ON COMMON GROUND:

SOCIAL MEMORY AND THE PLAZA

AT EARLY MOUNDVILLE

by

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ABSTRACT

The Moundville site of west-central Alabama featured one of the largest plazas in the Mississippian world. The construction of Moundville's plaza necessitated the destruction and burial of a prior landscape, obliterating symbols of a contested past at a time when emerging differences in rank and power threatened group cohesion. This dissertation employs landscape-scale geophysical data and targeted excavations to identify what remains of the former settlement and the community plan that replaced it. When the hundreds of previously undocumented buildings are sorted on the basis of architectural style and orientation into chronological categories, it is revealed that dramatic changes in the arrangement of architecture did indeed coincide with the construction of the plaza. Understood from a social memory perspective, this rapid shift is described as an effort to promote inclusivity by selectively reimagining and representing the past. Other conclusions pertain to the division of plaza space into habitation and activity zones and the spatial, historical, and ideological centrality of Moundville's Mound A.

DEDICATION

This dissertation is dedicated to my wife, Elizabeth Ernst Davis, and my son, Andrew Rollins Davis, my two brightest stars.

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CHAPTER 1: PURPOSE AND ORGANIZATION OF THE STUDY

This dissertation couples landscape-scale geophysical data with excavations to examine the inextricable link between collective identity, memory, and the construction of Moundville's plaza. Moundville's vast plaza redefined and ramped up public activity at a critical moment in the crystallization of a new sociopolitical order. When it was built, the remains of a former community plan – various symbols of the way things had been – were either buried beneath plaza fills or obliterated as the land was leveled. Through this colossal expenditure of labor, the Moundville people created an unprecedented opportunity to decide which material symbols of the past to renew and which to consign to oblivion, a selective reimagining and materialization of a shared history. In early complex societies like Moundville, the establishment of a so-called "social memory" countered kin-group factionalism and justified emerging institutionalized inequalities.

Figure 1.1. Google Earth satellite image of the Moundville site, June 15, 2006.

Moundville's plaza is ripe for a study such as this. A 2010 gradiometer survey covered the majority of the site, including the entire plaza, revealing what appears to be an array of prehistoric architectural features in all areas. I followed the survey with four seasons of excavations designed to test tentative interpretations of the gradiometer data and correlate magnetic anomaly types with feature types. The straightforward methodology presented in this dissertation can be adapted to improve the results of large-scale geophysical surveys such as those that are rapidly becoming a staple of archaeological research in the Southeast.

The work herein is divided into six chapters. After this brief introduction, Chapter 2 situates this study within other research that has attempted to explain the emergence and spread of social and political complexity. I focus on the role of human agents in this process and their selective materialization of memory in moments of cultural upheaval. Chapter 3 reviews what is known about the Mississippianization of the Southeast and west-central Alabama. Additionally, it summarizes the research that has been done on Mississippian plazas in general and Moundville's plaza specifically (Figure 1.1). Chapter 4 outlines the archaeogeophysical approach to landscape. Chapter 5 presents the results of four seasons of excavations designed to correlate magnetic anomaly types with architectural feature types. Finally, Chapter 6 specifies a set of variables that are then used to statistically sort anomalies into functional and chronological architectural types. The statistics form the basis for the creation of interpretive maps that give a detailed impression of the Moundville community plan before and after the construction of the central plaza. The dissertation concludes with a concise discussion of how plaza construction at Moundville provided a historical inflection point for interest groups to socially construct a new concept of "the past" and embrace a comprehensive vision for the future.

CHAPTER 2: AGENCY, MEMORY, AND BUILT ENVIRONMENTS IN EARLY COMPLEX SOCIETY

In this chapter, I review the roles of agency and memory in the rise of sociopolitically complex societies. I begin with a brief discussion of the ways in which so-called "chiefdoms" are complex, the universal impediments to the development of institutionalized inequalities, and the drivers of sociopolitical evolution. I acknowledge the myriad causal forces behind the emergence of complexity, but focus particularly on the role of human agents. In an effort to explain how the culture-bound actions of individuals and groups can bring about culture change, I then summarize the major points of agency theory in regard to issues of intention, innovation, and temporality. This section segues into a review of social-historical and sociological approaches to rates of culture change and divisions of time, with special focus on recent archaeological applications of Sewell's (2005) concept of "the event." I then highlight social memory, a political resource manifested in the built environment and commonly manipulated during moments of rapid cultural transformation also known as "events." Finally, the discussion turns specifically to plazas, physical spaces where agency, history, and identity intersect.

Chiefdoms

Chiefdoms have been the subject of numerous anthropological studies since Julian Steward's introduction of the concept in his *Handbook of South American Indians* (1948). However, Kalvero Oberg (1955:484) is the first to have provided a clear definition: chiefdoms are "multivillage territorial [tribal units] governed by a paramount chief under whose control are districts and villages governed by a hierarchy of subordinate chiefs." This definition proved too restrictive and has since been abandoned. Early attempts to define chiefdoms in the ethnographic and ethnohistoric record identified redistribution as their *raison d'être*, a descriptor to which Elman Service (1962) later added "with a central agency of coordination." Ultimately, Carneiro (1981:45) supplied the most succinct and widely cited definition: "a chiefdom is an autonomous political unit comprising a number of villages or communities under the permanent control of a paramount chief." These definitions and many others have been dissected by three generations of anthropologists. Though all now agree that the chiefdom concept is a theoretical ideal that glosses considerable sociopolitical variability (Pauketat 2007; Yoffee 2005), interest in the origins of institutional hierarchy is a common thread linking early research to that which continues today.

Chiefdoms are early sociopolitically complex societies. In this dissertation sociopolitical complexity (hereafter simply referred to as "complexity") is defined according to two variables: differentiation and integration. Higher degrees of differentiation and integration denote greater complexity. These are not states of being, but processes grounded in unconscious dispositions and material conditions. Differentiation is the process by which groups are set apart from one another, such that specific activities, roles, identities, and symbols become attached to them. Initial chiefdom research focused more on this facet of complexity than integration, which refers to the process through which differentiated groups are knit into an institutionalized framework. Groups may be politically, socially, economically, religiously, and militarily differentiated and they may integrate along these same lines.

The various pathways to complexity are fraught with obstacles, many of which transcend local historical and cultural circumstances. For over 99 percent of human history we all lived in weakly integrated, politically simple societies in which the egalitarian ethos was fiercely maintained via communal activities, common kinship ties, enforced sharing of resources, surplus redistribution, and communal storage (Bender 1990; Lee 1990). The only demands one could make of others were those that were made on the basis of common kinship or by virtue of temporary, achieved, and situational leadership privileges. Moves to aggregate into larger communities for the purposes of common defense or economic interdependency were infrequent and short-lived, undermined by increased conflict over resource shortages and decision-making. Yet despite these obstacles, numerous people all over the world formed chiefdoms, broadly conceived, within the last 8,000 years.

How did ancient aggrandizers circumvent the socially imposed mechanisms that had kept everyone on relatively equal footing for thousands of generations? How did society then come to accept sociopolitical differentiation as the natural order of things? These are interrelated questions that must be answered. Of all disciplines, archaeology is best suited to this task because it has at its disposal the material evidence of this qualitative shift. Archaeologists have established the material correlates of temporal and spatial sociopolitical differentiation and, moreover, have identified the complementary integrative means and mechanisms that sustained differentiation (e.g., Blitz and Lorenz 2006; Rakita 2009). Though the evidence for sociopolitical differentiation is subtle by its nature to begin with, it is possible to target its genesis in a given region and trace its development from that point forward.

In egalitarian societies, the universal presence of leveling mechanisms – practices that serve to humble groups and individuals who seek prestige – reveals two things about the origins of complexity. The first is that a fundamental structural contradiction lies at the heart of egalitarian systems, namely, that they contain the "seeds of inequality" (Béteille 1977; Josephides 1985). Early chiefdom research highlighted the ways in which ecological forces caused these seeds to germinate. This "ecosystems approach" considered culture an adaptive apparatus that changes in response to techno-environmental and demographic pressures. Literature from this era is peppered with flow charts that neatly plot the functional or "necessary" relationships between variables. Ecosystems theorists contributed ample detail to our understanding of the interconnectedness of social and ecological variables, but accorded humans a very limited role in determining the course of culture change, treating entire populations and behavioral systems as the units of analysis. From an ecosystems perspective, complexity was an inevitable cultural-behavioral response to the managerial difficulties that arise as a result of constant population growth and environmental pressures (Binford 1962; Flannery 1967; Hill 1977; Redman 1978; Sanders and Price 1968; Steward 1955; White 1959).

By and large, anthropologists no longer view complexity as inevitable, or even as a continuum (Pauketat 2007; Yoffee 1993, 2005:27-31). They have demonstrated how rarely chiefdoms arose in isolated, pristine circumstances; it was transregional interaction spheres that profoundly influenced the nature and timing of political consolidation and the institutionalization of inequalities in any given region (Renfrew 1987). Newer approaches acknowledge that neither human behavior nor its consequences can be neatly factored into cause-and-effect scenarios (Bender 1978; Brumfiel 1992; Pauketat 2000). Explanatory primacy has shifted away from systemic pressures towards a new consideration of social and historical process.

The second general point about the origins of complexity and one that inaugurated a new round of chiefdom theorizing in the early 1980s is that people pursue prestige, power, and influence even when social circumstances make that difficult (Blanton et al. 1996:2). These "aggrandizers" push the boundaries of what is socially permissible. In their quest they often collide with other parties, sparking conflict, social tension, and other complications (Sewell 1992:22). The genesis of this process manifests in the archaeological record as slight differences in consumption patterns, mortuary treatment and grave goods, and the scale and durability of residential architecture (Clark and Blake 1994).

Of course, less motivated individuals were just as culturally competent as their ambitious peers. They were not blind to the self-aggrandizing efforts of others, so assuming they were not coerced, why did they not thwart them? A large part of the answer is that they saw some benefit in participation (Doob 1983:41; Bailey 1988). Given the obstacles presented by egalitarian leveling mechanisms, it is likely that this was less of an aggressive power grab on the part of aggrandizers and more of a kind of social contract, and none of the parties involved could have known what was in the offing. The ultimate consequences included the investment of authority over the many in the hands of the few, the centralization of coordinated action, reliance on intensive subsistence practices, and the depletion of local resources and the conflicts over decision-making that accompany town life. But the benefits accorded to participants may have included increased access to the produce and social valuables that defined traditional economy (Pauketat 1994; Widmer 1994), a quelling of the sorts of social strife that result from feuds, violence, and migration (Widmer 1994), and greater surpluses in addition to a buffer from resource stress via redistribution of centrally pooled resources (Service 1962). Successful aggrandizers initially offer more than they receive, thereby invoking the honor of their followers to reciprocate in an equal or greater way at a later date (Lederman 1986; Mauss 2000). So it is that efforts to institutionalize new social and political distinctions necessitated corresponding efforts to expand integration.

The Agency-Structure Dialectic: Intention, Innovation, and Temporality

Recent narratives often invoke a broadly conceived "theory of practice." Whether or not it is made explicit, the question of how action can simultaneously alter and reproduce culture is at the heart of any study of culture change. With its roots tapping deep into the Enlightenment distinctions between action and thought, practice theory places the analytical focus on this reflexivity of agency and structure (Dobres and Robb 2000). Unfortunately, there is no consensus on the ontological or epistemological basis for either of these terms (Archer 2003:1). Scholars do agree that agency is in some way subjective. It is historically contingent action, whether the actor is able to predict outcomes or not (Dornan 2002:308-314). Structure, meanwhile, is in some way objective. It is the basis of our "common sense" understandings about the world and our everyday routines and behaviors (Bourdieu 1977). Archaeological use of practice theory invariably touches upon at least one of three difficult issues that the agency concept raises: (1) intentionality, (2) innovation, and (3) temporality.

Intention. Explorations of the agent-structure dialectic have long been marked by disagreement over the degree to which actors consciously and skillfully pursue what they want (Dobres and Robb 2000:10; Dornan 2002:319-324). Approaches define a continuum between those that portray action as predetermined by structure and those that grant agents "free will," but it is to the more nuanced and widely cited literature that I turn here.

Though its foundations lie in Garfinkel's pioneering work on ethnomethodology during the 1960s (Garfinkel 1984; see also Goffman 1959, 1971), practice theory owes much of its current popularity to Pierre Bourdieu's *Outline of a Theory of Practice* (1977). In it, he introduces his concept of habitus: "individually unique schema of unconsciously internalized dispositions" (Bourdieu 1977:72). These dispositions, he says, entirely determine how we experience the external world, individually unique only because we confront differing social conditions over time by virtue of our class affiliations. Conceived as the "conductorless orchestration" of human practice (1977:70), habitus grants primacy to structure, but neglects our personal capacity to variously define what we care about and establish a *modus vivendi* expressive of our concerns. However, because he portrayed habitus as both structured and structuring, his *Outline* does leave room for individuals to act with intention (Alexander 1995:184; Bohman 1999:132; Giddens 1979).

Anthony Giddens' *Central Problems in Social Theory* (1979; see also Giddens 1993) introduced structuration theory in an attempt to overcome Bourdieu's limiting version of agency. Giddens concurred that structure cannot be discursively altered, but argued that our knowledge of it is tacit. All of us, he said, act in accordance with a "practical consciousness" (Giddens 1979:24), such that "even the most enduring of habits…involves continual and detailed reflexive attention" (Giddens 1993:6).

Critics rightfully assert that Giddens' structuration theory downplays the uneven distribution of knowledge among actors living within a structure (*a la* Marx 1964), on the one hand, and the irrational ways that people often act (Weber 1978), on the other. They insist that agency is not so much about intentionality as it is about the capacity of individuals to alter structure (McCall 1999). At issue here is whether or not individuals can foresee the repercussions of their actions, and this concern with "unintended consequences" is particularly acute in studies of domination and resistance and the origins of institutionalized inequalities (e.g., Joyce 2004; Pauketat 2000). Domination is not only undesirable for the vast bulk of populations, but also unforeseeable because initial moves towards it are typically grounded in communal tradition. For example, traditional forms of domestic architecture informed Puebloan kiva architecture (Walker and Lucero 2000). Likewise, Mississippian elites set themselves apart from others by living atop mounds, a symbol of communal ritual in the Southeast for thousands of years (Steponaitis 1986).

Innovation. Closely related to debates surrounding intentionality is a concern with innovation. If structure dictates how individuals think and act, how can individuals change structure? Anthropologists have identified multiple drivers of innovation. Some have insisted that culture changes only in response to external or systemic pressures, such as a demographic growth and environmental conditions (Binford 1962; Johnson 1982; Steward 1955; White 1959). Others find it in the omnipresent quest for prestige, engaged by knowledgeable actors who push the bounds of what is socially acceptable, jostle for position with similarly motivated groups and individuals, and predictably and unpredictably alter society (Clark and Blake 1994).

Because they entail the intermingling of ideas, migration-contact processes such as assimilation, acculturation, syncretism, diffusion, and creolization have also been identified as drivers of innovation (Blitz 1999; Blitz and Lorenz 2002, 2006; Cobb and Butler 2006; Cook and Fargher 2007; Delaney-Rivera 2007; Kowalewski 2006; Pauketat 2007; Pollack 2004; Williams 1994). In addition to these, hybridity is a powerful engine because, unlike the others, its emphasis is on innovation rather than the recombination of existing traits (Bhabha 1990, 1994). Hybridity occurs in the liminal space where differences engage, where the usual dispositions are altered such that innovation can occur. Though "all forms of material culture are continually in a process of hybridity" (Bhabha 1990:211), it is the intersection of difference involving one's sense of self and one's sense of other that is particularly elemental to the process. Encounters between disparate peoples create a so-called "thirdspace" (Bhabha 1990, 1994) where "cultural authority is altered, sign, symbol, and significance are disassociated, [and] new meanings are negotiated" (Alt 2006:292).

Thirdspace is made manifest in hybrid forms of material culture, making it archaeologically accessible. At Emergent Mississippian sites in the American Bottom region of North America, it is observed in the transition from single-set post to wall trench construction technology, wherein hybrid house styles that mixed the old and new preceded full adoption of the wall trench form (Pauketat and Alt 2005). In the Black Warrior valley, engagement with thirdspace is seen in the fusion of Terminal Woodland and Mississippian ceramic vessel forms and paste recipes. These are hybrids, but the concomitant changes in community organization and construction and manufacturing techniques were the results of hybridity.

Temporality. Because structure informs agency and vice versa, some social theorists assert that structure and agency are ontologically inseparable – two sides of the same coin (Giddens 1979). But others insist that these terms refer to two irreducibly different kinds of causal powers and that to understand either we must examine the interplay between them (Archer 1988, 1995:93-134, 2003:2). The latter position, represented mainly in the writings of Margaret Archer, holds that culture changes when disjunctions exist between structural contradictions and complementaries, on the one hand, and the relations of cooperation and conflict between people, on the other. This "morphogenetic approach" disentangles structure and agency, permitting them "autonomous emergent properties…capable of independent variation and therefore of being out of phase with one another in time" (Archer 1995:66). In other words, agency and structure cannot be essentialized; they are in a constant state of "emergence," though not in lockstep (see also Appadurai 1986; de Certeau 1984; Giddens 1984; Soja 1996; Sztompka 1991).

Archaeological applications of agency theory often seek to identify how group or individual agency in the short-term can profoundly influence long-term social structure, even over millennia. Sassaman (2000), for example, identified how the interplay between gender ideologies, marital rules of residence, and divisions of labor among archaic hunter-gatherers of the American South contributed to a resistance to social differentiation that endured for hundreds of years. Likewise, Pauketat (2000) discussed the ways in which early farmers in the American Bottom pursued increased access to produce and social valuables by participating in the construction of Early Mississippian capitals, yet in doing so inadvertently created the conditions for their own domination.

Prehistory as History

In recent years, archaeological research into chiefdom development and collapse has moved away from a quest for universal processes and towards determining *what happened* in prehistory (*contra* Carneiro 2000). The latest wave of literature uses new statistical, geophysical, and pedological methods in combination with traditional forms of archaeological data to construct social historical narratives, laying bare archaeologically brief decade-, year-, and even month-scale time spans (Beck 2013; Kidder 2011; Sherwood and Kidder 2011; Sherwood et al. 2013; Whittle et al. 2010). Truly, some now advocate discarding the word "prehistory" entirely, arguing that the textual evidence is not so much of a game changer as has been implied by the practical separation of historic and prehistoric archaeological practice (Beck et al. 2007: 835). Advocates have turned to structural historical (Bintliff 1991) and sociological literature (Beck et al. 2007; Bolender 2010) to construct their narratives.

French Structural history, also known as the *Annales* School, proposes that there are three types of historical change: *longue dureé*, *moyenne dureé*, and event, and that each occurs at different rates. The *longue dureé* is the most gradual of these, history that unfolds at "a slower tempo which sometimes borders on stillness" (Braudel 1980:31). It refers to not only to geophysical or environmental characteristics like weather patterns, migration cycles, and topographic configurations, but also to persistent cultural forces like certain trade routes, important centers, and the decentralizing force of kinship. *Annales* scholars assigned the greatest determinative historical power to this slowest rate of change.

The other two types – *moyenne dureé* and event – are the shorter spans that make up traditional historical narratives. *Moyenne dureé* refers to political and economic conjunctures that occur on the order of decades: fluctuations in supply and demand, the centralizing forces of chiefdom and state formation. An event is the shortest span of time worthy of historical attention. Examples include battles, marriages, and alliances. For modern *Annales* thinkers, events are matters of the moment, "crests of foam that the tides of history carry on their strong backs" (Braudel 1995:21).

Some archaeologists, especially those who more or less reject questions of agency, locality, and relativistic cultural trajectories, have viewed the temporality and historical contingency of the event with the same skepticism as *Annales* historians. Because this attitude permeates most archaeological literature predating the early 1990s, the social significance of the event and the connection between agency and historical process have only begun to be explored. The groundswell of agent-centered approaches that has occurred in the last three decades has been steeped in the writings of Bourdieu, Giddens, and Sewell, who generally insist that the motivations and behaviors of political actors operating within the confines of their cultures is central to any reconstruction of history. Without rejecting the significance of gradual long-term processes in social change, even Bourdieu's structure-centric theory allows for short-term crises that throw long-term structures into turmoil (Bourdieu 1977:168-169).

Sociologist William Sewell Jr. (2005) offers a reimagining of the event grounded in a robust theoretical vocabulary. At its heart is a Giddensian notion of structure as process (Giddens 1979, 1984). For Sewell (2005:131) structure is rooted in schema, "generalizable procedures applied in the enactment/reproduction of social life." The key word here is "generalizable" – schema may be developed in one social context, but can ultimately be applied well beyond them. Sewell (2005:141, emphasis in original) notes that "the real test of knowing a [schema] is to be able to apply it successfully in *unfamiliar* cases." This transposability makes them virtual. However, schema implicate resources that are *not* virtual, e.g., quantities of time and material, constraining schema and therefore structure in a material dimension (Sewell 2005:133). In short, structural change is therefore inevitable because (1) structures are multiple and (2) intersecting, (3) schemas are transposable, and (4) resources are polysemic and (5) unpredictable (Sewell 2005:140-143).

Events, then, are "sequences of occurrences that result in transformations of structure" (Sewell 2005:227). The event is sequential: (1) a sequence of context-dependent happenings produces (2) multiple ruptures in the articulation of resources and schemas, creating (3) the opportunity for creative rearticulation within novel frames of reference (summarized in Beck et al. 2007:835). Here is another kind of "thirdspace," one that not only permits but often *requires* innovation in order for the social world to once again make sense. Emotions surge in the intervening tumult, inviting new ritual practices to help naturalize radical sociopolitical reorderings (Sewell 2005:248-257). The greater the extent of structural disarticulation, the more profound the event.

Whereas practice theory in archaeology places more emphasis on a gradual pace of change represented in the replication character of daily practice (e.g., Wilson 2008), eventful archaeology is equipped to address the often rapid and innovative forms of agency that severed traditions. An eventful analysis of history involves tacking back and forth between different spatial and temporal scales – a simultaneous accounting for the long-term equilibrium of daily practice and the short-term events that punctuate and transform it. Importantly, however, not all events exhibit the explosive character of great battles and natural disasters. While some unfold in only a matter of days, others unfold over years or even decades. Truly, it can be difficult to bracket an event in time and space; in reference to the Russian Revolution of 1917, for example, Whittle and colleagues (2010:68) ask:

> How long is the ramified sequence allowed to run? …Do we concentrate on the February Days of 1917, when open revolt and mutiny started in and around Petrograd/St. Petersburg? …At this stage, the Revolution was far from a durable transformation, so do we run the sequence on the Provisional Government, and then the Bolshevik *cout d'etat* in October 1917, or, given the threat of a successful counter-revolution, to the end of the ensuing civil war in 1921 and the death of Lenin in 1924? …A wider narrative can go back…to the emancipation of the serfs in 1861, the assassination of Alexander II in 1881, the famine of 1891, the war with Japan in 1904-05, the revolts of 1905, the ill-fated and partial attempts at reform through the Duma, and finally the Great War. And to these events must be added a whole series of conditions, attitudes, and processes, including among others the despotism of the Tsar, the conservatism of the supporting elite, the lack

> of a developed bourgeoisie, limited industrialization, the failure of land reform, and the shift of peasant population to the towns, and the fanaticism of the radical intelligentsia.

These concerns with macro- and micro-histories highlight the versatility of eventful analysis, for the time period may be bracketed in any way that yields results. Importantly, there is room here for the "general trend," long a staple of the discipline, and for archaeologies of the moment, which manifest in concerns about the role of agency even in such momentary things as the digging of individual postholes (Pauketat and Alt 2005). Truly, such actions cannot truly be so bracketed, but exist in people's *experienced* flow of time, defined according to their perceptions of past and future. Thus, Whittle and Bayliss (2007) promote the use of "fuzzy" time frames in prehistoric analysis. These analyses that seek to track the social constitution of memory and community, the impacts of immigration and encounter, and the contexts of innovation and revolution are best confined to the scale of no more than a few human lifespans. Events at this briefer scale better document how agents engage with and alter structure, and it is here that eventual archaeological analysis has most often been employed (e.g., Beck et al. 2007, contributors to Bolender 2007).

Past in Present

New economic and ceremonial institutions were not created whole cloth by disinterested agents using new materials. Rather, they were justified and promulgated with reference to existing symbols, repositioned and emphasized in novel ways (Kowalewski 2006; Pauketat 2000). So it is that production of collective identity requires and is rooted in "a collective notion about how things were in the past," (Van Dyke and Alcock 2003:2) so-called social memory (Connerton 1989; Halbwachs 1992; Olick and Robbins 1998). Social memory forms an essential part of a community's generative principles, selectively constructed according to the needs of the present and visions for the future.

The past is a social and political construct. In moments of heightened competition over rank, status, and privilege, such as during the eventful days of initial sociopolitical coalescence, social groups attempt to position themselves favorably in relation to an imagined past. Traditional objects and actions may cast an inconvenient shadow upon their maneuverings, leading them to be discarded in one way or another. These acts of "selective forgetting" in which members of a social group suppress or remake specific memories in favor of an alternative narrative are a basic strategy in the production of ideology (Olick and Robbins 1998). Selective forgetting occurs at every level of society, from individual households to societies-at-large and its target may be memories of individuals and groups, or ideologies. One form of selective forgetting called "repressive erasure" is specifically "employed to deny the fact of a historic rupture as well as bring about a historic break" (Connerton 2008:60). Acts of repressive erasure underwrite the status claims of a dominant group while at the same time eliminating divisive symbols, paving the way for collective identity. These actions are best understood as goal-oriented and agent-driven, and the rapidity with which repressive erasures are typically carried out makes them natural subjects for eventful analysis.

Memory and Eventful Landscapes

Social memory is an aspect of identity construction. Identity is materially expressed at different spatial scales, reflecting the simultaneous distinctiveness and interconnectedness of contemporary communities and people living across broad swaths of a continent (for an example of the ancient Maya, see Schortman et al. 2001). In the late prehistoric Eastern Woodlands, representational imagery produced by native societies separated by hundreds of miles demonstrates a common reverence for certain deities, mythic heroes, and other supernaturals (contributors to Reilly et al. 2006). At the community scale, diverse identities found their expression in architectural techniques and various forms of utilitarian artifacts (Alt 2006). In between the multiregional and community scales there existed regional identities centered on specific places like Moundville and Cahokia. Shared ideologies, economic interdependence, and their related rituals instilled a sense of unity beyond kinship, vesting members of a social group in a larger social world (Durkheim 1995; Mauss 2000). "Collective identity" is a potent integrative force in practically every society.

Archaeologists can study collective identity as it was materialized and communicated in, among other things, the construction and spatial organization of built environments (Alcock 2002; Ashmore 2002; Beck et al. 2007; Blitz 2010b; Bradley 1998; Janusek 2004; Joyce 2003, 2004; Meskell 2003; Pauketat and Alt 2003; Wilson 2008, 2010; Yoffee 2007). As a medium for sociopolitical change, built environments exhibit a special property; unlike portable objects, they can express statements that are difficult to retract. This is because the labor of entire societies is sometimes enlisted in the construction of their most prominent features. In this way, the built environment may fix relatively fleeting conditions in material form, influencing the historical trajectory of society from that point on (e.g., Knight 2010:365). However, this is not to say that social groups or even whole societies do not occasionally muster the labor necessary to obliterate the physical manifestations of an inconvenient or uncomfortable past. Indeed, some sorts of constructions are particularly well-suited to the task.

Plazas

Plazas are a particular kind of public facility: an expanse within a settlement plan where diverse social groups interact and intermingle (Low 2004:35); a flexible space designed with communal activity and performance in mind (Inomata 2006; Lewis et al. 1998:11-16); a monument to and of collective action. Although not unique to complex societies, plazas correlate well with the transition from small villages to larger, more centralized communities (Hill and Clark 2001; Rautman 2000; cf. Trigger 1990). In that historical context where emerging differences in rank and power threatened group cohesion, plazas were massive symbols of group unity.

Until recently, archaeologists have almost always relegated plazas to a by-product of adjacent monument building rather than an end in and of themselves. However, the universality of plazas and their broad correlation with emergent complexity suggests that they fulfilled specific, even crucial functions in that context. Various scholars cite the plaza's ability to encourage, enforce, limit, and prohibit encounters between individuals and groups within a community (Moore 1996; Rautman 2000). They structure space in a way that helps create, express, and reinforce a sense of oneness between members of a community while at the same time serving as a medium for panoptic observation in the interest of maintaining an official culture (Kus 1982; Lawrence and Low 1990; Low 2000).

Archaeologists interested in the origins of sociopolitical complexity are increasingly turning their attention to plazas (Alt et al. 2010; Clark 2004; Inomata 2006; Kidder 2004; Moore 1996; Rautman 2000; Smith 2008). It now appears that it is the "Plaza" label itself, a proper name with functional connotations, that has so far doomed such spaces to archaeological obscurity. Recent excavations and geophysical work at Mississippian plazas like the one that is the subject of this study show that these were constructed spaces encapsulating histories as complex and informative as the mounds that delimit them (e.g., Dalan et al. 2003; Holley et al. 1993; Kidder 2004).

My approach to the central role of plaza creation in the formal consolidation of the Moundville polity ca. 1200 A.D. is one that acknowledges the agency of diverse people. It is grounded in the idea that memory and identity are social constructions and political resources more easily manipulated in times of sociocultural upheaval than during periods of relative stability. In such moments, the negotiation of these core cultural attitudes was often wrought in the built environment, sometimes on a scale that would prove all but impossible to reverse. In this dissertation, I argue that this is exactly what happened at Moundville. Chapter 3 reviews the circumstances leading up that all-important event and couches it in terms of what archaeologists currently believe about similar historical moments across the Mississippian Southeast.

CHAPTER 3: MISSISSIPPIAN EMERGENCE AND THE RADICAL REMAKING OF MOUNDVILLE

The Mississippianization of west-central Alabama and, indeed, many parts of the Southeast, remains a subject of intense study. This chapter reviews what is currently known of the origins of Mississippian culture in the southeastern United States before examining several traits that appear to be shared among the plazas built in this historical context. Discussion then turns to the adoption of Mississippian culture in central and west-central Alabama, highlighting some of the theoretical themes addressed in Chapter 2. The chapter concludes with a discussion of the prior research in Moundville's plaza.

Mississippian Emergence and Early Mississippian

The Southeastern United States is perhaps the best place in the New World to investigate chiefdom origins. The Mississippian emergence of A.D. 750-1050 is understood as a pristine cultural development, that is, not an offshoot of more complex societies (Fried 1967). Moreover, unlike other chiefdom-level societies in the New World, many of the places where these transformations happened were not destroyed or obscured by later state-level developments. Those archaeological contexts remain relatively intact. Though much of classic Mississippian archaeological literature was inspired by work done in other parts of the world (e.g., Welch 1991), The Mississippian phenomenon as it has come to be known by archaeologists began near the confluence of the Ohio, Illinois, and Mississippi Rivers. By A.D. 800, the population of those rich bottomlands had begun organizing themselves into planned settlements underwritten by newly intensified subsistence activities. They built rectangular houses arranged around small-scale plaza courtyards and larger formal plazas. At one end of these plazas, they would often situate a single, larger building, perhaps the domicile of an influential family, though no status objects have yet been recovered that would have categorically set such families apart from the rest of their communities. Then around A.D. 1050, one series of house clusters scattered along the banks of Cahokia Creek suddenly burgeoned into the largest prehistoric Native American community north of Mexico (Alt 2006; Beck 2006; Dalan et al. 2003; Emerson and Pauketat 2002; Kelly 2002; Pauketat 1997, 1998, 2004; Saitta 1994; Schroeder 2004). Now known as Cahokia, it included more than 100 mounds, with much human effort centered on one enormous mound, Monk’s Mound. Initially built to a height of about 10 m, Monk’s Mound was incrementally raised and expanded over the course of the next 150 years to its ultimate dimensions of approximately 30 m and 7 hectares in area at its base. Four great plazas, constructed by leveling and filling natural ridges and swales, extended out from the sides Monk’s Mound in a cruciform pattern, the largest and best defined of which, the Grand Plaza, stretched a full kilometer to the south. These dramatic alterations of the prior landscape coincided with and reflected this earliest instance of institutionalized sociopolitical inequality in eastern North America.

In subsequent centuries, other populations both near and far from Cahokia underwent similarly dramatic revolutions. Collectively referred to as Mississippian

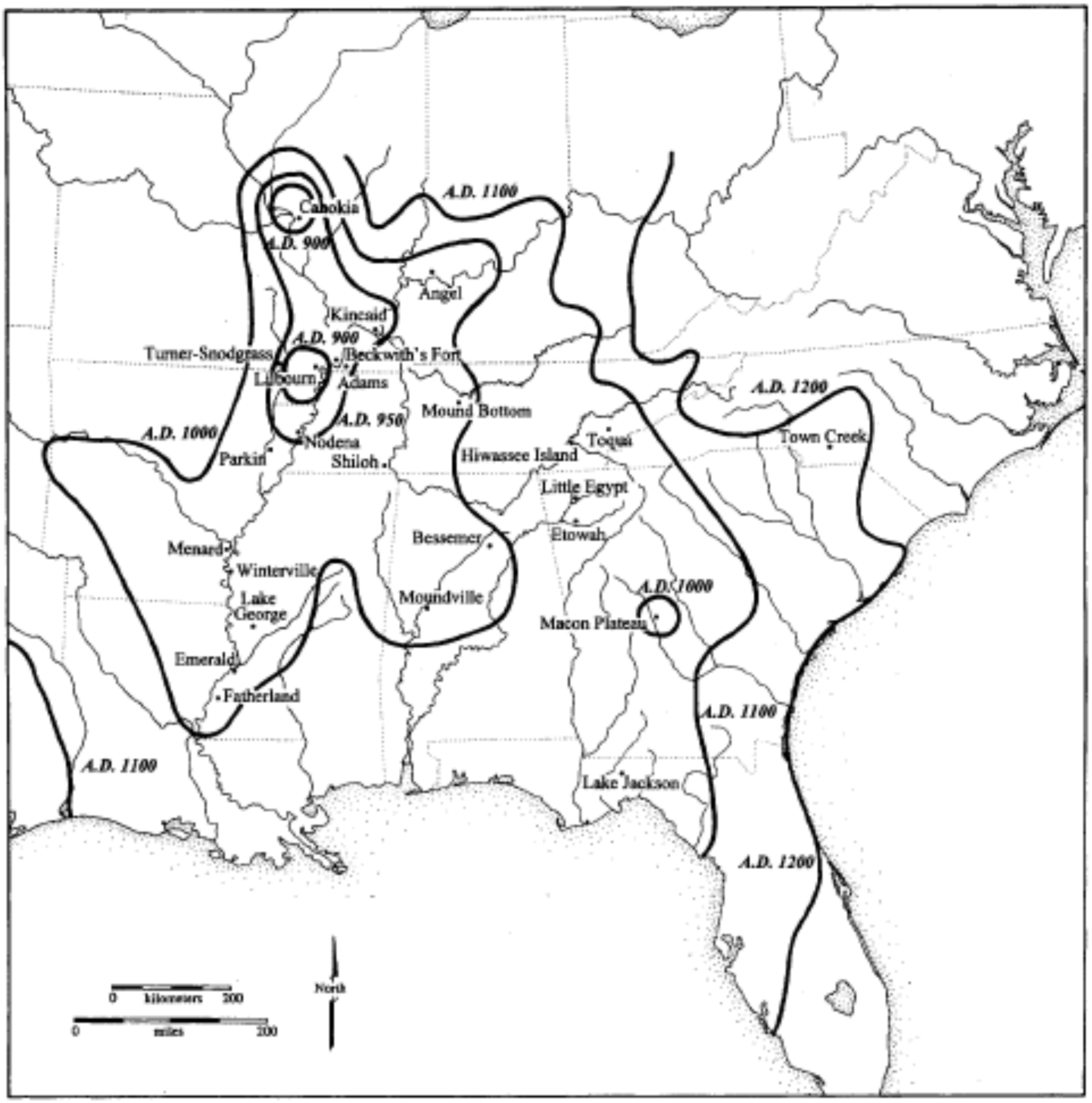


Figure 3.1. Time-transgressive spread of Mississippian culture across the American Midwest and Southeast (Anderson 1999:Figure 15.5).

culture, its gradual spread out of its American Bottom heartland can be archaeologically tracked by a suite of salient features: intensive maize agriculture, community plans composed of variably arranged mounds and plazas, shell-tempered pottery, and wall trench house construction. Though many of these originated in other parts of the eastern United States, they were combined at Cahokia into a novel package that radiated out into other areas of the ancient Southeast. These signatures exhibit a time-transgressive and directional geographic spread from the American Bottom region, mostly to the south and southeast (Figure 3.1).

Archaeologists have debated the social mechanisms by which other populations were "Mississippianized." Smith (1990) couched the theoretical divide among Mississippian archaeologists as the "homology/analogy dilemma." On the homology side, Mississippian chiefdoms are described as historically related, having spread from a heartland to settle prime real estate river valleys, assimilating groups with whom they came into contact. Variation is explained as the result of "[social] reproductive isolation, assimilation, and divergent evolution in transit, in response to differing local cultural and environmental landscapes" (Smith 1990:2). These typically see Mississippianization involving not merely colonists, but the spread of a new cultural complex composed of things and ideas. The analogy position is diametrically opposed to the homology position. This sees the rapid Mississippianization as the result of different groups adapting in isolation to similar challenges: e.g., "landscape partitioning and density dependent population-resource imbalance" (Smith 1990:2). In other words, the parallels between Mississippian groups and the pattern of their emergence are understood as the result of similar Late Woodland societies adapting to similar socio-environmental challenges. These two viewpoints occupy poles of a wide theoretical middle ground.

The homology/analogy dilemma inspires the distinction between archaeologists' use of the terms "Emergent Mississippian" and "Early Mississippian." The former is aligned with the notion of pristine developmental processes and refers specifically to developments in the 10th and 11th century developments in the American Bottom, whereas the latter has to do with migration/contact processes causing secondary chiefdom development (Kelly 1987; Jenkins and Krause 2009). At the time of Cahokia's rise to regional prominence, most other people in the American Midwest and Southeast were semi-sedentary, hunter-gatherers. The relatively sudden presence of the Cahokian political, economic, ideological, and military powerhouse sent shockwaves through the region, affecting near and distant cultural developments. Within the next two and a half centuries, even the most isolated peoples in the Southeast had most likely felt the impact of Cahokia's meteoric rise and gradual decline, and many archaeologists highlight direct or down-the-line contact with Cahokians as a significant contributing factor to the Mississippianization of the broader Southeast (references).

The Mississippianization of other Southeastern groups following Cahokia's emergence is often accounted for in terms of religious revitalization (Pauketat 2004:119-143, 2007:155-157), competitive emulation, and/or migration of Mississippianized individuals, small groups, or whole communities (Alt 2006; Blitz and Lorenz 2002, 2006; Cobb and Butler 2006; Cook and Fargher 2007; Delaney-Rivera 2007; Kowalewski 2006; Pauketat 2007). Local adaptive conditions, while still acknowledged as enabling Mississippianization, now take a backseat to explanations that highlight agency in the context of nonlocal cultural emulation, cultural pluralism, material exchanges, population movements, and shared ideologies (Blitz 2010:13). Though no influence is totally isolable, new syntheses describe how sweeping regional developments engaged with local traditions in historically, culturally, and environmentally particularistic alchemies to produce myriad local "Mississippian" variants (Alt 2002, 2006; Blitz 2010:12-13; Cobb 2005; Pauketat 2001b, 2001c).

Blitz and Lorenz's (2006) case study of the Chattahoochee River Valley Mississippian, for example, emphasizes the ethnographically rare case of whole community migration to explain the sudden appearance of novel material culture patterning in that area around A.D. 1100-1200. The fission-fusion process (Blitz 1999:583), whereby "small and large chiefdoms formed by the aggregation and dispersal of minimal or basic political units," was at work in the Chattahoochee Valley undermining the formation of regionally organized polities while at the same time providing a basis for the expansion of collective social identities to regional levels and beyond. Their framework involves four concepts: 1) the fission-fusion process of segmentary organization which permits impermanent hierarchies and heterarchies in response to shifting internal and external situations, 2) the frontier model (modified from Kopytoff's (1987) Internal African Frontier Model) for the geographical spread and chronological replication of polities across the Southeast as groups fissioned in response to stress and then attempted to attract members in efforts to shore up stability, 3) the production of social memory through the use of platform mounds, and 4) the interplay between environmental change and polity growth and decline. The authors offer this as a framework for understanding Early Mississippian development in other parts of the Southeast as well (cf. Hally 2006:27-29; King 2003 118-119).

Plazas in Emergent and Early Mississippian Societies

Efforts to institutionalize new social and political distinctions necessitated corresponding efforts to expand integration to counteract the tendency of differentiated groups to fission. In early Mississippian societies and, indeed, many other early complex societies around the world, plazas were massive symbols of group unity created in a historical context where emerging differences in rank and power threatened group cohesion. Plazas are a particular kind of public facility: an expanse within a settlement plan where diverse social groups interact and intermingle (Low 2004:35); a flexible space designed with communal activity and performance in mind (Inomata 2006; Lewis et al. 1998:11-16); a monument to and of collective action. They correlate well with the transition from small villages to larger, more centralized communities (Hill and Clark 2001; Rautman 2000; cf. Trigger 1990).

The notion of the plaza as vast and empty is frequently encountered in artists' depictions of Mississippian landscapes. As snapshots in time, they vividly capture what is generally assumed about Mississippian plazas, that is, that they functioned primarily as venues for archaeologically invisible activities. Until the early 1990s, archaeological work in Mississippian plazas was, for the most part, limited to small-scale forays devised to address questions other than those pertaining to plazas. Then a number of studies designed specifically to address plaza construction and use quickly overturned much of what had been assumed. Contrary to earlier portrayals of Mississippian plazas as unaltered, empty space delineated by mounds, they began to be understood as layered constructions encapsulating rich and informative histories (Dalan et al. 2003; Kidder 2004). The new wisdom regarding them can be summarized in five general, interrelated points.

First, Mississippian plazas were not default creations of encircling mounds, but were an end in and of themselves (Black 1967:340; Brown 2003:214-215; Cole et al.

1951:43; Cotter 1951; Demel and Hall 1998; Holley et al. 1993; King 2001:6; Knight and Steponaitis 1998:6; Lewis and Kneberg 1946:26; Rogers et al. 1982; Steponaitis 1974; Stout and Lewis 1998; Young and Fowler 2000). Coring, trenching, test excavations, and geophysical surveys have mustered enough evidence to suggest that plazas were initially built by cutting natural levees and infilling low-lying swales. Labor estimates for plaza construction sometimes far exceed those for individual mound construction (e.g., Lacquement 2009:Table 6.1).

Second, central plazas were *the* primary design element of Mississippian capitals (Dalan 1997; Holley et al. 1993; Lewis et al. 1998). Their size and shape was decided upon at the very inception of many towns, constraining later reorganizations of those monumental layouts (Kidder 2004). In other words, "big mound-and-plaza complexes started out big, small mound-and-plaza complexes started out small, and they all pretty much stayed that way" (Stout and Lewis 1998:161; see also Alt et al. 2010). However, this is not to say that that size and shape of plaza was unchangeable. Like mounds, the Mississippian plazas that confront us today are the end result of lengthy historical processes (Rogers et al. 1982:1-2). For example, sometime after the initial construction of the Coles Creek plaza at the Raffman site in northeast Louisiana, the site's inhabitants expended considerable effort to enlarge the plaza into a steep ravine on the north end of the monumental arrangement (Kidder 2004).

Third, they were commonly created by societies in rapid transition (Pauketat 2007:146-147; cf. Beck et al. 2007). Archaeologists argue, for example, that Cahokia's Grand Plaza "was the centerpiece of an all-encompassing political-cultural transformation of the regional landscape, the so-called 'Big Bang'" (Alt et al. 2010:[page number]). It was part of a complete reorganization of Cahokia's built environment that served to "disembed" cultural practice and governance from a pre-Mississippian sense of place (Pauketat 2007:146-149). If mounds and mound arrangements symbolized the vertical and horizontal differentiations between Mississippian people, plazas can be said to represent the integrative counterpoints at the literal and figural centers of Mississippian communalism.

Fourth, they are known to overlay earlier arrangements (Alt et al. 2010; Pauketat 2004:76-78; Rogers et al. 1982). Because plazas were physically constructed usually in places where people had lived for generations, they required the removal of pre-existing architecture. Limited testing in Mississippian plazas has confirmed the presence of house remains, habitation debris, and other remains beneath plaza fills (Alt et al. 2010; Lacquement 2009; Steponaitis et al. 2009; Thompson and Blitz 2009).

Finally, they were not devoid of standing architecture (Kelly 1996). Geophysical survey at Spiro has revealed a large, isolated rectangular structure in the open plaza area (Rogers et al. 1982), and excavations in Cahokia's plazas have documented post galleries and tremendous circular enclosures. We might expect that domestic construction was strongly discouraged in active Mississippian plazas, but that plazas were prime real estate for certain types of special purpose structures. However, architectural arrangements within plazas may have changed over time in tandem with social and political developments and other historical circumstances. For instance, during Cahokia's protracted decline, residential space encroached into the West Plaza, which had been reserved for special purpose buildings during the polity's height (Kelly 1996:45).

Of course, these will by no means prove true in every case. Indeed, archaeologists can expect that the nature and tempo of plaza construction varied with culture-historical circumstances, and that fertile theoretical ground lies as much in the differences between individual plaza histories as it does in their similarities.

The Woodland-Mississippian Interface in West-Central Alabama

There are advocates for both sides of the analogy-homology debate when it comes to the origins of the Moundville Mississippian sub-culture of West-Central Alabama (cf. Jenkins 1978, 2003; Jenkins and Nielsen 1974; Jenkins and Krause 2009; Welch 1990, 1994). There is currently no evidence of direct Cahokian involvement in the Mississippianization of the Black Warrior River Valley ca. A.D. 1120, but the lack of clear stylistic transition from local Late Woodland (West Jefferson phase) to early Moundville I phase pottery assemblages has prompted some scholars to propose an intrusive origin for Mississippian culture in the Black Warrior Valley (Jenkins 2003; Seckinger and Jenkins 2000). These scenarios had largely been rejected in favor of local developmental scenarios (Knight and Steponaitis 1998; Welch 1990, 1994), that is until new evidence of intrusive Mississippian settlements in the nearby Chattahoochee River valley came to light (Blitz and Lorenz 2002). As of now, excavations at a handful of Terminal Woodland sites in and around the Black Warrior Valley in combination with more extensive studies of Early Moundville I phase contexts suggest that the eleventh and twelfth century Black Warrior Valley was the scene of an acculturation process involving a hodgepodge of local hunter-gatherers and Mississippianized foreigners (Jenkins and Krause 2009; Jenkins and Seckinger 2000).

Late and Terminal Woodland. Alabama in the eleventh and twelfth centuries was home to numerous semi-sedentary hunter-gatherer groups whose ranges and interactions have been identified mainly from the distributions of their characteristic ceramics, particularly in regard to temper types (Jenkins and Krause 2009). The local groups that played the greatest role in the emergence of the Moundville polity around A.D. 1200 occupied territories in what are now Jefferson, Tuscaloosa, Hale, Greene, and Pickens counties. Archaeologically, these are identified as the Miller III (ca. A.D. 600-1100; Welch 1990) and West Jefferson (ca. A.D. 990-1250; Jackson 2004) phases with constituent sites concentrated in the alluvial plains and surrounding uplands of the Tennessee-Tombigbee and Black Warrior River Valleys, respectively (Figure 3.2).

Over the 500-year span of the Miller III phase, the Tombigbee River Valley supported an increasingly dense population. Their riverine settlements were large and closely spaced with deep midden deposits. In these overcrowded conditions, people adapted their subsistence strategies and settlement patterns to take advantage of smaller and more abundant food resources – turtles, fish, birds, and small mammals instead of deer (Welch 1990:204; Woodrick 1981:Table 37). This shift to "second-line" resources does not appear to have alleviated nutritional stress. The mortuary records of the latter Miller III subphases are replete with examples of systemic infections and degenerative pathologies, indicating a marked decline in health status over time (Cole et al. 1982). During this time of no doubt heightened competition over vital resources, mortuary status

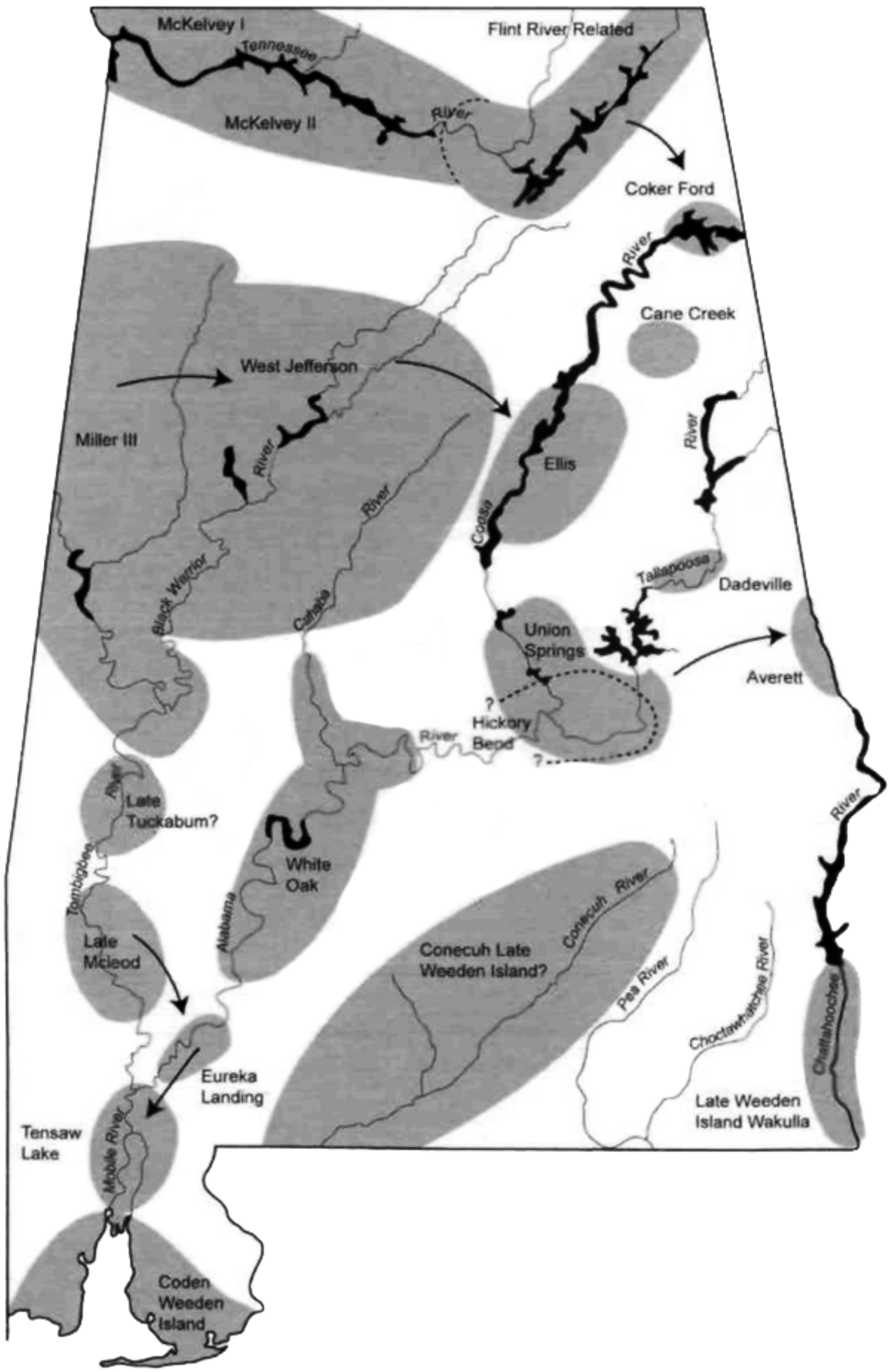


Figure 3.2. Late Woodland culture areas and population movements in Alabama (Jenkins and Krause 2009:Figure 9).

markers indicate a rise in male-dominated intercommunity exchange and an unexpected decrease in incidents of violence (Welch 1990:205-206).

The Late Woodland period in the Bessemer area to the east of the Black Warrior near modern-day Birmingham, Alabama is better known. Population density was even lower there than in the Tombigbee and Black Warrior Valleys, but consisted of both West Jefferson and Bessemer peoples – two distinct ethnic groups living side by side (Jenkins 2003; Jenkins and Krause 2009:211; Seckinger and Jenkins 2000; *contra* Welch 1994:24-25). West Jefferson pit features in the Bessemer area are dominated by hickory nut and acorn shell, but contain more maize than similar West Jefferson features elsewhere. Judging from the scant number of exotic and status-related objects found in the somewhat unusual cemetery at Pinson Cave, a limestone dissolution chamber into which an estimated 90 individuals were dropped, this West Jefferson population was similar to the others discussed here in terms of their lack of social ranking and limited degree of extralocal exchange (Welch 1990).

Material remains from the Bessemer site represent a contemporaneous Mississippian intrusion into north-central Alabama, complete with shell-tempered pottery, rectangular wall trench architecture, some degree of social ranking, and a small mound-and-plaza complex at the eponymous Bessemer site, the only Bessemer subphase site that has been excavated (DeJarnette and Wimberly 1941; Seckinger and Jenkins 2000). The overall settlement pattern is not known, but Bessemer's modest mound-and-plaza arrangement make2 it clear that the Bessemer site functioned as a ceremonial and/or political center. That said, evidence of erosion between mound construction episodes could suggest that the mounds were not continually in use during the 200-year-long

Figure 3.3. West Jefferson period bell-shaped pits (photo courtesy Vernon James Knight, III).

Bessemer phase, and therefore that the integrative importance of the site waxed and waned over time (Welch 1990:218). Bessemer's plaza and the two large rectangular buildings that front it predate any of the mounds. These are interpreted as communal structures (Welch 1990:217). When those buildings were later razed, a series of additional domestic and communal structures were constructed on and around the same spot, all oriented to the same direction as the nearby platform mound. Realignments such as this, especially in conjunction with a central plaza, may signal the establishment of a collective identity.

Unlike their West Jefferson contemporaries, Bessemer people do not appear to have relied on gathered mast foods such as hickory nuts and acorns for subsistence. A total lack of nut storage facilities and a higher prevalence of macroscopically recognizable maize fragments in Bessemer contexts suggest that maize agriculture provided much of their sustenance (Seckinger and Jenkins 2000:54). As a measure of West Jefferson acculturation to Mississippian practices, it is noteworthy that the occurrence of shell-tempered pottery and maize in West Jefferson contexts increased over time. Later pits include almost as much corn as Early Moundville contexts (Scarry 1993).

West Jefferson phase hunter-gatherers in the neighboring Black Warrior River Valley were probably not so stressed, though excavation data are lacking. Limited evidence suggests that Late Woodland life in the Black Warrior Valley involved seasonal mobility between one of a dozen or so lowland villages and upland campsites (Welch 1990:212). "Bell-shaped" pits at West Jefferson sites provided a secure place to store food out of sight during short-term site abandonments (DeBoer 1988; Figure 3.3). Food items included a variety of flora and fauna, and, as in the contemporaneous Tombigbee, maize was cultivated in increasingly larger amounts as the years passed (Jenkins 2003:21; Scarry 1986:Figure 8.36). There is essentially no mortuary record to speak of for this time period, but because modest population density and low resource stress are infrequent preconditions for institutionalized status differences, it is likely that no West Jefferson people in Late Woodland Black Warrior Valley were ascribed high status (Welch 1990:212). However, the many sites have yielded a high number of microdrills, chipped stone tools used primarily to perforate shell beads, could be related to a increasing competition between tribal leaders who used shell valuables as primitive wealth, a political economic development that could herald the emergence of the Moundville chiefdom (Pope 1989; Steponaitis 1986).

It is not clear whether the Moundville site was occupied during the Late Woodland Period. Though West Jefferson phase pottery is scattered across the site and even so concentrated west of mounds O and P to suggest to some the presence of a small West Jefferson phase settlement (Walthall and Wimberly 1978:122-123; Steponaitis 1983:151-152), diagnostic West Jefferson pits have never been documented at Moundville. Considering the absence of long-term Late Woodland storage pits, archaeologists now accept that the extended occupation of the Black Warrior Valley's Hemphill Bend did not begin until ca. A.D. 1120, the start of the Moundville I phase. The extent of the chronological overlap between the West Jefferson and Moundville I phases varies for different parts of west- and north-central Alabama, reflecting differences in the ways that West Jefferson people responded to the advent of Black Warrior Mississippian life (Knight et al. 1999). Some continued hunting and gathering in near and more distant river valleys for about the next 120 years (Jackson 1996). Others apparently settled into the motley community of Mississippians and other foreigners at Hemphill Bend, maintaining some aspects of their traditional lifeway while relinquishing others as they integrated into an agricultural society over the next 60 years.

Early Moundville I

Life along the Black Warrior began to change around A.D. 1120 with the first traces of Mississippian culture: a stable agricultural economy in which corn contributed about 40 percent of the diet (Schoeninger and Schurr 1998), wall trench technology for building rectangular houses, and new ceramic vessel forms constructed out of shell-tempered clay rather than the traditional grog. Though the valley may have supported several small autonomous polities during this time (Wilson 2008:21), the preeminent settlement occupied the flood-free terrace forming the cut bank of Hemphill Bend. It was there that monumental earthworks reappeared in the Black Warrior Valley after being absent for over 600 years (Knight 2010:360). They took the form of two platform mounds, Mound X positioned just outside of the later mound arrangement at the Moundville site (Blitz 2010) and another at the Asphalt Plant site 800 m to the northeast (Steponaitis 1992), pivot points in the reconciliation of a traditional egalitarianism and emerging institutionalized inequalities. It is unlikely that these were the only two mounds on the terrace during this time period, as others may have been obscured by later earthmoving projects at Moundville (Knight 2010:360-361).

The overall settlement plan during the initial Mississippian occupation is poorly understood. Previous depictions evoke a community loosely clustered around the two

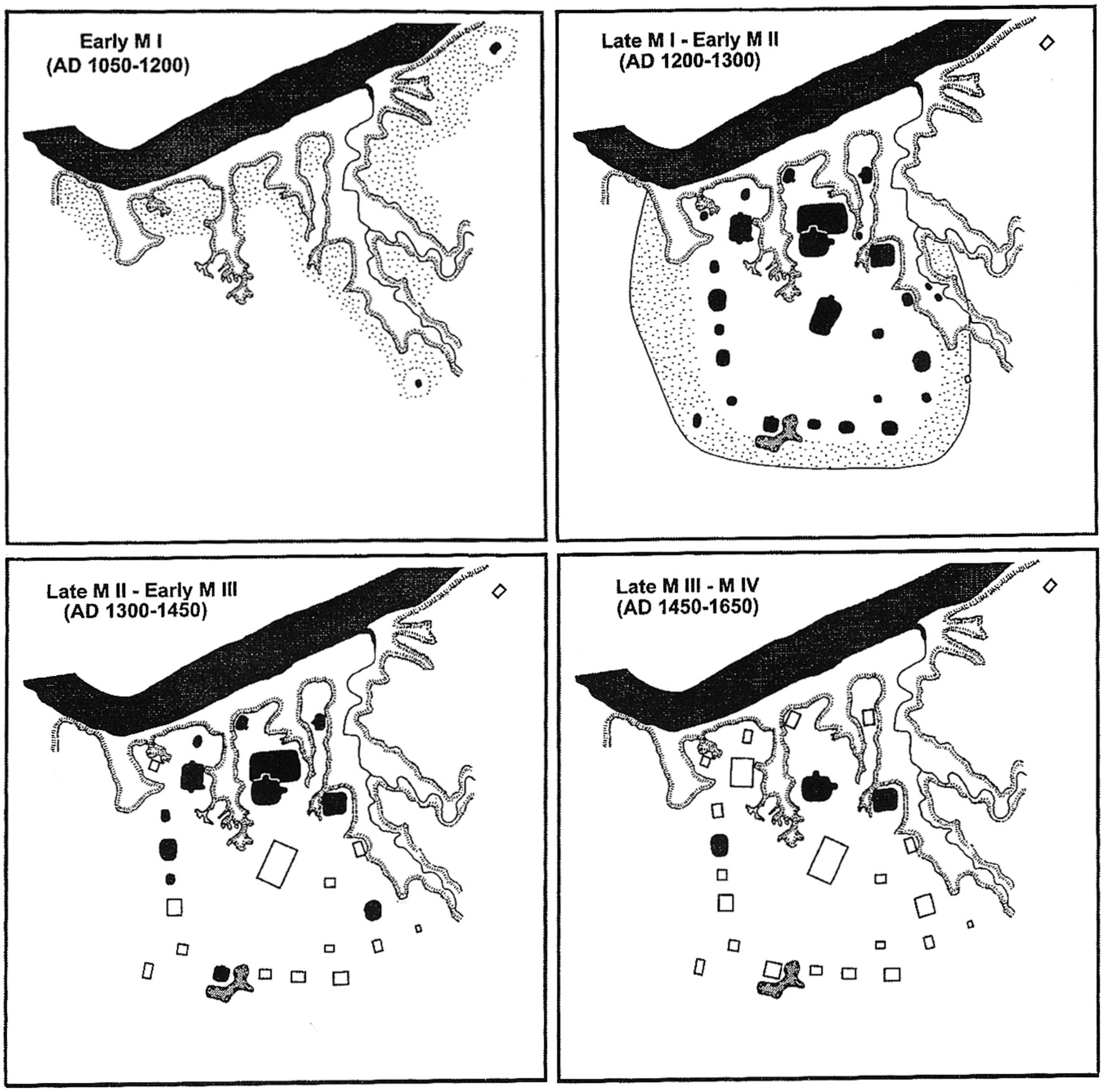


Figure 3.4. Changes in Moundville community pattern over time as proposed by Knight and Steponaitis (1998:Figure 1.3). Shaded areas represent habitation zones.

known mounds and along the terrace edge overlooking Carthage Creek and the Black Warrior River (Knight and Steponaitis 1998:Figure 1.3; Figure 3.4). This description may indeed be accurate for the very earliest Mississippian occupation of the terrace, as first families claimed homesites with ready access to flowing water. Wilson's (2005, 2008) analysis of data salvaged in preparation for the construction of Moundville Roadway adds additional detail. The Depression Era Roadway excavations, which sampled locations in a 50-foot-wide wide band skirting and sometimes penetrating the plaza area, encountered a total of 140 structures including numerous examples of Early Moundville I architecture even at locations far removed from the terrace edge (Wilson 2008:50, Table 4.2). These may represent slightly later arrivals who would have had no choice but to settle at less convenient but unclaimed locations if they desired a place at the local center. Considering the relative benefits of having staked an early claim to riverside homesites, including perhaps even first dibs on incoming trade items, it is not surprising that this incipient settlement plan would soon be formalized in a monumental arrangement representing a status gradient that decreased from north to south with greater distance from the river (Knight 1998).

Artifacts and features from on and around the Asphalt Plant mound hint at the importance of ritual and long distance trade in early status display. Flank excavations recovered objects of exotic chert, greenstone, and galena, including fragments of locally made sandstone palettes in addition to possible fragments of chipped stone ceremonial “swords” or “daggers” of a type wielded by birdman supernaturals in Mississippian iconography (Steponaitis 1992). These rare bifaces were made of Mill Creek chert which derives from uplands (Cobb 2000). Recent excavations directed by the author discovered a modest flank midden containing several sherds of an elaborately engraved *variety Elliots Creek* bottle, the uncommon fineware hallmark of the Late Moundville I subphase (Steponaitis and Wilson 2010; Wilson 2005:182-185). Simultaneous excavations at the mound summit exposed a portion of a single-set post building. The mound-top focus of this peculiar assemblage calls to mind a leading family whose influence within a growing community was tied to that of distant elites and their powerful deities.

More mundane settings shed light on the everyday negotiations of practice and identity that accompanied Moundville's rise to regional prominence. Comparisons of ceramic and architectural diversity between early households, in particular, provide insight into the ethnic makeup of the early community and an opportunity to widen the aperture for insights into how broader social arrangements came to be. Though relevant contexts have been encountered in many sectors at the site, household data from the northwest riverbank possess the chronological control necessary to address the origins and intermingling of the early Moundville population.

The variety of architectural styles present during the early Moundville I phase is a measure the initial community's ethnic diversity. Among the [twelve] structures excavated at the northwest riverbank, eight date to the initial occupation of the site. Three architectural styles, all with central hearths but lacking other internal features such as benches, support posts, and partitions, are represented among them (Scarry 1995, 1998). All were dome-shaped, flex-pole structures that, as far as archaeologists can tell, differed mostly in terms of how their walls were set into the earth. The local and chronologically earliest style consisted of four single-set post walls in a rectangular pattern. A chronologically later style and the typical Mississippian design consisted of four wall trench walls in a rectangular pattern, a time- and energy-saving technique that involves setting posts into narrow slot trenches rather than into individually dug postholes.

There is another architectural style documented at the Riverbank and across the Moundville site that is particularly symbolic of the acculturation processes involved in the formulation of the Moundville identity. This third style merges Late Woodland-style sunken floors and single-set post walls with the newly introduced wall trench technology in an apparent effort to reconcile the local and foreign traditions, a pattern consistent with the adoption of wall trench architecture in the American Bottom (Alt 2006; Pauketat and Alt 2005). These hybrids evidence a multiethnic community in transition, where tradition and identity were called into question and subsequently transformed into something new (Bhabha 1990, 1994). By A.D. 1200, most buildings at Moundville were being built using the wall trench technique.

Judging from the presence of hybrid material culture, we can assume that the motley members of the early Moundville community intermingled in various contexts, but little can currently be said of their gathering spaces. Plazas and extra-large buildings predating the construction of the mound-and-plaza arrangement have proved elusive (Wilson 2005:91, Figure 6.5). Likewise, artifact distributions only hint at the specificities of an emerging pattern. For example, the restricted distribution of elaborately engraved fineware ceramics suggests an emerging difference between elite and commoner ritual practice (Steponaitis and Wilson 2010; Wilson 2005:182-185). Meanwhile, traditional forms of ritual feasting and crafting bound dispersed hinterland communities together (Maxham 2000). If anything besides this can currently be said, it must be based upon the assumption that ritual and community activity during the early Moundville I sub-phase was an incipient form of the well-developed communalism of the late Moundville I sub-phase. If that's true, then we can expect that households retained surpluses for use as they saw fit rather than contributing to a communal store (Barrier 2011), that cross-household ritual practice was in the process of homogenizing (Blitz and Thompson 2010; Thompson 2011; Wilson 2008), and that social and ritual gatherings occurred at a variety of scales, from the individual household and household group to the community level.

Archaeological data for the early Moundville sub-phase make it clear the introduction of Mississippian lifeways to West-Central Alabama circa A.D. 1120 set in motion a cascade of ruptures that durably transformed an extant local Late Woodland culture. Within the span of only three or four generations, the inhabitants of the Moundville terrace would develop an institutional hierarchy. These formerly distinct groups knit themselves into a single community, forging the new identities and social relationships required to expand social and political integration. In some instances this process involved hybrid forms of material culture, particularly with regards to architecture. In other instances it involved totally new practices, represented in wide participation in cooperative earthmoving projects and the concomitant development of a more restricted, mound-centered ceremonialism grounded in, among other things, the manipulation and display of a limited number of exotic items. In yet other instances, it implicated the continuation of traditional ritual practices, such as the small-scale feasting documented in some rural contexts (Maxham 2000). By the end of the twelfth century the growing populace must have become largely disenchanted with the past, for they would soon embark upon a landscape-scale construction project that necessitated the demolition of many formerly revered places and things.

Moundville at its Height

Prior to the turn of the twelfth century, the cultural landscape of West-Central Alabama was characterized by a plurality of Late Woodland peoples divided into different river valley systems and upland environments. These semi-sedentary hunter-gatherers responded variously to the apparent migration of Mississippian agriculturalists into the central part of the state [in the eleventh century]. Some went about their lives as usual. Others seem to have avoided them. Yet others settled among them, precipitating a sequence of social, political, and technological restructurings that ultimately converged on the Black Warrior River Valley. Together they formed a ranked society symbolized and unified in the construction one of the largest mound-and-plaza arrangements in the prehistory of the Deep South, a monumental resolution to the structural ruptures created by the initial influx of Mississippian people into Alabama two centuries prior. However, the monumental arrangement was but the most lasting, visible, and labor-intensive part of a collectivity that was equally represented in shifts and standardizations in subsistence practice (Scarry 1986), household and economic organization, ceremonial practice (Thompson 2011; Wilson 2008), architectural techniques (Lacquement 2007), and other forms of material culture.

Late Moundville I. Moundville's formal political consolidation circa A.D. 1200 corresponds to a sharp decrease in the population of the rural countryside (Maxham 2004:126). The depopulation of the hinterland corresponds to a dramatic population increase at the local center (Maxham 2004; Steponaitis 1998). In short, people were flocking to the Moundville site. Despite its proximity, they forever abandoned the Asphalt Plant mound. Meanwhile, four single-mound centers were established (Knight and Steponaitis 1998). Remaining hinterland farming communities planted, harvested, and processed maize for delivery to nearby single-mound sites (Scarry and Steponaitis 1997; Welch and Scarry 1995).

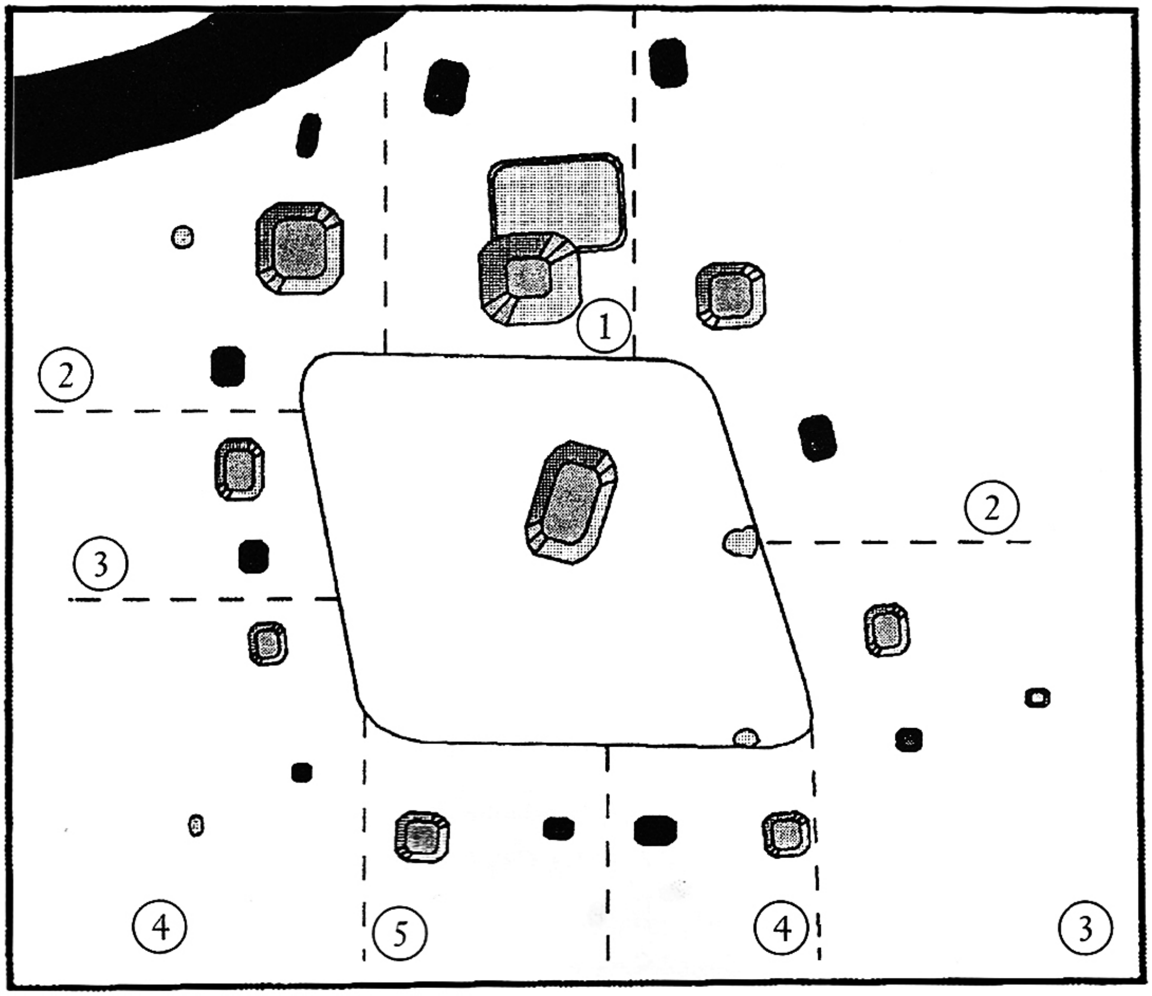


Figure 3.5. Pairs of large and small mounds identified by Knight (1998:Figure 3.4).

The cooperative labor projects of the 12th century pale in comparison to those of the thirteenth. The flurry of construction projects that accompanied Moundville's rise to regional prominence were part of a deliberate attempt to spatialize key social and political distinctions in such a way that privileged some groups at the expense of others, taking the form of an enormous monumental mound-and-plaza arrangement. Wilson (2008:131) has argued that the diagrammatic layout of the mound-and-plaza complex was an outgrowth of domestic processes initiated with the settling of distinct areas of the terrace by different social groups. As they built houses and planted crops, they not only

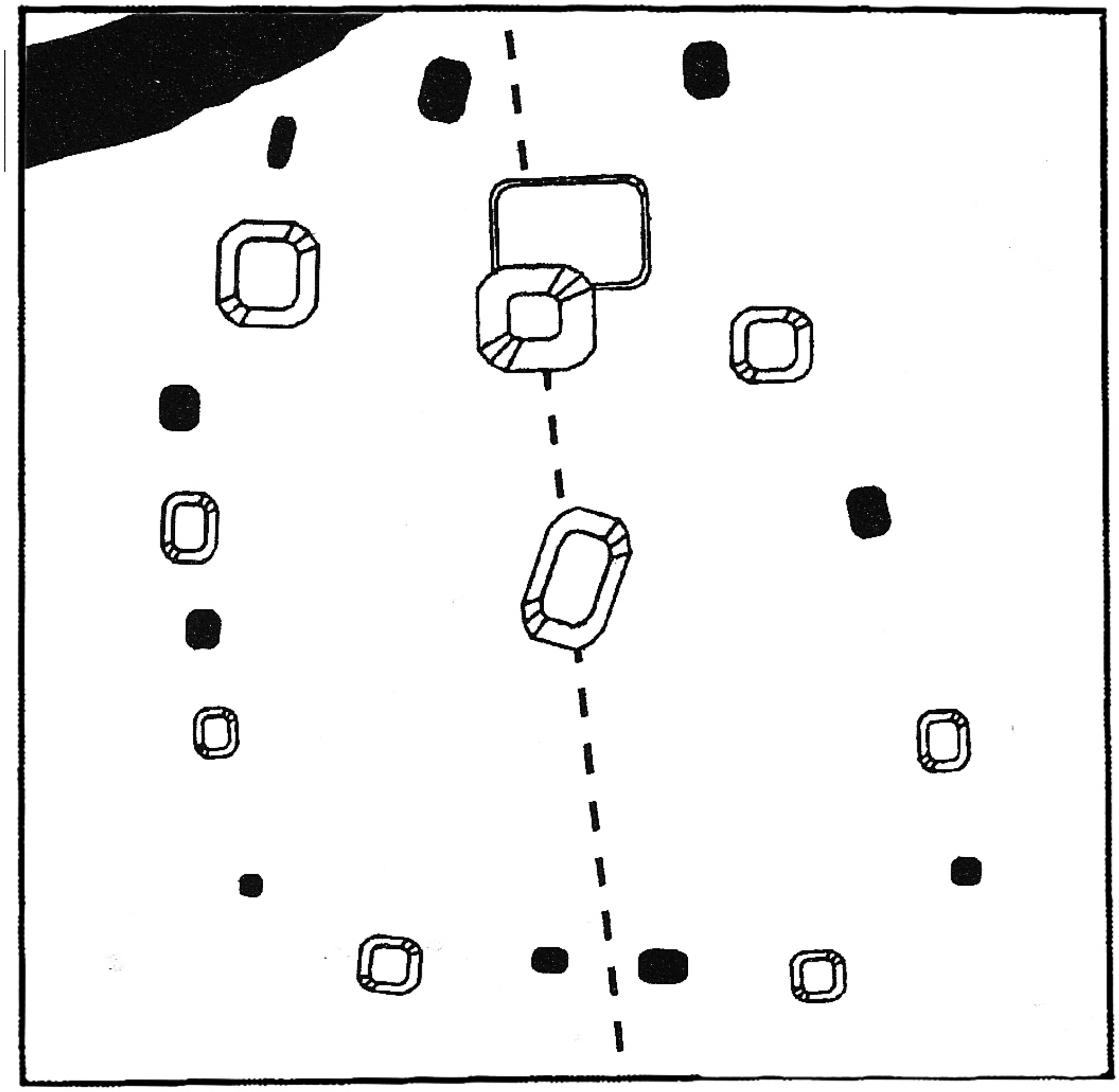


Figure 3.6. Moundville's axis of bilateral symmetry proposed by Knight (1998:Figure 3.2).

laid claim to spots on the physical landscape, but also established a blueprint for interacting with both kin and nonkin that, once fixed in monumental form, defined, perhaps unintentionally, more-or-less inflexible parameters within which the subsequent centuries played out.

The core arrangement encompasses 16 mounds labeled alphabetically A, B, and E-R. Not including mound A, these mounds form the "plaza periphery group," the approximately parallelogram-shaped frame surrounding the single largest prehistoric plaza in the Eastern United States. The mounds of the plaza periphery group are all oriented to the cardinal directions, form pairs of adjacent large and small mounds, and are arranged according to a bilateral symmetry defined by a canted line bisecting mounds A and B and dividing mounds J and K (Figure 3.5). Mound B, the largest mound by volume, dominates the arrangement from the center-north position, leading archaeologists to connect it with the polity's leading family. Mound A occupies the north-central end of the plaza. It is the only differently oriented mound of the core arrangement, angled southwest-to-northeast in possible reference to minor mound B1 in the extreme northeast section of the site (Knight 1998:48).

Drawing links to the ethnohistorically described camp square (Figure 3.7), Knight (1998) has called the mound arrangement a sociogram, a massive social and cosmological symbol, the size and position of each mound pair correlating with the size and status of the lineages that used it. Because the largest mounds and richest burials are found on north end of the arrangement, a status gradient that the mound arrangement represents is thought to decrease from north to south – lower status families occupied the southern end and higher status families occupied the northern end. While the mounds of the plaza periphery group correspond to the arbors or sheds of the ranked sub-clans in Knight's Chickasaw camp square analogy, Mound A corresponds to the sacred council fire (Knight 1998:55, Figure 3.5). Perhaps it is for this reason that it has long been casually assumed to have held some sort of unifying, council-house-like position among the mounds of the core arrangement.

Mound-and-plaza construction was an act of creation as much as destruction, for hundreds of houses and other buildings had to be cleared to make way. Not even the lay

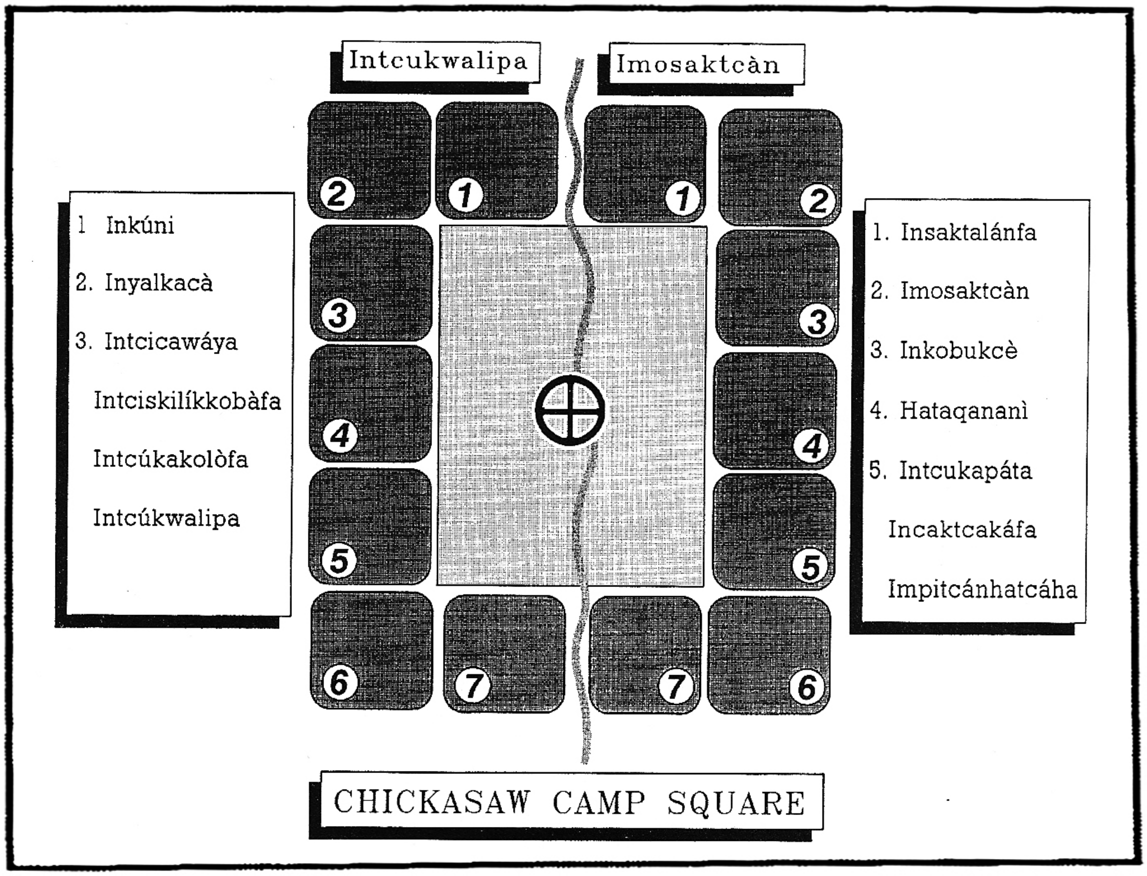


Figure 3.7. Diagram of the Chickasaw camp square, historic analog for the mound-and-plaza arrangement at Moundville (Knight 1998:Figure 3.5).

of the natural terrain could stand in the way of the Moundvillian's collective vision; the ridge-and-swale topography was leveled to create the plaza just prior to the construction of the mounds (Knight 2010). The plan called former objects of corporate and communal veneration into question. Mound X, one of the two known Early Moundville I mounds, was leveled along with the natural ridges, a surprising turn of events given the time-honored reverence for earthen monuments among Southeastern Indians (Blitz 2007b, 2009).

To protect the sacred center, the objects housed in its august mound-top residences and workshops, and the people who lived there, the community raised a mile-long bastioned palisade of approximately 20,000 pine logs (Turner 2010). The wall encircled the community from riverbank to riverbank, crossing a tributary of Carthage Creek, and bisected the footprint of the recently dismantled Mound X as if to emphasize its new irrelevance (Blitz 2007a). The palisade would be rebuilt six times over the next 100 years (Scarry 1995, 1998). Off-mound residential space has long been thought to have been limited to the wide band between the plaza's edge and the palisade.

Wall trench house construction was well suited to the radical remaking of early Mississippian communities plans. Because it could have involved prefabricated walls that could be assembled and stockpiled well in advance of a project, it allowed displaced households to quickly and easily reestablish themselves somewhere else (Pauketat 2004). Perhaps it is for this reason that the vast majority of houses post-dating the construction of Moundville's mound-and-plaza complex were built using the wall trench technique (Lacquement 2007).

Buildings changed in other ways as well. Domestic structures went from smaller, isolated and non-cardinally oriented buildings during first half of the Moundville I phase to cardinally oriented "residential groups" of five to twenty slightly larger buildings on average (Wilson 2005:129). The increase in structure size is interpreted as evidence that household size increased around the turn of the 13th century when the monumental plan was first established, while the shift to a common orientation angle can be interpreted as yet another sign that the formerly diverse population had resolved its differences and adopted a collective notion of who they were as a community.

Each cluster of buildings was discrete, separated from neighbors by open ground but composed of the same range of structure sizes and forms, a redundancy that suggests that residential groups were a basic unit of Moundville social organization (Blitz 2008). The remains of domestic architecture form heaps here and there at the site today (Johnson 2005; Thompson 2007). These are a testament to the size and/or longevity of certain residential groups. Indeed, palimpsests of house remains encountered during Depression-era roadway excavations indicate that maintaining a dwelling among one's kin was important. Even after most of these house clusters had been abandoned and the center transformed from bustling town to vacant necropolis during the Moundville II and III phases, Moundvillians returned to establish group cemeteries exactly where their ancestors had once lived, a sign that kin ties remained just as fundamental to identity and, therefore, social interaction as they had during initial settlement of the site (Wilson 2010).

The Plaza

Once regarded as so much empty space, trenching, small-scale excavations, and auger and shovel test surveys now make it clear that Moundville's Plaza was a polysemic tableau with a complex history (Davis 2011; Driskell 1988; Lacquement 2009; Knight 2010; Steponaitis et al. 2009; Thompson 2011; Thompson and Blitz 2009). Plaza construction involved the dismantling and burial of many earlier buildings beneath plaza fills (Blitz 2010b). Knight (2010) encountered architectural remains beneath the earliest stage of mound fill at Mound G. Thompson's (2011) shovel test surveys overlapped the southwest and south-central plaza margins, and at both locations she found high frequencies of ceramic and lithic artifacts below plaza fills. A 4-x-4 meter unit at the south-central concentration exposed a large, Early Moundville I phase, midden-filled pit (Thompson 2011:149-153).

The plaza was constructed concurrent or close in time with the establishment of the multiple-mound and palisade arrangement (Knight 2010:361; Lacquement 2009). Knight (2010) conducted mound flank excavations that documented plaza fills below early mound construction layers at Mounds G and F. He defined them as “horizontal lobes of fill, wedge-shaped in cross section, added to even the surface of the plaza in places where mounds were built on ground sloping gently away from the common level of the plaza surface” (Knight 2010:348), and concluded that they served aesthetic purposes. No diagnostic ceramics or radiocarbon dates from these plaza fills or the original humus layers beneath dated later than the Late Moundville I sub-phase. Lacquement (2009), as part of his energetics assessment of the earthen built environment, excavated and auger tested at several locations in the plaza and his results reinforce Knight’s, though he may have encountered evidence of later modification in a test excavation unit near Mound F.

The actual plaza surface must have been kept relatively clean of debris, for despite being subjected to a range of low-impact collection strategies in the 1980s and 1990s, few artifacts have ever been recovered there (Driskell 1988; Steponaitis et al. 2009). That being said, the very presence of Mounds S and T in the eastern section of the plaza suggests a more complex situation than might otherwise have been assumed. Today these mounds look like low, flat-topped pyramids, having been shaped that way during the site’s Depression-Era “facelift,” but earlier maps show them as shapeless rises. According to ceramics from Mound S, that part of the eastern plaza was occupied both before and after the plaza was built (Knight 1994).

A recent magnetometer survey of Moundville encompassed the entire plaza, revealing the extent to which plaza construction may have severed continuity with a previous landscape (Walker and Blitz 2009). The magnetometer survey map documents the diversity and distribution of probable archaeological features in the plaza: buried hearths, house walls, and some architectural arrangements of great size and unusual shape that, if confirmed, have no excavated counterparts at Moundville (Davis 2011; Walker and Blitz 2009). The majority of these features probably underlie plaza fill. It is possible, then, that the sub-plaza landscape was not an entirely domestic one, but populated with timber-frame monuments akin to those encountered beneath other Mississippian plazas (Kelly 1996; Alt et al. 2010; Rogers et al. 1982). If not rebuilt in place, these reference points of prior use were eliminated in the process of constructing a new social memory. Of course, some of this architecture may postdate plaza construction. Careful attention to the form and function of these buildings, their placement in the landscape, and their stratigraphic position can illuminate the negotiation of past and present that accompanied and made possible Moundville's sociopolitical coalescence.

Chapter Summary

The Moundville site of west-central Alabama has received ample scholarly attention as the seat of a so-called Mississippian chiefdom that incorporated numerous settlements once scattered along a forty-kilometer stretch of the Black Warrior River and its tributaries. At its political height, it was a place with all of the monumental hallmarks of a native Southeastern capital town, a built ceremonial landscape composed of over two dozen earthen mounds arranged around an expansive plaza, all of it enclosed within a mile long wooden palisade (Blitz 2008). The rise and fall of Moundville parallels that of other large Mississippian polities: rapid coalescence within the span of two or three generations, a subsequent period of relative stability, and a final protracted decline (Knight 1998).

The perspective of early Moundville history put forward in this chapter can be summarized in the following way. The narrative begins in approximately 900 A.D. with semi-sedentary hunter-gatherers in central and west-central Alabama. By then, occupation in central Alabama was centered upon the Bessemer site where a minor cultural revolution, prompted by the arrival of Mississippianized foreigners from the north, was underway (Seckinger and Jenkins 2000). The immigrants lived alongside local hunter-gatherers at Bessemer, which was soon remade into a modest mound-and-plaza center occupied off-and-on over the course of the next 200 years. At the same time, botanical remains document a slow trend towards a diet composed more of maize and less of gathered foodstuffs.

Similar ceramics and architectural forms suggest a connection between developments at Bessemer and emerging complexity in the Black Warrior Valley in the 12th century. Within several generations, the culturally diverse community settled at Hemphill Bend had developed an institutional hierarchy monumentalized in earth and wood at the largest prehistoric settlement ever constructed in the Deep South. These formerly distinct groups knit themselves into a single community, forging the new identities and social relationships required to expand social and political integration. This process was materialized by monumental constructions unprecedented in the region: pyramidal mounds, a fortification wall, and an enormous central plaza. The plaza was constructed by filling and leveling large areas that had earlier structures, severing continuity with the past and providing an inflection point for interest groups to assert or deny conventional practices within a novel frame of reference.

New geophysical data from the Moundville allow an excellent opportunity to understand the extent to which the settlement was reorganized with polity formation. Chapter 4 reviews the historical development behind the methodology I adopt in dissertation, details how and why the geophysical data were collected, and outlines the field methods I designed to make the most of those data. The methods employed form the basis for a study of diachronic community patterns that is unprecedented among Mississippian research in its spatial scope.

CHAPTER 4: LANDSCAPE ARCHAEOGEOPHYSICS IN ARCHAEOLOGY AND AT MOUNDVILLE

Mississippian archaeologists have examined how the reorganization of the built environment can foster integration, but analyses have rarely centered on plazas despite their recognized importance. This is probably because the sheer size of Mississippian plazas and the relatively low densities of artifacts and other archaeological remains that are recovered from their surfaces make them a challenging subject. The theoretical approach adopted in this study sidesteps this issue by focusing not so much upon the few artifacts that can be scrounged from the surface of a Mississippian plaza or upon the shallow features that were long ago truncated or destroyed by the plow, but upon the many artifacts and features that were buried when that plaza was constructed. This calls for a landscape-scale dataset of the sort that, until recent advances in archaeogeophysics, was prohibitively laborious and/or ethically problematic (Kvamme 2003). This chapter reviews those advances and outlines their application in this research.

Geophysics in Archaeology

Geophysics is the field of study that uses quantitative physical methods to analyze of the Earth and its environments in space. As the name implies, it has arisen out the intersection between geology and physics, concerning itself with such physical phenomena as gravity, heat flow, seismic vibration, electricity, electromagnetic waves, magnetism, fluid dynamics, and mineral physics (Fowler 2005). Among other things, geophysicists remotely sense the physical dimensions of the surface and subsurface using specialized equipment and survey techniques, methods honed through repeated application by those seeking valuable minerals and other underground resources. The results of geophysical surveys are displayed in maps showing the locations of, among other things, anomalies – "localized areas that differ from their surroundings" (Hargrave 2006:275).

Archaeogeophysics uses geophysical data to make inferences about the archaeological past. It began in Britain in the early 1950s with scientists seeking to locate kilns and other archaeological features with extremely large magnetic fields (Gaffney and Gater 2003:12-24; see Clark 2000; Scollar et al. 1990 for historical overviews). Archaeogeophysics remained the domain of British archaeologists whose collective efforts gave rise to a well-rounded discipline by the early 1970s. Its methods have since proliferated to nearly every region where archaeology is done (Piro 2009). As the geographic distribution of archaeogeophysicists has increased, so too has the sensitivity of archaeogeophysical equipment. New instruments sport multiple sensors and rapid data collection rates. When coupled with advances in land surveying technology, such as Real Time Kinematic (RTK) Global Positioning Systems (GPS) and robotic total stations (Gaffney et al. 2008; Leckenbusch 2005), the new devices allow entire archaeological landscapes to be efficiently surveyed (Aspinall et al. 2008:179-188; Becker 2009; Campana 2009; Dabas 2009; Gaffney 2008; Gaffney and Gater 2003:150-155; Powlesland 2009; Walker 2009). The result is that geophysics, once relegated to mere

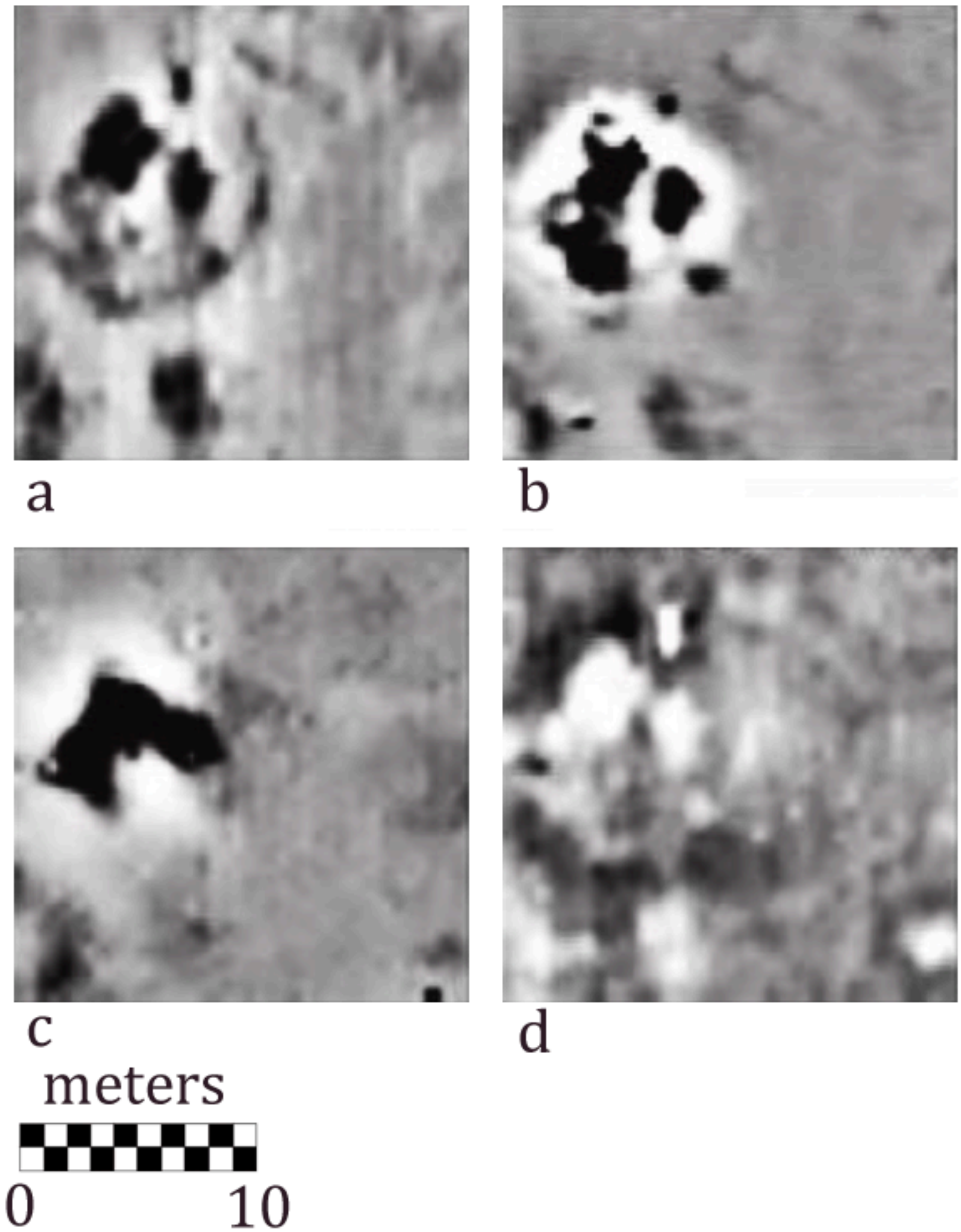


Figure 4.1. Complementary geophysical surveys of a 15th century Caddo structure at a site in southwest Arkansas: 1) magnetic susceptibility; b) magnetometry; c) electrical resistance; d) electromagnetic conductivity (adapted from Lockhart and Green 2006:Figure 2.8)

prospection in advance of excavation, is now beginning to be used as a primary source of archaeological data (Kvamme 2003).

Multiple-method geophysical surveys. Magnetometers, soil resistivity, soil conductivity, magnetic susceptibility, and ground penetrating radar are the most commonly used techniques in North American archaeogeophysics (see Johnson 2006 for a recent review). These instruments complement one another in that they map different dimensions of the subsurface (Hesse 1999; Kvamme et al. 2006; Maki and Fields 2010; Figure 4.1). Oftentimes, archaeogeophysical research employs these instruments in combination with one another, overlaying the results to display subsurface anomalies in multiple dimensions. Multiple-method surveys such as this are more successful at detecting and even enhancing the visibility of archaeological features and other subsurface anomalies than single-method surveys (Kvamme et al. 2006:251; Kvamme 2006a). A common method is to begin archaeogeophysical research with a broad-scale survey to identify areas of interest at a site, then to survey those locations with complementary instruments. The point is to enhance the results of the original survey by mapping different dimensions of the subsurface and, therefore, making it easier to interpret complicated portions of a survey map.

In general, landscape-scale surveys have come to rely primarily on magnetometers for how fast and easy they make it to collect and process reliable and informative data (Aspinall 2008:179-188). Magnetometry is a near-ground, noninvasive geophysical technique that measures the slight fluctuations that sediments and objects have on the earth's magnetic field. They are passive rather than active, meaning that they do induce magnetism by transmitting energy pulses of any sort into the earth; instead, they measure "remnant" magnetism. In certain kinds of soils, they can detect negative relief features such as pits, postholes, and wall trenches, in addition to thermally-altered features such as hearths and burned structures.

Magnetometers provide no information pertaining to the depth of features across a survey area. For that kind of information, archaeologists turn to other geophysical instruments such as ground-penetrating radar (GPR). GPR is a near-ground, noninvasive technique that uses shielded surface antennae to transmit pulses of radar energy, typically high-frequency electromagnetic (EM) waves, that reflect off buried objects, features, and geological bedding contacts (Conyers 2004:23-28). GPR has proven to be particularly useful for reconstructing prehistoric landscapes (Conyers 2005) and locating complex archaeological features such as basin structures and pit houses (Ernenwein 2008), even through modern parking lots and at depths of up to 6 m below ground-level.

Field methods. As with any other archaeological method, there is no "one-size-fits-all" way to conduct a geophysical survey of an archaeological site. Rather, field methods and survey logistics must be tailored to the particular surface and sub-surface conditions of individual archaeological sites, as well as the goals of the research project. Differences between survey strategies are generally to be found in how the equipment operator geopositions data and the data resolution that he or she desires.

Geophysical surveys follow standard procedures at the hands of skilled equipment operators (see Walker and Pertulla 2011). Generally, the operator must ensure that the instrument collects a precise number of readings (the "sample interval") along a survey transect, oftentimes with the help of an assistant who marks sample locations with wooden stakes or PVC pin flags at regular distances from one another (the "traverse interval”). The total number of readings in a survey is called the “sample density.” Higher sample densities produce higher resolution data, but require a greater investment of time.

Instruments produced by different manufacturers require that readings be positioned in one of three ways: gridded, timed, or instrument guided (Walker and Pertulla 2011). Each has its own drawbacks and advantages. For example, instruments necessitating gridded collection must be walked at a regular pace along survey transects and are, therefore, prone to operator error. Improperly collected transects must either be recollected or interpolated during processing to account for the error. Timed collection methods are inclined to the same kind of error, but record a preset number of readings per second rather than over a certain distance. GPS collection, especially when paired with Real Time Kinematic (RTK) satellite navigation, sidesteps these issues, positioning readings at sub-centimeter accuracy, but can only be use at sites with a clear view of the sky. RTK GPS collection methods even allow some geophysical instruments to be fitted to carts and attached to all-terrain vehicles for quick towing over collection areas (Walker 2009; Walker and Pertulla 2011).

Data processing. Each instrument type and collection strategy produces data that must be processed in a unique way, but the primary goal of data processing remains the same: to eliminate “noise” (Walker and Pertulla 2011:16). Because it is defined relative to a survey’s “target,” or the kinds of remains that the archaeogeophyicist seeks to identify, “noise” is defined differently in different studies. For a survey of a multicomponent site in the Southeastern United States, for example, an archaeogeophysicist may attempt to filter out anomalies representing historic-period archaeological remains such as plow scars and metal debris while highlighting anomalies

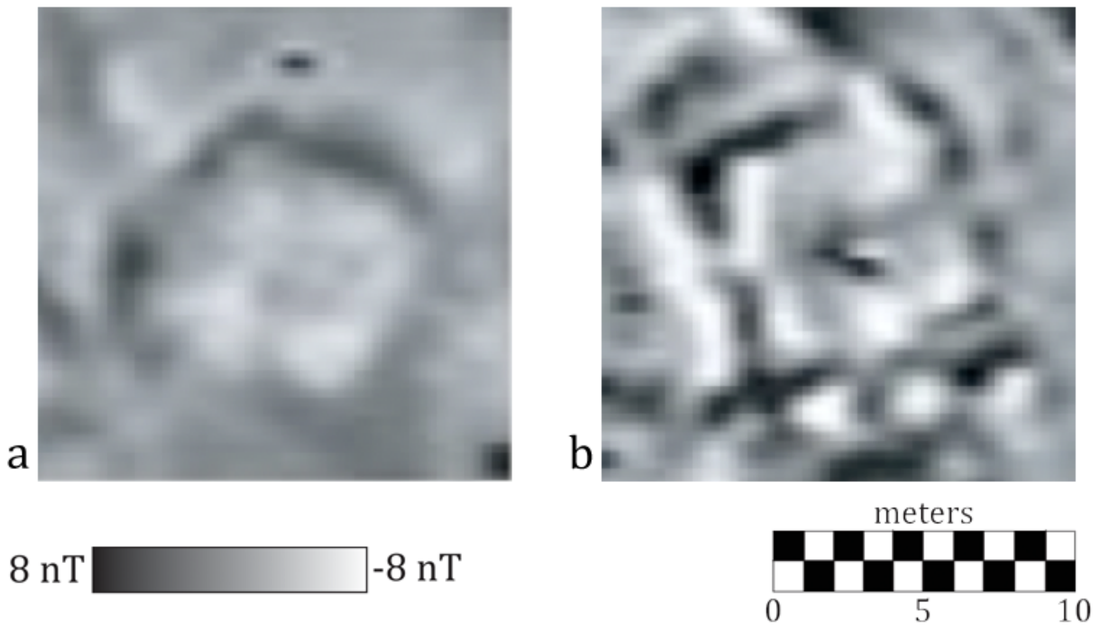


Figure 4.2. Two types of magnetic anomalies identified in Walker's (2009:Figure 3.5) landscape-scale gradiometer survey of the Etowah site: a) non-wall trench structure; b) wall trench structure.

that represent prehistoric remains like storage pits, hearths, and house walls. At the same site, a researcher interested in the historic component may highlight anomalies pertaining to that era while reducing or eliminating anomalies believed to represent prehistoric objects. In other words, what constitutes noise in one project can be the target in another (Milsom 2005:13-14). In addition to noise that is cultural in origin, noise may also manifest as spikes, stripes, and zigzag effects (particularly in magnetic data) that can muddle any interpretation of a geophysical dataset regardless of its target.

When data processing is complete, the geophysicist is left with a map displaying the distribution of anomalies in a collection area. Whereas older geophysical survey maps display measurements across a site as contours, modern maps display results in continuous grey or color-scale in order to bring out extremely small or subtle details (Kvamme 2003). Put another way, geophysical survey maps now present data in a way that closely approximate the shapes and arrangements of buried archaeological features.

Archaeologists operating under the assumption that patterned geometries in a landscape are usually of human origin have equated circles, ellipses, squares, rectangles, and lines with ancient houses, house clusters, walls, pathways, roads, and fortifications (Gaffney et al. 2000; Summers et al. 1996).

Some even claim to be able to distinguish between sub-types within a category. They identity not just walls, for example, but certain kinds of walls (e.g., Perttula et al. 2008; Walker 2009:66-70). Though the correlation has only recently begun to be tested with targeted excavations, Walker (2009:66-70) divided probable wall anomalies identified in his gradiometer survey of the Etowah site into two groups: non-wall trench (Figure. 4.2a) and wall trench (Figure. 4.2b), based upon their characteristic dimensions, amplitudes, and signs. These groups were particularly significant for Etowah research, because they represent chronologically-sensitive architectural types. In North Georgia and indeed many other places in the early Mississippian world, non-wall trench house forms precede wall trench forms. Thus, Walker was able to compose a coarse sequence of Etowah settlement organization through time based up on the geophysical data and previous studies alone.

Ground-truthing. Ground-truthing is the basis for correlating different types of anomalies with different types of archaeological remains. The word “truthing” refers only to the interpretations of geophysical data, and does not imply that the actual data are questionable. If a survey is properly executed, each anomaly can be shown to have a source that, if not geological, is likely cultural. Ground-truthing is a critical component of archaeogeophysics since, from a strictly empirical point of view, geophysical anomalies can only be considered possible or probable cultural features until confirmed.

Even relatively small geophysical surveys can reveal hundreds of anomalies. The goal of a typical ground-truthing program is to ground-truth a large enough sample of these to categorize anomalies into categories of cultural features. An anomaly may be ground-truthed with nonarchaeological information such as historic maps and documents, photographs, and anecdotal information from local informants, but most archaeologists rely on archaeological data to ground-truth a geophysical survey.

This confirmation problem creates a dilemma because geophysics' greatest asset to archaeology is rapid discovery without destructive excavation, but excavation is not always feasible, desirable, or possible. This situation can lead to acceptance of anomalies as *de facto* cultural features without the prerequisite step of confirmation by excavation. Without test excavations to independently confirm that mapped anomalies are cultural features, it may be impossible to evaluate the accuracy of the correlation (King et al. 2011:361-362).

Thus, it behooves the archaeologist to follow standard ground-truthing procedure in order to get the highest amount of information return while taking into account: 1) cost, 2) invasiveness, 3) social and political issues, and 4) risks to personnel. The goal here is to categorize anomalies and then choose a sample for excavation. Hargrave (2006:274-280) provides a step-by-step guide to doing this.

Anomaly categorization. The first step is to categorize anomalies in terms of their dimensions, amplitudes, discreteness, sign, location, and detection method or methods. As mentioned above, one cannot assume that the dimensions of an anomaly match the dimensions of the subsurface object. Small pieces of metal can generate anomalies appearing to represent prehistoric pit features and other cultural objects. Nevertheless, the dimensions of an anomaly are critical to its classification in most archaeogeophysical projects.

Amplitude refers to the magnitude of a geophysical data value, but this is better understood as the contrast between an anomaly and its surroundings. High amplitude anomalies stand out, but many low amplitude anomalies may represent important cultural features at prehistoric sites in North America, for example. Though both should be considered candidates for ground-truthing, the difficulty of distinguishing a low amplitude anomaly can cause even an experienced archaeogeophysicist to hesitate. Therefore, many make use of statistical threshold maps that draw out distinctions in amplitude by color-coding amplitudes according to standard deviations from a mean.

Anomalies are discrete from their surroundings by definition, but vary in their discreteness. The boundaries of some are rather sharply defined while others fade into the surrounding matrix or may exhibit radiating, concentric bands like a bulls-eye target.

Sign (positive or negative) can also be useful in interpreting and categorizing anomalies. Some kinds of cultural features manifest in typical ways. Pit features often exhibit weakly magnetic positive signals because their burned and/or organic-rich content is more magnetically susceptible than the surrounding soil. By contrast, back-filled excavation units lack such contents and often appear as negative magnetic anomalies. Burned features such as hearths, earth ovens, masses of fire-cracked rock, and razed buildings often exhibit strongly positive anomalies due to having once been heated above their Curie temperature (Hargrave 2006:276).

Categorization should also take into account the location of anomalies. For example, at late prehistoric mound centers in the southeastern United States the archaeologist may want to create a category solely for mound summits where ancient buildings are often concentrated. Similarly, clustered anomalies, wherever they occur at an archaeological site, have a higher chance of proving cultural in origin due to human beings tendency to conduct activities within close proximity to one another. These suggested categories pertain not only to one's interpretation of the subsurface anomalies, but also to the confidence with which one can assign them a cultural origin. However, Hargrave warns archaeologists not to "lend disproportionate weight to archaeological criteria simply because one is more comfortable with them than with geophysical factors" (2006:276). Indeed, archaeogeophysics is yet another domain of archaeology that lends itself very well to collaboration between archaeologists and geophysicists.

Finally, anomalies can be categorized based upon how they are detected. Those sensed by multiple instruments are especially promising, as this can resolve the issue of equifinality.

The criteria for categorizing geophysical anomalies must be tailored to each individual project. Usually, at least one of the categories reviewed here will be irrelevant. In any case, categorization can quickly get out of hand if one settles on a scheme that is too precise, too unwieldy to be of much use. The goal is to strike a balance between the overly general and the overly specific, a middle ground where one's classification scheme is easily adapted to an efficient and worthwhile ground-truthing program.

Problems in interpretation. One should not approach a geophysical survey map of an archaeological site as if it were an aerial photo, a bird's eye image of the site without its A horizon. Doing so would be to ignore the many issues with which one must cope if he or she hopes to compile an accurate interpretative map. These issues include but are not limited to equifinality, the palimpsest effect, and uncertainties about the depth and horizontal position of reflected subsurface features.

The issue of equifinality poses the greatest obstacle to reliable interpretation (Hargrave 2006:270-271). Factors such as the geometry and material composition of a feature, the contrast between it and the matrix in which it is situated, and variation in sensors and survey designs contribute to the reality that very similar objects may manifest very different signals. This is particularly true of magnetic data. The signals of small metal fragments, iron-rich noncultural rock, burned and unburned treeroots, and rodent burrows can appear nearly identical to those of earth-filled pits (Bevan 1998:25; Somers and Hargrave 2001).

At sites that experienced intensive occupation, the palimpsest effect complicates matters further. This is particularly problematic at prehistoric sites where features manifest weak signals. Thick and rich middens can appear as discrete features (Hargrave 2006:271). Strong magnetic anomalies can obscure smaller, weaker anomalies nearby like those that may be associated with prehistoric cultural features.

The physical properties, depth, and orientation of subsurface objects also influence their detection. If these things are not known, it may be difficult to locate objects in the ground and determine their nature without costly excavation. For instance, dipole anomalies often reflect objects located a short distance away (Bevan 1998:24).

Some ways to combat these problems have already been mentioned. Multimethod surveys allow the archaeologist to tease out the complexities of an anomaly or anomaly cluster by revealing it in more than one geophysical dimension (Kvamme et al. 2006). Whereas magnetometers respond to both induced and remanant magnetism, making no distinction between the two, magnetic susceptibility sensors respond only to induced magnetism and so are often employed to simplify interpretations of magnetometer data (Dalan 2006:162). Electrical resistivity meters respond to soil conductivity. While magnetometers or magnetic susceptibility sensors may detect hearths and other burned elements of houses, electrical resistivity meters detect the soil discrepancies that make up house floors (Weymouth 1986:371). Some instruments, like ground-penetrating radar, yield both horizontal and vertical information. But even a well-rounded and well-executed survey strategy does not eliminate the need for a thorough ground-truthing program.

Landscape Archaeogeophysics at Moundville

Moundville is a large Mississippian site in west-central Alabama (Figure 4.3). Owned and protected by the University of Alabama, the site covers 76 hectares and includes palisade remains, habitation areas, cemeteries, and 29 mounds, 16 of which form a core arrangement ordered around the single largest prehistoric plaza north of Mexico (Blitz 2008). Knowledge of the site's history and organization has benefitted from decades of research and excavation (Knight and Steponaitis 1998; Knight 2010). Much is also known about house forms, residential groups, and artifact distributions (Thompson 2011; Wilson 2008). But the majority of excavations have focused on the mounds and areas impacted by road and building construction, about 18 percent of the site area. Meanwhile, recent systematic shovel, auger, and small unit tests have revealed artifacts, midden, and construction fill deposits in poorly understood locations such as the plaza

Figure 4.3. Google Earth satellite image of the core mound-and-plaza arrangement at the Moundville site. Red lines represent the boundaries of the magnetometer survey area.

(Steponaitis et al. 2009; Thompson 2011).

Because the distribution and age of habitation features was unknown for much of the protected site, we implemented a low-impact research plan with gradiometer survey as the guiding strategy to 1) map the distribution and density of ancient buildings and other buried features, 2) document the sizes, architectural forms, and spatial arrangements of buried buildings, on mounds and in residential areas, 3) determine the occupational history of the plaza, and 4) locate palisade walls. Once the gradiometer map was created, a sample of anomalies could be chosen for ground-truth excavations to correlate anomaly types with specific kinds of features to produce a site map of probable unexcavated buildings and other features. We also hoped to use what is currently known of diachronic changes in the construction and placement of architecture to assign probable unexcavated structures to historically relevant time spans: initial centralization, regional consolidation,


Figure 4.4. The magnetometer array was towed by an ATV over the vast majority of the survey area.

entrenched paramountcy and necropolis (see Knight and Steponaitis 1998).

Magnetometer survey methods, data processing, and results. Walker began his work at the Moundville site with a test survey in spring 2010. He used a Bartington Grad 601 Fluxgate Gradiometer with a one-meter traverse interval and a ten Hertz (Hz) sample interval. An RTK GPS system positioned the readings and guided the survey. In off-mound areas, the magnetometer array was towed by an ATV (Figure 4.4). On mound summits, it was pulled by hand on a two-wheeled cart. The survey captured the summits of Mounds P, N, and M1 and portions of the off-mound areas in the west and southwest part of the site, a total survey area of approximately 3.75 hectares.

The GPS-guided magnetometer data were processed using a zero median destripping filter to equalize differences between different parts of the collection area caused by inconsistencies during setup, delays between portions of the survey, or variations in the base histograms of readings. Destripped data were then imported into Surfer 9.0 and gridded, projected as a raster image, and exported as a GeoTIFF world file. The raster was then imported into ArcGIS 9.2 to create a vector polygon map.

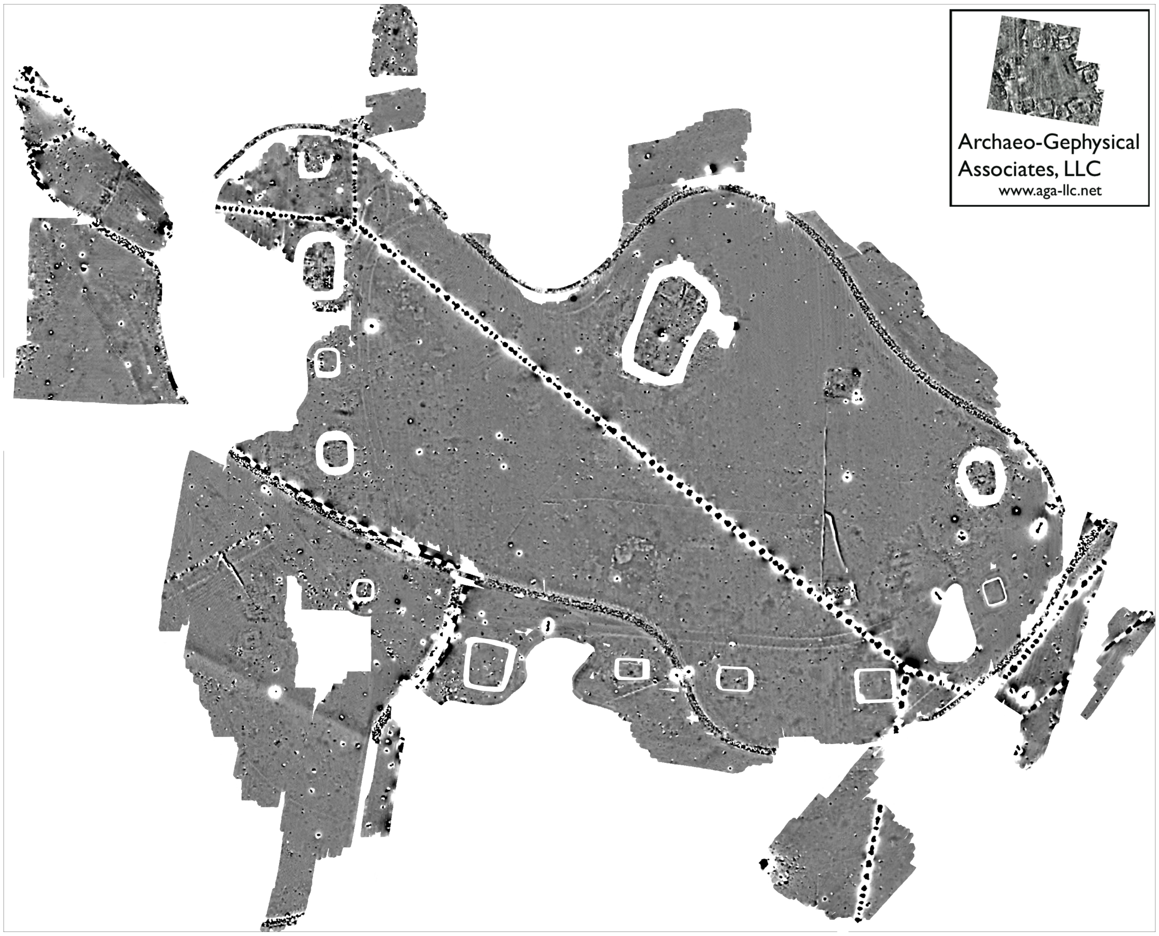


Figure 4.5. Walker's 2010 magnetometer survey map of Moundville.

The preliminary results strongly suggested that Moundville's prehistoric deposits were magnetically detectable. At the two-tiered summit of Mound P, Walker's gradiometer identified enormous rectangular anomalies suggesting the presence of huge buildings. In off-mound areas, the survey detected many more square and rectangular patterns tentatively interpreted as smaller buildings. Finally, just at the southern edge of the survey area, Walker's survey documented a portion of a curving linear anomaly, the apparent location of a section of Moundville's wooden palisade wall.

Encouraged by these preliminary results, Walker returned to the site for ten days during the fall of the same year to conduct a much more extensive survey. This time, the collection area included almost all unforested portions the site, including the entire plaza and the summits of all the mounds in and around the plaza (Figure 4.5). Instruments, survey methods, and processing methods were the same as those used during the preliminary survey.

A multitude of subsurface anomalies manifested in shades of gray across the survey area. Some are modern noise that can be eliminated by sorting through documents and photographic records. This is a form of ground-truthing that does not require excavation (Hargrave 2006). For instance, the alternating high positive/high negative linear pattern cross-cutting the plaza can be attributed to a system of metal pipes. There is also series of evenly-spaced dipoles that represent concrete hubs at points on the Moundville 100-meter site grid. Some other modern features of Moundville's magnetic landscape, though less obvious than those just mentioned, are the Depression-Era road that skirts the plaza periphery to the west and south and the old county line fence between Hale and Tuscaloosa counties running east-west directly through the center of the plaza.

Of course, the more interesting magnetic features are those of possible prehistoric origin. The new magnetometer survey map documents their distribution and diversity. One of the more striking prehistoric features appears to be the palisade wall, with lengthy sections curving through the west and southwest sections of the collection area. Looking toward the plaza, one can discern probable buried hearths, house walls, and some architectural arrangements of great size and unusual shape not documented in other parts of the site. Many of these unexcavated features are likely to underlie plaza fill. Careful attention to the form and function of these buildings, their placement in the landscape, and their stratigraphic position can illuminate the negotiation of past and present that accompanied and made possible Moundville's sociopolitical coalescence.

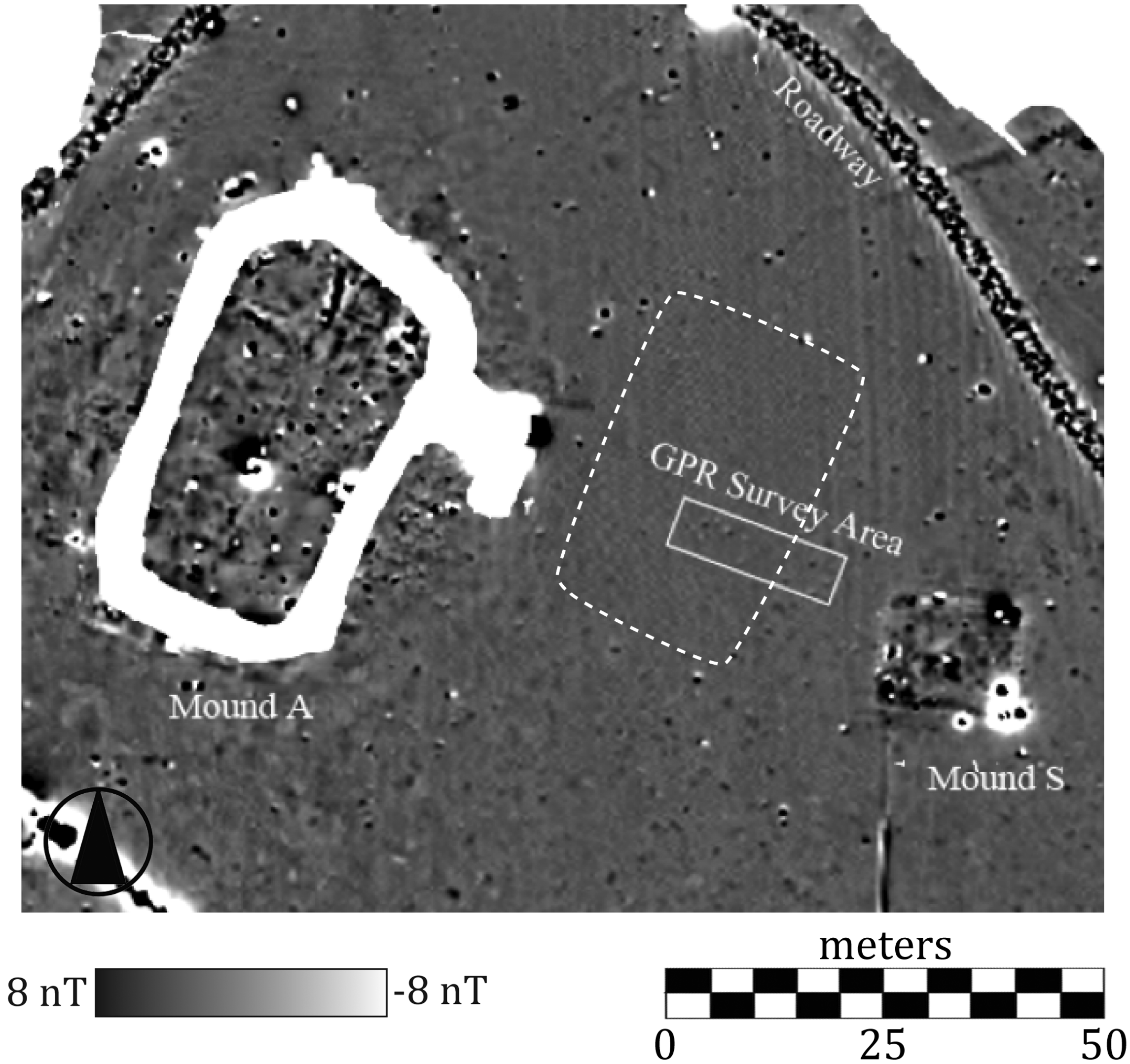


Figure 4.6. Section of the 2010 magnetometer survey area including mounds A and S. The possible architecturally delineated plaza, inside the broken line, lies between the two mounds and is the approximate size and orientation of Mound A. The GPR collection area, inside the solid line, was positioned so as to overlap this feature of the landscape and the band of supposed architecture surrounding it.

Ground-penetrating radar survey methods, processing, and results. We conducted additional geophysical work in the area just east of Mound A. Among the mounds of the core arrangement, Mound A has a unique orientation. Whereas the others are oriented to the cardinal directions, Mound A's long axis is angled approximately 12 degrees to the east of north (Knight 2010:303). Cores from Mound A suggest that construction began early in Moundville's history, probably in the Early Moundville I phase (Gage 2000). Gradiometer data from the area immediately east of Mound A revealed a "quiet" space (a location without anomalies) sized, shaped, and angled identically to Mound A (Figure 4.6). This space is surrounded on the east, south, and north by faint rectilinear anomalies. We conducted a small ground-penetrating radar (GPR) survey in this area in order to test the hypothesis that this portion of Moundville's plaza represents an earlier community plan composed of a small open plaza (the "quiet" area) defined on three sides by house clusters and on the west by an early stage of Mound A.

With the assistance of Steve Jones and the Office of Archaeological Research at Moundville Archaeological Park, the survey (Davis and Posey 2012) conducted in late November and early December 2012 captured a 10-x-40 meter strip of this space, encompassing several possible architectural anomalies, a section of the magnetically vacant area, and the location of three small circular magnetic high anomalies tentatively interpreted as center posts. The collection area, staked via total station, was oriented west-north-west and with its corner coordinates at N1885.661E1173.22, N1899.619E1135.74, N1895.047E1176.71, and N1909.01 E1139.24 (Figure. 4.6).

We used a SIR2000 GPR unit outfitted with a 400 Megahertz antenna. We calibrated the unit to the field conditions and collected 16-bit data at 60 nanoseconds of two-way travel time. We profiled the y-axis from 0-40 m at half-meter intervals for a total of 20 transects. GPR Slice converted the vertical data into 20 slices with 504 samples per slice. Interpolation of these initial slices yielded a supplementary dataset of 77 horizontal slices. The original 20 slices are displayed in Figure 4.7.

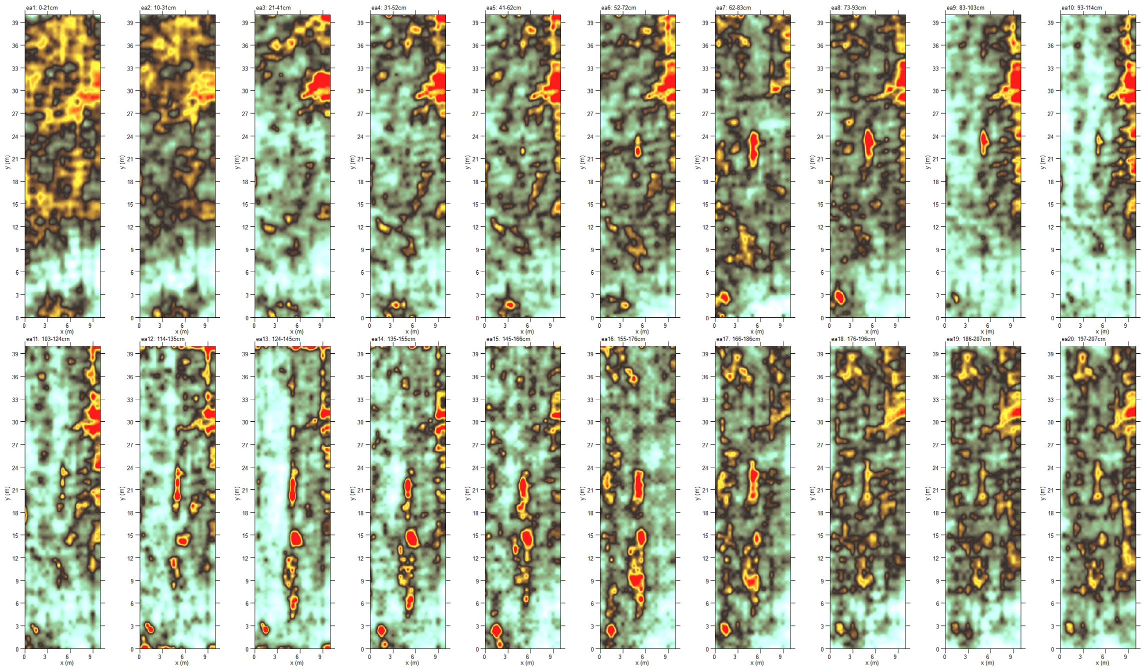


Figure 4.7. The original 20 GPR slices, later interpolated into 77 slices. The cultural zone is likely represented in the first 10 slices whereas the subsoil zones are captured in the next 10 slices.

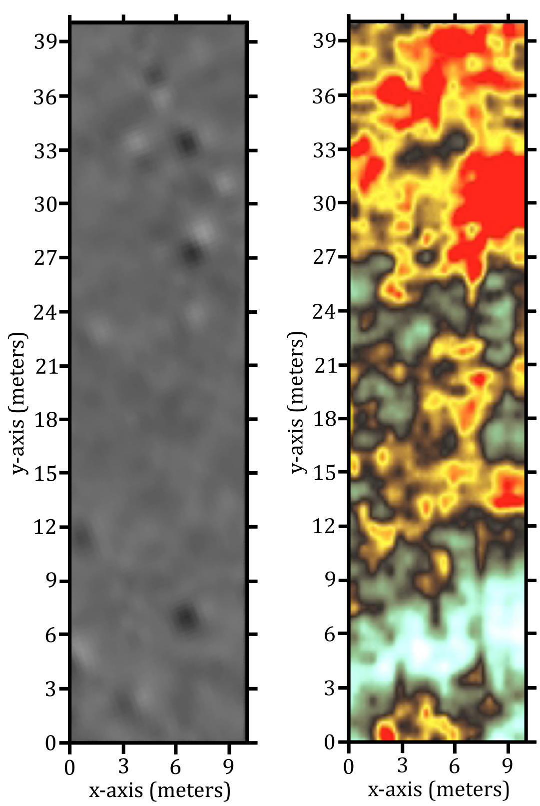


Figure 4.8. Magnetometer (left) and GPR (right) data for the 10-x-40 meter collection area. East end of survey area is at the bottom of the image.

The GPR data corresponded well with the magnetometer data, though not in specifics so much as in generalities. The magnetometer data for the area reveal mainly faint anomalies and the GPR data are similarly “flat.” This being said, the three sections identified above in the magnetometer data manifested in the GPR data as well. This pattern is most obvious at depths corresponding roughly to 20 cm below the ground surface or just below Moundville’s well-documented plowzone (Figure 4.8). The eastern section extends approximately from y0 to y9. It contains discrete anomalies of various amplitudes, including a possible house anomaly that directly corresponds to a magnetic feature, and is separated from the central section by a low amplitude band. The central section extends approximately from y9 to y27 and contains amorphous mid-amplitude anomalies of moderate density and unknown cause. The western section extends approximately from y27 to y40 and contains more compact, high amplitude amorphous anomalies also of unknown cause.

Ground moisture from a moderate rainfall that occurred three days prior to the survey likely affected the results, obscuring some anomalies and amplifying or highlighting others. Moreover, most of the long linear anomalies visible in the slices, especially at lower depths, are likely an artifact of our decision to profile the y-axis.

The GPR survey yielded valuable archaeological information. The eastern section (y0-y9) contains an angular anomaly that corresponds to a similar anomaly in the magnetometer data. While the eastern zone yielded at least one anomaly that may represent the features comprising a prehistoric house wall, the central and western zones contain anomalies of no obvious significance. If the “house wall” interpretation is correct, this would support the hypothesis that there was domestic activity in this area. The absence of structures in the central and western zones (and especially their distinct changes) provides evidence of a possible plaza area east of Mound A.

Sampling strategy. The geophysical surveys offered an unprecedented opportunity in Moundville archaeology to understand the plaza in both broad and fine strokes. Consequently, the ground-truthing program was designed to verify and enhance their results with excavations. To this end, I supervised University of Alabama field school students, volunteers, and graduate students in the excavation – or “ground-truthing” – of magnetic anomalies for three consecutive field seasons in summer 2011, fall 2011, and summer 2012. A final season targeted anomalies in the area east of Mound A in fall 2013, supervised by Jessica Kowalski under the direction of myself and John Blitz. Ground-truthing was the basis for correlating magnetic signals of various amplitudes and dimensions with different types of architectural remains, particularly the walls and hearths of ancient buildings. Labor for the project was provided by experienced graduate students and supervised University of Alabama undergraduates. The results of this work are summarized in Table 5.1. These results are supplemented by data from fieldwork atop Mound P directed by me but analyzed and reported by Erik Porth (2011) in his Master’s thesis.

For the most part, excavations targeted anomalies that were considered representative of “types” visible throughout the gradiometer collection area. The tactic aimed to lay the foundation for an interpretive map of anomalies in the collection area. Anomaly types selected for exposition were those that I believed would correlate with chronologically sensitive architectural styles: undaubed structures and daubed structures. Thus, the interpretative map, envisioned as an array of color-coded architectural features, could be the basis for discussing general trends in community settlement pattern over time at Moundville.

I departed from this overall strategy only when it came to my investigation of an eye-catching enormous circular cluster of anomalies located in the south-central plaza area. The location, size, and shape of the cluster suggested that its source was a prominent and unique aspect of the built environment at Moundville. The fact that it had previously been entirely unknown added to its allure. One trench and several small excavation units shed light on the nature of this huge and obvious feature of Moundville's magnetic landscape.

Anomaly types. I identified four anomaly types, labeled numerically Type I, Type II, Type III, and Type IV (Figure 4.9). The survey captured many other types, but these four are those that Dr. Walker and I believed correlated with buried architecture.

For the purposes of this dissertation, Type I anomalies are defined as rectilinear low to moderate positives. They are believed to be the walls of undaubed structures. Type I anomalies often enclose a low to moderate negative space tentatively interpreted as a basin floor, but this additional detail is not part of this type's definition. The sample of Type I anomalies chosen for excavation included anomalies of low and moderate amplitude, but were generally well defined. With the exception of the two anomalies we targeted on the west-central plaza periphery, each of the sampled Type I anomalies appears almost indiscernible to the untrained eye. This is particularly true of anomalies investigated in the area just east of Mound A.

Type I anomalies were revealed in all portions of the gradiometer collection area. The ground-truthing sample was drawn in near equal measure from the east-central,

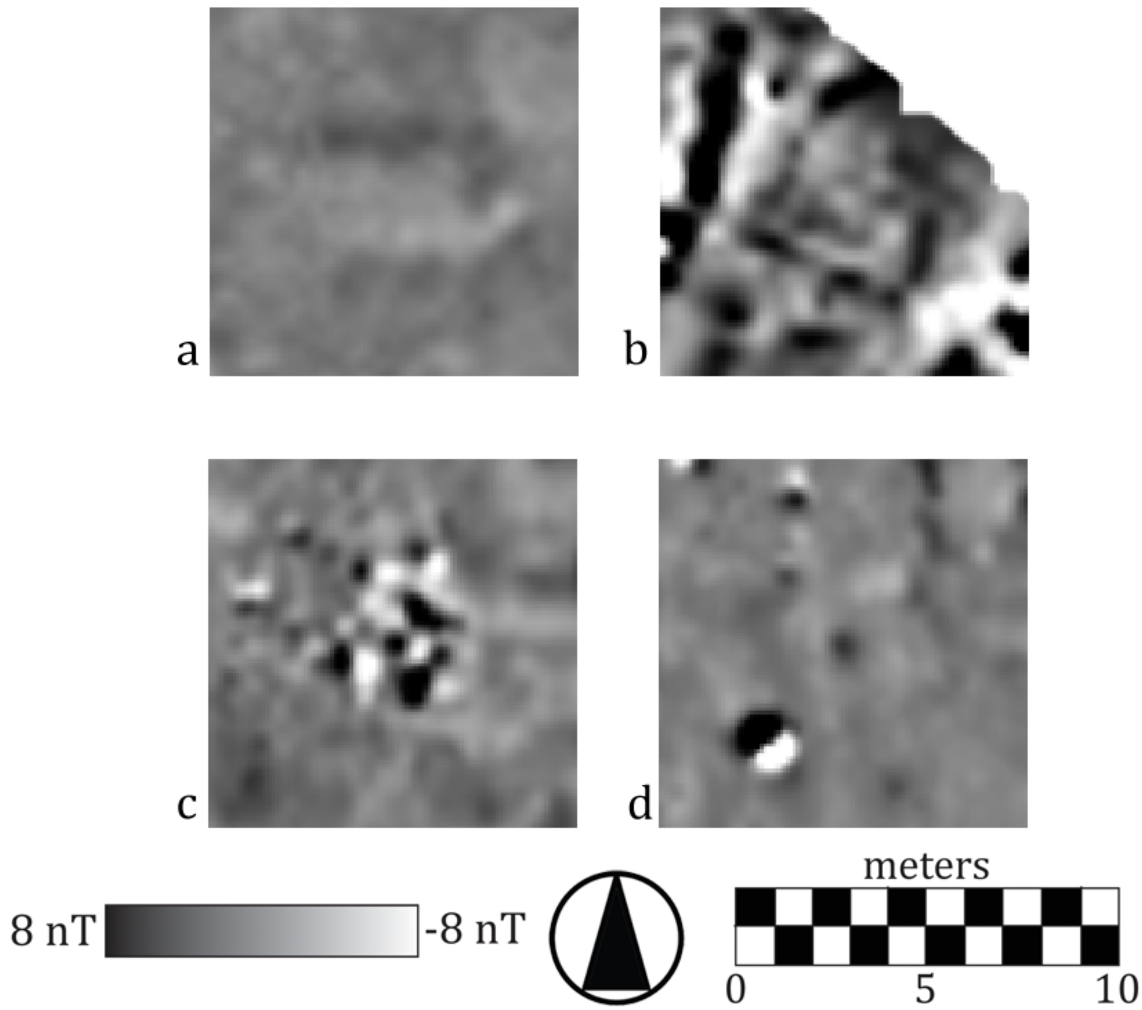


Figure 4.9. Anomaly types, and tentative interpretations: a) Type I anomaly on the west-central plaza periphery, undaubed building; b) Type II anomaly at the northeast edge of the Mound A summit, daubed building; c) Type III anomaly in the southwest corner of the survey area, burned daubed building; d) Type IV anomaly within a Type I anomaly in the area between Mounds O and N, hearth.

south-central, and west plaza area. It included not only anomalies that we expect to be of domestic origin, but also anomalies expected to represent large, public buildings. A total of six excavation units were dedicated to the testing of Type I anomalies. Each began as a 1-x-2 meter unit perpendicularly oriented to its target linear anomaly. Two targeted the corners of the rectilinear anomalies and four were positioned so as to intersect the anomalies midway along their length. Positive tests were those that identified wall trenches or linear arrangements of postholes oriented similarly to the target anomaly. Identification of fired clay or daub in association with wall features would have resulted in a negative test.

Type II anomalies are defined as rectilinear magnetic high positives. These are expected to originate in the remains of daubed structures, the gradiometer having detected the remains of the daubed wall. In some cases, though not as often as with Type I anomalies, these are seen enclosing a low to moderate negative space thought to be a basin floor. These anomalies are not as plentiful as their Type I counterparts. The sample consisted of three anomalies, one on the central-western edge of the plaza, another at the southwestern plaza edge, and another on the south-central edge. All are easily recognizable at a glance. Positive tests were those that identified fired clay or daub in association with wall features and/or basin floors.

Type III anomalies are the least common in the survey area among the four types investigated in this dissertation. None were identified in the plaza area, the majority being located in the southwestern quadrant of the site and atop some of the peripheral mounds. Type III anomalies are defined as rectangular complex dipole clusters and tentatively interpreted as burned daub buildings. The majority occur in the more western areas of the collection area and some are also seen on mound summits, such as the expansive example visible on top of Mound P. We only sampled one Type III anomaly, an enormous rectangular one on the southern summit of Mound P (Porth 2011). This operation was not directly a part of this project. Nevertheless, the author did direct those excavations. They constituted the first effort to the ground-truth magnetometer data at Moundville following

Walker's test run in 2009, a survey that captured the summits of Mounds M, N, O, P, and the nearby off-mound areas.

Type IV anomalies are small, circular, magnetic high positives. Tentatively interpreted as fired clay hearths, they are often seen at or near the center of Type I, II, and III anomalies. The sample of Type IV anomalies derived from all areas of the plaza except its far eastern section. It consisted of a range of examples, from well-defined high returns paired with Type I or II anomalies to diffuse high returns in apparent isolation.

We ground truthed more Type IV anomalies than any other type for two reasons. First, Type IV anomalies are the most difficult to interpret of the four described here. This is because many buried features can produce small, circular high positive anomalies, including prehistoric features like pits and large posts in addition to more recent features like burned tree roots and modern metal objects. Therefore, the sample of Type IV anomalies included not only those that were seemingly easy to classify, but also those that were ambiguous, the purpose being to identify the range of ways that hearths manifest in the magnetometer data.

The second reason we tested more Type IV anomalies than any other type is because of their common connection with anomalies thought to represent wooden buildings. Thus, positive identification of a Type IV anomaly came to be considered a proxy positive identification of the Type I, II, or III anomaly, if any, in which it is situated. Similarly, untested Type I, II, and III anomalies featuring Type IV anomalies could be interpreted with more certainty than those that did not feature them. We tested 14 Type IV anomalies with cardinally oriented 1-x-1 meter units. Positive units were those that encountered *in situ* hearths, destroyed hearths in fill contexts, and the prior locations of hearths as evidenced by fired surfaces roughly circular in shape.

We tested an additional four with a bucket auger 10 cm in diameter. Auger tests were considered positive if they encountered copious fired clay and charcoal, a sign that a hearth had been struck. If a test did not recover hearth material, testing continued in a cruciform pattern thirty cm to the north, south, east, and west of the initial test either until such materials were encountered or until the maximum of five tests had been executed. In the latter case, testing was deemed negative. I recorded stratigraphic profiles for each test and, for applicable tests, recorded the depth at which hearth material or sub-plaza natural stratigraphy was encountered.

Auger test and unit placement. Point information for each anomaly was transferred from ArcGIS into a highly accurate GPS that was used to locate the coordinates on the ground. Marked points corresponded to the center of Type IV anomalies and to the center of one side of Type I, II, and III anomalies. We then used compasses, reel tapes, and the Pythagorean theorem to locate corners for each unit. Unit corners were marked with spike nails and spray painted fluorescent orange. Auger tests were executed at exactly the marked locations and radials, if necessary, were located with compasses and reel tapes.

Excavation methods. We excavated units in numerically labeled arbitrary 10-centimeter levels within stratigraphic zones. In all units, we labeled the humic layer "Zone 1" and the plowzone "Zone 2." Features were labeled in numerical order and excavated either with trowels or spoons, depending on their size. Soils were delivered by five-gallon bucket or shovel to nearby shaker screens featuring 1/4-inch mesh. Soil from rich archaeological contexts, particularly those containing delicate remains, was water screened through 1/4-inch mesh at a station adjacent to the Moundville Archaeological Park bunkhouse. All artifacts were bagged by context and excavation date.

In all respects, investigations were consistent with Moundville Site Advisory Board policies (Jones 1995). Recording and controls were by EDM, digital photography, and standardized forms. All excavations were promptly backfilled except for units we believed were of particular educational value for site visitors. These were backfilled at the end of the season during which they were excavated.

Artifact classification/ceramic chronology. Following each field season, I and undergraduate archaeology lab technicians under my supervision processed and recorded the artifacts and other findings in accordance with University of Alabama Museums accession and lab procedures current practices (Archaeological Collections Curation and Processing Manual).

Moundville's ceramic chronology and type-variety classification system was devised in 1983 by Vincas Steponaitis and built upon by Knight in 2010. It makes use of a "hierarchical nomenclature" designed to maintain previously described Moundville ceramic types and hone classifications using varieties (Steponaitis 1983:50). Moundville types are defined on the basis of three characteristics, adhered to in descending order: temper (grog or shell), surface treatment (unburnished or burnished), and decorative technique (Steponaitis 1983:50). Eleven Moundville ceramic types are defined following these criteria (Steponaitis 1983:52-58). For the most part, Mississippian pottery is shell tempered. Varieties allow for finer classifications; they are based on minor variation in paste composition or design variation (Steponaitis 1983:50). Steponaitis (1983:79-132) followed his type-variety descriptions with a ceramic seriation based on Moundville gravelots, allowing one to place any sherd in its chronological context. For this reason, hardly an excavated Moundville ceramic assemblage goes without classification according to this type-variety system. Classification of ceramics recovered during this project followed Knight's (2010:12-53) descriptions. The ceramic analysis forms the basis for many of the chronological designations I make herein.

I categorized lithic artifacts following Skrivan and King's (1983) raw material descriptions and Knight's (2010:54-71) functional classifications. A raw material type collection housed in the University of Alabama Archaeology Laboratory in ten Hoor Hall was also on hand.

Summary

To summarize, Dr. Chester Walker's 2010 magnetometer survey of the Moundville site captured almost every unforested area for a total of 42 hectares. The survey documented hundreds of anomalies believed to be prehistoric cultural remains. I used these geophysical data and a highly accurate GPS to locate a sample of suspected wall and hearth anomalies. These interpretations were "ground-truthed," that is, test excavations and auger tests confirmed or denied the presence of hearths and walls so that similar anomalies elsewhere in the plaza could be interpreted as such without excavation. This work was accomplished over the course of four field seasons between May 2011 and December 2013. This effort provided the basis for an interpretive map of anomalies in the collection area. Excavations and laboratory methods were conducted in a manner that was concordant with currently accepted practices. These efforts yielded exciting results that could not have been attained by other means.

CHAPTER 5: RESULTS GROUND-TRUTHING AND LABORATORY ANALYSIS

This chapter reviews how I implemented the methods outlined in Chapter 4. It is organized into five parts, each detailing the ground truthing results for a different anomaly type. Unit and anomaly descriptions are chronologically organized by field season within each section. With some exceptions, unit descriptions include figures that are relevant only to correlations between target anomalies and their sources. These include images of the tested anomaly, unit profiles and plan views, and bisections of cultural features.

Testing of Type I Anomalies

Of the seven tested anomalies, four were positive identifications, two correlated with other undaubed architectural features, and one did not identify the source of the target anomaly (Table 5.1).

Test Unit 21. Test Unit 21 was one of two units excavated as part of a small field school during fall 2011. It was a cardinally oriented, east-west aligned, 1-x-2 meter unit that targeted what we believed to be the northern corner of a large square building whose hearth had been identified in Test Unit 9 during the previous summer (Figure 5.1). The unit reached a depth of 75 cm before encountering culturally sterile soil. At a depth of between 18 and 29 cm below the ground surface, it struck a seemingly patternless scatter

Unit Name	Unit Dimensions	Result	Source (if negative)
Type I Anomalies			
Unit 21	1-x-2 m	+	
Unit 22	1-x-2 m	+	
Unit 100	1-x-2 m	+	
Unit 171	1-x-2 m	-	unknown
Unit 172	1-x-2 m	-	large posthole
Unit 175	1-x-2 m	+	
Unit 176	1-x-2 m	-	unknown; posthole present
Type II Anomalies			
Unit 101-102	1-x-3 m	-	undaubed monumental structure
Unit 133	1-x-2 m	-	burned taproot at edge of a large flat-bottomed pit
Unit 150	1-x-2 m	+	
Unit 160	1-x-2 m	+	
Type III Anomalies			
Mound P Summit	unit block	+	
Type IV Anomalies			
N1658E1080, etc.	unit block	-	large midden pit containing charcoal
N1669E1080, etc.	1-x-2 m	+	
N1693E1108	1-x-1 m	+	
N1699E983	1-x-1 m	-	tent stake
N1707E1004	1-x-1 m	-	unknown
N1708E1081	1-x-1 m	-	metal wire
N1718E1056	1-x-1 m	-	tent stake
Unit 8*	1-x-1 m	-	unknown
Unit 9	1-x-1 m	+	
Unit 10*	1-x-1 m	-	unknown
Unit 132	1-x-1m	-	unknown
Unit 173	1-x-1 m	-	metal wire
Unit 174	1-x-1 m	-	metal wire
AT-N1630.5E962.65	auger test	-	unknown
AT-N1660.69E836.65	auger test	+	
AT-N1760.72E886.58	auger test	-	unknown
AT-N1833.36E907.74	auger test	+	
Miscellaneous Anomalies			
Unit 11-20	unit block	n/a	enormous ash-and-midden-filled pit
Unit 130	1-x-4 m	n/a	enormous ash-and-midden-filled pit
Unit 131	1-x-2 m	n/a	pit
Unit 134	1-x-2 m	n/a	culturally sterile pit
Unit 110-111	2-x-2 m	n/a	basin floor with subterranean chamber
Unit 112	1-x-2 m	n/a	sterile pit

Unit 120	1-x-1 m	n/a	unknown
Unit 121	1-x-1 m	n/a	unknown
Unit 122	1-x-1 m	n/a	unknown
Unit 123	1-x-1 m	n/a	large posthole
Unit 140-141	unit block	n/a	clay-capped, culturally sterile pit

Table 5.1. Results of ground-truthing in Moundville's plaza.

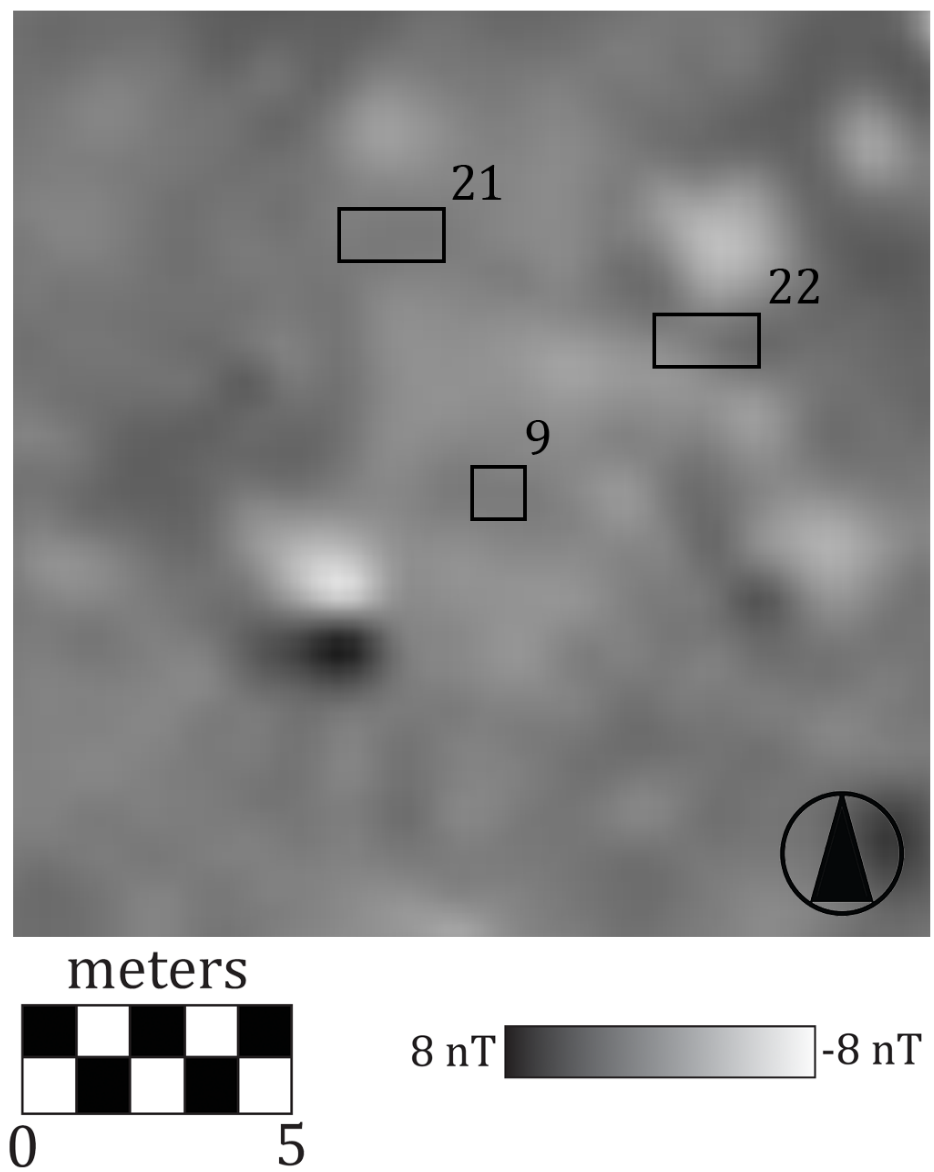


Figure 5.1. Anomalies targeted by Test Units 9, 21, and 22. Test Unit 9 targets a Type IV anomaly at the center of a faint Type I anomaly. Test Units 21 and 22 target the Type I anomaly's north and east corners.

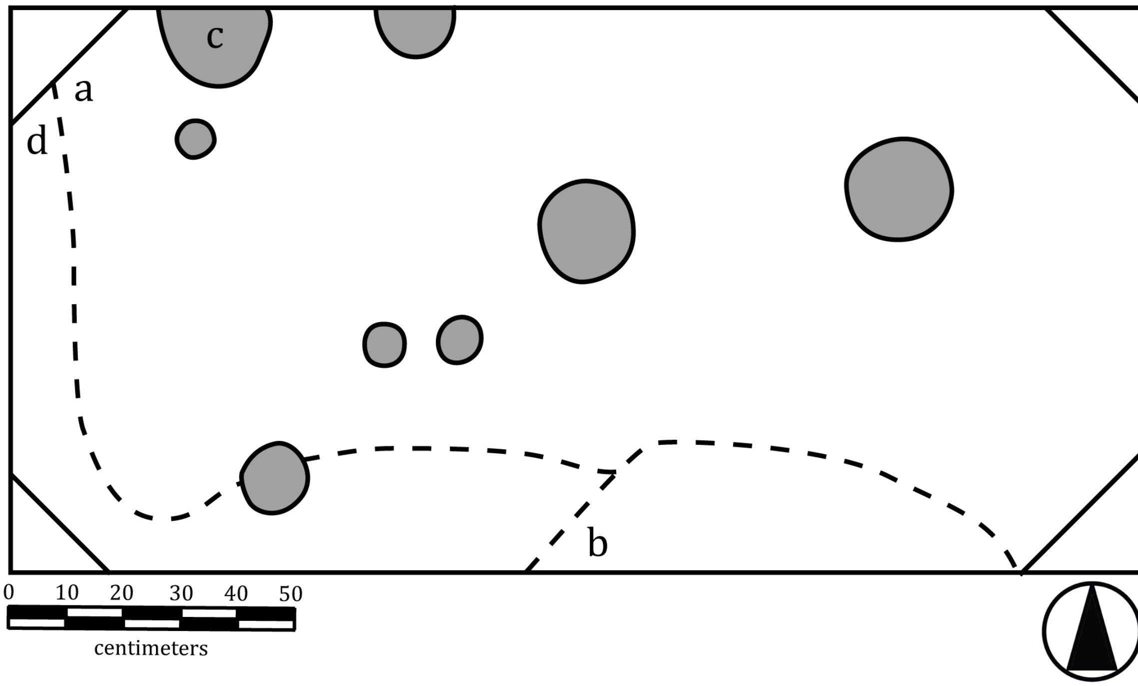


Figure 5.2. Test Unit 21, Zone 4 Level 1 plan view: a) 7.5YR 2.5/3 very dark brown clay loam mottled with 7.5YR 4/4 brown loamy sand; b) 7.5YR 4/4 brown loamy sand; c) postholes, 10YR 5/4 dark yellowish brown loam lightly mottled with 7.5YR 2.5/3 very dark brown clay loam; d) poorly defined 10YR 3/6 dark yellowish brown silty loam heavily mottled with 7.5YR 2.5/3 very dark brown clay loam.

of variably sized postholes (Figure 5.2). We spoon-cored each of these for confirmation. The three largest postholes are in rough alignment with the remains of a single-set post wall identified at the same depth nearby Test Unit 22, and may, in fact, represent the anomaly source in this location.

No contexts yielded diagnostic artifacts (Table 5.2), but if we may judge the age of the postholes by the diagnostics recovered from Unit 22, Unit 21's sister unit, they likely date to the Moundville I phase.

Test Unit 22. A cardinally oriented, east-west aligned, 1-x-2 meter unit labeled Test Unit 22 targeted the eastern corner of the same building identified in Units 9 and 21 (Figure 5.1). Excavations ceased at a depth of approximately 70 cm below the ground surface. They identified the same stratigraphy as was recognized in Unit 21: a

Table 5.2. Sherd types from Test Unit 21.

Type	Humus/ Plowzone	B1 Horizon	B2 Horizon	Totals
Mississippi Plain	**24**	**26**	**24**	74
Barton Incised, *variety unspecified*		1		1
Bell Plain		2	5	7
Baytown Plain	1	2		3
Total of types	25	31	29	85

Note: Items yielding TPQ are in bold.

humic/plowzone layer and a B1 horizon transitioning into B2 with depth. Moreover, postholes appeared at the same depth as in Unit 21, but unlike their nearby counterparts, exhibited a clear linear arrangement (Figure 5.3).

A small pocket of interesting objects encountered in the northwest balk at about 25 cm from the ground surface appeared to have been deposited by the plow from a nearby grave. They include a handful of Mississippi plain sherds, Moundville Engraved, *variety Elliot's Creek* scroll-and-dot sherd (Wilson and Steponaitis 2010), one rim sherd from an oversized jar (Barrier 2007, 2011), the possible distal end of a human femur (left *in situ*), and several decorated sherds that made this concentration stand out. The latter sherds bore hemagraved swirl-crosses stylistically identical to those found on some Midwestern artifacts. They derive from a vessel form that is exceedingly rare in Moundville collections: a cylindrical, terraced-and-pedestaled bowl; the Bessemer site yielded a nearly complete comparable artifact. The vessel form, the hemagraving, and the use of excising in addition to engraving all point local production and an earlier date than has previously been supposed for Hemphill iconography at Moundville. In other words, this is the earliest example of a swirl-cross ever found at the site, predating the others by 50 to 100 years.

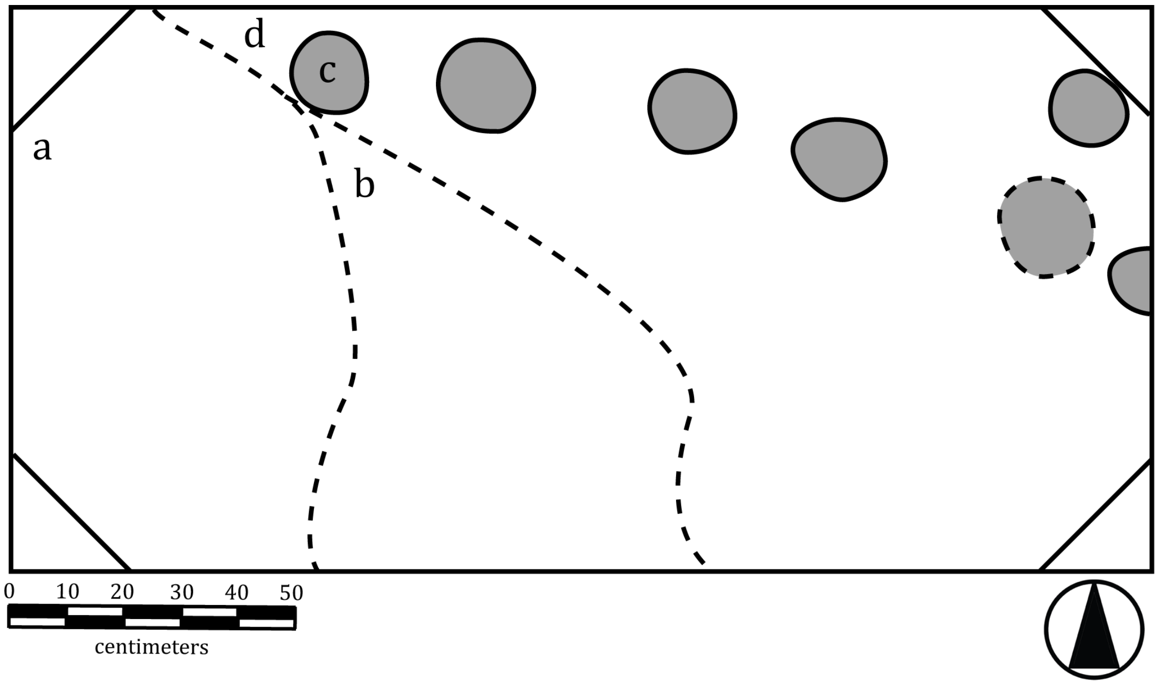


Figure 5.3. Test Unit 22, Zone 4 Level 1 plan view: a) 7.5YR 4/4 brown loamy sand; b) 10YR 3/6 dark yellowish brown silty loam heavily mottled with 7.5YR 2.5/3 very dark brown clay loam; c) postholes, 10YR 5/4 dark yellowish brown loam lightly mottled with 7.5YR 2.5/3 very dark brown clay loam; d) 7.5YR 2.5/3 very dark brown clay loam mottled with 7.5YR 4/4 brown loamy sand.

Aside from this small concentration of artifacts, no features in Unit 22 yielded ceramics. We recovered 210 sherds in total the stratigraphic zones, the slight majority coming from the B1 horizon documented immediately below the plowzone (Table 5.3). Hemagraving on the aforementioned eccentric bowl offers a Late Moundville TPQ date for the artifact concentration.

The linear arrangement of postholes is interpreted as the source of the magnetic anomaly.

Test Unit 100. Test Unit 100 was the cardinally oriented, north-south aligned, 1-x-2 meter unit that targeted this anomaly (Figure 5.4). It reached a total depth of 112 cm below the ground surface, documenting subsoil immediately beneath plowzone, two parallel wall trenches, and several large postholes intruding the wall trenches (Figure 5.5).

Table 5.3. Sherd types and diagnostic modes from Test Unit 22.

Type	Humus/ Plowzone	B1 Horizon	B2 Horizon	Totals
Mississippi Plain	**49**	75	60	184
Moundville Incised, *variety Moundville*		**1**		1
Moundville Incised, *variety unspecified*		5		5
Bell Plain	3	8	3	14
Moundville Engraved, *variety Elliot's Creek*			1	1
Baytown Plain	3	2		5
Total of types	55	91	64	210
Diagnostic Modes				
Folded-flattened rim			**1**	1
Hemagraving			**1**	1
Total of diagnostic modes			**2**	2

Note: Items yielding TPQ are in bold.

Parallel and separated by about 25 cm, the wall trenches represent the rebuilding of a square, cardinally aligned structure approximately 80 square m in size. Patterns of narrow postholes were visible as these trenches were being excavated (Figure 5.6). As with elsewhere in the plaza, the documentation of sterile subsoil immediately below the plowzone suggests that this portion of the plaza was leveled to make it even with the surrounding surface. Where this stratigraphic arrangement was identified elsewhere in the plaza, we discovered truncated features likely associated with pre-plaza constructions. Here, however, we identified wall trenches of such a depth that they must have been associated with structure built after the area was leveled. Keeping this in mind, consider that a radiocarbon date drawn from the southerly wall trench yielded a calibrated date range of 870 ± 30 BP (Pts-331302; wood charcoal; $\delta^{13}C = -26.4‰$).

. The stratigraphy in this location and the undisturbed nature of the wall trench would suggest that the building with which this feature was associated was constructed very soon after plaza construction in the area. Sometime after that, the Moundville people erected a series of sizeable posts here, each flat-bottomed and about 30 cm in diameter.

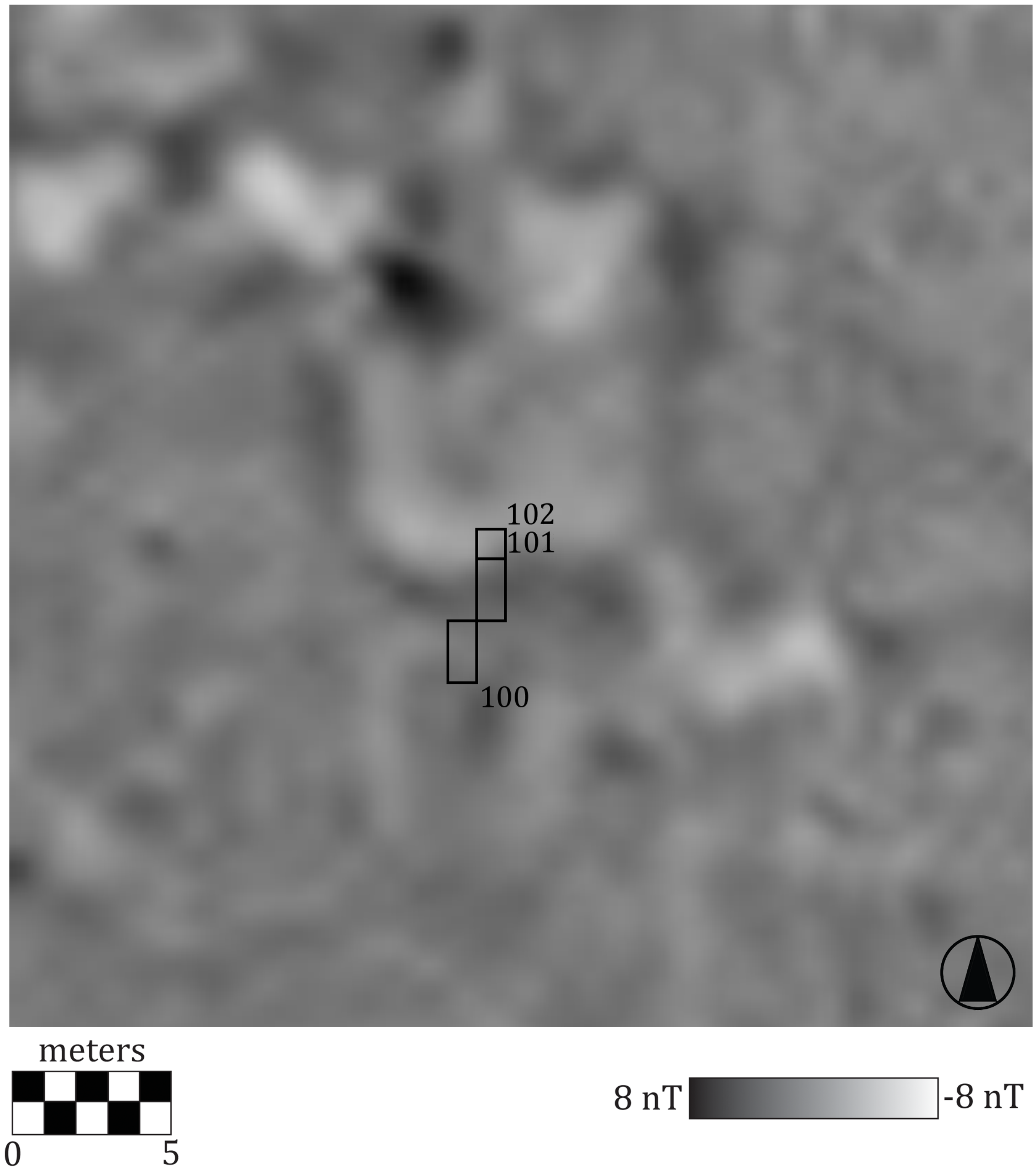


Figure 5.4. Placement of Test Unit 100, and Unit Block 101-102. Test Unit 100 targets Type 1 anomaly and shares its northeast corner with Unit 101's southwest corner. Test Unit 101 targets an adjacent Type II anomaly surrounding a low negative area. Test Unit 102 expanded Test Unit 101 one meter north.

Diagnostic artifacts derive from the features and fill (Table 5.4). From the plowzone, we recovered a beaded rim for a Late Moundville II TPQ. More importantly, the southern wall trench fill yielded a Moundville Incised, *variety Moundville* sherd, as

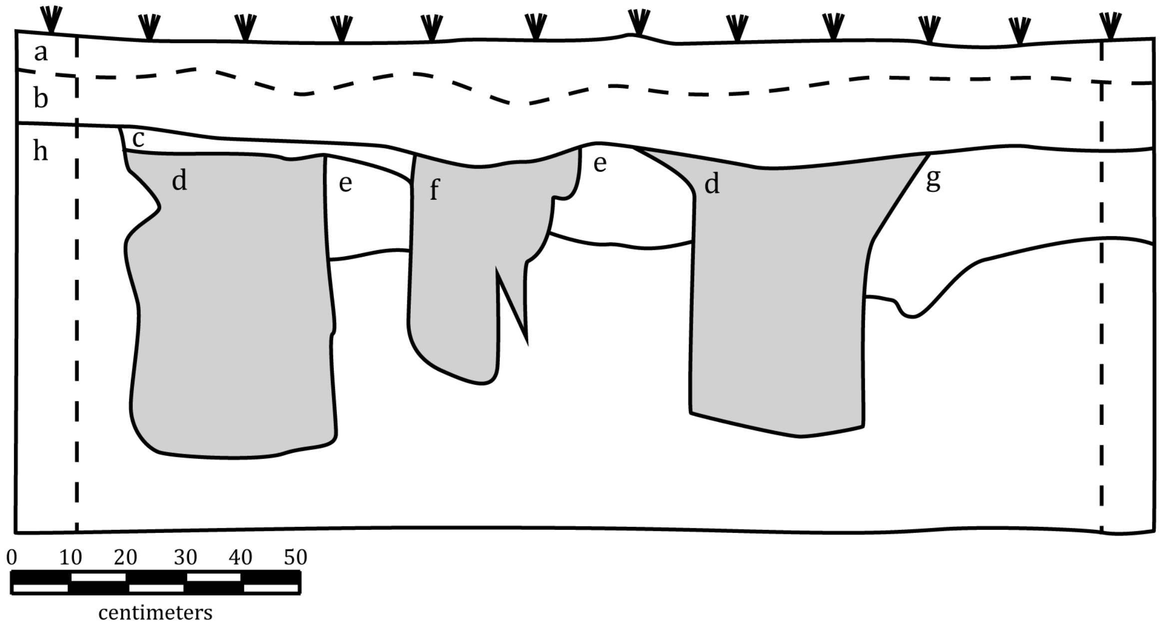


Figure 5.5. Test Unit 100, west profile: a) humic zone, 3/6 dark yellowish brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown loam; c) 10YR 5/8 yellowish brown clay loam; d) large posthole, 10YR 4/6 dark yellowish brown loam lightly mottled with 5YR 5/8 yellowish red clay and very lightly mottled with 2.5Y 7/8 yellow clay with concretions and charcoal flecking; e) 5YR 5/8 yellowish red clay mottled with 10YR 4/6 dark yellowish brown loam; f) large posthole, 10YR 3/4 dark yellowish brown loam lightly mottled with 5YR 5/8 yellowish red clay and very lightly mottled with 2.5Y 7/8 yellow clay with concretions and charcoal flecking; g) fill, 10YR 6/4 light yellowish brown loam mottled with 5YR 5/8 yellowish red clay; h) subsoil, 5YR 5/8 yellowish red clay very lightly mottled with 2.5Y 7/8 yellow clay.

Table 5.4. Sherd types and diagnostic modes from Test Unit 100.

Type	Humus/ Plowzone	Fill Layer Above Features	Wall Trench Fill	Posthole Fill	Pit Fill	Totals
Mississippi Plain	99	74	24	**2**	**48**	247
Moundville Incised, *variety unspecified*	3					3
Moundville Engraved, *unspecified*					2	2
Bell Plain	1	7	4		4	16
Baytown Plain	34	3		2	2	41
Total of types	137	84	28	4	56	309
Diagnostic Modes						
Folded-flattened rim		**1**	**1**			2
Beaded rim	**1**					1
Total of diagnostic modes	1	1	1			3

Note: Items yielding TPQ are in bold.

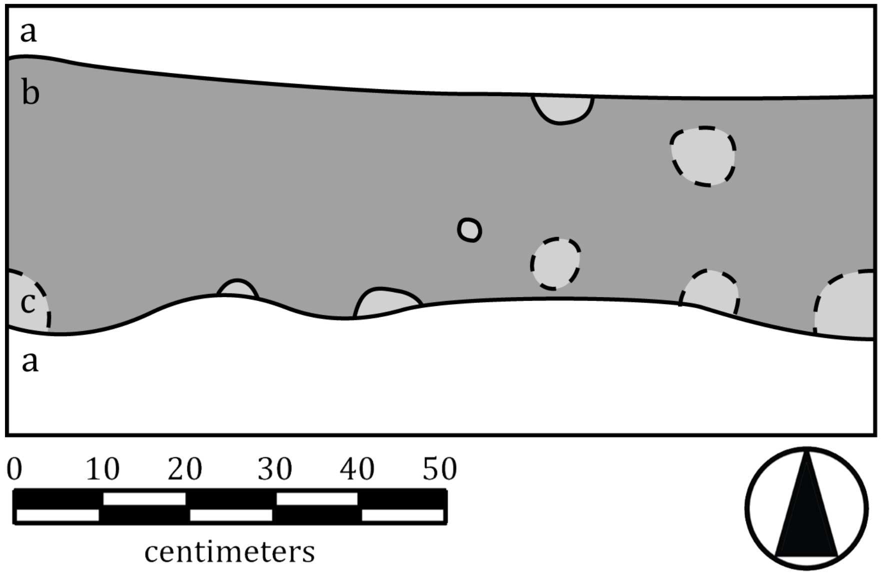


Figure 5.6. Postholes within a Unit 100 wall trench feature.

did the shallow fill layer into which the trench intruded. These two sherds offer Early Moundville I TPQs.

The wall trenches are interpreted as the magnetic anomaly source.

Test Unit 171. A 1-x-2 meter unit labeled Test Unit 171 and with its long axis angled approximately 54 degrees west of north was positioned to intersect this anomaly (Figure 5.7). Upon encountering no features and no artifacts, the unit was deemed "negative" at a depth of 40 cm below the ground surface. It documented only two strata: plowzone and a lightly colored, compact, sandy subsoil that appears typical for this part of Moundville's plaza (Figure 5.8).

The cause of the magnetic anomaly was not determined.

Test Unit 172. It is difficult to tell from the anomaly alone whether this is the location of two typical, square domestic structures or one elongated building (Figure 5.9). Excavation results favor the latter, but far from conclusively.

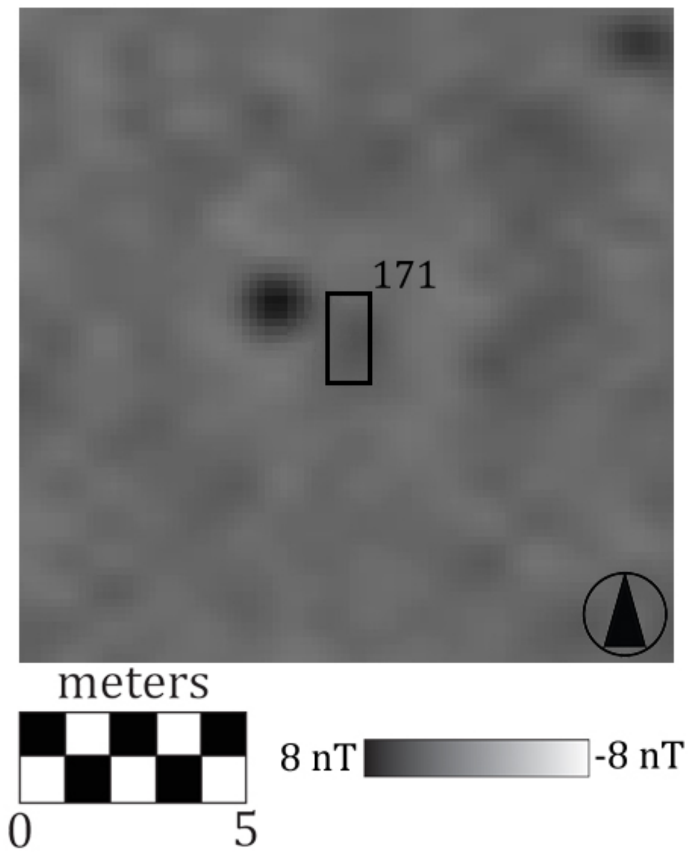


Figure 5.7. Placement of Test Unit 171 to intersect the southeastern side of a faint Type I anomaly in the magnetically flat area east of Mound A.

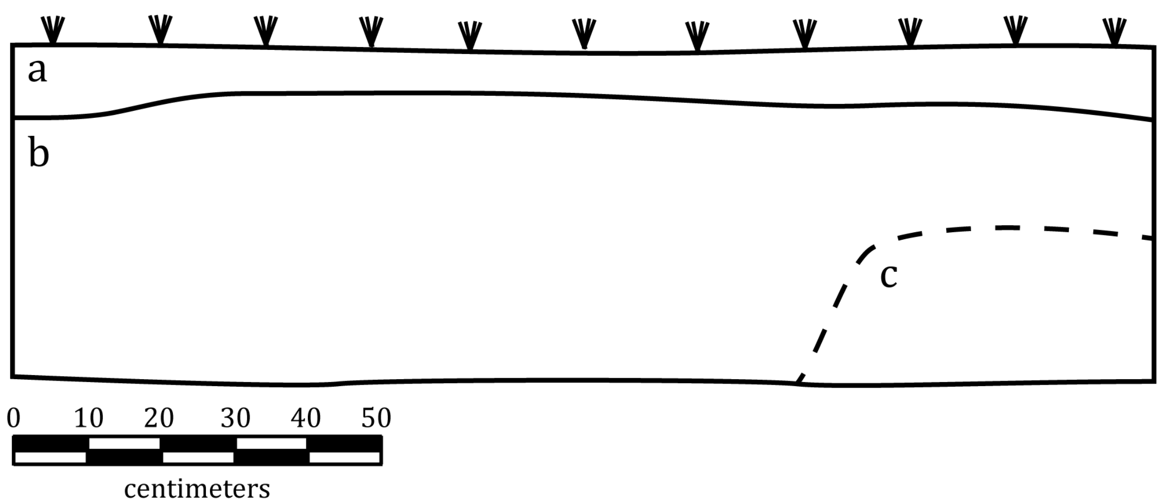


Figure 5.8. Test Unit 171, east profile: a) plowzone, 4/6 dark yellowish brown sandy loam; b) probable subsoil, 10YR 5/6 yellowish brown sandy loam; c) subsoil, compact mix of 10YR 6/6 brownish yellow sandy loam and 10YR 7/2 light gray sand with iron concretions.

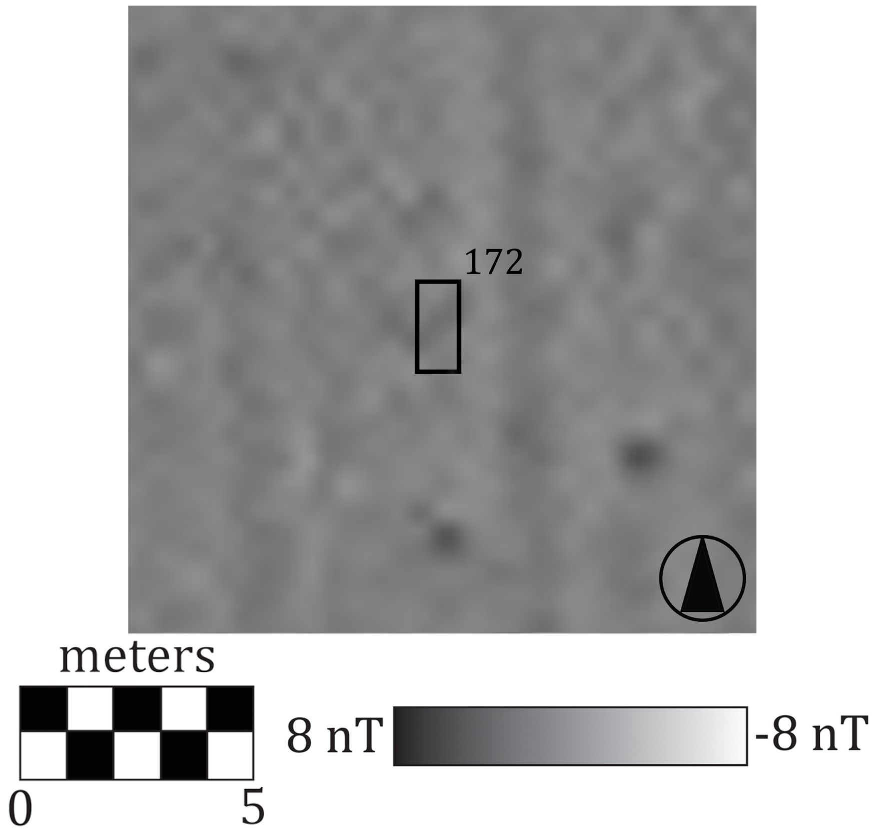


Figure 5.9. Placement of Test Unit 172 to intersect the southeast side of a long rectangular Type I anomaly on the northern edge of the magnetically flat area immediately east of Mound A.

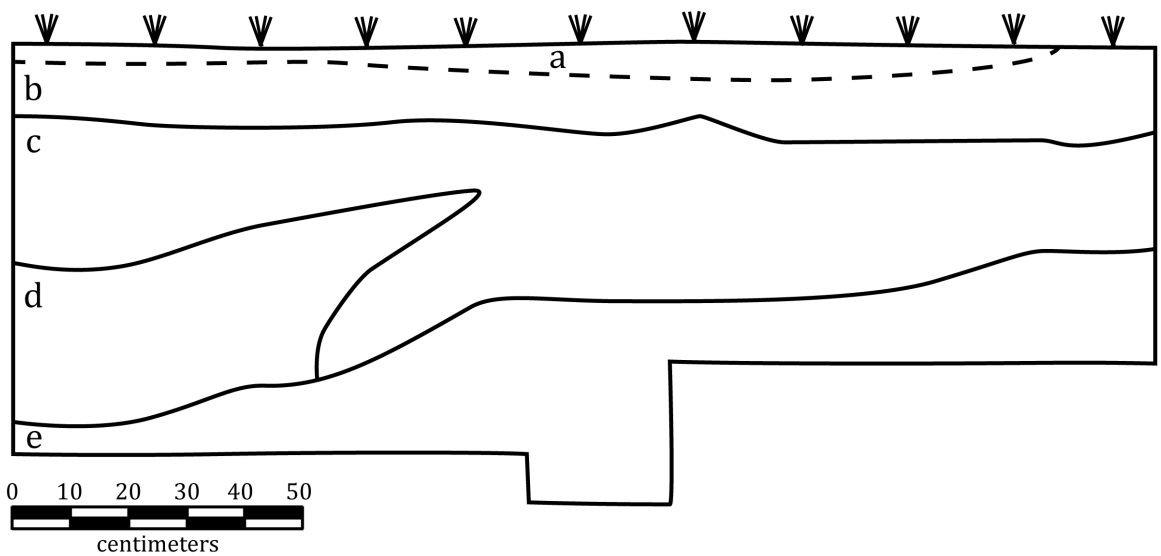


Figure 5.10. Test Unit 172, east profile: a) humus; b) plowzone, 10YR 3/4 dark yellowish brown sandy clay; c) plaza fill, 10YR 5/6 yellowish brown sandy clay; d) possible basket-load fill feature, 10YR 5/6 brownish yellow sandy clay; e) possible subsoil, 10YR 6/6 brownish yellow sandy clay.

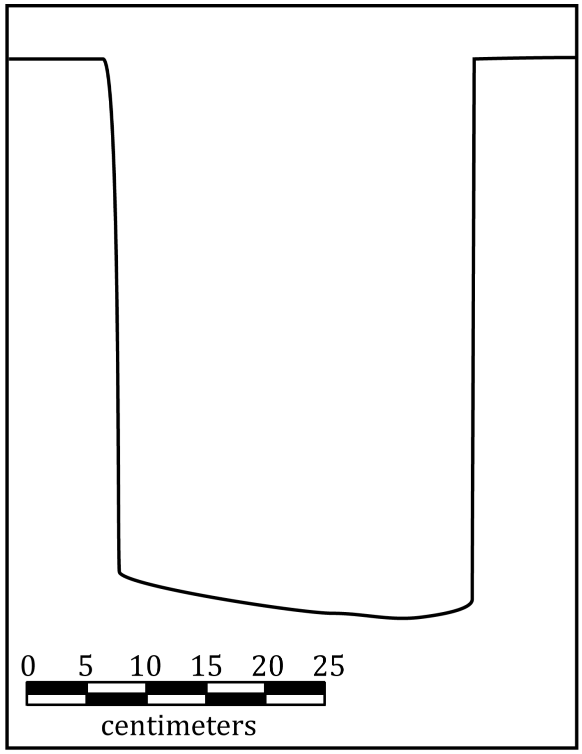


Figure 5.11. Test Unit 172, bisected large post feature, west profile.

A cardinally aligned 1-x-2 meter unit labeled Test Unit 172 targeted this anomaly. The unit reached a maximum depth of 70 cm below the ground surface. It documented three strata: humus/plowzone, plaza fill, and a layer tentatively described as subsoil because it is similar to confirmed subsoil in the vicinity (Figure 5.10).

This is the only excavation unit that encountered basket-loaded plaza fill. The large and amorphous feature was documented at the base of the plaza fill zone, a stratum consisting of brownish yellow (10YR 5/6) sandy clay and light midden containing bone fragments and potsherds. A small posthole intruded it to a depth of 40 cm.

Removal of the fill layer exposed a buried occupation surface intruded by a large, flat-bottomed posthole almost 35 cm in diameter (Figure 5.11). For two reasons, this posthole is interpreted as the source of the anomaly. First, it lies near the direct center of the unit, immediately below the flagged location. Second, it is the only substantial feature

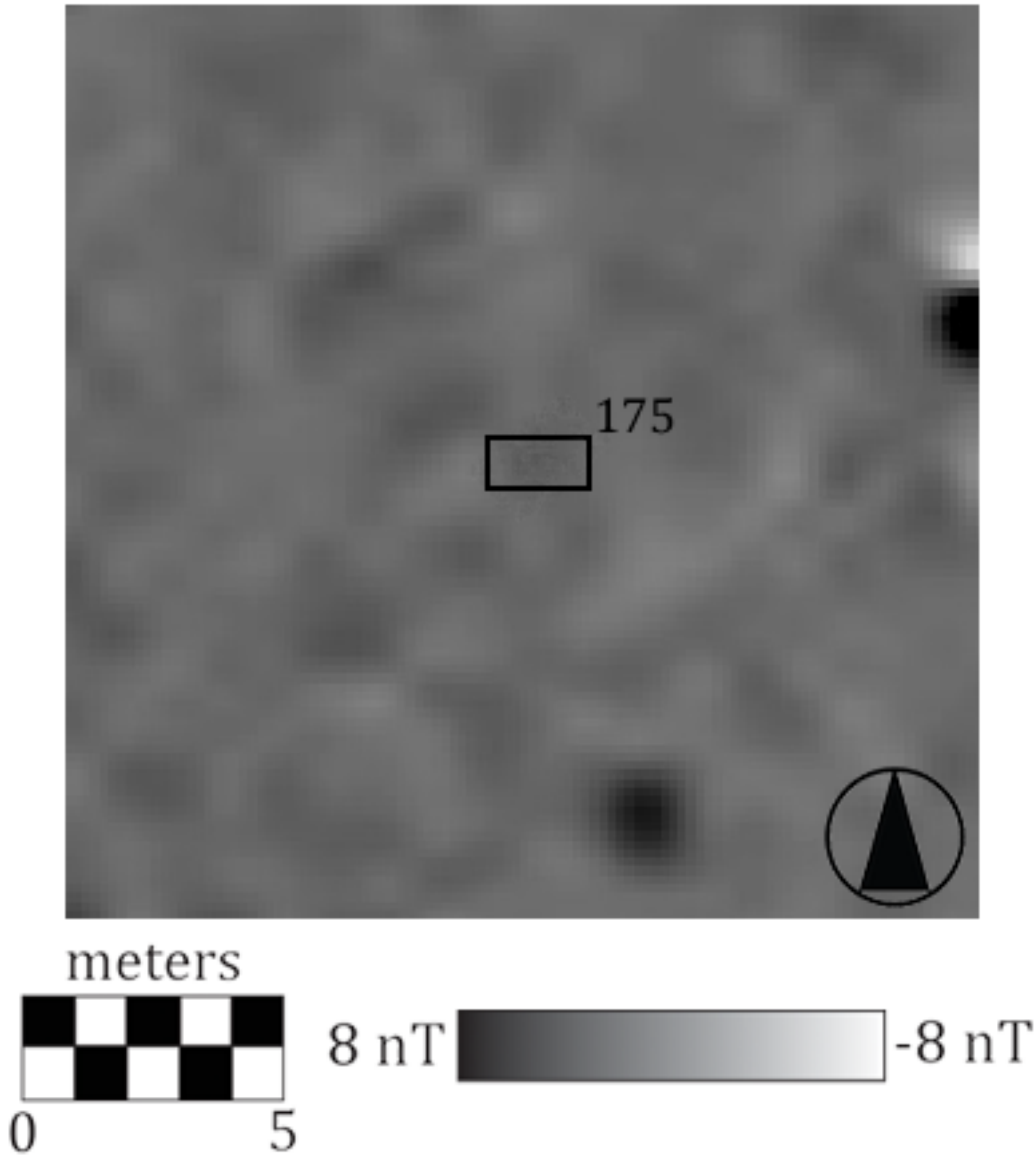


Figure 5.12. Placement of Test Unit 175 to intersect the northeast side of a Type I anomaly. The anomaly is located on the eastern edge of the magnetically flat area east of Mound A.

documented at this location. Though not nearly as large as similar features found elsewhere at the Moundville site (e.g., Knight 2010:187-195; Lacquement 2009:68-70), a post of this size associated with an elongated, rectangular anomaly suggests a special purpose structure.

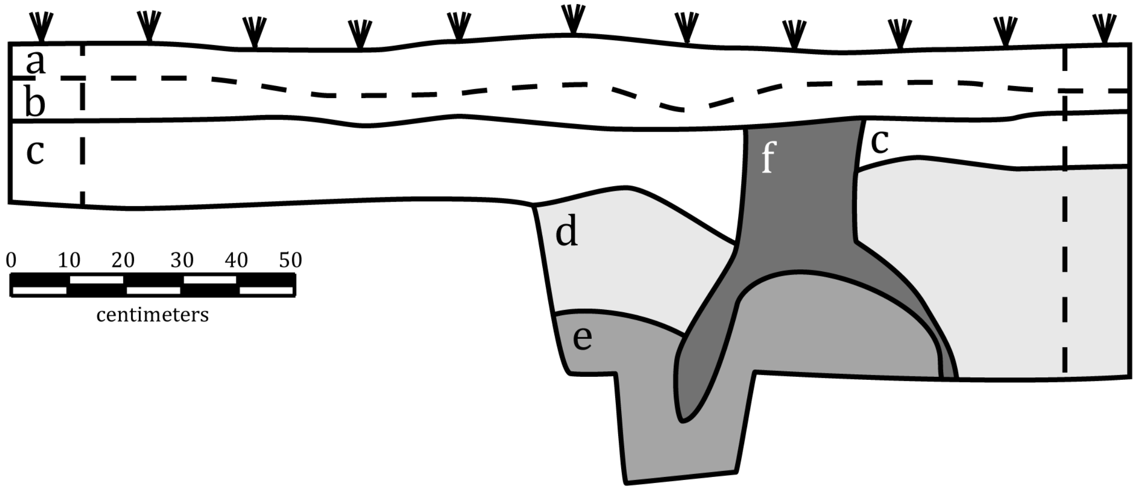


Figure 5.13. Test Unit 175, north profile: a) humic zone, 10YR 3/4 yellowish brown sandy loam; b) plowzone, 10YR 4/3 brown sandy loam; c) plaza fill, 10YR 4/6 dark yellowish brown sandy clay; d) subsoil, 10YR 6/4 light yellowish brown sandy clay; e) subsoil, 10YR 6/4 light yellowish brown clay sand; f) wall trench, 10YR 4/4 dark yellowish brown silty loam.

Test Unit 175. Test Unit 175, a 1-x-2 meter unit with its long axis aligned approximately 49 degrees east of north, targeted the center one side of this anomaly (Figure 5.12). The unit reached a maximum depth of 82 cm below the ground surface. It documented three stratigraphic zones: humus/plowzone, plaza fill, and a subsoil that became sandier with great depth (Figure 5.13). Immediately beneath the plowzone, Test Unit 175 encountered two truncated postholes in addition to a 47-centimeter-deep wall trench running in the predicted direction. Four small posthole stains were visible at the base of the wall trench on its west side, one of which yielded plain ceramics and is visible in the north profile.

The magnetic anomaly is attributed to the wall trench feature.

Test Unit 176. We targeted this anomaly with a 1-x-2 meter unit, Test Unit 176, aligned 40 degrees east of north (Figure 5.14). The unit reached 50 cm below the ground surface, documented only humus/plowzone and a hard-packed sandy subsoil, and recovered no artifacts (Figure 5.15). Two parallel plow scars were visible in at the base of

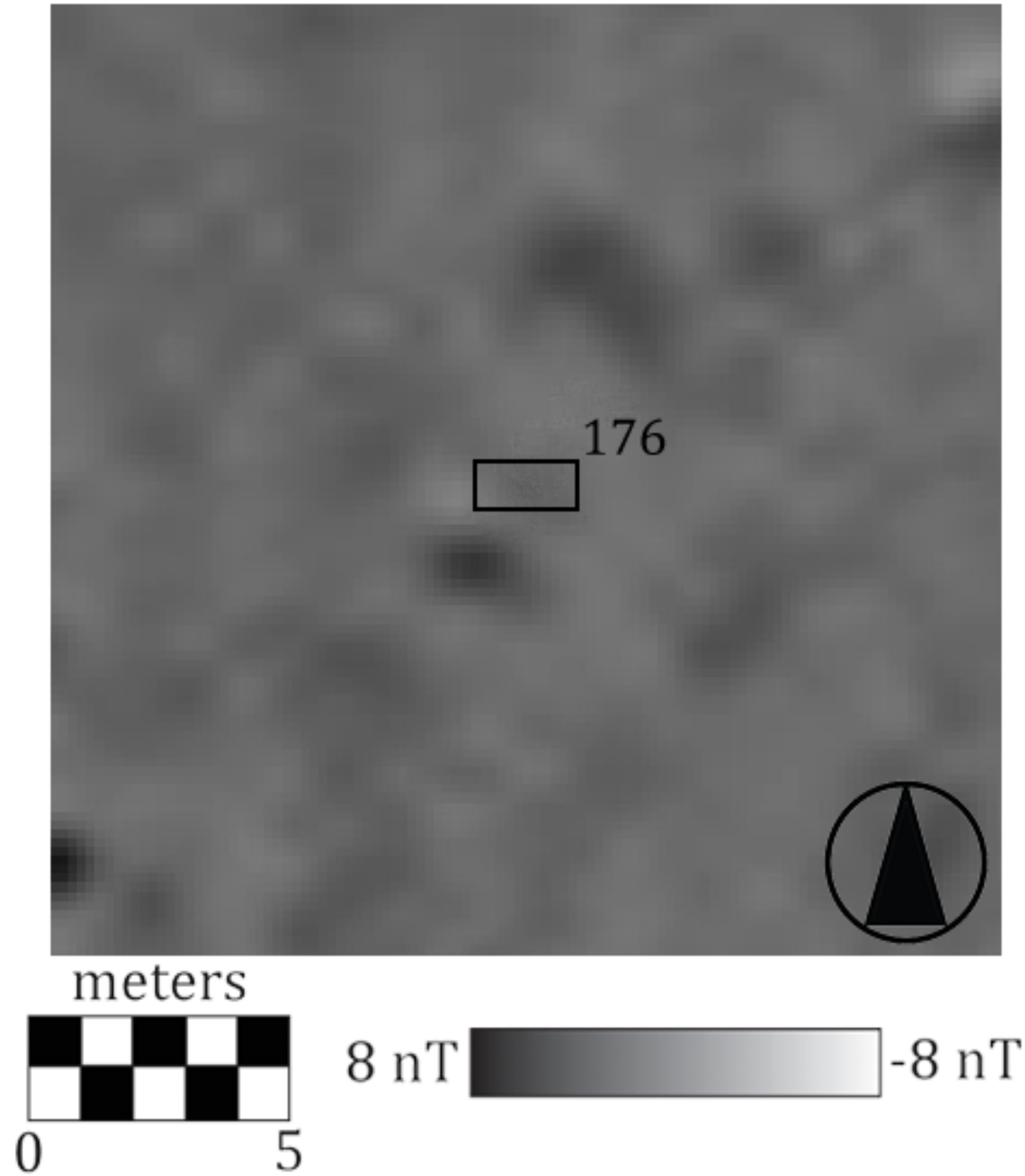


Figure 5.14. Placement of Test Unit 176 to intersect the northeast side of a Type I anomaly on the edge of the magnetically flat area immediately east of Mound A.

the plowzone, possible evidence that this area was artificially flattened in antiquity rather than in the historic period. The only prehistoric source to which a magnetic anomaly could possibly be attributed is a single posthole bisected by the unit's southwestern balk.

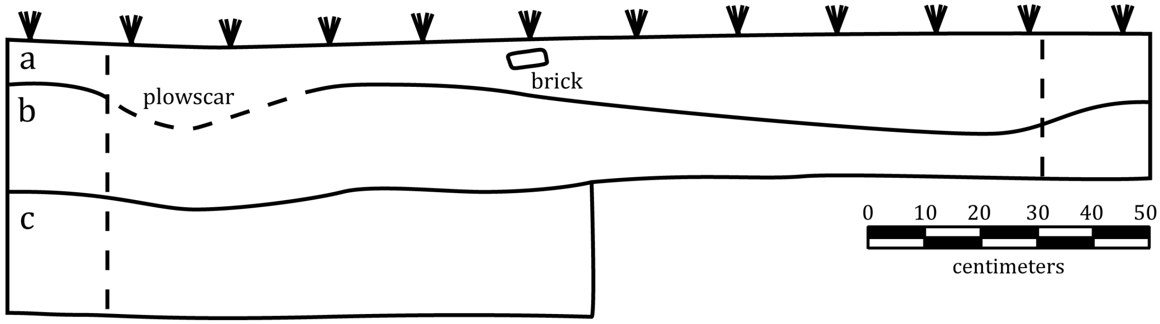


Figure 5.15. Test Unit 176, north profile: a) plowzone, 10YR 3/4 dark yellowish brown sandy loam; b) plaza fill, 10YR 4/6 dark yellowish brown sandy clay; c) subsoil, 10YR 7/4 very pale brown sandy clay.

We did not determine the cause of the magnetic anomaly. It is possible that the single documented posthole was one of several lying just outside of the unit boundaries.

Testing of Type II Anomalies

Results were mixed, though worth detailing. Two tests were positive correlations, a third encountered an undaubed wall, and a fourth identified an interesting architectural configuration quite similar to that of a daubed structure but that was, in fact, a different type of construction (Table 5.1).

Unit Block 101-102. Unit Block 101-102 began as a cardinally aligned, north-south oriented 1-x-2 meter unit that shared its southwest corner with Unit 100's northeast corner (Figure 5.4). When it was discovered that the north wall of the unit had exactly bisected a substantial wall trench (Figure 5.16), Unit 102 expanded excavations 1 meter to the north, creating a 1-x-3 meter unit. Excavations reached a depth of approximately 115 cm below the ground surface so as to completely expose the profile for documentation.

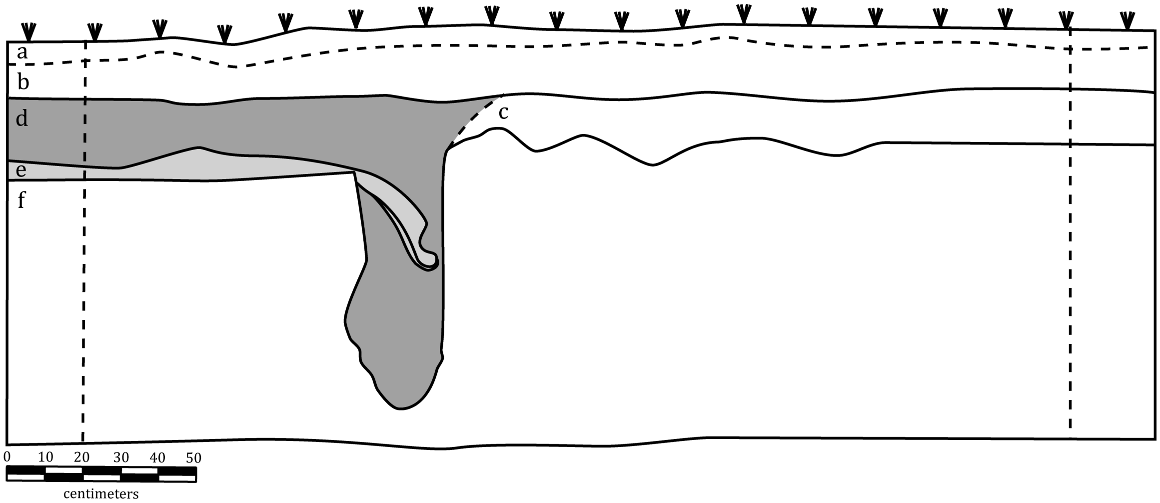


Figure 5.16. Unit Block 101-102, east profile: a) humic zone, 10YR 5/4 yellowish brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown loam with light iron concretions; c) 7.5YR 4/6 strong brown loam mottled with 5YR 5/8 yellowish red clay lightly mottled with 7.5YR 5/4 brown loam; d) fill, 10YR 4/6 dark yellowish brown loam lightly mottled with 10YR 7/8 yellow clay and very lightly mottled with 5YR 5/8 yellowish red clay with light concretions and charcoal flecking; e) clay floor, 10YR 4/4 dark yellowish brown loam mottled with 10YR 7/8 yellow clay lightly mottled with 5YR 5/8 yellowish red clay with light concretions, ash, and charcoal flecking; f) subsoil, 5YR 5/8 yellowish red clay with light concretions.

As seen in Unit 100, the wall trench identified in this block exhibited a series of narrow, well-defined postholes, only here their placement was not nearly so random (Figure 5.17). Each appeared to have been flexed against the base of the trench, bending northward to form the dome-shaped superstructure of an building approximately 100 square meters in size – one of the largest buildings in the plaza area. The interior was lined with about 5 cm of yellow clay and, judging by the low number of artifacts kept quite clean. Among the handful of artifacts found in the basin fill was a Moundville Incised, *variety Moundville* sherd, providing a TPQ of Early Moundville I (Table 5.5).

The wall trench is the source of the linear magnetic high positive portion of the anomaly whereas the sunken clay floor is interpreted as the source of the magnetic low negative portion of the anomaly. This pairing – wall as magnetic high positive enclosing

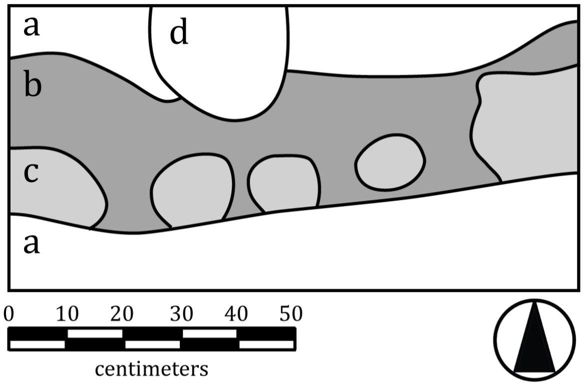


Figure 5.17. Posthole features at base of wall trench in Unit Block 101-102: a) subsoil; b) wall trench; c) postholes; d) modern toli posthole.

floor as magnetic low negative – is seen in many places within the survey collection area. It may even be more common than either in isolation from the other.

Table 5.5. Sherd types and diagnostic modes from Unit Block 101-102.

Type	Humus/ Plowzone	Basin Fill	Wall Trench Fill	Totals
Mississippi Plain	110	24	10	144
Moundville Incised, *variety Moundville*		**1**		1
Bell Plain	9	2	2	13
Carthage Incised, *variety unspecified*	2			2
Moundville Engraved, *variety unspecified*	5			5
Baytown Plain	28	1		29
Total of types	154	28	12	194
Diagnostic Modes				
Folded rim	**1**			1
Folded-flattened rim	1	1		2
Total of diagnostic modes	2	1		3

Note: Items yielding TPQ are in bold.

Test Unit 133. Unit 133 was a cardinally oriented, north-south aligned, 1-x-3 meter trench designed to intersect this anomaly (Figure 5.18). The unit reached an approximate depth of 75 cm below the surface. It encountered two stratigraphic zones, a large cultural feature intruding into subsoil, and what we concluded was a burned taproot,

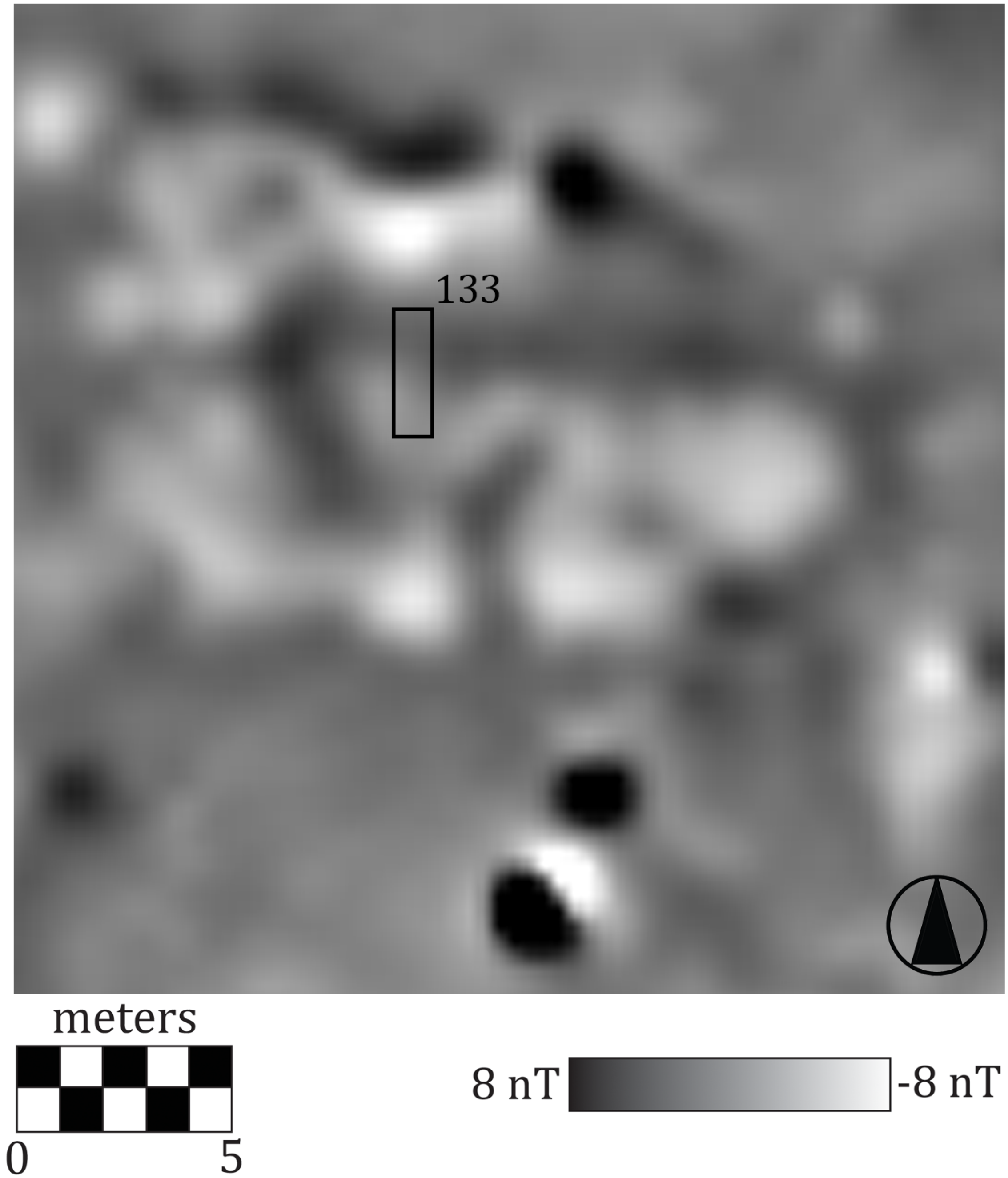


Figure 5.18. Placement of Unit 133, a 1-x-3 meter trench, to perpendicularly intersect the north side of a Type II anomaly in the south-central plaza area. Anomaly features a magnetically low negative center crossed by two linear high positive anomalies.

excavated past the unit floor to a depth of about 100 cm below the ground surface (Figure 5.19).

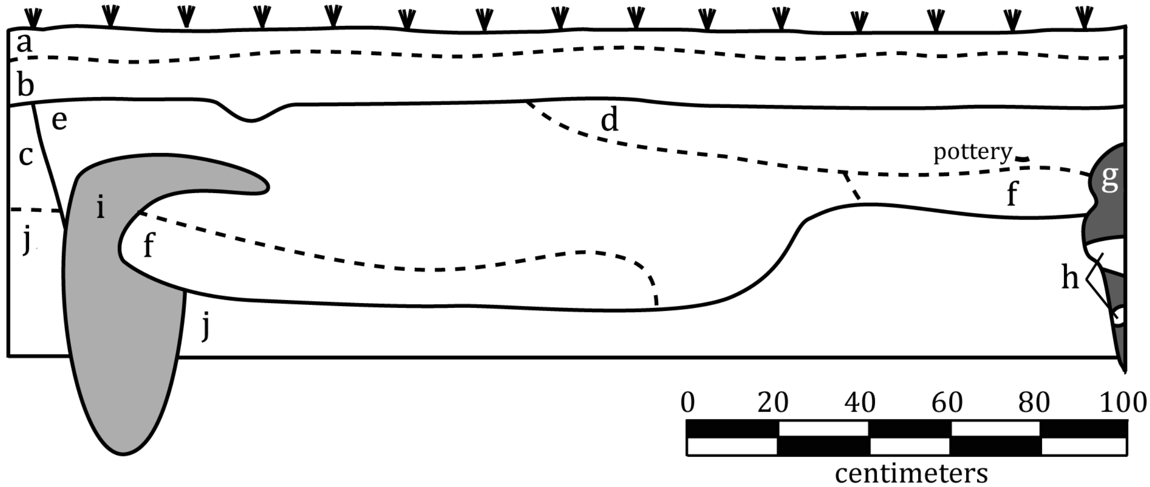


Figure 5.19. Unit 133, east profile: a) humic zone, 10YR 4/3 brown sandy loam, b) plowzone, 10YR 4/6 dark yellowish brown sandy loam; c) 10YR 4/6 dark yellowish brown sandy loam mottled with 5YR 3/4 dark reddish brown sandy clay; d) pit fill, 10YR 4/6 dark yellowish brown sandy loam; e) pit fill, 7.5YR 4/6 dark yellowish brown sandy clay loam lightly mottled with 10YR 5/4 sandy clay loam; f) pit fill, 10YR 5/4 yellowish brown sandy clay loam mottled with 7.5YR 4/6 strong brown sandy clay loam; g) 7.5YR 3/4 dark brown sandy clay loam; h) 10YR 5/8 yellowish brown sand; i) tree taproot, 10YR 3/3 dark brown sandy clay loam with charcoal inclusions; j) subsoil, 5YR 3/4 dark reddish brown sandy clay.

The humic/plowzone ended at about 20 cm below the ground surface. At this depth, we encountered a large, elongated pit filled containing different kinds of culturally sterile soils. In the southern profile, we documented a pocket of alternating bands of dark brown (7.5YR 3/4) sandy clay loam and yellowish brown (10YR 5/8) sand somewhat reminiscent of the dark and light alluvial banding identified above swamp soils in Test Unit N1708E1081. The circular magnetic high likely has its source in the burned taproot, whereas the elongated magnetic low probably originated from the backfilled pit. What is not clear, however, is why this anomaly is part of an overall rectangular cluster consisting of other, evenly spaced, anomalies.

Artifacts from the pit include 55 potsherds, none of which are chronologically diagnostic (Table 5.6).

Table 5.6. Sherd types and diagnostic modes from Unit 133.

Type	Humus/ Plowzone	Pit Fill	Totals
Mississippi Plain	**25**	**48**	73
Bell Plain		5	5
Carthage Incised, *variety unspecified*		1	1
Baytown Plain	3	1	4
Total of types	28	55	83

Note: Items yielding TPQ are in bold.

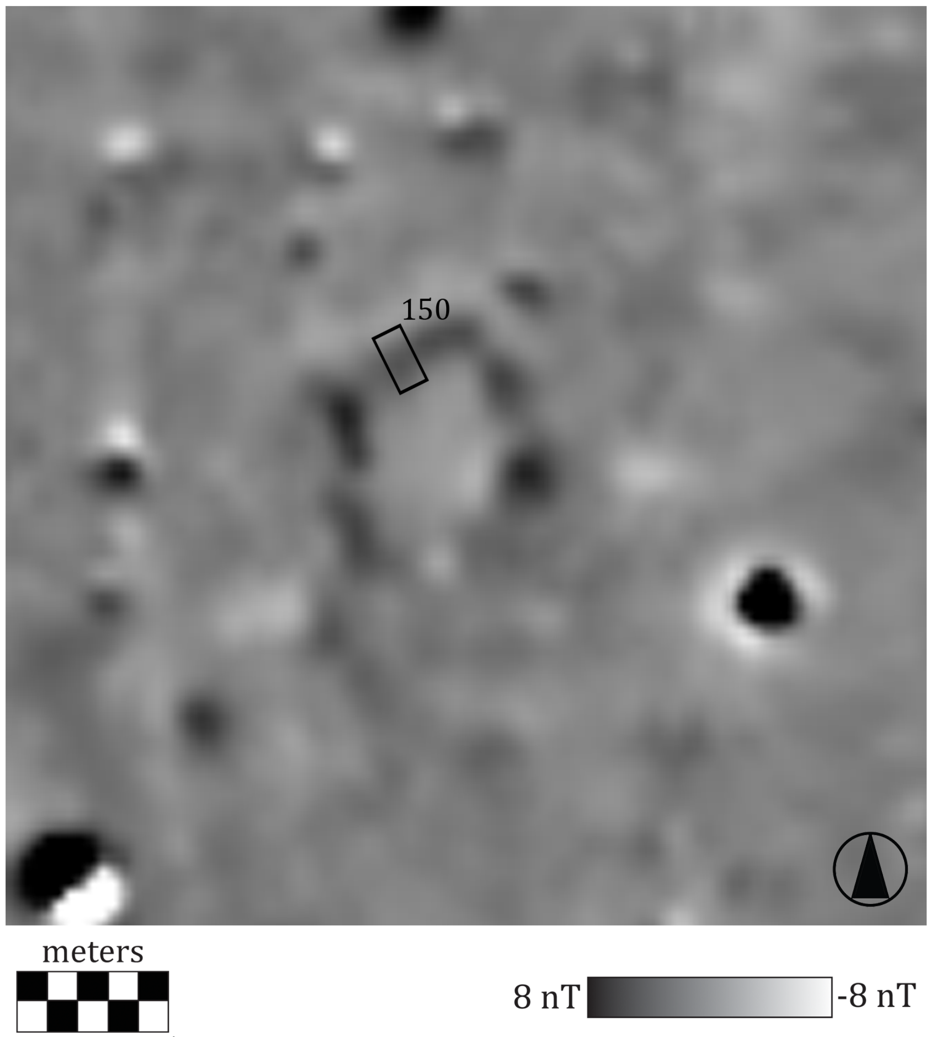


Figure 5.20. Placement of Test Unit 150 to perpendicularly intersect the northwest side of a Type II anomaly. Anomaly is located east of Mound N on the western plaza periphery. It is one of most obvious Type II anomalies captured by the magnetometer survey. Other Type I, II, and IV anomalies are visible in the immediate vicinity.

Test Unit 150. Anomaly located approximately 20 m northeast of Mound O on the western plaza edge. A 1-x-2 meter test unit labeled Unit 150 positioned at a southeast-northwest orientation was placed to perpendicularly intersect this linear anomaly (Figure 5.20). The unit reached a depth of 91 cm below the ground surface (Figure 5.21). It documented two layers of plaza fill, each of which covered an occupation surface. The uppermost fill layer consisted a mottled dark yellow brown (10YR 3/6 and 10YR 4/6) sandy clay loam with sparse artifacts. Immediately below this layer at approximately 60 cm below the ground surface, excavations encountered an occupation surface intruded by two parallel north-south wall trenches. The difference between the wall trench fill and the surrounding matrix was not noticeable until excavators later examined the unit profile. Even then, these were not identified as two separate trenches until excavations at this location were nearly complete. At a depth of approximately 70 cm below the surface, we could discern a staggered row of evenly spaced postholes making up the old wooden wall (Figure 5.22).

When the wall trench was made, builders excavated through plaza fill and a deeper occupation surface littered with burned clay and wood architectural debris. The burned material is interpreted as the source of the target anomaly. Fire preserved this debris and its arrangement rather well. The arrangement is at the same alignment as the targeted linear anomaly. In the northwestern half of the unit, we uncovered a heap of fired clay rubble atop a solid clay mass approximately 25 cm in height. The central and southeastern portion of the unit uncovered at least four charred poles, parallel and roughly evenly spaced. A section of a fifth pole was found draping the rubble pile and a sixth was found beneath the pile. Lighter architectural debris in the form of a layer of heavy charcoal and ash blanketed most of the occupation surface. The occupation surface itself, scoured to yellowish brown (10YR 5/8) clay subsoil, had also been burned.

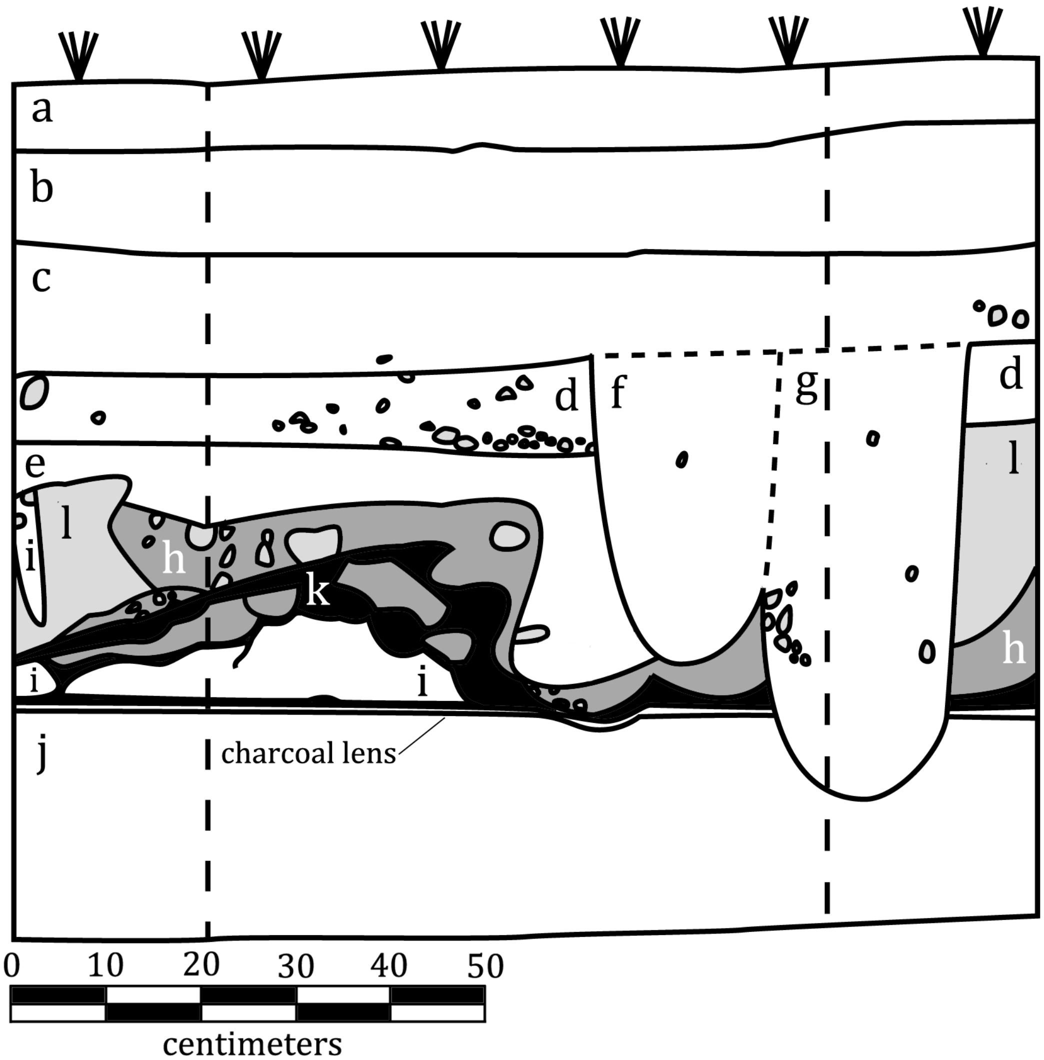


Figure 5.21. Test Unit 150, northwest profile: a) humic zone, 10YR 4/2 dark grayish brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) later plaza fill, 10YR 3/6 dark yellowish brown sandy clay loam lightly mottled with 10YR 4/6 dark yellowish brown sandy clay loam; d) earlier plaza fill, 10YR 4/6 dark yellowish brown sandy clay loam with fired clay and charcoal inclusions; e) earlier plaza fill, 10YR 4/6 dark yellowish brown sandy clay loam heavily mottled with 10YR 6/6 brownish yellow sandy clay with light fired clay inclusions; f) wall trench, 10YR 4/6 dark yellowish brown sandy clay loam lightly mottled with 2.5Y 8/8 yellow clay; g) wall trench, 10YR 3/6 dark yellowish brown sandy clay loam mottled with 2.5Y 8/8 yellow clay; h) 5YR 3/4 dark reddish brown lightly fired clay; i) 10YR 5/6 yellowish brown sandy clay loam; j) subsoil, 10YR 5/8 yellowish brown clay; k) charcoal; l) 2.5YR 4/6 red fired clay.

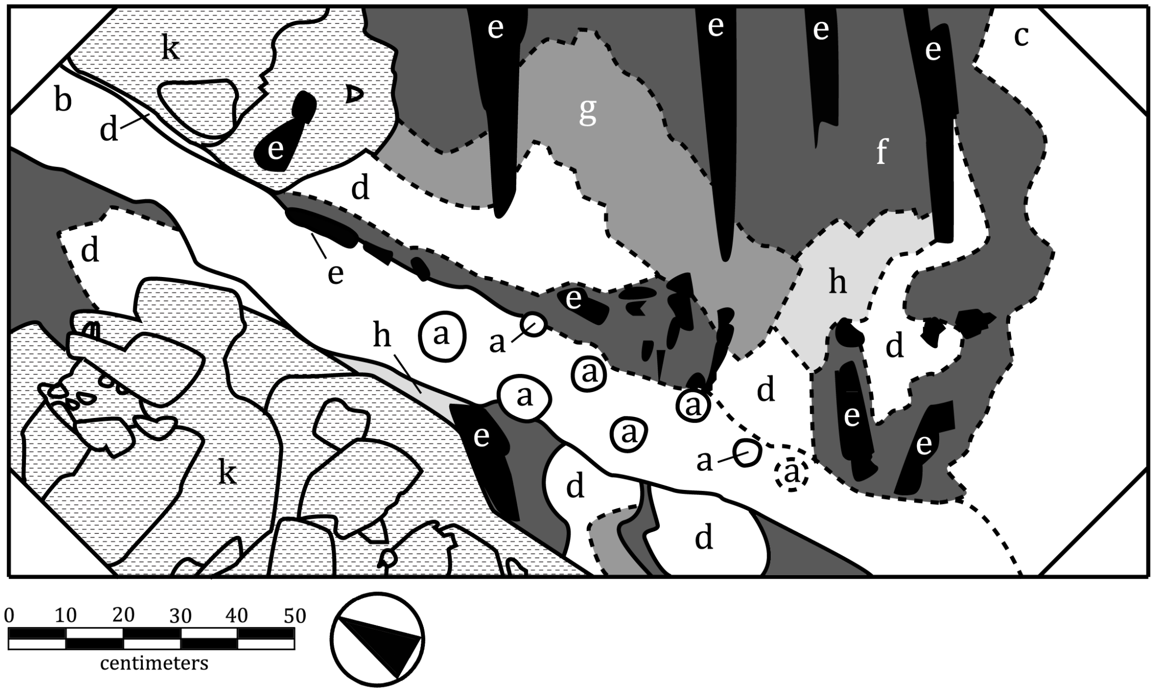


Figure 5.22. Test Unit 150, Zone 3 Level 5 plan view: a) postholes in wall trench, 10YR 3/3 dark brown silty loam; b) wall trench, 10YR 4/6 dark yellowish brown sandy loam; c) subsoil, 10YR 5/8 yellowish brown clay; d) 10YR 5/6 yellowish brown, lightly fired, sandy clay loam with light charcoal inclusions; e) charred wooden poles; f) heavy charcoal debris with light ash; g) charcoal debris with heavy ash; h) 10YR 5/8 yellowish brown clay with charcoal and ash inclusions; k) 2.5YR 4/6 red fired clay rubble.

A sample from one of the poles provided a calibrated date of 830 ± 30 (Pts-331303; wood charcoal; $\delta^{13}C = -26.4‰$). Since the sample came from below plaza fills, we can conclude that the building predates plaza construction ca. A.D. 1200, resulting a very tight date of A.D.1190-1200. This date is consistent with the stratigraphic arrangement of a non-cardinally oriented structure, buried by plaza fill, and intruded by a cardinally oriented, post-plaza wall trench structure. However, the buried debris does not appear to be that of a typical Early Moundville I flexed-pole structure. So far as we know, Early Moundville I architects did not usually make such liberal use of clay. There are two possible explanations for it at this location. The first is that the clay rubble is the remains of a platform such as that documented in a minority of Early Moundville buildings.

Wilson (2008:22), citing Scarry (1986), describes one discovered in excavations north of Mound R as ”having its foundation set in a shallow basin [and]…a raised clay platform immediately adjacent to a wall.” A similar structure was encountered in the Moundville Roadway and additional examples were documented at the Bessemer site (DeJarnette and Wimberly 1941). Blitz (1993:79) interprets these features as benches. The second possibility is that the clay rubble represents what is left of a footer for a low wooden platform or deck. It is hard to say more about such an odd construction since nothing like it has ever been documented at Moundville, though it is tempting to speculate that it served some special purpose, after which it was formally destroyed by fire.

The burned clay and wood were the source of the anomaly. These features generated such a strong signal that they overpowered the signals generated by other nearby and overlapping architectural features. This is how we could have identified substantial wall trenches at this location without recognizing an associated anomaly. Given Wilson’s (2005, 2008, 2010) identification of multiple, overlapping structures throughout the Moundville roadway, it is likely many of the architectural anomalies in the gradiometer collection area were obscured or otherwise rendered unrecognizable by more intense magnetic features in the vicinity. The implications of this will be discussed in greater detail in the next chapter.

At 205 potsherds, the plowzone yielded more artifacts than all other Unit 150 contexts combined (Table 5.6). The architectural features produced no useful diagnostic artifacts and, surprisingly, no artifacts were recovered from the below the plaza fill, but the plaza fill into which the wall trenches penetrated yielded a Moundville Incised, *variety Oliver* sherd for a TPQ of Early Moundville I.

Table 5.7. Sherd types from Test Unit 150.

Type	Humus/ Plowzone	Wall Trenches	Posthole Intruding Plaza Fill	Plaza Fill	Totals
Mississippi Plain	**205**	**19**	**2**	102	328
Moundville Incised, *variety Oliver*				**1**	1
Moundville Incised, *variety unspecified*				1	1
Bell Plain		4	1	8	13
Baytown Plain	18			4	22
Total of types	223	23	3	116	365

Note: Items yielding TPQ are in bold.

Test Unit 160. A cardinally oriented, north-south aligned, 1-x-2 meter unit labeled Unit 160 targeted this anomaly (Figure 5.23). It was designed to perpendicularly intersect the linear anomaly. The unit reached a depth of 56 cm below the surface. We identified three stratigraphic zones and a large cultural feature: a humic zone and plowzone, a layer of light midden, and subsoil intruded by a midden-filled house basin (Figure 5.24). The house basin was encountered only cm below the base of the plowzone. This was one of the only late Moundville contexts encountered during the project. It is also the most artifact-rich.

The basin floor was well-defined at all boundaries. Two postholes approximately 15 cm in diameter and separated by a meter were found along its edge, the probable supports for the lightly daubed wall that once surrounded the floor. The structure appears to have been razed. Sections of the walls themselves, burned cane mats in direct contact with a thin layer of fired clay, were found lying on the floor of the house feature. This was the location of a rigid-post, daubed-walled building, an architectural style that arrived at Moundville late in the history of the site. The basin was later used as a trash pit into which a moderate amount of poorly preserved deer bone and sizeable portions of several cooking pots were discarded.

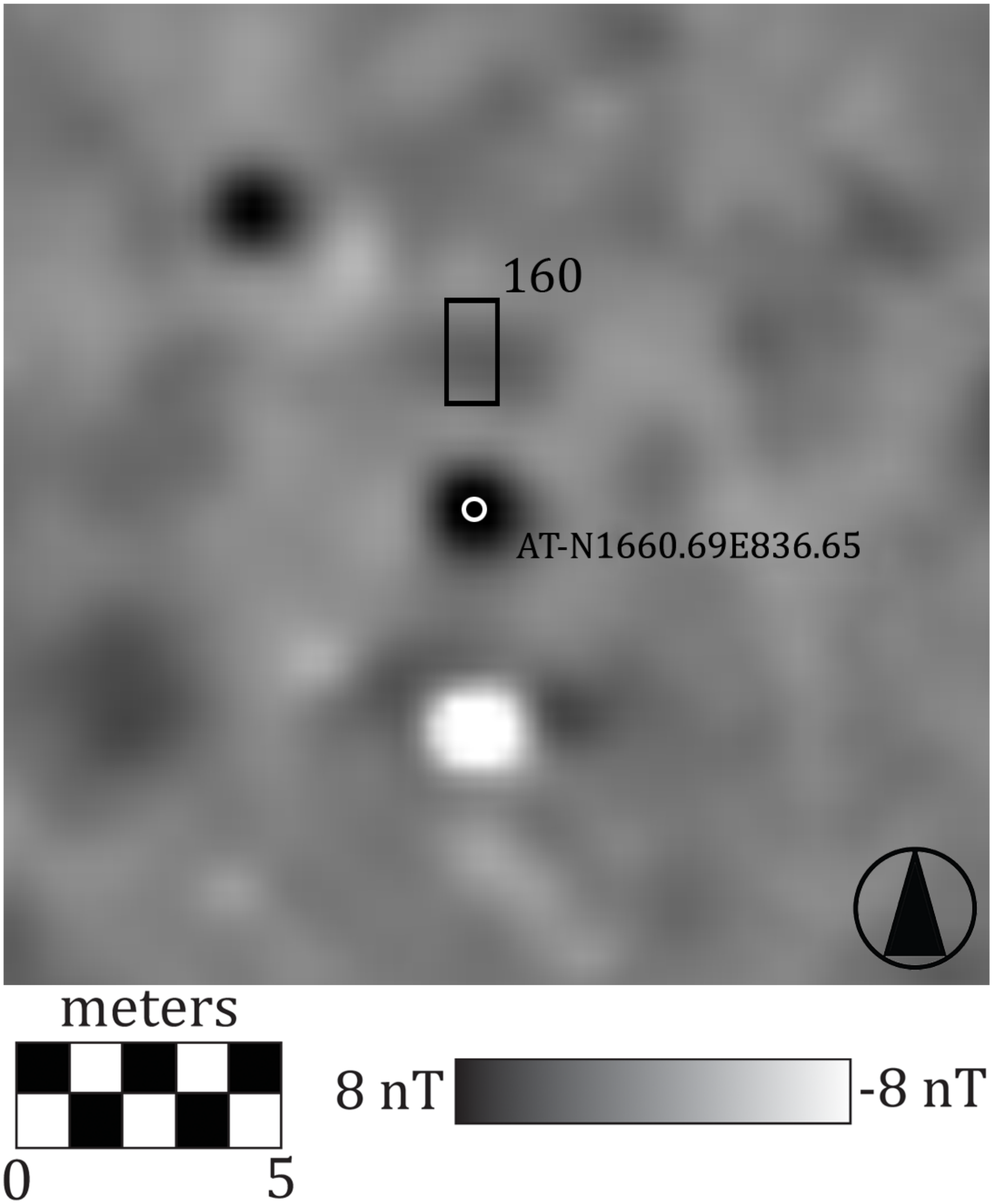


Figure 5.23. Placement of Test Unit 160 and AT-N1660.69E836.65. Unit 160 targeted the north side of a Type II anomaly whereas the auger test targeted a Type IV anomaly approximately 2 m to the south. Anomaly pair lies amidst a cluster of a similar anomalies on the southwest plaza periphery.

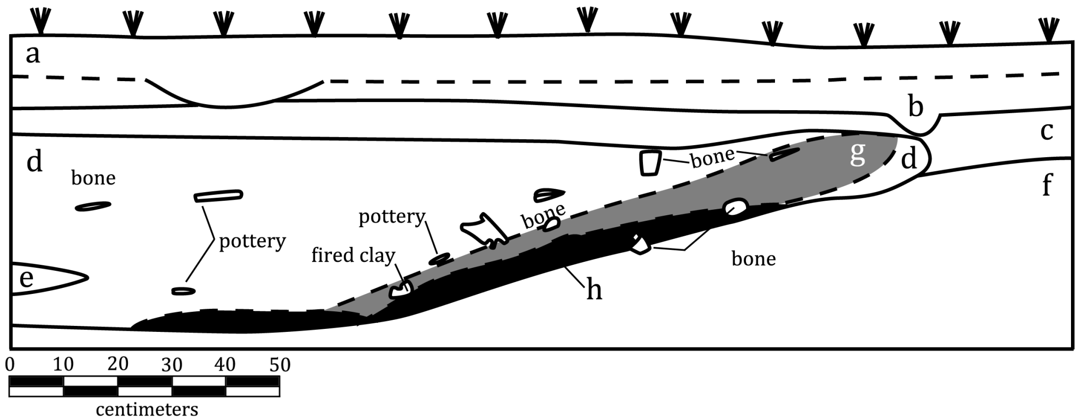


Figure 5.24. Test Unit 160, east profile: a) humic zone, 10YR 4/4 dark yellowish brown sandy loam; b) plowzone, 10YR 5/8 dark yellowish brown sandy loam; c) light midden, 10YR 4/6 dark yellowish brown sandy clay loam; d) midden pit fill, 10YR 3/4 dark yellowish brown sandy clay with heavy artifacts; e) 10YR 4/6 dark yellowish brown sandy clay mottled with 10YR 5/8 dark yellowish brown clay; f) subsoil, 7.5YR 5/8 strong brown clay; g) midden pit fill, 10YR 3/4 dark yellowish brown sandy clay with moderate charcoal and ash; h) burned cane matting and fired clay.

Table 5.8. Sherd types and diagnostic modes from Test Unit 160.

Type	Humus/ Plowzone	Pit Fill	Posthole Fill	Totals
Mississippi Plain	**135**	1159	**2**	1296
Moundville Incised, *variety unspecified*	3	6		9
Pouncy Pinched		**1**		1
Bell Plain	1	111		112
Carthage Incised, *variety Lupton*		1		1
Moundville Engraved, *variety unspecified*		1		1
Baytown Plain	8	6		14
Total of types	147	1285	2	1434
Diagnostic Modes				
Folded rim		2		2
Horizontal lug		2		2
Frog effigy part (leg)		1		1
Total of diagnostic modes		5		5

Note: Items yielding TPQ are in bold.

Unit 160 yielded an abundance of artifacts. Of the 1434 potsherds recovered, 1285 derived from the shallow basin (Table 5.8). A Pouncy Pinched sherd offered an indistinct TPQ "Late Mississippian," possibly refined to Early Moundville III by the recovery of frog effigy parts and a single Carthage Incised, *variety Lupton* potsherd. It is telling, then, that the most productive unit in the plaza was also the only unit that struck a context confirmed to postdate Moundville's demographic apex. The implications of this are discussed in the final chapter.

The burned material within the basin floor is interpreted as the source of the magnetic anomaly.

Testing of Type III Anomalies

Mound P Summit Units. A number of contiguous 1-x-2 meter units at the southeastern corner of the Mound P summit targeted a small portion of an expansive Type III anomaly (Figure 5.25). Excavated during the fall 2009 University of Alabama field school, these units uncovered the burned remains of what Porth (2011) interpreted as a monumental wooden building dating to the late Moundville III phase. These remains consisted mostly of massive quantities of daub in addition to a minority of small postholes and shallow pits (Figure 5.26). Presumably, the units exposed a portion of the building's floor. The walls of this building are likely to have been erected right at the summit's edge and, therefore, have been lost to erosion in the intervening centuries.

The large amount of daub was interpreted as the source of the magnetic anomaly

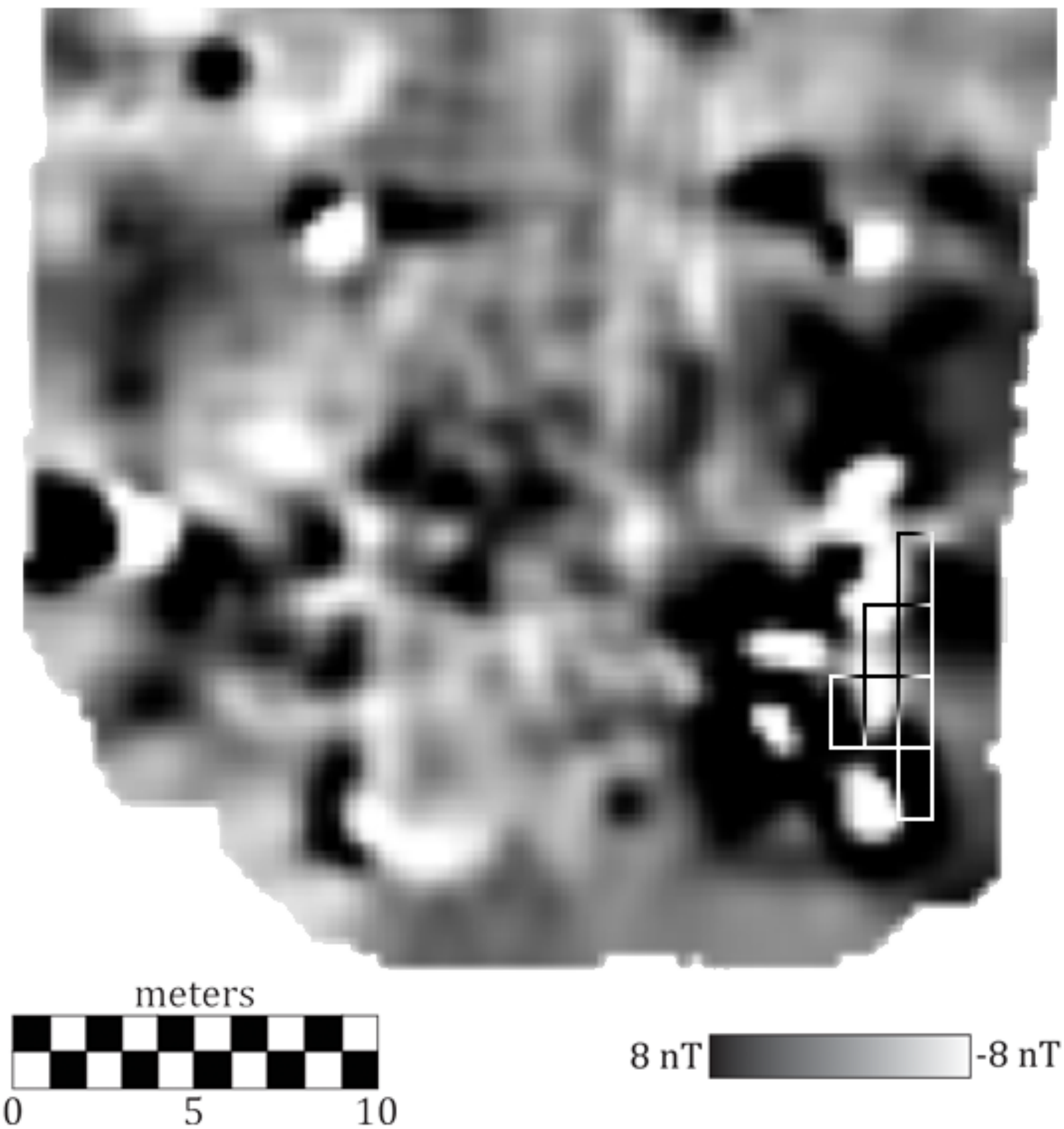


Figure 5.25. Unit block targeting a portion of an enormous Type III anomaly atop Mound P.

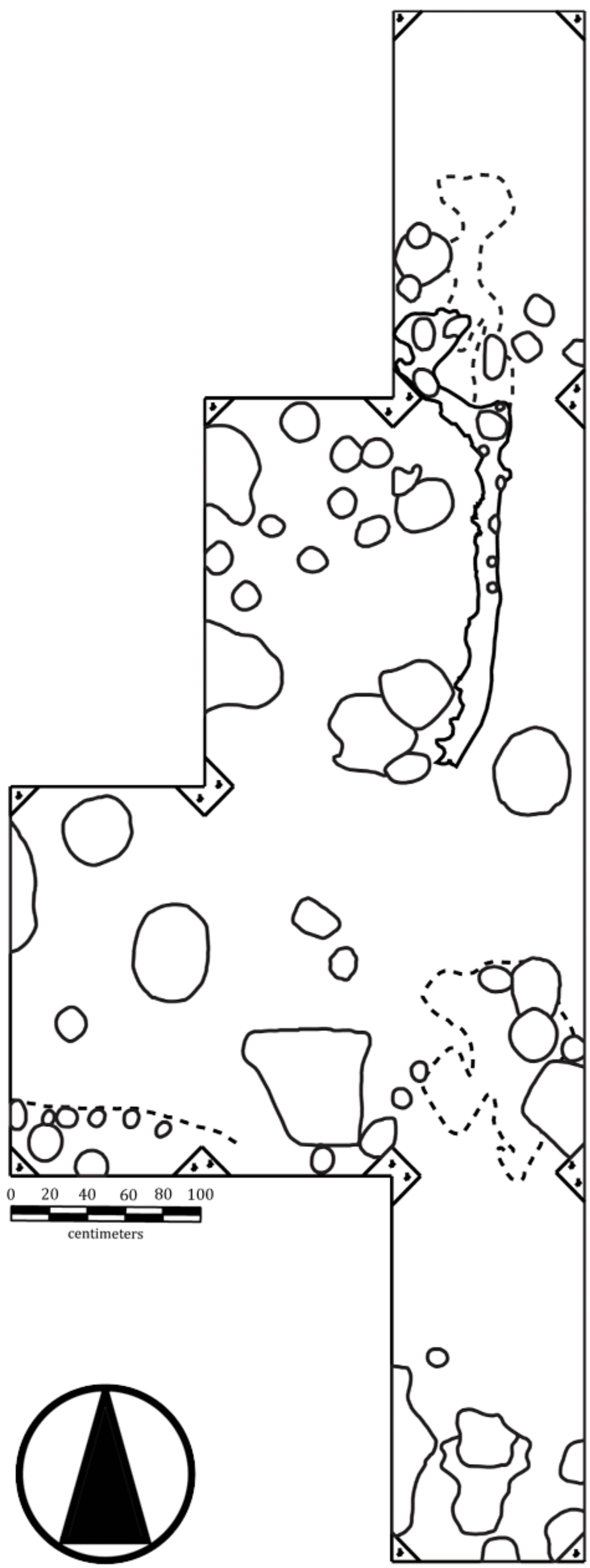


Figure 5.26. Unit block atop Mound P. Contiguous 1-x-2 meter units encountered a heavy scatter of daub and charcoal in and around posthole and pit features, the apparent remains of a large burned structure (see Porth 2010).

Testing of Type IV Anomalies

Of the fourteen Type IV anomalies tested with excavation units, three anomalies tested positive, one correlated with a non-hearth charcoal feature, and each of the remaining ten anomalies either correlated with modern metal objects (e.g., wire, tent stakes) or did not correlate with any obvious source. Four anomalies were tested with the bucket auger. Two tested positive and two did not identify an anomaly source.

Unit Block N1658E1080/N1658E1081/N1658E1082. This unit block began as a 1-x-1 meter unit labeled N1658E1082, oriented to the cardinal directions (Figure 5.27). The unit encountered a clay loam (10YR 3/4) fill layer (c and h above) light in artifacts overlying an occupation surface. A thin but heavy charcoal feature in the southwest corner of the unit was tentatively interpreted as peripheral to a fired clay hearth. Conclusive evidence in support of this hypothesis required that the unit be expanded.

A 1-x-1 meter unit labeled N1658E1081 extended the unit one meter westward and revealed the charcoal deposit to be a larger feature that thickened as it gently sloped downwards to the west. A cluster of large, plain potsherds laying on the surface at the base of the deposit suggested an occupation surface. This charcoal deposit was deemed to be the source of the magnetic anomaly.

The unit was expanded once again to the west, southwest, and south, forming a 2-x-2 meter extension off of the original 1-x-1 meter unit. This expansion, labeled N1658E1080, still did not document the entire extent of the charcoal deposit, but it did clarify its cultural context. The deposit was found to directly overlie an uneven floor of a

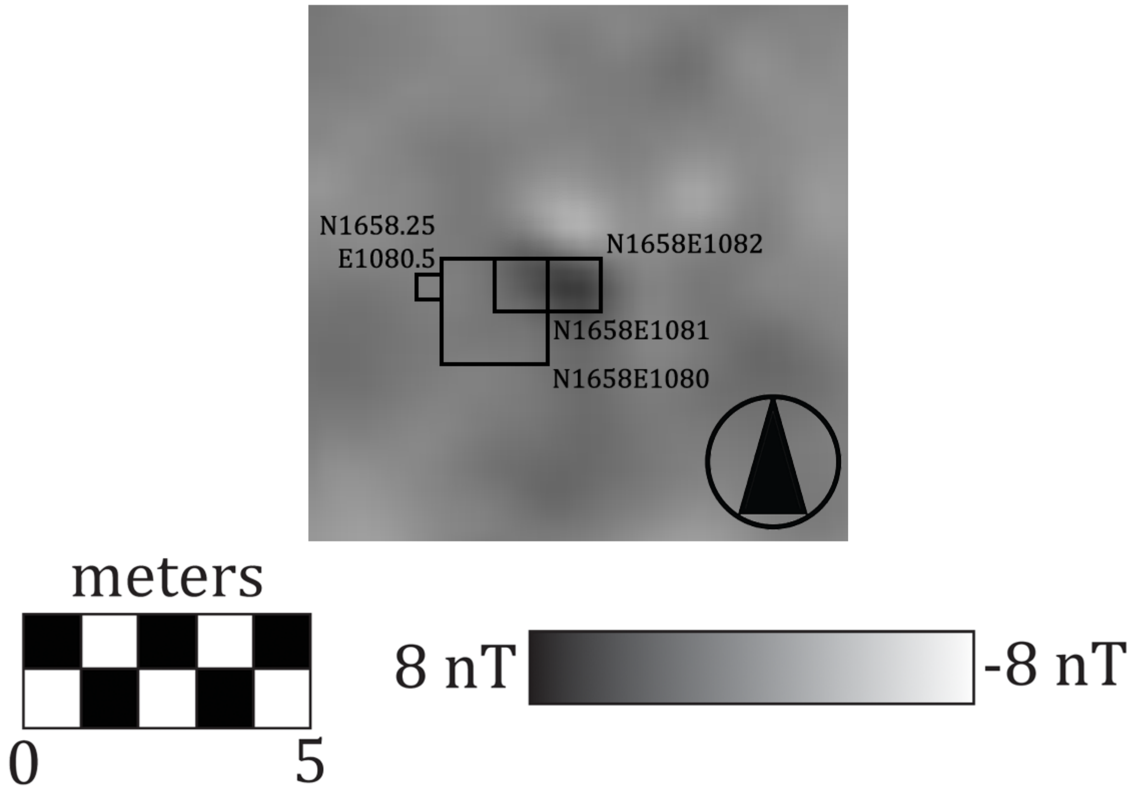


Figure 5.27. Placement of Unit Block N1658E1080/N1658E1081/N1658E1082/N1658.25E1080.5 at the location of a Type IV anomaly. Unit began as a 1-x-1 located over the suspect anomaly source and expanded west and then south to expose more of the feature.

large feature interpreted as a borrow pit presumably created as a yellow clay quarry for nearby monument construction (Figure 5.28).

Four fill layers were identified within this pit. From top to bottom they are a moderately rich midden layer, a layer of ashy sandy loam, a layer of light midden riddled with insect burrows, and a layer of almost solely charcoal (Figure 5.29). Though still fairly sparse in comparison to midden contexts elsewhere at Moundville, these fill layers were among the most artifact-rich contexts documented during all four seasons of ground-truthing (Table 5.9). Analysis separated artifacts into upper and lower pit contents, the charcoal layer serving as the boundary between the two.

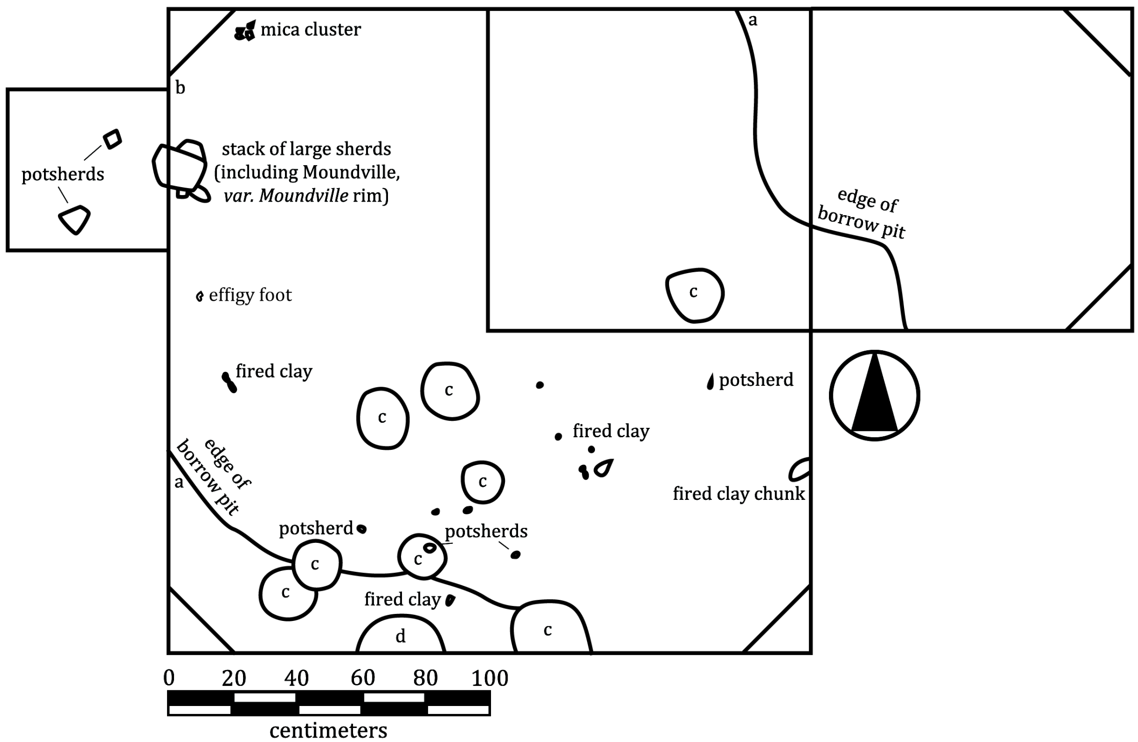


Figure 5.28. Plan view of base of Unit Block N1658E1080/N1658E1081/N1658E1082/N1658.25E1080.5: a) subsoil, 10YR 5/6 yellowish brown sandy clay loam; b) borrow pit layered with moderate midden in 10YR 3/4 dark yellowish brown clay loam mottled with 10 YR 3/3 dark brown silty loam matrix, ash, and heavy charcoal; c) postholes, 10YR 3/4 dark yellowish brown clay loam; d) posthole, 10YR 4/2 dark grayish brown silt.

The uppermost layer yielded 1570 sherds. One sherd of Carthage Incised, *variety Moon Lake* provided a TPQ of Late Moundville I. Other diagnostic ceramics also linked the context to the early end of the Moundville chronological sequence, including multiple examples of Moundville Incised, *varieties Moundville* and *Oliver*, in addition to Late Woodland Baytown Plain and Autauga Check Stamped sherds. Folded and folded-flattened rims and hemagraved designs solidify a Moundville I chronological designation. An engraved hooded bottle fragment, two owl effigies (mentioned below), and a hybrid jar form hint at external connections to the north and east.

Table 5.9. Sherd types and diagnostic modes from Unit Block N1658E1080, N1658E1081, and N1658E1082.

Type	Humus/ Plowzone	Feature 9 Upper Pit Contents	Feature 9 Lower Pit Contents	Posthole Outside of Pit	Postholes Intruding Pit	Totals
Mississippi Plain	**80**	1155	17	10	**6**	1268
Moundville Incised, *var. Carrollton*		2				2
Moundville Incised, *var. Moundville*		5				5
Moundville Incised, *var. Oliver*		5				5
Moundville Incised, *var. unspecified*	1		1			2
Barton Incised, *var. unspecified*		18				18
Bell Plain	23	253	12	10	3	301
Carthage Incised, *var. Moon Lake*		**1**				1
Carthage Incised, *var. unspecified*		7				7
Moundville Engraved, *var. unspecified*		12				12
Baytown Plain	8	44	1			53
Autauga Check Stamped		1				1
Residual types		67	1			68
Totals of types	112	1570	32	20	9	1743
Diagnostic Modes						
Hemagraved		4				4
Folded rim		8	**1**	**1**		10
Folded-flattened rim		7				7
Owl effigy features		2				2
Totals of diagnostic modes		21	1	1		23

Note: Items yielding TPQ are in bold.

The charcoal feature originally identified at the base of N1658E1082 lined the base of the pit. This feature consisted almost entirely of charcoal, including whole burned branches two inches in diameter. A handful of large sherds littered the base of the pit. Several had been stacked like cards in the west wall of the unit. A series of postholes averaging approximately 18 cm in diameter penetrated all four of these levels and into the subsoil beneath.

The pit fill appears to have been produced in part by nonutilitarian ceramic production. Evidence for this includes ubiquitous fist-sized lumps of white, red, and

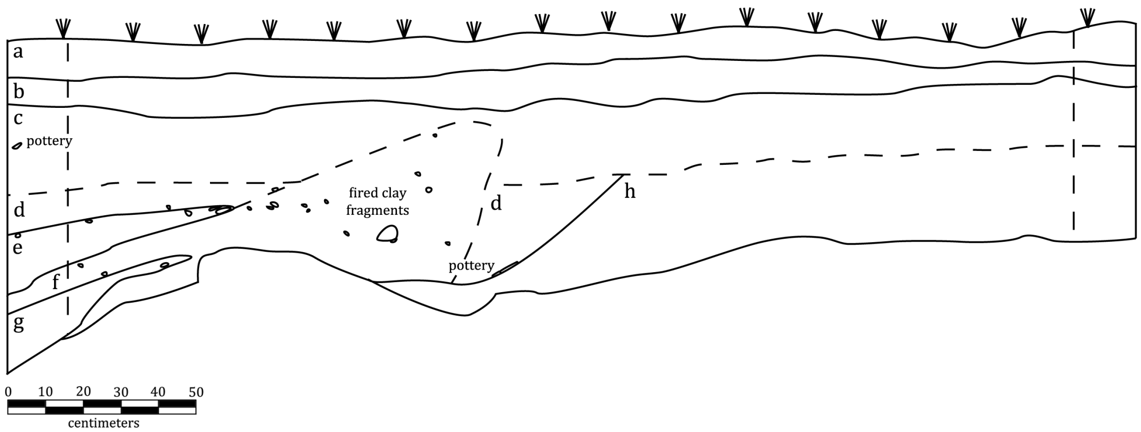


Figure 5.29. Unit Block N1658E1080/N1658E1081/N1658E1082, north profile: a) humic layer, 10YR 3/3 dark brown loam; b) plowzone, 10YR 3/4 dark yellowish brown sandy loam; c) moderately rich midden fill layer, 10YR 3/4 dark yellowish brown clay loam; d) moderately rich midden fill layer, 10YR 3/4 dark yellowish brown clay loam mottled with 10 YR 3/3 dark brown silty loam; e) ashy fill layer, 10YR 3/6 dark yellowish brown sandy loam; f) light midden deposit with heavy insect disturbance, 10YR 3/4 dark yellowish brown clay loam mottled with 10YR 3/3 dark brown silty loam and moderate charcoal and fired clay chunks and inclusions; g) heavy charcoal layer with burned branches; h) subsoil, 10YR 5/6 yellowish brown sandy clay loam.

purple clays, pottery soils, poorly-fired ceramics, and the ample amount of burned wood. Possible decorative materials included multiple instances of red and yellow pigment-quality limonite and other attractive minerals. One pocket of sherds found in close association with and even attached to several pieces of sheet mica appeared to have derived from a small bowl containing red pigment and mica. Red-filmed and white-filmed ceramics, including a ceramic solid-head owl effigy with a painted white face, comprised a small percentage of the total ceramic artifacts.

The charcoal feature lining the base of the borrow pit is identified as the source of the anomaly.

Unit Block N1669E1080/N1670E1080. A 1-x-1 meter unit labeled N1669E1080 and oriented to the cardinal directions was positioned with the anomaly at its center (Figure 5.30). After penetrating a loam humic layer (10YR 4/2) and a sandy loam (10YR

3/6) plowzone (Figure 5.31), excavations encountered a truncated wall trench running exactly north-south at 18 cm below ground level. We bisected this feature, pedestalling its western half. Ten centimeters lower, we documented a partially disturbed occupation surface. Several architectural features intruded into this surface including two postholes and another wall trench in almost the same location as the one encountered higher up. A pile of fired clay debris, presumably the remains of a ruined hearth, was discovered in the central south wall of the test unit. A fired clay surface was documented just to the east of this debris. I believe that the hearth debris was dislocated by the plow from the location of this burned surface.

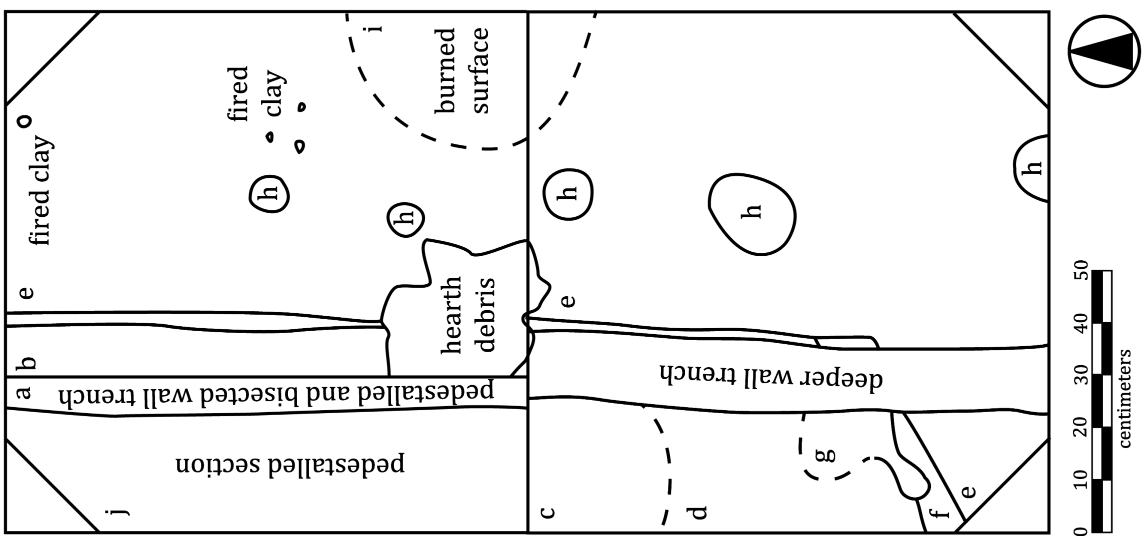


Figure 5.31. Unit Block N1669E1080/N1670E1080, base of Zone 3 Level 1: a) wall trench, 10YR 4/3 dark yellowish brown sandy clay loam; b) wall-trench, 10YR 3/6 dark yellowish brown loam; c) 10YR 3/6 dark yellowish brown clay loam; d) 10YR 3/6 dark yellowish brown clay loam mottled with 10YR 3/4 dark yellowish brown clay sandy loam; e) 10YR 3/4 dark yellowish brown clay sandy loam; f) 10YR 4/6 dark yellowish brown clay loam with heavy charcoal; g) 10YR 4/6 dark yellowish brown clay loam; h) postholes, 10YR 3/3 dark brown clay loam; i) burned surface, 5YR 4/6 yellowish red sandy clay; j) 10YR 3/6 dark yellowish brown sandy loam.

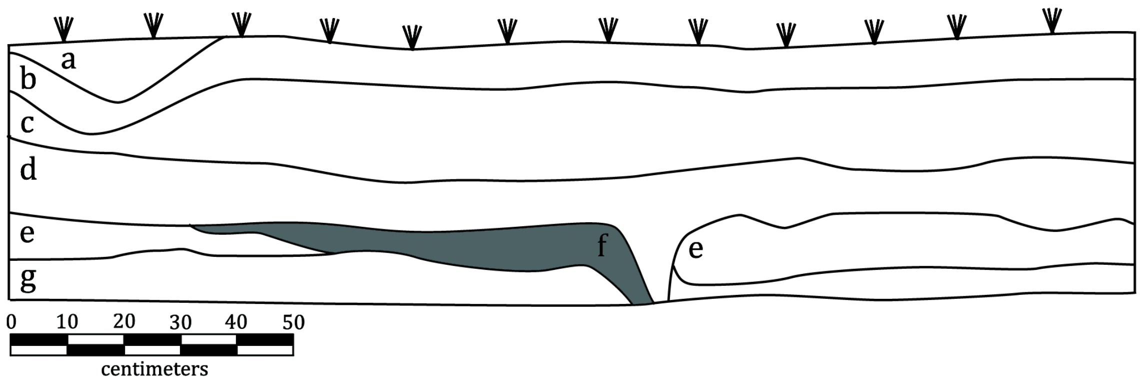


Figure 5.32. Unit Block N1669E1080/N1670E1080, east profile: a) 10YR 3/4 dark yellowish brown sandy loam; b) humic layer, 10YR 4/2 dark grayish brown loam; c) plowzone, 10YR 3/6 dark yellowish brown sandy loam; d) light midden, 10YR 5/3 brown sandy loam with moderate burnt clay and charcoal fleck inclusions; e) occupation surface, 5YR 4/6 yellowish red sandy clay; f) burned surface around hearth, 10YR dark yellowish brown clay loam; g) 10YR 4/4 dark yellowish brown loam.

In order to expose the whole pile of hearth debris, we expanded the unit 1 meter to the north with an additional 1-x-1 meter unit labeled N1670E1080. We neither uncovered the ends of the wall trenches nor additional hearth debris, but we did document three other postholes forming a north-south alignment with the two documented in the original test unit (Figure 5.32).

Diagnostic sherd types and modes provide a *terminus post quem* of Early Moundville I (Table 5.10). The architecture features suggest that a structure of some sort, mostly likely domestic, was built and rebuilt in this location, a pattern that is in keeping with domestic and nondomestic contexts elsewhere at Moundville, particularly those documented within the Moundville Roadway (Wilson 2005, 2008). Wilson (2005) noted that houses built during the Early Moundville I sub-phase tended not to be rebuilt in place. It was only after the construction of the mound-and-plaza complex that most households began staking claims to specific locations on the landscape, rebuilding there again and

Table 5.10. Sherd types and diagnostic modes from Unit Block N1669E1080 and N1670E1080.

Type	Humus/ Plowzone	Wall Trench	Fill Above Occupation Surface	Occupation Surface	Totals
Mississippi Plain	32	**10**	93	**65**	200
Moundville Incised, *variety Moundville*	**1**		**1**		2
Moundville Incised, *variety unspecified*			2	1	3
Bell Plain	13	1	7	3	24
Moundville Engraved, *variety unspecified*			3	1	4
Baytown Plain	1		2		3
Residual types			1		1
Total of types	47	11	109	70	237
Diagnostic Modes					
Hemagraved			**1**		1
Total of diagnostic modes			1		1

Note: Items yielding TPQ are in bold.

again. Considering this and the north-south orientation of the wall trench, I submit that the contexts excavated in this unit block date to the Late Moundville I sub-phase.

The debris and the burned surface are assumed to be the source of the magnetic anomaly.

Test Unit N1693E1108. The 1-x-1 meter unit labeled N1693E1108 is the easternmost plaza unit excavated during the project. It was oriented to the cardinal directions and positioned with the anomaly at its center (Figure 5.33). The unit reached a depth of approximately 75 cm. Four strata were identified: a humic layer and plowzone, two fill layers, and a clay subsoil (Figure 5.34). The transition between the plowzone and the underlying cultural layer was well defined and featured evenly spaced plow scars in a north-south orientation. The uppermost fill layer was 50 cm at its thickest and composed of light midden in sandy clay loam (10YR 3/6). Artifacts included a preponderance of daub and the possible remains of a fired clay hearth, the latter deemed as the approximate

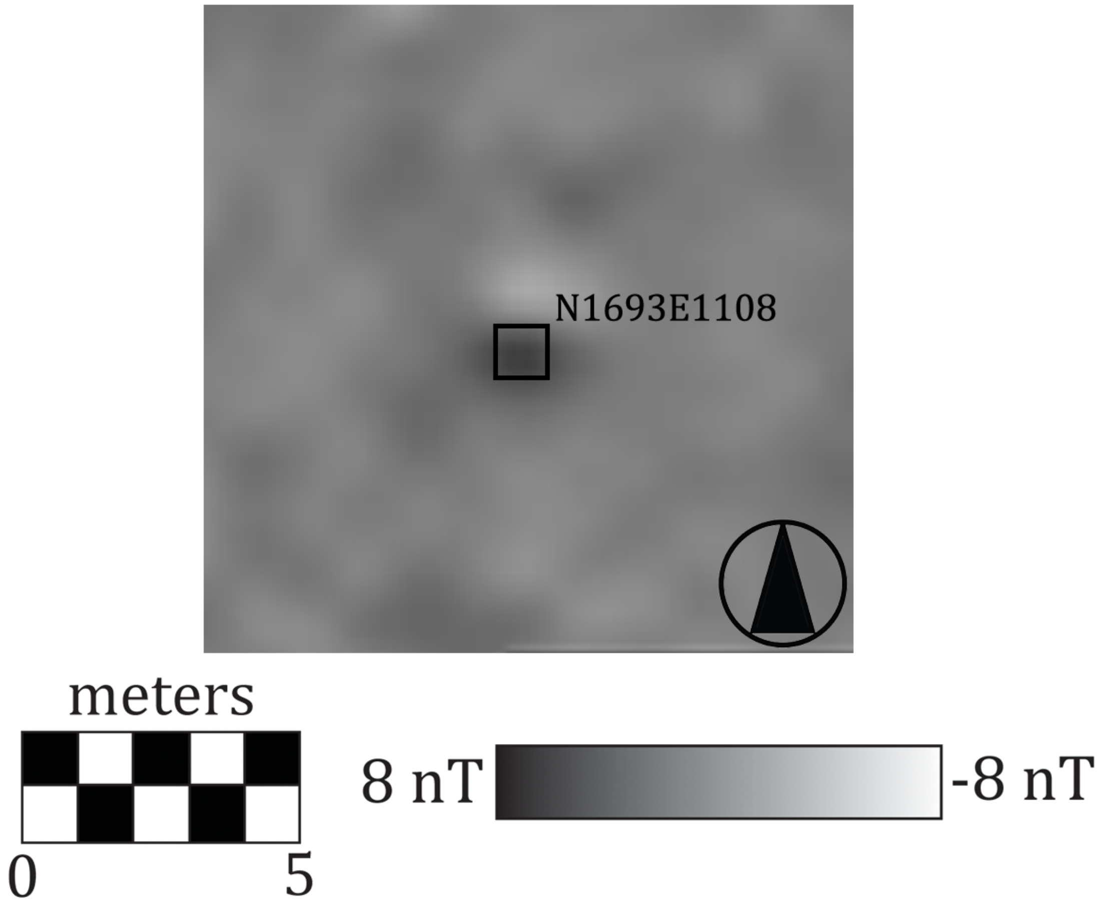


Figure 5.33. Placement of Test Unit N1693E1108 at the location of a Type IV anomaly on the southern plaza margin.

source of the magnetic anomaly. The lower fill layer, at a maximum thickness of 62 cm, was composed of a similar array of fired clay artifacts scattered in a sandy clay loam (7.5YR 4/6). These fill layers overlaid an occupation surface (Figure 5.35) featuring a row of single-set posts skirting the corner of a shallow basin floor. The boundary between these contexts was sharply defined. A bucket auger test into the floor of the unit reached a depth of 1.5 m without encountering a soil change.

A folded rim recovered from the lower portion of the uppermost fill layer supplies a TPQ of Early Moundville I (Table 5.11). No diagnostic artifacts were recovered from the buried occupation surface or from the features intruding that surface, but single-set, narrow post constructions are typical of the Early Moundville I sub-phase. Thus, the fill layers are interpreted as plaza fill covering an Early Moundville I structure. The fragmented hearth and fired clay objects are tentatively assumed to be the source of the magnetic anomaly.

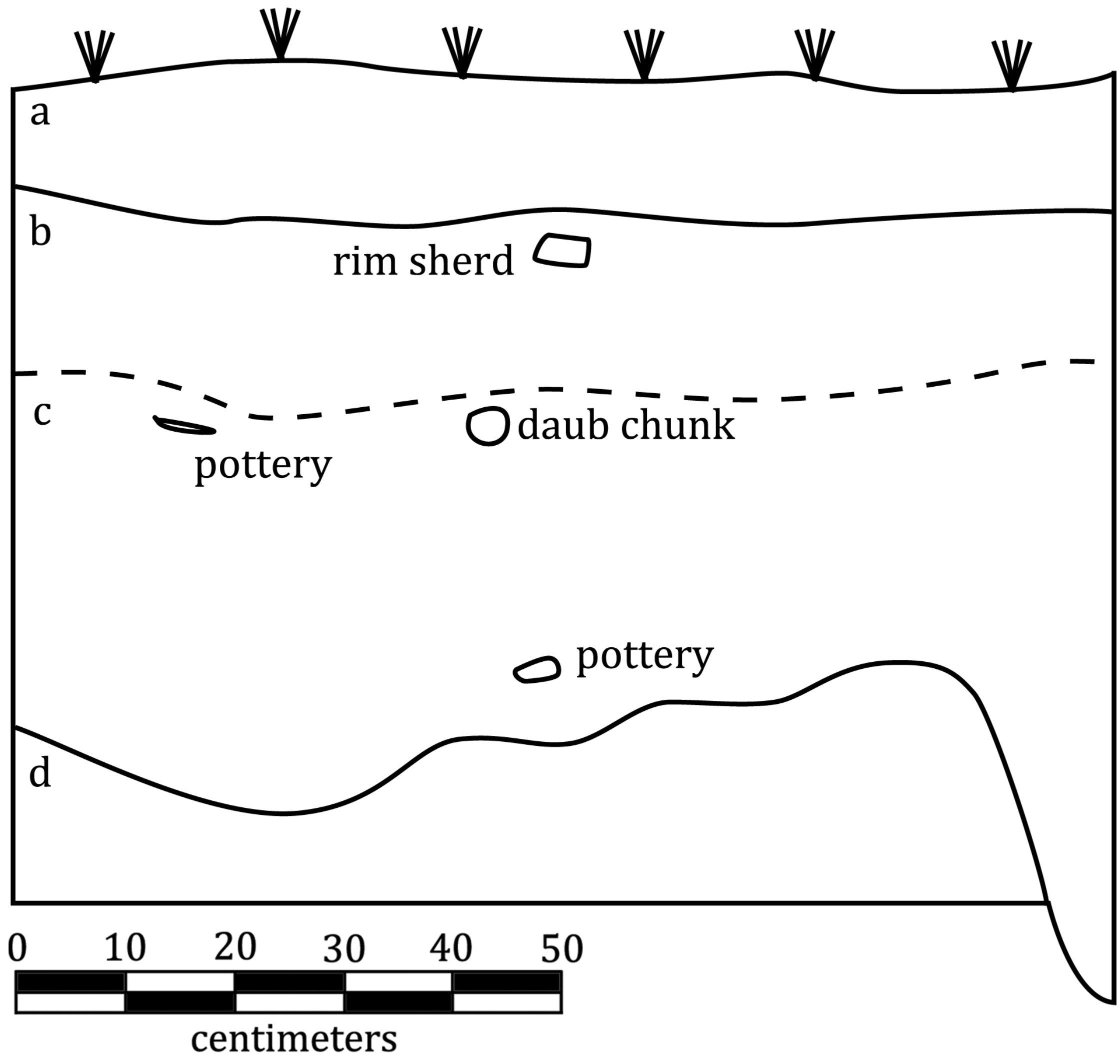


Figure 5.34. Test Unit N1693E1108, east profile: a) humic layer and plowzone, 10YR 3/3 dark brown loam; b) fill layer, 10YR 3/4 dark yellowish brown loam and light midden; c) fill layer, 10 YR 4/3 brown clay loam and moderate midden; d) 10YR 3/3 dark brown clay loam.

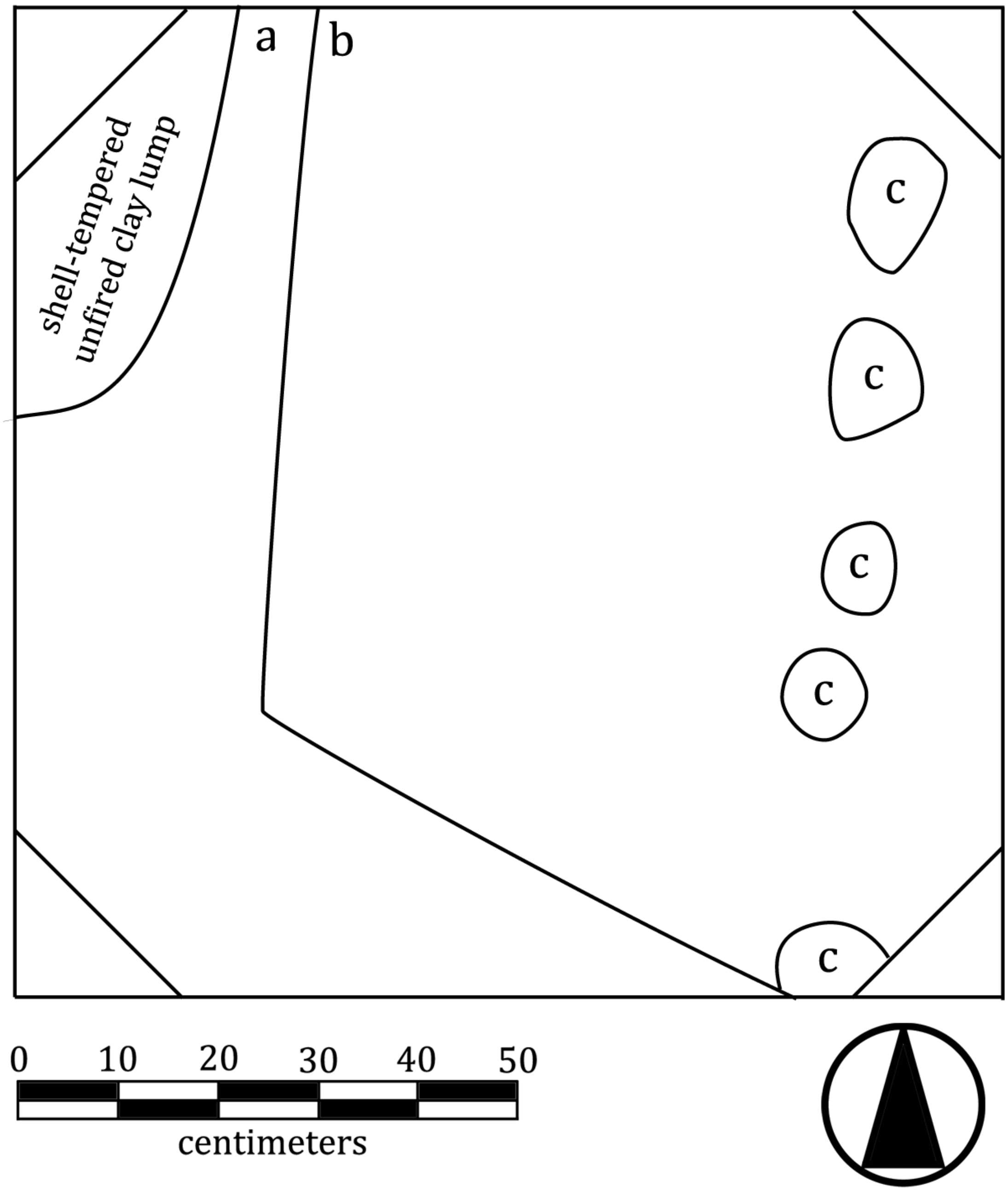


Figure 5.35. Test Unit N1693E1108, base of Zone 5 Level 2: a) 10YR 3/6 dark yellowish brown clay loam; b) 10YR 5/6 yellowish brown clay; c) postholes, 10YR 3/3 dark brown clay loam

Table 5.11. Sherd types and diagnostic modes from Test Unit N1693E1108.

Type	Humus/ Plowzone	Upper Fill Layer	Lower Fill Layer	Fill Above Occupation Surface	Totals
Mississippi Plain	**36**	**50**	57	**67**	210
Moundville Incised, *variety unspecified*		1	2		3
Bell Plain	2	30	81	26	139
Carthage Incised, *variety unspecified*			26		26
Moundville Engraved, *variety unspecified*	2	1	2		5
Baytown Plain	4		5	1	10
Residual Types	2	1	1	2	6
Total of types	46	83	174	96	399
Diagnostic Modes					
Folded rim			**1**		1
Folded-flattened rim			1		1
Total of diagnostic modes			2		2

Note: Items yielding TPQ are in bold.

Test Unit N1699E983. A 1-x-1 meter unit labeled N1699E983, oriented to the cardinal directions, targeted this anomaly (Figure 5.36). The unit reached a depth of approximately 98 cm and encountered three different strata: a humic layer and plowzone, B Horizon, and subsoil. A rusted metal tent stake oriented vertically was recovered near the staked point (Figure 5.37).

A truncated postmold 20-cm in diameter (Figure 5.38) intruded into the B Horizon, a dark yellowish brown (10YR 3/6) sandy clay loam. This feature is identified as a postmold rather than a posthole because it is ringed in a lighter soil, a yellowish brown (10YR 5/6) loamy sand. than that which makes up the rest of the feature. This feature continued to a depth a 31 cm below surface, 10 cm into the stratum. This stratum yielded a Moundville, *var. Moundville* potsherd, yielding a TPQ of Early Moundville I (Table 5.12).

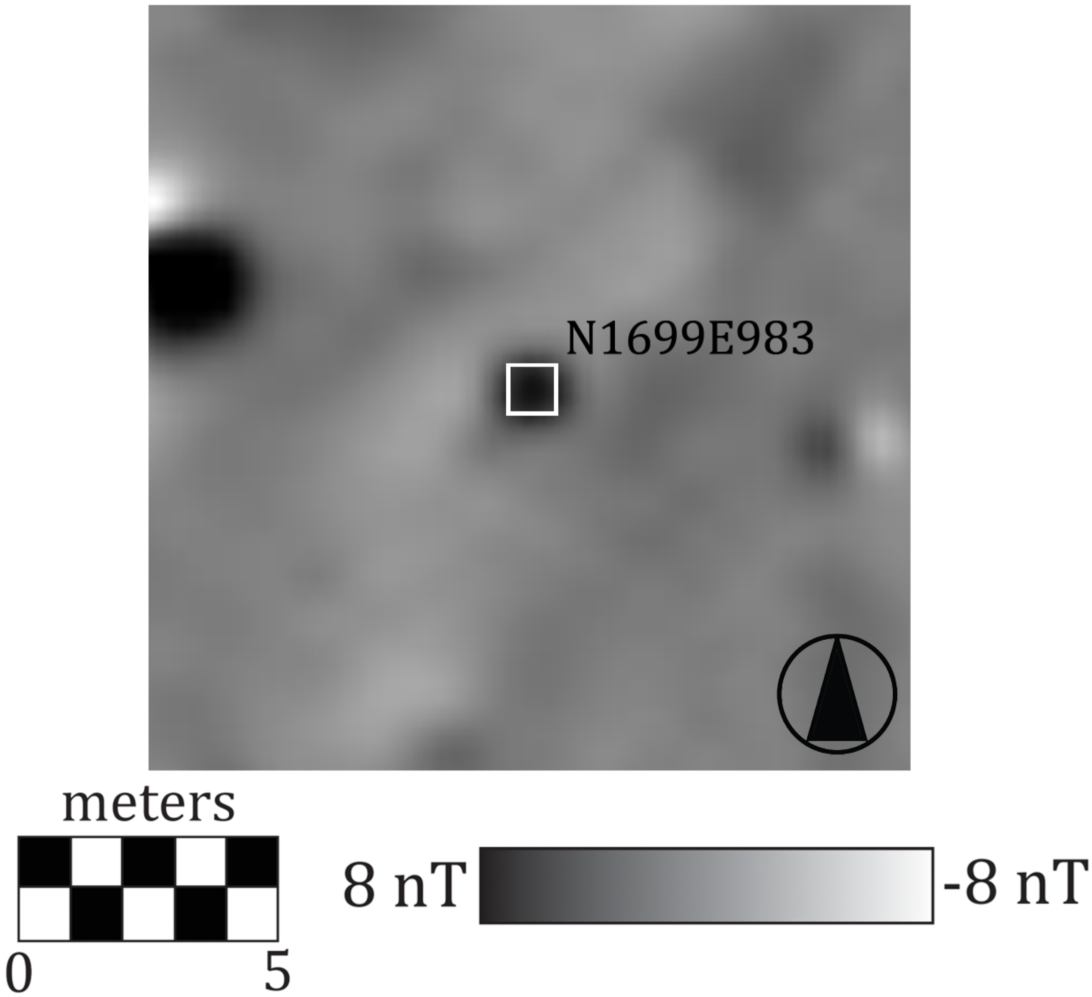


Figure 5.36. Placement of Test Unit N1699E983 at the location of a Type IV anomaly in the south-central plaza area.

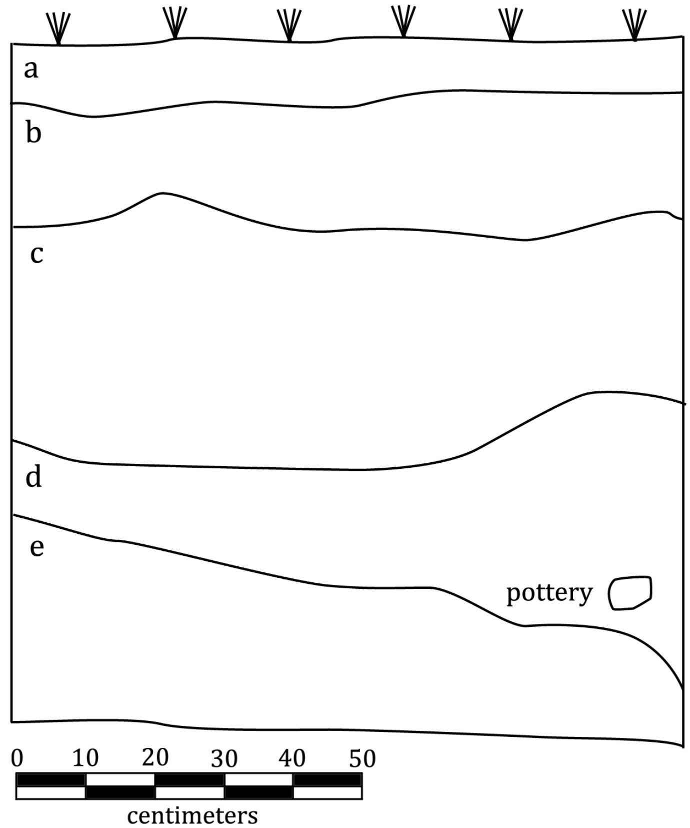


Figure 5.37. Test Unit N1699E983, west profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) B Horizon, 10YR 3/6 dark yellowish brown sandy clay loam; d) subsoil 7.5YR 4/6 strong brown sandy clay loam; e) subsoil, 7.5YR 5/6 strong brown sandy clay.

The subsoil encountered at the base of this unit is essentially identical to that documented in other nearby units, that is, it consisted of an amorphous blend of reddish sandy clays (7.5YR 4/6 and 7.5YR 5/6).

The tent stake is interpreted at the source of the magnetic anomaly.

Test Unit N1707E1004. A 1-x-1 meter test unit labeled N1707E1004 and oriented to the cardinal directions was placed with the anomaly at its center (Figure 5.39). The unit reached a depth of 50 cm below the ground surface. Two strata were identified: plowzone and subsoil (Figure 5.40). The transition between these two strata was well defined, featuring evenly placed plow scars running north-south. The subsoil consisted of

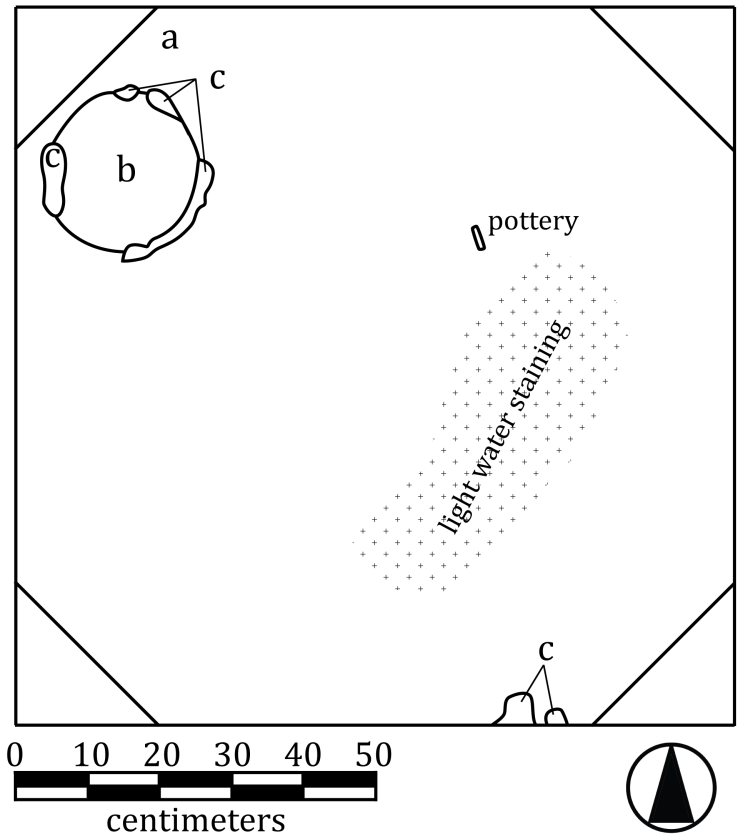


Figure 5.38. Test Unit N1699E983, base of Zone 3 Level 1: a) 10YR 3/6 dark yellowish brown sandy loam mottled with 10YR 4/4 dark yellowish brown sandy loam with light charcoal inclusions; b) truncated postmold, 10YR 4/6 dark yellowish brown sandy loam; c) 10YR 5/6 yellowish brown loamy sand.

Table 5.12. Sherd types from Test Unit N1699E983.

Type	Humus/ Plowzone	B Horizon	Posthole Fill	Totals
Mississippi Plain	**33**	87		120
Moundville Incised, *variety Moundville*		**2**		2
Moundville Incised, *variety unspecified*	1	6		7
Bell Plain	40	30		70
Moundville Engraved, *variety unspecified*	2	1	**1**	4
Baytown Plain	1		1	2
Residual types	2			2
Total of types	79	126	2	207

Note: Items yielding TPQ are in bold.

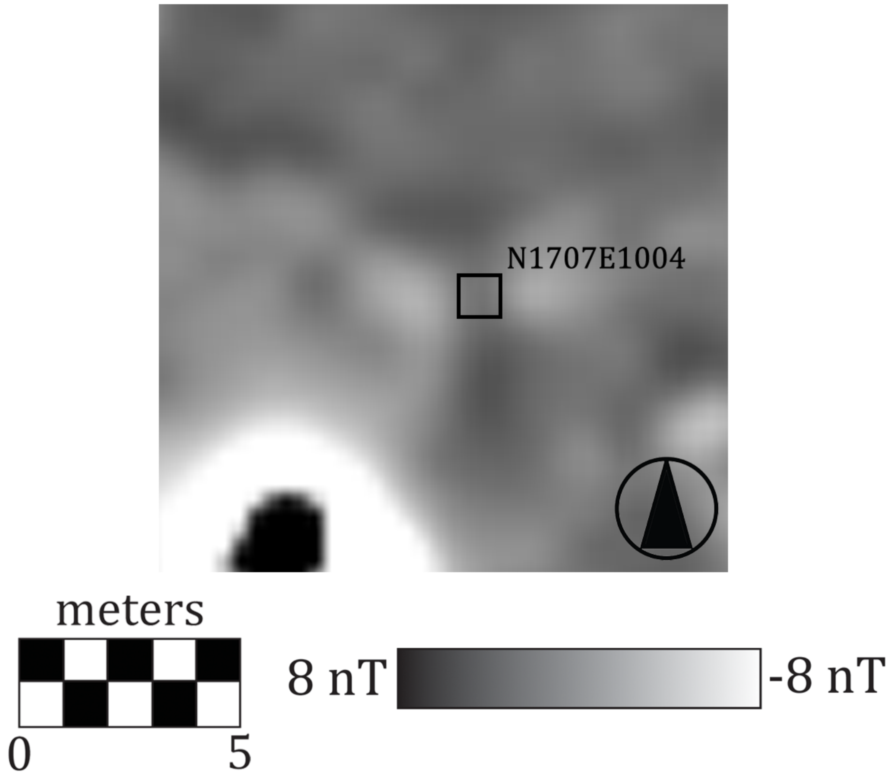


Figure 5.39. Test Unit Placement of Unit N1707E1004 at the location of an ill-defined Type IV anomaly on the southern plaza margin.

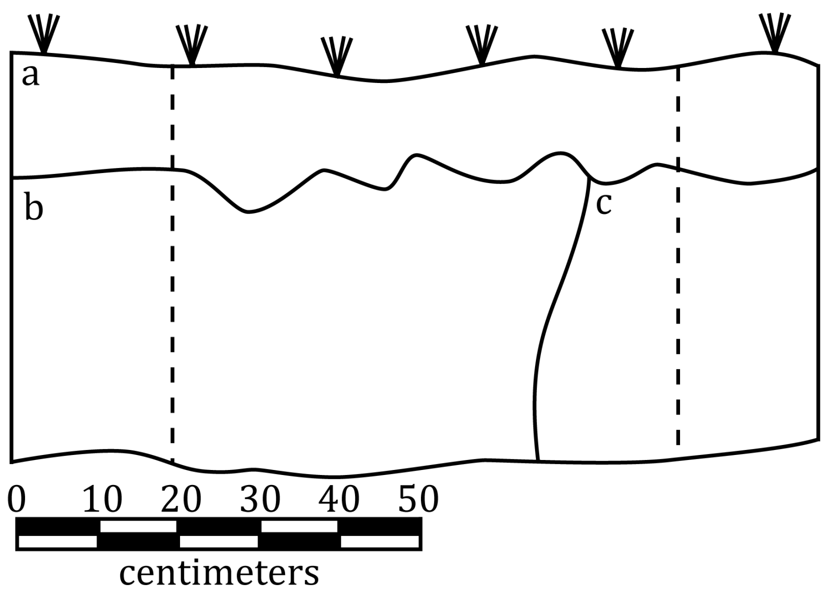


Figure 5.40. Test Unit N1707E1004, north profile: a) humic layer and plowzone (note plow scars), 10YR 3/3 dark brown sandy loam; b) subsoil, 7.5YR 3/4 dark brown sandy clay loam; c) subsoil, 7.5YR 4/6 yellowish red sandy clay.

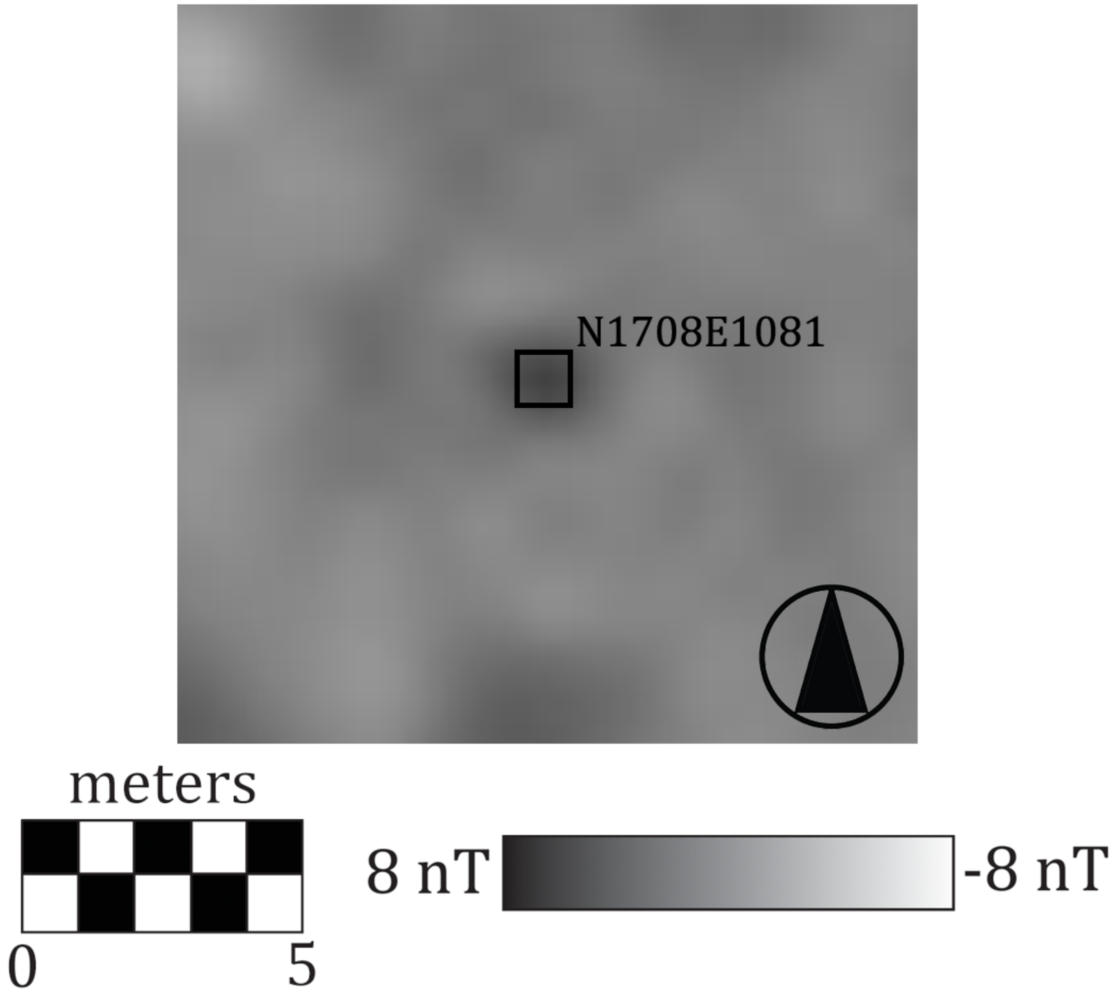


Figure 5.41. Placement of Test Unit N1708E1081 at the location of a Type IV anomaly on the southern plaza margin.

an amorphous blend of sandy clay (7.5YR 4/6) and clay loam (7.5YR 3/4). A bucket auger test reached a depth of 1 meter below the unit's floor without documenting a soil change.

The plowzone yielded two Mississippi plain sherds, one Bell Plain sherd, two grit-tempered sherds, and coal fragments. The subsoil produced no artifacts.

The cause of the anomaly was not identified.

Test Unit N1708E1081. Unit N1708E1081 was a 1-x-1 meter unit oriented to the cardinal directions (Figure 5.41). The unit reached a depth of approximately 87 cm below

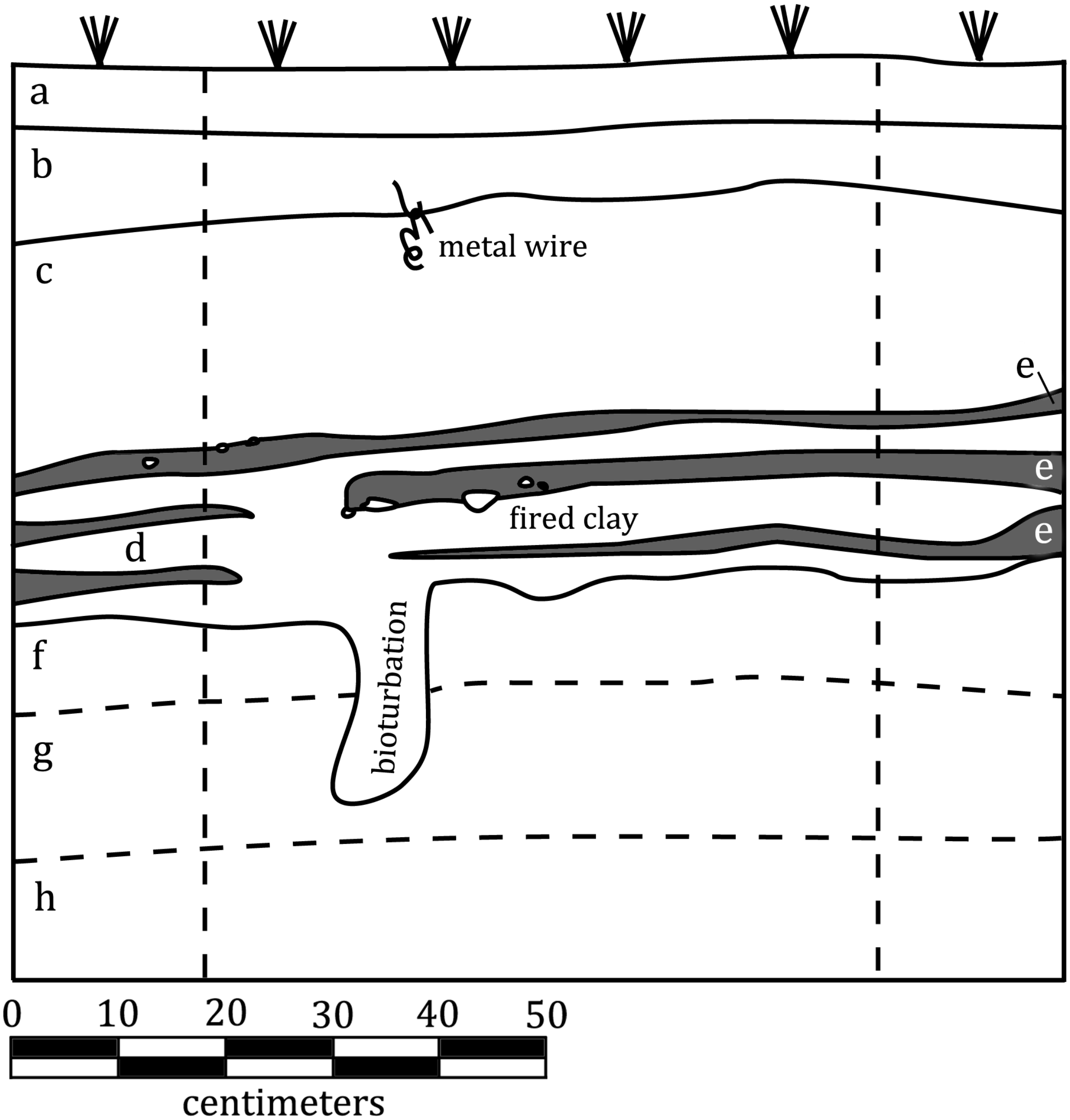


Figure 5.42. Test Unit N1708E1081, west profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) 10YR 3/6 dark yellowish brown sandy clay loam; d) alluvial lens, 7.5YR 4/6 strong brown sandy loam; e) midden wash, 10YR 4/2 dark grayish brown clay; f) buried A Horizon, 10YR 3/3 dark brown loam; g) 10YR 3/2 very dark grayish brown sandy clay loam; h) 5Y 4/1 dark gray gleyed sandy clay.

the ground surface. Five strata were identified: a humic layer and plowzone, a relatively rich midden fill layer, a bioturbated layer consisting of six alluvial lenses of alternating

Table 5.13. Sherd types from Test Unit N1708E1081.

Type	Humus/ Plowzone	Midden Wash	Totals
Mississippi Plain	**2**	**118**	120
Bell Plain	8	20	28
Moundville Engraved, *variety unspecified*		3	3
Baytown Plain	1	5	6
Mulberry Creek Cord Marked		1	1
Total of types	11	147	158

Note: Items yielding TPQ are in bold.

coloration and texture, and buried A horizon transitioning into a dark grey gleysol with increasing depth (Figure 5.42).

A thin wire was encountered in the west profile at 11 cm below this surface. Despite this magnetic contamination, the unit yielded some interesting information about the pre-plaza landscape. At approximately 30 cm below the ground surface, excavations struck the first in a series of six alluvial lenses. These lenses alternated dark grayish brown (10YR 4/2) clay loam and strong brown (7.5YR 4/6) sandy loam, the former interpreted as wash from a moderately rich nearby midden.

Immediately beneath these layers, we found a buried A horizon that transitioned to gleyed sandy clay. The gleyed soil was not screened. Gleysols develop where drainage is poor –swamps, marshes, and other periodically flooded low-spots. Documentation of gleyed soils beneath fill in Moundville's plaza is evidence that the natural, pre-plaza topography included even waterlogged depressions that were filled in the process of plaza construction.

The midden wash layers yielded 147 potsherds, none of which were chronologically diagnostic (Table 5.13). A Mulberry Creek Cord Marked sherd suggests that the deposit formed during the early part of the Moundville sequence, but the

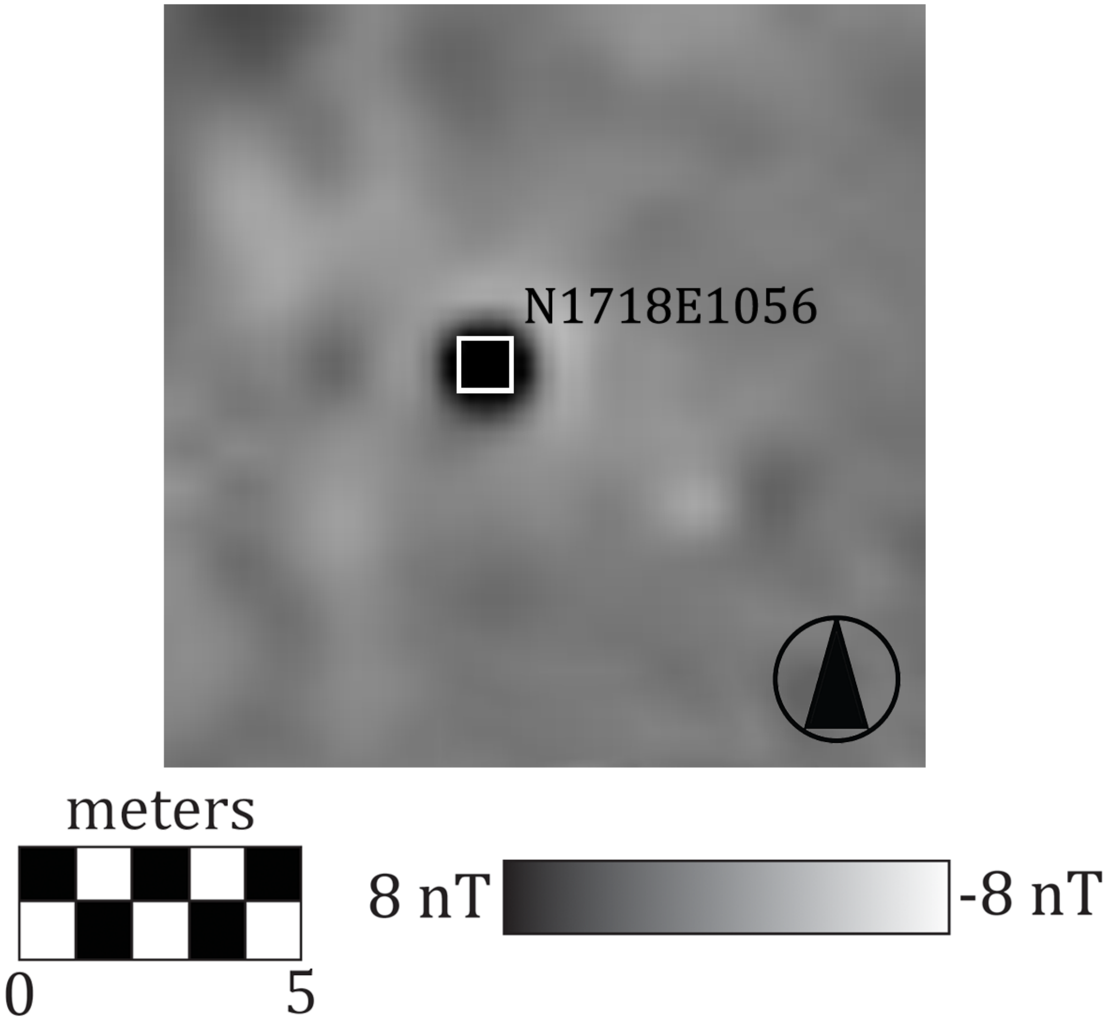


Figure 5.43. Placement of Test Unit N1718E1056 at the location of a Type IV anomaly on the southern plaza margin.

overwhelming presence of plain and *variety unspecified* shell-tempered pottery provide an unhelpful TPQ of "Mississippian."

The anomaly is thought to have originated in the shallowly buried metal wire.

Test Unit N1718E1056. The cardinally oriented 1-x-1 meter test unit labeled N1718E1056 targeted a possible hearth anomaly (Figure 5.43). Though the probable source of the anomaly, a metal tent stake, was encountered at the surface just northwest of the marked point, excavations proceeded to a maximum depth of 58 below ground surface. Two strata were identified: a humic/plowzone immediately overlying subsoil.

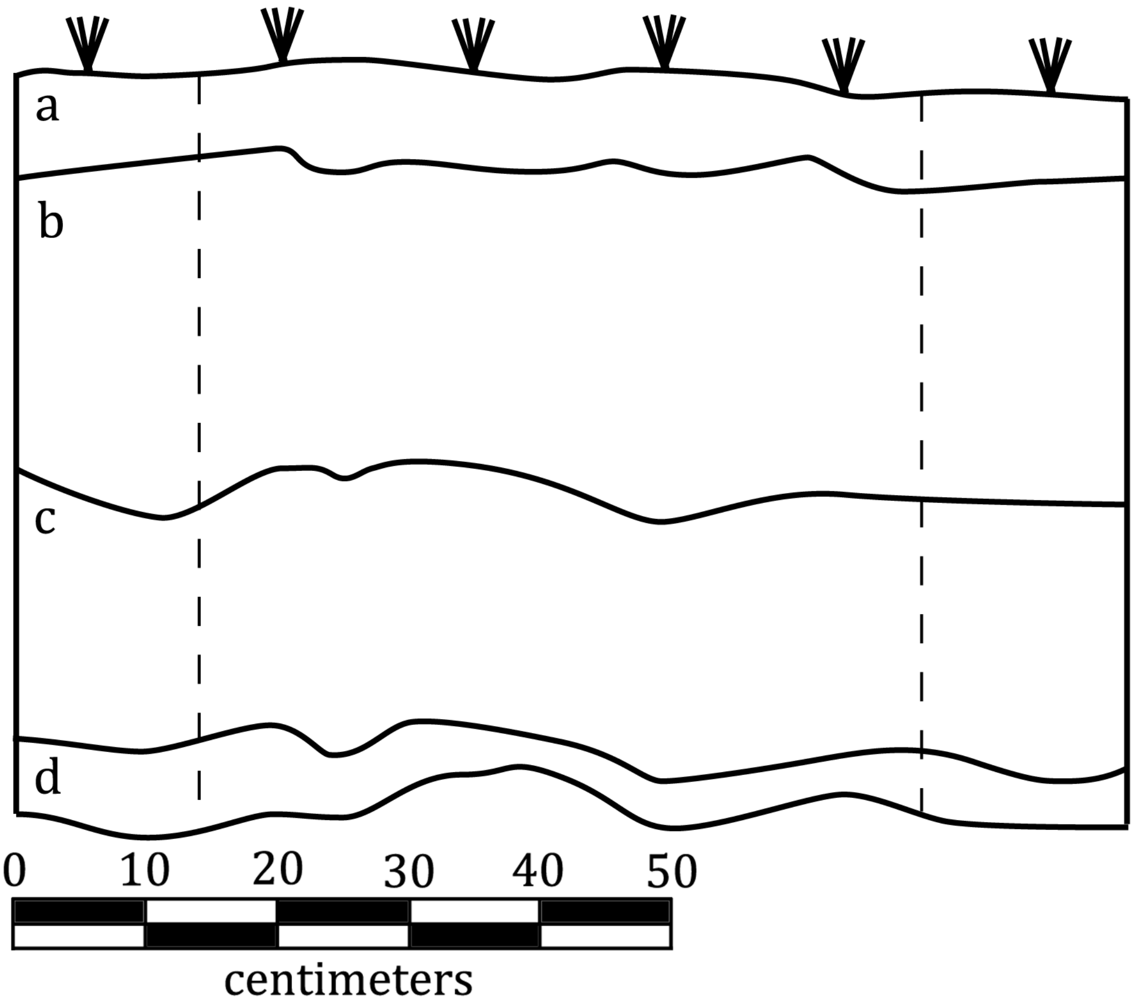


Figure 5.44. Test Unit N1718E1056, north profile: a) humic zone and plowzone, 10YR 3/3 dark brown sandy loam; b) subsoil, 10YR 4/4 dark yellowish brown sandy loam with iron concretions; c) subsoil, 10YR 4/4 dark yellowish brown loam with iron concretions; d) subsoil, 10YR 4/4 dark yellowish brown sandy clay loam with iron concretions.

Table 5.14. Sherd types and diagnostic modes from Test Unit N1718E1056.

Type	Humus/ Plowzone	Subsoil	Totals
Mississippi Plain	21	**5**	26
Moundville Incised, *variety unspecified*	1		1
Barton Incised, *variety unspecified*		1	1
Bell Plain	4	1	5
Baytown Plain	2	2	4
Total of types	28	9	37
Diagnostic Modes			
Folded rim	**1**		1

Note: Items yielding TPQ are in bold.

The subsoil was similar to that identified in nearby units, dark yellowish brown (10YR 4/4) loam, increasingly clayey and containing greater amounts of iron concretions with depth (Figure 5.44). This location was likely a low ridge prior to plaza construction, leveled out when the plaza was created.

The humus/plowzone layer yielded a folded rim for a TPQ of Early Moundville I, but no other temporally diagnostic potsherds were recovered from the unit (Table 5.14).

The metal stake is interpreted as the anomaly source.

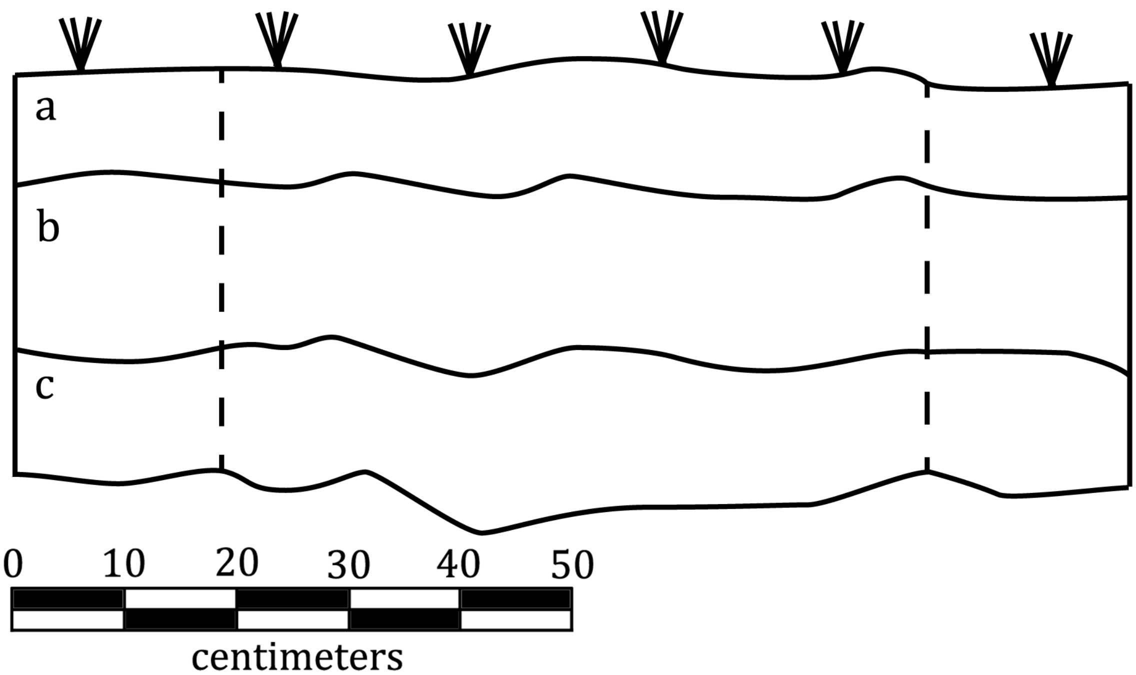


Figure 5.46. Test Unit 8, north profile: a) humic zone and plowzone, 10YR 3/3 dark brown sandy loam; b) 10YR 3/6 dark yellowish brown sandy loam; c) subsoil, 7.5YR 4/6 yellowish red sandy clay loam.

Test Unit 8. Unit 8, a cardinally oriented 1-x-1 meter test unit, targeted a possible hearth anomaly (Figure 5.45). This unit and three others (Units 9, 10, and 11) were the only units placed during all four field seasons without the aid of Walker's GPS or a total station; neither of these devices were available at the time. Thus, Unit 8 was placed using reel tapes pulled from nearby known points. There is a slight possibility that the unit missed its intended target and this may be why no anomaly source was identified.

Unit 8 reached a depth of 40 cm below ground surface. Excavations identified two strata: plowzone and subsoil (Figure 5.46). Several small sherds, none diagnostic, were recovered from the plowzone, but the subsoil was culturally sterile. A bucket auger test in the southeast quadrant of the unit reached a depth of 166 cm below the ground surface without identifying a soil change.

The unit encountered no objects, prehistoric or otherwise, that can be said to have generated the magnetic anomaly.

Test Unit 9. A 1-x-1 meter test unit labeled Unit 9 and oriented to the cardinal directions was placed with the anomaly at its center (Figure 5.1). Because neither GPS nor total station were available, Unit 9 was placed using reel tapes pulled from nearby known points. However, unlike Units 8 and 10, Unit 9 confidently identified the source of the target anomaly. The unit reached a depth of 70 cm below the ground surface. Three strata were identified: plowzone, a fill layer, and a mottled layer separated from the overlying fill by an occupation surface (Figure 5.47) at approximately 50 cm below the ground surface.

A clay-lined, basin hearth (Figure 5.48) was identified at the level of the buried occupation surface. It contained ample amounts of charcoal, small fired clay fragments, several small fragments of burned, well preserved bone, and a larger amount of badly preserved large bone. The contents of the hearth were collected as a botanical sample. The hearth appeared to have been relined between five and seven times during its use-life. The newer layers, separated by thin lenses of charcoal and other botanical materials,

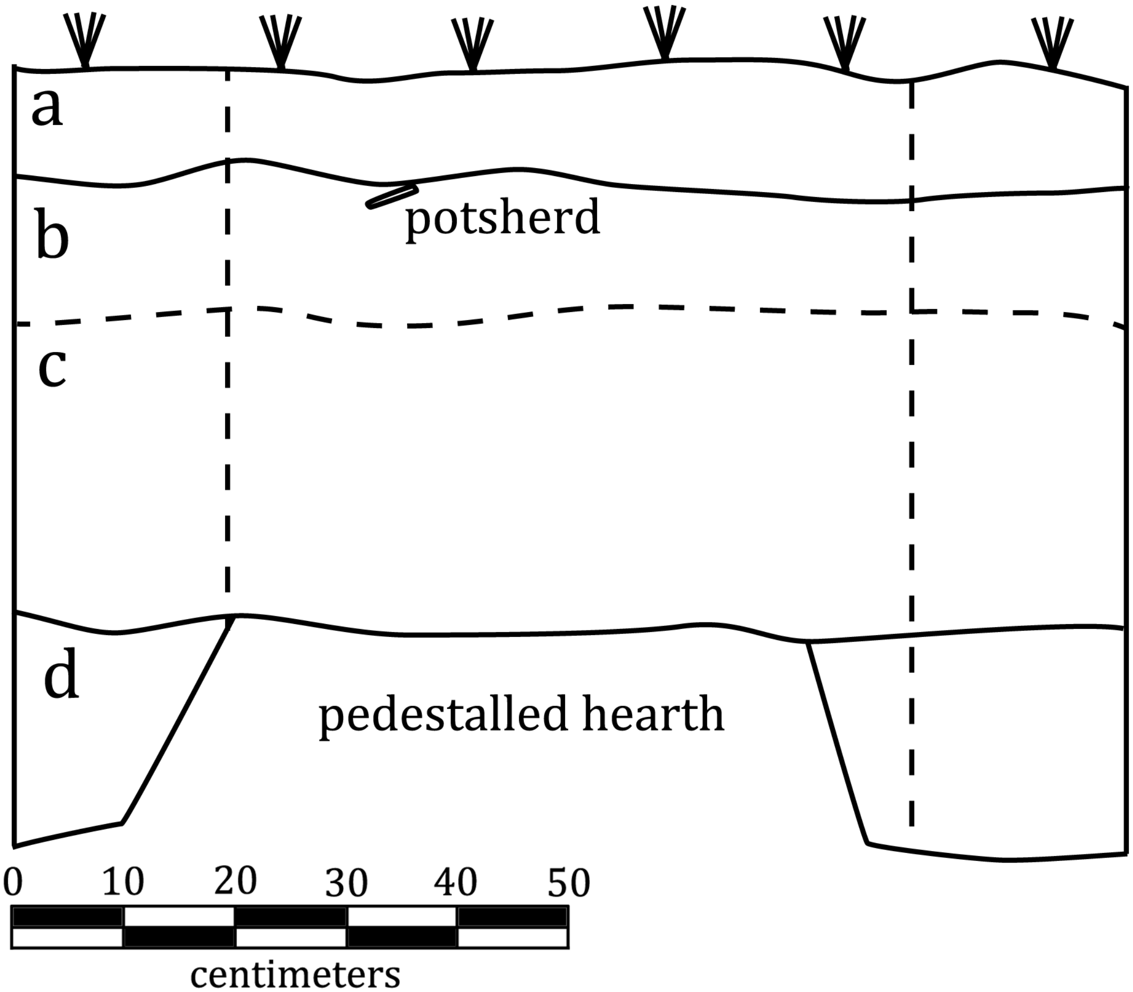


Figure 5.47. Test Unit 9, east profile: a) plowzone, 10YR 3/3 dark brown sandy loam; b) possible fill layer, 10YR 6/4 light yellow brown sandy loam; c) fill layer, 7.5YR 4/4 brown clay loam; d) 7.5YE 3/4 dark brown loam mottled with 7.5 5/6 strong brown loamy sand.

flaked off easily by trowel. The loose underlying soil prevented us from procuring a sample of the hearth itself for laboratory analysis.

The overlying fill layer is interpreted as light midden backfilling a basin structure. Two postholes intruded the fill layer and penetrated the occupation surface below. One intruded the hearth fill and did not go any deeper than the base of the hearth, further progress probably prevented by the hard fired clay.

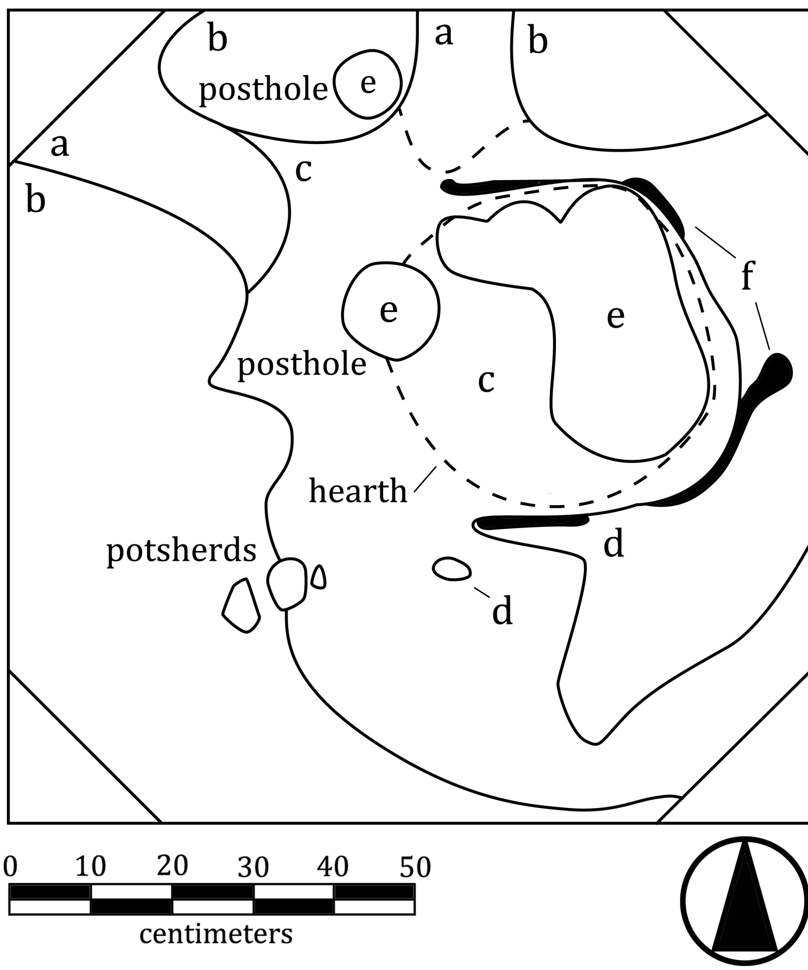


Figure 5.48. Test Unit 9, base of Zone 2 Level 5: a) 10YR 3/6 dark yellowish brown silty clay loam; b) 10YR 3/6 dark yellowish brown silty clay loam mottled with 10YR 4/6 dark yellowish brown silty loam; c) 10YR 3/6 dark yellowish brown silty clay loam mottled with 10YR 4/6 dark yellowish brown silty loam featuring heavy charcoal and light fired clay; d) 2.5YR 4/8 red fired clay (burned area around hearth); e) 10YR 3/4 dark yellowish brown loam; f) 5YR 5/8 yellowish red fired clay (hearth lining).

Table 5.15. Sherd types and diagnostic modes from Test Unit 9.

Type	Humus/ Plowzone	Subsoil	Hearth Fill	Posthole	Totals
Mississippi Plain	72	**10**	**3**	**3**	88
Bell Plain	12	3			15
Moundville Engraved, *variety unspecified*	1				1
Baytown Plain	3	1			4
Residual types	3				3
Total of types	91	14	3	3	111
Diagnostic Modes					
Folded rim	**1**				1

Note: Items yielding TPQ are in bold.

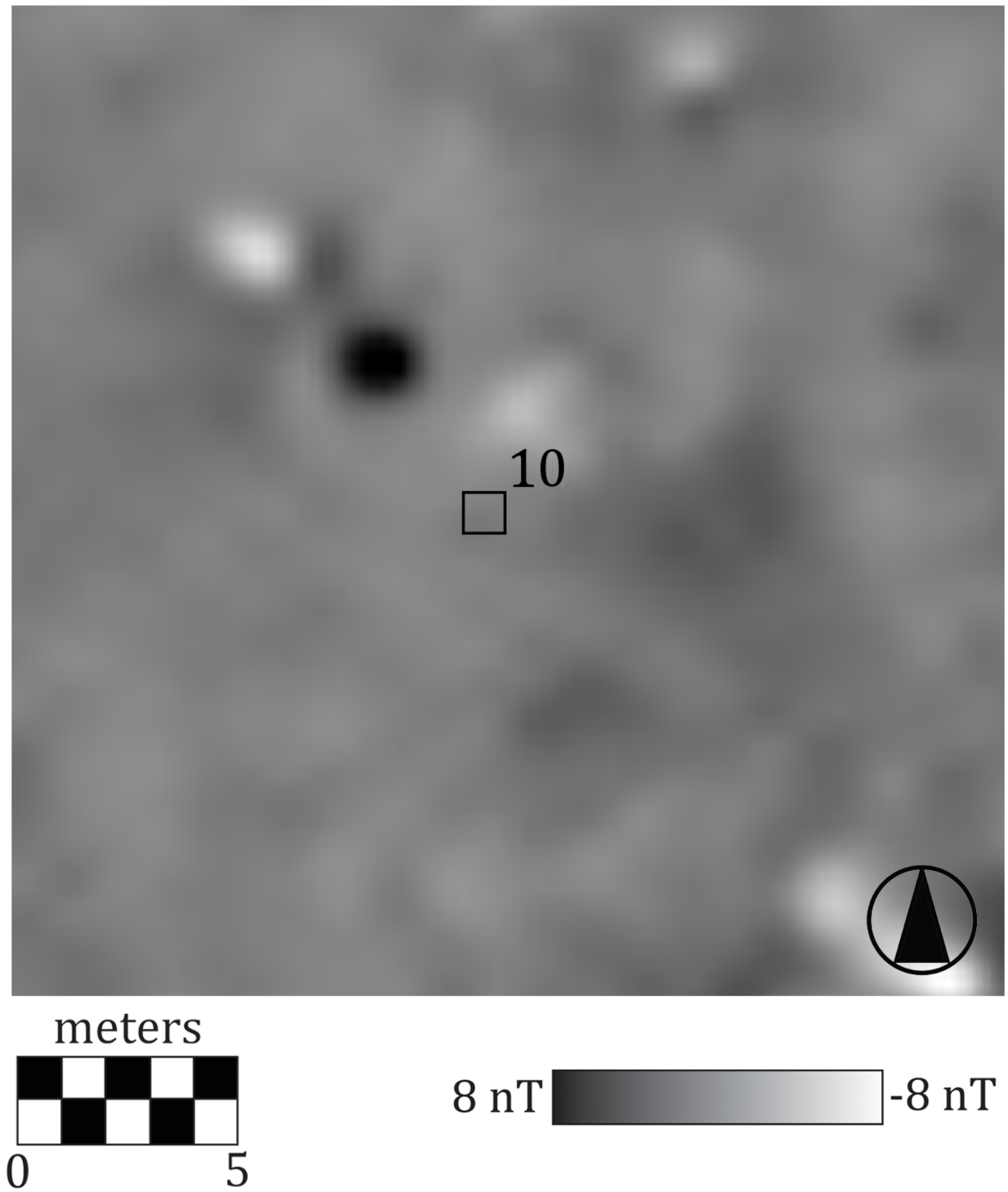


Figure 5.49. Misplacement of Test Unit 10. Unit was placed without the aid of a total station. Target Type IV anomaly is visible three meters to the northwest. Unit 10 revealed that this section of the plaza was leveled during plaza construction. A modern metal object likely caused this anomaly.

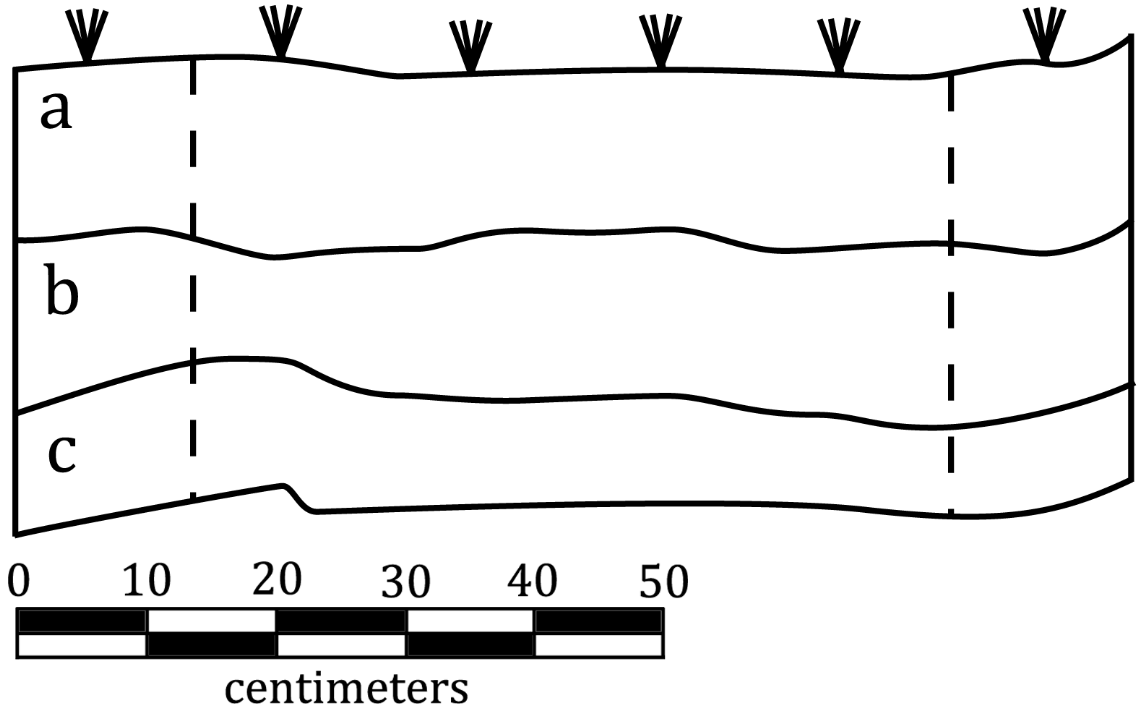


Figure 5.50. Test Unit 10, south profile: a) plowzone, 10YR 3/3 brown sandy loam; b) 10YR 3/6 dark yellowish brown sandy loam with light sandstone and iron concretions; c) subsoil, 7.5YR 4/6 yellowish red sandy clay loam with moderate sandstone and iron concretions.

All contexts yielded pottery, but only the plowzone yielded a diagnostic sherd, a folded rim (Table 5.15). Units 21 and 22 targeted and identified a single-set post wall that is believed to be associated with this hearth. If correct, this hearth was likely created towards the early end of the Moundville sequence when single-set post architecture was more common.

The hearth and its contents are believed to be the source of the magnetic anomaly.

Test Unit 10. Unit 10, a cardinally oriented 1-x-1 meter unit, targeted a possible hearth anomaly in the south-central plaza area (Figure 5.49). The unit ended at approximately 35 cm below the ground surface, documenting three strata: plowzone, a truncated A horizon, and subsoil (Figure 5.50). The plowzone yielded three Mississippi

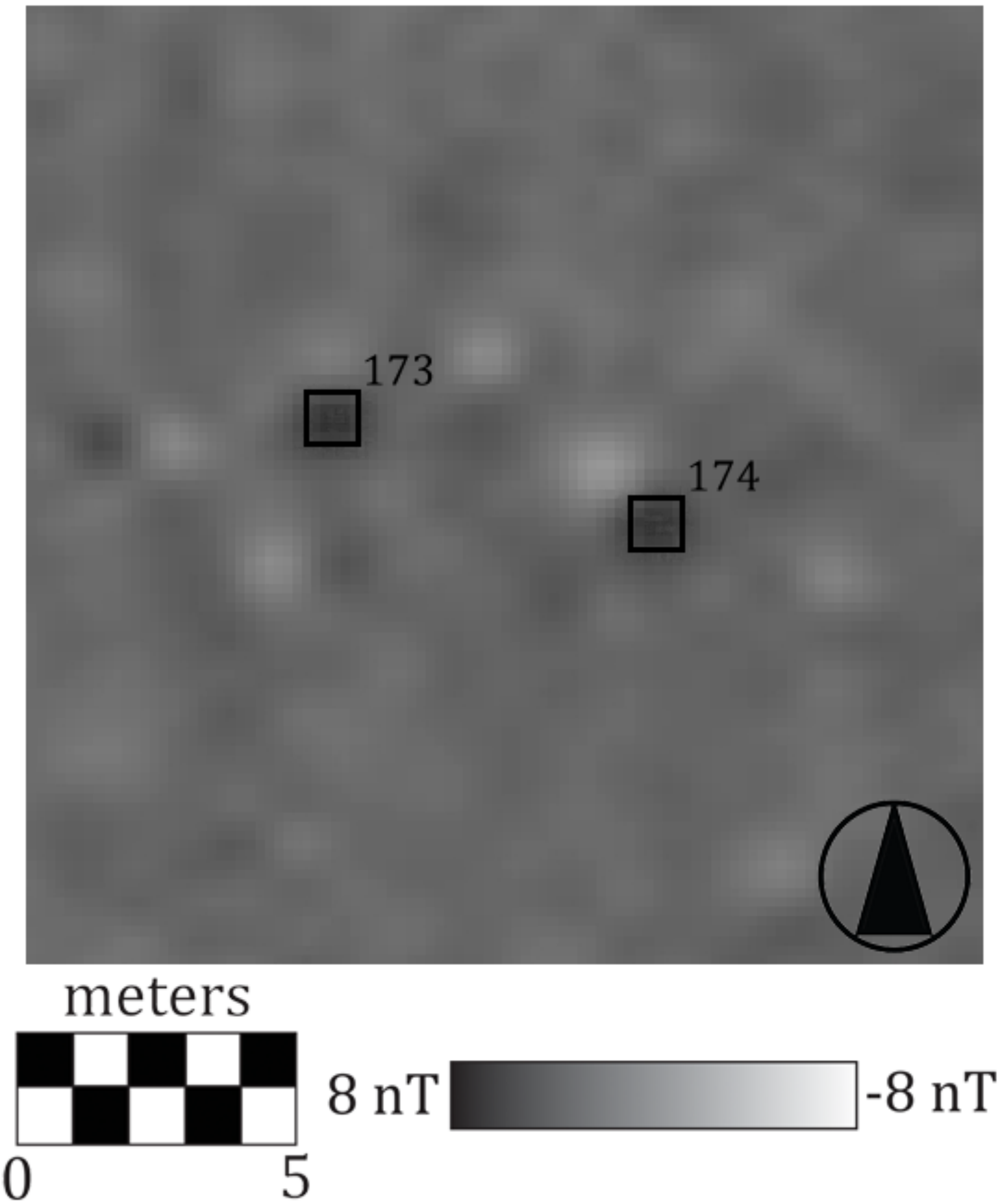


Figure 5.51. Placement of Test Units 173 and 174 at the location of two Type IV anomalies in the central part of the magnetically silent area east of Mound A. These were the only magnetic high positive detected in that area.

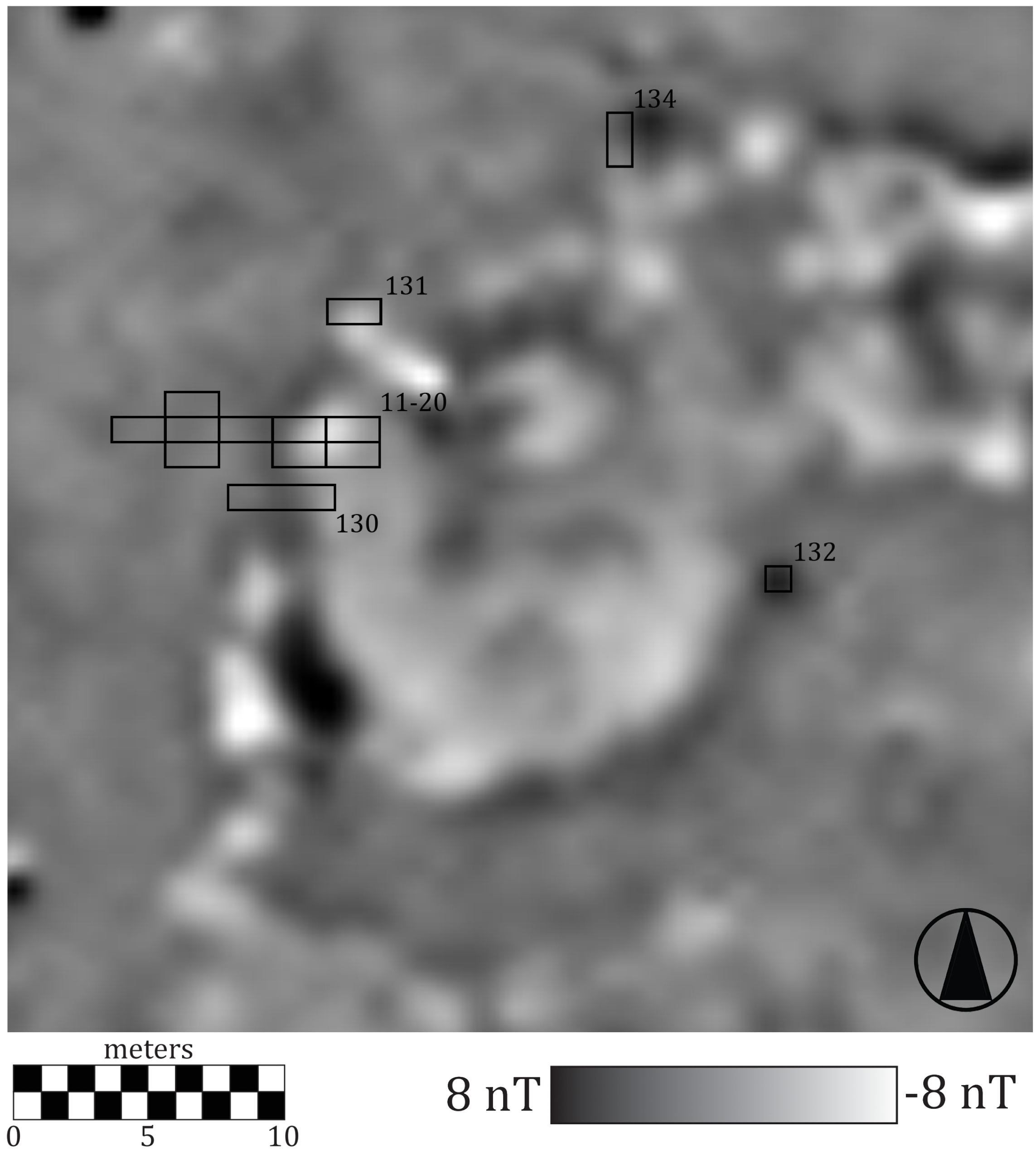


Figure 5.52. Placement of Unit Block 11-20 and Test Units 130, 132, and 134 in and around a large circular cluster of anomalies in the south-central plaza area.

Plain and three Baytown Plain sherds. No artifacts were recovered from the other strata. An auger test in the southwest corner of the unit reached a depth of 157 cm below the surface without-t encountering a soil change.

The source of the anomaly was not identified.

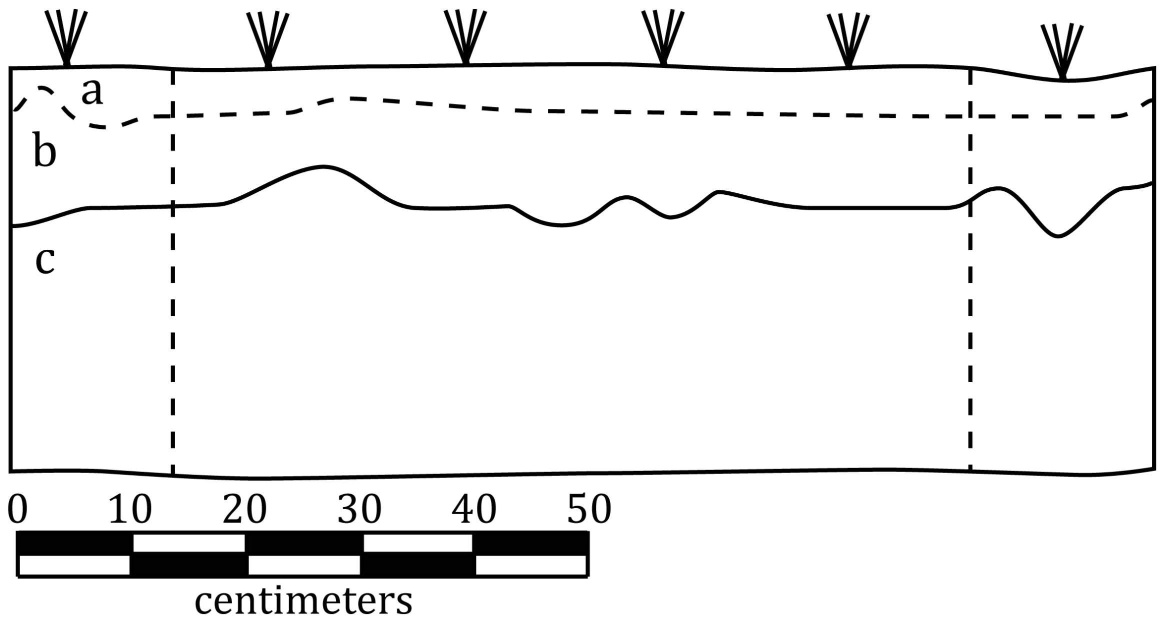


Figure 5.53. Test Unit 132, south profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 3/4 dark yellowish brown loam; c) subsoil, 5YR 3/4 dark reddish brown sandy clay loam.

Test Unit 132. A cardinally-oriented 1-x-1 meter unit labeled Unit 132 target this anomaly (Figure 5.52). The unit is similar to Units 8 and 10 in that it encountered red subsoil immediately below the plowzone (Figure 5.53) and did not identify a prehistoric cultural feature as the anomaly source.

This unit yielded no artifacts.

Test Units 173 and 174. We targeted these anomalies with two cardinally oriented 1-x-1s labeled Test Units 173 and 174 (Figure 5.51). The units were practically identical. Both encountered a mottled, lightly colored, and compact sandy clay subsoil beneath the plowzone; neither yielded prehistoric artifacts; metal wire fragments, the anomaly sources, were found within both plowzones (Figure 5.54 and 5.55). An auger test into the base of Test Unit 173 reached a depth of 155 cm below the ground surface. At 74 cm, the subsoil texture changed to a hard-packed sand, deemed natural stratigraphy.

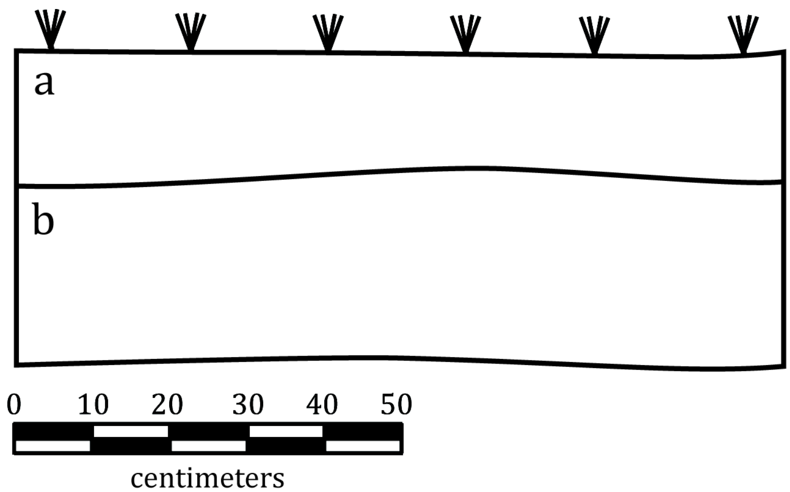


Figure 5.54. Test Unit 173, east profile: a) plowzone, 10YR 5/6 yellowish brown sand mottled with 10YR 7/4 very pale brown sand with iron concretions; b) subsoil, compact mix of 10YR 6/6 brownish yellow clayey sand and 10YR 7/2 light gray sand.

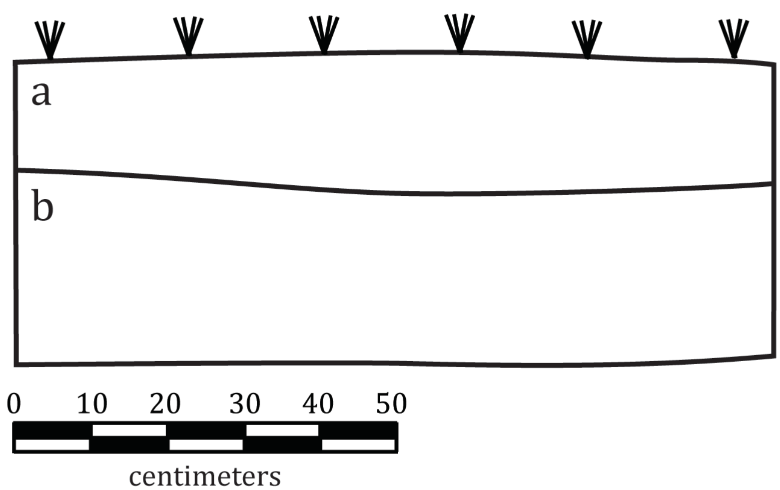


Figure 5.55. Test Unit 174, east profile: a) plowzone, 10YR 5/6 yellowish brown sand mottled with 10YR 7/4 very pale brown sand with iron concretions; b) subsoil, compact mix of 10YR 6/6 brownish yellow clayey sand and 10YR 7/2 light gray sand.

AT-N1630.5E962.65. The auger test at N1630.5E962.65 targeted a magnetic high positive situated in seeming magnetic isolation (Figure 5.57). The anomaly was located in the south-central plaza area. At other locations, very high positive anomalies such as this had been shown to be the result of buried metal objects.

We executed five auger tests in a cruciform pattern at and around N1630.5E1962.65 but did not encounter anything that could be identified as the source of the supposed “hearth anomaly.” It is likely that the anomaly was caused by a shallow metal object. The test reached a depth of approximately 94 cm below the ground surface before being deemed negative. The stratigraphy at this location is well defined, with a possible light midden, plaza fill layer between 23 and 51 cm below the ground surface (Figure 5.56).

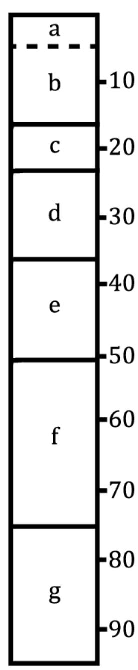


Figure 5.56. Auger test N1630.5E1962.65, negative: a) humic zone; b) plowzone, 10YR 5/4 yellowish brown loamy sand; c) 10YR 4/6 dark yellowish brown loamy sand; d) 10YR 4/6 dark yellowish brown sandy loam; e) 7.5YR 4/6 strong brown sandy loam with small amounts of pottery; f) 7.5YR 4/6 strong brown loam (no artifacts); g) 7.5YR 4/6 strong brown clay loam.

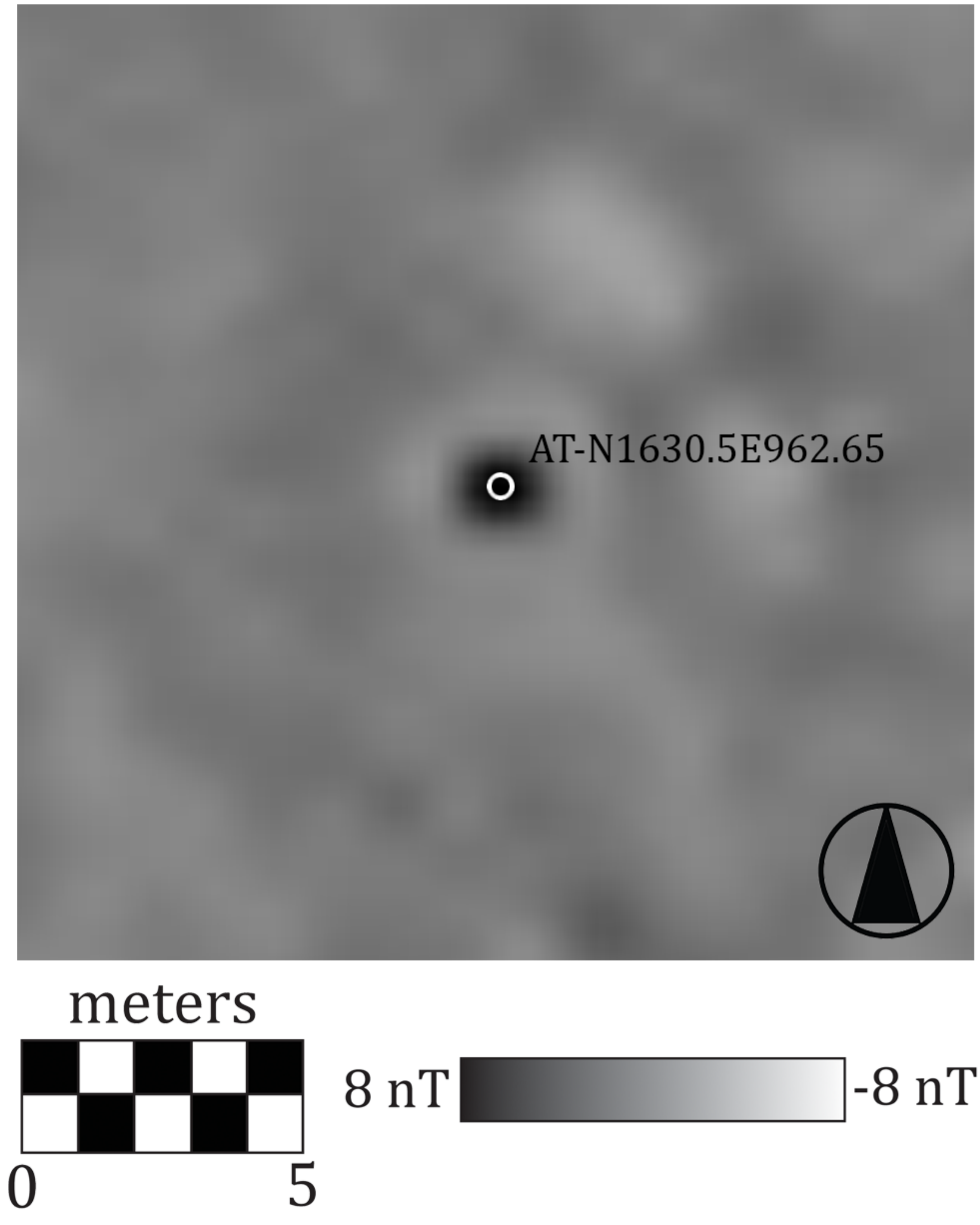


Figure 5.57. Auger test placement at N1630.5E962.65. Test targeting Type IV anomaly.

AT-N1660.69E836.65. Auger test N1660.69E836.65 targeted a magnetic high positive anomaly approximately two m south of Test Unit 160 (Figure 5.23). Given its proximity to the midden and architectural features identified in that unit, this auger test had a high probability of identifying stratigraphy indicative of a buried hearth.

The initial auger test at N1660.69E836.65 encountered a dense layer of fired clay and charcoal at 15-31 cm below the ground surface. Immediately beneath this layer, the test identified a layer of heat-altered yellowish red (5YR 4/6) clay approximately 18 cm thick (Figure 5.58). These layers are interpreted as a hearth feature and the source of magnetic anomaly identified in the gradiometer survey.

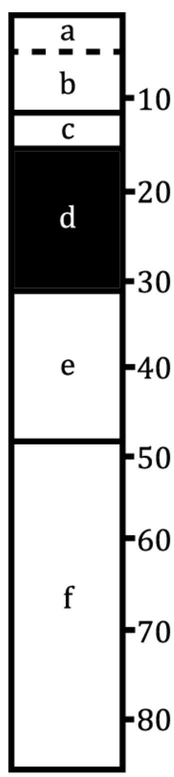


Figure 5.58. Auger test N1660.69E836.65, positive: a) humic zone; b) plowzone, 10YR 4/6 dark yellowish brown loamy sand; c) 10YR 3/3 dark brown sandy loam; d) hearth, dense fired clay with large amounts of charcoal; e) 5YR 4/6 yellowish red, lightly fired clay; f) 7.5YR 4/6 strong brown clay loam.

AT-N1760.72E886.58. This auger test targeted a diffuse moderate magnetic high in the west-central part of the plaza (Figure 5.59). The anomaly did not appear to be in association with any nearby architectural anomalies.

We executed five auger tests in a cruciform pattern at and around N1760.72E886.58 but did not encounter a layer that could be identified as the source of the target anomaly. The length of the auger itself limited the central test to a final depth of 166 cm below the ground surface. The test was then deemed negative. From top to bottom, the soil stratigraphy at N1760.72E886.58 transitioned from the familiar humic zone identified in nearly all project units, to a thick plowzone, then a possible B horizon, and finally an even lighter and more mottled silty clay subsoil (Figure 5.60). It is possible that the anomaly was caused by modern ferrous material that was missed during testing.

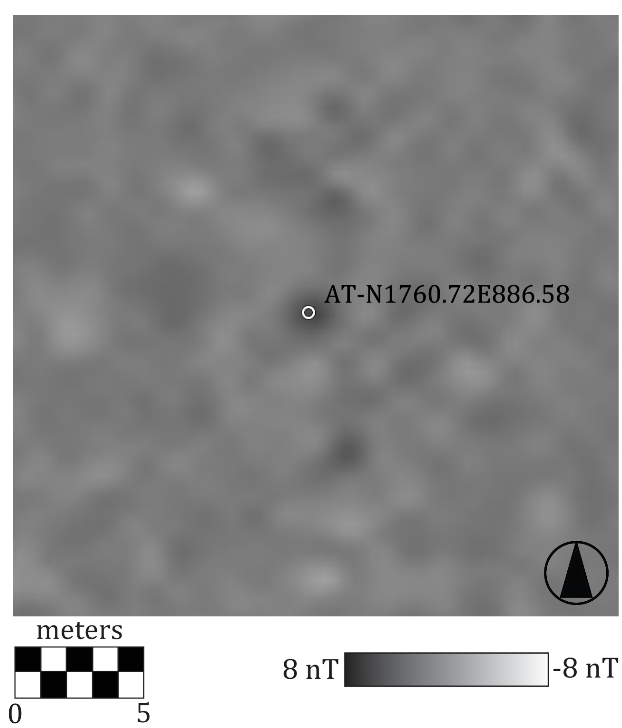


Figure 5.59. Auger test placement at N1760.72E886.58. Test targeting Type IV anomaly in west-central part of plaza area.

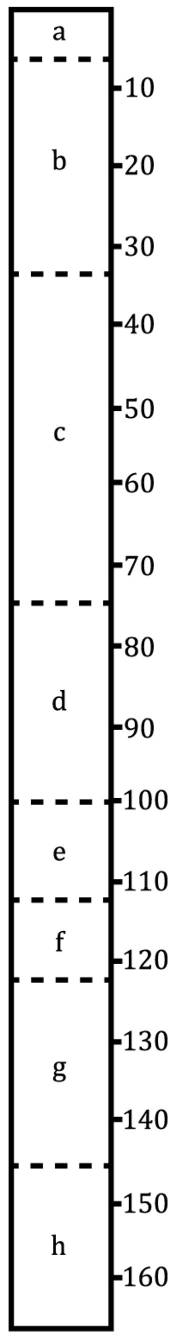


Figure 5.60. Auger test N1760.72E886.58, negative: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 5/4 yellowish brown sandy loam; c) 10YR 4/4 dark yellowish brown sandy loam; d) 10YR 5/4 yellowish brown clay loam; e) 2.5YR 6/4 light yellowish brown silty clay; f) 2.5YR 6/4 light yellowish brown silty clay mottled with 7.5YR 7/1 light gray silty clay and 7.5YR 6/8 reddish yellow silty clay; g) mottling of 7.5YR 7/1 light gray silty clay, 2.5YR 6/4 light yellowish brown silty clay, and 7.5YR 6/8 reddish yellow silty clay.

AT-N1833.36E907.74+30cmN. Auger test N1833.36E907.74 targeted a magnetic high positive Type IV anomaly situated within a Type I anomaly in the open ground just west of Mound A (Figure 5.61). This was the only operation we conducted in this section of the plaza. It is important, then, that this test was positive.

The initial auger test at N1833.36E907.74 was negative, so the team began augering in a cruciform pattern around this point starting with a second test 30 cm north of the original. This second test encountered fired clay at 40-43 cm below the ground surface (Figure 5.62). This thin layer is interpreted as a hearth feature and the source of magnetic anomaly identified in the gradiometer survey. It was bracketed above and below by a dark yellowish brown (10YR 4/4) silty clay layer featuring large amounts of fired clay and pottery. Given the position of the anomaly in plaza, it is likely that these layers represent an occupation surface buried during plaza construction.

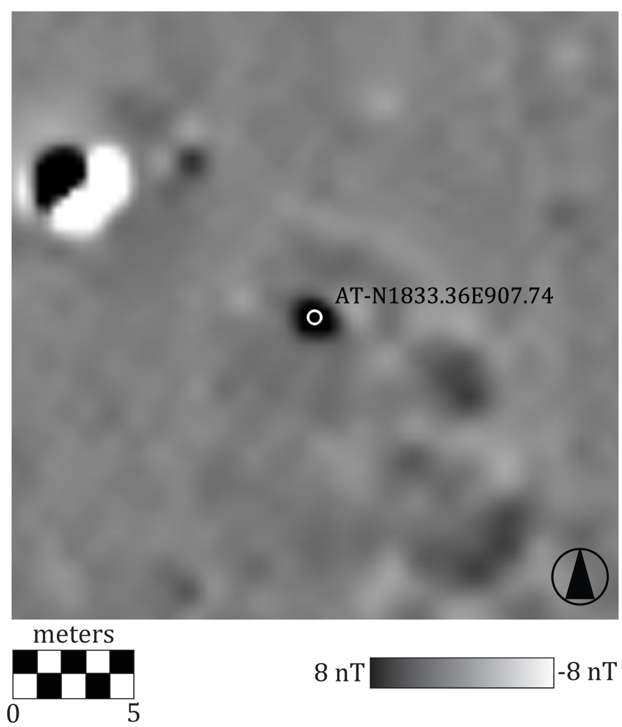


Figure 5.61. Auger test placement at N1833.36E907.74. Test targeting Type IV anomaly west of Mound A.

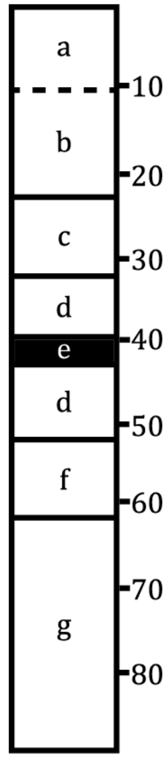


Figure 5.62. Auger test N1833.36E907.74+30cmN, positive: a) humic zone, 10YR 3/6 dark yellowish brown sandy clay loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) 10YR 3/2 very dark grayish brown loam with fired clay and pottery; d) 10YR 4/4 dark yellowish brown silty clay with large amounts of fired clay and pottery; e) fired clay hearth fragments; f) 10YR 5/4 yellowish brown sandy clay loam; g) 2.5YR 6/4 light yellowish brown silty loam lightly mottled with 7.5YR 7/1 light gray silty loam and 7.5YR 6/8 reddish yellow silty loam, light gray mottling increasing with depth.

Testing of Miscellaneous Anomalies

We also tested a number of anomalies that either appeared to represent tight clusters of domestic structures or structures of notable size, shape, and/or location within the plaza area. These were located exclusively in the central and south-central plaza area, generally centered on the circular anomaly cluster already described.

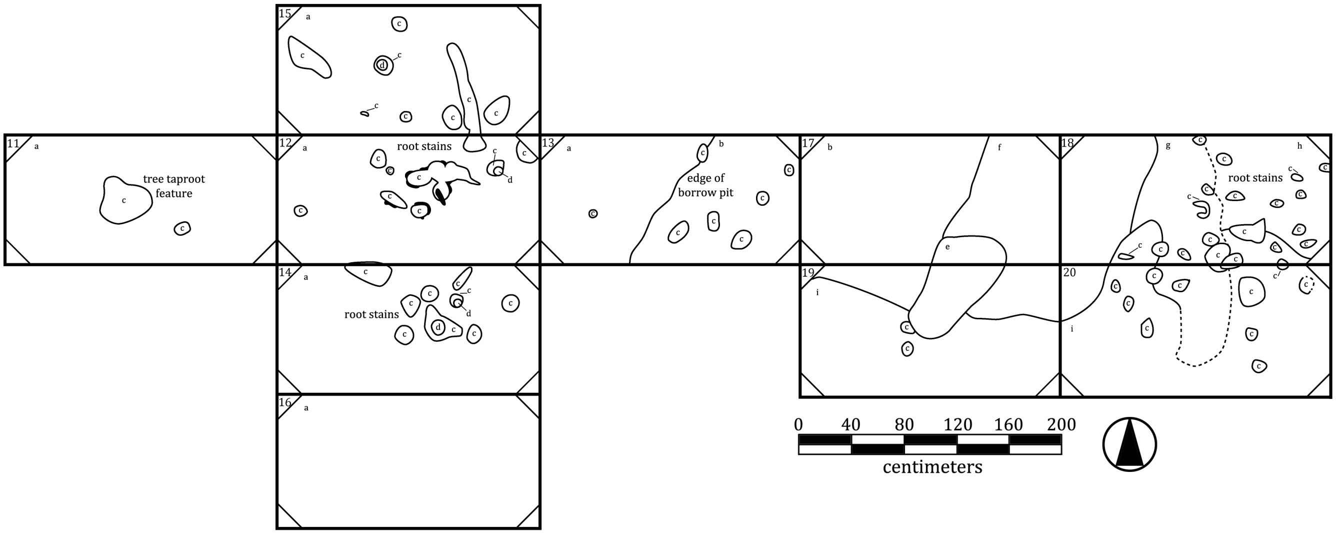


Figure 5.63. Unit Block 11-20, Zone 4 Level 1 plan view (below plowzone): a) subsoil, 7.5YR 4/4 brown clay loam mottled with 7.5YR 4/6 strong brown clay loam with heavy iron concretions near edge of “b”; b) pit fill, 10YR 5/3 brown sandy loam with charcoal flecks and light lithic, ceramic, and fired clay artifacts; c) root stains, 10YR 4/6 dark yellowish brown sand; d) root stains, 10YR 3/4 dark yellowish brown loose sandy loam; e) pit fill, 10YR 5/4 yellowish brown sandy loam; f) pit fill, 10YR 6/4 light yellowish brown sandy loam; g) pit fill, 10YR 4/4 dark yellowish brown sandy clay loam moderately mottled with 10YR 6/4 light yellowish brown sandy loam; h) pit fill, 10YR 4/4 dark yellowish brown sandy clay loam moderately lightly mottled with 10YR 6/4 light yellowish brown sandy loam; i) 10YR 4/3 brown sandy clay loam with light artifacts.

Unit Block 11-20. Units 11-20, a block of 10 successively named, cardinally oriented, 1-x-2 meter units, targeted the edge of a large and complex circular cluster of anomalies in the south-central plaza (Figure 5.52). Of all the magnetic features identified in the plaza gradiometer survey, this circular cluster is the most conspicuous and the one that generated the most attention when preliminary results were presented at the Southeastern Archaeological Conference (Walker and Blitz 2010). At the end of the 2011 summer session field school, several students volunteered to continue working in order to investigate this cluster. After it was identified that the features making up the cluster could be identified immediately below the plowzone, excavations proceeded in an exploratory manner, stripping the humic layer and plowzone to reveal what we believed at the time would be a large architectural feature (e.g., the remains of a circular compound akin to the buildings documented in Cahokia's West Plaza). Trench excavations during the 2012 summer season would reveal that the source for much of the anomaly cluster was, in fact, a backfilled borrow pit consisting of numerous and distinct ash and midden layers.

All units in the block were excavated to a depth of approximately 20 cm below ground level, 5 cm into the stratum immediately beneath the plowzone (Figure 5.63). No plowscars extended to this depth and therefore did not interfere with feature identification.

Units 11-12 and 14-16 encountered only mottled reddish (7.5YR 4/4 and 7.5YR 4/6) clay loam subsoil below the plowzone. A taproot feature and numerous root features intruded into the subsoil. A sample of these was excavated before the excavation block was expanded eastward, where an additional cluster of tree root stains was also documented.

Unit 13 encountered the well-defined edge of what was later identified as the borrow pit feature. The subsoil at the margin of the pit was dense, sterile, and characterized by very heavy iron concretions. By contrast, the pit fill was loose and sandy with small numbers of residual lithic, ceramic, and fired clay artifacts. Similar fill extended across Units 17-20. No other units encountered another margin of the pit. Judging from the size of the circular anomaly cluster, the pit may extend as far as 30 m further to the east.

Excavations did not delve any further into the pit fill during the 2011 summer season. Therefore, only small numbers of artifacts were recovered from the top few cm of pit fill, none diagnostic.

Test Unit 130. An east-west, cardinally oriented, 1-x-4 meter trench labeled Unit 130 targeted the western extreme of this anomaly cluster (Figure 5.52), providing far more information about its source than did the shallow Unit Block 11-20 during the summer 2011 season. The trench reached a maximum depth of 78 cm below the ground surface. It encountered two stratigraphic zones: humic/plowzone and subsoil, the latter intruded by a midden-filled pit (Figure 5.64). A posthole packed with yellow clay, visible in the eastern unit profile (Figure 5.65), intruded the pit fill.

The western half of the unit encountered subsoil beneath the plowzone. The eastern half encountered a large pit feature backfilled during several fill events, all of which only resulted in the deposition of only two diagnostic artifacts, a folded-flattened rim and a folded rim, the latter of which yields an Early Moundville I TPQ (Table 5.16).

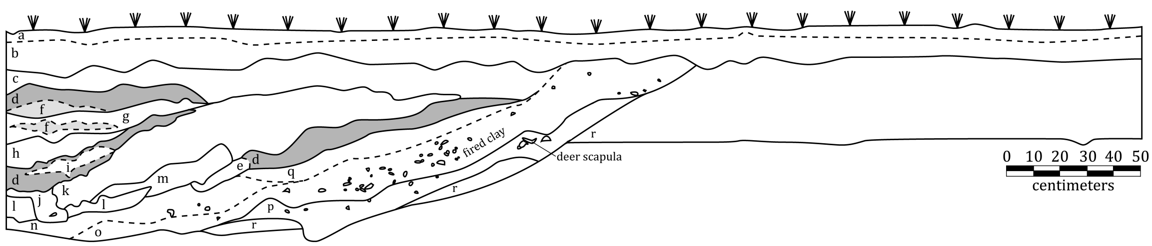


Figure 5.64. Test Unit 130, south profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) 10YR 5/3 brown sandy loam with light charcoal flecks and light lithic, ceramic, and fired clay artifacts; d) 10YR 4/2 sandy clay loam; e) 10YR 7/1 light gray ashy, sandy loam; f) 10YR 7/2 light gray sandy loam; g) 7.5YR 4/4 brown clay loam; h) 10YR 5/1 gray silty loam; i) 10YR 4/1 dark gray silty loam lightly mottled with 10YR 4/2 sandy clay loam; j) 10YR 4/1 dark gray silt with light ash and charcoal flecks; k) 10YR 4/1 dark gray silty loam with light ash and charcoal flecks; l) 10YR 4/2 silty loam with light charcoal flecks; m) 10YR 5/2 grayish brown silty loam; n) 10YR 5/2 grayish brown silty loam heavily mottled with 7.5YR 4/6 strong brown clay loam with heavy ash pockets; o) 10YR 5/2 grayish brown silty loam lightly mottled with 7.5YR 4/6 strong brown clay loam; p) 10YR 5/2 grayish brown silty loam with fired clay, lithic flakes, and deer mandibles and scapulae; q) 7.5YR 4/6 strong brown clay loam mottled with 10YR 5/2 grayish brown silty loam; r) subsoil, 7.5YR 4/6 strong brown clay loam.

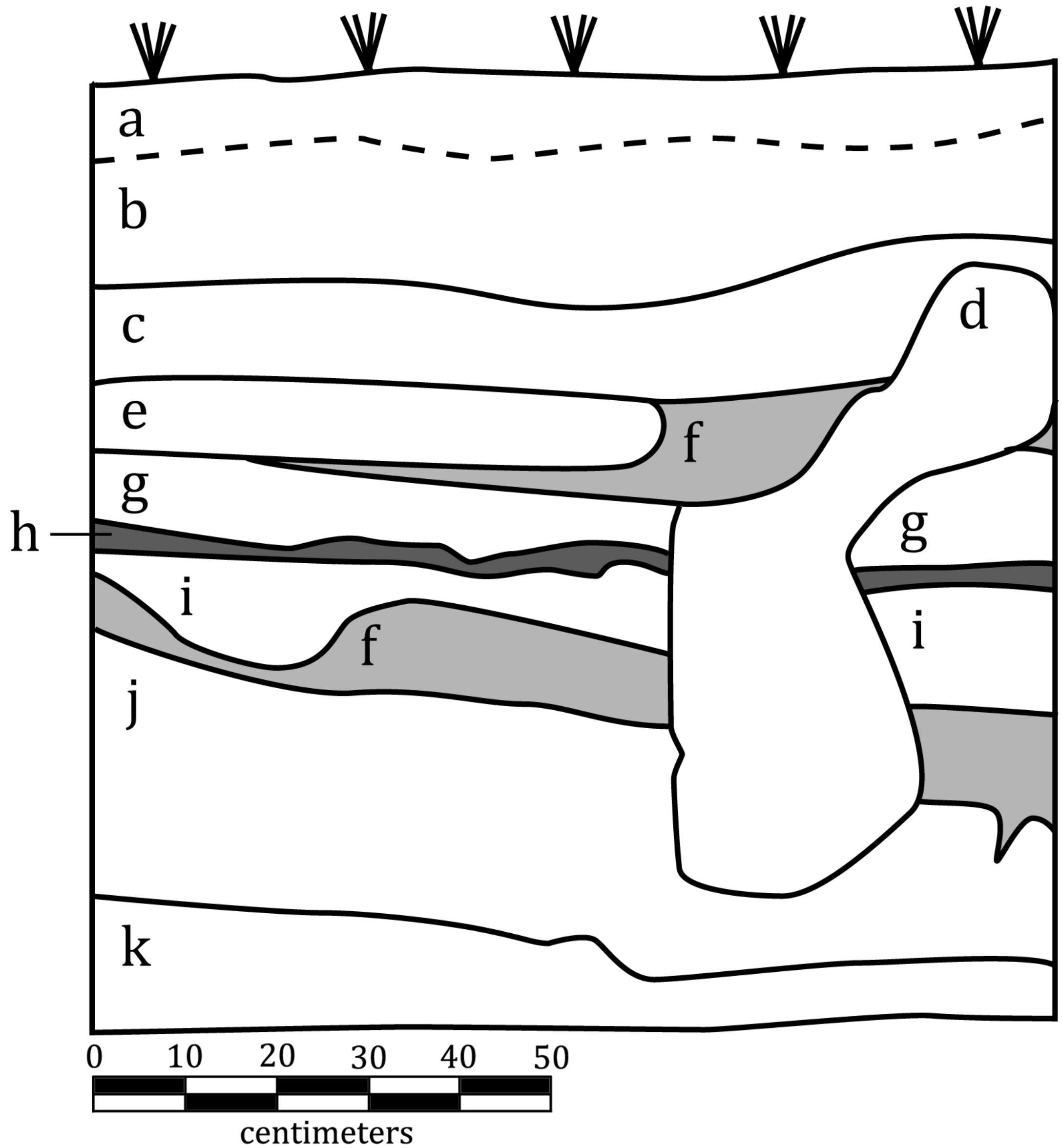


Figure 5.65. Test Unit 130, east profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) 10YR 5/3 brown sandy loam with light charcoal flecks and light lithic, ceramic, and fired clay artifacts; d) clay-packed posthole, 10YR 5/4 yellowish brown clay loam lightly mottled with 10YR 8/6 yellow silty clay with iron concretion inclusions; e) 10YR 7/2 light gray sandy loam; f) 10YR 4/2 sandy clay loam; g) 7.5YR 4/4 brown clay loam; h) possible occupation surface, 10YR 3/1 very dark gray clay loam; i) 10YR 5/1 gray silty loam; j) 10YR 4/1 dark gray silt with light ash and charcoal flecks; k) 10YR 5/2 grayish brown silty loam heavily mottled with 7.5YR 4/6 strong brown clay loam with heavy ash pockets.

Table 5.16. Sherd types and diagnostic modes from Unit 130.

Type	Humus/ Plowzone	Pit Fill	Totals
Mississippi Plain	**25**	212	237
Bell Plain	5	26	31
Baytown Plain	1	16	17
Total of types	31	254	285
Diagnostic Modes			
Folded rim		**1**	1
Folded-flattened rim		1	1
Total of diagnostic modes		2	2

Note: Items yielding TPQ are in bold.

I submit two possible interpretations for the pit feature. First, it may be the byproduct of clay quarrying for nearby mound construction. The subsoil at this location consists of almost pure red clay exposed during the leveling of the plaza. However, this interpretation does not adequately explain the overall circular shape of the target anomaly cluster. Moreover, there are much better locations for an enormous borrow pit than a central location in the southern plaza area, particularly considering that all known borrow pits at Moundville were created outside of the main mound arrangement.

A second possibility is that the pit is the sunken floor of a monumental structure built soon after the construction of the plaza. Its side slopes gently towards a level base, the same as sunken house floors across the site. The south-central location appears to have been an important one for numerous reasons. As mentioned, no other location captured in the gradiometer survey was nearly as magnetically active. Nearby anomalies include probable structures far larger than the typical Moundville domestic structure. These likely served a communal function. Additionally, they are non-cardinally oriented and, therefore, more likely to pre-date than post-date plaza construction. Post-plaza construction, this south-central area would have had three things in its favor as a location

Table 5.17. Sherd types from Test Unit 131.

Type	Plowzone	Pit Fill	Totals
Mississippi Plain	**30**	**53**	83
Barton Incised, *variety unspecified*		1	1
Bell Plain	5	8	13
Baytown Plain	1	4	5
Total of types	36	66	102

Note: Items yielding TPQ are in bold.

for concentrated communal activity: 1) a history of such activity, 2) its central, highly visible, placement, and 3) its placement vis-à-vis nearby mounds and the site's monumental arrangement. To elaborate on the final point, it is perhaps noteworthy that the circular anomaly lies on the site's axis of symmetry and is itself aligned with Mounds A and D, the latter alignment creating an imaginary line of approximately the same orientation as Mound A.

I would be remiss if I did not also point out that near total lack of other architectural evidence – postholes, wall trenches, etc. – at the margins of or within the pit feature. One exception is the clear posthole identified in the eastern profile. Packed with mottled brown and yellow clay, it intruded the pit fill, intersecting at least one lower occupation surface.

Many sources certainly contribute to the anomaly cluster. Other test units in this area revealed postholes and small pits. While it is uncertain at this point what principally contributes to its overall circular shape and, moreover, if its circular shape is even important, but this large flat-bottomed pit is undoubtedly part of the answer.

Test Unit 131. The cardinally oriented, east-west aligned, 1-x-2 meter unit labeled Unit 131 targeted one of several diffuse magnetic lows forming an arch around the top half of the circular cluster of magnetic anomalies (Figure 5.52). The unit encountered two

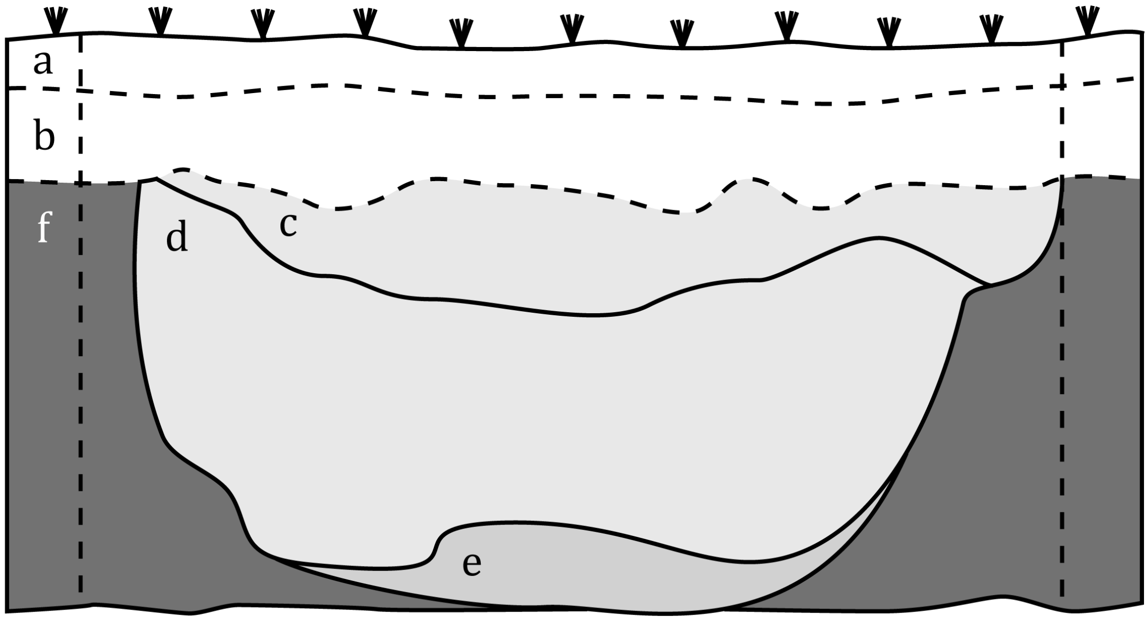
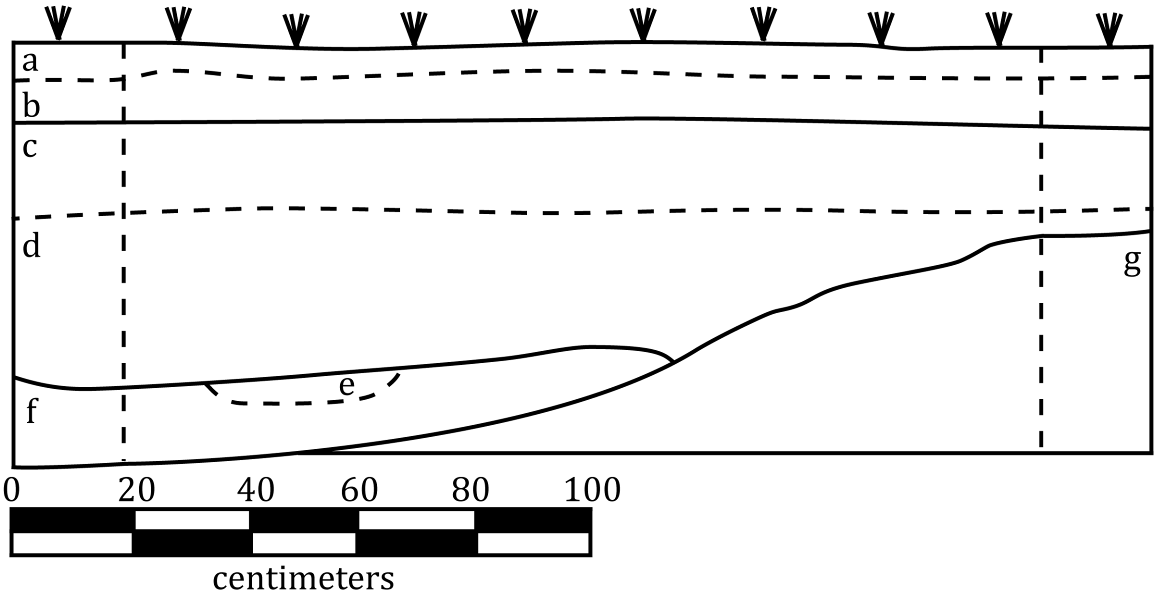


Figure 5.66. Test Unit 131, south profile: a) humic zone, 3/6 dark yellowish brown sandy loam; b) plowzone, 7.5YR 4/4 brown sandy loam; c) pit fill, 10YR 4/6 dark yellowish brown sandy loam; d) pit fill, 10YR 3/6 dark yellowish brown sandy loam; e) pit fill, 7.5YR 4/3 sandy loam; f) subsoil, 5YR 4/4 reddish brown clay loam.

strata: humus/plowzone and subsoil (Figure 5.66). A pit with contents reminiscent of the pit fill described for Unit 130 intruded the subsoil. It offered a handful of potsherds, none of which were diagnostic of a temporal span more narrow than "Mississippian." I believe that this pit is part of the same identified in nearby Unit 130.

The pit is judged to be the source of the magnetic anomaly.

Test Unit 134. Test Unit 134 was an north-south aligned, cardinally oriented, 1-x-2 meter test unit that targeted a diffuse magnetic low anomaly to the northwest of the large, circular anomaly cluster described above (Figure 5.52). The unit reached a depth of



5.67. Test Unit 134, west profile: a) humic zone, 10YR 4/3 brown sandy loam; b) plowzone, 10YR 4/6 dark yellowish brown sandy loam; c) pit fill, 7.5YR 4/6 strong brown loam; d) pit fill, 7.5YR 5/8 strong brown loam mottled with 7.5YR 4/6 strong brown loam; e) pit fill, 10YR 3/6 dark yellowish brown loam mottled with 10YR 6/8 brownish yellow sandy loam; f) pit fill, 10YR 3/6 dark yellowish brown loam lightly mottled with 5YR 3/4 dark reddish brown sandy clay; g) subsoil, 5YR 3/4 dark reddish brown sandy clay.

73 cm below the ground surface, identifying the anomaly source intruding into the subsoil immediately below the humic/plowzone (Figure 5.67).

Fifty potsherds were recovered from the humic layer and plowzone: 42 Mississippi Plain, one Bell Plain, and seven Baytown Plain. The pit itself yielded no artifacts.

Like other diffuse magnetic low anomalies in the vicinity, this anomaly had its source in a pit backfilled with culturally sterile soil.

Test Unit 110-111. Test Unit 110 was an east-west aligned, cardinally oriented, 1-x-2 meter test unit designed to identify this anomaly (Figure 5.68). Beneath the humic/plowzone at a depth of approximately 30 cm below the ground surface, we identified the corner of a rectangular brown (7.5YR 4/4) sandy loam feature initially interpreted as a house basin. Unit 111, a contiguous 1-x-2 meter test unit, expanded the operation to the south, forming a 2-x-2 meter unit. At 35 cm below the ground surface, it was easy to identify the edges of the basin feature in the western half of the unit. At the

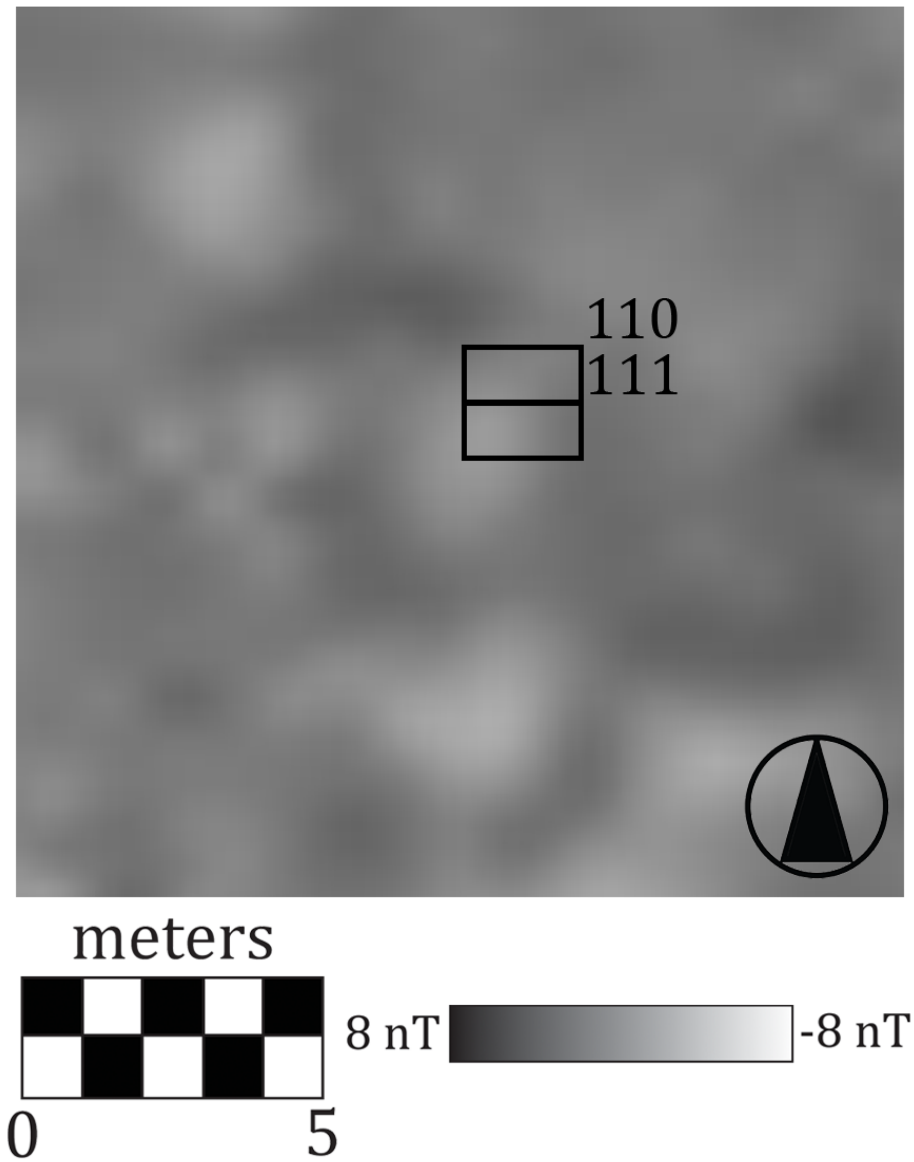


Figure 5.68. Placement of Unit Block 110-111 over a diffuse magnetic low negative anomaly on the southern plaza margin. Anomaly exists in a cluster of similar anomalies.

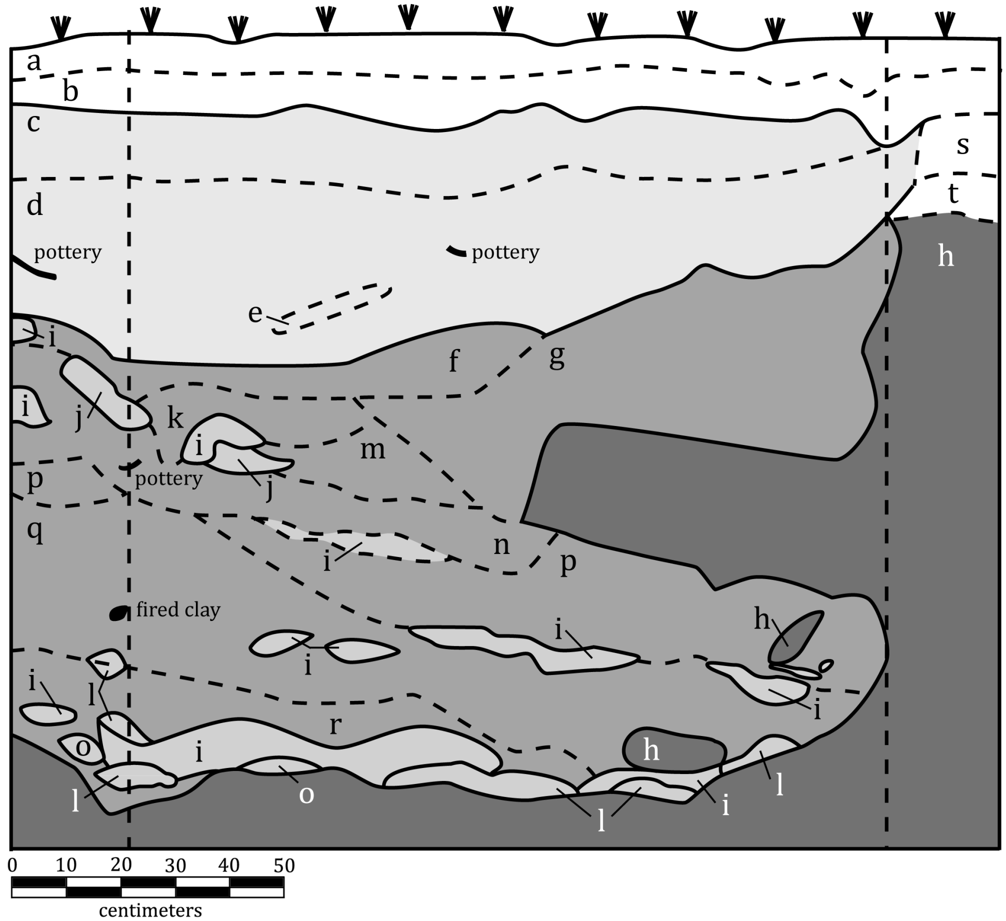


Figure 5.69. Unit 110-111, west profile: a) humic zone, 10YR 3/6 dark yellowish brown sandy loam; b) plowzone, 10YR 3/4 dark yellowish brown sandy loam; c) basin fill, 7.5YR 4/4 brown sandy loam with charcoal flecks; d) basin fill, 7.5YR 4/3 brown sandy loam with fired clay inclusions; e) bioturbation, 7.5YR 4/3 browns sandy clay loam; f) pit fill, 7.5YR 4/4 brown sandy clay with charcoal flecks; g) pit fill, 7.5YR 7.5YR 4/4 brown clay loam mottled with 5YR 4/6 reddish brown clay with charcoal flecks and small amounts of iron concretions; h) subsoil, 5YR 4/6 reddish brown clay with small amounts of iron concretions; i) liner, 10YR 5/6 yellowish brown loamy sand; j) liner, 10YR 4/6 dark yellowish brown loamy sand; k) pit fill, 7.5YR 4/3 brown sandy loam with charcoal flecks; l) liner, 10YR 6/6 brownish yellow clay mottled with 2.5YR red clay and 7.5YR 7/1 light gray clay; m) pit fill, 10YR 3/6 dark yellowish brown sandy loam lightly mottled with 10YR 4/6 dark yellowish brown loamy sand with charcoal flecks; n) pit fill, 7.5YR 4/6 strong brown sandy clay loam mottled with 10YR 5/6 yellowish brown loamy sand with charcoal flecks; o) liner, mottling of 10YR 6/6 brownish yellow clay, 2.5YR 4/8, and 7.5YR 7/1 light gray clay; p) pit fill, 7.5YR 4/6 strong brown clay loam mottled with 5YR 4/6 reddish brown clay and 10YR 5/6 yellowish brown loamy sand with charcoal flecks; q) pit fill, 10YR 4/6 dark yellowish brown silty loam mottled with 5YR 4/6 reddish brown clay and 10YR 5/6 yellowish brown loamy sand ; r) pit fill, 10YR 5/6 yellowish brown silty loam mottled with 5YR 4/6 reddish brown clay and 10YR 5/6 yellowish brown loamy sand; s) plaza fill, 10YR 5/8 yellowish brown sandy loam; t) plaza fill, mottling of 7.5YR 4/6 strong brown clay loam and 5YR 4/6 reddish brown clay.

edges of the pit, we identified at least five postholes. At this depth, the eastern and western halves of the unit yielded distinctly different artifact assemblages, the former containing higher proportions of fired clay and charcoal, the latter containing more ceramics, further corroborating the presence of a cultural feature in the western half of the unit. The basin exhibited the same gently sloping sides and relatively flat floor as others identified at Moundville. We reached its base at approximately 74 cm below the ground surface (Figure 5.69).

In the southwest quadrant of the unit and intruding into the base of the basin feature, we encountered a mottled oval stain. Hand excavation continued under the assumption that this stain was merely a thin lens on the basin floor. However, the stain opened onto a chamber carved into the red clay subsoil. This stain covered what we believe would have constituted the mouth of the pit – the opening to a wide chamber that extended to approximately 135-140 cm below the ground surface. Owing to the exaggerated "bell" shape of the pit, the basin floor is thoroughly undercut; this suggests that the pit was likely dug out and then filled during a relatively short sequence of events. Otherwise, the unstable lip of the pit would have collapsed. We had to take extreme care not to destroy this lip when entering and exiting the feature.

Pit fill was laid down in four distinct layers of about equal thickness, each separated to some extent by pockets of yellowish sand and clay. Although we initially excavated the feature irrespective of these multiple layers of fill, we soon decided to separate artifacts by fill contexts. We recovered small-to-moderate quantities of ceramics and fired clay from the pit. Much of the feature contained charcoal flecking; multiple radiocarbon samples were taken along with botanical and clay soil samples. The yellowish-brown clay and sandy loam lining at the base suggests that the pit may have had some sort of ceremonial usage, as this sort of soil is sometimes reserved for mound caps and the floors of important buildings at Moundville and elsewhere in the Black Warrior River valley.

My first inclination was to label this a bell-shaped storage pit, but this interpretation did not hold for a number of reasons. Bell-shaped pits are typical of Late Woodland sites in west-central Alabama and elsewhere, but none have ever been found at the Moundville site. All known examples were filled with greasy black midden, chock-full of artifacts, and shaped like steeply sided bells, hence the name. They were relatively permanent constructions, used year after year by seasonally mobile hunter-gatherers. A shaft-and-chamber tomb, a second possibility for Alabama sites occupied around the Mississippian transition, may also be ruled out, for the feature yielded no human remains or bones of any kind.

A third possibility is that this feature was a temporary construction created for the purposes of public theater. It is likely that Moundville is ancestral to some Western Muskhoghean-speaking peoples. The numerous and varied members of this language family "account for their origin as emergence from beneath the earth" (Lankford 2001:112). The Nanih Waiya site, a Middle Woodland mound site venerated by the historic and modern Choctaw, has possible evidence for the reenactment of this central myth. A cave near the main mound is at least partially artificial (Atkinson 2006), and the modern Choctaw cite it as the location from which they sprung at the beginning of time (Breschia 1985). It has been a pilgrimage site for them since at least the 17th century (Lincecum 1904). Any reenactment of this central Muskhoghean myth would require a

Table 5.18. Sherd types and diagnostic modes from Unit Block 110-111.

Type	Humus/ Plowzone	Basin Fill	Pit Fill	Totals
Mississippi Plain	227	86	151	464
Moundville Incised, *variety Moundville*			**1**	1
Moundville Incised, *variety unspecified*			3	3
Bell Plain	5	13	32	50
Carthage Incised, *variety Moon Lake*		**3**		3
Moundville Engraved, *variety Elliot's Creek*			1	1
Moundville Engraved, *variety Stewart*		1		1
Moundville Engraved, *variety unspecified*	1	1	1	3
Baytown Plain	28	4	5	37
Total of types	261	108	194	563
Diagnostic Modes				
Hemagraved			1	1
Folded rim	**1**	2	1	4
Folded-flattened rim				
Total of diagnostic modes	1	2	2	5

Note: Items yielding TPQ are in bold.

cave, and this sort of inclusive theater is exactly what we would expect to witness in the common areas of big, multiethnic Mississippian sites like Moundville. What better way to integrate a diverse population than to invoke a common origin?

Among the 194 potsherds recovered from the pit, I identified several diagnostic artifacts including a hemagraved Moundville engraved, *var. Elliot's Creek* potsherd, one Moundville Incised, *variety Moundville* sherd, and a folded-flattened rim sherd (Table 5.18). These provide a TPQ of Early Moundville I. Considering this TPQ and the fact that the basin and pit appear to have been created after the construction of the plaza, it appears that this building was constructed very soon after plaza construction.

The chamber below the basin floor reached a depth of almost 2 m below the ground surface. Magnetometers cannot detect features at such a depth; therefore, the

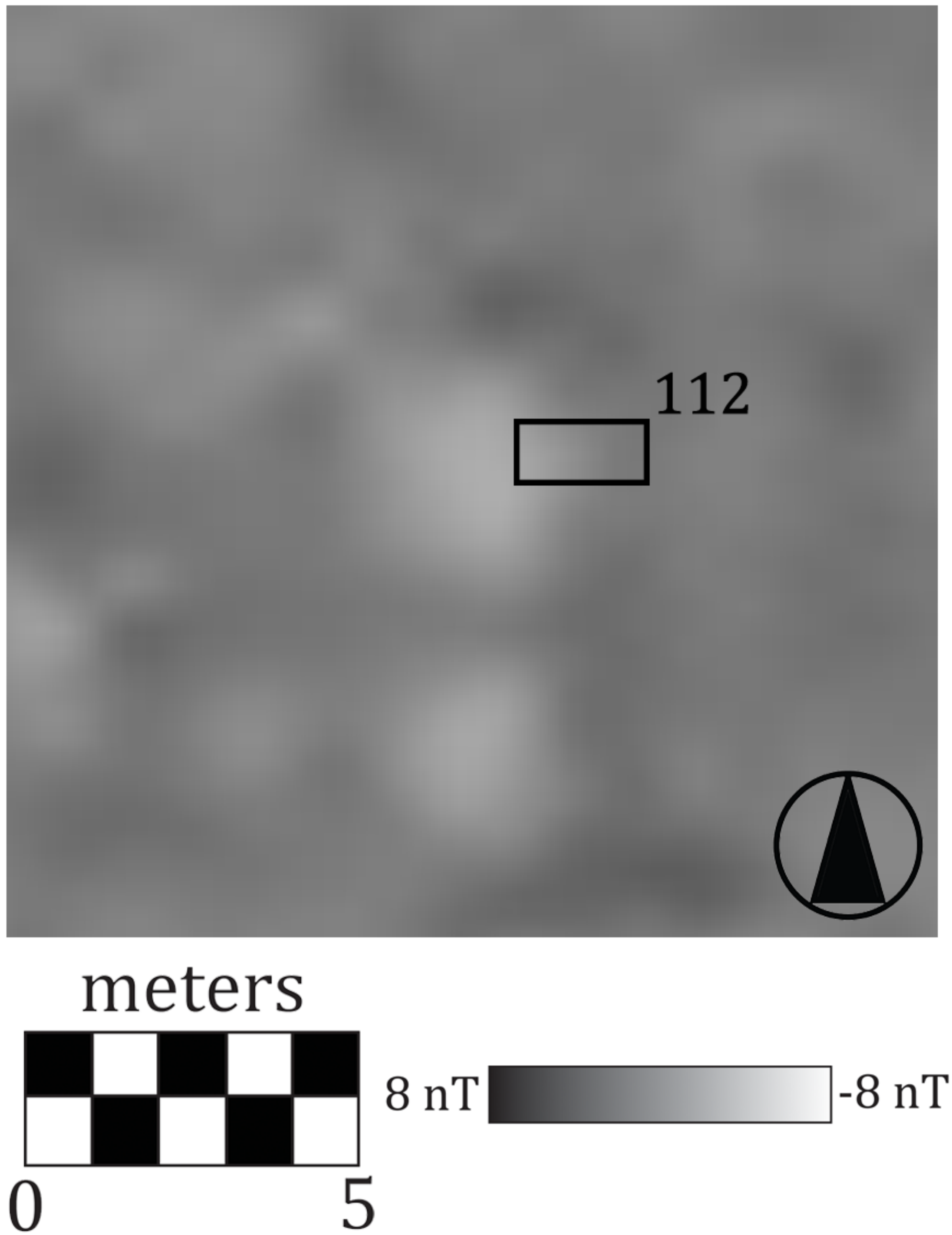


Figure 5.70. Placement of Test Unit 112 across the eastern boundary of a diffuse magnetic low negative anomaly on the southern plaza margin. Targeted anomaly is similar to that which had already been investigated by nearby Unit Block 110-111.

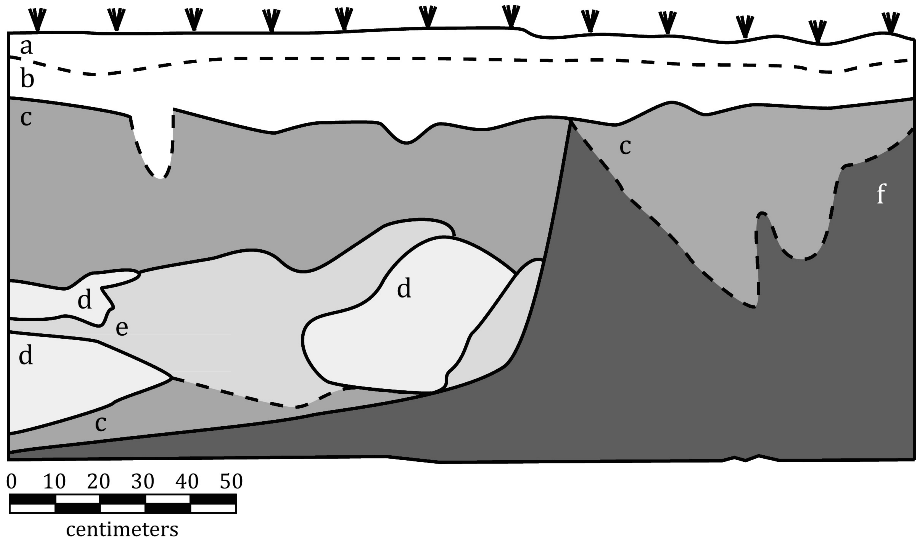


Figure 5.71. Test Unit 112, north profile: a) humic zone, 10YR 3/6 dark yellowish brown sandy loam; b) plowzone, 10YR 3/4 dark yellowish brown sandy loam; c) pit fill, 10YR 3/2 grayish brown silty loam; d) pit fill, 10YR 8/4 light yellowish brown sandy loam; e) pit fill, 10YR 4/2 dark grayish brown silty loam; f) subsoil, 5YR 4/6 reddish brown clay with small amounts of iron concretions.

basin floor is interpreted as the source for the magnetic anomaly at this location. This anomaly is only one in a cluster of similar anomalies initially interpreted as a cluster of houses encompassing two courtyards. We were inspired by the unusual findings at this location to test a nearby anomaly in order to determine if it, too, had its source in a basin-and-chamber feature (see Unit 112 below).

Test Unit 112. Test Unit 112 targeted a diffuse magnetic low anomaly similar to that targeted by Unit 110-111 (Figure 5.70). A cardinally oriented, east-west aligned, 1-x-2 meter unit labeled Unit 160 was placed over the center of this anomaly. It reached a depth of 88 cm below the ground surface, identifying two stratigraphic zones and one cultural feature (Figure 5.71). As seen in nearby units, excavations encountered subsoil immediately below the humic/plowzone. A nearly straight-sided pit intruding the subsoil

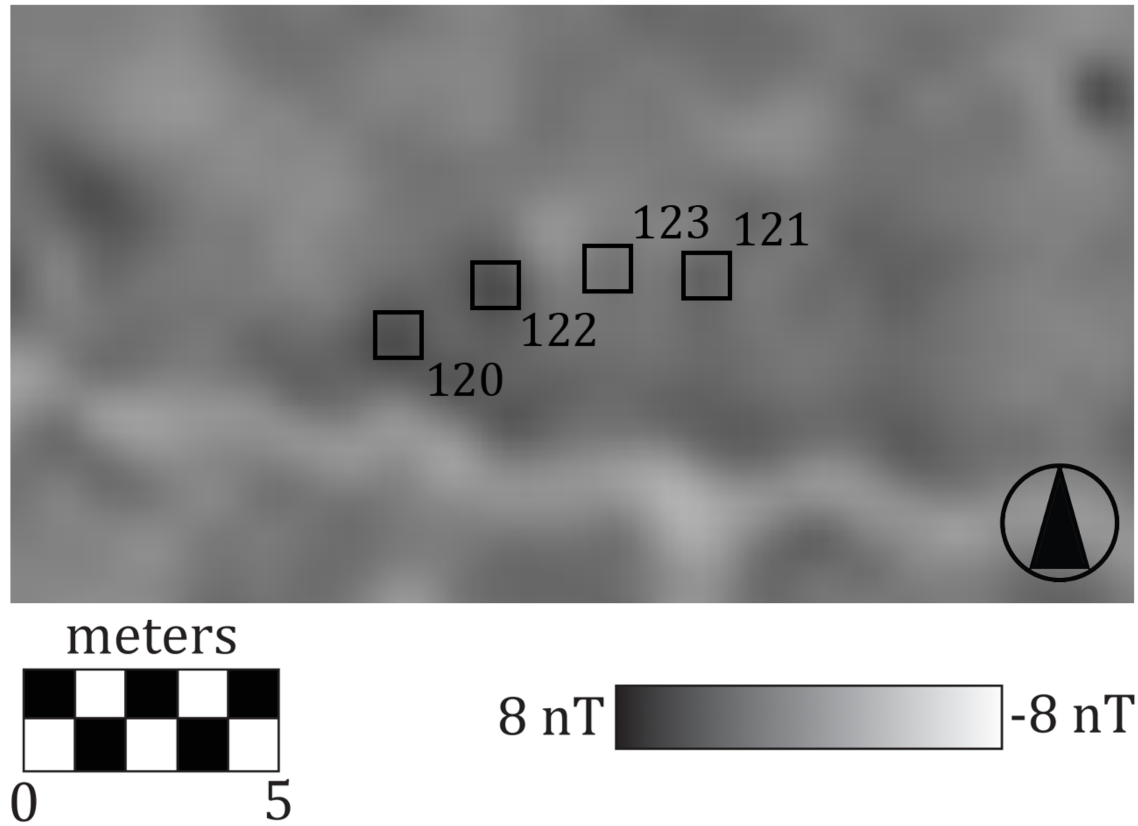


Figure 5.72. Placement of Test Units 120-123 over an arc of diffuse low magnetic positives in the central plaza area.

encompassed more than half of the unit below the plowzone level. The pit had been backfilled with several kinds of culturally sterile soil.

The pit is interpreted as the source of the anomaly.

Test Units 120-123. Near the center of the plaza, south of Mound A, the magnetometer documented a short arc of small circular positive anomalies of moderate amplitude (Figure 5.72). Judging by the location and arrangement of these anomalies, we tentatively believed they represented a portion of a circular post monument similar to those documented at other Mississippian sites. We targeted four of these with cardinally-oriented 1-x-1 meter test units. Each unit identified strong brown (7.5YR 4/6) clay loam subsoil immediately below the humic/plowzone (Figures 5.73-5.76). North-south plow scars of a depth that is typical for Moundville traversed each unit, suggesting that this area had been scoured to subsoil in antiquity rather than during Moundville's Depression-era alteration. The same is true of many other units wherein we encountered subsoil

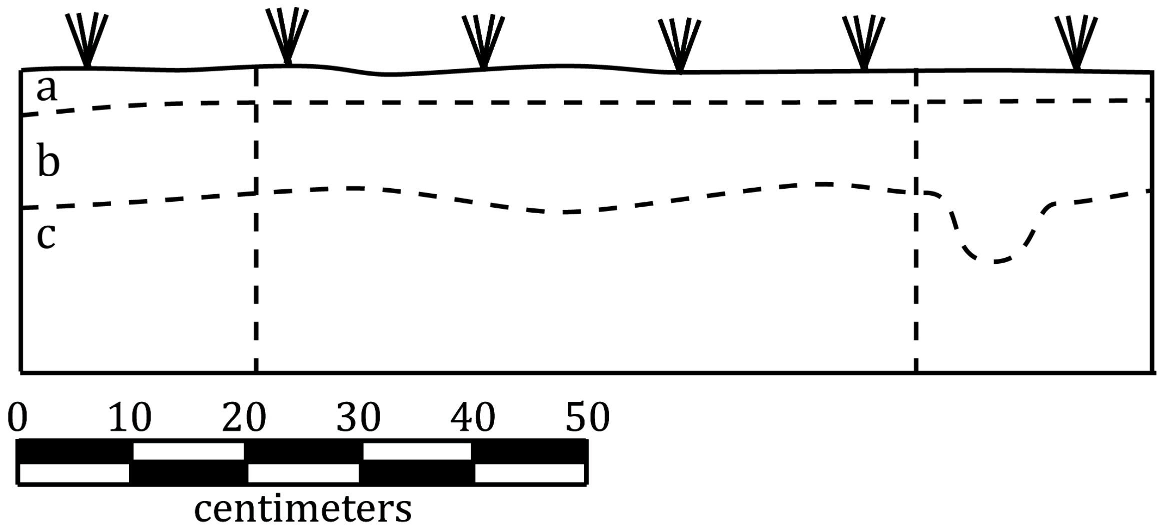


Figure 5.73. Test Unit 120, north profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) subsoil, 7.5YR 4/6 strong brown clay loam.

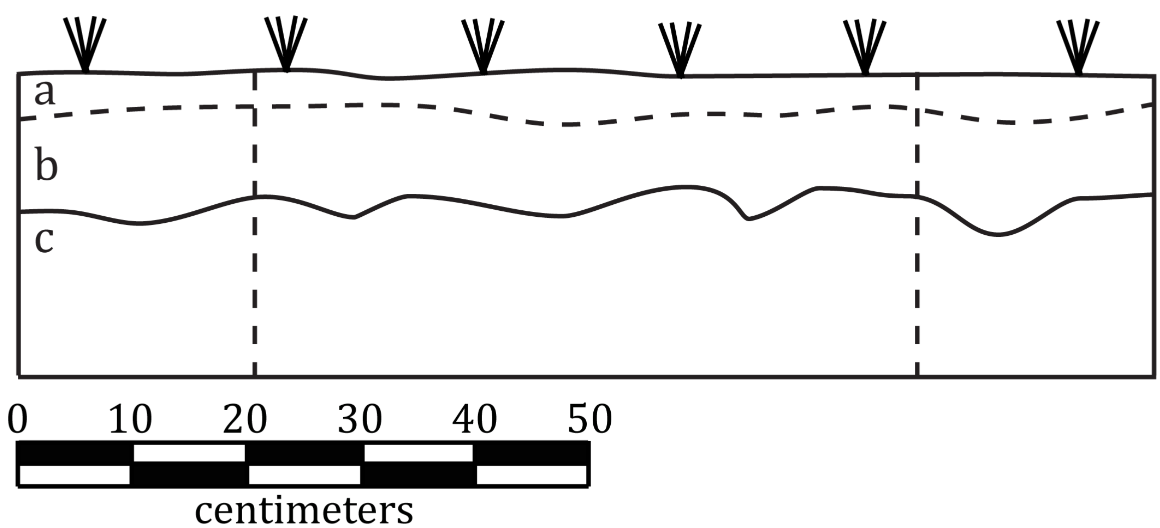


Figure 5.74. Test Unit 121, north profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) subsoil, 7.5YR 4/6 strong brown clay loam.

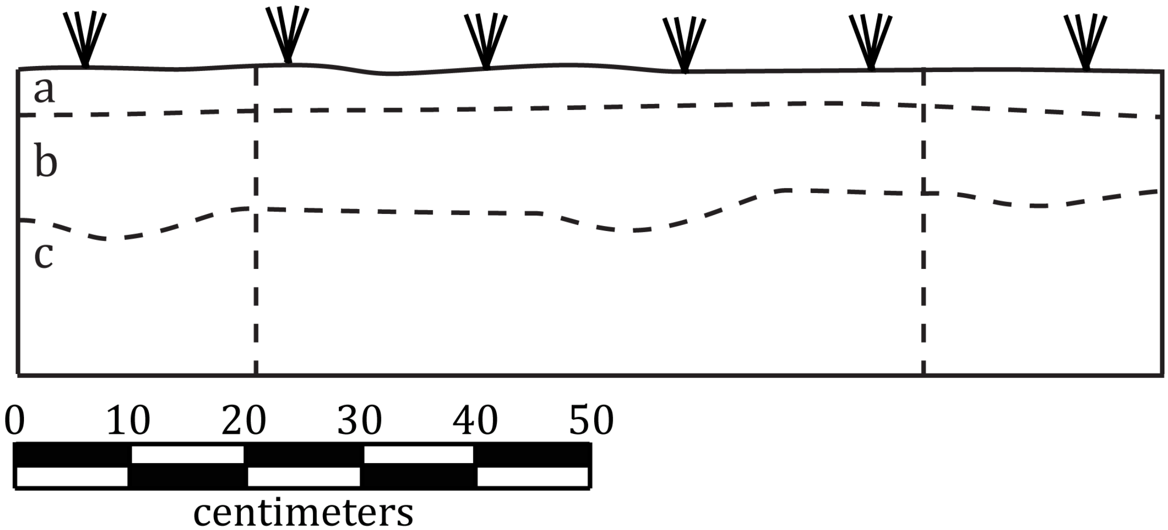


Figure 5.75. Test Unit 122, north profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) subsoil, 7.5YR 4/6 strong brown clay loam.

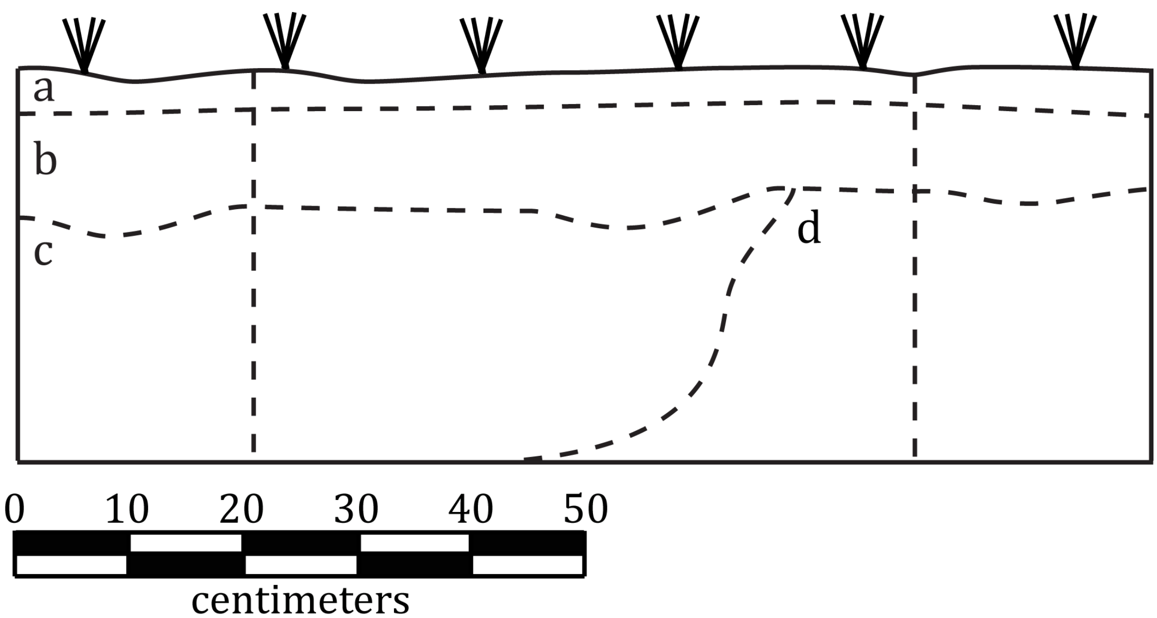


Figure 5.76. Test Unit 123, north profile: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) subsoil, 7.5YR 4/6 strong brown clay loam; d) subsoil, 7.5YR 4/6 strong brown clay loam heavily mottled with 10YR 3/4 dark brown clay loam.

immediately below the plowzone, though few exhibited plow scars as well-defined as the ones identified in Units 120-123.

Only one of the four units identified a cultural feature. Unit 123 encountered a posthole 25 cm in diameter. Its tapered base intruded only 15 cm into the subsoil. This feature was truncated when this section of the plaza was leveled; in other words, it pre-dates plaza construction. It may be that other posts also once stood in this area but that they were difficult or impossible to visually or tactilely identify. Kvamme and colleagues (2006:353) comment upon this controversial "invisible archaeology" in a recent publication, saying:

> It is likely that, at some sites, geophysics can detect features that are largely invisible to the archaeologist's trained eye and hand. Geophysical techniques "work" because subtle contrasts exist in magnetic, electrical conductivity, dielectric, thermal, and other characteristics. During excavation, archaeologists rely almost exclusively on visual (largely color) and textural contrasts. These contrasts often—but not always—co-occur with the geophysical contrasts. In short, skilled excavators can sometimes detect variations in the archaeological record that are not detected by geophysical sensors, but in the same manner, geophysics can sometimes detect phenomena that archaeologists cannot.

Considering the clear pattern of small circular anomalies at this location and the confirmation of a truncated posthole in one of the four units, I think that it is reasonable to suggest that Units 120-123 may yet contain evidence of archaeological features. At such a shallow depth, it would be easy to return to this location to collect chemical tests, geological particle samples, or other type of samples for tests designed to detect distinct types of geophysical contrasts.

In total, these units yielded 24 Mississippi plain potsherds and two Baytown Plain sherds, all of which derived from the plowzone. In addition to these, Unit 123 also encountered metal flakes weighing half a gram, but these are unlikely to have registered a strong magnetic signal.

Test Units 140 and 141. Unit 140 was an east-west aligned, cardinally oriented, 1-x-2 meter unit that targeted this diffuse magnetic low negative anomaly (Figure 5.77). The unit reached a maximum depth of 97 cm below the ground surface and identified three stratigraphic zones: humus/plowzone, and B1 horizon transitioning gradually into a B2 horizon (Figure 5.78). The unit encountered a large straight-sided, circular pit at the base of the plowzone. To explore the boundaries of this pit, we excavated Unit 141, a

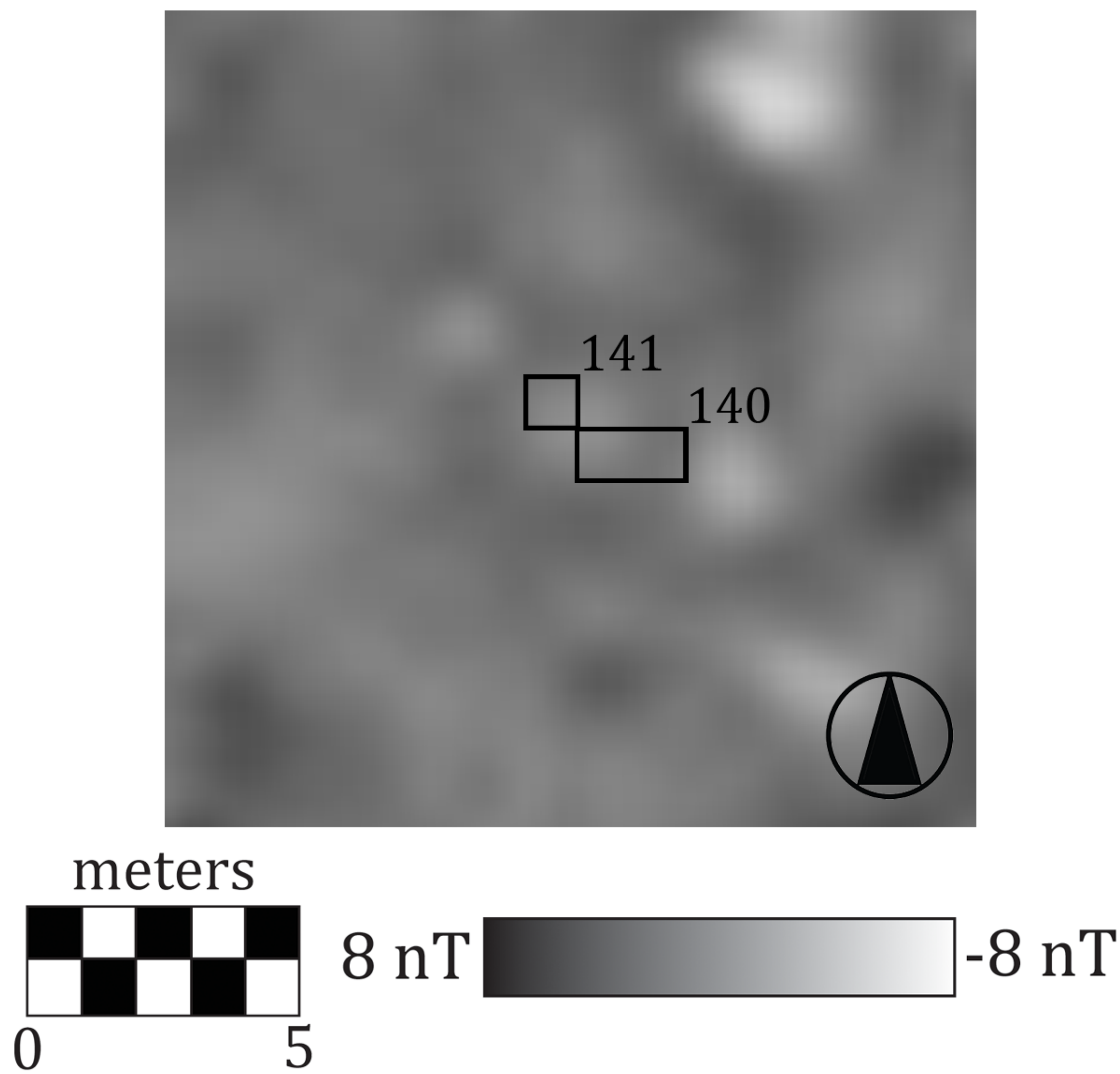


Figure 5.77. Placement of adjacent Test Units 140 and 141 at the location of a diffuse magnetic low anomaly on the southern plaza margin.

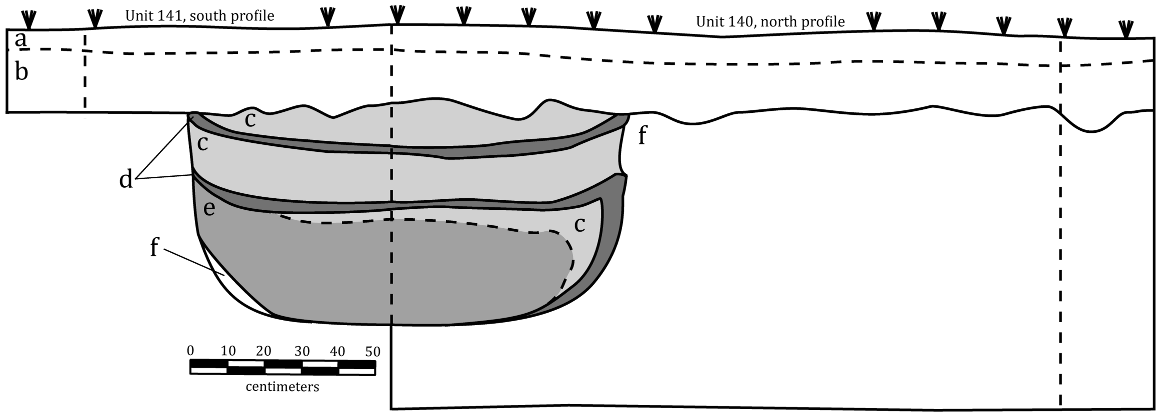


Figure 5.78. Unit 140 and 141, north and south profile, respectively: a) humic zone, 10YR 3/3 dark brown sandy loam; b) plowzone, 10YR 4/4 dark yellowish brown sandy loam; c) pit fill, 10YR 5/4 yellowish brown sandy clay; d) clay cap, 5YR 5/8 yellowish red clay; e) pit fill 10YR 4/2 dark grayish brown silty loam heavily mottled with 10YR 6/3 pale brown silt; f) culturally sterile B horizon, 7.5YR 2.5/3 very dark brown clay loam lightly mottled with 10YR 5/4 yellowish brown sandy clay.

cardinally oriented 1-x-1 meter unit that shared its southeast corner with Unit 140's northwest. For its size, the pit yielded very few artifacts. Fortunately one of those was a folded-flattened rim sherd that provides a TPQ of Early Moundville I (Table 5.19). The contents of the pit had been sealed by two successive red clay caps, suggesting this feature was created for the purposes of underground storage.

The pit is identified as the source of the magnetic anomaly.

Table 5.19. Sherd types and diagnostic modes from Test Units 140-141.

Type	Humus/ Plowzone	B1 Horizon	Pit Fill	Totals
Mississippi Plain	64	**3**	7	74
Moundville Incised, *variety Snows Bend*	1			1
Moundville Incised, *variety unspecified*			1	1
Bell Plain	4		1	5
Moundville Engraved, *variety unspecified*	1			1
Baytown Plain	3		1	4
Total of types	73	3	10	86
Diagnostic Modes				
Beaded rim	**1**			1
Folded-flattened rim			**1**	1
Total of diagnostic modes	1		1	2

Note: Items yielding TPQ are in bold.

Conclusions of Ground-Truthing

Ground-truthing was an essential part of the landscape-scale gradiometer survey at Moundville. Without it, any interpretation of the anomalies in the survey area would have been uncomfortably tentative. Having completed four seasons to excavations designed to systematically test our interpretations, I can say with confidence that ground-truthing has proven to be successful at identifying the causes of target magnetic anomalies in Moundville's plaza. Of the 40 operations, 29 identified the source of their targeted anomaly. The majority of these were excavation units and auger tests intended to test draw connections between anomaly types and architectural types, and most of those confirmed our initial interpretations, informed as they were by work at other Mississippian sites. The remaining operations were excavation units of a more exploratory nature, designed to 1) tease apart the complexities of a large anomaly cluster in the south-central central plaza, 2) confirm or deny the presence of a circular post monument near the center of the plaza area, and 3) shed light on a group of diffuse, rectangular magnetic low anomalies just to the west of the circular anomaly cluster.

Negative correlations were either the result of misplaced units, unanticipated prehistoric features, or modern disturbances. Units 8 and 10 tested negative because a total station was not available at the time of their placement. Reel tapes got us close to our mark, but not close enough.

Several units identified anomaly sources other than what was expected. For example, Unit 133 encountered a burned taproot at the edge of a flat-bottomed pit feature, a combination of natural and prehistoric features that happened to result in a Type II anomaly. Similarly, the unit block that began with N1658E1080 struck what was at first interpreted as a good sign of a nearby hearth – a dense charcoal deposit – but that was recognized as a large, charcoal-filled, pit feature upon expansion of the unit.

Several tests of Type IV anomalies identified metal objects such as tent stakes (N1699E983 and N1718E1056) likely left behind after the Boy Scouts' annual camping trip to the site and metal wire fragments (N1708E1081, Unit 173, and Unit 174) at shallow depths. For the most part, these objects generated much higher magnetic positive signals than the signals of prehistoric features. In the interest of saving time and effort, future testing of Type IV anomalies at Moundville and other Mississippian sites should make greater use of metal detectors to identify anomalies caused by metal objects, a tactic suggested by Hargrave (2006) but unfortunately overlooked until fieldwork for this project had concluded.

Many of the exploratory tests in the south-central plaza area identified ancient backfilled pits. These fit into two categories: deep straight-sided, flat-bottomed pits with sterile fill and shallow pits with gently sloping sides and midden fill. The former may be storage pits. The example exposed by Unit 140-141 was even capped with a thin lens of red clay. I believe the shallower pits are related to nearby mound building activities, the byproducts of workers quarrying red and yellow clays.

These positive results make a convincing case that the majority of anomalies detected and mapped by the gradiometer survey are Mississippian cultural features. I have no reason to think that similar efforts in other parts of the site would not yield similarly satisfying results. If anything, survey and testing in the wooded riverside areas of Moundville are likely to reveal an even greater density of prehistoric features. In the next chapter, I will use what we have learned from these four seasons of ground-truthing to create an interpretive site map, apply statistics to categorize structures into functional and chronological types, and finally explore how the construction of Moundville's plaza coincided with other changes in the built environment.

CHAPTER 6: STATISTICAL ANALYSES AND CONCLUSIONS

In this final chapter I detail how I used the results of the ground-truthing to interpret the magnetometer data. I then go a step further and assign structures to either side of the critical pre-plaza/post-plaza divide. The chapter concludes with a discussion of how the plaza figured in the site-wide reorganization of Moundville.

Interpretive Base Map

With the excavation results serving as a key to interpretation, I perused the magnetometer map and visually divided recognizable architectural anomalies into two categories: undaubed structures and daubed structures. Because I was more confident in some determinations than others, I further divided each category into “possible” and “probable” examples. I coded these interpretations in Adobe illustrator, marking the location of each anomaly with a size and shape appropriate symbol. Each is color-coded and shaded appropriately: undaubed structures are coded yellow; daubed structures are coded red; hearths are coded orange; probable features are coded a solid color; possible features are coded in striped colors. All hearths inside possible structures are coded as “possible.” Because ground-truthing determined that many kinds of objects and cultural features can generate Type IV anomalies, I only coded Type IV anomalies as hearths

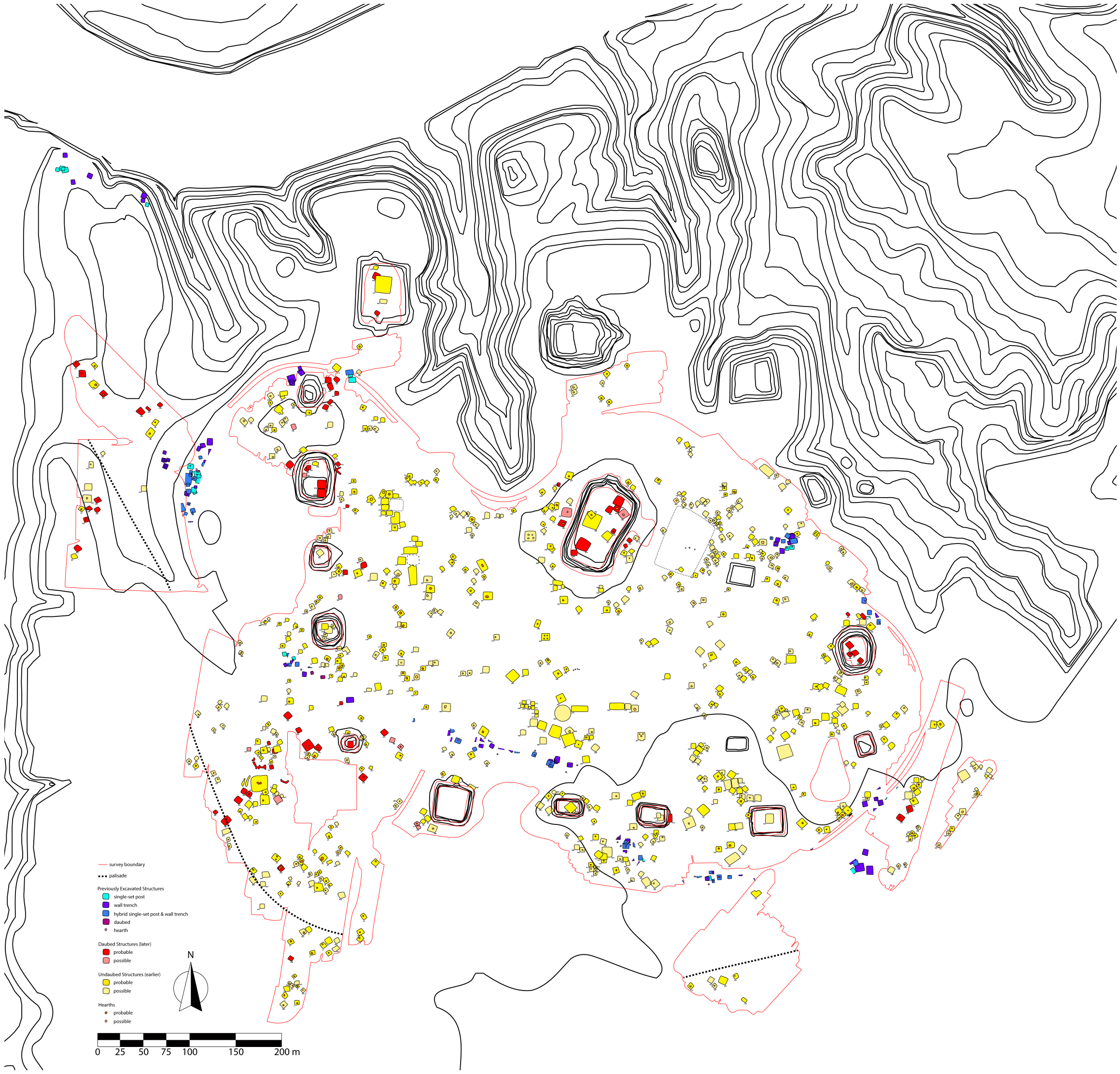


Figure 6.1. Interpretive map of all architectural and hearth anomalies identified in the magnetometer survey. Previously excavated structures, represented in shades of blue, are included for the purposes of comparison.

where they were centered within architectural anomalies. For the purposes of comparison to extant data, the interpretive map also includes structures excavated during the roadway and riverbank stabilization projects. These are represented in turquoise (single-set post), purple (wall trench), and magenta (daubed), and their hearths are represented in pink. Hybrid structures are represented in turquoise and purple stripes.

I coded 778 structures, not including the previously excavated examples. Four hundred and forty-seven of these were obvious enough to be labeled “probable,” leaving 330 “possible” structures. Among the probable structures, undaubed examples (n=375) outnumber daubed (n=73) by a factor of 5.13. However, this statistic belies the relative abundance of each across the survey area. The high concentration of daubed structures in the west and southwest portions of the site brings the ratio of undaubed to daubed in those areas closer to 1. Daubed structures also outnumber undaubed on almost every mound summit, though undaubed structures dominate in every other part of the survey area. As might have been guessed from the roadway data, domestic structures occur mostly in tight clusters separated by open ground. They are most plentiful on the margins of the plaza, but are also to be found scattered somewhat loosely throughout the plaza proper.

If my classification of anomalies into chronologically sensitive architectural types was faulty, one would expect the interpretive map to differ in fundamental ways with what archaeologists have long been saying about diachronic changes in the Moundville site settlement plan. Fortunately, this is not the case. In fact, the interpretation only *adds* to current knowledge without directly contradicting any well-established information about Moundville culture or chronology. For example, it makes sense that daubed structures would be more common than undaubed structures on mound summits because the raised ground upon which those structures stood was constructed after undaubed architecture had gone out of style (Knight 2010; Lacquement 2007). Similarly, the fact that undaubed buildings greatly outnumber daubed buildings agrees with what is currently known of population dynamics at Moundville – population was greatest when undaubed architecture was the norm (Steponaitis 1998). Finally, identification of heavy late period occupation in the southwest sector of the site agrees with Thompson's recent and unexpected discovery of a substantial Early Moundville III midden deposit there.

These are patterns that can be recognized at a glance, but other patterns require simple statistics to first tease out chronological and spatial distinctions in the settlement data. These set the stage for this dissertation's conclusions, which constitute not only an evaluation of tentative but critical claims that have arisen in prior research, but also a series of specific statements regarding the role of memory and collective identity in the drastic reorganization of landscape that accompanied the sociopolitical consolidation of Moundville ca. A.D. 1250.

Variables and Descriptive Statistics

The statistical analysis detailed in this section was designed to draw out spatial and temporal distinctions among the data as a basis for assigning architectural anomalies to spatial, functional, and chronological categories. I begin with a description of and justification for each of nine variables. I then present descriptive statistics for the dataset. For most of the 783 anomalies identified as building remains I recorded: 1) case identification number; 2) orientation angle; 3) orientation; 4) wall type; 5) shape; 6) area in square m; 7) presence/absence of a hearth; 8) structure type; 9) site zone.

Case Identification Number. "Case identification number" was a nominal variable recorded for two reasons. First, it served to organize the dataset in Microsoft Word Excel (version 14.4.1). Second, anomalies were labeled in a pattern that should make it relatively easy to locate individually numbered cases.

The numbering pattern is as follows. Beginning with probable undaubed off-mound structures, I labeled anomalies in a clockwise band beginning outside of the plaza in the extreme southwest section of the survey area and spiraling clockwise towards the middle of the plaza. This continued until all anomalies in that category had been assigned a number. Then I did the same for probable undaubed structures on mound summits. I did the same thing for probable daubed, possible undaubed, and finally possible daubed structures, in turn. Where possible, the case identification numbers for non-cardinally aligned structures are located just below the southernmost anomaly corner. Similarly, case identification numbers for cardinally aligned structures are located adjacent to the southwest anomaly corner.

Orientation Angle. "Orientation angle" was a continuous variable describing the azimuths at which structures had been built. I recorded this variable in ArcGIS 9 using the "measure distance and angle tool," a custom ArcScript developed by Trent Hare (available at http://arcscripts.esri.com/details.asp?dbid=13543, last accessed August 18, 2014). The tool is used by clicking and dragging from a specified point. ArcGIS then calculates and displays the angle and distance of the created line. I calculated orientation angle by measuring the azimuth as drawn between two points: one at a central position on

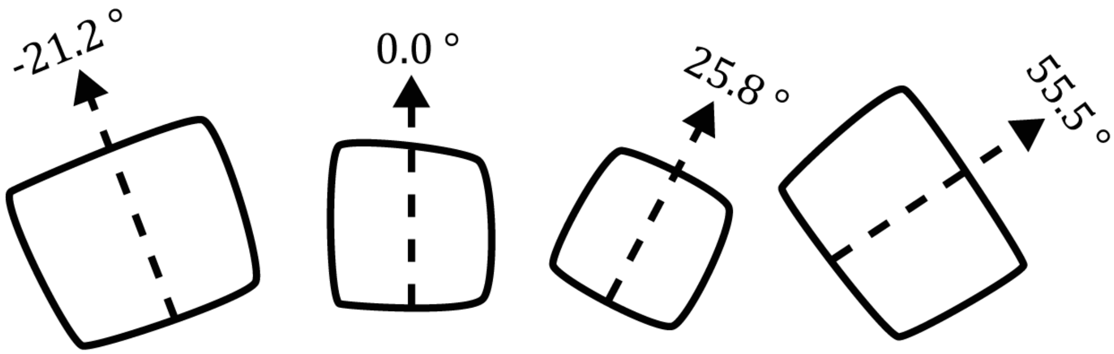


Figure 6.2. The “orientation angle” variable was measured for each structure by drawing a line from the south to the north wall of each architectural anomaly.

a south side of the anomaly and one at a central position on the opposite side of the anomaly (Figure 6.2). Measured angles ranged from -26.3° to 70.0°, with positive degree measurements representing degrees east of north and negative degree measurements representing degrees west of north.

Orientation. “Orientation” is a categorical transformation of the “orientation angle” variable. Architectural anomalies exhibiting orientation angles between -15° and 15° were coded “cardinal.” All other angles were coded “noncardinal.”

Wall Type. One of the main purposes of the ground-truthing effort was to distinguish undaubed from daubed building, the ultimate purpose being to assign architectural anomalies to different time periods. Four seasons of excavations were successful in this regard. Though the specifics of geology and site history mean that anomalies manifest in slightly different ways at different archaeological sites, the results of the ground-truthing at Moundville are also broadly consistent with those of similar efforts elsewhere in the Southeastern United States (e.g., Barrier and Horsley 2014; Haley 2014; Horsley et al. 2014; Nelson 2014; Walker 2009).

Shape. “Shape” was a categorical variable that assigned architectural anomalies to one of three shape classes: square, rectangular, or other. The “other” category is made up

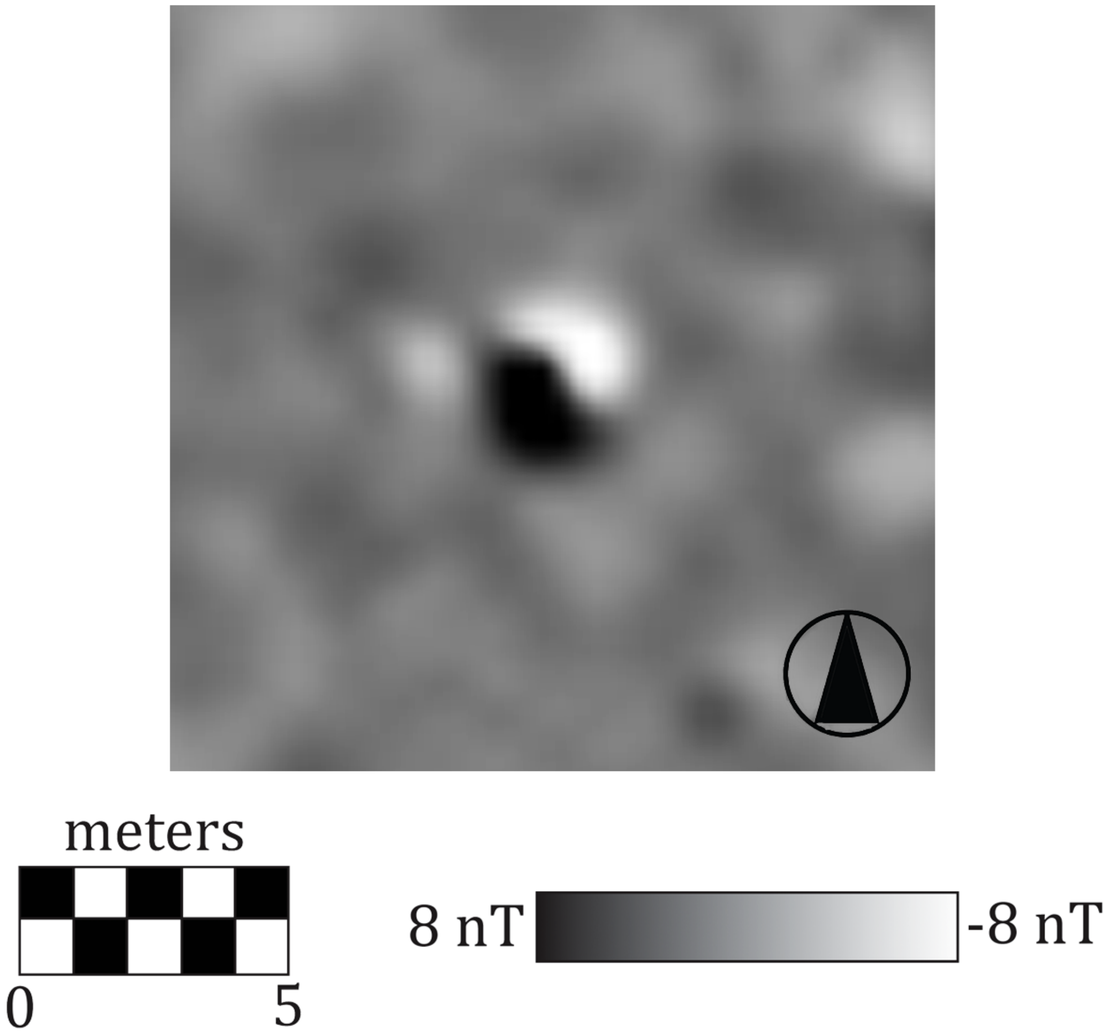


Figure 6.3. T-shaped building east of Mound P.

of structures with unusual shapes, including circular, T-shaped, and L-shaped buildings. Though these uncommon types are known from other Mississippian sites, only one, a T-shaped structure, has been tentatively identified at Moundville (Peebles 1974:924; see also Ryba 1997:34-35). In the magnetometer data, one of the clearest examples of a T-shaped structure can be discerned in the northwest plaza area (Figure 6.3)

The overall shape of a building may relate to several things, including engineering concerns, structure function, and cultural symbolism. Oftentimes these are interrelated. For example, larger buildings are more likely to be rectangular than square principally because it easier to increase floor area by lengthening a structure while maintaining standard width, thus limiting the need for longer wall and roof sections to only two sides. Wilson (2005:95) commented on this tendency in his dissertation, and noted that supposed domestic structures also increased in size from the early to late Moundville I phase. He attributed this trend to increasing household size. Complicating the matter is the fact that larger buildings are also more likely to have served nondomestic functions than smaller buildings. This is why other details must be factored in to better distinguish between domestic and non-domestic structures.

The ethnohistorical record is replete with descriptions of unusually sized and shaped structures including temples, council houses, and semi-public elite residences. In one description of a large two-room structure, Adair (paraphrased by Howard 1968:125, 129) referred to the rear room as the “supposed holy of holies” where medicine pots, conch shell dippers, gourd rattles, eagle-tail calumets, and the town war bundle were stored. Similarly, archaeological examples of T-shaped and L-shaped structures have yielded mortuary remains and ritual paraphernalia (Preston Holder, notes on file, University of Michigan Museum of Anthropology).

Area in Square Meters. This variable measured the floor area of architectural anomalies. I calculated area with the polygon measure tool in ArcGIS, tracing the outline of each structure symbol on the imported interpretive map. Wilson (2005:90-100) relied upon the same measure to define Type I (8-32.5 m^2), II (39-47 m^2), and III (60-64 m^2) structures among the Moundville Roadway dataset. His Type I and II structures were deemed domestic with the differences in floor area related to household size. Type III buildings, on the other hand, were dubbed communal.

As Wilson points out, explanations for differences in structure size extend beyond differences in structure function to include differences in household size, household status, and diachronic changes in household organization. In this study the "area in square meters" variable served as the main indicator of whether a structure was primarily domestic or nondomestic. I prefer these terms over a more assumption-laden dichotomy like "private or public," which overlooks the fact that access to buildings and even to divisions within buildings often varies from person to person and from occasion to occasion. That being said, even a dichotomy like domestic versus nondomestic cannot account for elite residences, such as those described in the ethnohistoric literature, that doubled as sacred storehouses and communal gathering places.

Presence/Absence of a Hearth. While it is likely that a number of structures identified in the gradiometer data exhibit internal partitions (ref.), unusual hearths (ref. about square hearth in Roadway), over-engineered walls (ref. – Downs, Knight), and other features indicative of non-domestic function, these are details that cannot be discerned in the current geophysical data for the site. Hearths are the only type of functionally relevant internal feature that is consistently visible in the gradiometer data. Thus, the categorical "presence/absence of a hearth" variable coded for the presence or absence of Type IV anomalies at the center of architectural anomalies as an additional measure of structure function.

Wilson and colleagues (2006:52) mention this variable as one indicator of whether structures in the Moundville roadway served domestic or non-domestic functions. Hearths are diagnostic of a range of activities related to domestic life, particularly cooking. This is the reason for its inclusion here, but it hardly served to group structure

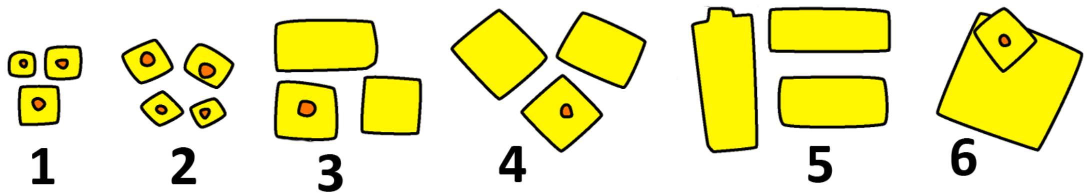


Figure 6.4. Examples of structures in each size class: 1) cardinally oriented domestic structures; 2) non-cardinally oriented domestic structures; 3) cardinally oriented non-domestic structures; 4) non-cardinally oriented non-domestic structures; 5) over-sized structures; 6) super-sized structures.

anomalies in a meaningful way.

Structure Type. After having calculated the "orientation angle" and "area in square meters" variables, I involved those data in a Ward's cluster analysis to determine categorical "structure type" for probable undaubed structures. The cluster analysis neatly grouped buildings into six categories that make intuitive sense considering what is already known of the different kinds of buildings recorded at Moundville. The categories are 1) cardinally oriented domestic structures, 2) noncardinally oriented domestic structures, 3) cardinally oriented non-domestic structures, 4) noncardinally oriented non-domestic structures, 5) over-sized structures, and 6) super-sized structures (Figure 6.4). The parameters of these classifications were then extended to include all possible undaubed structures for a sample size of 711 (Figure 6.5). I did not calculate "structure type" for architectural anomalies recorded as "daubed." The sample size was comparatively small and composed of structures built in a different historical context than the sample of undaubed structures.

Types 1-4 almost perfectly conform to the expectations of the three structure classes outlined by Wilson (2005:90-100). The exception is that the much larger sample size considered here blurred the boundaries between Wilson's Class I and II structures

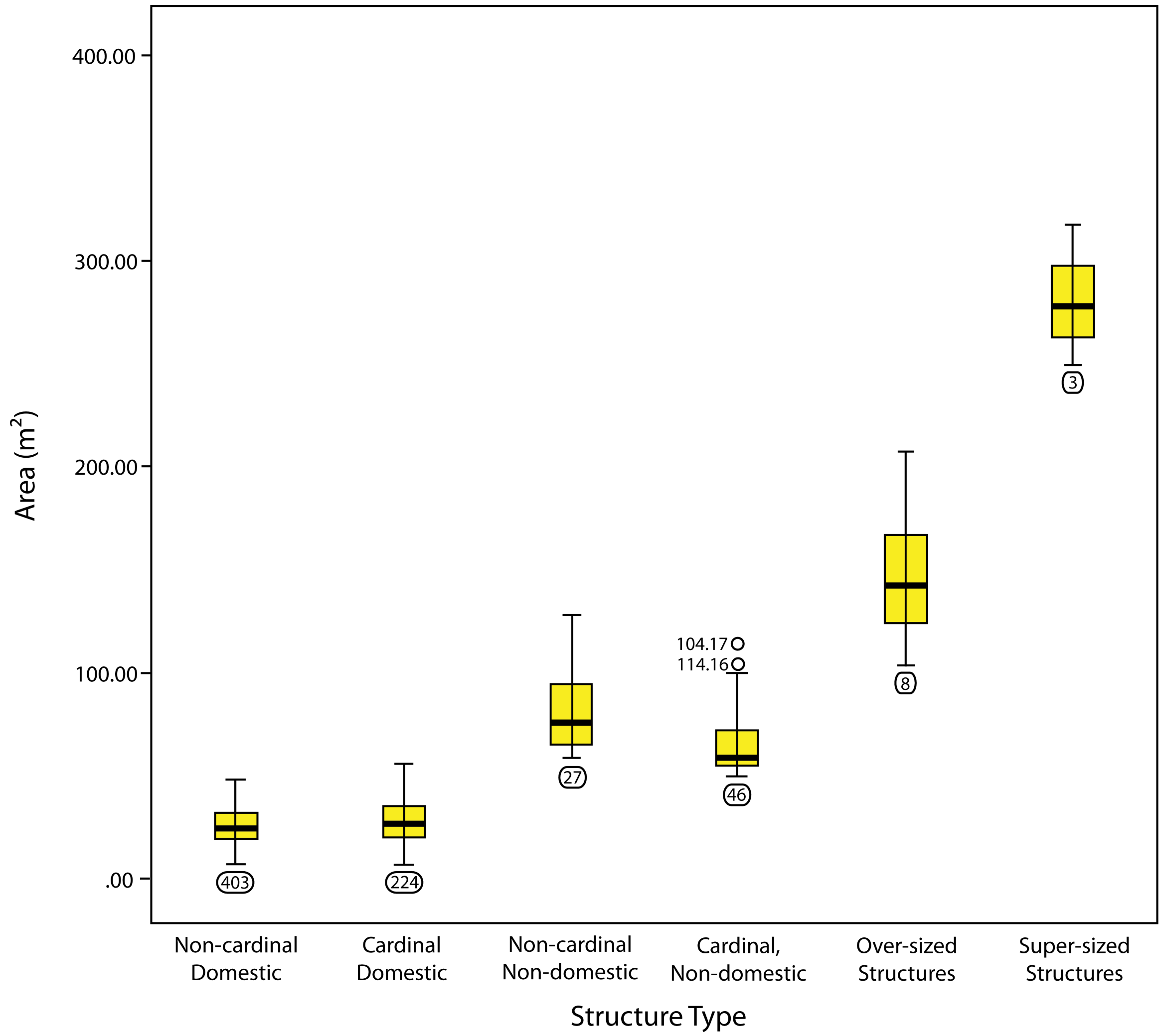


Figure 6.5. Boxplot showing numbers and sizes of structures in each structure class.

such that I propose those classes be combined. Types 5 and 6 are previously undocumented types at Moundville: two classes of extremely large buildings or enclosures.

Site Zone. I recorded the categorical "site zone" variable in order to examine the overall spatial distribution of structures in the collection area. Prominent topographical and geophysical features served as guides to defining zone boundaries. Topographical features include the plaza periphery mounds, the physical plaza edge viewable at the northwest corner of the mound-and-plaza arrangement, the large borrow pits between

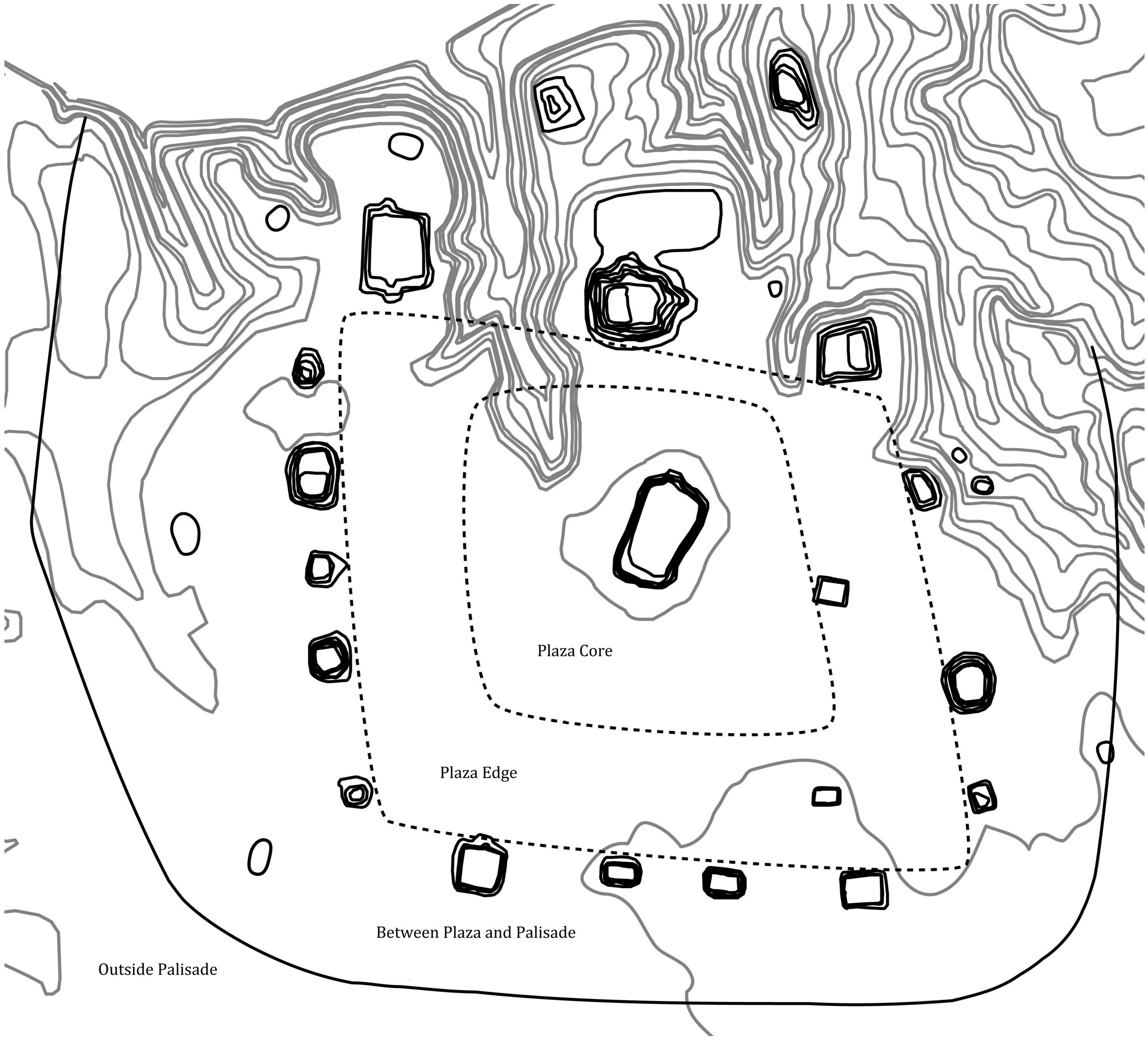


Figure 6.6. Topographic map with areas labeled for “site zone” variable.

Mounds K and L and Mound O and P, and the natural ravines on the north side of the site. Geophysical features include linearly arranged groups of cardinally oriented structure anomalies in the west and south plaza areas and the visible palisade line arcing through the west, southwest, south, and possibly east parts of the collection area.

The zones I defined are those that Moundville archaeologists have discussed for decades, the boundaries of which can be better defined using the new geophysical data. Moving from the central plaza outward, I divided the site into an approximate bull’s eye pattern of spatial categories including “plaza core,” “plaza edge,” “mound summit,” "between plaza and palisade," and "outside palisade" (Figure 6.6). Anomalies positioned on the borders between two zones were considered members of whichever zone they lie most inside. The "site zone" variable was integral to the analysis of diachronic community pattern.

Unraveling the Interpretive Map

The interpretive map presented above divides the site into two time periods of unequal duration: the early and middle phases of Moundville history when undaubed structures were in fashion and the late phase of Moundville history when daubed structures had replaced undaubed. These chronological categories are an excellent basis for future discussions about the nature of social and political relations during the latter phases of Moundville's history, but they do little to address the plaza's essential role in the reorganization of the Moundville landscape in the 13th century. The challenge, then, was to divide the hundreds of undaubed buildings into chronological categories. Fortunately for the analysis presented in this chapter, the reorganization of the landscape that accompanied Moundville's formal political consolidation involved a categorical reorganization of domestic space (Wilson 2005). In his discussion of mortuary patterns at the site, Wilson (2005:96) implies that part of this reorganization entailed shift in the orientation of off-mound wooden buildings at Moundville; buildings predating the event tended to be non-cardinally oriented whereas buildings post-dating it tended to be cardinally oriented. Surely the cardinal orientation of all mounds on the plaza periphery reveals the importance placed upon the cardinal directions during the post-plaza period.

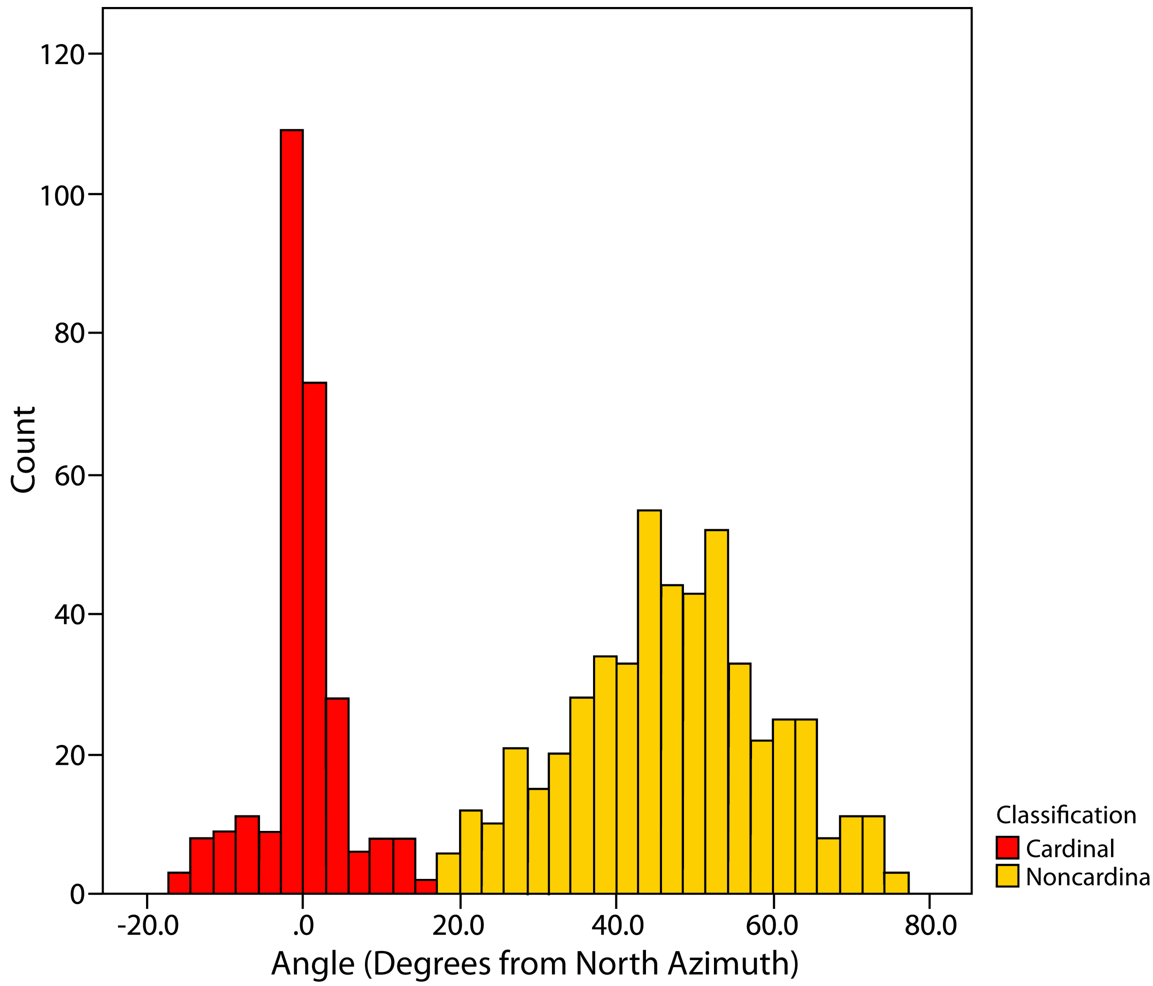


Figure 6.7. Bar graph showing bimodal distribution of “orientation angle” variable. The “orientation” variable classified buildings as either “cardinal’ or non-cardinal” based upon this distribution.

Wilson used architectural and ceramic styles to assign dates to the structures in the Moundville roadway, but lacked stratigraphic information due to the Depression-era excavation methods of the Civilian Conservation Corps. My own excavations confirmed the non-cardinal-to-cardinal sequence in the only unit that identified clear plaza fill (see Figures 5.21 and 5.22); the fill covered a non-cardinally aligned structure and was intruded by a cardinally aligned wall trench building. A charcoal sample from the lower architectural remains yielded a calibrated radiocarbon date of 830 ± 30 BP (Pts-331303;

wood charcoal; $\delta^{13}C$ = -26.4‰). As discussed in Chapter 5, stratigraphic evidence limits the date to approximately A.D. 1190-1200, immediately prior the construction of the mound-and-plaza complex.

Statistical data generated for this dissertation lend additional evidence of this important shift. A histogram displaying counts of buildings oriented to different angles reveals a bimodal distribution. Figure 6.7 graphically represents this distribution among all probable undaubed structures. Structures represented in red are oriented exactly or approximately to the cardinal directions, ranging between 15 degrees east and 15 degree west of magnetic north. Structures represented in yellow constitute a wider but still more-or-less normal distribution with a peak at or near 50 degrees east of magnetic north. Working under the assumption that this bimodal distribution is a product of Moundville chronology, one is presented with a series of expectations regarding differences in the spatial distribution of buildings in each statistical category.

Past near-surface investigations in the Moundville's plaza area have recovered very little evidence of substantial occupation (Driskell 1988; Steponaitis et al. 2009), but when excavations have penetrated below supposed plaza fills, archaeologists have recorded architectural remains (Blitz 2010b; Knight 2010) and relatively rich midden deposits (Thompson 2011). Considered together, these discoveries suggest that domestic activity in the central part of the site came to an abrupt end with plaza construction.

If it is true that Moundville households shifted the orientation of their homes from non-cardinal directions to the cardinal directions when the mound-and-plaza complex was built, this should be reflected in a relatively high ratio of non-cardinally oriented to cardinally oriented buildings detected in the plaza core. Likewise, if non-cardinally

Site Zone	Domestic Structures Period of Construction		Total
	Pre-Plaza	Post-Plaza	
Plaza Core	134 (77.5%)	39 (22.5%)	173 (100.0%)
All Other Off-Mound Zones	265 (60.0%)	177 (40.0%)	442 (100.0%)
Total	399 (64.9%)	216 (35.1%)	615 (100.0%)

Table 6.1 Comparison of "plaza core" to all other off-mound zones in terms of counts and percentages of all undaubed domestic structures. The ratio of pre-plaza to post-plaza domestic structures is significantly higher in the plaza core than in the combined category "all other off-mound zones."

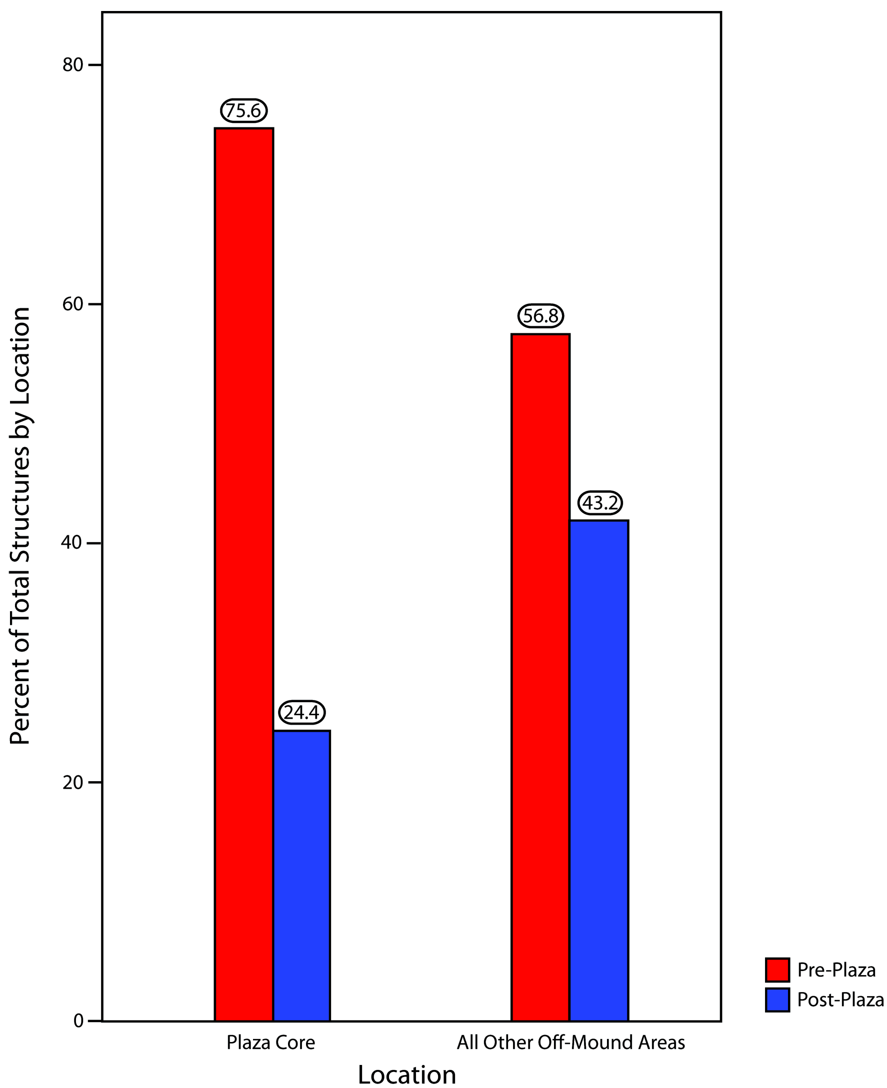


Figure 6.8. Comparison of occupation in the plaza core versus all other surveyed off-mound areas of Moundville.

oriented buildings are buildings that pre-date plaza construction, one would expect to document a similarly high ratio in areas that would later lie outside of the palisade wall which was built at the same time as the mound-and-plaza arrangement.

The data presented in Table 6.1 meet both of these expectations (see also Figure 6.8). The table lists counts and percentages of all undaubed structures organized by “site zone” and “orientation.” Note that 134 (71.3%) of the 188 undaubed structures in the “Plaza Core” are non-cardinally oriented. Moreover, results of a chi-square test reveal that the higher ratio of pre-plaza to post-plaza buildings in the plaza core (77.5%) in comparison to all other off-mound site zones (60.0%) is significant at the less than .01 level. Similarly, 31 (77.5%) of the 40 structures identified outside of the magnetically detected palisade are non-cardinally oriented.

As it turns out, the “orientation” variable is key to assigning the otherwise undifferentiated multitude of undaubed structures to either side of the critical event that is at the heart of this dissertation. Thus, instead of the initial two chronological categories made possible by the differentiation of undaubed from daubed structures, we now have three categories: non-cardinally aligned, undaubed structures assigned to the pre-plaza period; cardinally aligned undaubed structures to the post-plaza period; and daubed structures, regardless of alignment, assigned to the Late Moundville period.

Caveats

Though I have assigned all buildings to chronological categories using the “orientation” variable, this is potentially problematic when it comes to oddly-shaped structures and structures of unusual size. Many documented examples of such structures in the archaeological and ethnohistorical record were aligned to important astronomical or geographical points. Since alignment of these special-purpose buildings was likely to have been motivated by concerns others than those that motivated the positioning of more mundane architecture buildings, it is difficult to assign them to one side or the other of the event responsible for the creation of Moundville's plaza. For now, I have categorized them according to the same variables as every other building.

Another point to keep in mind is that the strong geophysical signals of certain subsurface features can confuse or outright prevent identification of nearby features with weaker signals. The result is that a map such as the one presented here grants only an overall impression of the Moundville settlement plan at any one point in its history. Decades of research and excavations at Moundville have identified house remains atop house remains atop house remains in many areas of the site, but because the geophysical data considered in this dissertation is, throughout most of the survey area, one-dimensional and of coarse resolution, it is currently not possible to distinguish rebuildings or structures intruding upon one another. That is, long-term and/or heavy occupation in certain areas of the site is likely to have been geophysically "flattened" and represented in a greatly simplified manner. Given Wilson's (2005:125) point that Early Moundville I households tended not to occupy the same spot over time whereas Late Moundville I households built *in situ* for generations, it is fair to assume that this point of geophysical "flattening" applies more to post-plaza buildings than to pre-plaza buildings.

Finally, it bears mentioning that the maps presented below are ideal, not absolute, and that I recognize that the boundaries between the represented time periods are far fuzzier than suggested. Moreover, I neither claim nor believe that the rough sort of architectural anomalies into chronological categories is without flaw. To the contrary, I have no doubt that each category includes buildings that in reality date earlier or later than assigned. Exceptions to the categorization likely include nondomestic buildings, which are known from other Mississippian sites to have often been differently aligned than domestic structures. Therefore, the sort is probably more accurate for domestic structures than nondomestic ones. Other exceptions include the homes of "trailblazing" households who adopted certain customs prior to their neighbors and, conversely, culturally conservative households who kept to traditional practices even after others had abandoned them. Nonetheless, I believe that my categorization of anomalies provides an exciting starting point for ongoing interpretations and future research. Equipped with these visuals, we may more easily grasp patterns otherwise only detected in statistical analyses.

Pre-plaza and Post-plaza Maps

Possible and probable structures dating to each time period are shown together in Figure 6.1, but diachronic changes in the distribution of structures are more evident when represented in three separate maps, each depicting the settlement plan at a different phase of Moundville history. The settlement as it looked before the construction of the mound-and-plaza complex is shown in Figure 6.9. I remind that reader that at this point in history, people had yet to expend the colossal effort required to transform the site's original topography into the planned monumental arrangement that confronts us today. Therefore

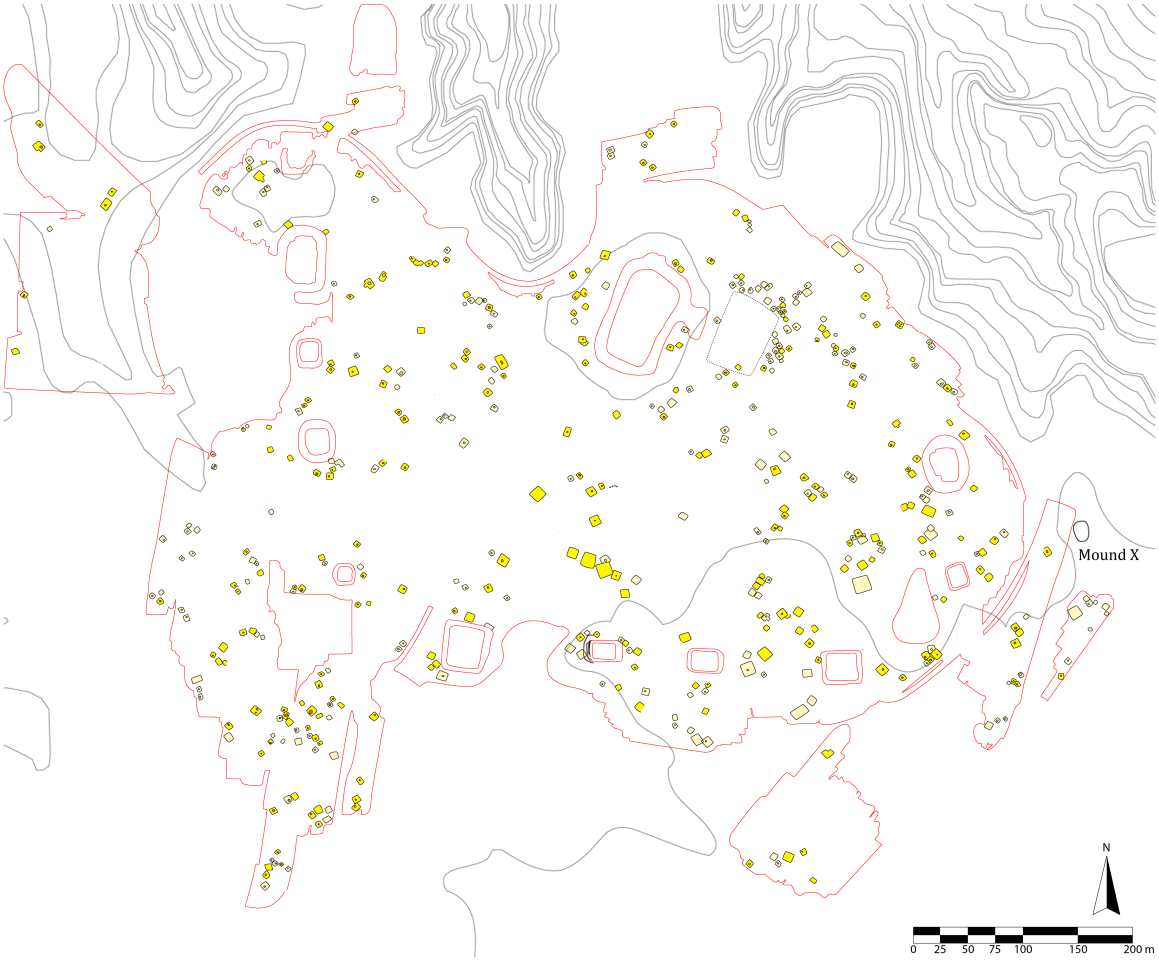


Figure 6.9. Interpretive map showing pre-plaza settlement at Moundville.

when considering the distribution of structures, one must imagine a landscape without its familiar landmarks – the encircling mounds, swampy borrow pits, and broad expanse of the plaza. The few monuments that occupied the settlement at this early period were destroyed, encapsulated by later monument construction, or abandoned. They include only two known mounds: Mound X, purposefully leveled when the mound-and-plaza complex was constructed (Blitz 2010b) and the Asphalt Plant Mound at nearby site 1Tu50 (Steponaitis 1992).

A very different Moundville materializes with this mental filter in place. The interpretive map reveals that buildings are not huddled in tight domestic groups between plaza and palisade as they would be in centuries to come, but are distributed across all site zones. Their density does not even decrease as one moves beyond the area that would later be enclosed by the palisade, suggesting that the settlement pattern was far more dispersed during the early days of the site. Buildings form great clusters in the southwest, west-central, and central portions of the collection area. This finding is in keeping with Alabama site file data that show several scatters of Late Woodland and Early Mississippian artifacts in the immediate vicinity of the Moundville site. The overall impression is of a collection of separate but loosely consolidated communities throughout the area.

In the area that would later be the plaza, some buildings appear to be linearly arranged in a series of parallel bands running southeast-to-northwest, possibly corresponding to the low ridge-tops of an as-yet-unmodified ridge-and-swale topography. This pattern is often seen in Early Mississippian contexts in the American Bottom (Holley et al. 1993; Kelly 1992). In the same way, many of these buildings are more rectangular than those that would be built later in time.

Perhaps the most revelatory and formal feature of the pre-plaza settlement map is the tight arrangement of buildings just east of Mound A. Excavations and a small-scale ground penetrating radar yielded no evidence to contradict this interpretation; to the contrary, they confirmed the presence of architecture at the margins of an archaeologically sterile area. In the interpretive map, the buildings neatly delineate the north, east, and south edges of a small plaza the same size, shape, and orientation as Mound A. This band of architecture does not extend to the western edge. Given what is known about early mounds at Moundville and mound construction stages, it is likely that

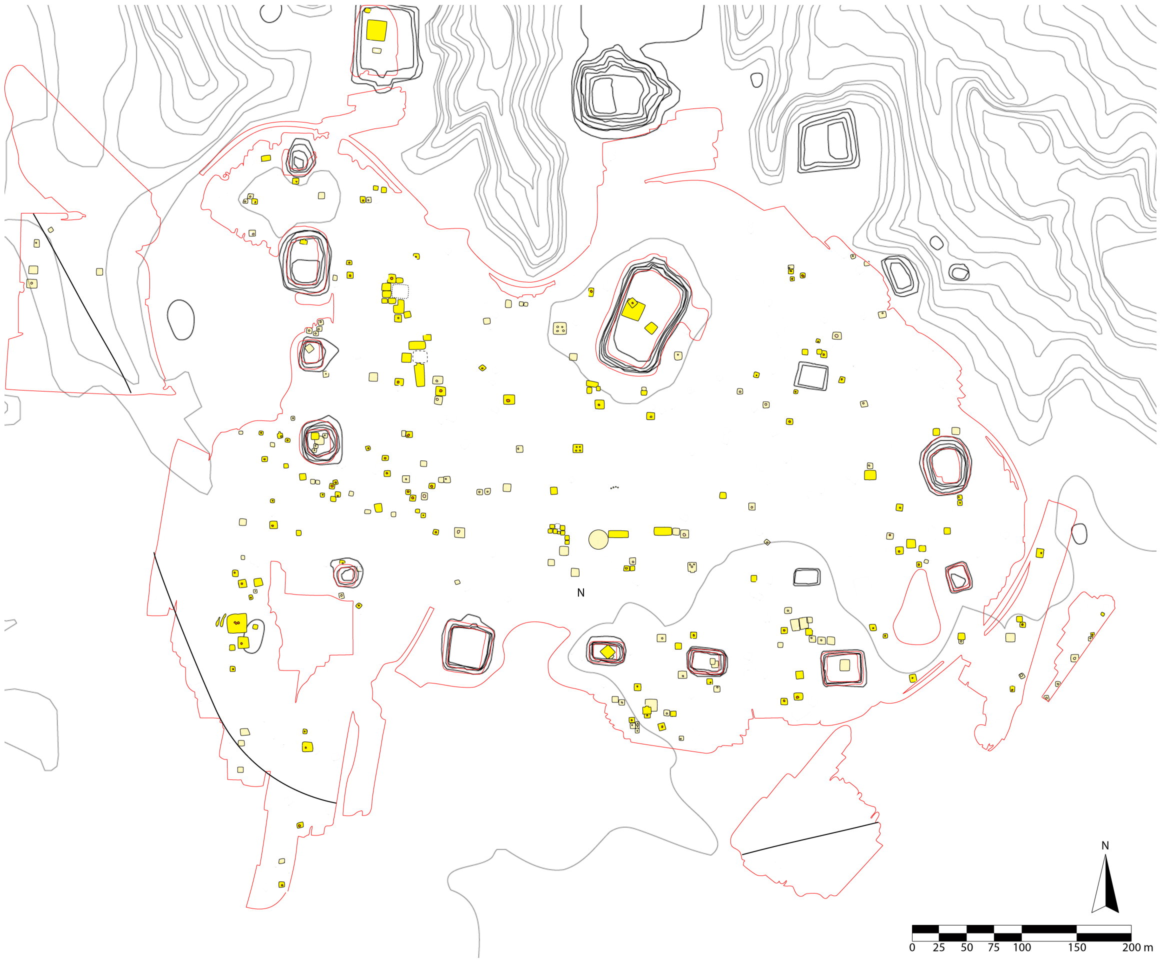


Figure 6.10. Interpretive map showing settlement at Moundville from A.D. 1200-1400.

the west edge of this apparent "proto-plaza" was defined not by domestic architecture, but by an early version of Mound A. If correct, this would link the unusual orientation of Mound A to the pre-plaza period, a conspicuous vestige of early Moundville history.

Moving now to the time period following the construction of the mound-and-plaza complex, Figure 6.10 depicts the settlement as it looked between A.D. 1200-1400. Even ignoring the geometrical arrangement of mounds, the immediate impression is one of order. Whereas buildings had previously been distributed across all site zones, they appear to have been concentrated in and around the plaza margins following plaza construction. Many cluster around small courtyards at the margins of the plaza core. Most clusters of buildings appear no different than those Wilson (2005) identified the Moundville Roadway: they are composed of domestic structures of variable size and some include an additional larger building of presumed communal function.

While most of these clusters are comparable to those that have already been documented in other parts of the site, two in the west plaza area are not. Even the buildings that compose them are of a size that is unknown in off-mound areas at the Moundville site. One group containing nine buildings can be seen just east of the southeast corner of Mound P and the other containing five is located immediately southeast of it. Each group appears to be arranged with respect to the plaza, their courtyards open only to the east.

Test Units 100 and 101-102 exposed the substantial wall trenches of two buildings in the first group, one of which enclosed a prepared yellow clay floor. If the sheer size of these structures was not enough to set them apart from the vast majority of buildings at Moundville, these formal features are. In Chapter 5 I presented stratigraphic and radiocarbon evidence that these buildings were constructed sometime in the decade following plaza construction. In short, their age and position suggests that they were part of a complement of new site features, including the mounds of the plaza periphery group, designed to define the formal plaza space.

These buildings are not alone. Though not obviously members of clusters, there are two long rectangular buildings in the south-central plaza that stand out as additional examples of architecture framing the plaza. Their positioning corresponds to the imaginary line that divides the sociogrammatic mound arrangement into mirror image halves (cf. Knight 1998; Figure 3.5). These buildings and similarly sized examples elsewhere in the plaza may have been the public counterparts to the more exclusive mound-contexts nearby, positioned as "front row seats" to whatever activities might have taken place in the plaza. Together with the clusters of buildings on the western plaza edge and the dozens of populous courtyard groups distributed in a band on the west, south, and east, these site features, rather than the plaza periphery mounds, defined the formal plaza.

The only space in the constructed plaza without buildings is in the open ground between Mounds A and B. Neither geophysical data nor roadway excavation data revealed any architectural remains in this area, strongly suggesting that this portion of the site was, in fact, an open expanse. Indeed, it is even emptier than other parts of the plaza core where I identified isolated architectural anomalies here and there.

I believe that this discussion highlights a crucial distinction between the plaza as a constructed surface and the plaza as an activity space. The effort to flatten the grand central space encompassed the entire area enclosed by the core arrangement of mounds. When archaeologists talk of "plaza construction" at Moundville and other Mississippian sites, this is typically what they are addressing – the physical act of creating a flat, open area. But Moundville's plaza as a functional space did not extend across all of the altered area. Instead, it was confined to a central square approximately 10 hectares in size bounded on the west, south, and east by flanking structures and on the north by ravines and Mound B. Mound A, previously described as being situated somewhat north of center, is now understood as occupying the exact center of the plaza core.

All of this is to say that in Southeastern archaeology and, indeed, in the archaeology of many other regions, the *de facto* declaration of "plazas" as areas enclosed by monuments has been accompanied by a degree of unfortunate assumptive baggage.

The implication is that the flat, delimited spaces within Mississippian communities were open vistas bereft of meaningful archaeological information rather than segmented and contested spaces with uniquely complex histories. In light of evidence to the contrary from Moundville, one of the largest Mississippian sites, I urge that we remind ourselves that "Plaza" is a proper noun, a name that for the vast majority of sites was assigned with little consideration given to anything but the most basic archaeological data.

It has been decades since a similar point was made for mounds. Since then, archaeologists across the region have actively sought to define the striking variability that characterizes mounds in the southeastern United States (e.g., Blitz and Livingood 2004). As a result, the word "mound" no longer universally conjures visions of the remains of rich burials and noble summit dwellings encapsulated within construction layers that accrued at regular intervals over time. Instead, while archaeologists recognize that this was true in some places, they have begun to place theoretical importance on the histories specific to individual mounds: mounds built hastily almost all at once (Blitz and Livingood 2004:Table 1; Schilling 2013); mounds that supported craft workshops, religious structures, or even temporary constructions (Knight 2010); mounds that were destroyed in antiquity (Blitz 2010b); mounds occupied, abandoned, and occupied again (Blitz and Lorenz 2002, 2006; Porth 2011). I submit that just as the preconceived notion of "mound" has deteriorated in the face of so much documented variety, so too will all but the most basic connotations of "plaza" as archaeologists continue to turn their attention to these spaces so central to many Mississippian sites.

Thing Remembered, Things Forgotten

The plaza is the key to illuminating how social memory was selectively materialized in the construction of collective identity at early Moundville. Formerly characterized as a vacant space of low archaeological value, trenching, small-scale excavations, auger and shovel test surveys and, now, a landscape-scale magnetometer survey coupled with four seasons of excavations make it clear that Moundville's plaza covered more of a earlier settlement plan than all of the mounds combined (Davis 2011; Davis et al. 2015; Driskell 1988; Lacquement 2009; Steponaitis et al. 2009; Thompson and Blitz 2009). No other sort of construction could have simultaneously shrouded all symbols of a former social order while at the same time imposing a new one.

The plaza was just what a metropolitan populace and a new elite needed for stability. Hundreds, perhaps even thousands, cooperated in the act of its physical creation (Lacquement 2009), uniting individuals of diverse origin in a colossal once-in-a-lifetime effort. New geophysical data presented in this dissertation reveal that a basic requirement was that people dismantle the buildings in which they had lived for generations, a conscious decision to embrace a new future at the expense of the past. In almost every way, the rearrangement was total.

The finished product served as a corporate counterpoint to the platform mounds that loomed on the plaza periphery as ever-present symbols of a revolutionary and divisive political institution that privileged some individuals over others by virtue of ancestry. The raised summits of those mounds afforded their inhabitants a panoptic viewpoint of behavior in the public sphere, meaning that the plaza simultaneously served as an integrative facility and a means of social control.

For the most part, the pre-plaza arrangement had emerged organically through generations of passive practice (Wilson 2008). Households formed loose groups, organized according to varied concerns. Some appear to have gathered around shapeless common areas while others stretched along high points of the original topography. Some loose but populous groupings may represent small villages in and of themselves, parts of an emerging but culturally differentiated whole. Pre-plaza settlement encompassed many areas of the site that would later be repurposed or excluded, including land outside of the palisade and locations within the plaza core.

In describing the dispersed and somewhat haphazard occupation of Early Moundville I, I do not mean to suggest that this sundry community had nothing in common or that its members were not engaged in a transformative rapport. The trend towards a unified social vision manifested in a hybridity of architectural styles and a steady push towards similar diet. Despite its overall spatial segmentation, certain aspects of the early settlement plan also allude to common ideological and organizational concerns. Domestic structures tended to be oriented to a mean angle of 40 degrees east of north with a standard deviation of approximately 22 degrees, perhaps suggesting reverence for an astronomical reference point that migrated across the sky throughout the year.

The most obvious reference to a unifying force is the arrangement of buildings around an apparent small plaza just east of Mound A. It brings to mind similarly organized early Mississippian communities in the American Bottom and elsewhere in the Southeast (Barrier 2014; Kelly 1992, 2007:491-492). Of all the arrangements identified in the pre-plaza settlement data presented in this dissertation, this was the most formal and the most densely inhabited. Its central location emphasizes the historical importance of communal space in the coalescence of the Moundville polity and, indeed, the importance of the social, political, and ideological concepts it materialized. Moreover, the flurry of activity that obliterated so much of the pre-plaza settlement not only spared this arrangement, but accentuated and centralized it. Mound A is, in fact, the only differently oriented mound of the core arrangement, an orientation it shares with its 12th century non-mounded precursor. Mound A was, in effect, a communal symbol nested within a communal symbol. So far as is currently known, it was the only prominent aspect of the early community plan that was preserved.

A social memory perspective highlights plaza construction as an act of repressive erasure and an attempt to inscribe new social memory. Plaza construction allowed designers to decide which aspects of a former tradition to emphasize and which to obliterate. We can conclude, therefore, that its form and content were calculated to encourage a new way of thinking about the past, present, and future. Moreover, because plaza construction shrouded far more of the former community plan than was necessary for the creation of a high-capacity communal space, it would appear that its intent went beyond mere practicality. Rather, its primary function was to replace a divided and divisive landscape with an unretractable symbol of timeless commonality.

The importance of plaza construction at Moundville would have survived in the shared memories, narratives, and understandings of the people who had been involved. Recurring public ceremonies held in that space would serve as a reminder of what had been accomplished (see Connorton 1989) in addition to anchoring a formerly mobile population to a central, monumentalized location.

Research Summary

Built environments are palimpsests of memory, identity, and power – changing configurations that reflect unfolding human dramas. They promote and suppress, reveal and disguise, unify and divide. They emerge and evolve, in part, through the passive continuation of practice, but the patterned layouts of many built environments direct our attention to specific moments when societies departed with the past and embraced a comprehensive vision for the future.

The Early Mississippian community at Hemphill Bend in the Black Warrior River valley underwent such a metamorphosis. The plaza was its centerpiece, physically constructed over many homes, large buildings, and other areas where the distinctive "Moundville" identity would have first begun to fuse. In this dissertation, I have taken an archaeogeophysical approach to understanding how the off-mound settlement changed when the plaza was constructed. I conducted four seasons of excavations in the plaza so as to better interpret the results of a magnetometer survey of unprecedented scale in Mississippian archaeology. These permitted the creation of an interpretive map of all architectural features and hearths in the survey area. Excavations and simple statistics revealed that the construction of the mound-and-plaza complex coincided with a shift in the way that buildings were oriented, permitting me to sort structures to either side of that crucial historical moment. Two additional interpretive maps revealed how the locations of early house clusters and large buildings shifted to make way for a massive, unifying statement in monumental form. What is clear is that Moundville's plaza, and probably the plazas of other Mississippian sites, should not be viewed as vacant public space, but as an essential and spatially segmented monument created at a pivotal moment in the emergence of a radically new sociopolitical order.

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