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In the shadow of Moundville: A bioarchaeological view of the transition to agriculture in the central Tombigbee valley of Alabama and Mississippi

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ABSTRACT

Biocultural patterns surrounding the emergence of agriculture from 11 sites in the central Tombigbee River valley (500–1200 AD), 50–100 km west of the emerging Moundville polity, suggest that while food production may have alleviated some ecological stress, it came at a cost. Markers of childhood arrest indicate earlier weaning, likely creating a cycle of rising fertility and competition, but surviving adults appear better off following intensification. Health disparities at farmsteads, including more prevalent anemia, growth defects, lower limb infections, and accidental trauma, are consistent with increasingly competing demands of domestic and corporate modes of production. Although these agricultural settlements in the hinterlands were not severely compromised as predicted by a strictly top down model of provisioning, health risks assumed by farmsteads may have resulted from provisioning to centers and/or corporate lineages while simultaneously mitigating larger risks (e.g., raiding). The greater health risks assumed by farmstead females suggest that they had less control over production and decision-making than women buried at centers, while height and upper body strength at mound centers, in addition to rare but extreme trauma, point to identities that were mapped not only onto the landscape, but onto the bodies of men and women occupying elite spaces.

Introduction

Agriculture represents a salient landmark in the evolution of complex human societies. The cumulative body of archaeological data spanning more than half a century testifies to wide ranging adaptive responses, sociopolitical forces, and health outcomes as populations domesticated plants and animals (Zeder and Smith, 2009, p. 686). In the southeastern United States, for example, some prehistoric groups only marginally engaged in food production prior to European contact (Hutchinson et al., 2000, p. 196; Reitz, 1988). Others developed strong maize-based economies and supplemented their diets with various cultigens and wild foods. Along this domestication spectrum, intensification and shifting subsistence economies led to the emergence of novel sociopolitical formations (chiefdoms) among which social identities were negotiated beyond age, sex, or achievement, and increasingly tied to ascriptive ranking and kin relations within and across settlements (cf., Cobb, 2003; Hayden, 2001). Moundville (1050–1600 AD) in west-central Alabama (Fig. 1) is widely considered to have been the largest such political center of the late prehistoric southeast and the second largest in North America (Knight, 2010, p. 1). At its height, this center boasted 32 earthen mounds, a central plaza, a 5 km defensive fortification rebuilt several times (Knight, 2010; Vogel and Allan, 1985), and was interconnected across the landscape to numerous outlying agricultural settlements through actively negotiated relations of economy, power, kinship, and other identities (Maxham, 2000).

Such early agricultural societies have been associated with a myriad of competing health concerns (cf., Cohen, 1977, 1989). Rising population densities and pathogen loads, poor nutrition, traumatic injuries, and various health inequities have been commonly observed skeletally (Cohen and Armelagos, 1984; Cohen and Crane-Kramer, 2007; Goodman et al., 1984; cf., Lambert, 2009, p. 604; Larsen, 1995, 1997, 2006; Powell et al., 1991; Steckel and Rose, 2002). Yet, like other material evidence, collective bioarchaeological data clearly demonstrate variable responses to nas-

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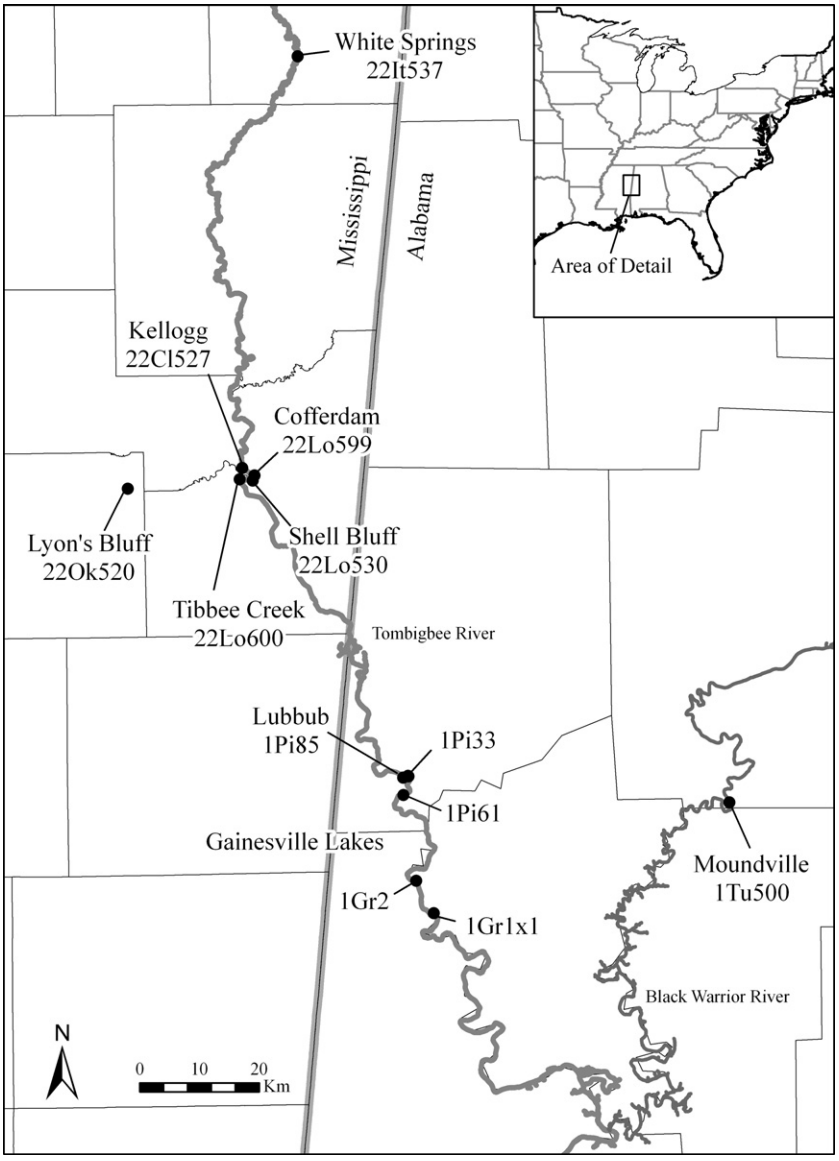

Fig. 1. Map of the central Tombigbee–Moundville area showing the sites in the study.

cent food production worldwide, including in the Southeast (Danforth, 1999; Danforth et al., 2007; Hutchinson et al., 2007; Lambert, 2000; Larsen et al., 2007; Powell, 1988; Powell et al., 1991). Contrary to the generalized poor health seen in large agricultural centers in the Illinois Valley (Goodman et al., 1980, 1984), and in comparison to outlying communities near Moundville (Hodge, 2011), health at Moundville proper was surprisingly good. Low stress indicators, either population wide, by status, or over time were exhibited by those buried at the center (Powell, 1988, 1991, 2007). The current picture of health with emergent agriculture in the Moundville region is nevertheless obscured by a dearth of pre-agricultural and early agricultural (West Jefferson phase 1050–1120 AD) burials and a paucity of local remains from satellite farmsteads dating to the early phases of Moundville. This curious lack of Moundville-phase burials at nearby sites results from an early settlement pattern where most individuals lived and were buried at Moundville itself. Later, when outlying sites were more common, there were still few associated cemeteries because interment was favored at Moundville proper (Hodge, 2011, p. 229; Knight and Steponaitis, 2007). Social relations between settlements across the Moundville region, particularly in its earliest formation, still remain unclear (Blitz, 2010; Knight, 2010). While the physical boundaries of the Moundville chiefdom have conventionally been defined as a corridor approximately 40 km long within the physiographic limits of the Black Warrior Valley (Maxham, 2000, p. 338; Steponaitis, 1983; Welch, 1998), the sociopolitical influence of Moundville grew well beyond this limit by 1120 AD (Knight, 2010, p. 15) (Fig. 1), and in spite of Hally's (1993, p. 143) proposed a maximum size limit for most southeastern chiefdoms of 40 km, Moundville's early influence is evident through material culture at sites as far west as Lubbub and Lyon's Bluff (Knight, 2010). The populace of Moundville, estimated in the thousands, was necessarily supported through food provisioning, tribute, and labor from outlying sites (cf., Barrier, 2011; Welch and Scarry, 1995; Wesson, 1999), and studies of skeletons recovered from hinterland sites, 50–100 km west of Moundville in the central Tombigbee River valley, consequently afford an otherwise hidden measure of quality of life surrounding early regional maize intensification.

Small ubiquitous prehistoric settlements that dotted the late prehistoric Tombigbee River have been intensively studied by archaeologists (Atkinson et al., 1980; Blakeman et al., 1976; Blitz,