

Hunters and Gatherers

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THE INVESTIGATION OF HUNTER-GATHERERS lies at the core of the archaeological and anthropological enterprise, whose central concern is to investigate and explain the immense diversity among human cultures (Ames 2004:364). Extended periods of human history have been characterized by societies that lived exclusively by hunting, fishing, and gathering, and this way of life represents the conditions in which key periods of human evolution occurred prior to the emergence and subsequent spread of agriculture and pastoralism in the Holocene (Barnard 2004:1). It was also as hunters and gatherers that humans developed the crucial physical and mental capacities that are shared by all humans to this day (Mithen 1996). The study of hunting-and-gathering societies has therefore come to serve as a testing ground for general theories about human evolution as well as to speculate about the “original” social, ideological, and political condition of humanity:

The world’s hunting and gathering peoples—the Arctic Inuit, Aboriginal Australians, Kalahari, San, and similar groups—represent the oldest and perhaps most successful human adaptation. Until 12,000 years ago virtually all humanity lived as hunters and gatherers. (Lee and Daly 1999:1)

As a result, investigation of forager societies “may hold the key to some of the central questions about the human being—about social life, politics and gender, about diet and nutrition and living in nature: how people can and have lived without the state; how to live without accumulated technology; the possibility of living in Nature without destroying it” (Lee and Daly 2001:1). For example, many present-day hunter-gatherers live in the least socially differentiated societies ever recorded, providing an important point of comparison for explaining the origin and operation of stratified societies that characterize most of the modern world. Many of the great figures in archaeology and anthropology—A. R. Radcliffe-Brown, Julian Steward, Graham Clark—as well as the great thinkers in the wider social sciences—Adam Smith, Karl Marx,

Emile Durkheim—developed their ideas through consideration of hunting-and-gathering societies (Barnard 2004:ix). The implicit assumption underlying much of this work is the belief that foragers characterize a conceptual baseline in human development (Pluciennik 2005).

As a result, “ideas observed, tested, or refined with the study of hunter-gatherers have been among the most important areas of anthropological research” (Hitchcock and Biesle 2000:3). These research initiatives have included the application of evolutionary ecological theory to human populations (Hawkes et al. 1982, 1997; Hurtado et al. 1985; Winterhalder and Smith 1981, 2000; Winterhalder 2001), debates about the origins and impact of hunter-gatherer social complexity (Ames and Maschner 1995; Hayden 1981; Maschner 1991; Price 1981; Price and Brown 1985; Tesart 1982; Woodburn 1980; Yesner 1980; see Arnold 1996 for a recent review), and the emergence of ethnoarchaeology (Arnold and Kramer 2001, with references). Currently hunter-gatherer studies remain one of the few areas of academic research where sociocultural anthropology, archaeology, bioanthropology, and linguistic research converge toward “a number of principles, testable hypotheses, even competing theoretical approaches, to evaluate against the ethnographic and archaeological data” (Panter-Brick et al. 2001:9–10).

For archaeologists, the study of the remaining foraging societies is often presented as one of the most direct means of understanding extended periods of human prehistory, although it has become increasingly apparent that present-day hunter-gatherers cannot be assumed to represent “pristine survivals” from earlier eras of human evolution. Hunter-gatherer societies are flexible and innovative in their social organization, culture, and belief systems. For millennia many groups had long and complex histories of interaction and exchange with farming and pastoral neighbors, empires, nation-states, and the world economic system (Fewster and Zvelebil 2001, with references). Nevertheless, hunter-gatherer research has become a crucial component of the archaeological discipline, and despite

these criticisms and realizations, most would now agree, that when “due account is taken of historical circumstances, ethnographic analogies can be a valuable tool” in hunter-gatherer archaeology (Ames 2004:366; Arnold and Kramer 2001; Cunningham 2003; Fewster and Zvelebil 2001).

My aim in this chapter is to focus on the emergence and increasing diversification of research into foraging societies, and to explore the relevance of this research for archaeology. I draw a broad distinction between (1) general research into societies that hunt and gatherer, which includes some of the early “classic” documentations of ethnography (Boas 1966), and (2) hunter-gatherer studies as a specialized and rigorous scientific approach to foraging societies whose aim is to generate *general* predictions about all hunter-gatherers as exemplars of an archetypal social and economic form of organization. An important subtheme running through the chapter is an examination of the ways in which knowledge of, and debates about, contemporary hunter-gatherers have influenced and have been drawn into archaeological research into foraging societies.

HUNTER-GATHERERS: SOME WORKING DEFINITIONS

For Western researchers, some of the best-known and recently documented hunters and gatherers include the Australian Aborigines, the Arctic Inuit (who live in a long arc from eastern Siberia, through northern North America to Greenland) and the Northwest Coast groups in North America. In particular, the San (Bushmen) peoples of the Kalahari region in southern Africa have seen intense attention from researchers, as have the foragers in the belt of African tropical rain forests in Zaire, Congo, the Central African Republic, Cameroon, and Gabon. Various other hunter-gatherer groups exist in East Africa, the Americas, Siberia, India, and Southeast Asia.

Idealized images of these surviving hunter-gatherers are often presented as a stark contrast to the dense urban reality of most contemporary humanity (Lee and Daly 1999:1). But do these romantic ideas about foraging societies represent a category with analytical utility—is there anything *distinct* about hunter-gatherers as opposed to pastoralists or agriculturalists? In strict terms, “hunter-gatherer” refers to a taxonomic classification based on an economic mode of subsistence (Pluciennik 2004). For example, Winterhalder (2001:12) defined forager subsistence as “derived from non-domesticated resources, species not actively managed by themselves or other human beings.”

This economic definition of hunter-gatherer has been augmented to include secondary features grounded in the foraging economy, such as distinct forms of social organization, a unique ideology based on unconditional sharing among close kin and the perception of the environment as giving its resources unconditionally to the human collective (Ingold 1988; Lee 1992; Solway and Lee 1990; Bird David 1992). These three elements—economic, social, and ideological—also converge in the popular archetype of egalitarian foragers. If these mobile band societies represent a distinct and ancient form of human existence, then hunter-gatherer studies can define its focus as being on an “original” way of life that once characterized all humanity, a conceptual baseline to measure off more recent developments.

Since the 1960s decades of active research into hunting-and-gathering societies has revealed a much more confusing picture and subjected some of these enduring images of timeless, pristine, egalitarian hunter-gatherers to a robust and ongoing critique. In almost every case, forager behavior and social organization have been shown to vary well beyond the scope of the simple “mobile band” model outlined above. Fundamental differences in subsistence, prestige, social complexity, relative affluence, interpersonal violence, and gender roles have also been documented, and there are important differences in diet, health, demography, worldview, and storage practices. Researchers are still struggling to account for and explain this diversity, including the degree to which there is anything distinctive enough about these societies for the term “hunter-gatherer” to have analytical utility or theoretical significance (Burch 1994:452). More recently, debates have therefore shifted away from defining *what* typical foragers are or do, toward producing better explanations of the processes generating this observed diversity and variability. It is no longer sufficient “to use one or two model hunter-gatherer groups as ‘model foragers’” (Kuhn and Stiner 2001:99), and increasingly the subsistence-based term “hunter-gatherer” has come to serve as “a ‘minimal’ definition, a starting point on which to graft a more nuanced understanding” (Panter-Brick et al. 2001:2). These developments are traced below.

CULTURAL ECOLOGY, JULIAN STEWARD, AND THE EMERGENCE OF MODERN HUNTER-GATHERER STUDIES

The emergence of modern hunter-gatherer studies can be traced back to pioneering work of Julian Steward (1936, 1938, 1955), “The Social and Economic Basis of Primitive Bands,” and to a series of conferences

(Lee and DeVore 1968) in the late 1960s “which had tremendous impact on the anthropological view of hunter-gatherers . . . and defined what was germane to know about them” (Binford 2001:21). Prior to this, American anthropology had been strongly influenced by the intellectual heritage of Franz Boas, who emphasized the normative patterns of behavior characterizing native communities. From this perspective, cultural patterns arose from either cultural history or contact and diffusion. With each tribe effectively understood to be unique, there was no desire to identify general rules or principles guiding or determining certain patterns of behavior.

Steward made a crucial move in a fresh direction by looking at actual behavior. His cultural ecology approach had a dramatic impact on American anthropology in the 1950s and 1960s (Kelly 1995:43) and made fresh and original contributions to enduring debates about the degree to which material conditions determined other elements of society. Drawing direct inspiration from Leslie White, who explored social evolution in terms of the control of energy by different kinds of society, Steward (1955) investigated the links between society, technology, and, crucially, the background environment. The attraction of Steward’s approach lay in its ability to bridge the gap between White’s more theoretical abstractions and the more mainstream Boasian approach, which focused on describing the contingent and particularistic details of individual culture groups (an approach often referred to as historical particularism and cultural relativism). Through his explorations of general patterns of behavior, Steward (1955) came to believe in a general, determinant relationship between behavior, material culture, and ecology. As a result, Steward argued that technology and environment set the stage for different lines of social development (Kelly 1995:42).

At the heart of Steward’s analysis was the concept of a culture core—those behaviors most closely related to the extraction of energy from the environment. In contrast to Boas, Steward’s culture core (broadly defined as subsistence technology) was more durable. Social organization and ideology were grafted on top of this, and were more easily affected by historical and cultural factors including innovation and diffusion (which earlier workers like Kroeber, for example, had seen as primary). Steward asked how cultural factors, guided by interactions with the local ecology, predominate over genetic ones (Kelly 1995:41–42). Crucially, he argued that hunter-gatherer and small-scale societies were ideal for this kind of model building, for, as

Steward notes, the details of these “simpler cultures” are more directly conditioned by the characteristics of the local environment than more complex ones are. As a result, he argued, timing and characteristics of important food sources like fish runs and game migrations would effectively determine the habitats of the tribes exploiting those resources (Steward 1955). In other words, resource base exploitation had a broadly deterministic effect on other elements of culture like social organization and worldviews. Following on from this point, societies subsisting on wild resources in similar environments would have similar social organization and similar features of culture.

Introducing environment overcame the circular Boasian argument that culture emerged from culture. Instead, environment was postulated as the key extra-cultural factor (Steward 1955). The assumption that culture and environment were most directly linked among contemporary hunter-gatherer societies led research into foragers to emerge as a distinct subject area. Moreover, as Schweizer (2000:35) observes, Steward’s cultural ecology was attractive to a new generation of anthropologists because it overcame the cautious Boasian paradigm by proposing a natural science perspective on human behavior. The adoption of this rigorous scientific approach and the suite of new issues it raised demanded the generation of new high-resolution data through fieldwork measurements.

THE FOUNDING CONFERENCES

As Burch (1994:2) notes, these new waves of empirical field research generated a suite of new theoretical concerns—and large quantities of fresh data—which prompted calls for summary meetings to review progress on key issues. The dawn of hunter-gatherer studies as a distinct field is often linked back to three founding conferences which grew directly out of the surge in theoretically orientated field research that marked the 1950s and 1960s. These included the Conference on Band Organization in 1965 and the Conference on Cultural Ecology in 1966. However, the landmark meeting was *Man the Hunter* in 1966 (Lee and DeVore 1968). The focus of this crucial meeting was the issue of how the hunting-and-gathering mode of subsistence shaped the evolution of modern humans (Lee and DeVore 1968).

In this era the overarching paradigmatic goal for research into hunter-gatherer societies was to reveal common economic and cultural patterns that would help us understand early human behavior. Once these common patterns were identified, high-level gener-

alities would emerge from the confusion and “noise” of the ethnographic details. In seeking regularities rather than variations between hunter-gatherer groups (Bird David 1996), the quest was to identify archetypal forager societies. As a result, hunter-gatherers from South Africa came to be understood not just to typify all contemporary foragers but also to personify the original human condition exemplified by prehistoric hunter-gathers. Summarized by Lee and DeVore’s idea of nomadic style, *Man the Hunter* created a generalized foraging model that combined egalitarianism, low population density, lack of territoriality, minimum storage, and flux in band composition (Kelly 1995:14–15). Indeed, the “foragers of the Kalahari Desert . . . came to be regarded as the quintessential hunter-gatherers” (Kelly 1995:15).

The *Man the Hunter* conference “set the tone for discussion up through the present time” (Binford 2001:21), and Lee and DeVore (1968:11) sensed at the time that it had brought about “a widespread feeling among the participants that a useful beginning had been made in understanding hunters better,” even though they raised more questions than were answered. Crucially, the conference stimulated further energetic periods of field research to collect the empirical evidence for testing early generalizing models. Although some field studies diverged from the evolutionary and ecological emphasis of *Man the Hunter*, the majority maintained the project’s goal—to study foragers as practitioners of an enduring way of primitive life and as “functioning adaptive systems” (Bettinger 1991:61). In fact, the new studies began to indicate an immense variability in forager societies, way in excess of the original generalizing models. Accounting for this variability continues to challenge hunter-gatherer studies to the present day.

HUNTER-GATHERERS: THE “ORIGINAL AFFLUENT SOCIETY”

Before the late 1960s, foragers had typically been seen as people on the brink of starvation, with an inadequate and unreliable food supply forcing them to move around frequently to find scarce resources. This mobility precluded the accumulation of wealth, and the absence of wealth meant that no political hierarchies could emerge. The consensus was that the hunter-gatherer lifeway was, by its very essence, dictated by the economics of scarcity. This was overturned by the *Man the Hunter* conference and also by Marshall Sahlins (1968, 1972), who presented limited but reliable ethnographic data demonstrating that foragers were actually very

confident in their ability to procure resources, with detailed knowledge of multiple resources within a reliable food base. Moreover, Sahlins assumed that this food base was even richer in prehistory, indicating that this inherent confidence and ease of supply characterized much of human history. Kelly notes that the powerful attraction of foragers portrayed as the “original affluent society” took place at a time of a pervasive Western sense of decay with the world, including the Vietnam War and environmental devastation (1995:15–16). Ethnographic research of the time portrayed forager life as one of lounging about and socializing rather than working to eke out a living. Hunter-gatherers did not have a less complex culture because they had no time; rather, the simplicity of their lives stemmed from a Zen philosophy that because they wanted little, they effectively had all they needed. This model, based in part on field evidence from Africa and Australia, was further extrapolated to fit all forager societies.

In contrast, much data generated by subsequent research did not fit neatly with this affluence model (Altman 1984; Hawkes and O’Connell 1981). For example, Yesner (1994) and Schnirelman (1994) both find evidence for varying degrees of resource stress among coastal hunter-gatherers in Alaska and Kamchatka respectively. Both these studies suggest a key relationship between seasonal variability of resources and the diversity of diet. High variability and narrow diversity limit food supply at certain critical points in the seasonal round (Yesner 1994), meaning that hunter-gatherer societies are not always as affluent as Sahlins described. Overall, the affluence model appears to best characterize forager societies where there was limited storage and immediate consumption of foodstuffs, such as the !Kung (Lee 1979, 1984; Barnard and Woodman 1988:11).

GENDER: MAN THE HUNTER VERSUS WOMAN THE GATHERER

One major area of research stimulated by the *Man the Hunter* conference was the economic role of different genders in forager society (see Hays-Gilpin, chapter 20). If men did all the hunting, then what was the female contribution to provisioning society? Moreover, if hunting was the most important subsistence activity, bringing in most calories, then hunting and maleness probably accounted for the most important element in human evolution (Burch and Ellanna 1994:11). In contrast to these initial assumptions, field research demonstrated the importance of plant resources in diets, with much production actually being conducted by women.

From here emerged Woman the Gatherer stereotype to match Man the Hunter, which emphasized the important role of women who, in many contexts, gathered the plant foods that often accounted for a greater proportion of diet than hunted resources (Dahlberg 1981; Hiatt 1978; Slocum 1975). Attention was also directed to the key role of women in processing and distribution of food (Hawkes and O'Connell 1981; Hurtado et al. 1985). Further studies broke down the inherent polarity in debates by revealing immense variability: women also hunted in some forager societies; men were also recorded gathering. The use of shellfish and fishing in general also emerged as important elements in forager diets (Palson 1988, 1991; Moss 1993). Debates then shifted to political issues and the dominance of men over women. Again, major variation was revealed: in some societies men are dominant (Sharp 1994), in others they are equal to women (McCreedy 1994). In none are women dominant. Burch and Ellanna (1994:13) argue that the debates have matured and are now directed toward the links between gender and power in hunter-gatherer societies, and how these are linked to other dimensions of social and cultural behavior (see Hays-Gilpin, chapter 20). Interest has also shifted to the subtle ways in which women can achieve their goals within the ideological and symbolic system of institutional male dominance. Gender-associated tasks are thus deeply embedded in many other dimensions, including ritual, power, roles, communication and symbolic expression (Burch and Ellanna 1994:11–13).

Important work has also been done on the crucial evolutionary role of postmenopausal female labor (Hawkes et al. 1998). A long postmenopausal life span distinguishes humans from other primates and has been a puzzle. However, according to the grandmother hypothesis, persistence of healthy years after the end of menstruation means that with grandmothers around to help, their daughters will rapidly produce more children. Grandmothers assist their daughters' fertility in two ways, first, by feeding both nursing mothers and infants and, second, by supplying food to weanlings, allowing infants to weaned earlier. Along with this newly demonstrated contribution of women to hunter-gatherer society, there is growing evidence that bearing a daughter actually imposes less physiological cost on the mother than bearing a son (Gibson and Mace 2003).

TERRITORIALITY

The Man the Hunter conference also overturned the earlier assumption that foragers lived in closed territories and were deeply suspicious of outsiders (Kelly

1995:183). Instead, the land occupied by foragers was viewed as having free and open access to all (Ingold 1986:236; Burch and Ellanna 1994:61), and that social boundaries are flexible, if they existed at all. However, the African and Australian groups predominantly used in these studies were probably at one end of the ethnographically known range of territorial behavior. Kelly argues that (1995:185) “upon consideration of ethnographic evidence, we see that no society has a *laissez faire* attitude towards spatial boundaries. Instead, all have ways, sometimes very subtle ways, of assigning individuals to specific tracts of land and gaining access to others.” Indeed, many of the different kinds of territoriality regimes at work appear to relate, at least in part, to the density and predictability of local resources, making boundary defense either a viable or impossible strategy, depending on the context (Kelly 1995:203; Cashdan 1983). Compare, for example, Richardson's (1986) account of Tsimshian territoriality, where boundaries are actively defended, and the less developed resource defense mechanisms of the Western Shoshoni (Dyson-Hudson and Smith 1978). While environmental factors are important, they never wholly determine why people distribute themselves as they do. At a broader level, there is a widespread failure to really identify and understand the more subtle and less readily apparent forms of land tenure and territoriality that hunter-gatherers practice, which are often judged by the criteria of physical transformations and enclosures of landscape that farming communities commonly practice (Zvelebil 2003).

HUNTER-GATHERER STUDIES AND ETHNOARCHAEOLOGY

How did the developments of the Man the Hunter era affect archaeological research into hunter-gatherers? By the 1960s the cultural ecology framework advocated by Julian Steward and Leslie White was becoming increasingly attractive to archaeologists frustrated by the descriptive accounts of the hunter-gatherer archaeological record generated by the culture-historical paradigm. What really excited a new generation of researchers was the prospect of developing a more robust analytical perspective on long-term human development, for “many of the key variables that White and Steward posited as major causes of culture change were relatively accessible for archaeological study” (Trigger 1989:293). Following Binford's (1962) definition of culture as humans' extrasomatic means of environmental adaptation, variations and transformations identified in the archaeological record were

argued to reflect the operation of an adaptive system subjected to long-term processual culture change.

Advocates of this new perspective on archaeology quickly realized that their understanding of the relationship between material residues and adaptive behavior was at best rudimentary, at worst nonexistent. Prehistoric archaeology is the only social science that has no direct access to information about human behavior (Trigger 1989:357). Consequently, all archaeological interpretations depend on a detailed understanding of the relationships linking material culture and society. Archaeologists realized that they must devise ways of inferring the dynamic nonmaterial aspects of “lived” culture and society from the static surviving physical remains that eventually come to form the “dead” archaeological record (Binford 1978), a methodology broadly defined as middle-range theory (Bettinger 1991:63; Schiffer 1976; Binford 1981; see Watson, chapter 3). Keen to bridge this analytical gap, the New Archaeologists developed the subdiscipline of ethnoarchaeology, which combined ethnographic field studies with an archaeological methodology and focus in order to investigate the material deposits generated by different kinds of human behavior (Arnold and Kramer 2001).

For New Archaeology, further inspiration for ethnoarchaeological research came from uniformitarian principles developed in geology (Binford 1978:12). In short, if culture could be understood as the means through which humans adapted to the constraints and opportunities of the material world, then middle-range insights could be imported directly into archaeological interpretations, so long as societies in the ethnographic and archaeological case studies shared certain definitive cross-cultural similarities, for example, adaptations to similar environments, including reliance on similar kinds of flora, fauna, and technology. If these broader parallels were in place, appropriate ethnographically derived insights would form the building blocks that would enable archaeologists to recreate the totality of the cultural systems that existed in the prehistoric past (Binford 1983:12).

Hunter-gatherer societies became a special focus of ethnoarchaeological research, with seminal studies carried out in a range of different ecological contexts, generated illuminating insights into the material outcomes of subsistence behavior, the hunting and processing of fauna, settlement systems, activity areas, and site formation processes (Binford 1978, 1980, 1982, 1983, 1987; Gamble and Boismier 1991; Kroll and Price 1991; Gamble and Boismier 1991; Gould

and Yellen 1987; Yellen 1977), albeit from a strongly adaptive, ecological, and functional perspective, and linked to deeper assumptions that forager societies are more closely linked to the natural economy. Indeed, more social and symbolic aspects of behavior were either downplayed or ignored (Arnold and Kramer 2001:126; Whitelaw 2004). Ethnoarchaeological studies also tended to examine the material outcomes of behavior, not the factors causing the behavior itself (Smith and Winterhalder 1981:5): “what conditions the different forms of adaptation is one for general theory” (Binford 1978:486). Nevertheless, many practitioners of ethnoarchaeology went on to make important contributions to wider debates about the factors underlying hunter-gatherer behavior and variability, for example, Binford’s (1980) distinction between foragers and collectors, based on his own study of the Nunamiut (Binford 1978) and on Yellen’s (1977) study of the San.

One classic ethnoarchaeological study is Binford’s (1978) work among the Nunamiut, who were high-latitude hunters of the Central Brooks range of Alaska. The Nunamiut were an extreme example of meat-dependent hunters (1978:12) who exploited large-scale migrations of caribou (*Rangifer tarandus*) herds as they moved north and south through mountain passes. Binford’s main interest was to “learn as much as possible about all aspects of the procurement, processing and consumption strategies of the Nunamiut Eskimo and in turn relate these to their faunal consequences” (1978:13). Binford stressed the importance of understanding the “systems behind the assemblage” (1978:497). His method was to devise the economic value of different parts of anatomy of both caribou, the primary prey, and mountain sheep, which provided secondary sources of meat, and relate this to the Eskimos’ behavior and their decision-making strategies (1978:14). Overall, his conclusion is that there is a remarkably close fit between his optimal predictions and the observed behavior of the Eskimos.

RECOGNIZING VARIABILITY:

THE ERA OF GROSS CLASSIFICATIONS

In the years following *Man the Hunter*, the scientific, ecological, and materialist perspectives on forager societies greatly improved our understanding of hunter-gatherers, but also raised awareness of immense variability in hunter-gatherer behavior that extended well beyond the initial formulations of nomadic style. Initial struggles to reformulate concepts of typical behavior and archetypal foragers led to researchers

reclassifying the forms, causes, and constraints of this diversity (Kent 1996:1). In the process, variability *within* as well as *between* groups has been increasingly recognized (Kent 1996:16).

Among the initial attempts at a more nuanced taxonomic system, three were particularly influential. First, there was Woodburn's (1980, 1982) important distinction between *delayed return* and *immediate return* hunter-gatherers. Under this classification, *delayed return* groups are more focused on longer-term storage and survival. The products of labor are invested in durable extractive technology like weirs and traps or in stores of food, which can then be owned and controlled, leading to potential wealth disparities and the emergence of social ranking. Classic examples are the Northwest Coast communities of North America. In contrast, *immediate return* hunter-gatherers are focused on producing food for rapid consumption using simple technologies, and are closest to the original idea of a nomadic style. Attempts to accumulate wealth are counteracted by either immediate consumption or a strong social and ideological imperative to share resources freely. As Zvelebil notes (1998:8–9), Woodburn's anthropological distinction has a special relevance to archaeology in that he makes an "explicit link . . . between the specific forms of social organization and ideology and archaeologically identifiable aspects of technology and material culture . . . within the general category of hunter-gatherers."

Second, Binford (1980) made a broadly similar distinction between *foragers* and *collectors*, linking differences in subsistence strategies to variations in the quantity and seasonal distribution of resources at their disposal. In environments where resources are both productive and spatially and temporally homogeneous (as often occurs in the tropics), there are never seasons of shortage, and so no need for storage. As a result, these kinds of environments tend to encourage immediate return forager economic systems, whose organization of subsistence and settlement across time is simple. These foragers tend to practice residential mobility and map themselves onto the ecology by frequently moving base camp to be close to resources. Conversely, where there are seasonal shortfalls (e.g., in higher latitudes) generating an uneven distribution of resources at different times of the year, the settlement and subsistence strategies of hunter-gatherers have to meet these more complex adaptive challenges. Storage and logistical mobility are generally practiced, with fewer base camp moves but a higher number of specialist-type camps located nearer to seasonally

available and predictable resources. In these kinds of ecological regimes we tend to see collectors, again the classic example being the hunter-gatherer societies of the Northwest Coast (Ames and Maschner 1999).

Third, a general distinction was made between *simple* versus *complex* hunter-gatherer societies (Price 1981; Price and Brown 1985). Originally coined by Price (1981), the topic saw further exploration in the 1980s (Hayden 1981; Tesart 1982; Woodburn 1980; Yesner 1980), culminating in an influential volume by Price and Brown (1985). In a recent review, Arnold (1996:78) defines complexity in hunter-gatherer societies as the presence of "social and labor relationships in which leaders have sustained or on-demand control over non-kin labor and social differentiation is hereditary." In other words, (1) some must work for others outside their kin group and (2) some have ascribed status, or higher ranking from birth. Arnold takes care to decouple hunter-gatherer complexity from three pervasive "myths": (1) that forager complexity is but one stage on a unilinear schema of evolution culminating in a transition to farming; (2) that complexity emerges through contact with farmers and advanced groups ("it is not farming per se but manipulations of marriage, exchange, ritual, initiation rites, and especially labor that may allow social stratification to develop," Arnold 1996:87); and (3) that complex hunter-gatherers are so exceptional that they are not worthy of incorporation into mainstream theory. Much more work could be done on theories of emergent complexity, whether it is driven by population pressure or a range of other factors (Ames 1994). There are several problems with attempts to classify particular societies as being complex or simple. Overall, complexity is best considered as a conceptual continuum, an emergent process, rather than a discrete category of society. Importantly, there are several other potential dimensions to complexity in hunter-gatherer societies, which are often overlooked. Zvelebil (1998:7), for example, explores technological, economic, social, and symbolic complexity in a range of ethnographic contexts and draws attention to their potential archaeological signatures.

To summarize, many of these gross classifications were important responses to the realization of hunter-gatherer diversity and remain useful concepts for both archaeologists and anthropologists. The shortcomings of these classifications are linked to the implicit dangers in any taxonomic system in that they have tended to reduce the flexibility and variability inherent in forager behavior, social structure, and ideology to

simplistic binary oppositions such as simple/complex, immediate return/delayed return, mobile/sedentary, often based on a set of “typical” ethnographic examples (Kelly 1995:34; Schweizer 2000:45).

HUNTER-GATHERER STUDIES: A CRISIS OF CONFIDENCE?

Documented variability in past and present forager societies gradually undermined the basic assumptions that as a class of society, foragers were distinct from farmers or pastoralists and that foraging was an isolated and self-contained way of life (Bender and Morris 1988; Kent 1992; Lee 1992; Solway and Lee 1990; Wilmsen and Denbow 1990). It became increasingly clear that although diverse hunting-and-gathering societies subsisted on wild resources, different aspects to their behavior might well have more in common with agricultural societies than other hunter-gatherers. For example, the Northwest Coast groups had highly developed social hierarchies, much like many farming societies, yet were grouped with immediate return, egalitarian Kalahari foragers. In addition to the diversity between groups existing at any one time, hunter-gatherer societies can make remarkable changes in their subsistence *through* time, and not necessarily in any consistent (unilinear) direction, for example, toward farming. In fact, oscillations between subsistence modes, stretching back into prehistory, have been suggested for nomadic hunter-gatherers in Borneo (Hoffman 1984), southern Asia (Gardner 1985), and among Bushmen groups of the Kalahari (Denbow 1984). In prehistoric Luzon, for example, hunter-gatherer populations were generalists with knowledge of hunting, fishing, and root crop cultivation (Griffin 1984; Headland and Reid 1989). Rowley-Conwy (2001) makes the crucial point that long-term change among prehistoric foragers was unpredictable, reversible, and rapid, far from a smooth and irreversible progression from simple to complex societies, or from foragers to farmers. Drawing on several case studies, Rowley-Conwy (2001:64) argues that forager complexity comes and goes as a result of adaptive necessity. He concludes that early models of nomadic style and the original affluent society, which were based on ethnographic research among Kalahari groups, have no claims to being an original human condition that prevailed in history. Indeed, they may have been the most remarkable and specialized social form that humans have ever evolved.

As a result, these developments led to an increasing concern with the flexibility and the processes that

drove the apparently limitless variability. Second, if there were no typical foragers—or even predictable lines of evolution—then extrapolating from past to present became much more problematic. The two concerns become united in the realization that only through “understanding the sources of the variability present in . . . [hunter-gatherer] . . . ethnographic data will allow us to develop more accurate methods of reconstructing the past” (Kelly 1995:342).

FROM CULTURAL ECOLOGY TO BEHAVIORAL ECOLOGY

Following Steward (1936, 1938, 1955), it was assumed that the environment effectively determined the subsistence base and social organization of foragers, implying that everything of interest about hunter-gatherer lifeways was related to environmental adaptation. The addition of systems theory and the ecosystem concept in the 1960s motivated cultural ecologists to measure the complex relationship between people and the environment rigorously and empirically (Lee 1969). Subsistence studies were crucial to this broader project and were conducted throughout the world (Kelly 1995:43–44).

However, despite its claims to analytical sophistication, the explanatory power of this approach was limited. Researchers generated post hoc anecdotal conclusions, providing “plausible accounts of how well-adjusted hunter-gatherers are to their environments” (Kelly 1995:45). For cultural ecologists, adaptation defined the status quo and was fixed, presumably until the environment changed. It also did not account for individual decision making, with humans portrayed as responding *en masse* (somehow) to external changes in the environment (Binford 1983; see Gardner, chapter 7).

From this theoretical paradox some anthropologists turned to the emerging field of behavioral or evolutionary ecology, which makes cultural ecology more complete by adding natural selection (Kelly 1995:51; Bettinger 1991; Jochim 1981; Winterhalder and Smith 2000; see Bentley et al., chapter 8). The approach aims to identify the causal variables lying behind forager diversity. At the core of the method is the idea that humans, being evolved by a long history of natural selection, tend to make cost-benefit decisions (consciously or unconsciously) that enhance their future reproductive success. “What explains diversity in behavior . . . is the different pay-offs for different courses of action in different environments . . . thanks to the flexibility of their behavior” (Shennan 2002:16).

Again, at the core of these was the assumption that humans seek, using an evolved rationality, to maximize resources as lowest costs (Winterhalder and Smith 1981; Ingold 1996, 2000:27–39). In other words, this new emphasis makes cultural ecology more complete by adding natural selection: “A phenotype is judged to be more or less adaptive relative to other phenotypes by whether it contributes more or less genetic material than other phenotypes to succeeding generations” (Kelly 1995:51). Thus, at a broad level, behavioral ecology investigates the relationship between human populations and the relative reproductive success of their sociocultural adaptations to the environments they inhabit. One major area of research has been in the application of ecological models like optimal foraging theory to actual foraging behavior (see Bentley et al., chapter 8). Classic models include the diet breadth and the patch choice model (Bettinger 1991; Winterhalder and Smith 1999; Kelly 1995; Winterhalder 2001). Optimal foraging theory evaluates behavior in terms of relative efficiency, or obtaining maximum benefits for minimum costs. The underlying assumption is that those who procure food more efficiently will enjoy better reproductive success, so that there will be active evolutionary selection of these behaviors (Smith and Winterhalder 1997a:163).

In anthropological field studies, measuring the longer-term relationship between potentially adaptive strategies and reproductive success is difficult. Few criteria have been developed for assessing how behaviors are actually adaptive, although the concepts of energy production, consumption, and expenditures provide useful surrogate measurements (Smith and Winterhalder 1981:3). Often the calorie content of food resources is employed as a conceptual currency to measure the relative costs and benefits (in time and energy) of procuring particular resources via alternative modes of behavior, so that relative profitability of different strategies can be assessed. For archaeologists and paleoecologists, the added challenge is to collect the kind of detailed environmental information that is obtained more easily by the ecologist/ethnographer. Sheehan (2004), for example, argues for intensive sampling to reconstruct more fully the spatial variability of potential resources in past forager environments.

With its emphasis on links to health, demography, and reproductive success, behavioral ecology also uses game theory to explore social behavior, territoriality, and altruism, as well as dual inheritance theories of cultural transmission (Boyd and Richerson 1985; Kelly 1995:58–62; Shennan 2002). These recent develop-

ments extend the original aims of the Man the Hunter conference for rigorous scientific study of human behavior, in that they apply to society in general, as well as more specifically to hunter-gatherers (Panter-Brick et al. 2001).

Optimal foraging theory has seen widespread criticism for imposing Western economic and time budgeting models onto communities that might view the world in quite different terms. However, proponents argue that optimal foraging is simply the null hypothesis, against which real-world human behavior can be compared (Smith and Winterhalder 1991:106). If there is a wide discrepancy between the maximizing prediction of the models and the observed behavior, then either the model is wrong or the individual (or collective) being investigated is not making effective use of the local environment. Many critics of behavioral ecology, often from the humanities, appear not to grasp this crucial point, and are even “opposed in principle to simple explanations,” as Bettinger (1991:103–104) noted, adding that “the real test is whether observed behavior conforms to expectations arising from the models.”

While many humanists despair at the reduction of communities, cultures, and individuals to stark equations and graphs (Ingold 2000:30), few seem willing to integrate these insights with other approaches. For example, the identification of gaps between potentially adaptive/maximizing and actual recorded behaviors often draws attention to the uniqueness of particular cultures, who perhaps maintain particular taboos, rituals, or unique patterns of behavior. Understanding variability is a key dimension to understanding evolution, as well as celebrating local cultural diversity.

Revisionist Approaches

Many who had previously advocated a strongly materialist approach to hunter-gatherers left themselves open to criticism through their choice to portray forager groups as pristine, isolated, self-sufficient units, whose internal dynamics were stripped of both history and wider spheres of interaction (Kelly 1995:47). Moreover, cultural ecology tended to continue the nineteenth-century view that hunter-gatherers were relic Pleistocene populations at equilibrium with their respective environments, with no reason to change over the millennia (Kelly 1995:47). The San and Pygmies of central Africa, for example, were widely argued to be survivals of a form of human life that prevailed everywhere on earth until pastoralism and agriculture began to expand some 12,000 years ago (Riches 1999:288; Suzman 2004).

The role of history and culture contact have been become increasingly controversial in hunter-gatherer studies and were hotly debated in the 1980s and 1990s. Indeed, Suzman (2004) argues that the 1960s and 1970s were the last stage in “lost world anthropology” when people hoped to find archaic survivals of the earliest human adaptations based on hunting and gathering. At the core of the heated debates were profound questions as to (1) whether modern hunter-gatherers are isolated survivals of an earlier and more widespread “original” human state of existence, and thus (2) whether we can be justified in extrapolating insights from modern hunter-gatherers to understand more fully ancient forager societies and behavior. This raises two further issues: the role of time (history) in generating observed behaviors, and the importance of colonialism, world capitalism, and globalization in creating modern forager societies. The full range of historically documented foraging may not be pristine Paleolithic survivals but products of a complex meshing of forces at the core of colonialism and global capitalism.

The ensuing Kalahari debate had a main focus on forager groups in Africa but had revisionist implications for all hunter-gatherer studies. Initially *generalists* were polarized against *historical particularists* (Lee 1979; Headland and Reid 1989; Schire 1984; Wilmsen 1983, 1989; Wilmsen and Denbow 1990). The generalists argued that through modern fieldwork a general model of foragers could be developed that was a direct analogy for earlier periods. Historical particularists mocked ideas that modern foragers were pristine and linked present forms of forager behavior to long-term histories of culture contact, including repeated subsistence shifts from foraging and pastoralism and back again, all within a wider regional context of economic and political developments. Spielman and Eder (1994), for example, review the immense literature on forager farmer contacts among some of the classic foraging societies, including the Kalahari San, the Efe of northeastern Zaire, the Kenyan Okiek, the Agta of the Philippines, and some South Asian groups, including the Hill Pandaram. Common features include exchange to acquire farmer-produced carbohydrate-rich foods, trade for forager-obtained forest products like honey, resins, and medicinal plants, and labor. Headland and Reid (1984:52) concluded that, until the misconception of hunter-gatherers as primitive and isolated was corrected, “our image of hunter-gatherer culture and ecology will remain incomplete and distorted.”

While this revisionist attack on the high-profile Kalahari research was one of the “most ferocious . . . in late twentieth-century social anthropology” (Suzman 2004:203), it was an important part of wider moves in anthropology to consider more fully the effects of colonialism on non-Western societies that ethnographers had tended to report as being exotic, timeless, and traditional (Asad 1991). This new set of insights was critiqued in turn, for casting hunter-gatherers into new stereotypes as colonial victims or rural proletarians with a culture of poverty (Kelly 1995:29).

More recent discussions have explored the role of culture and economic contact in more nuanced terms (Lee and Daly 1999:3), including deliberate hunter-gatherer choices to maintain autonomous foraging lives while interacting over the long term with other kinds of communities, like pastoralists or farmers, perhaps also oilmen, miners, and dam builders. In South and Southeast Asia, for example, many forager groups, “with their long histories of embeddedness in wider and extraordinarily complex social systems” (Spielman and Eder 1994:396) subsist locally through hunting and gathering but also provide forest products to the world and regional markets (Morrison and Junker 2002; Pappu 2004). Across northern Eurasia similar degrees of regional sociopolitical embeddedness have been a long-term feature of the historically documented hunting fishing and gathering cultures of Siberia, where Russian czars imposed a *yasak*, or fur tax, on the natives after they subjugated the region in the sixteenth century. Rather than shift to farming or cultural, linguistic, or spiritual assimilation (Forsyth 1992; Jordan 2003), many hunting, fishing, and gathering communities resisted religious and ideological persecution for centuries and maintained their indigenous identities and worldviews (Glavatskaia 2004). State-led demands for the supply of forest products like furs and meat required that indigenous peoples spend long periods of the year out in the bush, where they practice local rituals and uphold beliefs and identities, thereby derailing wider governmental attempts at cultural, linguistic, and ideological assimilation (Jordan 2003). This is just one example of how hunter-gatherers have been active political and economic players, as much a part of their contemporary world as anyone else.

The major outcome of the revisionist critique is that hunter-gatherer societies are now considered within their wider region rather than as direct analogies for the organization and behavior of ancient humans and early hominids (Ames 2004:366). But are

modern hunter-gatherers merely a phenomenon of modern exchange and interaction networks, without any prehistoric analogy? For archaeologists, initial dismay that insights from modern hunter-gatherers could not be projected back into the archaeological past were overtaken by an increasingly sophisticated understanding of, and interest in, long-term and shifting culture contact between farmers and foragers, as well as their central role in some of the major periods of global culture change (Harris 1996). Here, the issue of relations between hunter-gatherers and outsiders, including the advance of an agricultural frontier in a number of distinct stages via shifting zones and forms of interaction, drew increasing attention in archaeology. On the transition to farming, for example, ethnographic studies of shifting culture contact may shed light on potentially analogous processes operating in prehistory (Alexander 1978, Denell 1985, Green and Perlman 1985, Leacock and Lee 1982; Schire 1984; Spielman 1991; Zvelebil and Rowly Conwy 1984; Zvelebil 1986, 1996). Clearly, creating a new victim stereotype for all foragers who have been in culture contact “denies the usefulness of the study of modern hunter-gatherers for understanding prehistory” (Kelly 1995:29). Finally, we must also consider Barnard’s (2004:7) point, that while the traditionalist/revisionist Kalahari debate raged back and forth, neither side actually examined the Bushmen’s perception of the world.

Symbolic and Humanist Approaches

Hunter-gatherer study courts a specific problem in that it is based on a subsistence definition that downplays symbolism and/or lumps it together inappropriately with other groups, under the assumption that a similar forager subsistence base will generate a similar worldview. Kent (1996:1) observes that “while understanding diversity has been a hallmark of anthropological enquiries since the inception of the discipline hunter-gatherer (or forager) studies tend to stress similarities.” She notes that this is partly linked to a limited array of dominant theoretical orientations that emphasize economics, particularly subsistence, at the expense of other realms of culture and behavior (1996:17; Schweizer 2000:46).

Bird David (1996:302) has argued that “more attention should be given to symbolic worlds and worldviews of these peoples,” especially since it is inherently easier to compare the established Western subsistence categories rather than localized worldviews. Her approach is one of comparison based on enduring and

common cultural images (Bird David 1990, 1992), leading to such general conclusions as that immediate return hunter-gatherer groups share an ethos of a giving environment that bestows bounty unconditionally. Emerging evidence suggests that, in terms of worldview, the more delayed return/complex foragers share commonalities with what Bird David describes as an agricultural worldview (Jordan 2003).

Anthropologists have therefore directed increasing attention to symbolic and spiritual dimensions to forager behavior, including cultural uses of land such as sacred places, humanistic theories of individual action and intent, consciousness, cosmology, ritual, and religion (Schweizer 2000), rebalancing hunter-gatherer studies away from the dominant interests in ecology and evolution (Barnard 2004:6). For example, in a series of seminal papers Bird David (1990, 1992) has explored forager relationships with the environment, arguing persuasively that what lies at the core of their concerns is not maximization of leisure time (cf. Sahlins) but an aim to maintain good and caring relationships with others and the environment.

Much of this broader interest in worldview has resuscitated an immense body of classic ethnography dealing with concepts of the soul in humans and animals, ideas about shamanism (Price 2001), sacred places and the Dreamtime (Layton and Ucko 1999), rock art (Whitley 2000, 2001), and other themes. For many foragers in a rapidly changing world, foraging is not just an economic pursuit but expresses identity and a belonging to the land. Finally, there have been renewed efforts to explore the agency of foragers, that is, not just portray them as (1) maximizing foragers devoid of personalities who know too much yet have little culture (Dobres and Robb 2000; Ingold 1996, 2000) or as (2) passive victims of change living on the edges of the world economic system. Agency theory (see Gardner, chapter 7) treats foragers as actively willful, creating, manipulating, and upholding symbolic life worlds through acts of hunting and gathering and living out on the land, as well as through political campaigning. Although beneficial, the emphasis on celebrating fine-scaled cultural diversity and the uniqueness of particular societies has fragmented hunter-gatherer studies along the enduring divide running through anthropology and archaeology, between a quest for scientific explanation versus interpretative understanding.

Recently it has been argued that an interpretative focus on landscape could illuminate the ways in which subsistence, cosmology, and kinship are inextricably

intermeshed in forager culture. As part of a vast and growing literature Layton and Ucko (1999) note that while environment and ecology determine symbolic perceptions of the world, and the role of humans and animals within it, the generality can be made that all indigenous peoples (many of whom are foragers) do have sacred places as well as areas of routine land use. There is an immense research potential here, as symbolic attachments to land and the material signatures of those understandings remain poorly understood (Zvelebil 2003; Cannon, forthcoming). How and why, for example, do hunter-gatherers understand features of the natural world, singling them out for special veneration and perhaps also marking them with symbolic depositions and rock art (Bradley 1993)? Such questions on symbolism should be addressed without losing ecological perspectives on adaptation. Most symbolic systems are grounded in day-to-day subsistence activities as well as in specific moments of ritual. The most successful studies will integrate insights from both perspectives, as economic and symbolic dimensions to behavior are complementary and essential elements of forager lifeways.

Archaeological reevaluations of hunter-gatherers has been more muted, and they tend to be viewed through existing economic and ecological perspectives, without much ethnoarchaeological work on more social and symbolic aspects to hunter-gatherer behavior (David and Arnold 2001). Ethnoarchaeology and middle-range theory lay have been duly criticized (Hodder 1982, 1986; Wobst 1978) for remaining surprisingly aloof to the potential that symbolic behavior and worldview are also represented in the archaeological record, which is a logical expansion and diversification of hunter-gatherer studies (Cannon, forthcoming).

Since *Man the Hunter*, research among hunter-gatherer groups has raised public awareness of the appalling treatment of indigenous peoples by various states, and the appalling history of human rights violations in the treatment of these groups. Increasingly, anthropologists have been called on to demonstrate cultural and ethnic attachments to landscapes, including both routine subsistence and ritual uses of space, in support of groups seeking to have their land rights upheld by law (see Green, chapter 22; McNiven and Russell, chapter 25). A lot of work was conducted in Australia in the 1960s and 1970s, and documentation of traditional land use continues from North America (Brody 2000) to Siberia (which occurred rapidly after the fall of the Soviet Union).

As Layton (2001:312) notes, "Land rights depend on the maintenance of a separate cultural identity within a defined area of land." This has a certain irony in that foragers are compelled to use the cultural ecology argument for the existence of a bond with the land that is essentially fixed, isolated, and unchanging (Ingold 2000; see McNiven and Russell, chapter 25), which tends to cast foragers once again into pristine roles as descendants of an original and unchanging ancestral indigenous culture. Moreover, as Zvelebil (2003:71) notes, "The enculturation of the landscape has become a major criterion for settling land claims, and as such is a major tool in a political struggle for land and resources, yet . . . evidence . . . eludes recognition because it continues to be evaluated by the standards and expectations set essentially for farming communities." For example, Pinkoski and Asch (2004:199) argue that Julian Steward's theoretical contributions to hunter-gatherer studies have had profound practical implications for the resolution of native land claims, arguing that "Steward's project displays a bias that depicts indigenous peoples as lacking qualities of socio-political organization and institutions of land holding that necessitate recognition of their rights by . . . [state] legal systems."

While there are many opportunities here to explore the uniqueness of local cultures, behavioral ecologists (who study the micro ecological foundations to communities' subsistence behavior) can also make an important contribution to conservation efforts by looking at subsistence adaptations and thus the practical and cultural implications of ecosystem destruction (by mining, for example). As Lee and Daly (1999:11) observe, "Having fought to maintain their scientific rigor as anthropology at large moves in a more humanistic direction, the challenge for the behavioral ecologists is to make their work also relevant and useful to the subjects in their fight for cultural, economic and ecological survival."

Finally, beyond the narrow confines of the specialist field of hunter-gatherer studies a number of scholars continue to work on the rich ethnographic material describing foraging societies. Flagship projects have included the publication of the multivolume *Handbook of North American Indians*, which chronicles five hundred native nations, many of whom were hunter-gatherers. Similar overview volumes were produced for the Australian Aborigines (Edwards 1987) and Khoisan African groups (Barnard 1992). More recently, the ambitious *Cambridge Encyclopedia of Hunter-Gatherers* (Lee and Daly 1999) has attempted

global coverage, while Joe Henrich and others (2006) pursue an ambitious long-term ethnographic project to test the predictions of evolutionary theory through economic experiments carried out in small-scale societies around the world.

CONCLUSION

Recent reviews of hunter-gatherer studies have tended to be pessimistic, expressing a general concern about the imminent demise of the field as a distinct arena of enquiry (Ames 2004:371), or lamenting the increasing balkanization of the subject into specialist branches whose leading proponents rarely communicate with one another (Panter-Brick 2001:1). Burch (1994:454) identifies three challenges. First, opportunities for original ethnographic fieldwork among living hunter-gatherer communities are rapidly disappearing due to the increasing pace of globalization. However, an opportunity recently opened for Westerners to observe hunter-gatherer peoples in Siberia, after the collapse of the Soviet Union and end of the cold war (Schweizer 2000). New studies in these areas will broaden the current African/Australian emphasis in the hunter-gatherer debate, adding new information on the emergence of reindeer pastoralism among former hunter-gatherers, as well as the kinds of relationships that emerge between foragers and pastoralists. Many Siberian peoples, such as the Khanty (Jordan 2003), are also complex hunter-gatherers, but quite different from the more commonly studied Northwest Coast groups. Likewise, these studies in other regions should generate broader understanding of the degrees of hunter-gatherer variability (Barnard 2004:4). Also, the new Baikal archaeology project combines archaeological excavations of Early Holocene mortuary and residence sites with ethnoarchaeological research into present-day Evenki hunter-gather communities that still live on the land.

Second, Burch (1994) suggests that the whole field of study of hunter-gatherers is based on an unfruitful concept in the first place, as revealed by the immense variability and flexibility that appears to characterize any dimension to forager lifeways. In defense of hunter-gatherers as an analytical category, Kelly (1995:34–35) argues that “used self-consciously . . . there is nothing wrong with the term hunter-gatherer—as long as we recognize that it carries no analytical weight, that it is only a heuristic and pedagogical device,” and that the theoretical frameworks just need to account more explicitly for variation.

This variability among foraging societies, however, is Burch’s third concern. By producing a large body

of evidence documenting fine-grained behavioral variability in hunter-gatherers, new research provides an impetus “to explore the tremendous diversity of population groups known as hunter-gatherers, groups manifestly successful in an impressive range of habitats” (Panter-Brick 2001:9). The downside is that “as with the rest of anthropology, hunter-gatherer studies have no coherent paradigm (or even common assumptions) with which to explain behavioral variability among hunter-gatherers or to set common research priorities” (Ames 2004:370). Ames (2004) identifies multiple, overlapping approaches which range from “strongly materialist to the strongest postmodernists,” and he is particularly critical of a growing focus on particular histories, that is, research conducted without theory to bind it together (2004:371).

The increasing specialization has resulted a trend of decreasing communication across the expanding field of hunter-gatherer studies (Panter-Brick 2001:1). The challenge is summarized by Kelly (1995:33–34):

Throughout the history of anthropological thought, the stereo types of hunter-gatherers have changed from one extreme to another: from a vision of lives that were nasty, brutish and short, to lives of affluence, from a diet of meat to a diet of plant food; from egalitarianism to inequality; from isolated relic to rural proletariat. Anthropology sought to explain “the” hunter-gatherer lifeways by seeking generalizations, usually drawn from a very small sample of societies, sometimes from only one. There is nothing wrong in seeking generalizations; indeed, this part of the obligation of a scientist. But generalisations should not mask underlying variability; rather they should take steps towards understanding it.

Convincing explanation of this hunter-gatherer variability—in terms of worldview, subsistence, settlement, and mobility patterns—is still in its infancy and remains characterized by bitter disputes. One school includes the purists, with their intellectual inheritance from Julian Steward and a natural science approach to human behavior. A good example is the work of Binford (2001), who combines analysis of ethnographic data sets from 390 groups of documented foragers with detailed information on environments (world climates, plants, animals) to develop pattern recognition on a global scale associated with variability in hunter-gatherer behavior. Important conclusions from this immense study include the identification of a postulated packing threshold of 9.028 people per hundred square kilometers, with densities beyond this

level triggering major shifts in socioeconomic behavior. Much archaeological research into hunter-gatherers, particularly in North America, tends to follow this more materialist intellectual heritage.

Others have also maintained a strong but slightly different materialist tradition, coupling the traditional ecological approach with an ongoing development and application of neo-Darwinian cultural transmission and behavioral ecology theories (Bettinger 1991; Kelly 1995; Maschner and Bentley 2003; Shennan 2002). These present attempts to link a coherent framework for integrating insights from optimal foraging theory, demography, health, nutritional status, territoriality, and mobility within attention drawn to decision-making processes conducted in terms of costs and benefits in particular social and ecological environments, which ultimately affect reproductive success. Humans can weigh different factors and change their behavior accordingly. Blending behavioral ecology with cultural transmission theory promises to generate insights, both on a general scale and on the local scale of historical contingency (Shennan 2002), and thereby integrate adaptationist and humanist accounts of hunter-gatherers.

The humanist school, or multivocalists, are less concerned with strongly ecological and materialist explanations and more concerned with a diversity of insights for a fuller understanding (Kent 1996). Thus recognition of forager flexibility and diversity are now being matched by a plurality of new approaches to describe and account for that diversity, and these match the full spectrum of anthropological thought and should, as Kent argues (1996:5), lead to a greater knowledge and understanding about human culture and behavior. To date, archaeologists have expressed limited interest in these alternative perspectives.

With appreciation of hunter-gatherer variability becoming more widespread, different questions will be asked and certain methodologies will be more appropriate for exploring some issues and not others. Should areas of common ground be sought, these three lines of potential research could integrate the best insights from different approaches:

- Much more work could be done on the processes leading to the emergence of hunter-gatherer complexity, including population growth, climate change, and links to broader transformations like the transition to farming or pastoralism (Arnold 1996; see Ames, chapter 28). The classic debating ground appears to remain the Northwest Coast

(Ames 1994; Ames and Maschner 1999), but similar long-term studies could be done in other regions, most notably Siberia, which despite a proliferation of complex hunter-fisher-gatherer cultures, has remained outside international debates (Schweizer 2000).

- More work is needed to explore the commonalities between agency theory and evolutionary analysis of human behavior (see Bentley et al., chapter 8; Shennan 1996, 2004), especially in relation to social and symbolic behavior (see Gardner, chapter 7). As Johnson (2004) notes, the potential fissures between these approaches tend to emerge not in theoretical debates but through the analysis of concrete situations. Yet there is no necessary contradiction, with materialist approaches identifying broader adaptive limits, and more interpretative approaches complementing by opening up schemes of local meaning (Cannon, forthcoming; Jordan 2004; Whitelaw 1994). Finally, behavioral ecologists have recently started to take more detailed interest in the common forms of uneconomic, wasteful, and inefficient behavior that have long been difficult to assess with classic cost-benefit models. It appears increasingly likely that many forms of individual and group subsistence activity (e.g., the hunting of large and evasive game) are in fact games of skill, motivated primarily by a desire to negotiate and signal prestige and where the fundamental dynamic is competitive display (Bliege Bird and Smith 2005:229).
- The analytical concept of landscape (Gosden and Head 1994), including social, symbolic, and subsistence uses of space, continues to be the most viable means of exploring alternative accounts of behavior and action. Many recent works couch land use in either/or terms—either as environment or in terms of symbolic cognitive templates. Much more work could be done to explore how worldviews are grounded in, and dialectically interact with, subsistence and ecological factors. Indeed, as Zvelebil (2003:65) notes, while “it has now become clear that hunter-gatherers . . . enculturate their landscapes using a number of practical and symbolic strategies, the signatures of which have often passed unnoticed” meaning that “reappraisal of the symbolic perception and social use of landscape by hunter-gatherers . . . is only beginning.” Moreover, jettisoning the conceptual baggage inherent in closed categories like economy or cosmology enables us to develop more nuanced and holistic insights into relationships between, for example, carcass processing, calories, and cosmology

(Binford 1978:413). Further analysis of hunter-gatherer artifacts, architecture, and subsistence residues could benefit from both a costly signaling (Bliege Bird and Smith 2005) and material culture studies approach in order to bring out functional, social, and symbolic aspects of meaning and usage.

To conclude, anthropological and archaeological research into hunters and gatherers has multiplied and diversified rapidly since the Man the Hunter conference of the 1960s. Metaphorically, hunter-gatherer studies remain the heart and soul of anthropology and serve as the foundation for many of its most cherished assumptions “illuminating and illustrating the basic theoretical problems and practical solutions” (Myers 2004:175). However, the lively expansion in hunter-gatherer studies has also been characterized by an associated breakdown in communication between the different schools (Panter-Brick et al. 2001:1), especially with regard to broadly materialist and humanist approaches to anthropological questions.

In contrast, research into prehistoric hunter-gatherers, constrained in part by the coarse-grained nature of the archaeological record, has remained strongly materialist in outlook, although there are signs that this may be about to change with the development of more resolutely social and symbolic perspectives, which would represent a logical expansion and diversification of the traditional archaeological concerns with adaptation and economy (Cannon, forthcoming).

KEY SOURCES

For recent overviews of the subject, see the following points of departure before working back into primary sources:

- The *Encyclopaedia of Hunters and Gatherers* (Lee and Daly 1999) contains rich documentation of many recently recorded forager groups.
- Panter-Brick et al. (2001) have edited a volume of recent advances.
- Kelly (1995) provides a superb summary of hunter-gatherer studies.
- Bettinger (1991) reviews materialist approaches to forager research.
- Headland and Reid (1989) and Spielmann and Eder (1994) provide excellent reviews of the immense literature on forager-farmer interactions, with a particular focus on sub-Saharan Africa, South Asia, and Southeast Asia.
- Barnard (2004) has provided a useful review of regional traditions of research.

REFERENCES

- Alexander, John. 1978. Frontier studies and the earliest farmers in Europe. In D. Green, C. Haselgrove, and M. Spriggs, eds., *Social organization and settlement*, 13–29. BAR International Series 47. Oxford.
- Altman, Jon C. 1984. Hunter-gatherer subsistence production in Arnhem Land: The original affluence hypothesis re-examined. *Mankind* 14: 179–190.
- Ames, Kenneth M. 1994. The Northwest Coast: Complex hunter-gatherers, ecology, and social evolution. *Annual Review of Anthropology* 23: 209–229.
- . 2004. Supposing hunter-gatherer variability. *American Antiquity* 69: 364–374.
- Ames, Kenneth M., and Herbert D. G. Maschner. 1999. *People of the Northwest Coast: Their archaeology and prehistory*. London: Thames & Hudson.
- Arnold, Jeanne. 1996. The archaeology of complex hunter-gatherers. *Journal of Archaeological Method and Theory* 3: 77–126.
- Asad, Talal. 1991. Afterword: From the history of colonial anthropology to the anthropology of Western hegemony. In Jr. G. W. Stocking, ed., *Colonial situations: Essays on the contextualization of ethnographic knowledge*, 314–324. Madison: University of Wisconsin Press.
- Barnard, Alan J. 1992. *Hunters and herders of southern Africa: A comparative ethnography of Khoisan peoples*. Cambridge: Cambridge University Press.
- Barnard, Alan J. (ed.). 2004. *Hunter-gatherers in history, archaeology, and anthropology*. Oxford: Berg.
- Barnard, Alan J., and James Woodman. 1988. Property, power, and ideology in hunter-gatherer societies: An introduction. In T. Ingold, D. Riches, and J. Woodburn, eds., *Hunters and gatherers*, vol. 2, *Property, power, and ideology*, 4–31. Oxford: Berg.
- Bender, Barbara, and Brian Morris. 1988. Twenty years of history, evolution, and social change in hunter-gatherer studies. In T. Ingold, D. Riches, and J. Woodburn, eds., *Hunters and Gatherers*, vol. 2, *Property, power, and ideology*, 4–14. Oxford: Berg.
- Bentley, R. Alexander, and Herbert D. G. Maschner (eds.). 2003. *Complex systems and archaeology: Empirical and theoretical applications*. Salt Lake City: University of Utah press.
- Bettinger, Robert L. 1991. *Hunter-gatherers: Archaeological and evolutionary theory*. New York: Plenum.
- Binford, Lewis R. 1978. Dimensional analysis of behavior and site structure: Learning from an Eskimo hunting stand. *American Antiquity* 43: 330–361.
- . 1980. Willow smoke and dogs' tails: Hunter-gatherer settlement systems and archaeological site formation. *American Antiquity* 45: 4–20.
- . 1981. *Bones: Ancient men and modern myths*. New York: Academic.
- . 1982. The archaeology of place. *Journal of Anthropological Archaeology* 1: 5–31.

- . 1983a. *Working at archaeology*. New York: Academic.
- . 1983b. *In pursuit of the past*. London: Thames & Hudson
- . 1987. Researching ambiguity: Frames of reference and site structure. In S. Kent, ed., *Method and theory for activity area research*. New York: Columbia University Press.
- . 2001. *Constructing frames of reference: An analytical method for archaeological theory building using hunter-gatherer and environmental data sets*. Berkeley: University of California Press.
- Bird David, Nurit. 1990. The giving environment: Another perspective on the economic system of hunter-gatherers. *Current Anthropology* 31: 183–196.
- . 1992. Beyond “the original affluent society.” *Current Anthropology* 33: 25–47.
- . 1996. Hunter-gatherer research and cultural diversity. In S. Kent, ed., *Cultural diversity among twentieth-century foragers: An African perspective*, 297–304. Cambridge: Cambridge University Press.
- Bliege Bird, Rebecca, and Eric A. Smith. 2005. Signalling theory, strategic interaction, and symbolic capital. *Current Anthropology* 46: 221–248.
- Boas, Franz. 1966. *Kwakiutl ethnography*. Chicago: University of Chicago Press.
- Boyd, Robert, and Peter Richerson. 1985. *Culture and the evolutionary process*. Chicago: University of Chicago Press.
- Brody, Hugh. 2000. *The other side of Eden: Hunter-gatherers, farmers, and the shaping of the world*. London: Faber & Faber.
- Burch, Ernest, Jr. 1994. The future of hunter-gatherer research. In E. S. Burch Jr. and L. J. Ellana, eds., *Key issues in hunter-gatherer research*, 451–455. Oxford: Berg.
- Burch, Ernest, Jr., and J. Ellana Linda (eds.). 1994. *Key issues in hunter-gatherer research*. Oxford: Berg.
- Cannon, Aubrey (ed). Forthcoming. *Structured worlds: The archaeology of hunter-gatherer thought and action*. London: Equinox.
- Cashdan, Elizabeth A. 1983. Territoriality amongst human foragers: Ecological models and an application to fur bushman groups. *Current Anthropology* 24: 47–66.
- Cunningham, Jerimy J. 2003. Transcending the “obnoxious spectator”: A case for processual pluralism in ethnoarchaeology. *Journal of Anthropological Archaeology* 22: 389–410.
- Dahlberg, Frances (ed). 1981. *Woman the gatherer*. New Haven: Yale University Press.
- David, Nicholas, and Carol Kramer. 2001. *Ethnoarchaeology in action*. Cambridge: Cambridge University Press.
- Denbow, J. R. 1984. Prehistoric herders and foragers of the Kalahari: The evidence for 1500 years of interaction. In Carmel Schrire, ed., *Past and present in hunter-gatherer studies*, 175–193. New York: Academic.
- Dennell, Robin. 1985. The hunter-gatherer/agricultural frontier in prehistoric temperate Europe. In S. Green and S. M. Perlman, eds., *The archaeology of frontiers and boundaries*, 113–140. New York: Academic.
- Dobres, Marcia-Anne, and John Robb (eds.). 2000. *Agency in archaeology*. London: Routledge.
- Dyson-Hudson, Rada, and Eric A. Smith. 1978. Human territoriality: An ecological reassessment. *American Anthropologist* 80: 21–41.
- Edwards, William H. (ed.). 1987. *Traditional aboriginal society*. Melbourne: Macmillan.
- Fewster, Katherine, and Marek Zvelebil. 2001. Pictures at an exhibition: Ethnoarchaeology of hunter-gatherers. In K. Fewster and M. Zvelebil, eds., *Pictures at an exhibition: Ethnoarchaeology of hunter-gatherers*, 143–157. BAR International Series 955. Oxford.
- Forsyth, James. 1992. *A history of the peoples of Siberia: Russia's north Asian colony, 1581–1990*. Cambridge: Cambridge University Press.
- Gamble, Clive S., and William Boismier (eds.). 1991. *Ethnoarchaeological approaches to mobile campsites: Hunter-gatherer and pastoralist case studies*. International Monographs in Prehistory. Ann Arbor.
- Gardner, Peter M. 1985. Bicultural oscillation as a long-term adaptation to cultural frontiers: Cases and questions. *Human Ecology* 13: 411–432.
- Gibson, Mhairi, and Ruth Mace. 2003. Strong mothers bear more sons in rural Ethiopia. *Proceedings of the Royal Society B* 270: S108–9.
- Glavatskaia, Elena. 2004. Religious and ethnic revitalization among the Siberian indigenous people: The Khanty case. In T. Irimoto and T. Yamada, eds., *Circumpolar ethnicity and identity*, 231–246. Senri Ethnological Studies no. 66. Osaka: National Museum of Japan.
- Gosden, Christopher, and Lesley Head. 1994. Landscape: A usefully ambiguous concept. *Archaeology in Oceania* 29: 113–116.
- Gould, Richard, and John Yellen. 1987. Man the hunted: Determinants of household spacing in desert and tropical foraging societies. *Journal of Anthropological Archaeology* 6: 77–103.
- Green, Stanton, and Stephen Perlman. 1985. *The archaeology of frontiers and boundaries*. New York: Academic.
- Griffin, P. Bion. 1984. Forager resource and land use in the humid tropics: The Agta of northeastern Luzon, the Philippines. In Carmel Schrire, ed., *Past and present in hunter-gatherer studies*, 95–121. New York: Academic.
- Harris, David, R. (ed). 1996. *The origins and spread of agriculture and pastoralism in Eurasia*. London: UCL Press.
- Hawkes, Kristen, Kim Hill, and James F. O'Connell. 1982. Why hunters gather: Optimal foraging and the Ache of eastern Paraguay. *American Ethnologist* 9: 379–398.
- Hawkes, Kristen, and James F. O'Connell. 1981a. Alyawara plant use and optimal foraging theory. In B. Winterhalder and E. A. Smith, eds., *Hunter-gatherer foraging strategies:*

- Ethnographic and archeological analyses*, 99–125. Chicago: University of Chicago Press.
- . 1981b. Affluent hunters? Some comments in light of the Alyawara case. *American Anthropologist* 83: 622–626.
- Hawkes, Kristen, James F. O’Connell, and Nicholas G. Blurton Jones. 1991. Hunting income patterns among the Hadza: Big game, common goods, foraging goals, and the evolution of the human diet. *Philosophical Transactions of the Royal Society, London B* 334: 243–251.
- . 1995. Hadza children’s foraging: Juvenile dependency, social arrangements, and mobility among hunter-gatherers. *Current Anthropology* 36: 688–700.
- Hawkes, Kristen, James F. O’Connell, Nicholas G. Blurton Jones, Helen Alvarez, and Eric L. Charnov. 1998. Grandmothering, menopause, and the evolution of human life histories. *Proceedings of the National Academy of Sciences USA* 95: 1336–1339.
- Hawkes, Kristen, James F. O’Connell, and L. Rogers. 1997. The behavioral ecology of modern hunter-gatherers and human evolution. *Trends in Ecology and Evolution* 12: 29–31.
- Hayden, Brian. 1981. Research and development in the Stone Age: Technological transitions among hunter-gatherers. *Current Anthropology* 22: 519–548.
- Headland, Thomas N., and Lawrence A. Reid. 1989. Hunter-gatherers and their neighbors from prehistory to the present. *Current Anthropology* 30: 43–66.
- Henrich, Joe, Robert Boyd, Samuel Bowles, and Herbert Gintis et al. 2006. “Economic man” in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *Behavioral and Brain Sciences*. In press.
- Hiatt, Betty. 1978. Woman the gatherer. In F. Gale, ed., *Women’s Role in Aboriginal Society*, 4–15. Canberra: Australian National University Press.
- Hill, Kim, and Ana Magdalena Hurtado. 1995. *Ache life history: The ecology and demography of foraging people*. New York: Aldine.
- Hitchcock, Robert K., and Megan Biesle. 2000. Introduction. In P. P. Schweitzer, M. Biesle, and R. K. Hitchcock, eds., *Hunters and gatherers in the modern world: Conflict, resistance, and self-determination*, 1–28. Oxford: Berghahn.
- Hodder, Ian. 1982. *Symbols in action: Ethnoarchaeological studies of material culture*. Cambridge: Cambridge University Press.
- . 1986. *Reading the past*. Cambridge: Cambridge University Press.
- Hoffman, Carl L. 1984. Punan foragers in the trading networks of southeast Asia. In Carmel Scire, ed., *Past and present in hunter-gatherer societies*, 123–149. Orlando, FL: Academic.
- Hurtado, Ana Magdalena, Kristen Hawkes, Kim Hill, and Hillard Kaplan. 1985. Female subsistence strategies among Ache hunter-gatherers of eastern Paraguay. *Human Ecology* 13: 1–28.
- Ingold, Tim. 1986. *The appropriation of nature: Essays on human ecology and social relations*. Manchester: Manchester University Press.
- . 1988. Notes on the foraging mode of production. In T. Ingold, D. Riches, and J. Woodburn, eds., *Hunters and gatherers*, vol. 1, *History evolution and social change*, 269–285.
- . 2000. *The perception of the environment: Essays in livelihood, dwelling, and skill*. London: Routledge.
- Ingold, Tim, David Riches, and James Woodburn. 1988. *Hunters and gathers*. Vol. 1, *History, evolution, and social change*. Oxford: Berg.
- Jochim, Michael A. 1981. *Strategies for survival: Cultural behavior in an ecological context*. New York: Academic.
- Johnson, Mathew. 2004. Agency, structure, and archaeological practice. In A. Gardner, ed., *Agency uncovered: Archaeological perspectives*, 241–249. London: UCL Press.
- Jordan, Peter. 2004. Examining the role of agency in hunter cultural transmission. In A. Gardner, ed., *Agency uncovered: Archaeological perspectives*, 107–134. London: UCL Press.
- . 2003. *Material culture and sacred landscape: The anthropology of the Siberian Khanty*. Lanham, MD: Rowman & Littlefield.
- Keen, Ian. 2004. *Aboriginal economy and society: Australia at the threshold of colonisation*. Oxford: Oxford University Press.
- Kelly, Robert, L. 1995. *The foraging spectrum: Diversity in hunter-gatherer lifeways*. Washington, DC: Smithsonian Institution Press.
- Kent, Susan. 1992. The current forager controversy: Real versus ideal views of hunter-gatherers. *Man* 27: 45–70.
- Kent, Susan (ed). 1996. *Cultural diversity among twentieth-century foragers: An African perspective*. Cambridge: Cambridge University Press.
- Kroll, Ellen, and T. Douglas Price. 1991. *The interpretation of archaeological spatial patterning*. New York: Plenum.
- Kuhn, Steven L., and Mary C. Stiner. 2001. The antiquity of hunter-gatherers. In C. Panter-Brick, R. H. Layton, and P. Rowley-Conwy, eds., *Hunter-gatherers: An interdisciplinary perspective*, 99–142. Cambridge: Cambridge University Press.
- Layton, Robert, and Peter Ucko (eds). 1999. *The archaeology and anthropology of landscape: Shaping your landscape*. London: Routledge.
- Leacock, Eleanor, and Richard Lee. 1982. *Politics and history in band societies*. Cambridge: Cambridge University Press.
- Lee, Richard B. 1969. !Kung Bushmen subsistence: An input/output analysis. In D. Damas, ed., *Contributions to anthropology: Ecological essays*, 73–94. National Museum of Canada Bulletin 230. Ottawa: National Museum of Canada.
- . 1979. *The !Kung San: Men, women and work in a foraging society*. Cambridge: Cambridge University Press.

- . 1984. *The Dobe !Kung*. New York: Holt, Rhinehart & Winston.
- . 1992. Art, science, or politics? The crisis in hunter-gatherer studies. *American Anthropologist* 94: 31–54.
- Lee, Richard B., and Richard Daly. 1999. *The Cambridge encyclopedia of hunters and gatherers*. Cambridge: Cambridge University Press.
- Lee, Richard B., and Irven DeVore (eds.). 1968. *Man the hunter*. Chicago: Aldine.
- Maschner, Herbert D. G. 1991. Emergence of cultural complexity on the northern Northwest Coast. *Antiquity* 65: 924–934.
- McCreedy, Marion. TK. The arms of the Dibouka. In E. S. Burch and L. J. Ellana, eds., *Key issues in hunter-gatherer research*, 15–34. Oxford: Berg.
- Morrison, Kathleen, and Laura Junker. 2002. *Forager-traders in South and Southeast Asia: Long-term histories*. Cambridge: Cambridge University Press.
- Moss, Madonna L. 1993. Shellfish, gender, and status on the Northwest Coast of North America: Reconciling archeological, ethnographic, and ethnohistorical records of the Tlingit. *American Anthropologist* 95: 631–652.
- Myers, L. Daniel. 2004. Subtle shifts and radical transformations in hunter-gatherer research in American anthropology: Julian Steward's contributions and achievements. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 1–14. Oxford: Berg.
- Pálsson, Gísli. 1988. Hunters and gatherers of the sea. In T. Ingold, D. Riches, and J. Woodburn, eds., *Hunters and Gatherers*, vol. 1, *History, evolution, and social change*, 189–204. Oxford: Berg.
- . 1991. *Coastal economies, cultural accounts*. Manchester: Manchester University Press.
- Panther-Brick, Catherine, Robert Layton, and Peter Rowley-Conwy. 2001. *Hunter-gatherers: An interdisciplinary perspective*. Cambridge: Cambridge University Press.
- Pappu, Shanti. 2004. Down ancient trails: Hunter-gatherers in Indian archaeology. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 129–142. Oxford: Berg.
- Pinkoski, Marc, and Michael Asch. 2004. Anthropology and indigenous rights in Canada and the United States: Implications of Steward's theoretical project. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 187–200. Oxford: Berg.
- Pluciennik, Mark. 2004. The meaning of “hunter-gatherers” and modes of subsistence: A comparative historical perspective. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 17–30. Oxford: Berg.
- . 2005. *Social evolution*. London: Duckworth.
- Price, Neil. 2001. *The archaeology of shamanism*. London: Routledge.
- Price, T. Douglas. 1981. Complexity in “non-complex” societies. In S. E. van der Leeuw, ed., *Archaeological approaches to the study of complexity*, 55–99. Amsterdam: University of Amsterdam.
- Price, T. Douglas., and James A. Brown. 1985. *Prehistoric hunter-gatherers: The emergence of cultural complexity*. Orlando, FL: Academic.
- Rowley-Conwy, Peter. 2001. Time, change, and the archaeology of hunter-gatherers: How original is the “original affluent society”? In C. Panther-Brick, R. H. Layton, and P. Rowley-Conwy, eds., *Hunter-gatherers: An interdisciplinary perspective*, 39–72. Cambridge: Cambridge University Press.
- Sahlins, Marshall. 1968. Notes on the original affluent society. In R. B. Lee and I. DeVore, eds., *Man the HUNTER*, 85–89. Chicago: Aldine-Atherton.
- . 1972. *Stone Age economics*. Chicago: Aldine-Atherton.
- Schiffer, Michael. 1976. *Behavioral archaeology*. New York: Academic.
- Schnirelman, Viktor A. 1994. Cherchez le chien: Perspectives on the economy of the traditional fishing-oriented people of Kamchatka. In E. S. Burch and L. J. Ellana, eds., *Key issues in hunter-gatherer research*, 169–188. Oxford: Berg.
- Schrire, Carmel (ed.). 1984. *Past and present in hunter-gatherer societies*. Orlando, FL: Academic.
- Schweitzer, Peter P. 2000. Silence and other misunderstandings: Russian anthropology, western hunter-gatherer debates, and Siberian peoples. In P. P. Schweitzer, M. Biesle, and R. K. Hitchcock, eds., *Hunters and gatherers in the modern world: Conflict, resistance, and self-determination*, 29–54. New York: Berghahn.
- Sharp, Henry S. 1994. The power of weakness. In E. S. Burch and L. J. Ellana, eds., *Key issues in hunter-gatherer research*, 35–62. Oxford: Berg.
- Sheehan, Michael. 2004. Ethnographic models, archaeological data, and the applicability of modern foraging theory. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 163–174. Oxford: Berg.
- Shennan, Stephen. 1996. Cultural transmission and cultural change. In R. Preucel and I. Hodder, eds., *Contemporary archaeology in theory*, 282–296. Oxford: Blackwell.
- . 2002. *Genes, memes, and human history: Darwinian archaeology and cultural evolution*. London: Thames & Hudson.
- . 2004. An evolutionary perspective on agency in archaeology. In A. Gardner, ed., *Agency uncovered: Archaeological perspectives*, 107–134. London: UCL Press.
- Slocum, Sally. 1975. Woman the gatherer: Male bias in anthropology. In R. Reiter, ed., *Toward the anthropology of women*, 36–50. New York: Monthly Review Press.
- Smith, Eric A., and Bruce Winterhalder (eds.). 1992. *Evolutionary ecology and human behavior*. New York: Aldine.
- Smith, Eric A., and Bruce Winterhalder. 1981. New perspectives on hunter-gatherer socioecology. In *Hunter-gatherer foraging strategies: Ethnographic and archaeological analyses*, 1–12. Chicago: University of Chicago Press.

- Solway, Jacqueline S., and Richard Lee. Foragers, genuine or spurious? *Current Anthropology* 31: 109–45.
- Spielman, Katherine A. 1991. *Farmers, hunters and colonists: Interactions between the Southwest and southern plains*. Tucson: University of Arizona Press.
- Spielmann, Katherine A., and James F. Eder. 1994. Hunters and farmers: Then and now. *Annual Review of Anthropology* 23: 303–323.
- Steward, Julian H. 1936. The economic and social basis of primitive bands. In R. H. Lowie, ed., *Essays on anthropology in honour of Alfred Louis Kroeber*, 311–350. Berkeley: University of California Press.
- . 1938. *Basin-plateau aboriginal sociopolitical groups*. Bulletin 120. Washington, DC: Bureau of American Ethnology.
- . TK. The concept and method of cultural ecology. In J. H. Steward, ed., *Theory of cultural change: The methodology of multilineal evolution*, 30–42. Urbana: University of Illinois Press.
- Suttles, Wayne (ed.). 1990. *Handbook of North American Indians: Northwest Coast*. Washington DC: Smithsonian Institution Press.
- Suzman, James. 2004. Hunting for histories: Rethinking historicity in the western Kalahari. In A. Barnard, ed., *Hunter-gatherers in history, archaeology, and anthropology*, 201–216. Oxford: Berg.
- Testart, Alain. 1982. The significance of food storage among hunter-gatherers: Residence patterns, population densities, and social inequalities. *Current Anthropology* 23: 523–537.
- Trigger, Bruce. 1989. *A history of archaeological thought*. Cambridge: Cambridge University Press.
- Whitelaw, Todd M. 1994. Order without architecture: Functional, social, and symbolic dimensions in hunter-gatherer settlement organization. In M. Parker Pearson and C. Richards, eds., *Architecture and order: Approaches to social space*, 216–243. London: Routledge.
- Whitley, David. 2000. *The art of the shaman: Rock art of California*. Salt Lake City: University of Utah Press.
- Whitley, David (ed). 2001. *Handbook of rock art research*. Walnut Creek, CA: AltaMira.
- Wilmsen, Edwin N. 1983. The ecology of illusion: Anthropological foraging in the Kalahari. *Reviews in Anthropology* 10: 9–20.
- . 1989. *Land filled with flies: A political economy of the Kalahari*. Chicago: University of Chicago Press.
- Wilmsen, Edwin N., and James R. Denbow. Paradigmatic history of San-speaking peoples and current attempts at revision. *Current Anthropology* 31: 489–524.
- Winterhalder, Bruce. 2001. The behavioral ecology of hunter-gatherers. In Catherine Panter-Brick, Robert H. Layton, and Peter Rowley-Conwy, eds., *Hunter-gatherers: An interdisciplinary perspective*, 12–38. Cambridge: Cambridge University Press.
- Winterhalder, Bruce, and Eric A. Smith. 1981. Preface. In B. Winterhalder and E. A. Smith, eds., *Hunter-gatherer foraging strategies: Ethnographic and archaeological analyses*, ix–x. Chicago: University of Chicago Press.
- . 2000. Analyzing adaptive strategies: Human behavioral ecology at twenty-five. *Evolutionary Anthropology* 9: 51–110.
- Wobst, H. Martin. 1978. The archaeo-ethnography of hunter-gatherers or the tyranny of the ethnographic record in archaeology. *American Antiquity* 43: 303–309.
- Woodburn, James. 1980. Hunter-gatherers today and reconstruction of the past. In A. Gellner, ed., *Soviet and Western anthropology*, 95–117. London: Duckworth.
- . 1982. Egalitarian societies. *Man* 17: 431–451.
- Yellen, John. 1977. *Archaeological approaches to the present*. New York: Academic.
- Yesner, David R. 1980. Maritime hunter-gatherers: Ecology and prehistory. *Current Anthropology* 21: 727–750.
- . 1994. Seasonality and resource “stress” among hunter-gatherers: Archaeological signatures. In E. S. Burch and L. J. Ellana, eds., *Key issues in hunter-gatherer research*, 151–168. Oxford: Berg.
- Zvelebil, Marek. 1996. The transition to farming in the circum-Baltic region. In D. R. Harris, ed., *The origins and spread of agriculture and pastoralism in Eurasia*. London: UCL Press.
- . 1998. What’s in a name: The Mesolithic, the Neolithic, and social change at the Mesolithic-Neolithic transition. In M. Edmonds and C. Richards, eds., *Understanding the Neolithic of northwest Europe*, 1–36. Glasgow: Cruithne.
- . 2003. Enculturation of Mesolithic landscapes. In L. Larson, H. Kindgren, K. Knutsson, D. Loeffler, and A. Akerlund, eds., *Mesolithic on the move*, 65–73. TK.
- Zvelebil, Marek (ed.). 1986. *Hunters in transition: Mesolithic societies of temperate Eurasia and their transition to farming*. Cambridge: Cambridge University Press.
- Zvelebil, Marek, and Peter Rowly Conwy. 1984. Transition to farming in northern Europe: A hunter-gatherer perspective. *Norwegian Archaeological Review* 17: 104–208.