Paleolithic cultures may not have been CHG.

Several scholars who have worked among the more complex societies of the North Pacific Rim have expressed strong interest in the symbolic aspects of feasting practices, ceremonialism, and artistic displays (Fitzhugh, 1994). Black (1994) analyzes the iconography of the Koniag Alaskans, and Jordan (1994) details uses of masks, serving implements, and ornamentation among the Koniag in their feasting contexts. These studies are a fresh departure from traditional subsistence and environmental analyses for this region and highlight research among hunter-gatherer populations long (but incorrectly) considered among the simpler of the world. The art produced by various cultures, as discussed by Conkey (1985), Bender (1990), Black (1994), Jordan (1994), and many others working in South Africa, Australia, Europe, the western United States, and elsewhere, will no doubt continue to stimulate innovative approaches to understanding aesthetic, ideological, and ritual expressions of generalized and complex hunter-gatherers of the past.

Many postprocessualists and Neo-Marxists are also interested in gender asymmetry in the archaeological record. Contributors to the Gero and Conkey volume (1991), among others, have begun to address this issue systematically. Relatively few archaeologists, however, have worked with these kinds of data from hunter-gatherer groups of intermediate levels of complexity, although Conkey (1991), Claassen (1991), and T. Jackson (1991) represent notable exceptions. Claassen's model for the decline of the Shellmound Archaic is a fascinating case employing hunter-gatherer data to examine food symbolism, the ideology of burial practices, links between women and shamanic activities, and labor reallocation. This illustrates how hunter-gatherer prehistories can be used to explore a broad range of both traditional and contextual issues (see also Conkey and Gero, 1991).

Gender has also been examined in CHG mortuary contexts. Hollimon (1990) collected data on Chumash health, status, specialization, and gender inequality using skeletal remains and burial goods; results provided confirmation for previously documented intercommunity specialization (Arnold,

1992a) and different activities of Chumash women and men. In another recent study, Moss (1993) discusses shellfish procurement and consumption and its relationship to gender and status in the Northwest Coast area. She found that shellfish were low-ranking subsistence items, primarily gathered by women with simple tools, which suggests a potentially significant basis for gender-based inequality in coastal Northwest Coast societies. These kinds of studies of gender asymmetry and ideology among CHG hold considerable promise to make contributions to general theory.

### CONCLUSION

CHG were never ubiquitous, but many more such societies existed in the past than any of us might have believed only 20 years ago. Active field investigation of these and antecedent hunter-gatherer societies continues worldwide, in Europe, Southeast Asia, California, British Columbia, Alaska, coastal South America, the North Atlantic, Japan, Florida, the Near East, the Midwestern United States, and other areas. New contributions in theory, method, and data based on field research in these regions mark exciting advances regarding such issues as the impacts of technological innovation and specialization on emergent complexity, slavery among CHG, and the importance of sustained elite control over labor as a force in political centralization. Archaeologists have substantially advanced the study of complex hunter-gatherers during the past decade-and-a-half, but two changes must occur for such progress to continue: (1) theory development must increasingly be informed through well-researched field studies and, where appropriate, judicious use of ethnographies and (2) the study of complex hunter-gatherers must be mainstreamed. As we increasingly realize how many hunter-gatherer societies had complex delayed-return economic systems and acknowledge the impressive array of groups that exhibited middle-range sociopolitical integration, all anthropologists must recognize the need to incorporate complex hunter-gatherers into the fabric of social evolutionary theory.

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### REFERENCES CITED

- Aldenderfer, M. (1993). Ritual, hierarchy, and change in foraging societies. *Journal of Anthropological Archaeology* 12: 1-40.
- Ames, K. M. (1985). Hierarchies, stress, and logistical strategies among hunter-gatherers in northwestern North America. In Price, T. D., and Brown, J. A., (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 155-180.
- Ames, K. M. (1991). Sedentism: A temporal shift or a transitional change in hunter-gatherer mobility patterns? In Gregg, S. A. (ed.), *Between Bands and States*, Occasional Paper 9, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 108-134.
- Ames, K. M. (1994). The Northwest Coast: Complex hunter-gatherers, ecology, and social evolution. *Annual Review of Anthropology* 23: 209-229.
- Arnold, J. E. (1985). Economic specialization in prehistory: Methods of documenting the rise of lithic craft specialization. In Vehik, S. C. (ed.), *Lithic Resource Procurement: Proceedings from the Second Conference on Prehistoric Chert Exploitation*, Occasional Paper 4, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 37-58.
- Arnold, J. E. (1987). *Craft Specialization in the Prehistoric Channel Islands, California*, University of California Press, Berkeley.
- Arnold, J. E. (1990). Lithic resource control and economic change in the Santa Barbara Channel region. *Journal of California and Great Basin Anthropology* 12(2): 158-172.
- Arnold, J. E. (1991). Transformation of a regional economy: Sociopolitical evolution and the production of valuables in southern California. *Antiquity* 65: 953-962.
- Arnold, J. E. (1992a). Complex hunter-gatherer-fishers of prehistoric California: Chiefs, specialists, and maritime adaptations of the Channel Islands. *American Antiquity* 57: 60-84.
- Arnold, J. E. (1992b). Organizational transformations in complex hunter-gatherer evolution. Presented at the Society for American Archaeology annual meeting, Pittsburgh.
- Arnold, J. E. (1992c). Cultural disruption and the political economy in Channel Islands prehistory. In Jones, T. L. (ed.), *Essays on the Prehistory of Maritime California*, Center for Archaeological Research at Davis No. 10, University of California, Davis, pp. 129-144.
- Arnold, J. E. (1993). Labor and the rise of complex hunter-gatherers. *Journal of Anthropological Archaeology* 12: 75-119.
- Arnold, J. E. (1995). Transportation innovation and social complexity among maritime hunter-gatherer societies. *American Anthropologist* 97: 733-747.
- Arnold, J. E. (1996). Organizational transformations: Power and labor among complex hunter-gatherers and other intermediate societies. In Arnold, J. E. (ed.), *Emergent Complexity: The Evolution of Intermediate Societies*, International Monographs in Prehistory, Ann Arbor, MI, pp. 59-73.
- Arnold, J. E., and Munns, A. (1994). Independent or attached specialization: The organization of shell bead production in California. *Journal of Field Archaeology* 21: 473-489.

- Arnold, J. E., and Tissot, B. N. (1993). Measurement of significant marine paleotemperature variation using black abalone shells from prehistoric middens. *Quaternary Research* 39: 390-394.
- Barnard, A., and Woodburn, J. (1988). Property, power and ideology in hunting and gathering societies: An introduction. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 2: Property, Power and Ideology*, Berg, New York, pp. 4-31.
- Bean, L. J., and Lawton, H. (1976). Some explanations for the rise of cultural complexity in native California with comments on proto-agriculture and agriculture. In Bean, L. J., and Blackburn, T. C. (eds.), *Native Californians: A Theoretical Retrospective*, Ballena Press, Socorro, NM, pp., 19-48.
- Bender, B. (1985). Prehistoric developments in the American midcontinent and in Brittany, northwest France. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 21-57.
- Bender, B. (1989). The roots of inequality. In Miller, D., Rowlands, M., and Tilley, C. (eds.), *Domination and Resistance*, Unwin Hyman, London, pp. 83-95.
- Bender, B. (1990). The dynamics of nonhierarchical societies. In Upham, S. (ed.), *The Evolution of Political Systems: Sociopolitics in Small-Scale Sedentary Societies*, Cambridge University Press, Cambridge, pp. 247-263.
- Bender, B., and Morris, B. (1988). Twenty years of history, evolution and social change in gatherer-hunter studies. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York, pp. 4-14.
- Binford, L. R. (1990). Mobility, housing, and environment: A comparative study. *Journal of Anthropological Research* 46: 119-152.
- Black, L. T. (1994). Deciphering Aleut/Koniag iconography. In Fitzhugh, W. W., and Chaussonnet, V. (eds.), *Anthropology of the North Pacific Rim*, Smithsonian Institution Press, Washington, DC, pp. 133-146.
- Blackburn, T. C. (1975). *December's Child: A Book of Chumash Oral Narratives Collected by J. P. Harrington*, University of California Press, Berkeley.
- Blackburn, T. C. (1994). Sustaining complexity: The California example. Paper presented at the symposium: Complex Hunter-Gatherers of the World, UCLA Institute of Archaeology, Los Angeles.
- Blackburn, T. C., and Anderson, K. (eds.) (1993). *Before the Wilderness: Environmental Management by Native Californians*, Ballena Press, Menlo Park, CA.
- Boserup, E. (1965). *The Conditions of Agricultural Growth*, Aldine, Chicago.
- Boyd, R., and Richerson, P. (1985). *Culture and the Evolutionary Process*, University of Chicago Press, Chicago.
- Brown, J. A. (1985). Long-term trends to sedentism and the emergence of complexity in the American midwest. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 201-231.
- Brown, J. A. and Price, T. D. (1985). Complex hunter-gatherers: Retrospect and prospect. In Price, T. D., and Brown, J. A., (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 435-442.
- Brumfiel, E. M. (1992). Distinguished lecture in archaeology: Breaking and entering the ecosystem—Gender, class, and faction steal the show. *American Anthropologist* 94: 551-567.
- Brumfiel, E. M. (1994). Factional competition and political development in the New World: An introduction. In Brumfiel, E. M., and Fox, J. W. (eds.), *Factional Competition and Political Development in the New World*, Cambridge University Press, Cambridge, pp. 3-13.
- Brumfiel, E. M., and Earle, T. K. (1987). Specialization, exchange, and complex societies: An introduction. In Brumfiel, E. M., and Earle, T. K. (eds.), *Specialization, Exchange, and Complex Societies*, Cambridge University Press, Cambridge, pp. 1-9.
- Burch, E. S., Jr. (1994). The future of hunter-gatherer research. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 441-455.
- Burch, E. S., Jr., and Ellanna, L. J. (1994a). Editorial. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 219-221.

- Burch, E. S., Jr., and Ellanna, L. J. (1994b). Introduction. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 1-8.
- Cannon, A. (1994). Rhythms of complexity: Political opportunity and Northwest Coast salmon fishing. Paper presented at the symposium: Complex Hunter-Gatherers of the World, UCLA Institute of Archaeology, Los Angeles.
- Carneiro, R. L. (1981). The chiefdom: Precursor of the state. In Jones, G. D., and Kautz, R. R. (eds.), *The Transition to Statehood in the New World*, Cambridge University Press, Cambridge, pp. 37-79.
- Chatters, J. C. (1989). The antiquity of economic differentiation within households in the Puget Sound region, Northwest Coast. In MacEachern, S., Archer, D., and Gavin, R. (eds.), *Households and Communities*, University of Calgary Archaeological Association, Calgary, pp. 168-178.
- Claassen, C. P. (1991). Gender, shellfishing, and the Shell Mound Archaic. In Gero, J. M., and Conkey, M. W. (eds.), *Engendering Archaeology: Women and Prehistory*, Blackwell, Oxford, pp. 276-300.
- Clarke, D. L. (1976). Mesolithic Europe: The economic basis. In Sieveking, G., Longworth, I., and Wilson, K. (eds.), *Problems in Economic and Social Archaeology*, Duckworth, London, pp. 449-481.
- Cobb, C. R. (1993). Archaeological approaches to the political economy of nonstratified societies. In Schiffer, M. B. (ed.), *Archaeological Method and Theory, Vol. 5*, University of Arizona Press, Tucson, pp. 43-100.
- Cohen, M. N. (1981). Pacific Coast foragers: Affluent or overcrowded? In Koyama, S., and Thomas, D. H. (eds.), *Affluent Foragers*, Senri Ethnological Studies 9, National Museum of Ethnology, Osaka, pp. 275-295.
- Cohen, M. N. (1985). Prehistoric hunter-gatherers: The meaning of social complexity. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 99-119.
- Conkey, M. W. (1985). Ritual communication, social elaboration, and the variable trajectories of Paleolithic material culture. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 299-323.
- Conkey, M. W. (1991). Contexts of action, contexts for power: Material culture and gender in the Magdalenian. In Gero, J. M., and Conkey, M. W. (eds.), *Engendering Archaeology: Women and Prehistory*, Blackwell, Oxford, pp. 57-92.
- Conkey, M. W., and Gero, J. M. (1991). Tensions, pluralities, and engendering archaeology: An introduction to women and prehistory. In Gero, J. M., and Conkey, M. W. (eds.), *Engendering Archaeology: Women and Prehistory*, Blackwell, Oxford, pp. 3-30.
- Coupland, G. G. (1988). Prehistoric economic and social change in the Tsimshian area. *Research in Economic Anthropology, Supplement 3*: 211-243.
- Creamer, W., and Haas, J. (1985). Tribe versus chiefdom in lower Central America. *American Antiquity 50*: 738-754.
- Crowell, A. (1994). Koniag Eskimo poisoned-dart whaling. In Fitzhugh, W. W., and Chaussonnet, V. (eds.), *Anthropology of the North Pacific Rim*, Smithsonian Institution Press, Washington, DC, pp. 217-242.
- Dietler, M. (1990). Driven by drink: The role of drinking in the political economy and the case of Early Iron Age France. *Journal of Anthropological Archaeology 9*: 352-406.
- Donald, L. (1985). On the possibility of social class in societies based on extractive subsistence. In Thompson, M., Garcia, M. T., and Kense, F. J. (eds.), *Status, Structure and Stratification: Current Archaeological Reconstructions*, University of Calgary Archaeological Association, Calgary, pp. 237-243.
- Donald, L., and Mitchell, D. H. (1994). Nature and culture on the Northwest Coast of North America: The case of the Wakashan salmon resources. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 95-117.
- Drucker, P. (1951). *The Northern and Central Nootkan Tribes*, Bureau of American Ethnology Bulletin 144, Smithsonian Institution, Washington, DC.

- Earle, T. K. (1987). Chiefdoms in archaeological and ethnohistorical perspective. *Annual Review of Anthropology* 16: 279–308.
- Earle, T. K. (ed.) (1991). *Chiefdoms: Power, Economy, and Ideology*, Cambridge University Press, Cambridge.
- Ellen, R. (1988). Foraging, starch extraction and the sedentary lifestyle in the lowland rainforest of central Seram. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York, pp. 117–134.
- Feinman, G. M., and Neitzel, J. (1984). Too many types: an overview of sedentary prestate societies in the Americas. In Schiffer, M. B. (ed.), *Advances in Archaeological Method and Theory, Vol. 7*, Academic Press, New York, pp. 39–102.
- Feldman, R. A. (1987). Architectural evidence for the development of nonegalitarian social systems in coastal Peru. In Haas, J., Pozorski, S., and Pozorski, T. (eds.), *The Origins and Development of the Andean State*, Cambridge University Press, Cambridge, pp. 9–14.
- Fitzhugh, W. W. (1994). Crossroads of continents: Review and prospect. In Fitzhugh, W. W., and Chaussonnet, V. (eds.), *Anthropology of the North Pacific Rim*, Smithsonian Institution Press, Washington, DC, pp. 27–51.
- Flanagan, J. C. (1989). Hierarchy in simple “egalitarian” societies. *Annual Review of Anthropology* 18: 245–266.
- Gebauer, A. B., and Price, T. D. (eds.) (1992). *Transitions to Agriculture in Prehistory*, Prehistory Press, Madison.
- Gero, J. M., and Conkey, M. W. (eds.) (1991). *Engendering Archaeology: Women and Prehistory*, Blackwell, Oxford.
- Gibson, J. L. (1994). Before their time? Early mounds in the Lower Mississippi Valley. *Southeastern Archaeology* 13: 162–181.
- Giddens, A. (1979). *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis*, University of California Press, Berkeley.
- Gifford, E. W. (1926). Clear Lake Pomo society. *University of California Publications in American Archaeology and Ethnology* 18(2): 287–390. Berkeley.
- Goggin, J. M., and Sturtevant, W. C. (1964). The Calusa: A stratified, nonagricultural society. In Goodenough, W. H. (ed.), *Explorations in Cultural Anthropology: Essays in Honor of George Peter Murdock*, McGraw-Hill, New York, pp. 179–219.
- Goldschmidt, W. (1976). Social organization and status differentiation among the Nomlaki. In Bean, L. J., and Blackburn, T. C. (eds.), *Native Californians: A Theoretical Retrospective*, Ballena Press, Socorro, NM, pp. 125–174.
- Gosden, C. (1989). Debt, production, and prehistory. *Journal of Anthropological Archaeology* 8: 355–387.
- Gould, R. A. (1966). The wealth quest among the Tolowa Indians of northwestern California. *Proceedings of the American Philosophical Society* 110(1): 67–89.
- Haas, J. (1990). Foreword. In Upham, S. (ed.), *The Evolution of Political Systems: Sociopolitics in Small-Scale Sedentary Societies*, Cambridge University Press, Cambridge, pp. xv–xvii.
- Halstead, P., and O’Shea, J. (1982). A friend in need is a friend indeed: Social storage and the origins of social ranking. In Renfrew, C., and Shennan, S. (eds.), *Ranking, Resource and Exchange*, Cambridge University Press, Cambridge, pp. 92–99.
- Harris, D. R., and Hillman, G. C. (eds.) (1989). *Foraging and Farming: The Evolution of Plant Exploitation*, Unwin Hyman, London.
- Hayden, B. (1981). Research and development in the stone age: Technological transitions among hunter-gatherers. *Current Anthropology* 22: 519–548.
- Hayden, B. (1990). Nimrods, piscators, pluckers, and planters: The emergence of food production. *Journal of Anthropological Archaeology* 9: 31–69.
- Hayden, B. (1993a). Pathways to power: Principles for creating socioeconomic inequalities. Paper presented at the Society for American Archaeology annual meeting, St. Louis.
- Hayden, B. (1993b). The cultural capacities of Neandertals: A review and re-evaluation. *Journal of Human Evolution* 24: 113–146.
- Hayden, B. (1994). Competition, labor, and complex hunter-gatherers. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 223–239.

- Hayden, B. (1996). Thresholds of power in emergent complex societies. In Arnold, J. E. (ed.), *Emergent Complexity: The Evolution of Intermediate Societies*, International Monographs in Prehistory, Ann Arbor, MI, pp. 50-58.
- Hayden, B. (ed.) (1992). *A Complex Culture of the British Columbia Plateau*, University of British Columbia Press, Vancouver.
- Hayden, B., Eldridge, M., Eldridge, A., and Cannon, A. (1985). Complex hunter-gatherers in interior British Columbia. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 181-199.
- Hayden, B., and Spafford, J. (1993). The Keatley Creek Site and corporate group archaeology. *BC Studies* 99: 106-139.
- Helms, M. W. (1994). Chiefdom rivalries, control, and external contacts in lower Central America. In Brumfiel, E. M., and Fox, J. W. (eds.), *Factional Competition and Political Development in the New World*, Cambridge University Press, Cambridge, pp. 55-60.
- Henry, D. O. (1985). Preagricultural sedentism: The Natufian example. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 365-384.
- Henry, D. O. (1989). *From Foraging to Agriculture: The Levant at the End of the Ice Age*, University of Pennsylvania Press, Philadelphia.
- Higham, C. (1989). *The Archaeology of Mainland Southeast Asia*, Cambridge University Press, Cambridge.
- Higham, C., and Thosarat, R. (1994). *Khok Phanom Di, Prehistoric Adaptation to the World's Richest Habitat*, Harcourt Brace, New York.
- Hollimon, S. E. (1990). *Division of Labor and Gender Roles in Santa Barbara Channel Prehistory*, Ph. D. dissertation, University of California, Santa Barbara.
- Huelsbeck, D. R. (1988a). Whaling in the precontact economy of the central Northwest Coast. *Arctic Anthropology* 25(1): 1-15.
- Huelsbeck, D. R. (1988b). The surplus economy of the central Northwest Coast. *Research in Economic Anthropology Supplement* 3: 149-177.
- Ingold, T. (1986). *The Appropriation of Nature*, Manchester University Press, Manchester.
- Ingold, T., Riches, D., and Woodburn, J. (eds.) (1988a). *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York.
- Ingold, T., Riches, D., and Woodburn, J. (eds.) (1988b). *Hunters and Gatherers 2: Property, Power and Ideology*, Berg, New York.
- Jackson, H. E. (1991). The trade fair in hunter-gatherer interaction: The role of intersocietal trade in the evolution of Poverty Point culture. In Gregg, S. A. (ed.), *Between Bands and States*, Occasional Paper 9, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 265-286.
- Jackson, T. L. (1991). Pounding acorns: Women's production as social and economic focus. In Gero, J. M., and Conkey, M. W. (eds.), *Engendering Archaeology: Women and Prehistory*, Blackwell, Oxford, pp. 301-325.
- Johnson, A. W., and Earle, T. (1987). *The Evolution of Human Societies from Foraging Group to Agrarian State*, Stanford University Press, Stanford.
- Johnson, G. A. (1982). Organizational structure and scalar stress. In Renfrew, C., Rowlands, M., and Seagraves, B. (eds.), *Theory and Explanation in Archaeology*, Academic Press, New York, pp. 389-421.
- Johnson, J. R. (1988). *Chumash Social Organization: An Ethnohistoric Perspective*, Ph. D. dissertation, University of California, Santa Barbara.
- Jordan, R. H. (1994). Qasqiluteng: Feasting and ceremonialism among the traditional Koniag of Kodiak Island, Alaska. In Fitzhugh, W. W., and Chaussonnet, V. (eds.), *Anthropology of the North Pacific Rim*, Smithsonian Institution Press, Washington, DC, pp. 147-173.
- Kan, S. (1989). *Symbolic Immortality*, Smithsonian Institution Press, Washington, DC.
- Keeley, L. H. (1988). Hunter-gatherer economic complexity and "population pressure": A cross-cultural analysis. *Journal of Anthropological Archaeology* 7: 373-411.

- Kelly, R. (1991). Sedentism, sociopolitical inequality, and resource fluctuations. In Gregg, S. A. (ed.), *Between Bands and States*, Occasional Paper 9, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 135–158.
- King, T. F. (1978). Don't that beat the band? Nonegalitarian political organization in prehistoric central California. In Redman, C., et al. (eds.), *Social Archeology: Beyond Subsistence and Dating*, Academic Press, New York, pp. 225–248.
- Koyama, S., and Thomas, D. H. (eds.) (1981). *Affluent Foragers*, Senri Ethnological Studies 9, National Museum of Ethnology, Osaka.
- Lambert, P. M., and Walker, P. L. (1991). Physical anthropological evidence for the evolution of social complexity in coastal southern California. *Antiquity* 65: 963–973.
- Lee, R. B. (1990). Primitive communism and the origin of social inequality. In Upham, S. (ed.), *The Evolution of Political Systems: Sociopolitics in Small-Scale Sedentary Societies*, Cambridge University Press, Cambridge, pp. 225–246.
- Lee, R. B. (1992). Art, science, or politics? The crisis in hunter-gatherer studies. *American Anthropologist* 94: 31–54.
- Loeb, E. M. (1926). Pomo folkways. *University of California Publications in American Archaeology and Ethnology*, 19(2): 149–405. Berkeley.
- Lourandos, H. (1985). Intensification and Australian prehistory. In Price, T. D., and Brown, J. A., (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 385–423.
- Lourandos, H. (1988). Paleopolitics: Resource intensification in Aboriginal Australia and Papua New Guinea. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York, pp. 148–160.
- Lourandos, H. (1993). Hunter-gatherer cultural dynamics: Long- and short-term trends in Australian prehistory. *Journal of Archaeological Research* 1: 67–88.
- McGuire, R. H. (1983). Breaking down cultural complexity: Inequality and heterogeneity. In Schiffer, M. B. (ed.), *Advances in Archaeological Method and Theory*, Vol. 6, Academic Press, New York, pp. 91–142.
- McGuire, R. H. (1993). Archaeology and Marxism. In Schiffer, M. B. (ed.), *Archaeological Method and Theory*, Vol. 5, University of Arizona Press, Tucson, pp. 101–157.
- Mann, M. (1986). *The Sources of Social Power: A History of Power from the Beginning to A. D. 1760*, Cambridge University Press, Cambridge.
- Marquardt, W. H. (1988). Politics and production among the Calusa of south Florida. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York, pp. 161–188.
- Marquardt, W. H. (ed.) (1992). *Culture and Environment in the Domain of the Calusa*, Monograph 1, Institute of Archaeology and Paleoenvironmental Studies, University of Florida, Gainesville.
- Maschner, H. D. G. (1991). The emergence of cultural complexity on the northern Northwest Coast. *Antiquity* 65: 924–934.
- Matson, R. G. (1992). The evolution of Northwest Coast subsistence. *Research in Economic Anthropology Supplement* 6: 367–428.
- Matson, R. G. (1994). Prerequisites for complexity. Paper presented at the symposium: Complex Hunter-gatherers of the World, UCLA Institute of Archaeology, Los Angeles.
- Matson, R. G., and Coupland, G. (1995). *The Prehistory of the Northwest Coast*, Academic Press, San Diego.
- Meillassoux, C. (1981). *Maidens, Meat and Money*, Cambridge University Press, Cambridge.
- Mellars, P. A. (1985). The ecological basis of social complexity in the Upper Paleolithic of southwestern France. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 271–297.
- Mitchell, D. (1983). Tribes and chiefdoms on the Northwest Coast: The Tsimshian case. In Nash, R. J. (ed.), *The Evolution of Maritime Cultures on the Northeast and the Northwest Coasts of America*, Publication 11, Department of Archaeology, Simon Fraser University, Burnaby, BC, pp. 57–64.
- Mitchell, D. (1985). A demographic profile of Northwest Coast slavery. In Thompson, M., Garcia, M. T., and Kense, F. J. (eds.), *Status, Structure and Stratification: Current*

- Archaeological Reconstructions*, University of Calgary Archaeological Association, Calgary, pp. 227–236.
- Mitchell, D. (1994). House and household mobility on the Northwest Coast of North America. Paper presented at the symposium: Complex Hunter-Gatherers of the World, UCLA Institute of Archaeology, Los Angeles.
- Mitchell, D., and Donald, L. (1988). Archaeology and the study of Northwest Coast economies. *Research in Economic Anthropology Supplement* 3: 293–351.
- Moseley, M. E. (1975). *The Maritime Foundations of Andean Civilization*, Cummings, Menlo Park, CA.
- Moss, M. L. (1993). Shellfish, gender, and status on the Northwest Coast: Reconciling archeological, ethnographic, and ethnohistorical records of the Tlingit. *American Anthropologist* 95: 631–652.
- Murdock, G. P., and Wilson, S. F. (1972). Settlement patterns and community organization: Cross-cultural codes 3. *Ethnology* 21: 245–295.
- Palsson, G. (1988). Hunters and gatherers of the sea. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 1: History, Evolution and Social Change*, Berg, New York, pp. 189–204.
- Paynter, R., and McGuire, R. H. (1991). The archaeology of inequality: Material culture, domination, and resistance. In McGuire, R. H., and Paynter, R. (eds.), *The Archaeology of Inequality*, Blackwell, Oxford, pp. 1–27.
- Peebles, C. S., and Kus, S. M. (1977). Some archaeological correlates of ranked societies. *American Antiquity* 42: 421–448.
- Peterson, N. (1991). Introduction: Cash, commoditisation and changing foragers. In Peterson, N., and Matsuyama, T. (eds.), *Cash, Commoditisation and Changing Foragers*, Senri Ethnological Studies 30, National Museum of Ethnology, Osaka, pp. 1–16.
- Price, B. J. (1984). Competition, productive intensification, and ranked society: Speculations from evolutionary theory. In Ferguson, R. B. (ed.), *Warfare, Culture, and Environment*, Academic Press, Orlando, FL, pp. 209–240.
- Price, T. D. (1985). Affluent foragers of Mesolithic southern Scandinavia. In Price, T. D., and Brown, J. A., (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 341–363.
- Price, T. D., and Brown, J. A. (eds.) (1985a). *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego.
- Price, T. D., and Brown, J. A. (1985b). Aspects of hunter-gatherer complexity. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 3–20.
- Quilter, J., and Stocker, T. (1983). Subsistence economies and the origins of Andean complex societies. *American Anthropologist* 85: 545–562.
- Rafferty, J. E. (1985). The archaeological record of sedentariness: Recognition, development, and implications. In Schiffer, M. B. (ed.), *Advances in Archaeological Method and Theory*, Vol. 8, Academic Press, San Diego, pp. 113–156.
- Redmond, E. M. (1994). External warfare and the internal politics of northern South American tribes and chiefdoms. In Brumfiel, E. M., and Fox, J. W. (eds.), *Factional Competition and Political Development in the New World*, Cambridge University Press, Cambridge, pp. 44–54.
- Renfrew, C. (1973). Monuments, mobilization and social organization in neolithic Wessex. In Renfrew, C. (ed.), *The Explanation of Culture Change: Models in Prehistory*, University of Pittsburgh Press, Pittsburgh, pp. 539–558.
- Renouf, M. A. P. (1991). Sedentary hunter-gatherers: A case for northern coasts. In Gregg, S. A. (ed.), *Between Bands and States*, Occasional Paper 9, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 89–107.
- Rindos, D. (1984). *The Origins of Agriculture: An Evolutionary Perspective*, Academic Press, San Diego.
- Rolland, N. (1985). Social inequality and the Pleistocene record. In Thompson, M., Garcia, M. T., and Kense, F. J. (eds.), *Status, Structure and Stratification: Current Archaeological Reconstructions*, University of Calgary Archaeological Association, Calgary, pp. 255–268.

- Roscoe, P. B. (1993). Practice and political centralisation: A new approach to political evolution. *Current Anthropology* 34: 111–140.
- Rowley-Conwy, P. (1983). Sedentary hunters: The Ertebölle example. In Bailey, G. N. (ed.), *Hunter-Gatherer Economy in Prehistory: A European Perspective*, Cambridge University Press, Cambridge, pp. 111–126.
- Rowley-Conwy, P. (1986). Between cave painters and crop planters: Aspects of the temperate European Mesolithic. In Zvevibel, M. (ed.), *Hunters in Transition*, Cambridge University Press, Cambridge, pp. 17–32.
- Rowley-Conwy, P., and Zvevibel, M. (1989). Saving it for later: Storage by prehistoric hunter-gatherers in Europe. In Halstead, P., and O’Shea, J. (eds.), *Bad Year Economics: Cultural Responses to Risk and Uncertainty*, Cambridge University Press, Cambridge, pp. 40–56.
- Russo, M. (1994). Why we don’t believe in Archaic ceremonial mounds and why we should: The case from Florida. *Southeastern Archaeology* 13: 93–109.
- Ruyle, E. E. (1973). Slavery, surplus, and stratification on the Northwest Coast: The ethnoenergetics of an incipient stratification system. *Current Anthropology* 14: 603–631.
- Saitta, D. J. (1994). Agency, class, and archaeological interpretation. *Journal of Anthropological Archaeology* 13: 201–227.
- Saitta, D. J., and Keene, A. S. (1990). Politics and surplus flow in prehistoric communal societies. In Upham, S. (ed.), *The Evolution of Political Systems: Sociopolitics in Small-Scale Sedentary Societies*, Cambridge University Press, Cambridge, pp. 203–224.
- Service, E. R. (1962). *Primitive Social Organization: An Evolutionary Perspective*, Random House, New York.
- Sheehan, G. W. (1985). Whaling as an organizing focus in northwestern Alaskan Eskimo societies. In Price, T. D., and Brown, J. A., (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 123–154.
- Shnirelman, V. (1994). Cherchez le chien: Perspectives on the economy of the traditional fishing-oriented people of Kamchatka. In Burch, E. S., Jr. and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 169–188.
- Smith, M. E. (1993). New World complex societies: Recent economic, social, and political studies. *Journal of Archaeological Research* 1: 5–41.
- Soffer, O. (1985). Patterns of intensification as seen from the Upper Paleolithic of the central Russian plain. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 235–270.
- Spencer, C. S. (1993). Human agency, biased transmission, and the cultural evolution of chiefly authority. *Journal of Anthropological Archaeology* 12: 41–74.
- Spencer, C. S. (1994). Factional ascendance, dimensions of leadership, and the development of centralized authority. In Brumfiel, E. M., and Fox, J. W. (eds.), *Factional Competition and Political Development in the New World*, Cambridge University Press, Cambridge, pp. 31–43.
- Testart, A. (1982). The significance of food storage among hunter-gatherers: Residence patterns, population densities, and social inequalities. *Current Anthropology* 23: 523–537.
- Tollefson, K. D. (1987). The Snoqualmie: A Puget Sound chiefdom. *Ethnology* 26: 121–136.
- Tonkinson, R. (1988). “Ideology and domination” in Aboriginal Australia: A Western Desert test case. In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers 2: Property, Power and Ideology*, Berg, New York, pp. 150–164.
- Trigger, B. G. (1993). Marxism in contemporary western archaeology. In Schiffer, M. B. (ed.), *Archaeological Method and Theory, Vol. 5*, University of Arizona Press, Tucson, pp. 159–200.
- Upham, S. (1990). Analog or digital? Toward a generic framework for explaining the development of emergent political systems. In Upham, S. (ed.), *The Evolution of Political Systems: Sociopolitics in Small-Scale Sedentary Societies*, Cambridge University Press, Cambridge, pp. 87–115.
- Walters, I. (1989). Intensified fishery production at Moreton Bay, southeast Queensland, in the late Holocene. *Antiquity* 63: 215–224.
- Widmer, R. J. (1988). *The Evolution of the Calusa*, University of Alabama Press, Tuscaloosa.

- Williams, E. (1987). Complex hunter-gatherers: A view from Australia. *Antiquity* 61: 310-321.
- Wobst, H. M. (1978). The archaeo-ethnology of hunter-gatherers or the tyranny of the ethnographic record in archaeology. *American Antiquity* 43: 303-309.
- Wolf, E. (1982). *Europe and the People Without History*, University of California Press, Berkeley.
- Woodburn, J. (1980). Hunters and gatherers today and reconstruction of the past. In Gellner, E. (ed.), *Soviet and Western Anthropology*, Duckworth, London, pp. 95-117.
- Woodburn, J. (1988). African hunter-gatherer social organization: Is it best understood as a product of encapsulation? In Ingold, T., Riches, D., and Woodburn, J. (eds.), *Hunters and Gatherers I: History, Evolution and Social Change*, Berg, New York, pp. 31-64.
- Woodman, P. C. (1985). Mobility in the early Mesolithic of northwestern Europe: An alternative explanation. In Price, T. D., and Brown, J. A. (eds.), *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, Academic Press, San Diego, pp. 325-339.
- Yesner, D. R. (1980). Maritime hunter-gatherers: Ecology and prehistory. *Current Anthropology* 21: 727-750.
- Yesner, D. R. (1987). Life in the "Garden of Eden: " Causes and consequences of the adoption of marine diets by human societies. In Harris, M., and Ross, E. B. (eds.), *Food and Evolution: Toward a Theory of Human Food Habits*, Temple University Press, Philadelphia, pp. 285-310.
- Yesner, D. R. (1994a). Archaeological signatures of sociopolitical complexity among high latitude maritime hunter-gatherers. Paper presented at the symposium: Complex Hunter-Gatherers of the World, UCLA Institute of Archaeology, Los Angeles.
- Yesner, D. R. (1994b). Seasonality and resource "stress" among hunter-gatherers: Archaeological signatures. In Burch, E. S., Jr., and Ellanna, L. J. (eds.), *Key Issues in Hunter-Gatherer Research*, Berg, New York, pp. 151-167.
- Zvelebil, M. (ed.) (1986). *Hunters in Transition*, Cambridge University Press, Cambridge.