

What Is a Hunter-Gatherer? Variation in the Archaeological Record of Eastern and Southern Africa

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This article reviews the recent history of the archaeology of African hunter-gatherers, focusing on debates around the origins of modern humans and the destiny of hunter-gatherers with the advent of food production. African archaeologists are developing an increasing appreciation for the diversity of African hunter-gatherer societies. Understandings of hunter-gatherers based primarily on ethnography are being successfully challenged and extended.

KEY WORDS: Africa; hunter-gatherers; Paleolithic; Middle Stone Age; later Stone Age; food production.

INTRODUCTION

African examples of hunter-gatherer societies have been paramount in world ethnography (Lee, 1979, 1984; Marshall, 1976; Turnbull, 1962; Woodburn, 1968). African ethnographic cases have also provided useful ethnographic analogy for archaeologists working in many places and time periods (Shott, 1992). Reciprocally, African archaeologists have sought to provide an ethnographic view of ancient people, focusing on site occupations, settlement patterns, economic activity, and intergroup relationships, at least since the late 1960s (Clark, 1970, p. 80). The effort to excavate “hunter-gatherers” is complicated by the oft-cited poor fit between ethnographic case studies and known archaeological patterns (Parkington, 1984; see also Kuhn and Stiner, 2001; Price and Brown, 1985). Ethnographic analogy is still the most important means of interpreting African hunter-gatherer archaeology, although alternatives are well-developed (Winterhalder, 2001).

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Debates over our understandings of hunter-gatherers have become particularly important when studying two defining moments in the African hunter-gatherer story—the first “appearance” of hunter-gatherers who seem to be like those known ethnographically, and the gradual “disappearance” of hunter-gatherers with the onset of food production. In both of these areas, the ethnographic model most anthropologists think they know all too well—that of a hunter-gatherer society—can be difficult to apply and recognize archaeologically. Can archaeologists speak generally of the hunter-gatherer lifeway, and can we recognize it archaeologically?

The essential problem is the significant diversity of the archaeological record of hunter-gatherers and how it can be understood (Panter-Brick *et al.*, 2001). This article reviews some of the difficulties archaeologists have encountered recognizing hunter-gatherers in Africa. I summarize some recent literature on African foragers on two fronts. The first is the evolutionary front. Can archaeologists define the earliest hunter-gatherers in the Paleolithic record across environments, time, and even hominid species? Where did these first hunter-gatherer cultures develop and why? How were they different from earlier hominids who hunted and gathered, yet seem to lack complex tools, art, and other behaviors well established in the ethnographic record as the mark of *Homo sapiens*? The second front is historical. Can our current model of hunter-gatherers help us understand the transition to food production and the role of hunting peoples in the ethnic mosaics of the African Iron Age and Neolithic? I review how some archaeologists have grappled with variation among hunter-gatherers archaeologically, and I show how concepts like the “peripatetic” (Berland and Rao, 2004), “forager-trader” (Morrison and Junker, 2003), and the “subsistence spreadsheet” (Terrell *et al.*, 2003) can help us qualify and extend the concept of a “hunter-gatherer.”

ARCHAEOLOGY AND THE ETHNOGRAPHIC RECORD

For most anthropologists, the phrase “African hunter-gatherers” probably conjures up two main images: the southern African San hunter-gatherers and the central African hunting societies. Classic ethnographic cases depicted central African foragers living alongside food producers and trading, intermarrying, and laboring with them (Grinker, 1994; Turnbull, 1965). By contrast, the 1960s and 1970s anthropology of the San tended to deemphasize their interactions with others (Lee, 1968, 1976, 1979, 1984; Yellen, 1976). Consequently, San cases, such as the !Kung or Ju/'hoansi, provided choice grist for the archaeologist's mill. The Ju/'hoansi model was applied in Africa and elsewhere to breathe life into archaeological cases of ancient foragers (Kent, 1992; Shott, 1992).

The San model emphasized residential mobility and flexibility, seasonal rhythms of aggregation and dispersal, egalitarianism and food sharing, a lack of storage, the importance of women's plant food gathering, the relatively limited

and unpredictable resources of their desert environment, and simple technology (Lee and DeVore, 1968a). Many ethnographic and archaeological cases, of course, were a poor fit, including hunter-gatherers who stored food, ate mostly meat, owned land or wealth in corporate groups, possessed ranking, lived off abundant resources, or lived in villages many months of the year. To understand such variation, ethnographic cases of known hunter-gatherers were compared and contrasted to isolate axes of variation in settlement, social structure, technology, ecology, and diet (Kelly, 1983, 1995). Two idealized types became apparent: on one end, simple San-like “foragers” with immediate-return economies, and on the other, complex “collectors” with delayed-return (investment for future return) economies (Binford, 1980; Testart, 1982; Woodburn, 1982, 1988). Binford (1980) in particular emphasized a latitudinal gradient (Keeley, 1988, 1995; Kelly, 1995). He opposed the tropical, San-like forager pattern against high-altitude collectors modeled after Nunamiut Inuit, who had a complex work technology, a calendar of planned hunting and fishing targets, architecture, and storage. Another vector following social inequality opposes a San-like, simple hunter-gatherer against complex hunter-gatherers with wealth, abundant resources, ranking, and high population densities (Hayden, 1995, 1998). Both models place the Africans at the simple end—as technologically and strategically impoverished opportunists. A few (Dale *et al.*, 2004; Hayden, 1995) have developed a middle ground between these extremes.

Many African archaeologists have found the San ethnographic model fertile ground for interpreting archaeology. Wadley (1987) found pulses in occupation intensity at Jubilee Shelter, for example, an indication of seasonal aggregation and dispersal. Beginning in the 1980s, however, “revisionists” argued that San hunter-gatherers had been uncritically passed as prehistoric relics. Their lifeway, it was argued, had been shaped not by the long-term constraints of the forager food quest, but by their particular history of political conflict and European colonialism (Schrire, 1980, 1984; Wilmsen, 1989). The San argument has been transposed onto many surviving hunter-gatherers (Bailey *et al.*, 1989; Chang, 1982; Clist, 1999); their lifeways and identities before the ethnographic present are in question.

Certainly it had been recognized that the 20th-century forager survived in harsh environments or through symbiosis with other groups and, therefore, was hardly an appropriate analog to the past (Lee and DeVore, 1968b). Nevertheless, the charge of an uncritical evolutionism began dialogues over the purpose of hunter-gatherer ethnography. The revisionist debate cast light on the complex and poorly known histories of peoples who formed the ethnographic “cases” and the diversity of archaeological hunter-gatherers, most of which find no easy analog in the work of Turnbull, Lee, or the other classics (Kent, 1996, 2002a; Kuhn and Stiner, 2001; Price and Brown, 1985).

Foragers’ histories of interaction with archaeologically more visible farmers and herders were poorly known. The case of the San is the most debated. Historical information tells of the San-speaking people in Botswana as subservient clients of herders and farmers during the 16th-century Tswana reign in the region; they

exacted tribute from hunter-gatherers, prevented them from owning property, and made them into serfs (Schrire, 1980; Wilmsen, 1989). According to Wilmsen, though, the San had earlier been entrepreneurs, supplying ivory, gold, and game skins to 7th-12th-century trading towns at Divuyu, Nqoma, and Toutswe, for which in return they received payment in grains, cows, metal, and pottery (Wilmsen, 1989, pp. 70–72). During this period the San were cattle owners, and during the 19th century they were involved in hunting elephant and ostrich for the ivory and feather trade; the collapse of European commercial hunting had much to do with San poverty. This reconstruction of the past implies that interaction between hunters and herders, at least in some areas of the Kalahari, goes back 1200 years (Solwand and Lee, 1990; Wilmsen and Denbow, 1990).

On the contrary, some have argued that some San, in fact, were isolated or essentially unchanged by the development of trade, complexity, and colonialism in southern Africa (Lee and Guenther, 1991). It has even been posited that some in the very dry sandveld of the western Kalahari had no significant contact with pastoralists until the 19th century (Smith and Lee, 1997; Yellen and Brooks, 1989). Archaeological evidence of San trade interactions is often lacking (Sadr, 1997, 2002; Smith *et al.*, 2003), but others have linked it to historical interactions (Wiessner, 1994).

The debate inspired by Wilmsen's *Land filled with Flies* revived an interest in the diversity of historically known hunter-gatherers, or erstwhile ones, and their interactions with others (Guenther, 2002; Hall, 1994; Kent, 1996, 2002b; Kohler and Lewis, 2002; Leacock and Lee, 1982; Schrire, 1984; Stiles, 1992; Wilmsen, 1989). Relict hunter-gatherers in Africa have experienced a long and influential contact with others; often marginalized, they retain a cultural persona and situational cultural boundary as hunter-gatherers (Cronk and Dickson, 2000; Lewis, 2001; Mabulla, 2003; Smith, 1998). Indeed in their own world views they often retain the upper hand (Kent, 2002b). Myths and stories of the hunter-gatherers' invisibility and short stature and ethnonyms such as batwa (meaning dwarf, comrade, or bushman) are widespread in sub-Saharan Africa (Clark, 1950–1951; Schadeberg, 1999; Vansina, 1990).

Consistent with revisionism, many archaeologists emphasize the differences between archaeology and the ethnographic record and the lack of time depth of historically known Bushmen, Khoekhoen pastoralists, and so on (Barham, 1992; Walker, 1995a). Parkington (1984) called for the “de-!Kunging” of later Stone Age archaeology and developed models of seasonal mobility and logistical mobility, novel patterns as far as most San were concerned (Parkington, 1998, 2001a). Coastal “megamiddens” and skeletons show the use of coastal resources was much greater than is known ethnographically (Jerardino and Yates, 1997; Sealy and Pfeiffer, 2000). Many later Stone Age hunter-gatherers practiced intensive or delayed-return economies, and considerable change in lifeways can be seen over time, even at the same sites (Hall, 1990; Jerardino, 1998; Plug *et al.* 2003; Robbins *et al.*, 1996; Sadr, 2001; Sadr *et al.*, 2003; Sealey and Pfeiffer, 2000).

These delayed-return practices were probably much more common in prehistory than among present-day African immediate-return foragers (Woodburn, 1988); forager use of “preagricultural” management practices is also well documented (Keeley, 1999). That ancient foragers practiced widespread delayed-return economics also suggests that notions of ownership by individuals or kin groups were more widespread prehistorically than among ethnographically known immediate foragers, where generalized reciprocity prevails (Dale *et al.*, 2004; Woodburn, 1988).

Archaeology also has demonstrated the greater diversity of hunter-gatherers in prehistory. Geographical variation in artifact types suggests the presence of kinship or language groups as well as significant activity differences (Wadley, 2000). Survey of relatively small areas such as the Saldana Bay have demonstrated variation in site locations, lithic tools, ceramics, and goat remains and evidence of seal exploitation showing significant change over the past three thousand years (Sadr *et al.*, 2003). The late Holocene in particular is associated with evidence of social and economic intensification, including exploitation of fish and shellfish around Lake Victoria (Dale *et al.*, 2004) and southern Africa (Hall, 1990; Plug *et al.*, 2003; Robbins *et al.*, 1994; Wadley, 2000). Varying amounts of the evidence of pastoralism can be identified on some South African later Stone Age sites, suggesting that foragers, herders, and “hunters with sheep” interacted across a range of flexible economies, not the firmer cultural dichotomy between San hunters and Khoekhoen pastoralists known historically that guided archaeological interpretation and explained away evidence of domestic stock as “hunters’ wages or stolen goods” (Sadr, 2003).

Archaeological hunter-gatherers are different from ethnographic examples, even in the same environments (Sealy and Pfeiffer, 2000). Because of the diversity of cultures we have bundled under the hunter-gatherer rubric, some have favored rejecting the portmanteau term “hunter-gatherer” (Burch, 1998, p. 211). It is certainly true that our trusted cubby holes for “hunter-gatherers,” “pastoralists,” or “farmers” misrepresent a prehistoric world frequently less economically specialized than that of the ethnographic present (Gifford *et al.*, 1980; Gifford-Gonzalez, 1998a, 2003; Marean, 1992; Marshall and Hildebrand, 2002; Sadr, 2001; Wetterstrom, 1993). Nevertheless, few would argue that terms like hunter-gatherer be rejected. Instead, we can try to appreciate how environment and history have created the widespread ethnographic similarities like egalitarianism (Wiessner, 1996), as well as variation.

AFRICAN HUNTER-GATHERERS AND “MODERN” BEHAVIOR

What Is a Modern Hunter-Gatherer?

It was only a matter of time before the debate over identifying the earliest modern humans would involve the important corollary: Where did human culture

first become “modern”? That is, when did they acquire the full range of behaviors that we recognize in ethnographic hunter-gatherers? Two basic models of the origins of modern humanity now prevail. The first, the *Recent African Origin* theory, argues that the first fully modern people evolved in Africa around 200,000 years ago. They then left Africa, absorbing or replacing Eurasian archaic humans such as Neanderthals (Cann *et al.*, 1994; Klein, 1999; Stringer and Andrews, 1988). The second and less popular theory, the *multiregional hypothesis*, claims that modern humans evolved everywhere at more or less the same time. Subsequently, genetic intermingling allowed distant African, European, and Asian populations to assume a common genetic makeup (Wolpoff *et al.*, 1994). Genetic and paleontological data supports an African origin of modern humanity (Caramelli *et al.*, 2003; White *et al.*, 2003). However, other archaic peoples’ contributions to modern humans are not ruled out (Templeton, 1998).

Although there are two ways at looking at the appearance of modern humans, there are many points of view in the debate over how and when modern hunter-gatherer cultures developed and how they can be recognized archaeologically. One scenario, consistent with European archaeological evidence, might be termed the *revolution hypothesis*. In this scenario, fully modern human beings evolved biologically and culturally in a recent and sudden evolutionary event. This, according to Klein (1999, 2000), was a fortuitous change or mutation that enabled the human brain to represent the world symbolically. As they moved from their place of origin, perhaps around 50,000 years ago (Klein, 1999, p. 512) they out-competed or absorbed other more archaic peoples they met. The possessors of an enhanced ability to symbol, and thus realize a more versatile technological and social repertoire, won out. The revolution hypothesis seems to fit the facts of European prehistory, where there is no sign of cultural antecedents in the Middle Paleolithic to the people or behavior of the symbol-rich Upper Paleolithic (Gamble, 1999). In sum, the appearance of so much cultural and biological difference in such a short period of time seems a revolution, a quantum leap in culture change.

One contrasting idea is a *gradual cultural evolution hypothesis* (McBrearty and Brooks, 2000). This also places the origin of modern humans in Africa, but makes the point that biological and cultural modernity evolved together and gradually over the Middle Stone Age period, beginning as early as 350,000 years ago. This transition seems to be coterminous with the appearance of modern forms of *Homo sapiens* (Barham, 2001; McBrearty, 2001, 2003). According to this idea, the better part of the cultural experience found in modern human cultures was accumulated gradually and expressed intermittently from the Middle Stone Age onward as a variety of intellectual capacities and cultural behaviors.

In this interpretation the Middle Stone Age shows the gradual accumulation of the modern hunter-gatherer repertoire. The repertoire as far as the Middle Stone Age is concerned might include diversity in the style of lithic artifacts and projectile weapons, backed microliths and composite tools, bone tools and

bone points, hunting prowess, exploitation of fish and other smaller resources that could represent the beginnings of a broad-spectrum or intensification process, land-use patterns characterized by a San-like aggregation and dispersal and repeated occupation of rockshelters, cultural use of space and activity areas within sites, increased artifact trade, and the making of bone tools and beads and use of ochre (Barham, 2002a; Brink and Henderston, 2001; H. Deacon, 1989; Henshilwood and Sealy, 1997; Henshilwood *et al.*, 2001, 2002a, b; Hovers *et al.*, 2003; McBrearty and Brooks, 2000; Singer and Wymer, 1982:117; Wurz, 2000, p. 110). These behaviors and artifact types are thought to be related to ways of thinking, including symbolic behavior, innovation, and planning, that are “modern” in the sense that they are associated with *Homo sapiens*. At Blombos Cave, on the southern coast of South Africa, Middle Stone Age levels dated to 77,000 years ago have yielded more than 30 worked bone awls and points and 8,000 pieces of worked ochre, two of which are incised with parallel lines (d’Errico *et al.*, 2001; Henshilwood *et al.*, 2002a, b) as well as beads (Henshilwood *et al.*, 2004). However, other sites of the African Middle Stone Age also show evidence of artifact design and geographic diversity, use of microliths, backed tools and hafted tools, hunting proficiency, worked bone, fishing, mollusk gathering, and small animal procurement, and use of symbolic artifacts such as beads and ochre (Ambrose, 1998a, 1998b; Barham, 1998, 2002a, b; Brooks, 1996; Brooks *et al.*, 1995; Clark, 1988; Deacon, 2001; McBrearty, 2003; McBrearty and Brooks, 2000; Milo, 1998; Parkington, 2001b, 2003; Robbins, 1999; Robbins *et al.*, 1994, 1996, 2000; Wadley, 2001a, 2003; Watts, 2002; Wurz, 1999). Reviews of the evidence of precocious Middle Stone Age behavior can be found in Cornellissen (2002), Henshilwood and Marean (2003), McBrearty and Brooks (2000), and Wadley (2001a).

Evaluating “Modern” in the Archaeological Record

The gradual cultural evolution hypothesis initiated a variety of discussions of the modernity concept and how it can be evaluated archaeologically. Could one compare the behavior of Neanderthal contemporaries with the Middle Stone Age humans? Following these lines of comparison between Neanderthal and Middle Stone Age archaeology (d’Errico, 2003; Kusimba, 2003; Marean and Assefa, 1999), many “modern” traits in Africa are found in Neanderthal and Eurasian archaeological sites considered contemporary to those of Stone Age including use of ochre, site reoccupation, evidence of hunting skill or specialization, beadwork, and exploitation of shellfish and other small animals. Furthermore, the African evidence of modernity may be somewhat rarer than similar behavioral evidence outside Africa (d’Errico, 2003; d’Errico *et al.*, 1998).

Given the observed similarities in behavior and archaeology between the Middle Stone Age and the European Middle Paleolithic of the Neanderthals, a

quandary presents itself. Certainly, African sites like Blombos Cave (Henshilwood *et al.*, 2002a, b) and Mumba and Enkapune ya Muto in East Africa (Ambrose, 1998a; McBrearty and Brooks, 2000) have abundant symbolic artifacts not found widely among Neanderthals, with the exception of the Chatelperronian Industry of the last Neanderthals (d'Errico, *et al.*, 1998). What is the significance of this relatively small number of Middle Stone Age sites with bone tools, microliths, and ostrich eggshell beads? One suggestion is that both Middle Stone Age humans and Neanderthals possessed similar behavioral repertoires. Perhaps they were both independently developing what we call modern behavior (d'Errico, 2003). Their similarities could also be the result of a flow of ideas, genes, and culture that may have been an important process in human evolution (Relethford, 1998; Templeton, 2002). On the other hand, the African evidence is a much smaller sample of a much larger continent. Should we expect the equal development of specific cultural practices, such as fishing or small resource use, in two completely different environmental settings? If not, then what criteria for defining and comparing modernity should we be using?

In even attempting such comparisons, the prior stage is the development of criteria of modernity we can apply across continents and even species. It makes sense that the first modern cultures should have evidence of the full suite of behaviors practiced by modern hunter-gatherers (Klein, 1992; Kuhn and Stiner, 2001). Naturally the problem of diversity within modernity immediately presents itself. In different parts of the world, with different environments, technological and social histories, and so on, the culture and biology of modernity varies (Wolpoff *et al.*, 2001). According to Kuhn and Stiner (2001), the easiest way around this problem is a kind of direct historical approach, where the archaeological record from a particular area is assessed against that of known historical examples of hunter-gatherers from the same region. Unfortunately, the direct historical method sidesteps the problem of history and culture change the revisionists highlighted (Nelson, 1998). Some aspects of modernity, particularly food-getting practices, vary a great deal in different environments. Intensification, for example, will occur where food resources are capable of being intensified and where a reason to increase production prevailed. Environmental, population size, and historical factors are involved in these cases. A single list of the signatures of modernity cannot guide a comparative study like that of the African Middle Stone Age and European Middle Paleolithic (Gamble, 2003). Certainly, for example, both the San and Nunamiut are modern hunter-gatherers although they are often modeled as endpoints on a continuum of sophistication. Their differences could, of course, easily be misinterpreted as evolutionary in a given archaeological situation. Indeed these very ethnographic cases have served to gloss the modern and nonmodern (Binford, 1989).

A somewhat more general application of ethnographic understandings might try to find what is essential in being human and then operationalize it

archaeologically. According to McBrearty and Brooks (2000), for example, the essence of humanity includes abstract thinking, planning depth, innovation, and symbolic behavior. Other similar approaches have emphasized the cultural consequences of symbolic thought, including social relationships of permission granting and dynamic, creative technologies (Byers, 1994; A. Clark, 1997; H. Deacon, 1989; T. Deacon, 1997; Kelly, 1995; Kusimba, 2003; Wadley, 1993; Wurz, 1999, 2000). Wadley (2001a, 2003) and Henshilwood and Marean (2003) have both argued that a focus on symbolic behavior gets at the heart of being modern, or more specifically the use of symbolism to organize behavior as evidence of “external symbolic storage.” How do you know when symboling has become externalized? This could refer to symbolic artifacts such as beads specifically, or to rapid technological change over time (Byers, 1994; Wurz, 2000), or evidence of trade or interaction. But how rapid does change have to be before it looks symbolic? How do you identify traded items? How rapid an evidence of technological change should demonstrate time-restrictive patterning, the creativity or problem-solving of a modern craftsman? While an approach that seeks to define what is special or original or essential about humans begs application across regions and cultures, it too is fraught with problems.

To some the concept of modernity is too essentialist to be useful in a problem-based archaeology (d’Errico, 2003; Gamble, 2003; Zilhao, 2003). It might be useful to treat the development of modern culture as a historical process similar to, for example, the origins of agriculture or the origins of complex society, thus decoupling the issue from biological “capacities” of different hominids and allowing an appreciation of historical, evolutionary, or other explanatory frameworks for cultural and biological change—these might include environmental adaptation, population growth, cognitive evolution, innovation, interactions between culture, diet, and physiology. Cachel (1997) has discussed the impact of improving diets on the changing patterns of bone growth in modern humans. It is clear that modernity was certainly a “process.” There is no consensus, however, about how to recognize it. It can be defined using either a signature artifact of symbolic behavior (Wadley, 2003) or as the presence of a suite of behaviors with ethnographic (and therefore modern) counterparts (Kuhn and Stiner, 2001).

There is no “original” human society, and the earliest cultural diversity goes back to the most basic technological differences of the Stone Age (Clark, 1988; Tryon and McBrearty, 2002). Indeed the significant diversity of the Middle Stone Age is demonstrated by regional differences in stone tool industries and types of shaped tools and in the presence of the beads, bone tools, and ochre, which are all considered important markers of modern behaviors or intellectual capacities (Yellen, 1998). The inconsistent presence of modern artifacts like bone tools suggests that populations were somehow localized as a result of environmental catastrophe or other factors (Ambrose, 1998b). On the other hand, diversity could indicate that flexible, modern cultures that respond to environmental diversity had

evolved (Clark, 1988). Just as the ethnographic record shows diversity, so does the Middle Stone Age (Tryon and McBrearty, 2002). If diversity was there from the beginning, how do you assess the relative modernity of different hominid behaviors by looking for diagnostic artifacts?

TRANSITIONS AND INTERACTIONS

The problem of the transition from hunting and gathering to food production has been approached by examining how economies changed through diffusion and innovation of domesticated plant and animal species and the interactions of hunters and herder/farmer others. Many reviews of the origins of domesticated plants and animals in Africa have emphasized the early and indigenous development of food production (Andah, 1993; diLernia and Manzi, 1997; Holl, 1993; Smith, 1992; Wendorf, 1998; Wetterstrom, 1993), the impact of cattle-borne disease (Gifford-Gonzalez, 1998a), patterns of indigenous development and diffusion, the role of arid and unpredictable environment, and the evidence of early domesticated plant foods in Africa (Blench and MacDonald, 2000; Bower, 1995; Harlan, 1992; Marshall, 1994, 2000; Marshall and Hildebrand, 2002; Young and Thompson, 1999). Here, I direct my attention to the problem of the ethnographic record of hunter-gatherers and food producers, from the perspective of understanding the process of the adoption of food production and from the perspective of understanding hunter-gatherer-food producer interaction.

The Ethnography of Forager-Food Producer Ties: The Symbiosis Model

Hunter-gatherers persisted into the 20th century in many parts of Africa. Ethnography and history tell of many processes by which the descendants of later Stone Age hunter-gatherers continued foraging practices but sharing their territories with food-producing neighbors, changing their food-getting strategies and social interactions to increase complementarity and exchange (Bailey and Aunger, 1989). Hunting peoples reoriented their alliances to include food-producing kin, fictive kin, friends, trading partners, and patrons (Kent, 2002c; Leacock and Lee, 1982; Schrire, 1984; Wiessner, 1994). The most widespread model of forager-food producer interaction has emphasized the symbiosis between hunting societies and the herding and farming societies in their interstices. Strategies of symbiosis include coresidence, intermarriage, and intensive exchanges of labor and food with allied farmers.

The hunter-gatherers of the central African rainforests have been the most important models of symbiosis. They include more than 12 ethnic groups of central African hunting societies who are allied with village-dwelling farmers. They often share many aspects of culture and belief but in many cases refer to themselves as

farmers and hunters, demonstrating that their economic differences have a lot to do with maintaining situational boundaries (Bailey, 1988, 1991; Grinker, 1994; Kohler and Lewis, 2002; Turnbull, 1983). Although hunters are often dependent on exchange opportunities with farmers (Smith, 1998), they maintain a distinct cultural identity out of sight of their food-producing allies or patrons (Brooks, 2002; Cronk and Dickson, 2000; Kassam, 2000; Kohler and Lewis, 2002). Economic exchange sometimes entails adopting technologies and social forms that mimic those of nearby food producers, allowing interaction with them as component segments while at the same time maintaining distinct cultural personae. The Okiek and other Wandorobo in montane eastern Africa hunted small mammals, husbanded bees, and collected and traded honey to the Maasai and Nandi, thereby establishing an economic relationship with their pastoralist neighbors (Blackburn, 1982, 1996). The similarity between Okiek and Maasai institutions also extends to the idea of private property. Okiek beehives were deemed lineage property passed down from generation to generation, in the same way that Maasai inherit cattle. In the Okiek case, however, the practice of ownership maintains a structural parallel to an institution of the dominant society while retaining a separate ethnic foraging identity. Patrilineal group ownership of honey hives could have been adopted as a result of cultural interaction with pastoralists or may be partly an indigenous delayed return practice (Ambrose, 1986).

Archaeological Cases of Symbiosis

The symbiosis model has been applied to many different archaeological cases of interaction. Rock art and habitation sites have been the focus of study in sub-Saharan Africa, demonstrating interactions similar to those known ethnographically. Sometimes, communities may have had little in common and little contact; they remained estranged across frontiers in many areas, such as sea coasts (Parkington and Hall, 1987; Thorp, 2000). In others, archaeology has argued for contact and exchange in the form of ceramics, iron ore, or divination bones found on hunter-gatherer sites (Mazel, 1989; Mercader *et al.*, 2000; Walker and Thorp, 1997) and stone tools, wild animal bone, or ostrich eggshell beads on farmer sites (Mazel, 1989; Morris, 1992; Wadley, 1996).

Denbow (1999) has argued that the presence of stone tools and wild faunal remains at farmer towns in the Kalahari such as Nqoma and Toutswe suggests forager trade or labor as hide workers. Similarly, at White Paintings Rockshelter, hunter-gatherer exchange with nearby farmers was identified by the presence of ceramics and iron artifacts; semiprecious rock may have been mined for exchange, and hidescraping may have taken place for exchange (Murphy *et al.*, 2001; see also Wadley, 1996).

In South Africa, the Thukela Basin and Caledon Valleys have a rich record of forager-farmer interactions that demonstrates the spread of farming populations,

especially after AD 1000 (Mitchell, 2003, p. 365). The relationships between these groups are thought to have been and balanced around trade, although sometimes foragers provided labor for agricultural goods. Another documented process is the similarity in religious beliefs between foragers and farmers in rock art and in the farmer appropriation of forager sacred sites (Hammond-Tooke, 1998; Walker, 1997). Finally, farmers may have disrupted the land-use patterns of foragers and displaced them (Hall and Smith, 2000; Loubser and Laurens, 1994; Wadley, 1996).

Some hunter-gatherers persisted for millennia, either in interaction or separated by “frontier” barriers to contact; but most studies have emphasized that hypergyny, political subservience, and exchange disguise the “poison pill” of assimilation (Bailey, 1988; Cronk, 1989; Morris, 1992; Vansina, 1990; but see Gifford-Gonzalez, 1998b). The study of symbiosis more often than not ends with the replacement of foraging with food production, a gradual capitulation to a more politically dominant and productive way of life.

Problems with the Symbiosis Model

At first blush, the archaeological study of hunter-herder-farmer interactions should be a fairly straightforward affair. Sites with evidence of wild food procurement might be easily differentiated from those of food producers, and traded artifacts should tell us of relationships of exchange. In many cases, though, the criteria for defining hunters and differentiating hunters from farmers and herders have been contested and inconsistently applied; identification of faunal remains is also a probabilistic affair (Mitchell, 2002; Yellen and Brooks, 1989). Pottery, the keeping of livestock, and metal tool production may not be the exclusive domain of farmers or Bantu speakers; furthermore, farmers also hunt and make stone tools, so the use of artifact types as “markers” of one or the other economy is suspect (M. Hall, 1988; Holl, 2000; Kiyaga-Mulindwa, 1993; Kliemann, 1999; Mapunda, 2003; Mazel, 1992; Mitchell, 2003, p. 293).

Problems in identifying herders and farmers have also made the archaeological identification of historically known “groups” difficult. In southern Africa, for example, early Europeans wrote of Soaqua or bushman hunters as distinct from Khoenkhoen herders. In the southern and western Cape Province of South Africa, Elphick (1985) argued that Khoekhoen herders and San or Soaqua hunters were actually rich and poor of the same societies. Archaeologists too debate the validity of the hunter/herder distinction. At Oudepost, the Dutch East India Company’s trading colony, Schrire and Deacon (1989) found Wilton-type tools typical of later Stone Age foragers; recorded evidence, however, argues that these were the tools of Khoenkhoen; Schrire and Deacon argued that these were not two distinct societies but one. Smith *et al.* (1991) argued the contrary based on other Saldanha Bay sites and some further inland; “herder” sites at Kasteelberg had large numbers of

sheep and seal remains, few formal stone tools, pottery, and large ostrich eggshell beads, while “hunter” sites such as Witklip have few domestic faunal remains or pottery, many steenbok, more formal tools, and small ostrich eggshell beads—bead size differences in particular suggest different cultural affinities of the two groups (Smith *et al.*, 1991). Others have countered that given the wide variation in bead size and relative proportion of domestic to wild fauna remains found at these sites, any sort of definite attribution to either Khoekhoen or San settlement is difficult to make (Sadr *et al.*, 2003; Schrire, 1992; Wadley, 2001b). Sadr *et al.*'s more extensive excavation (Sadr *et al.*, 2003) at six Kasteelberg sites demonstrates that all sites, even presumed hunter sites, contain significant proportion of sheep remains. Sadr *et al.* (2003) suggest that some sites were brief camps of inland foragers with sheep dating to the early first millennium AD, who also hunted steenbok, and a second group of sites dates to the late first millennium AD and shows herder/foragers who also hunted seals and shellfish. By the early second millennium, some of these shoreline groups began to focus on sealing and shepherding. These two groups—one practicing both herding and foraging mostly in inland regions, and another coastal set of sedentary forager/herders who also exploited fish and shellfish—are not distinct in terms of material culture.

Sadr *et al.* (2003) note that hunter-gatherer technology and diets across southern Africa had been quite variable even before the introduction of herding into the area and had included seal exploitation and the use of nonformal tools in different areas. In similar cases from the northern Cape Province of South Africa, Beaumont *et al.* (1995) and Parsons (2003) distinguished hunters and herders based on their lithic assemblages and pottery on sites in the same area that lack bone or plant evidence of economy. The Swartkop Industry, attributed to hunter-gatherers, has backed blades on fine-grained raw materials and grass-tempered ceramics, and the Doornfontein Industry, attributed to herders, has informal tools on poor quality raw materials and abundant ceramics with grit temper, many decorated. Placed in context, these sites show that two groups with different lithic and ceramic traditions coexisted at least for a time. However, greater time depth has shown that both these wares may have a common origin, making uncertain the long-term relationship between hunters and herders and seemingly supporting a revisionist perspective (Bollong and Sampson, 1999; Bollong *et al.*, 1997).

Although the use of terms that describe economic practices (forager, farmer, herder) is often a convenient label in the archaeology of regional mosaics, they also tend to disguise significant variability and overlap in terms of just how different food production really is from hunting and gathering. This is probably true in particular case studies of interaction, where we can start from the proposition that people who live in an area for a given amount of time essentially share a familiar store of knowledge, both ecological and cultural (M. Hall, 1988; MacEachern, 2001). The present (and situational) distinctiveness of farmers, herders, and foragers in Africa may be a recent phenomenon, a product of

interaction and especially colonial history rather than a pretext to it (Kliemann, 1995; MacEachern, 1994).

The symbiosis model that explains exchange and interaction between hunter-gatherers and food producers emphasizes the contrasts between hunters and farmers that make their cooperation mutually beneficial, especially the trading of wild foods for agricultural products. Supposedly, African hunter-gatherers are often drawn into exchange relationships because of their inability to manage the lean times through food storage or some other delayed-return strategy. Ethnographically, the Hadza and San harvested foods for immediate consumption or use. Immediate-return economies are causally linked to egalitarianism and sharing (Woodburn, 1982), whereas delayed-return practices—investment in technologies or labor that produce future returns, storage, or even “the improvement or increase” (Woodburn, 1982) of wild products—sow the seeds, so to speak, of inequality. In other words, in the classic African ethnographic cases, sharing is a leveling mechanism that limits the development of agriculture. Sharing rules restrict the investment necessary for management practices.

In contrast with ethnographic cases, the archaeological evidence of delayed-return practices is widespread rather than rare in Africa. Hunter-gatherer strategies of environmental management include tending, sowing, and managing morphologically wild grains or burning growing areas (Keeley, 1995, 1999; Smith, 2001). Hunter-gatherers “domesticate” and change their landscapes through such practices (Laden, 1992; Yen, 1989). The African archaeological record is rich with examples of forager experimentation with intensification and control of plant and animal species. Evidence of plant food remains from archaeological sites is notoriously sparse, so the study of the use of plants in Africa remains in its infancy (Brandt *et al.* 1997; Hildebrand, 2003; van der Veen, 1999). Important plant food species include corms, roots, oil-rich nuts, and so on (Deacon, 1976, 1993; Kaplan, 1990; Opperman and Hydenreich, 1996; Walker, 1995a). More frequently in the African archaeological record, the only evidence we have of plant utilization is the equipment used to process or cook seeds or nuts (Lyons and D’Andrea, 2003). Such implements include grinding areas, bored stones, and cooking areas (David, 1998; J. Deacon, 1984; Walker, 1995a). By 8,000 years ago at the Nabta Playa and further south along the Sudanese Nile, diets were enhanced by a broad spectrum of seed grains such as sorghum (Hillman, 1989; Wasylikowa *et al.*, 1997). Husbanding of these seeds included reaping, storage, purposeful sowing, tending and weeding around these ostensibly wild cereals; selection and harvest methods did not lend themselves to encouraging morphological change in the plant itself (Haaland, 1992, 1996, 1999). Such practices lasted for more than 6,000 years before morphological changes gave rise to the first domesticated sorghum (Amblard and Pernes, 1989; Holl, 1985, 1998a, 1998b).

The tropical rainforests are also rich in evidence of intensified foraging lifestyles. Between 3,700 and 3,300 years ago, foragers living in central Ghana

not only consumed land snails, as evidenced by deposits containing discarded snail shell, but fruits, oil palm and *Canarium schweinfurthii*, indicated by endocarps and seed husks, as well as the meat of arboreal primates and large reptiles. The oil palm played a significant role in the maintenance of forest populations, who very early practiced their protection (Lavachery, 2001; Stahl, 1993). Lavachery (2001) suggests the management of oil palm and other trees developed into systematic “arboriculture” based on replanting and tending of these trees in desired areas. At Kursakata in Nigeria, collected wild cereal grains were common, documented beginning from 2,860 years ago (Klee and Zach, 1999).

Delayed-return strategies probably also applied to animals, although the evidence of this is more difficult to glean and could involve hunting techniques, prey selection by age or gender, and removal of noneconomical competitors or predators (Marean, 1997). Another delayed-return strategy with reference to animals is pen feeding in preparation for slaughter (diLernia, 1997, 2001). Wild Barbary sheep were contained at the Uan Afuda cave in southwestern Libya and fattened for a planned slaughter, perhaps anticipating a period of food shortage (diLernia, 1997). The cave is evidence of experimentation with animal husbandry (diLernia, 2001).

Just as hunter-gatherers domesticate their landscape and invest in future yields, so too do relatively unmanaged resources play a role in the diets of farmers. Wild plant food procurement continues to form a large portion of the diet of modern Africans (Tubiana and Tubiana, 1977). In the tropical rainforest, for instance, farm products made up only 40% of the diet well into the 19th century (Vansina, 1994–1995, p. 17). A further problem is distinguishing domestic from wild foods. Many African plant food species exist in a semidomesticated relationship with humans that defies the forager/farmer dichotomy, including Abyssinian oats (*Avena abyssinica*), Guinea millet (*Brachiaria deflexa*), wild African rice (*Oryza glaberrima*), and safu plum (*Pachylobus edulis*), wild food plants tended but not cultivated especially as a famine option (Harlan, 1989). Over 60 species of wild grass seeds are commonly harvested in Africa (Jardin, 1967), and semidomesticated trees are very important, including baobab (*Adansonia* sp.), *Moringa* sp., the karate or shea butter tree (*Butyrospermum*), and the oil palm (*Elaeis guineensis*) (Harlan *et al.*, 1976, p. 11). In the western African forests, cultivation of domestic yam and managed oil palm husbandry are often practiced together (Eggert, 1993, p. 324; Lavachery, 2001; Okoro, 2002; Stahl, 1993).

In regional sequences of the origins of agriculture in many regions, including Africa, pinpointing the differences between food producers and hunter-gatherers is a significant challenge. “Transitional” societies are many and difficult to categorize. The morphological signatures of domestication are difficult to find archaeologically and rare; more importantly, they say little about the much broader scope and extent of human impacts on the environments that they inhabit or about the extent of human management of resources. White (2003, p. 246) wrote recently,

“many ways that plants and animals interact with people don’t allow us confidently to distinguish between wild and domestic . . . there is the opportunity here to develop a whole new world perspective” on domestication.

Terrell *et al.* (2003) suggest that the categories of “food producer” and “farmer” can be replaced by a “subsistence spreadsheet” that, for a group studied, could tally the foods used and the presence or absence of management practices associated with each food. Such a spreadsheet could be used with any type of food-getting economy but could also allow comparison of food-getting and food management strategies among different economies within an environment or among people living in different environments, further breaking down reified categories of food producer and hunter-gatherer. Again, while categories such as hunter-gatherer are useful in certain contexts, concepts like the subsistence spreadsheet can overcome their inherent fuzziness in other contexts.

Archaeology and history show abundant management practices among African hunter-gatherers, and also demonstrate the reliance of farmers on wild foods and on similar management practices; they suggest that systems of ownership may have been widespread at the origins of food production as well (Hall, 1988). Although leveling mechanisms may have served to discourage the adoption of delayed-return assets such as goats (Smith, 1992), it is equally likely that hunter-gatherer societies were open to these innovations and that traditions of delayed return or ownership in fact facilitated the adoption of goat herding, bee keeping, or other management practices (Sadr and Plug, 2001).

Another reason that the symbiosis model is limited in its application to forager-food producer interactions is that it cannot capture the diversity of strategies through which people used hunting and gathering to interact with many kinds of societies. Going beyond the symbiosis of wild-for-domestic exchange in many areas, hunting and gathering peoples in Africa and Asia survived by becoming flexible generalists, adapting to the needs of one or more societies engaging in labor, trade, ritual power, and the like (Morrison and Junker, 2002). This strategy may be called that of the peripatetic (Berland and Rao, 2004). Peripatetics subsist primarily through offering goods and services to the more settled communities among which they live and offering these services opportunistically to whomever may need them at the time, but maintaining endogamy and low status *vis-à-vis* others (Bollig, 1987; Rao, 1987).

On the east coast of Africa, the Boni and Dahalo provided caravans of coastal merchants with ivory and skins destined for the lucrative Indian Ocean trade, but into the 20th century were craftspeople, hunters, and gravediggers (Bollig, 1987; Haberland, 1963; Thorbahn, 1979). They also provided labor and wild products to farmers and fishers. There seem to be at least three distinct cultural groups of east African coastal hunters; the Kenya Boni inhabit tsetse-infested forest unsuitable for agriculture in the hinterland of the east African coast and the Dahalo and the Waata who live in a sparsely populated desert somewhat further inland from the coast. All speak Cushitic dialects (Stiles, 1981, p. 848; 1982). In all cases, the hunters occupy

a very low status: Contact with them is believed to be polluting, and communal residence or intermarriage is forbidden. It was believed that hunters ate low-status food such as pig, porcupine, and reptile, leading to one of their ethnonyms, the *waliankuru*. However, they sometimes had ritual power. In return, the hunters received pastoral products and immunity from attack by the Maasai (Hobley, 1895, 1912, 1929). At the same time, involvement with dominating societies was very limiting to the hunters, who were forbidden from owning cattle or assimilating into the pastoral societies. The Waata's economic and social pliancy allows them to insinuate themselves into many stratified societies and has been their means of persistence (Bollig, 1987, p. 207). Their artistic expression asserts their identity, although others still consider them a subset of the Oromo people (Kassam, 2000). Even the central African hunter-gatherers actually pursued a variety of strategies of persistence far beyond the well-known cases of symbiosis (Kohler and Lewis, 2002). Dismissing these people as "degraded" foragers misses out on the potential to understand the profound role that people who hunt and gather have had on the development of regional complexity, long-distance trade, and international and global cultural processes. Indian subcontinent foragers provided spices and skins to the same Indian Ocean trade networks that reached the Kenya coast foragers (Morrison, 2002; Morrison and Junker, 2002).

CONCLUSION

African hunter-gatherers have been the primitive baseline in models of cultural evolution and the wellspring of humanity's essential features. The origins of the ethnographic hunter-gatherer may indeed lie in Africa, but the archaeological recognition of these early modern hunter-gatherers is fraught with the problems of both identification and definition. Similarly, the recent history of African hunter-gatherers is as obscure as their Pleistocene beginnings. Both the origin of hunter-gatherers and their disappearance have been variously characterized as revolution or as evolution. Whether seen as rapid or gradual, the history recounted has had a consistent underlying theme—replacement (Terrell *et al.*, 2003). Modern hunter-gatherers appeared, replacing whatever came before, and at the other end of their tenure were either themselves replaced or compromised through symbiosis with farmers or pastoralists. On one level, distinguishing modern from nonmodern hunter-gatherers, or hunter-gatherers from food producers, requires more explicit and reliable criteria. Ethnoarchaeology around these topics could develop middle-range inferences about how to differentiate peoples when they are similar to those known today (Fisher, 1993; Lupo and Schmitt, 2002). Understanding the history and antecedent lifeways of 20th-century San peoples also can help us extend the ethnographic present in a more informed and flexible way (Robbins *et al.*, 1994, 1996; Walker, 1995b). Improving the recognition of wild versus domesticated species and the temporal context of finds also will resolve some interpretive debates.

More broadly, though, a research agenda driven by identifying hunter-gatherers either in general or with reference to ethnographically known groups misses the goal of understanding ancient ways of life in and of themselves and sets up a circularity of interpretation where the nature of the society in question is assumed from the start. Modern hunter-gatherers are contrasted against their opposites—against the archaic or against the farmer—even though the features that distinguish them are unclear. Just as there is no single definition of domestication or explanation for the origins of agriculture with universal application (Harlan, 1992), there may be no universal definition of modern hunter-gatherers. The consensus view has been to retain the concept of the hunter-gatherer but to emphasize its diversity (Kent, 1996; Panter-Brick *et al.*, 2001). To move “from the essential to the processual” (Morrison, 2002, p. 3), rubrics such as the subsistence spreadsheet allow us to understand economic similarities and differences empirically. Using these new terms, hunting and gathering is an activity that is part of a variety of different economies both past and present. The concept of the peripatetic or the forager-trader allows us to appreciate the role of hunting and gathering in the multiethnic and multieconomic mosaics of the Neolithic and Iron Age and in the development of complex national and international relationships of the present day. Indeed, these latter-day hunters were no less diverse than those of the Paleolithic.

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