



The Archaeology of Food Preference

ABSTRACT Food preference is a socially constructed concept in which both consumers and producers define what is “good to eat.” Staple crops and daily meals are an important component of these definitions, as the regular use of particular foods reinforces norms of identity. Food preferences also affect agricultural systems because choices among cultivars are based on social needs in addition to economic variables such as yield and caloric value. Through textual and archaeological evidence, the trajectory of rice production is examined for Sri Lanka, the Brahmaputra Valley, the Tamil region, and Vijayanagara. In these regions and elsewhere in South Asia, shared ideologies of food preference resulted in a consensus mode of agricultural production: Irrigation works increased the tax base for political leaders and the donation base for temple economies, but they also benefited local inhabitants who would have been able to partake of a preferred food on a more regular basis. [Keywords: archaeology, consensus model, food, identity, South Asia]

When the rice-bunds are high, the irrigation water will rise;
When the water rises, the paddy will grow;
When the paddy grows, the inhabitants will thrive;
When the inhabitants thrive, the kingdom will flourish;
When the kingdom flourishes, the king will prosper.

—Auvaiyar, ca. ninth century A.D.

FOOD preference refers to the way in which people choose from among available comestibles on the basis of biological or economic perceptions including taste, value, purity, ease or difficulty of preparation, and the availability of fuel and other preparation tools. In much of the current anthropological literature, food choices are seen as conditioned by the capitalist or nationalist goals of food purveyors (Belasco and Scranton 2002; Nestle 2002; Schlosser 2001; Watson and Caldwell 2005) or are perceived as the result of new supply chains and economic conditions brought about by colonialism and globalization (e.g., Mintz 1985) as well as the international aid process (Lindenbaum 1986). However, what actually gets eaten is the result of individual decisions made within a complex social context. With the mouth being the “gateway to the body” (Rozin and Fallon 1981:45), the act of consuming food may represent the ultimate basic locus of identity, conformity, and resistance. Even those who appear otherwise powerless exercise choices in food preparation and consumption, as has been observed in studies of disenfranchised marginal groups such as slaves (Armstrong and Kelly 2000; McKee 1995), convicts (Hindmarsh 2002), and

refugees and food aid recipients (Agency for International Development 1985; Eide 2000; Pottier 1999; Singer et al. 1987). Because governments must elicit labor (or other forms of compliance) from “fed” populations, a good deal of research has also been expended on gauging the preferences of dependent groups such as military personnel (Peryam et al. 1960) and schoolchildren (Cho and Nadow 2004).

For the individual, food is a basic component of self- and group identification, put into practice every day. As Arjun Appadurai has proposed, food can “serve two diametrically opposed semiotic functions. It can serve to indicate and construct social relations characterized by equality, intimacy, or solidarity; or, it can serve to sustain relations characterized by rank, distance, or segmentation” (1981:496). Food behaviors that characterize rank can include feasts, the transformation of ordinary ingredients into “haute cuisine” through labor intensive procedures, and the cultivation of the palate for “exotic” or unusual tastes. Food can also unite people across social divides; among contemporary Western cultures, examples include sugar (Mintz 1985), fast food (Schlosser 2001), and stimulating beverages such as tea in colonial America and Coca-Cola during World War II (see Bentley 2001). Interestingly, these “unifying foods” are often derived from domesticated staples that can be produced in quantity and whose production can be increased to satisfy an entire population or at least present the opportunity or promise of such satisfaction.

Food preference and its effect on human-nature interactions appears to predate complex societies as it was an important component of plant domestication starting 10,000

years ago at the end of the Holocene. Whether viewed as a stark “Neolithic Revolution” (Childe 1936) or as a series of gradual and subtle transitions (Harris 1989; B. Smith 2001), the human control of plant reproduction included decisions about which plants to harbor and propagate. The earliest agriculturalists certainly selected for characteristics such as increased size of the edible portion, ease of harvest, resistance to pests, and storability; they also appear to have selected for subjective elements such as taste, because morphological changes in the process of domestication include decreased bitterness and toxins among root crops, fruits, and vegetables (Fuller 2002:330). Domestication in and of itself may have in turn increased the perceived value of some plants, in part because they required human intervention to survive and reproduce at all (Hastorf and Johannessen 1993:132). Food made from domesticated plants also ranked more highly in the hierarchy of preference; for example, in her analysis of imperial strategies in the pre-Columbian Andes, Christine Hastorf (2003:547) notes that although *chicha* (a fermented drink) can be made from a variety of plants, the version made from *Zea mays* (corn) was particularly highly prized. Domesticates entered the ritual sphere as well, as seen by the frequent recovery of corn among the burial offerings in pre-Columbian Peru (Gumerman 1994a). In Egypt, the bread and beer that were widely consumed by people were similarly held in sufficient esteem to be used as offerings to the gods (Samuel 1999:125).

The value of daily food for understanding social cohesion enables us to see why agricultural intensification was not solely the result of elites inciting production for the purposes of social aggrandizement through feasting, as is currently theorized (van der Veen 2003:412; see also Dietler 1996; Hayden 1996, 2001; Koch 2003; LeCount 2001; Mills 2004). Feasting is a politically significant act with an impact on production, storage, and distribution, but it is experienced only occasionally in contrast to ordinary meals that are consumed every day: Households cannot survive on feasts alone. Although it has been suggested that “communal feasts are a metaphorical extension of the domestic meal” (Potter and Ortman 2004:175), the public and extraordinary nature of feasts renders them only a part of the provisioning system. More potent on the domestic level is the matter of daily consumption, a physical and psychological internalization of socially acceptable foodstuffs in which it should be said that domestic meals are a metaphorical extension of the ritual feast. Moreover, high-status food may be one of the few consumer goods that does not diminish in appeal when it is abundant. As Hasia Diner has observed about the role of food among economic migrants, “By grafting onto their everyday life the foods of the holidays and holy time, (they) derived not only an ethnic identity but a sense of well-being. And as sacred food was turned into everyday food, it became more sacred” (2001:50).

By recognizing widely used foods in the archaeological record, researchers have begun to consider food choice as a component of social cohesion in which society-wide

preferences are expressed in daily practice (e.g., Biskowski 2000; Ford 1994; Gumerman 1994b, 1997, 2002; Hastorf and Johannessen 1993; Meadows 1999; Miracle 2002; Ortiz 1994; Pearson 2003; Potter and Ortman 2004; Samuel 1999; Taube 1989). This daily practice includes decisions about food preparation as well as decisions about when, how, and how much food should be consumed and by whom. But daily practices also involve household allocations of labor required in the growing and processing of foods, part of which may be coordinated by suprahousehold authorities and beyond the direct control of the household itself. Although in simple societies these external demands are infrequent, the transformation to social complexity can in part be defined as including a regular extraction of labor by suprahousehold authorities who use that labor to develop and maintain infrastructure and monuments (Arnold 1996). The idea of internalized social value as a motivating element has profound implications for the understanding of agricultural intensification as well, because shared values help to explain why labor investments are seen as attractive to those who have to provide the labor.

South Asia provides a particularly compelling example of how the social and ritual significance of a staple food, rice, was manifested in agricultural intensification and shifts in political economy. The rich diversity of texts and abundant archaeological research in the subcontinent enable us to evaluate how and when food preferences were articulated, and how these preferences were implicated in agricultural production strategies. To date, the archaeological study of South Asian agriculture has focused largely on the economic and logistical aspects of crop production (e.g., Morrison 1994; Shaw and Sutcliffe 2001, 2003). More recently, researchers have acknowledged that “social values” may have affected crop adoption in the region (Fuller et al. 2004:126; see also Fuller 2002:331–332, 2005; see Kajale 1994:47, on the subject of garlic). Textual studies, on the contrary, have focused heavily on food prohibitions and avoidance behavior rather than unifying culinary traditions for the earliest historic periods (e.g., Doniger 1999; Olivelle 2002a). By combining textual and archaeological evidence for the ubiquity of consumption, we can illustrate how the production of food was the manifestation of a social consensus on food preference.

THE SOUTH ASIAN TEXTUAL TRADITION AND PREMODERN CULTURAL PRACTICES

The South Asian textual tradition covers diverse subjects ranging from ritual to political and poetic works whose oral antecedents have been traced back to the beginning of the first millennium B.C. However, use of extant texts for the reconstruction of cultural activities can be challenging for a variety of reasons and a brief discussion of their limitations is in order here. With the exception of inscriptions that are found in fixed locations, most of the South Asian texts that we have today were written down many years after their original composition. They are dated on the basis of

language and literary style, but their survival as oral traditions for many centuries even after the advent of writing indicate the extent to which they permeated local cultures. Today's scholars of South Asia stress that we cannot propose a "timeless" and unchanging past (Olivelle 2002b; Sattar 1996; Talbot 2001). Nonetheless, South Asian literary compositions did have longevity: Witness, for example, the nearly 2,000-year-old couplet from the *Mahabharata* quoted in an irrigation dedication at Vijayanagara in 1540 A.D. (Kotraiah 1995:34).

Although literacy itself was quite limited in the pre-modern period and the craft of writing undoubtedly limited to elites, the literary records from various time periods provide insights on nonelite lifestyles in a number of ways. First, access to and use of the oral traditions captured by the written word was not limited to elites alone; indeed, the first "texts" we have from South Asia are the epic poems of the *Mahabharata* and the *Ramayana* as well as Vedic ritual texts whose earliest written copies were made many centuries after their initial appearance (Possehl and Witzel 2002; Roy 1995). Secondly, as Mine Ener (2002) has shown, nonliterate people are not rendered invisible by the textual record even if they cannot read and write themselves, because elites describe and categorize the activities of many social levels in political and administrative texts. Ritual texts—even those written by and for priests and other elites—are inherently directed to a diverse and broad audience when priests publicly enact rituals and mediate religious activity. Such texts also often contain additional information beyond prescriptions for ritual action; as Robert DeCaroli (2004) has argued for the earliest Buddhist texts, documents written by and for "elites" also illustrate folk beliefs and customs. The abundant use of culinary and agricultural metaphors as literary devices in many early texts (Doniger with Smith 1991), rather than more esoteric tropes, further supports their use as a way of understanding widespread cultural practices related to everyday events such as food preparation and consumption.

RICE AS A PREFERRED FOOD IN THE SOUTH ASIAN CONTEXT

In the South Asian textual tradition, rice had a special status and was celebrated as a food with particular ritual, medicinal, and social significance starting with the earliest literary traditions dating to the tenth century B.C. In the *Aitareya Brahmana* of the Rig Veda, the gods Indra and Vishnu are associated with a "brew of rice and milk" (Book 8, LXVI; Griffith 1897:226). Rice also has a prominent social role in the *Ramayana*, one of the subcontinent's early epic poems (dating to ca. 750–500 B.C.; Sattar 1996:il). In it, boiled rice is described as the principle food staple, whereas puffed rice had both a comestible and ritual function; on special occasions such as royal rituals, "heaps of cooked rice" were available for distribution (Vyas 1988:203). Rulers and other high-ranking persons acquired food as tribute; as the *Mahabharata* notes, "One should for freeing oneself from

the debt one owes to the Brahmanas make gift unto them of many handfuls of venison along with rice and *ghee* [clarified butter] and milk, and other kinds of edibles and drinks" (Book 13:LXIV; Ganguli 1883–96:13[2]:77). These food tributes were the focus of redistributive activity that bound together leaders and followers in elaborate feasts featuring rice (e.g., *Mahabharata* III.2; *Ramayana* XII.1).

Rice was not just a ritual and royal food, but a basic component of routine domestic and ritual activity apparently accessible to all. The Sutras, a diverse group of written works whose oral antecedents date to as early as the ninth century B.C., mention rice and barley as the principal food grains for daily offerings to the gods and for human consumption (Prakash 1987:95). The *Mahabharata* uses the trope of rice to address how a poor person can acquire merit through sacrifice, a question that the gods answer in various ways: The god Brahman responds that a person who bathes and contemplates the moon at an auspicious time "acquires the merits that attach to the performance of great sacrifices," whereas Surya replies that "one should, on the day of the full moon, stand facing that bright orb and make unto him the two offerings [of] a palmful of water and the rice-grains with ghee" (Book 13 CXXVI–II; Ganguli 1883–96:13[2]:267). The implication that rice was as readily available to a poor person as water indicates that it was a common denominator of ritual practice. In all of these earliest texts, rice was a prescribed part of many ceremonies, from daily rituals to lifecycle events such as childbirth, marriage, and funerals (Kumar 1988:23). Among the many rituals related to a child's rites of passage noted in the *Laws of Manu* (dating to the late first millennium B.C.), there was a specific ceremony that marked an infant's transition to solid food known as the *annaprasana*, the "first feeding with rice" (II.34, Bühler 1967:36).

Food remained an important literary subject when Vedic traditions were supplemented by Buddhism and Jainism starting in the sixth century B.C. As in the previous era, texts emanated from oral traditions with the first physical exemplars preserved starting from the second century A.D. (see Schopen 1997:24–25). In this era, we see the reemergence of cities in the archaeological record as well as complex political configurations variously described as chiefdoms, states, and "empires." The poems and courtly literature of the early centuries A.D. contain numerous references to food, with rice again a prominent staple for both humans and deities. Texts show that royalty in this era are noted as eating "fine rice" (Kumar 1988:29) and collecting tithes of rice (Ray 1986:100). Rice was offered in "full large heaps" to the gods (*Perumpanatrupadai* 267; see Chelliah 1985), and kings treated their guests to rice (*Porunaratrupadai* 137; see Chelliah 1985). Archaeologically, rice grains have been found deposited in Buddhist cremation relic caskets, along with other offerings that include silver, gold, rubies, and crystals (e.g., Mukherji 1901:26).

But rice is noted as a basic staple subsistence food in texts of the early centuries A.D. as well. Along with barley, rice was the main cereal, and up to 15 different

distinct varieties of rice were recognized (Prakash 1987:223). Abundant rice was a symbol of general prosperity in a land “where hunger is unknown” (*Perumpanatrupadai* 292; see Chelliah 1985:121) and in which the marker of hospitality was the presentation of a dish of cooked rice. Throughout the documents of the Early Historic period (ca. third century B.C. to fourth century A.D.), different varieties of rice are described as well as modes of preparation in the form of gruel, rice cakes, and fermented drinks (Chelliah 1985:113–127; Prakash 1987:126–127). There were even nonculinary uses of rice, such as the use of boiled rice to catch fish (*Samantapasadika*; see Paranavitana 1958:6) and to polish pearls (*Garuda Purana* LXIX; see Kumar 1988:46). Rice in “overflowing granaries” was a metaphor for times of plenty (Kumar 1988:29), and rice was grown and enjoyed even by those living in marginal areas, such as those described in the south Indian poem the *Perumpanatrupadai*:

Along the spacious forest paths there are
Huts that are thatched with leaves of *eenthu* palm
... white-toothed women dig the ground
With spades with caps of iron and handles strong.
They raise the dust of black-soiled barren lands
And take the soft rice grain stored in the ground
They pound this rice with pestles short and strong.
[Chelliah 1985:96–111]

By the third century A.D., medical texts were added to the literary repertoire, and these often utilized an elaborate rubric balancing bodily humors with food groups and advising particular ways of preparing foods to cure illness. Rice broth was considered a cure for dysentery, and those suffering from consumption or asthma were advised to take rice prepared in specific ways (Kumar 1988:29, 46). Other rice preparations were supposed to improve fertility and gender selection of the child, as noted in the *Brihadaranyaka Upansad*:

He who wishes that his son should be born fair, study one Veda and attain a full term of life, should have rice cooked in milk, and he and his wife should eat it with clarified butter. Then they would be able to produce such a son. [VI.iv.14; Swami Madhavananda 1965:935]

He who wishes that a daughter should be born to him who would be a scholar and attain a full term of life, should have rice cooked with sesamum, and he and his wife should eat it with clarified butter. Then they would be able to produce such a daughter. [VI.iv.17; Swami Madhavananda 1965:937]

Throughout the trajectory of the South Asian literary record, rice was simultaneously a staple food and one that had medicinal properties, depending on the way the grain was prepared. Most importantly, it was an edible metaphor that represented prosperity, social status, and ritual purity, and the textual record of rural dwellers and poor households having rice signals that the acquisition and consumption of a high-status food was not limited to elites. The ready availability of rice did not diminish its status; instead, the acquisition and consumption of rice became the mea-

sure of both household nutritional adequacy and participation in a ritually elevated mode of consumption. Rice also had economic value beyond its status as a comestible by the early centuries A.D. In the southern subcontinent, rice was a medium of exchange (Subramanian 1980:243) as well as a unit of payment for laborers working on irrigation projects (Kottraiah 1995:14). It was also an item of long-distance exchange. The Mediterranean author Ptolemy noted in the second century A.D. that rice came from the island of Sri Lanka as an item of trade (Casson 1989:231–232). Rice was exported from India’s western coast to Egypt as documented in the first-century A.D. Greek merchant’s text *The Periplus of the Erythrean Sea* (Casson 1989:59) and as demonstrated by archaeological finds from the Roman port site of Berenike on Egypt’s eastern coast (Wendrich et al. 2003).

Archaeological investigation within the subcontinent indicates that the actual distribution of rice was as ubiquitous in practice as it is in the textual sources. Rice is relatively easy to recognize in the archaeological record, often recovered as charred individual grains preserved when they fell into a cooking fire or through the impressions of grains and husk in pottery, brick, and tile. Archaeologists were thus able to identify the presence of rice in excavated contexts even prior to the development of more modern recovery practices, which have provided the full suite of comestibles. Sites of the early centuries B.C. and later invariably are noted as having rice in archaeological deposits, whether the area investigated within the site is otherwise indicative of high or low status. Significantly, rice has been recovered from archaeological sites in portions of the subcontinent that are not today well known for rice production, such as in central India where sites of all sizes have yielded domesticated rice from deposits starting in the mid-first millennium B.C. (see Kajale 1988, 1994; summarized in Smith 2006). The recovery of rice throughout this region suggests that in addition to growing rice themselves, people acquired preferred foods as part of regional exchange (M. Smith 2001:80). Archaeological evidence also suggests that rice intake increased through time and replaced other crops as staples; for example, Vishnu-Mittre noted that at the site of Paunar, the early levels indicate that “sorghum was more abundantly used than rice but from the third to the eighth centuries A.D. during the Vakataka-Vishnukundin times the use of rice became so abundant that sorghum became rare” (1974:30).

THE INTENSIFICATION OF RICE PRODUCTION IN SOUTH ASIA

Rice was one of many staple grains available to early South Asians. Starting in the seventh millennium B.C., archaeological and archaeobotanical evidence shows that people utilized a wide diversity of crops including grains, pulses, fruits, vegetables, fibers, and medicinal plants (Fuller 2002; Meadow 1996; Weber and Belcher 2003). This diversity of available crops, in conjunction with a frostless winter in much of the subcontinent, enabled the development of annual double cropping by the late third millennium

B.C. in the northwestern subcontinent (Fuller and Madella 2002; Weber 1999), the second millennium in far southern India (Fuller et al. 2004), and as early as the first millennium B.C. in central India (Kajale 1988). The earliest accepted date for rice in the Indian subcontinent is the second half of the fifth millennium B.C. at the eastern sites of Khairadih and Taradih (Glover and Higham 1996; Higham and Lu 1998). In the western subcontinent, rice is present in late Indus Valley sites by the early second millennium B.C., as documented at Pirak (Costantini 1981; Jarrige 1985) and Harappa (Weber 2003). By the first millennium B.C., rice is found in the archaeological record throughout the Indian subcontinent (Fuller et al. 2004; Randhawa 1980; Singh 1998).

As a staple crop, rice conveyed particular advantages to South Asian agriculturalists. Rice is among the more nutritious grains, containing proteins and carbohydrates in sufficient amounts to be the stand-alone source for these nutrients in laboring adults (Chang 2000). Rice has higher yields of calories and protein per hectare than wheat (Chang 2000), and a much higher yield-to-seed ratio than the other cereal grains (Bray 1986:15). Rice is particularly well adapted to South Asia's monsoon climate, with water requirements and a growing cycle that coincides with annual summer rains followed by a seasonal dry period. At the same time, rice is a particularly dry grain at the harvest stage (Davidson 1999), an aid to storability in the subcontinent's humid climate. However, these benefits come with a price, because rice has the lowest water-use efficiency of the domesticated cereals and in areas of low rainfall must be supplemented with irrigation water (Chang 2000).

As Kathleen Morrison (2000:160) notes, irrigation makes most crops grow better, but rice has particular needs and rewards in that regard. Irrigation is a simple term that masks the complexities of providing water at the right time and in the right quantity: In some areas this means the storage and canalization of water to the plants, whereas in other areas it means protection against flooding. Too much water is as destructive as too little, a factor mentioned frequently in ancient South Asian texts. Wet rice also demands a high investment of labor throughout its production cycle, from the preparation of fields to the planting of seeds or transplantation of shoots and on through the harvest, threshing, and storage (Greenland 1997). These labor demands must usually be balanced with labor demands for dry crops that are simultaneously under cultivation in areas away from wet-rice fields, so that the implementation of a wet-rice component has a significant impact on all other aspects of the agricultural cycle (Morrison 2000:22). Labor is also expended on off-season tasks such as building dams, maintaining canals, and cleaning and desilting reservoirs (Kotraiah 1995).

This labor investment produces impressive results. Because rice can be cropped continuously without a fallow period (Chang 2000), it can be planted and harvested twice or even three times a year throughout South Asia (Framji 1977:286; Greenland 1997:33, 83). On a theoretical basis, rice yields from irrigated land are twice as high as from unir-

rigated lands (Greenland 1997), a calculation borne out by South Asian statistics of food production both from contemporary farmers and prior to the "Green Revolution" from artificial inputs. Nineteenth-century irrigation documents from the eastern Indian state of Orissa projected that irrigated land would yield just over twice as much rice per hectare as unirrigated land (for a total of 550 kg [1200 lbs.]/acre under irrigation; see Jit 1984:62–63. This figure is comparable to premodern comparative figures from East Asia, which also show irrigated rice producing 33–200 percent more grain than dry fields; see Bray 1986:15).

Like rice itself, the realities of rice production in South Asia became a part of the textual record. Agriculture was a frequent trope in ritual texts and served as a metaphor for moral diligence and upright behavior: "The farmer channels water to his land. . . . So the wise man directs his mind" (*Dhammapada*, a compilation of Buddhist sayings from the third through first centuries B.C.; Book VI; see Byrom 1976:31). The *Mahabharata* records the questions directed at the ruler by a celebrated sage: "Are large tanks [reservoirs] and lakes constructed all over thy kingdom at proper distances, without agriculture being in thy realm entirely dependent on the showers of heaven?" (II:V; see Ganguli 1883–96:12). The *Arthashastra*, a prescriptive text on kingship from the early centuries B.C.–A.D., similarly lists the productive duties of the ruler to include supervision of mining, road construction, and the construction of reservoirs either directly or through the provision of materials "to those who construct reservoirs of their own accord" (II.1; Sastry 1915:46). In addition to generalizing and prescriptive texts such as these, stone inscriptions from the era directly record investments in irrigation, such as the third-century A.D. inscriptions from southern India that refer to reservoirs and river channels constructed by local kings (Kotraiah 1995:16).

The moral undertones of many texts make it clear that the duties of rulers to agriculturalists were not a matter of noblesse oblige, but a key component of political success. As the sixth-century A.D. Tamil poem known as the *Tiru Kural* notes:

Since all work depends
On those who plow the soil,
The farmer is the linchpin
Of the chariot of the world. [White 1975:24]

The *Krishi-Parashara*, a Sanskrit-language text on ancient agriculture dating to the same era, similarly proclaims that "Even the rich who possess a lot of gold, silver, jewels, and garments have to solicit farmers as earnestly as a devotee would pray [to] God" (Verse 4; Sadhale 1999:44).

South Asia's textual and archaeological evidence enables us to evaluate how rice production was augmented by labor inputs under conditions of increased social complexity at numerous times and in numerous places. Decisions about food production were actively manipulated by both producers and consumers in a context of strongly shared and long-lived oral and textual traditions of food preference. The repetitive trope of rice in these texts shows

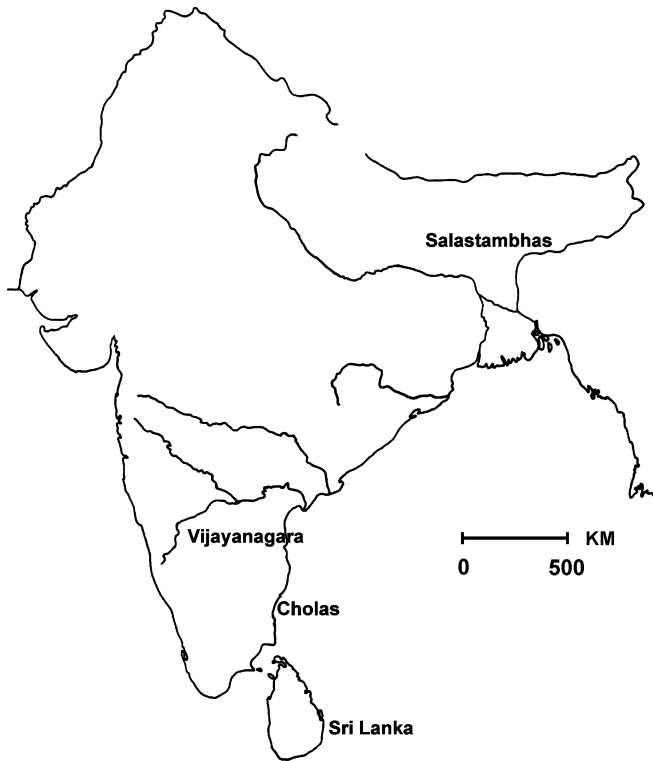


FIGURE 1. Locations of rice production and political authority, as discussed in text.

it to be a food with high moral and social value, and the use of agricultural metaphors shows the recognized relationship between leaders and followers. Finally, the archaeological record of rice production substantiates the widespread use of rice and shows that ideas about labor and food preference were actually put into practice. Four case studies for which we have textual and archaeological evidence for the interconnections between political actions, food preference, and intensive agriculture are briefly examined below: Sri Lanka, the Brahmaputra Valley, the Tamil region, and Vijayanagara (Figure 1).

Sri Lanka, Early Centuries B.C.–A.D.

Rice appears in Sri Lankan archaeological contexts by the middle of the first millennium B.C. (Chang 2000:139), shortly before the development of major population centers. Although Sri Lanka is a small island, it has differential rainfall on its windward and leeward sides and irrigation is essential for settled agricultural life (Haggerty and Coningham 1999:9). Even during the monsoon season when rain is abundant, irrigation is needed because the soils of the northern region have poor water retention (Vann 1987:165). Starting in the late first millennium B.C., there is archaeological evidence for extensive irrigation works throughout the island in the form of canals, dams, reservoirs, cisterns, wells, and bunds constructed to facilitate rice cultivation. Concern for water and irrigation is also seen in the hundreds of dedicatory inscriptions associated with water management features and the endlessly

repeated references to water in ritual texts (see Coningham 1999; Dikshit 1986; Paranavitana 1958; Seneviratna 1989).

One of the earliest lengthy Sri Lankan texts is the *Mahavamsa*, a Pali-language compilation variously dated from the sixth century B.C. to the fourth century A.D. (Guruge 1990; Dikshit 1986). The work chronicles the lives of kings and queens on the island with information about royal ritual; in the richest of these celebrations, king Dhammasoka sends a gift to another ruler that includes a diadem, a sword, ear ornaments, and “six thousand waggon-loads of rice” (Chapter XI; Guruge 1990:76). The *Mahavamsa* also records that the king, in listing his life’s achievements, includes this gift: “In forty-four places have I commanded the perpetual giving of rice-foods prepared with honey; and in as many places lumps of rice with oil, and in even as many places great jala-cakes, baked in butter and also therewith the ordinary rice” (XXXII; Geiger 1950:223–234).

Although clearly a royal text, the *Mahavamsa* also gives insights on daily practice, such as the practice of paying agricultural laborers in kind from rice fields and sugar mills (XXXIV; Geiger 1950:238). Along with the contemporary text the *Dipavamsa*, it mentions many different types of rice preparations: boiled rice, rice gruel, and rice prepared with oil or with milk, as well as cakes made with rice flour (Dikshit 1986:67). The trope of rice is also used to illustrate kingly duty to commoners. Chapter XXI of the *Mahavamsa* contains a story about an old woman who laid out rice to dry it in her back yard, where it was destroyed by unseasonal rainfall. She goes to the king for redress, and he undertakes a fast as penance; in recognition of his diligence and sacrifice, the deities cause rain to fall only at night (Guruge 1990:137).

In addition to pious acts, rulers also made substantial investments in agricultural infrastructure. At the massive Early Historic city of Anuradhapura, textual sources show that the construction of water infrastructure began with the eponymous Anuradha around the third century B.C., a process that was repeatedly augmented resulting in four large reservoirs and over 3,000 minor reservoirs in the region surrounding the ancient site (*Mahavamsa* IX; Haggerty and Coningham 1999:10). Later rulers added to these works as well, such as the first-century A.D. ruler Vasabha who added 12 reservoirs and canals, including the Alahara canal bringing water from the Amban Ganga river 50 kilometers away (Vann 1987:166). Elsewhere in Sri Lanka the first inscriptions that directly record the installation of irrigation canals start in the second century B.C. (Dikshit 1986:140), and local leaders’ preoccupation with irrigation agriculture and rice yields is shown in the many hundreds of inscriptions that detail the construction and repair of canals, reservoirs, dams, and sluices (Dikshit 1986; Seneviratna 1989:108).

The Brahmaputra Valley, Sixth to Tenth Centuries A.D.

The northeastern area of the subcontinent (the areas of Nepal, northeastern India, and Bangladesh) is today one

of the principal rice-growing areas of South Asia. This region is defined topographically by the Brahmaputra River valley, measuring some 700 kilometers long and 100 kilometers wide at its widest point (Sarkar 1992). The diversity of wild grass species in the area has led to suggestions that it may also have been a zone of independent rice domestication (see Randhawa 1980 and summary in Fuller 2002:299). Although relatively little archaeological fieldwork has been done in the area, historical documents enable us to trace the trajectory of social complexity at this crossroads of China, Southeast Asia, and the Indian subcontinent.

After the fall of the Mauryan polity in the second century B.C., the region came under the control of regional political groups whose central investment was limited to temples and fortifications (Momin 1991). Chinese accounts and archaeological remains suggest that Buddhist practices were well established at sites such as Sri Surya Pahar in Assam and Bhaitbari in Meghalaya (Sharma 1993; Sharma 1995–96). Inscriptions from the period starting around the sixth-century A.D. record land donations in which the areal extent of fields is measured in terms of the amount of rice that they produced, and the seventh-century Chinese traveler Hiuen Tsiang observed what appear to be irrigation works in which “waters led from the river or from banked-up lakes [reservoirs] flowed round the towns” (Choudhury 1966:335).

By the ninth century A.D., the Salastambha dynasty exhibited greater administrative authority as seen in inscriptions documenting the existence of uniform revenue terms and a social classification dividing the populace into two groups. Concomitant with these political developments was a greater investment in agriculture, in which “large pockets of cultivable land on both sides of the Brahmaputra Valley were noticeably brought under wet rice cultivation” as shown by textual references to embankments and irrigation techniques (Momin 1991:267). Ruling from their capital at Hadapesvara on the banks of the Lauhitya River, the Salastambhas crafted and reinforced a hierarchy of authority that included administrators, warriors, and tribal groups. Local leaders (named with the honorific “*raja*” prefix) appear to have had graded rights to land and its produce, with some of those proceeds thereafter mobilized to the king (Momin 1991).

Kings also gave land to members of the priestly caste, as seen in the Nowgong copper plate grants of 975 A.D. and the Gauhati copper-plate grants of 1050 A.D. (in which the king grants land “bearing four-thousand [measures of] rice” to a brahman; Hoernle 1897a:131, 1897b). The grants’ frequent reference to dikes and reservoirs indicates that irrigation infrastructure constituted landscape features commonly used to demarcate boundaries. The expansive language of the Gauhati grant, in which the king “sends his greetings and commands to . . . the accountants, traders and other (common) people of the district, as well as those who hold the rank of *Raja*,” also indicates the extent to which these “elite” texts reflect a cross-section of society (Hoernle 1897a:130–

131). Ritual use of rice in the region is seen not only in the corpus of Vedic literature that continued to be in use but also in new regional forms such as the *Yogini Tantra*, which prescribes different kinds of rice for worshipping various deities (II.5; Choudhury 1966:289–291).

The Tamil Region, Ninth to 13th Centuries A.D.

In the medieval period, South Asia experienced the growth of states linked to large-scale irrigation agriculture, political consolidation, and strong links between urban life, ritual organization, and royal authority. In the southern Tamil-speaking region, the Cholas were the dominant polity from the ninth through 13th centuries A.D. (Hall 1980; Heitzman 1987; Stein 1975. This political group is also often called the “Imperial Cholas” to avoid confusion with a polity of the same name from the early centuries A.D.).

The growth of the Chola polity was marked by conflict with neighboring groups, thriving trade that included links to China and Southeast Asia, and the development and patronage of temple architecture as well as fine arts such as bronze casting. Hindu temples were incorporated into large walled compounds forming the nucleus of most population centers, and the structures still stand today as some of the most elaborate in South Asia. Inscriptions show that temple donations came from all sectors of society; more importantly, these donations of land, money, and labor were managed by temple authorities as investments to improve agricultural yields (e.g., Heitzman 1997 for the Kaveri Delta, an area of prime rice production and the center of the Chola polity; Murton 2001 for Salem, the uplands of the interior southeast subcontinent).

Political leaders and temple authorities established strong symbiotic relationships that placed much of the daily control of labor and land in the hands of local temples. Temples requested land grants from kings, who were considered the owners of the earth and thus the sole authority capable of designating land holdings (Heitzman 1997:144). Local bodies also made land donations, although B. K. Pandeya cynically observes that this was a way for village assemblies to transfer the responsibility of making infertile wastelands productive by citing the example of temple donation to a local headman “on condition that after clearing the forest and reclaiming the land he would pay 150 *kalam*s of paddy annually to the temple” (1987:95). However they received land, temples organized the construction of irrigation canals and water storage facilities that enabled the expansion of rice production in marginal areas away from principal rivers. In hundreds of these inscriptions, high priority is placed on “wet” (irrigated) land as an especially valuable category of donation. The resultant expansion of productive capacity had an impact not only on production but also on land tenure when “waste lands of the twelfth century had become irrigated rice lands in the thirteenth century, along with the individuation of land control that accompanied rice cultivation” (Heitzman 1997:89).

Kings and other authorities received taxes in the form of rice or money, with each village assessed a specific amount (Kumar 1988). Political authorities then utilized rice directly as a form of remuneration—for example, by sponsoring festivals or distributing rice as alms to temple women and to those carrying out religious duties such as reciting devotional texts (Kumar 1988; Kuppuram 1986; Sastry 1984). Temples managed their lands by leasing them to farmers, who were then obliged to return “paddy or rice free from dust, chaff and unripe grain . . . in heaped measures” from which payments were made to temple employees in kind (Pandeya 1987:97). Rice was also a means of payment in secular contexts. One of the many inscriptions that preserves labor transactions at the local level is an early-11th-century record from Bahur, recording the presence of taxes paid in kind by agriculturalists in the form of paddy (unthreshed rice) and in the form of labor, with all persons between the ages of ten and 80 assessed a specific amount of earth to be moved for irrigation work; the accountant who was to oversee the work also was paid in paddy (Srinivasan and Rao 1983). Inscriptions related to market transactions illustrate that paddy was the standard of value used in calculating prices of other commodities (Hall 1980), signaling that rice was the common denominator of economic transactions, readily available, and widely used. By contrast, equivalencies of gold were only used for items of long-distance trade such as camphor and cardamom used in temple ceremonies (Hall 1980:119).

Stone inscriptions also show that rice was the principal crop grown in the Chola period, and that it was “the staple food of the population” (Kuppuram 1986:131). Because ritual and epic texts such as the *Mahabharata*, the *Ramayana*, and the suite of Early Historic medical texts were still in use, the social perception of rice as a highly valued food would have been sustained through these texts as well as in new literary forms. South Indian literature written during this period highlights rice as a landscape motif, basic food, and ceremonial comestible. The *Manasollasa*, a poem attributed to the 12th-century ruler Somesvara, describes rice as the principal staple (Arundhati 1994:113) and states that the king’s meal begins with rice and ghee and ends with butter-milk and salt with rice (Shrigondekar 1939:22). The visual imagery of paddy fields is used as a setting for ritual hymns, comparing the force of the god to “a gale to the paddy that bends before it” and using a refrain of the god’s charity in the phrase “I received a little paddy in Kuntaiyur” (the *Tevaram* of Cuntara, written at the beginning of the ninth century; Shulman 1990:24, 126). The widespread use of rice is similarly used as a trope by the 12th-century Kannada poet Mahadeviyakka as she celebrates her devotion to the god Shiva:

For hunger, there is the town’s rice in the begging bowl.
For thirst, there are tanks, streams, wells.
For sleep, there are the ruins of temples.
For soul’s company I have you, O lord white as jasmine.
[Ramanujan 1973:132]

Vijayanagara, 14th to 16th Centuries A.D.

Centered at the “City of Victory,” Vijayanagara was a thriving Hindu state in the Tungabhadra Valley of southwestern India. In this hot and dry region, agriculture free from dependence on the monsoon “is only possible with the aid of labor and capital intensive facilities requiring extensive landscape modification such as canals, canal-fed reservoirs, and wells” (Morrison 2000:22; see also Morrison 2001; Stein 1980:27). As in the Chola case, the principal form of intensification consisted of extending the amount of land farmed through irrigation and wells rather than decreasing fallow periods or applying fertilizers (Breckenridge 1985; see Morrison 1994 for a discussion of agricultural intensification).

Kings financed major canals and barrages, such as the dam constructed by Krishnadevaraya in the early sixteenth century and recorded by the contemporary European observer Fernao Nuniz as supplying “many channels by which they irrigated rice-fields and gardens” (Filliozat 1999:212–213; Kotraiah 1995:33). Taxes were then returned to local and hierarchical authorities either in kind (the grain taxes) or in monetary form (the gold taxes; e.g., Sastry 1984:192). As in the Chola polity, temples also played a significant role in the development of agriculture in the Vijayanagara heartland. Political leaders, merchant groups, and individuals donated land, cash, and livestock to temples, through which temple authorities became landlords and made investments in agricultural infrastructure such as minor irrigation canals and reservoirs (Morrison 2000:47). In turn, those who had contributed to temples could then claim shares of the produce generated through the land investments, a strategy that enabled people to diversify their risks in a landscape of variable productivity (Kotraiah 1995; Morrison 2000).

In addition to economic benefits, investment in irrigation facilities also brought social prestige to donors whose “income” was socially reinvested rather than directly consumed. The following inscription from the Tirumala temple commemorates Sri Madhavadasar, a local resident:

Since you renewed at your own cost the old channel which runs from the Mudari river to the tank in Avilali . . . and since you also dug a new channel at your own cost while the old small distributing channel disappeared, and 5000 *kuli* of land were levelled and cultivated, and their yield was thus increased, in lieu of the interest on the said investment we have agreed to supply 4 *nali* of rice measured with the *Malaikiniyaninran-(kal)*, pulse, salt, pepper and curds, for *tirupponakam* [food offering] daily, so as to be conducted in your name, as long as the moon and the sun last. [Sastry 1984:186]

Finally, there was a category of land tenure described by Burton Stein (1980:425) as “rural developmental entrepreneurship,” which consisted of special, private rights to shares from the results of new irrigation improvements in agricultural villages. As shown in hundreds of Vijayanagara inscriptions relating to water, irrigation-related tasks from the construction of canals to the cleaning of reservoirs were couched in ritual terms, in which individuals gained

merit at the same time that they provided for increased agricultural output. Although major donors were particularly celebrated in their communities, merit could be accumulated by everyone through simple acts of labor: For example, another inscription from Tirumala ends with the admonition that “the maintenance of the charity of others is twice as meritorious as instituting a charity by oneself” (Sastry 1984:167).

Although Morrison (2001:261) astutely observes that environmental conditions would have precluded the possibility of everyone actually being able to eat rice on a regular basis at Vijayanagara, the textual and historical evidence of this era nonetheless illustrates that the desire for rice as the ideal food grain remained high compared to other domesticates. Fernao Nuniz, the 16th-century visitor to Vijayanagara, noted that of the grains grown there the most commonly consumed was millet (Morrison 2000:115). Millets have the same caloric value as rice, are relatively hardy, and can provide a crop even under drought conditions, but they are known ethnographically as a less-preferred food in the subcontinent compared to rice (Carey 1898; Oke 1983). That this pattern held true in Vijayanagara as well is illustrated by the 16th-century poet Kanakadasa who anthropomorphizes grains of rice and millet in the *Ramadhanya Caritre* as a metaphor for high and low status (Jackson 2005). Rice was the grain mentioned in temple inscriptions as the basic form of donation (along with other items such as ghee, pulses, pepper, and curds; e.g., Sastry 1984:167–252; Stein 1980:428). But it was not just the gods who received rice: Donations of food were then fed to pilgrims and visitors as well as to temple personnel. Numerous Vijayanagara-era texts also mention the presence of rest houses serving food and water to travelers. One of these texts, the *Channabasava Purana* (dated to 1585 A.D.), notes that “in the charity feeding-houses, the hungry travellers were served a variety of tasty dishes: a fine selection of cooked rice, ghee, soup . . . milk sweets [and] sweet rice” (Kotraiah 2003:22, 154).

DISCUSSION

More than just serving as a description of consumption, prevailing ideologies of food preference have implications for production and distribution as well. At the level of lived daily experience, households exercise choices in the form and manner of food preparation, and individuals exercise choices in how, whether, and how much they will eat. Households also allocate time and energy in the form of labor for their own needs as well as to address suprahousehold demands in the form of community projects. Leaders and followers are mutually dependent in these projects, particularly when they involve the production of food items that are of high social value and widely desired but that require considerable amounts of labor investment. As a result agricultural systems, no less than the food produced from them, become a focus of attention with regard to labor allocation at the household and suprahousehold levels. This

is especially true when irrigation is involved, because irrigation requires a constant and regular input of both managerial oversight and physical work in the creation, use, and maintenance of the system.

The requirements of agricultural systems for sustained inputs and oversight may therefore be best examined through a consensus model in which labor investments are made at multiple levels and over long periods of time with rewards that can be perceived by all participants. As F. Colombijn has noted for complex societies, “The least expensive decision is consensual, but attaining such a consensus is a long process; the most politically expensive form of decision-making is simple command” (1994:18). A consensus model, in which the preferences of ordinary people are acknowledged in the composition and outcome of labor-intensive projects, has implications not only for food production but for other communal projects such as the construction of walls, roads, and ritual spaces whose benefits can be perceived by large numbers of people.

Such a consensus model would be in contrast to prevailing archaeological theories of the state. As the most complex sociopolitical formation, the state traditionally has been defined by archaeologists as operating under conditions in which the central authorities have a “monopoly of force,” meaning that political leaders are the only ones who command military power and control legal and judicial mechanisms (Flannery 1972:404; Fried 1967:230–231; Hansen 2000:13; Possehl 1998:264; Sahlin 1968:6; Service 1962:171, 1975:14–15). The implied corollary is that all actions are achieved by force. But as John Janusek and Alan Kolata (2004:404) have recently observed, this “top-down/bottom-up dichotomy is overdrawn” in archaeology, and models for leadership interaction should be viewed as a series of interdigitated dictates and desires (see also Stone and Zimansky 2005). I would add that coercion may be a sufficient explanatory mechanism only for leader-driven actions in which the payoff for nonelites is uncertain—for example, warfare and the construction of elite residences and tombs. For actions that have a more widespread utility—such as flood control, food production, metallurgy, and ritual activities—a consensus model represents a more sustainable and more cost-efficient strategy because management inputs are devoted to coordination rather than incurring the additional costs of monitoring compliance.

In South Asia, a shared understanding of food preferences couched in moral and ritual terms was the rubric under which leaders and followers cooperated in the production of a particular foodstuff, rice. Rice is featured in every kind of South Asian text—ritual, political, mythic, medical, poetic, dedicatory—with a remarkable frequency and insistence. The ideology of food consumption as a component of daily life was actively practiced at all levels of the social hierarchy, bolstered by long-standing ritual traditions that were repeated and elaborated over centuries in religious and philosophical texts interwoven with daily practices and folk wisdom about food value. Textual and archaeological evidence also shows a transition to greater social complexity

starting in the mid–first millennium B.C. as measured by the development of urbanism, long-distance exchange, Buddhist and Jain ritual complexes, and the presence of named authorities (both political and ritual leaders) who coordinated labor for the development and maintenance of irrigated rice lands. These sustained belief systems transcended any given moment of labor investment or consumption and were incorporated into long-term interactions at different social levels including leaders, farmers, laborers, and consumers.

Rice requires a high and sustained labor commitment throughout the cultivation cycle, including field preparation, water management, pest control, and harvesting. Nonetheless, working to increase production was a way that ordinary people could increase the availability of a preferred food. Even if very few other elements of their daily lives could be improved, the ability to produce and consume rice enabled ordinary rural dwellers to feel as though their status had been elevated. As Hastorf (2003) notes, some amount of “luxury” status can be generated from ordinary foods when they are transformed in unusual or labor-intensive ways, or served in quantity or in particular contexts. In the case of rice in South Asia, however, availability in and of itself was a marker of distinction. Textual sources indicate that rice was regarded as a multipurpose food with a high social status and continued to be valued even when new production strategies increased its availability. Grains such as sorghum and millets did diminish in popularity when choices could be exercised; by contrast, rice was never out of favor.

Can we suggest that leaders consciously manipulated the perception of rice as a high-status food precisely because its production could be increased? The literature on food politics in the modern realm suggests that all choices about food production are manipulated to a certain extent (e.g., Nestle 2002; Schlosser 2001). One could argue that ritual and political authorities extolled the moral virtues of rice consumption to spur the production of a staple for which the South Asian climate was ideally suited. In a culture in which even the everyday preparation of food has had significant ritual and moral overtones throughout the historic period (see Appadurai 1981), large-scale investment in the production of preferred foods certainly enabled political figures to demonstrate their shared identity with their subordinate populations through both production and consumption. Without the shared ideal of consumption, contributions of labor would have been much harder to sustain on a regular basis. However, to suggest that all of the ritual and social value of rice was nothing more than “false consciousness” denies the power of individuals and households to affirm and create value systems. Many political dictates about other matters (such as warfare, architecture, and taxation) were not actualized in the archaeological record or sustained from one generation to the next, and political groups themselves cycled through hundreds of regional configurations of chiefdoms, states, and empires of varying sizes and with shifting boundaries. The longevity and ubiquity of food preferences in the textual record indicates that

cultural ideals and belief systems sustained political groups, not the other way around.

CONCLUSION

By the third century B.C. in Sri Lanka and the sixth century A.D. in the northeastern subcontinent, large-scale public irrigation works were coordinated by political authorities who worked directly to sponsor the construction of irrigation canals and reservoirs or indirectly through the granting of productive lands to temples and other agents. These four case studies are drawn from diverse regions of the subcontinent—Sri Lanka, the Brahmaputra Valley, the Tamil Chola region, and Vijayanagara—and they show the extent to which political authorities were directly involved in agricultural intensification. Recent research shows that other collective authorities, such as Buddhist monasteries, may have utilized the same principles of communal labor and redistribution to create and maintain irrigation systems in other regions of South Asia, such as the dry upland central zone (Shaw and Sutcliffe 2001). However, the choice of crops and the allocation of labor were conditioned by widespread social ideas of preferred foods, among which the most important was rice.

In South Asian texts, starting with the earliest oral traditions of the first millennium B.C., rice is portrayed as the ideal and most moral of foods, suitable for gods, royalty, and ordinary people. It had medicinal properties as well as economic ones, and served as both mode of payment and medium of exchange. Its central role in an elaborate culinary structure, preserved in ritual texts as well as poems and medical texts, demonstrates that there was a coherent and widely accepted notion of food preferences that long predated the development of labor-intensive agriculture and social complexity in the Indian subcontinent. When political leaders did come to prominence, they focused administrative resources in a way that enabled them to be associated with increased yields of a preferred staple food that had both nutritional and ritual value. Although the Indian subcontinent is often viewed as being a place of rigid divisions, food preferences and daily practice were shared behaviors crosscutting the social spectrum. Rank was exhibited in the control of capital inputs and rights over surplus, whereas equality and solidarity were marked by shared food preferences and understandings of what was “good to eat.” Acquiescence to the labor demands and managerial requirements of rice production enabled all sectors of society to consume more of a food with high ritual and moral value, a marker of consensus among elites and nonelites about agricultural production.

MONICA L. SMITH Department of Anthropology, University of California at Los Angeles, Los Angeles, CA 90095-1553

NOTES

Acknowledgments. I would like to thank Aidan Jameson for bringing me to a new understanding of food, structure, and agency. Many thanks go to Robert DeCaroli, George Gumerman IV,

Christine Hastorf, and Thomas Trautmann for their careful reading and insightful comments in the course of writing this article. Thanks also go to Editor-in-Chief Benjamin Blount and three anonymous *AA* reviewers for queries and comments that served to improve the manuscript. I would like to express my appreciation to Kathleen Morrison for references to her work on rice at Vijayanagara and to Yunxiang Yan for comparative references on food and society.

1. I appreciate the editor's gracious allowance of the use B.C. and A.D. throughout this article in contradiction to current AAA Style guidelines. I choose to retain the B.C. and A.D. designate as it is the standard nomenclature for chronology in South Asia, and because the use of alternative chronological systems can be construed as political statements.

REFERENCES CITED

- Agency for International Development
1985 Background Paper and Guide to Addressing Bellmon Amendment Concerns on Potential Food Aid Disincentives and Storage. Washington, DC: Agency for International Development.
- Appadurai, Arjun
1981 Gastro-Politics in Hindu South Asia. *American Ethnologist* 8(3):494–511.
- Armstrong, Douglas V., and Kenneth G. Kelly
2000 Settlement Patterns and the Origins of African Jamaican Society: Seville Plantation, St. Ann's Bay, Jamaica. *Ethnohistory* 47(2):369–397.
- Arnold, Jeanne E.
1996 Organizational Transformations: Power and Labor among Complex Hunter-Gatherers and Other Intermediate Societies. *In Emergent Complexity: The Evolution of Intermediate Societies*. Jeanne E. Arnold, ed. Pp. 59–73. Ann Arbor, MI: International Monographs in Prehistory Archaeological Series 9.
- Arundhati, P.
1994 Royal Life in Manasollasa. Delhi: Sundeep Prakashan.
- Belasco, Warren, and Philip Scranton, eds.
2002 Food Nations: Selling Taste in Consumer Societies. New York: Routledge.
- Bentley, Amy
2001 Reading Food Riots: Scarcity, Abundance and National Identity. *In Food, Drink and Identity: Cooking, Eating and Drinking in Europe Since the Middle Ages*. Peter Scholliers, ed. Pp. 179–193. Oxford: Berg.
- Biskowski, Martin
2000 Maize Preparation and the Aztec Subsistence Economy. *Ancient Mesoamerica* 11:293–306.
- Bray, Francesca
1986 The Rice Economies: Technology and Development in Asian Societies. Oxford: Basil Blackwell.
- Breckenridge, Carol Appadurai
1985 Social Storage and the Extension of Agriculture in South India, 1350 to 1750. *In Vijayanagara—City and Empire: New Currents of Research*. Anna Libera Dallapiccola, in collaboration with Stephanie Zingel-Avé Lallemand, eds. Pp. 41–72. Stuttgart: Steiner Verlag.
- Bühler, G., trans.
1967[1886] The Laws of Manu. Delhi: Motilal Banarsidass.
- Byrom, Thomas
1976 The Dhammapada: The Sayings of the Buddha. New York: Alfred A. Knopf.
- Carey, L. S.
1898 Note on the Outturn of Land under the Principal Crops Grown in the Central Provinces. Nagpur: Secretariat Press.
- Casson, Lionel
1989 The Periplus Maris Erythraei. Princeton: Princeton University Press.
- Chang, Te-Tzu
2000 Rice. *In Cambridge World History of Food*. Kenneth F. Kiple and Kriemhild Conee Ornelas, eds. Pp. 132–149. Cambridge: Cambridge University Press.
- Chelliah, J. V., trans.
1985 Pattupattu: Ten Tamil Idylls. Thanjavur: Tamil University.
- Childe, V. Gordon
1936 Man Makes Himself. London: Watts and Co.
- Cho, Hyunyi, and Michelle Zbell Nadow
2004 Understanding Barriers to Implementing Quality Lunch and Nutrition Education. *Journal of Community Health* 29(5):421–435.
- Choudhury, P. C.
1966 The History of Civilisation of the People of Assam to the Twelfth Century A.D. 2nd edition. Gauhati: Department of Historical and Antiquarian Studies in Assam.
- Colombijn, Freek
1994 Patches of Padang: The History of an Indonesian Town in the Twentieth Century and the Use of Urban Space. Leiden, the Netherlands: Centre of Non-Western Studies, Leiden University.
- Coningham, R. A. E.
1999 Anuradhapura: The British-Sri Lankan Excavations at Anuradhapura Salgaha Watta 2, vol. 1: The Site. Oxford: BAR International Series 824.
- Costantini, L.
1981 Palaeoethnobotany at Pirak: A Contribution to the 2nd Millennium B.C. Agriculture of the Sibi-Kacchi Plain, Pakistan. *In South Asian Archaeology 1979*. Herbert Härtel, ed. Pp. 271–277. Berlin: Dietrich Reimer Verlag.
- Davidson, Alan
1999 The Oxford Companion to Food. Oxford: Oxford University Press.
- DeCaroli, Robert D.
2004 Haunting the Buddha: Indian Popular Religions and the Formation of Buddhism. New York: Oxford University Press.
- Dietler, Michael
1996 Feasts and Commensal Politics in the Political Economy: Food, Power, and Status in Prehistoric Europe. *In Food and the Status Quest: An Interdisciplinary Perspective*. Polly Wiessner and Wulf Schiefelhövel, eds. Pp. 87–125. Providence, RI: Berghahn.
- Dikshit, Damodar Datta
1986 Agriculture, Irrigation and Horticulture in Ancient Sri Lanka (From Earliest Times to 1186 A.D.). Delhi: Bharatiya Vidya Prakashan.
- Diner, Hasia R.
2001 Hungering for America: Italian, Irish, and Jewish Foodways in the Age of Migration. Cambridge, MA: Harvard University Press.
- Doniger, Wendy
1999 Eating Karma in Classical South Asian Texts. *Social Research* 66(1):151–165.
- Doniger, Wendy, with Brian K. Smith
1991 The Laws of Manu. London: Penguin Books.
- Eide, Wenche Barth
2000 The Promotion of Human Rights Perspective on Food Security: Highlights of an Evolving Process. *In Food Aid and Human Security*. Edward Clay and Olav Stokke, eds. Pp. 326–350. London: Frank Cass.
- Ener, Mine
2002 At the Crossroads of Empires: Policies toward the Poor in Early- to Mid-Nineteenth Century Egypt. *Social Science History* 26(2):393–426.
- Filliozat, Vasundhara, ed.
1999 Vijayanagar as Seen by Domingos Paes and Fernao Nuniz. Rev. edition. New Delhi: National Book Trust.
- Flannery, K. V.
1972 The Cultural Evolution of Civilizations. *Annual Review of Ecology and Systematics* 3:399–426.
- Ford, Richard I.
1994 Corn Is Our Mother. *In Corn and Culture in the Prehistoric New World*. Sissel Johannessen and Christine A. Hastorf, eds. Pp. 513–525. Boulder, CO: Westview Press.
- Framji, K. K., ed.
1977 Irrigated Rice: A Worldwide Survey. New Delhi: International Commission on Irrigation and Drainage.
- Fried, Morton H.
1967 The Evolution of Political Society. New York: Random House.

- Fuller, Dorian Q.
2002 Fifty Years of Archaeobotanical Studies in India: Laying a Solid Foundation. *In* Indian Archaeology in Retrospect, vol. 3: Archaeology and Interactive Disciplines. S. Settar and R. Korisettar, eds. Pp. 247–364. New Delhi: Manohar.
- 2005 Ceramics, Seeds, and Culinary Change in Prehistoric India. *Antiquity* 79:761–777.
- Fuller, Dorian Q., Ravi Korisettar, P. C. Venkatasubbaiah, and Martin K. Jones
2004 Early Plant Domestications in Southern India: Some Preliminary Archaeobotanical Results. *Vegetation History and Archaeobotany* 13:115–129.
- Fuller, Dorian Q., and M. Madella
2002 Issues in Harappan Archaeobotany: Retrospect and Prospect. *In* Indian Archaeology in Retrospect, vol. 2: Protohistory. S. Settar and R. Korisettar, eds. Pp. 317–390. New Delhi: Manohar.
- Ganguli, Kisari Mohan, trans.
1883–96 The Mahabharata. Calcutta: Bharata.
- Geiger, Wilhelm
1950[1912] The Mahavamsa. Colombo: Ceylon Government Information Department.
- Glover, Ian C., and Charles F. W. Higham
1996 New Evidence for Early Rice Cultivation in South, Southeast and East Asia. *In* The Origins and Spread of Agriculture and Pastoralism in Eurasia. David R. Harris, ed. Pp. 413–441. Washington, DC: Smithsonian Institution Press.
- Greenland, D. J.
1997 The Sustainability of Rice Farming. New York: CAB International and International Rice Research Institute.
- Griffith, Ralph T. H., trans.
1897 The Hymns of the Rig Veda. Benares: E. J. Lazarus.
- Gumerman, George, IV
1994a Corn for the Dead: The Significance of *Zea mays* in Moche Burial Offerings. *In* Corn and Culture in the Prehistoric New World. Sissel Johannessen and Christine A. Hastorf, eds. Pp. 399–410. Boulder, CO: Westview Press.
- 1994b Feeding Specialists: The Effect of Specialization on Subsistence Variation. *In* Paleonutrition: The Diet and Health of Prehistoric Americans. Kristin D. Sobolik, ed. Pp. 80–97. Carbondale: Southern Illinois University Press.
- 1997 Food and Complex Societies. *Journal of Archaeological Method and Theory* 4(2):105–139.
- 2002 Llama Power and Empowered Fisherman: Food and Power at Pacatnamu, Peru. *In* The Dynamics of Power. Maria O'Donovan, ed. Pp. 238–256. Carbondale: Southern Illinois University Press.
- Guruge, Ananda W. P.
1990 The Mahavamsa/Mahanama. Calcutta: M. P. Birla Foundation.
- Haggerty, Randolph, and Robin Coningham
1999 The Physical Environment. *In* Anuradhapura: The British-Sri Lankan Excavations at Anuradhapura Salgaha Watta 2, vol. 1. Robin Coningham, ed. Pp. 7–14. Oxford: BAR International Series 824.
- Hall, Kenneth
1980 Trade and Statecraft in the Age of the Colas. New Delhi: Abhinav Publications.
- Hansen, Mogens Herman
2000 Introduction: The Concepts of City-State and City-State Culture. *In* A Comparative Study of Thirty City-State Cultures. Mogens Herman Hansen, ed. Pp. 11–34. Copenhagen: Copenhagen Polis Center.
- Harris, David R.
1989 An Evolutionary Continuum of People-Plant Interaction. *In* Foraging and Farming: The Evolution of Plant Exploitation. David R. Harris and Gordon C. Hillman, eds. Pp. 11–26. London: Unwin Hyman.
- Hastorf, Christine
2003 Andean Luxury Foods: Special Food for the Ancestors, Deities and the Élite. *Antiquity* 77:545–554.
- Hastorf, Christine A., and Sissel Johannessen
1993 Pre-Hispanic Political Change and the Role of Maize in the Central Andes of Peru. *American Anthropologist* 95(1):115–138.
- Hayden, Brian
1996 Feasting in Prehistoric and Traditional Societies. *In* Food and the Status Quest. Polly Wiessner and Wulf Shiefenhovel, eds. Pp. 127–147. Providence, RI: Berghahn.
- 2001 Fabulous Feasts: A Prolegomenon to the Importance of Feasting. *In* Feasts: Archaeological and Ethnographic Perspectives on Food, Politics and Power. Michael Dietler and Brian Hayden, eds. Pp. 23–64. Washington, DC: Smithsonian Institution Press.
- Heitzman, James
1987 State Formation in South India, 850–1280. *Indian Economic and Social History Review* 24(1):35–61.
- 1997 Gifts of Power: Lordship in an Early Indian State. Delhi: Oxford University Press.
- Higham, Charles, and Tracey L. -D. Lu
1998 The Origins and Dispersal of Rice Cultivation. *Antiquity* 72:867–877.
- Hindmarsh, Bruce
2002 Transported Food: Convict Food Habits in Australia. *In* Food in the Migrant Experience. Anne J. Kershen, ed. Pp. 134–148. Hampshire, England: Ashgate, Aldershot.
- Hoernle, A. F. Rudolf
1897a The Gauhati Copper-Plate Grant of Indrapala of Pragjyotisa in Asam. *Journal of the Asiatic Society of Bengal* 1897:113–132.
- 1897b The Nowgong Copper-Plate Grant of Balavarman of Pragjyotisa in Asam. *Journal of the Asiatic Society of Bengal* 1897:285–297.
- Jackson, William J.
2005 Vijayangara Voices: Exploring South Indian History and Hindu Literature. Aldershot, England: Ashgate.
- Janusek, John W., and Alan L. Kolata
2004 Top-Down or Bottom-Up: Rural Settlement and Raised Field Agriculture in the Lake Titicaca Basin, Bolivia. *Journal of Anthropological Archaeology* 23(4):404–430.
- Jarrige, Jean-François
1985 Continuity and Change in the North Kachi Plain (Baluchistan, Pakistan) at the Beginning of the 2nd Millennium BC. *In* South Asian Archaeology 1983. Janine Schotsman and Maurizio Taddei, eds. Pp. 35–68. Naples: Istituto Universitario Orientale.
- Jit, Nabin K.
1984 The Agrarian Life and Economy of Orissa: A Survey (1833–1897). Calcutta: Punthi Pustak.
- Kajale, M. D.
1988 Ancient Plant Economy at Chalcolithic Tuljapur Garhi, District Amraoti, Maharashtra. *Current Science (Bangalore)* 57(5):377–379.
- 1994 Archaeobotanical Investigations on a Multicultural Site at Adam, Maharashtra, with Special Reference to the Development of Tropical Agriculture in Parts of India. *In* Tropical Archaeobotany: Applications and New Developments. Jon G. Hather, ed. Pp. 34–50. London: Routledge.
- Koch, Eva
2003 Mead, Chiefs and Feasts in Later Prehistoric Europe. *In* Food, Culture and Identity in the Neolithic and Early Bronze Age. Mike Parker Pearson, ed. Pp. 125–143. Oxford: BAR International Series 1117.
- Kotraiah, C. T. M.
1995 Irrigation Systems under Vijayanagara Empire. Mysore: Department of Archaeology and Museums.
- Kotraiah, C. T. M., trans.
2003 King, Court and Capital: An Anthology of Kannada Literary Sources from the Vijayanagara Period. New Delhi: Manohar.
- Kumar, Tuk-Tuk
1988 History of Rice in India: Mythology, Culture and Agriculture. Delhi: Gian Publishing.
- Kuppuram, G.
1986 Imperial Colas in Karnataka. New Delhi: Sundeep Prakashan.
- LeCount, Lisa J.
2001 Like Water for Chocolate: Feasting and Political Ritual among the Late Classic Maya at Xunantunich, Belize. *American Anthropologist* 103(4):935–953.

- Lindenbaum, Shirley
1986 Rice and Wheat: The Meaning of Food in Bangladesh. *In* Food, Society, and Culture: Aspects in South Asian Food Systems. R. S. Khare and M. S. A. Rao, eds. Pp. 253–275. Durham, NC: Carolina Academic Press.
- McKee, Larry
1995 The Earth Is Their Witness. *The Sciences* 35(2):36–41.
- Meadow, Richard H.
1996 The Origins and Spread of Agriculture and Pastoralism in Northwestern South Asia. *In* The Origins and Spread of Agriculture and Pastoralism in Eurasia. David R. Harris, ed. Pp. 390–412. Washington, DC: Smithsonian Institution Press.
- Meadows, Karen
1999 The Appetites of Households in Early Roman Britain. *In* The Archaeology of Household Activities. Penelope M. Allison, ed. Pp. 101–120. London: Routledge.
- Mills, Barbara J., ed.
2004 Identity, Feasting, and the Archaeology of the Greater Southwest. Boulder: University Press of Colorado.
- Mintz, Sidney
1985 Sweetness and Power: The Place of Sugar in Modern History. New York: Viking Press.
- Miracle, Preston
2002 Mesolithic Meals from Mesolithic Middens. *In* Consuming Passions and Patterns of Consumption. Preston Miracle and Nicky Milner, eds. Pp. 65–88. Cambridge: McDonald Institute Monographs.
- Momin, M.
1991 Urbanization in the Brahmaputra Valley circa A.D. 600–1200. *In* Archaeology of North-Eastern India. Jai Prakash Singh and Gautam Sengupta, eds. Pp. 260–279. New Delhi: Har-Anand.
- Morrison, Kathleen D.
1994 The Intensification of Production: Archaeological Approaches. *Journal of Archaeological Method and Theory* 1(2):111–159.
2000[1995] Fields of Victory: Vijayanagara and the Course of Intensification. New Delhi: Munshiram Manoharlal.
2001 Coercion, Resistance, and Hierarchy: Local Processes and Imperial Strategies in the Vijayanagara Empire. *In* Empires. Susan E. Alcock, Terence N. D'Altroy, Kathleen D. Morrison, and Carla M. Sinopoli, eds. Pp. 252–278. Cambridge: Cambridge University Press.
- Mukherji, Purna Chandra
1901 A Report of a Tour of Exploration of the Antiquities in the Tarai, Nepal the Region of Kapilavastu. Calcutta: Office of the Superintendent of Government Printing.
- Murton, Brian
2001 The Emergence of Sedentary Agriculture in Interior Tamilnadu in the Thirteenth Century. *In* Structure and Society in Early South India: Essays in Honour of Noboru Karashima. Kenneth R. Hall, ed. Pp. 157–180. New Delhi: Oxford.
- Nestle, Marion
2002 Food Politics: How the Food Industry Influences Nutrition and Health. Berkeley: University of California Press.
- Oke, O. L.
1983 Amaranth. *In* Handbook of Tropical Foods. H. T. Chan Jr., ed. Pp. 1–28. New York: Marcel Dekker.
- Olivelle, Patrick
2002a Food for Thought: Dietary Rules and Social Organization in Ancient India. Amsterdam: Royal Netherlands Academy of Arts and Sciences.
2002b Structure and Composition of the Manava Dharmasastra. *Journal of Indian Philosophy* 30:535–574.
- Ortiz, Alfonso
1994 Some Cultural Meanings of Corn in Aboriginal North America. *Reprinted in* Corn and Culture in the Prehistoric New World. Sissel Johannessen and Christine A. Hastorf, eds. Pp. 527–544. Boulder, CO: Westview Press.
- Pandeya, B. K.
1987 Economy of the Chola Temple. *In* Raja-Raja the Great. K. K. A. Venkatachari, ed. Pp. 88–104. Bombay: Ananthacharya Indological Research Institute.
- Paranavitana, S.
1958 Some Regulations Concerning Village Irrigation Works in Ancient Ceylon. *Ceylon Journal of Historical and Social Studies* 1:1–7.
- Pearson, Mike Parker, ed.
2003 Food, Culture and Identity in the Neolithic and Early Bronze Age. Oxford: BAR International Series 1117.
- Peryam, David R., Bernice W. Polemis, Josephy M. Kamen, Jan Eindhoven, and Francis J. Pilgrim
1960 Food Preferences of Men in the U.S. Armed Forces. Chicago: Quartermaster Food and Container Institute for the Armed Forces.
- Possehl, Gregory L.
1998 Sociocultural Complexity without the State: The Indus Civilization. *In* Archaic states. Gary M. Feinman and Joyce Marcus, eds. Pp. 261–291. Santa Fe: School of American Research.
- Possehl, Gregory L., and Michael Witzel
2002 Vedic. *In* Encyclopedia of Prehistory, vol. 8: South and Southwest Asia. Peter N. Peregrine and Melvin Ember, eds. Pp. 391–397. New York: Kluwer.
- Potter, James M., and Scott G. Ortman
2004 Community and Cuisine in the Prehispanic American Southwest. *In* Identity, Feasting, and the Archaeology of the Greater Southwest. Barbara J. Mills, ed. Pp. 173–191. Boulder: University Press of Colorado.
- Pottier, Johan
1999 Anthropology of Food: The Social Dynamics of Food Security. Cambridge: Polity Press.
- Prakash, Om
1987 Economy and Food in Ancient India, part 2: Food. Delhi: Bharatiya Vidya Prakashan.
- Ramanujan, A. K., trans.
1973 Speaking of Siva. London: Penguin.
- Randhawa, M. S.
1980 A History of Agriculture in India. New Delhi: Indian Council of Agricultural Research.
- Ray, Himanshu P.
1986 Monastery and Guild: Commerce under the Satavahanas. Delhi: Oxford University Press.
- Roy, Kumkum
1995 The Vedic Age. *In* Ancient India. Pp. 13–40. Government of India: Publications Division, Ministry of Information and Broadcasting.
- Rozin, P., and A. E. Fallon
1981 The Acquisition of Likes and Dislikes for Foods. *In* Criteria of Food Acceptance: How Man Chooses What He Eats. J. Solms and R. L. Hall, eds. Pp. 35–48. Zurich: Forster Verlag.
- Sadhale, Nalini, trans.
1999 Krishi-Parashara (Agriculture by Parashara, A Text on Ancient Indian Agriculture in Sanskrit). Secunderabad: Asian Agri-History Foundation.
- Sahlins, Marshall D.
1968 Tribesmen. Englewood Cliffs, NJ: Prentice-Hall.
- Samuel, Delwyn
1999 Bread Making and Social Interaction at the Amarna Workmen's Village, Egypt. *World Archaeology* 31(1):121–144.
- Sarkar, Ichhimuddin
1992 Aspects of Historical Geography of Pragjyotisa-Kamarupa (Ancient Assam). Calcutta: Naya Prokash.
- Sastry, R. Shama
1915 Kautilya's Arthashastra. Mysore: Padam Printers.
- Sastry, S. Subrahmanya
1984 Early Inscriptions, vol. 1. 2nd edition. Delhi: Sri Satguru.
- Sattar, Arshia, trans.
1996 The Ramayana of Valmiki. New Delhi: Penguin.
- Schlosser, Eric
2001 Fast Food Nation: The Dark Side of the All-American Meal. Boston: Houghton Mifflin.
- Schopen, Gregory
1997[1985] Two Problems in the History of Indian Buddhism. *Reprinted in* Bones, Stones and Buddhist Monks: Collected Papers on the Archaeology, Epigraphy, and Texts of Monastic Buddhism in India. Gregory Schopen, author. Pp. 23–55. Honolulu: University of Hawai'i Press.

- Seneviratna, Anuradha
1989 *The Springs of Sinhala Civilization (An Illustrated Survey of the Ancient Irrigation System of Sri Lanka)*. New Delhi: Navrang.
- Service, Elman R.
1962 *Primitive Social Organization*. New York: Random House.
1975 *Origins of the State and Civilization*. New York: W. W. Norton.
- Sharma, A. K.
1993 *Emergence of Early Culture in North-East India (A Study Based on Excavations at Bhaitbari, Meghalaya)*. New Delhi: Aryan Books.
- Sharma, Sukanya
1995–96 *Archaeological Remains of Sri Surya Pahar, Assam: A Brief Survey Report*. *Puratattva* 26:62–65.
- Shaw, Julia, and John Sutcliffe
2001 *Ancient Irrigation Works in the Sanchi Area: An Archaeological and Hydrological Investigation*. *South Asian Studies* 17:55–75.
2003 *Water Management, Patronage Networks and Religious Change: New Evidence from the Sanchi Dam Complex and Counterparts in Gujarat and Sri Lanka*. *South Asian Studies* 19:73–104.
- Shrigondekar, G. K.
1939 *Manasollasa of King Somesvara*. Baroda: Oriental Institute.
- Shulman, David Dean
1990 *Songs of the Harsh Devotee: The Tevaram of Cuntaramurtinayanar*. Philadelphia: University of Pennsylvania, Department of South Asia Regional Studies.
- Singer, Hans, John Wood, and Tony Jennings
1987 *Food Aid: The Challenge and the Opportunity*. Oxford: Clarendon Press.
- Singh, Purushottam
1998 *Early Farming Cultures of the Middle Ganga Valley*. In *Reconstructing History, Essays in Honour of Prof. V. C. Srivastava*, vol. 1. Vidya Dhar Misra, ed. Pp. 38–51. Varanasi: Tara Printing.
- Smith, Bruce D.
2001 *Low-Level Food Production*. *Journal of Archaeological Research* 9(1):1–43.
- Smith, Monica L.
2001 *The Archaeology of an Early Historic Town in Central India*. Oxford: British Archaeological Reports.
2006 *How Ancient Agriculturalists Managed Yield Fluctuations through Crop Selection and Reliance on Wild Plants: An Example from Central India*. *Economic Botany* 60(1):39–48.
- Srinivasan, L. K., and Shivananda Venkata Rao
1983 *A New Tamil Inscription from Bahur, Pondicherry*. In *Rangavalli: Recent Researches in Indology*, Sri S. R. Rao Felicitation Volume. A. V. Narasimha Murthi and B. K. Gururaja Rao, eds. Pp. 101–103. Delhi: Sundeep Prakashan.
- Stein, Burton
1975 *The State and Agrarian Order in Medieval South India: A Historiographical Critique*. In *Essays on South India*. Burton Stein, ed. Pp. 64–91. Honolulu: University Press of Hawai'i.
- 1980 *Peasant State and Society in Medieval South India*. Delhi: Oxford University Press.
- Stone, Elizabeth C., and Paul Zimansky
2005 *The Tapestry of Power in a Mesopotamian City*. *Scientific American* 272(4):60–67.
- Subramanian, N.
1980[1966] *Sangam Polity*. Rev. edition. Madurai: Ennes Publications.
- Swami Madhavananda, trans.
1965 *The Brhadaranyaka Upanisad*. Calcutta: Advaita Ashrama.
- Talbot, Cynthia
2001 *Precolonial India in Practice: Society, Region, and Identity in Medieval Andhra*. Oxford: Oxford University Press.
- Taube, Karl A.
1989 *The Maize Tamale in Classic Maya Diet, Epigraphy, and Art*. *American Antiquity* 54(1):31–51.
- van der Veen, Marijke
2003 *When is Food a Luxury?* *World Archaeology* 34(3):405–427.
- Vann, Lindley
1987 *Tanks and Canals: Irrigation Systems in Ancient Sri Lanka*. In *Water for the Future: Water Resources Developments in Perspective*. Walter O. Wunderlich and J. Egbert Prins, eds. Pp. 163–176. Rotterdam: A. A. Balkema.
- Vishnu-Mittre
1974 *Palaeobotanical Evidence in India*. In *Evolutionary Studies in World Crops: Diversity and Change in the Indian Subcontinent*. Joseph Hutchinson, ed. Pp. 3–30. Cambridge: Cambridge University Press.
- Vyas, Shantikumar Nanooram
1988 *India in the Ramayana Age*. Delhi: Atma Ram and Sons.
- Watson, James L., and Melissa L. Caldwell
2005 *Introduction*. In *The Cultural Politics of Food and Eating*. James L. Watson and Melissa L. Caldwell, eds. Pp. 1–10. Malden, MA: Blackwell.
- Weber, Steven A.
1999 *Seeds of Urbanism: Palaeoethnobotany and the Indus Civilization*. *Antiquity* 73:813–826.
2003 *Archaeobotany at Harappa: Indications for Change*. In *Indus Ethnobiology*. Steven A. Weber and William R. Belcher, eds. Pp. 175–198. Lanham, MA: Lexington Books.
- Weber, Steven A., and William R. Belcher, eds.
2003 *Indus Ethnobiology*. Lanham, MD: Lexington Books.
- Wendrich, W. Z., R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers, and R. S. Bagnall
2003 *Berenike Crossroads: The Integration of Information*. *Journal of the Economic and Social History of the Orient* 46:46–87.
- White, Emmons E.
1975 *The Wisdom of the Tamil People*. New Delhi: Munshiram Manoharlal.