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The Archaeology of Food and Social Diversity

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Abstract This article reviews current archaeological research on the interactions between food and intrasocietal diversity. Today's archaeology of food and diversity is theoretically diverse but generally views food as biologically necessary and cognitively prominent material culture that plays an active role in constructing and negotiating social distinctions. Areal foci in the literature include Europe, Southwest Asia, Mesoamerica, the U.S. Southwest, and the Andes; thematic emphases include economic, status, ethnic, gender, and religious distinctions. Methodological issues that must be considered when assessing the social implications of food remains include not only the contexts and characters of specific samples but also the integration of multiple data sets that may all differ with respect to their taphonomic histories and the aspects of food behavior they reflect.

Keywords Food · Economics · Politics · Ideology

Introduction

The past few decades have seen a dramatic broadening in the approaches through which archaeologists study and discuss food. Thirty years ago the archaeological literature was dominated by discussions of "diet" and "subsistence": studies investigating how past humans acquired or produced the nutrients that underpinned their cultural survival. Today, terms such as "foodways" and "cuisine" are widespread, as archaeologists increasingly explore how politics, ideologies, economies, and more were entwined with past production, preparation, consumption, and discard practices.

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Much of this varied and extensive literature is focused explicitly on how foodways intersect with social phenomena such as status, ethnicity, gender, and religion. Inherent in the study of these phenomena is an interest in intrasocietal diversity: the range of experiences and opportunities afforded to different members of a single culture. Social diversity is therefore a key theme in current archaeological food studies, with scholars exploring how production, cooking, eating, storage, and discard behaviors reflected, constructed, and challenged past cultural norms. The fundamental premise of most of these studies is simply "different diets and/or food activities = different social groups." However, this simple equation is complicated by the simultaneous relevance of multiple axes of social variation (e.g., gender *and* economics *and* religion), by individuals' and groups' strategic manipulation of foodways, and by diachronic change. Significant methodological and interpretive challenges thus face archaeologists interested in food and social diversity. Yet tremendous intellectual rewards are offered by such investigations, resulting in increasing numbers of scholars pursuing them. Both the complexity and the value of exploring past social diversity through the lens of food are apparent in the current archaeological literature on food and social diversity.

In this article I delve into that literature, contextualizing it within modern archaeological theory, identifying and discussing its important themes, summarizing some of the challenges facing food archaeologists, and proposing future avenues for research. I begin with a discussion of the field's theoretical development. The second section of the article explores the geographic, chronological, and topical coverage that characterizes the archaeology of food and social diversity, summarizing the representation in the literature of different regions and time periods and of different stages of food interaction.

I then identify and discuss the archaeology of food and social diversity's most prominent themes: economic differentiation; social stratification and competition/politics; race, ethnicity and culture contact; gender; and food and belief. While these topics are deeply mutually entangled, for clarity's sake they are here discussed sequentially. The final section of the article consists of two parts. I first alert consumers and producers of archaeological food studies to important methodological considerations affecting the construction of social interpretations of past foodways. I end with a review of foci and gaps in the archaeology of food and social diversity and offer suggestions for future research directions.

One final note: this article is a review and discussion of the archaeological literature that uses food as a means of inferring various forms of social diversity. However, "food" is a culturally defined term, as well as one whose boundaries can be expanded or contracted to include or exclude beverages and medicines. I limit coverage to studies that fit within a relatively restricted definition of "food." Thus, while drink is plausibly defined as either a subset or an extension of food (e.g., Hastorf and Johannessen's [1993, p. 133] note about maize's use as "toasted *caucha*… boiled *mote*, …[or] maize *chichi* [beer]," or Dietler's [2007, p. 219] description of beer as "simply special forms of food with psychoactive properties"), the extensive archaeological literature on drink, particularly alcohol (e.g., Dietler 2006; Jennings et al. 2005; McGovern 2009; McNeil 2006; Smith 2008), is not

included here. Psychoactive consumables (drugs) and consumables defined as "medicines" are excluded as well.

Development of the archaeological study of food and social diversity

The archaeology of food and social diversity is a field that has developed over approximately the last 25 years, in accordance with broad intellectual developments in archaeology as a whole. Prior to its rise, during the era of the New Archaeology and the rise of processualism in the 1970s and 1980s, nutritionally rather than socially oriented views of food and foodways permeated the archaeological literature. Quantitative resource optimization and maximization analyses, together with nutritional evaluations of past populations, chiefly characterized the food studies of the era, as archaeologists studied food from a largely behavioral-ecological perspective (e.g., Jochim 1976; Keene 1983, 1985; Winterhalder 1981, 1987). Despite the New Archaeology's optimism that all aspects of life could and should be investigated, including ideology, archaeologists writing with a strongly adaptive viewpoint eschewed discussing nonbiological, socially motivated differences in food practice.

While behavioral ecological analyses remain an important component of archaeological food studies today, beginning in the 1980s and gaining steam in the 1990s other approaches to the study of foodways also appeared as the postprocessual or interpretive archaeologies (contextual, feminist, phenomenological, etc.) developed and gained sway. Archaeologists began to explore past foodways from perspectives other than their adaptive significance (e.g., Gumerman 1997; Sherratt 1991). Analyses based on the optimization and maximization of energy and nutrition were challenged as projecting current cultural values onto past peoples (Hamilakis 1999), and scholars turned increasingly toward investigations of food's historically and culturally specific roles and meanings. In the U.S., historical archaeologists initiated the field; perihistorians and scholars working in areas with extended cultural continuity followed; prehistorians entered the field last (Blitz 1993; Crader 1990; Hastorf 1991; McKee 1999; Miracle 2002; Schulz and Gust 1983). In the U.K., the Late Bronze and Iron Ages were early foci of study (Parker Pearson 2003, p. 3).

Critiques of a nutritional definition of food were an important part of these developments, as archaeologists noted that in reducing the foods that people eat to mere nutritional components, a wide variety of culturally specific associations, effects, activities, and meanings were obscured (Gumerman 1997; Hamilakis 1999). With the embrace of cultural specificity, historical and sociological treatises on food and social life, as well as cultural anthropological studies, were increasingly used to model and discuss archaeological cultures; the works of Goody (1982), Appadurai (1981), Mennell (1996), Weismantel (1988), and Mintz (1985; Mintz and Du Bois 2002) held particular prominence. Attention turned not just to intercultural variation but also to intracultural differences, and the archaeological study of food and social diversity arose and quickly expanded.

No single theoretical approach characterized the rise of the field. Rather, several of the theoretical perspectives commonly subsumed under the broad rubric of

postprocessualism are well represented in the 1990s–2000s literature on food and social diversity, including practice theory, engendered archaeology, Marxist and neo-Marxist archaeology, and phenomenology. Although adherents of each approach could and did (and can and do) write on a variety of food-related topics, certain aspects of social diversity received particular attention from scholars of specific theoretical stripes. Feminist and engendered approaches have an inherent interest in gender and foodways (Brumfiel 1991; Gero 1992; Hastorf 1991; Subías 2002), as Marxist and neo-Marxist ones do in politicoeconomics (Genz 2003; Thomas 1998). With their interest in the ongoing creation and negotiation of social identity, scholars embracing agency and practice theory have often written about ethnicity and culture contact (Franklin 2001; McKee 1999; Smith 2003; Sunseri 2009).

Today, not all food and diversity studies fall under the postprocessualist rubric. The archaeology of food and social diversity is currently characterized by remarkable theoretical diversity, spanning not only the critical/interpretive approaches but also what Hegmon (2003) terms "processual-plus" archaeology, wherein issues such as gender, meaning, and agency are incorporated into a broadly processual approach (e.g., Spielmann et al. 2009). Nonetheless, certain ideas recur among these varied approaches: a focus on context and often on the relatively small scale (the actions of individuals, site- and even household-specific temporal and spatial patterns), a recognition of the active role of material culture, and a view of food as "embodied material culture" (e.g., Bray 2003b; Dietler 2007, p. 222).

It is worth reemphasizing that archaeologists studying the social roles of food do not discount the biological/ecological aspects of food. Rather, they note that food labor and nutrition are distributed according to cultural phenomena such as gender and status roles, religious beliefs, and sharing norms; they also point out that culturally specific butchery and cooking practices affect the nutritional value of foods (Jones 2002, pp. 135–136; Milner and Miracle 2002, p. 1; Mylona 2008). Indeed, these scholars consider the nutritional importance of food to be one aspect of its value, opining that food's biological necessity is inextricable from its cultural roles. The human need for constant nutritional input renders food both cognitively prominent and physically ubiquitous. As a result, it is uniquely well suited for use in expressing and negotiating culturally specific social structures and ideologies (Dietler 2007; Twiss 2008). Archaeologists are also aware that in order to interpret the sociality of food, biological/ecological parameters must first be considered: dietary change, for example, may reflect cultural developments such as increasing stratification or the arrival of a new ethnic group, but it can also be the result of climatic shifts or changes in the local ecology.

Differential coverage in the archaeology of food and social diversity

Regional and chronological coverage

Different regions and time periods are unequally represented among food and social diversity food studies. There are rich food literatures for Europe, Southwest Asia, Mesoamerica, the U.S. Southwest, and the Andes, but relatively few studies

investigating the ancient cultures of East, Central and Southeast Asia, Amazonia, Australia, and Africa (although there are several ethnoarchaeological discussions of African foodways: the work of Dietler and Herbich [2001] stands out). Numerous scholars discuss food and social groupings in early agricultural societies or in complex civilizations; far fewer do in hunter-gatherer or nomadic cultures, despite general recognition that axes of social variation do exist in such societies.

These biases obviously correlate with the total amount of archaeological investigation being conducted in different areas; it is hardly surprising that there are numerous works on the social implications of Maya or Roman foodways but few on those of ancient Sudan or Cambodia. Both geographic and chronological biases are also clearly linked to the nature of the data sets available from different regions and time periods. For example, it is far harder to discuss gender in Pleistocene contexts with limited bone and stone remains (although it is not impossible, e.g., Wadley 1998) than in historic contexts with ample data, and requires considerably heavier reliance on debatably applicable ethnographic parallels.

The extent of data available, however, does not entirely explain regional and chronological differences in the literature of food and social diversity. Geographic differences in coverage also are partially attributable to regionally varied archaeological traditions and interests; nationalistic and culture historical tendencies in post-Soviet archaeology, for example, lead many Russian and Central Asian archaeologists to focus on cultural unity and diachronic stability—specifically on identifying modern nations with ancient peoples (Dolukhanov 1995, 1996, pp. 209–210)—rather than on social diversity.

The prominence of particular eras and cultures in the food and diversity literature also is logically tied to their major questions of interest and the extent to which those questions are obviously linked to food as well as to social distinctions. Since the origins of food production constitute the central research question of Eurasian Neolithic archaeology, and the possible beginnings of social hierarchies and household economies are key secondary themes, it is hardly surprising that many Neolithic researchers have combined their interests in food and socioeconomic difference (e.g., Atalay and Hastorf 2006; Bogaard et al. 2009; Halstead 1999; Jones 1999; Mee and Renard 2007; Pappa et al. 2004; Twiss 2008). In contrast, a prominent research focus in Australian historical archaeology is the organization and function of institutions and industries (e.g., Casella 2006), a topic that could certainly be studied via foodways but that does not automatically summon them to mind. The scarcity of food and social diversity studies in Australian historical archaeology cannot be attributed solely to research interests, as other questions in Australian historical archaeology, such as those of colonization and culture contact, do lend themselves to study via foodways (e.g., Piper 1988). However, the limited number of food and social diversity studies in Australian as opposed to North American historical archaeology is plausibly tied to the industrial emphasis apparent in the former.

Coverage of stages of interaction with food

People pass through a series of stages in their interaction with food: they produce or acquire (gather, hunt, raise, or trade for) it; they process (butcher, thresh, and cook)

it; they eat it; and they discard it. The situation is analogous to Leroi-Gourhan's (1983) concept of the *chaîne opératoire* (Jones 2002, pp. 134–135; Miracle 2002; Sunseri 2009). People also may store, distribute, or share food, either during or in between any of the first three stages. The amount of socially focused archaeological research done into these different stages of human–food interaction varies, as do the issues focused on in regard to each stage. To some extent these foci are determined by the nature of the activity under consideration—food storage, for example, has more obvious links to economics than to gender or religion—but easily observable connections are not the only ones that exist, and scholars are increasingly interested in pursuing subtler associations as well. Nonetheless, biases remain, and certain food behaviors are relatively underrepresented in the food-and-diversity literature.

Food production

Food production has always received the most archaeological attention of any food-related activity, and prior to the late 1970s it was essentially the only stage that was investigated. With the rise of archaeology that took a culturally specific social, rather than cross-culturally adaptive, perspective on the past, food production/acquisition studies diversified, and today food production is regularly used to investigate a wide range of facets of social diversity, including politics (Hayden 2001, 2003; Stahl 2003), gender (Claassen 1991; Hamilakis 2003; Spielmann et al. 2009; Watson and Kennedy 1991), and the construction of identity (Jones and Richards 2003; Lewis 2007; O'Sullivan 2003; Sykes 2004).

Food processing

Socially oriented discussions of food processing are dominated by studies of the labor involved: its duration and intensity and what this would have meant for those segments of society responsible for particular tasks. Gender is a particularly prominent theme. Indeed, the current breadth of research on food processing/preparation is plausibly attributable to the rise of archaeological interest in women's as well as men's status and activities. Food processing is often divided into two stages: initial preparation of raw resources for storage, transport, and/or cooking (primary butchery or threshing and winnowing), and preconsumption preparation (cutting, grinding, soaking, cooking). Initial preparation has received considerably more attention, especially in studies of animal foods. This is partly because it is simply easier to see archaeologically, as it often involves division of resources into their component parts—meat-poor foot vs. meaty limb bones, for example, or chaff vs. grain—and archaeologists can simply assess the representation and distribution of these different parts across and between sites. Final preparation and cooking are harder to see; animal remains sometimes bear witness through cut and burn marks, but plants are virtually always destroyed during consumption (Dennell 1976, pp. 231–232; Gifford-Gonzalez 1993, pp. 186–188). Particularly prior to the 1990s, the dearth of archaeological research into cooking was probably correlated as well with a lack of interest in women's work (Gifford-Gonzalez 1993; Subías 2002). Indeed, since food preparation/cooking practices affect nutrition, food transport,

labor allocation, and settlement organization (Crown 2000; Gifford-Gonzalez 1993; Subías 2002; Wandsnider 1997; Wright 1994), their underrepresentation in the earlier literature is hard to otherwise explain. Engendered archaeology is thus significantly responsible for the fact that late-stage food preparation is now a common topic in the archaeological literature (e.g., Klarich 2010).

Additional foci of the food-processing literature are the scale and location(s) of processing and, to a lesser extent, cooks' ethnicity and extent of assimilation in culture contact situations. The scale of food preparation is indicative of both labor organization and the size of commensal units, both on a quotidian basis and at special events (Brown 2001, p. 376; Clarke 2001, pp. 157–158; Crown 2000, pp. 260–262; Hayden 2001, pp. 39–40; Junker and Niziolek 2010); how public or private cooking spaces were reflects broader cultural conceptions of privacy vs. communality, as well as how immured women are likely to have been (Halstead 1999, p. 80; Urem-Kotsou and Kotsakis 2007; Wright 2000). Historically and/or ethnographically documented food-processing tools and methods are most commonly used to associate particular culinary strategies with specific ethnic groups and, thus, to examine culture contact and assimilation (Gifford-Gonzalez and Sunseri 2007; Lightfoot et al. 1997a).

Food consumption

The literature on social diversity and food consumption is heavily weighted toward special events, i.e., feasts. Even though production for domestic consumption is the unstated but overwhelming focus of the food-acquisition literature (as well as, of course, the "diet" literature such as isotopic studies), daily *meals* per se are relatively rarely discussed. This bias is surely linked to those of the archaeological record itself; not only are populations more likely to deliberately memorialize feasts artistically, artifactually, or textually, but individual feasts also are more often archaeologically perceptible than individual family meals, as the former may be held or deposited at single-event locations (such as a tomb) unlike the latter, whose social implications may be archaeologically obscured through aggregation with very different other meals (such as in middens).

As a result, comparisons of domestic vs. communal consumption are common (Halstead 2007; Tomkins 2007), but such studies generally aggregate the diversity of quotidian eating (at home, at work, snacks, meals, etc.) into a broad "nonspecial" category—one that is most often used as a background default mode against which feasting can be defined. The social significance of day-in, day-out eating practices is rarely explored. Furthermore, when quotidian consumption is explored, it is often with an eye to domestic privacy vs. publicity/communality, as marked in dining locations and/or the display suitability of associated vessels (Halstead 1999, p. 80; Mee 2007, p. 220; Wright 2000). That said, the (aggregated domestic) food consumption literature is pleasingly diverse, discussing as it does the extent of perceptible social/economic/religious differentiation (Privat et al. 2002; Scott 1996; Urem-Kotsou and Kotsakis 2007).

Meanwhile, archaeologists investigate feasting in prehistoric, historic, and modern cultures while employing diverse theoretical perspectives and

methodologies (Dietler and Hayden 2001b; Joyce 2010; Klarich 2010; Twiss 2008; Wills and Crown 2004; Wright 2004). A similar variety is found in definitions of feasting; no single definition dominates the archaeological literature. The variability of characterizations used (e.g., Dietler 2001; Kirch 2001; Perodie 2001; Wiessner 2001; see Dietler and Hayden 2001a, pp. 3–4) is echoed in the nature of feasts themselves, which differ with respect to number of participants; atypicality and quantity of foods served; degree of culinary and performative elaboration; size, quantity, and decoration of associated material culture; location; and timing (Twiss 2008). In general, feasts are closely related to everyday meals in form as well as in meaning but are also consciously distinguished from those meals (Twiss 2007). That said, feasting is one form of food behavior, not an entirely separate phenomenon; the relationship is a complex one, and highly challenging to archaeologists who wish to avoid slighting either the links between domestic consumption and feasts, or the special, set-aside nature of those feasts. Unfortunately, the limited number of archaeological studies that discuss both domestic consumption and feasts tend to avoid this complexity and contrast rather than compare the two, thus arguably perpetuating an artificial dichotomy.

It is widely recognized that feasting is strongly associated with ritual activity (Adams 2005; Brown 2001, p. 382; DeBoer 2001; Dietler and Hayden 2001a; Kirch 2001, p. 172; Potter 2000; Potter and Ortman 2004; Wiessner 2001). The ideological prominence of feasts enhances their social power in other arenas; important social categories such as status, gender, or age are often expressed at feasts via differential food, seating, tableware, timing of service, or behavioral expectations (Clarke 2001; Dietler and Hayden 2001a). Such expression may reify existing social structures and distinctions, or it may challenge them. Feasts have been shown to play important roles in processes of economic, ecological, political, and ideological change (Dietler 2007; Dietler and Hayden 2001a, p. 16; Hayden 1990; Perodie 2001; Wiessner 2001).

In general, archaeological investigations of feasting are dominated by two themes: the development and/or maintenance of political complexity (i.e., how feasting contributed to socioeconomic differentiation) and the reinforcement of social bonds (i.e., how feasting helped inculcate and reinforce a sense of community). Some archaeologists differentiate between the types of feasts used to pursue these ends—feasts that promote social competition versus those that enhance cooperation (e.g., Hayden 1995). Far more of these scholars focus on competition than on integration. Other researchers emphasize that while one motive may be primary, all feasts simultaneously involve both social integration (via shared participation) and competition for social capital (via differential donations, service, seating, behavior, etc.) (Clarke 2001; Dietler 2001; Hamilakis 2008; Joyce 2010; Twiss 2008). These different conceptions of feasting are apparent in discussions of feasting's possible role in the origins of agriculture or of specific domestications (Hayden 2003; Twiss 2008) and in the origins of social complexity (Blitz 1993; Pauketat et al. 2002; Rosenswig 2007). Some of these studies attribute the changes to explicitly competitive feasting (Hayden 1990, 2003). Others note that communal consumption at feasts could have ameliorated tensions associated with increasing stratification, enabling institutionalization of social difference (Rosenswig 2007).

Finally, some studies link the transformative power of feasting to its polysemic nature, noting that the combined competitive and integrative elements involved in any feast render such events extremely well suited for both overt and covert social maneuvering (Twiss 2008).

Food discard

Surprisingly little has been written on food discard and social diversity (see also Gumerman 1997, pp. 124–125). To some extent this is surely due to taphonomic factors, notably the tendency in many societies to aggregate leftovers into shared dumps, thus limiting archaeologists' ability to link particular sets of food remains to particular residences or structures. However, successful studies of discard patterns do exist. Virtually all of this literature addresses ceremonial deposition practices, mostly in relation to feasting and politics (Albarella and Serjeantson 2002, p. 46; Dabney et al. 2004; Isaakidou et al. 2002). Other works discussing ritual deposition touch, albeit briefly, on gender and intergroup differences in ideology (Politis and Saunders 2002) and on culture contact and urbanization (Robinson 2002).

Important themes in the archaeology of food and diversity

Beyond broad reconstructions of subsistence, food remains allow archaeologists to explore the complexities of ancient economies; social strata (both established hierarchies and dynamic struggles for power and position); racial, ethnic, and gender groupings; and religions and ideologies. These topics are mutually entangled: gender, for instance, can hardly be separated from status or economics. However, to maximize clarity, they are here discussed in sequence, albeit with notes as to particularly important cross-links.

Economic differentiation

Economic differentiation is clearly reflected in a society's food production, distribution, and storage practices, all of which have strong implications regarding divisions of labor and economic standing. These topics are, as previously noted, discussed from a variety of processual and postprocessual theoretical perspectives. Here I include only those approaches that delve into culturally specific socioeconomic structures and ideologies. Despite the social (rather than adaptive) focus of these studies, the best remain strongly aware of the ecological settings of their studies and the interplay between environment and economy (e.g., Coupland et al. 2010, p. 205; Freiwald 2010; Mylona 2008, pp. 33–37).

Many archaeological studies of food and social diversity investigate the structure of ancient economies. A particularly common question is the extent of economic specialization, which is addressed in both hierarchical and nonhierarchical societies (Coupland et al. 2010, pp. 204–205; Halstead 1996; Mee 2007, pp. 209–210; Mylona 2008; Tomczak 2003). In nonhierarchical societies, the basic existence of specialization is commonly the question under investigation (explicitly or implicitly

in regard to the development of social complexity, e.g., Coupland et al. 2010). In some studies, the presence or absence of such specialization is then linked to community structures and relationships. Halstead (1996, p. 35), for example, argues that small-scale, unspecialized farming households in prehistoric Greece would have insured their individual economic stability by establishing close exchange relationships with neighbors, while periodic grazing of herds away from their homesteads would have entailed contact with people from other communities.

In complex societies, additional discussion revolves around the complexity and organization of food production and distribution patterns: the number of links between producers and consumers, the variety of avenues a consumer could use to acquire a food or foods, the intricacies of marketing, and the roles of gender, status, and politics in these phenomena (Dahlin et al. 2010; Forbes 2002; Mylona 2008, p. 88; Zeder 1991). At the Middle Sicán site of Huaca Sialupe in Peru, for example, communal cooking was embedded into ceramic and metal production, as hearth aggregations were located in association with workshops and cooking debris was also used to fuel kilns (Goldstein and Shimada 2010). In contrast, dedicated palace kitchens at the Belizean Classic Maya site of Xunantunich suggest the existence of specialist cooks who prepared food for the ruler and who may have been viewed as respected artisans, akin to other craft specialists in status and esoteric knowledge (LeCount 2010).

A notable subtheme in the literature on economic structure and food distribution is that of urbanism's origins. For example, faunal remains from deposits dating to the 1830s in New York's Five Points neighborhood may reflect the genesis of the urban marketplace, still developing its focus on a relatively narrow range of food species and on easy-to-produce and cheap-to-transport animal body parts (Milne and Crabtree 2001, p. 44); a transformation toward commercial cattle production is visible decades earlier in Boston (Bowen 1998). These studies illustrate the origins of economic strategies so dissimilar that members of an ostensibly single population developed different habitation locations, population densities, and daily experiences.

One can easily read the literature on food and economics in light of social distinctions even when such a focus is not an overt authorial intent. Consider the economic values and roles of particular foods; clearly they tie into social distinctions in a variety of ways, even when these relationships remain only textually implicit. For example, the rationing and food wages common in state-level societies (Killen 2004; Pollock 2003; Samuel 1999) clearly divide donors from recipients. In a more complex example, McCormick (2008) states that cattle played a central role in the economy of early medieval Ireland, even as their cultural value greatly transcended their economic worth. He argues that this situation precluded significant economic development, as (1) meat and dairy products are perishable, limiting long-distance trade, and (2) finite grazing land made increasing one's surplus wealth (i.e., acquiring more cows) difficult or even impossible. Only after the economic focus shifted from cattle to cereals could individuals accumulate significant surplus and economic differentiation intensify (McCormick 2008).

Economic differentiation is both expressed and created through food-related labor. This is significant in relation to the gendered nature of food activities,

especially cooking (Brumfiel 1991; Joyce 2010; Subías 2002), and to the implications of economic activity for individual and/or group social identities and ideologies (Mylona 2008, p. 74; O'Sullivan 2003). In recent years, however, archaeologists have paid special attention to the link between feasting and labor mobilization, particularly in nonmonetary agrarian economies (Dietler and Herbich 2001; Fox and Harrell 2008; Wright 2004, p. 51). In such societies, feasting is one of the few methods available for mobilizing numerous extrafamilial laborers; it is used not only to arrange relatively small-scale interhousehold labor but to organize and justify large-scale involuntary (corvée) labor for the state (Dietler 2003, pp. 277–278).

The literature on food storage and economic differentiation includes discussions of trade relationships (Mylona 2008, p. 88) and political economics (Blitz 1993; Earle and D'Altroy 1982; Margomenou 2008), but much of it focuses on the size of a society's basal economic unit, a topic that comprises both the extent of socioeconomic fragmentation within a group and the extent to which economic differences can be masked. The premise in these studies is that with private storage, households individually assume the risks and rewards of production; they also are able to conceal their wealth (i.e., their food supply) from their neighbors, easing obfuscation of interhousehold economic differentiation (Bogaard et al. 2009; Young 1997, p. 25). Such concealment of private stores is apparent at Neolithic Çatalhöyük in Anatolia, for example. There, bins and plant consumables tend to be found in the side rooms of houses, but animal remains such as bucrania, left from past suprahousehold consumption events, are on display in the main rooms. Bogaard et al. (2009) see this as evidence that the household was the primary socioeconomic unit in this early village society, but more widely shared meals were socially important as well, probably ameliorating social tensions as economic differences widened.

Two factors may at least partially explain the prominence of this topic in the literature. First, large-scale centralized or communal storage represents a pooled economic resource and is thus relatively difficult to use to investigate economic distinctions; differential access to such stores is relevant but discussed chiefly in the context of politics rather than economics per se. Second, the economics of household storage—production for, scale of, expenditures from—have thus far been discussed disproportionately in small-scale agrarian settings (e.g., Atalay and Hastorf 2006; Bogaard et al. 2009; Forbes 2002; Halstead 1989; although see Christakis 1999; Strasser 1997). In these areas and time periods, economic differentiation is commonly assumed to be limited.

Social stratification and competition/politics

The interaction of food and hierarchy is one of the most commonly and successfully discussed topics in the archaeological study of foodways. Themes include the extent of status-based differentiation in food habits, changes in the foodways used to mark status, and the role of food in establishing and negotiating social difference (i.e., politics).

Social stratification

The extent of status-based differentiation in foodways is usually assessed by comparing either the stable isotopic signatures of individuals with differential mortuary treatments to look for dietary distinctions (Ambrose et al. 2003; Le Huray and Schutkowski 2005; Schutkowski et al. 1999) or the status values of food and food-related artifacts (particularly ceramics) across multiple deposits—households, ritual precincts, etc. Food and artifact status values are established using various criteria: texts, ethnohistory, iconography, rarity, exotic origin, contextual associations, diversity, labor-intensity of production and/or preparation, subjection to sumptuary restriction, periodicity, and/or simply inherent nutritional value (Bray 2003a; Crader 1990; Curet and Pestle 2010; DeFrance 2009, table 1; Goldstein and Hageman 2010; Grant 2002; Jackson and Scott 2003; Reents-Budet 1998; Sykes 2004, Thomas 2007; van der Veen 2003). In historical contexts, price is often used to assess a food's ranking (Mylona 2008, pp. 103–106; but see Reitz et al. 2006; Rossel 2004; Schulz and Gust 1983).

Another approach used to identify elites in the archaeological record is searching for differentiated culinary preparation, generally following Goody's (1982) criteria for the identification of haute cuisine*:* exotic/rare/labor-intensive ingredients, notably condiments and wild game; complex recipes; and specialized production/preparation/service personnel. Thus, for example, Isaakidou (2007) finds that while there is considerable culinary continuity from the Cretan Neolithic through the Bronze Age, Late Bronze Age palatial elites plausibly used an elaborated haute cuisine to set themselves apart from those of lower status. Critics challenge Goody's equation of high cuisine with complex societies and low cuisine with simpler ones. Nonetheless, they consider his model a useful provocation to think about the relationship between meal forms and the political economy and a constructive starting point from which archaeology can elucidate the diachronic processes through which high cuisines originate (Hastorf and Weismantel 2007, p. 313; van der Veen 2007, p. 124).

There are challenges involved in the study of food and hierarchy. Westernized, capitalist criteria for food values may overlook alternative forms of status expression (Curet and Pestle 2010, pp. 421–422). Even if the criteria for assessing value are accurate, interpretations of status-related foodways are potentially complicated by lower-status groups' emulation of more elite foodways (or the converse, as with politicians [Reitz et al. 2006, p. 108]), by subservients' access to the tables and supplies of their masters, by elites' redistribution of foodstuffs to those of lower position, by coresidence of multiple social classes, by market regulation of goods available, and perhaps even by elites' disinterest in consuming the very foods that ostensibly mark their status (Curet and Pestle 2010; Dawson 2008; Gumerman 1997).

A final challenge that many studies do not fully address is explaining specifically what is meant by "status:" prestige, economic advantage, and/or political leverage. While these phenomena very often travel together, they do not always do so (Lyman 1987, p. 58; Phillips and Sebastian 2004). This problem remains prominent in the literature, as emulation in particular has become a topic of investigation in its own

right (e.g., Sykes 2004; Thomas 2007), while casual use of "status" remains endemic.

Despite these difficulties, foodways offer a rewarding window into past status differences. One reason is that they reveal considerable complexity in past hierarchies, not merely simple elite/nonelite dichotomies. For example, three levels of status are perceptible among Late Classic Maya elite residences at Aguateca (Emery 2003). Three are likewise discernible among the Myceneans who banqueted inside the Late Bronze Age palace at Pylos (a rural fourth tier mimicked palace feasting with limited success) (Bendall 2004), and there are even indications of differential status within the slave community at Monticello (Crader 1990). Such detailed social reconstructions are not necessarily feasible with other data sets; gradations within lower classes may be particularly hard to perceive. Valuable goods such as fine ceramics or precious metals may be restricted to one or two of the topmost tiers of society; all strata below the topmost are thus mutually indistinguishable to archaeological ceramicists or metallurgists. All members of society must eat, however, so food patterns reflect all social tiers.

Archaeologists also can study the diachronic use of high-status foods within different social strata in order to trace cyclical strategies of marking status (e.g., to study emulation and elite responses to it, as mentioned above). As imported commodities are likely markers of elite distinction, so novel foods should be used first by the elites, then by lower-class emulators—at which point in time, the elites should move on to new markers. For example, Thomas (2007) tracks aristocratic meat consumption across the era of the Black Death, arguing that as the lower classes used their increased purchasing power to buy more meat, nobles began increasingly to rely on wild birds as status differentiators. The values of particular bird species changed across the medieval era as well; Sykes (2004, pp. 92–93) notes that swans declined in prestige as emergent middle classes became able to purchase them. Despite the 1482/1483 "Act of Swans," enacted to discourage nonaristocratic swan consumption, the proportion of elite sites with swan remains dropped by nearly half as the proportion of urban sites with swan bones roughly quadrupled.

Competition/politics

Political investigations in the archaeological food literature extend beyond the simple identification of differential status and explore food's roles in the negotiation, achievement, and contestation of power, and ultimately in inter- and intracommunity social differentiation and/or integration. Both macro (state-level) and micro (domestic/community-level) politics are discussed, as is the interrelationship of the two (e.g., Smith 2003). Increasingly, food archaeologists also discuss the potential coexistence of different cuisines within individual cultures, each cuisine having its own set of social meanings and uses (e.g., Urem-Kotsou and Kotsakis 2007). Such coexistence is particularly emphasized in diachronic terms, as societies negotiate increases in social differentiation; for example, continuing use of traditional foodways side-by-side with early haute cuisine may have minimized alienation of Minoan commoners (Isaakidou 2007).

Discussions of power negotiations via food focus heavily on three types of food behavior: provisioning (agriculture, hunting, and/or redistribution), storage, and feasting. The political nature of food *production* may be expressed economically through taxes, tributes, and redistributions, or symbolically, as with elite-led hunting expeditions. Politicoeconomic tribute and redistribution patterns have been extensively investigated, in diverse civilizations from the Maya to the Mississippian to the Mesopotamian Early Dynastic (Blitz 1993; Jackson and Scott 1995; Morehart and Eisenberg 2010; Pohl 1994; Pollock 2003). Despite ample ethnographic evidence for the politicosymbolic importance of plant food production (e.g., Malinowski 1935), the political symbolism of agrarian production has received little direct attention (although see Hayden 1990; Hayden 2003, pp. 461–464; Junker and Niziolek 2010; Smith 2006; Spielmann 2002; also often indirect politicosymbolic discussions of production for feasting, e.g., van der Veen and Jones 2006). In contrast, discussions of the symbolic import of hunting abound, especially in the zooarchaeological literature (Hamilakis 2003; Lewis 2007; Sykes 2006).

Throughout the archaeological food literature, ancient *storage* practices are discussed primarily with an eye to past political economics, specifically the control of production. While literature discussing storage's role in hunter-gatherer political negotiations does exist (Hayden 1990; Spielmann 2002; Testart 1982), the political economic storage literature is concentrated in early agricultural and especially in early complex societies. Small-scale domestic storage among early farmers is used to investigate the origins of privatization and the economically autonomous household (Bogaard et al. 2009; Flannery 1972, 2002), whereas larger-scale centralized storage in complex societies is used to explore the structure and extent of elite power (Blitz 1993; Margomenou 2008). The guiding principle in these latter discussions is that elites gain influence by controlling not necessarily the production but the storage and distribution of food (see Strasser [1997, p. 93] and Halstead [1997] for discussion of this idea). Some authors emphasize local power derived from control over surpluses of staple goods; others explore geographically broader statuses rooted in trade of luxury goods (Genz 2003, pp. 71–72; van der Veen 2007).

Storage is not solely a material phenomenon. Of course, physical storage is economically and socially central in many societies, and it is therefore entirely logical that it receives significant archaeological attention. Due to the difficulties of recognizing food stored in live form—"in the field" or "on the hoof" (e.g., Spielmann 2002)—archaeologists working in contexts lacking textual evidence typically study on-site storage of already collected foods, directly in the form of ecofactual concentrations or indirectly via storage facilities or plant/animal processing strategies. A small body of literature also addresses the fact that food storage does not always take the form of physical concentrations of food; "social storage" is also an important phenomenon. Food that is given away to kin or allies not only represents a form of economic insurance (they will repay the gift when times are hard), but it consolidates social bonds and maintains communal ties that might otherwise fray (Bogaard et al. 2009; Halstead 1989). This concept of social storage allows reconciliation of the literature's typically dichotomous presentation of (pragmatic) household vs. (political) elite storage. Small-scale agrarian societies normally overproduce to cope with natural variation in agricultural productivity; unneeded surpluses get "banked" with

needy neighbors (social storage) in return for labor or material goods (Halstead 1989). Should some farmers consistently prove more productive than others, the successful producers could accumulate increasing wealth and, potentially, rights to the less successful farmers' labor or produce. Thus small-scale domestic overproduction can lead to political stratification (Halstead 1989).

Finally, *feasts* offer a variety of strategies for political maneuvering and social advancement. Feast hosting is a powerful way to acquire and maintain status and influence—to convert economic into political capital—even in overtly egalitarian societies; in stratified societies, formalized elite hospitality may symbolically reiterate (and thus legitimize) institutionalized asymmetries (Dietler 2001, pp. 79–83). Additionally, differences between feast participants in cuisine, service, seating, and manners simultaneously express and renew hierarchies (Dietler 2001, p. 85; Junker 2001; McCormick 2002). Lastly, as noted above, feasting is often used to mobilize labor (Dietler 2003; Dietler and Herbich 2001; Fox and Harrell 2008).

Since feasting is also a multivalent, ritualized, and highly gendered phenomenon, it allows nuanced and multifaceted considerations of past political structures. The elaborate ceramics and distinctive cooking methods that accentuated class differences among the Inka "communicated authority in the feminine register," complementing the masculine domains of war and conquest (Bray 2003c, p. 133); the feasting debris that from the Neolithic to the Shang Dynasty gradually disappeared from nonelite Chinese graves reflects the progressive restriction of politically potent spirit ancestors to increasingly high-ranked members of society (Nelson 2003).

Race, ethnicity, and culture contact

Archaeological research into food, race, and ethnicity runs largely along two lines: research exploring the conscious and unconscious construction of group identity through the establishment of group foodways (Franklin 2001; Shuman 2008), and research attempting to identify ethnic groups in the archaeological record on the basis of food remains. The most successful of the latter studies are not rigid tests of ethnic presence or absence but explorations of the extent to which stereotypical ethnic foodways were followed and the reasons for deviation from modeled patterns: geography, ecology, economy, etc. (e.g., Hesse and Wapnish 1997; Scott 1996). Such archaeological models of racial and ethnic foodways are derived primarily from ethnographic and ethnohistorical sources (e.g., Scott 1996; Tuma 2006); models based on coeval archaeological data on foodways in the ostensible homeland of a particular immigrant group are considerably less common (although see Pierce 2008; Smith 2003).

Certain cultural groups appear frequently in the food and ethnicity literature; the diets of enslaved Afro-Americans in particular have a long history of investigation (e.g., Crader 1984, 1990; Franklin 2001; McKee 1987, 1999; Otto 1984; Reitz et al. 1985; Scott 2001). Researchers have discussed Afro-Americans' strategies for enhancing dietary self-sufficiency (viewed variably as a response to inadequate provisioning, as a strategic defense against owners' power plays, or as a matter of taste and recreation preference [Lev-Tov 2004; Thomas 1998, pp. 542–545; Young 1997]) and their ethnically derived modes of fishing, cooking, and eating

(Scott 2001; Tuma 2006; Yentsch 1992). Variability among enslaved Afro-Americans' diets has been of interest as well, with studies addressing the effects of differential status (Crader 1990), plantation owner ethnicity and economic position (Scott 2001), and plantation labor systems (Lev-Tov 2004).

Other prominent topics include the foodways of Chinese immigrants to the United States (Collins 1987; Langenwalter 1980; Simons 1997, p. 313) and Native American, especially Puebloan, responses to colonization (Gifford-Gonzalez and Sunseri 2007; Lightfoot et al. 1997a,b, pp. 428–429; Simons 1997; Spielmann et al. 2009; Wake 1997). The domination of American historical archaeology in the food-and-ethnicity literature is not a new development: Americanist citations also dominate Crabtree's (1990, pp. 177–181) 20-year-old review of the zooarchaeology of ethnicity. Presumably this is to a great extent due to the prominence of race and ethnicity in American culture and history as well as to the recentness of the periods under investigation. Racial and ethnic variations are generally recognized as foundational components of American life and their history as highly worthy of investigation. As Crabtree (1990, p. 177) noted, however, "[e]thnic diversity is a feature of many complex societies, both past and present"; the comparative scarcity of discussions in other areas and time periods is not excusable due to irrelevance. Admittedly, ethnicity is complicated to identify archaeologically (Lucy 2005), especially in the absence of direct historical links or documents; in relatively early or prehistoric periods the links between food behaviors and ethnic groups may be obscure or nebulous, dissuading scholars from pursuing them as an avenue of investigation.

There are, of course, numerous analyses of food and ethnicity in cultures outside of the historic Americas (e.g., Amundsen 2008; Nyerges 2004). Notably, several ethnic identification studies focus on Jewish and Islamic groups, exploring whether the archaeological record reflects the dietary laws of those religions. While these analyses rely on religion to model ancient foodways, ethnicity and religion are commonly strongly correlated, and some such studies are explicitly interested in ethnicity at least as much as faith (e.g., Hesse and Wapnish 1997; see also Lev-Tov 1999 for a Christian example).

As the archaeology of culture contact has moved beyond simple models of either assimilation or resistance, archaeologists are using food evidence to delve into the complexities of colonial situations. Some scholars discuss the motives behind, strategies for, and consequences of appropriation and indigenization of select foreign foods and cooking equipment (Dietler 2007; Walshaw 2010). Others examine indigenous responses to colonialism. For example, Puebloans at historic Paa-ko in New Mexico overall maintained indigenous subsistence strategies, but they used both traditional stone tools and metal trade knives to butcher their traditional prey animals as well as newly introduced domesticates; their adoption of the latter provided them with a new fuel source but also required labor and space reallocations (Gifford-Gonzalez and Sunseri 2007). Still other archaeologists explore creolization of foodways in multiethnic contexts, such as enslaved Afro-Virginians drawing on Native American and European gardening and cooking methods (Mrozowski et al. 2008), indigenous Peruvians and Iberian colonists mutually limiting adoptions of each others' food traditions (DeFrance 1996), or French settlers sharing foodways with Native American peoples (unlike the dietarily isolationist British colonists [Scott 2007]).

The colonialism and culture contact literature is closely tied to the status literature, not only through the differential social positions commonly accorded particular ethnicities but also in that, as noted previously, novelty foods are generally considered likely markers of elite distinction (although see Jamieson and Sayre 2010, p. 218). Archaeologists therefore trace the appearances of new foods and cooking methods to see if they arrive first in elite contexts and then later in lower-class ones (e.g., Cool 2006, p. 158). Commonly, the answer to this question varies between food items due to the complexity of social, economic, geographic, and ecological factors that shape foodways. In Roman-era northwestern Europe, for example, mulberries were rare imports, found almost exclusively in select urban centers; domesticated cherries, on the other hand, were dispersed widely throughout urban and rural society (Livarda 2008).

Gender

That food activities as well as food intake vary by gender is well known; it is also well discussed in the archaeological food literature. Gender has been a prominent issue in the social archaeological food literature since its inception. While much of the early food-and-gender literature concentrated on identifying and demonstrating the socioeconomic importance of women's productive activities (Brumbach and Jarvenpa 1997; Jackson 1991; Watson and Kennedy 1991), today three main additional axes of investigation are apparent: the extent and social import of differential male and female diets, differential male and female roles in food acquisition and preparation, and the locations and circumscription of gendered food activities, particularly cooking (Brumfiel 1991; Claassen 1991; Crown 2000; Gero 1992; Hastorf 1991; Joyce 2010; Subías 2002). Status, politics, and ritual are prominent subthemes in the gendered food literature.

The social implications of differential diet and differential labor are explored along various lines, from the politicoeconomic significance of women's cooking and serving (Bray 2003a,b; Brumfiel 1991; Crown 2000, pp. 265–266; Dietler 2001; Hendon 2003; Joyce 2010) to the symbolic value of female-produced foods (Claassen 1991) and the formalization (and ritualization) of gendered food activities (Mobley-Tanaka 1997). The third major avenue of investigation—the distribution of gendered activities across and within sites—relies on the fact that women are ethnographically associated with the majority of food preparation to interpret the material culture of food preparation and cooking as reflective of female activity. This is especially true of items and facilities associated with plant rather than animal foods (although see Hildebrand 2003). The spatial distributions of food preparation and storage are thus taken to reflect the locations and degrees of circumscription of female activity (Mobley-Tanaka 1997; Wright 2000).

Food and belief

Despite the apparent applicability of food studies to investigations of ideological diversity in past societies, the literature on this topic is surprisingly little. Archaeological discussions of past belief systems range across a variety of topics:

food use in religious activities; the extent to which ritual food offerings differed in composition or preparation from daily foodstuffs; whether a particular food deposit represents the remains of ritual or more prosaic activities (Albarella and Serjeantson 2002; Cooremans 2008; Dabney et al. 2004; Mylona 2008, pp. 91–99; Rovira and Chabal 2008); identification of the major monotheistic religions via archaeological recognition of their stereotypical food practices (Cool 2006; Daróczi-Szabó 2004; Insoll 1999, pp. 94–100); the origins of faith-based culinary proscriptions, especially the Judeo-Muslim pig taboo (Hesse 1990; Hesse and Wapnish 1998; London 2008; Zeder 1998); and the beliefs and practices of extinct religions (Carrasco 2010; Hamilakis and Konsolaki 2004; Isaakidou et al. 2002; Lentacker et al. 2004; Perego 2009). Rarely, however, is exploration of religious difference (whether the presence of multiple faith groups in the same site, or variability in religious observation between members of the same sect) the overt goal of any study.

To the extent that religious diversity is discussed at all in the archaeological food literature, it is most often presented as a methodological problem. Several studies exist that test stereotypical or textual models of religious diets against the archaeological record; these studies often find considerable complexity rather than simple adherence/nonadherence to the model (Ijzereef 1989, p. 47; Lev-Tov and Maher 2001; Linseele 2004). Rather than presenting this complexity as the product of differential religious observation, however, these authors tend to use their findings to discount or to warn about archaeological ability to identify religious groups in the past. This is a valid point, of course; when diets vary among coreligionists, no diagnostic patterns of remains may be created.

Alternatively, researchers use variable observance of religious food rules to make a separate point about social organization or pressures. A good example of the latter is Scott's (1996) discussion of the absence of evidence that the German-Jewish inhabitants of an 18th-century Michigan household kept kosher during their initial years at the site. As time passed, household members dramatically decreased their consumption of nonkosher pork and wild game. Scott argues that increasing wealth enabled the household to purchase goods similar to those of other community members, allowing them to express their communal membership materially and freeing them to embrace dietary habits that distinguished them from their neighbors.

An intriguing subset of the literature discusses food's role in human interactions with the supernatural. In many groups, people provision the gods or spirits through offerings that, if not destroyed, the supplicants may then consume (e.g., Hamilakis and Konsolaki 2004; Stross 2010); such practices express both human social involvement with, and distinction from, the deities. Similar practices may reflect and construct relations between the living and the dead (e.g., Nelson 2003; Stross 2010).

Although ideology often plays an important role in the creation and negotiation of differential power, this topic is arguably underexplored in much of the archaeological literature on foodways. This is particularly true in the Old World, where discussions are largely limited to a few historical societies (notably Mycenaean Greece), wherein texts testify directly to, for example, the political import of ritual sacrifice (which often entails feasting) (e.g., Detienne 1989;

Hamilakis and Konsolaki 2004; Isaakidou et al. 2002). In contrast, Mesoamericanists are well aware of the political impact of ritual and food, presumably because they have a rich body of both texts and art that clearly link rulers and elites to ritually important plant and animal foods—especially maize, which was central to both pre-Columbian ideology and diet (Carrasco 2010, pp. 601–602; Friedel and Reilly 2010; Staller and Carrasco 2010, pp. 6–7, 12; Taube 1985). Olmecists and Mayanists in particular are achieving analyses of remarkable complexity on the ritual and politics front, sometimes integrating even a third aspect of social diversity, such as gender or economics, in their discussions (e.g., Carrasco 2010, pp. 621–624, 629; Friedel and Reilly 2010; Reents-Budet 1998, p. 85).

Perhaps because these studies are so detailed and draw on such rich, varied, and highly culturally specific data, archaeologists who do not specialize in Greece or Mesoamerica often appear unaware of their broader applicability and tend not to extrapolate their arguments about the politics of religion into other societies. Widely applicable points such as Dabney et al.'s (2004, p. 93)—that the provider of a feast involving religious symbolism elevates the prestige he gains through his generosity by demonstrating control over cultural symbols as well—also deserve more attention, especially in the feasting literature, which commonly discusses both the political and the ritual aspects of feasts but often fails to explore their interrelationship.

Methodological considerations in the archaeological study of food and social diversity

A variety of methodological issues profoundly affect the validity of social interpretations of food remains. These issues often go unmentioned in published articles. As a result readers cannot know whether or not researchers took them all into account as they formed their arguments, and thus whether or not those arguments are based on reliable data. This is a serious problem in much of the literature on food and diversity. Some of the issues, such as the vulnerability of faunal and botanical remains to differential deposition, preservation, and recovery, are familiar ones to most archaeologists. In regard to the latter, plant food remains are especially vulnerable to taphonomic loss, as most plant parts preserve only if they are profoundly desiccated, frozen, charred to just the right degree so that they neither retain enough organic component to rot nor are completely destroyed, or embedded in an anaerobic environment. Naturally, the majority of plant foods and food debris receive none of these treatments and are thus macrobotanically invisible. Furthermore, the archaeobotanical record is biased, with dense and often-cooked foods such as cereals and legumes appearing often among charred remains while structurally weaker foods or foods consumed raw such as fruits, greens, fungi, and tubers are rarely seen. Such differential deposition, preservation, and recovery rates not only make it difficult to consider the full range of the ancient plant diet, they also greatly complicate quantification of plant remains (Dennell 1976; Popper 1988).

Similarly, denser bones survive better than less-dense ones, which tends to bias the faunal record toward adult animals (e.g., toward mutton and away from lamb) as well as toward specific body parts such as heads (teeth) and feet (carpals, tarsals, phalanges). The former bias could significantly alter interpretations of slaughter patterns and, therefore, of herding and hunting practices as well as dietary preferences. The latter could alter interpretations of butchery practices (heads and feet are both relatively light in meat, and so deposits dominated by these body parts are often taken to reflect initial butchery rather than later stages of culinary processing) as well as taxonomic proportions, since different taxa have different numbers of the dense body parts (e.g., cattle and caprines lack upper front teeth, whereas equids have them; conversely, equids have one phalanx per foot while cattle and caprines have two).

The structure of the paleoethnobotanical record also is important when considering what plant remains reveal about ancient human diets. Inedible remains such as contaminating weeds and chaff constitute the bulk of the macrobotanical (i.e., plant structures generally visible to the naked eye) record (see Dennell 1976, pp. 231–232). This is because the bulk of edible remains such as seeds, kernels, and tubers, reflecting foods stored, cooked, and consumed, were presumably brought on site with the intention that they be consumed (and thereby destroyed); inedibles—many of which are the byproducts of preparing staples such as cereals—were not. Therefore, assemblages rich in edible plants and plant parts probably represent accidents, while deposits rich in inedibles such as chaff may reflect either deliberate disposal of food debris or their repurposing as fuel or temper (e.g., Campbell 2000). As plant-preserving accidents are inherently less common than normal processing and discard activities, much of the paleoethnobotanical data set consists of *indirect* evidence of plant foods, i.e., byproducts of processing rather than actual comestibles. Botanical remains preserved inside human guts and paleofeces are the great exception to this rule.

In contrast, archaeologists can be confident that ceramics (and metal and glass artifacts) were deliberately produced. The challenges facing pottery analysts include how to infer vessel function from form, how to distinguish cooking traces from those produced during firing, and how to quantify an assemblage. This latter issue bedevils faunal remains as well; how many vessels (or bones or animals) are represented by the fragments in an assemblage? Did stew pots (or cattle) originally dominate at a site, or are there simply more stew pot fragments than other vessel fragments because the larger stew pots (animal bones) produce more pieces when broken up? No single method of quantification provides the best solution to this difficulty. Rather, analysts select the method that they feel most appropriate to the situation at hand. This means that readers must note which method has been chosen (e.g., number of individual fragments [specimens], or minimum number of vessels [animals] required to produce that number of fragments), in order to fully understand and evaluate a study's results and to establish comparability between assemblages.

Two more issues, whose profound ramifications for the reconstruction of ancient foodways may be underrecognized, affect stable isotopic analyses (see Ambrose 1993; Freiwald 2010, pp. 402–403; Pearson 2007). Such analyses are extremely

valuable for reconstructions of social diversity. Whereas artifactual and ecofactual assemblages generally reflect the foods available on site to a population, isotopic analyses work on the level of the individual. They also reflect (proteinaceous) foods actually eaten as opposed to merely those available on site. They thus allow investigation of intrapopulation—even intrahousehold—dietary differences such as those across status, age, or gender groups. These important social distinctions are often inaccessible to other methods. The first issue that must be recognized by readers of stable isotopic analyses is that any one stable isotopic signature is the product of numerous dietary, climatic, physiological, and health-related factors (see Ambrose 1993, pp. 93–94; Pearson 2007; Schwarcz and Schoeninger 1991). Untangling which specific factors may have been significant for an individual or a population is a tremendous challenge, and isotope analysts cannot necessarily identify which particular food(s) were consumed in order to produce a particular isotopic signature. In sum, "different isotope signatures invariably point to significant differences in diet between individuals, [but] similar isotope values do not necessarily equate with similar diets" (Pearson 2007, p. 5).

Consumers of stable isotopic analyses also must be aware of the interpretive importance of background isotopic data. It is widely known that stable carbon isotopic ratios (the relative abundances of ^{13}C and ^{12}C, i.e., the $\delta^{13}C$ values) reflect the consumption of different plant groups: those with C3 photosynthetic pathways (e.g., wheat, rice, barley, fruits, and nuts), those with C4 pathways (e.g., maize, sorghum, sugarcane, and some millets), and CAM plants (e.g., pineapple and cacti). Potentially underrecognized is the importance of using the isotopic signatures of locally specific plants to interpret the $\delta^{13}C$ values of human remains in a particular area, as values vary between regions and even between conspecifics in different growing conditions. It also is important to note that a human's $\delta^{13}C$ values derive from both the plants that that person consumed directly and those consumed indirectly, i.e., by consuming the animals that ate the plants. In other words, if a person eats C3 plants exclusively, but his/her meat diet includes sheep that eat C4 plants, the person's $\delta^{13}C$ will look as if they consumed a mixture of foods. It is thus vitally important that stable-isotope analysts test the $\delta^{13}C$ values of likely food animals to establish the extent to which human $\delta^{13}C$ values may have been assimilated from meat animals. Omission of such testing renders human dietary reconstructions unreliable and may invalidate social interpretations based on those reconstructions.

Arguably the most important methodological issues are those that affect all data sets: issues of context and of sample character. To begin with, context is, as always, of fundamental importance to interpretations of data. All too common in the food literature are remarks that certain remains were found "in an oven" or "by a bin." Such statements do not reveal whether those remains were on the floor of the oven and plausibly either left or placed there at the time the oven went out of service, or whether they could simply have been part of the room fill that happened to end up in the feature. In the first case, a researcher is entitled to argue that the bones or the seeds reflect food activities in this house or courtyard and presumably are associated with its occupation; in the second, no such associations may be made. It is imperative that archaeologists consider the formation history of their deposits; it is

also important that they make their contextual certainty or uncertainty clear in their publications.

Archaeologists studying food and diversity also must pay particular attention to sample size and duration of deposition. A long-term occupation is inherently more likely to contain a diversity of remains than is a short-term one. The same is true of a large as opposed to a small sample.

Finally, studies considering multiple data sets are more likely to discern diversity than those reliant on single ones. Cultures may habitually consume a variety of plant foods but only one or two animal taxa; or the daily diet may be essentially vegetarian, while meat is consumed almost exclusively in ritual contexts; or the same foods may be eaten by all members of society but on different kinds of ceramics. Different data sets also commonly testify to different stages of food behavior; for example, the paleoethnobotanical record largely reflects processing prior to consumption, while the zooarchaeological record usually contains extensive remains of prepared foods as well as preparation detritus and thus may reflect separate aspects of social diversity. Each archaeologist tends to have a single technical specialty, such as faunal analysis or ceramic analysis, and as a result single-author studies that interpret broad social patterns based on single data sets are prominent in the archaeology of food. These studies are indubitably valuable, but it must be acknowledged that none of them can fully uncover any culture's culinary diversity. Collaboration between multiple specialists is absolutely key to understanding the true breadth and diversity of past foodways.

Directions for the future

This article has noted a variety of gaps or underserved areas in the archaeology of food and social diversity. Investigations of food and diversity are as yet limited in much of Asia, Amazonia, Australia, and Africa, as are studies in mobile populations. These are all areas rich in potential wherein archaeological investigations of foodways should provide a variety of new and complex insights into past social structures.

Admittedly, studies of food and diversity are unlikely to multiply dramatically in eras and areas with significant data limitations, such as the Paleolithic or the lowland American tropics. Areas lacking habitually systematic and detailed artifactual and ecofactual recovery methods also may prove problematic until such methods are regularly in use. Such limitations, however, do not characterize the majority of the archaeological record, and there is ample room for research on food and social diversity in a wide variety of regions and time periods that are as yet underserved in the literature, such as central, eastern, and southeastern Asia; Australia; Africa (especially outside of its northeast); the early Islamic Middle East; and postcontact Oceania.

Strategies of food discard are likewise discussed to a limited extent by archaeologists investigating social diversity. It is true that such studies are not necessarily easy to undertake as many populations discard their food remains and unwanted food paraphernalia in collective dumps or off site. To model and interpret

past social structures it is important that archaeologists consider as much of the food *chaîne opératoire* as possible. Social distinctions may be expressed at any stage of food behavior, including discard. Among the Nuba of Sudan, for example, members of the Mesakin Qisar tribe hang the jaws and skulls of cattle, pigs, and goats outside their granaries, while members of the Moro tribe suspend head bones only of pigs, and they do so inside the granaries. The Mesakin Qisar also segregate pig from cattle bones outside their compounds (Hodder 1982, pp. 155–159).

Recent studies show that as social groups contribute differentially to various stages of food behavior—e.g., women are often responsible for food preparation but may not participate in public consumption—investigations of different stages of the same phenomena shed new light on the social implications of said phenomena. For example, as women are often responsible for food preparation but may not participate in public consumption, investigating preparation for feasts rather than consumption at feasts enhances contemplation of gender relations as well as of politicoeconomic strategies for festal financing (Joyce 2010, p. 229; Potter 2010). Thus, scholars could advance food studies by embracing all aspects of food behavior, including those that are currently underserved in regard to particular topics.

The archaeology of food and diversity also would benefit from the use of clearly defined terms, especially with respect to the social phenomena under investigation. Scholars are typically quite clear about the material criteria they use to identify particular behaviors, such as feasting or cooking, but less rigor has been applied to the definitions and characteristics of the social structures that the behaviors ostensibly reflect. Status is the term most frequently left undefined; ritual also is occasionally problematic as authors do not clarify whether they include ritualized but not necessarily faith-based behaviors, or they refer exclusively to explicitly religious activity.

"Feasting" is its own special problem given the range of customs subsumed under that rubric. Certainly, a single characterization of feasting practice is not appropriate. The issue then presents itself: what (if anything) holds feasting together as a cross-cultural phenomenon? Is feasting a useful rubric in archaeology or has it become a catchall label for consumption events set apart from daily norms? The criteria most often used to identify feasting suggest that the latter is a real possibility, based as they are in relation to habitual practice (e.g., Wills and Crown 2004). If this is the case, then what an archaeologist identifies and discusses as feasting practice in an ancient society may well subsume a tremendous variety of activities with a broad spectrum of social roles and meanings, from religious rituals to secular parties, and from communal festivities (e.g., political fundraisers, weddings, neighborhood barbecues) through small domestic events that for one reason or another feature distinctive foods or accouterments (e.g., Thanksgivings, Passover seders, or birthday parties). It is difficult to argue that a term that covers all of these variants is of significant analytical utility (*contra* Dietler and Hayden 2001a, pp. 3–4).

In practice, however, the feasting discussed by archaeologists is almost universally larger scale; domestic feasts are rarely discussed outside the ethnoarchaeological literature (e.g., Clarke 2001, pp. 151–153; Wilson and Rathje 2001).

Especially in prehistoric contexts, smaller-scale feasts get subsumed into ostensibly quotidian background data; they become part of what communal feasts get defined against. To the extent that small and large feasts share material signifiers (e.g., costly foods or fine vessels), this subsuming minimizes the archaeological distinction between quotidian and special consumption events. It certainly blurs perception of the dialectic of form and meaning that commonly links the different forms of dining.

Small feasts are without doubt deserving of additional attention, and studies investigating domestic feasting would be welcome additions to the archaeological literature. Their current scarcity is surely not due to lack of scholarly interest but primarily to the difficulty of perceiving them archaeologically. This difficulty is not easily resolvable, and undoubtedly many archaeologists will continue to model domestic foodways using the mingled remains of small-scale feasts and daily meals. This reality should be explicitly recognized.

The key, ultimately, is for archaeologists to clearly define the commensal phenomena under discussion, whether they be large-scale public meals, middling-sized neighborhood or extended family celebrations, private household repasts, or some variant on or combination of the above. As "feasts" may comprise all of these categories, the term by itself provides inadequate information. Additional definition is required if feasting is to be, as Dietler and Hayden (2001a, p. 4) argue in their defense of the rubric "good to think."

The pervasive nature of foodways also should reward extension of research into areas of social life that are as yet relatively lightly discussed in the literature of food and diversity, such as the temporality of foodways, or food and memory. The latter is particularly relevant to the study of social diversity, as powerful sensory memories acquired during food production, preparation, and consumption contribute significantly to individuals' feelings of affiliation with and exclusion from particular groups. The smell of a dish cooking, for example, may evoke a sense of familiarity and comfort with the group about to dine, or a sense of alienation from them. Sensory memories also endow politically, economically, or ideologically segregating activities involving food with particular power (e.g., Hamilakis 1998; Hamilakis and Konsolaki 2004).

Above all, much of the potential of food archaeology, as well as much of its challenge, lies in the fact that many different social phenomena contribute to the foodways of any society. As gender, ethnicity, ideology, economics, and politics all shape the ways in which individuals in any group produce, prepare, consume, and discard their foods, so the food practices of any culture are essentially a palimpsest of influences. On the one hand, this confronts archaeologists with a challenge, as eliciting the impact of, for example, religion on diet requires disentangling these myriad influences. On the other hand, it offers researchers an opportunity to explore multiple facets of social identity through a single data set and to explore how different facets interact. Such interactions are a promising avenue for future research. Intriguing questions abound, with virtually any combination of facets likely to prove interesting: for example, the links between ethnicity and religious observance (e.g., dietary variation among coreligionists of different ethnic persuasions), between gender and status (e.g., variance between differentially

ranked groups in the extent and form of dietary and labor gendering), or between ethnicity and gender (e.g., variance between ethnic groups in the extent and form of dietary and labor gendering).

Food is a constant presence and preoccupation in human lives. It is deeply embedded in a wide variety of social relations, and in every culture great proportions of time are spent on food-related activities. Many, perhaps most, of these activities occur on at least a daily basis, so that their social importance is constantly reinforced. Archaeological interest in the sociality of food has grown dramatically over the last two decades, with theoretically diverse investigations into how food practices articulate with economics, politics, ethnicity, gender, ideology, and more. These studies are now providing detailed and complex reconstructions of past social lives in a wide variety of cultures and eras. The ubiquity of food in culture, and of its associated material culture in archaeological contexts, means that still more studies can and should be done. The informative power of food is as yet only partially tapped.

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