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Early Regional Centers: Evolution and Organization

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Introduction

The shift from autonomous, egalitarian societies to complex societies having significant social inequalities is an historical phenomenon that occurred across the globe. To understand in part how this occurred, archaeologists have focused their research upon the evolution and organization of early regional centers (Fig. 1). Much has been learned about the development of these ancient settlements, and recent studies utilizing more detailed data are providing rich understandings of the role of early regional centers in human history.

Archaeologists know that regional centers were more than a type of settlement, or merely a place where people lived. Early regional centers were the loci of new configurations of social processes, human choices, and relationships. Three analytical problems have emerged from the comparative study of these types of settlements. These are the following:

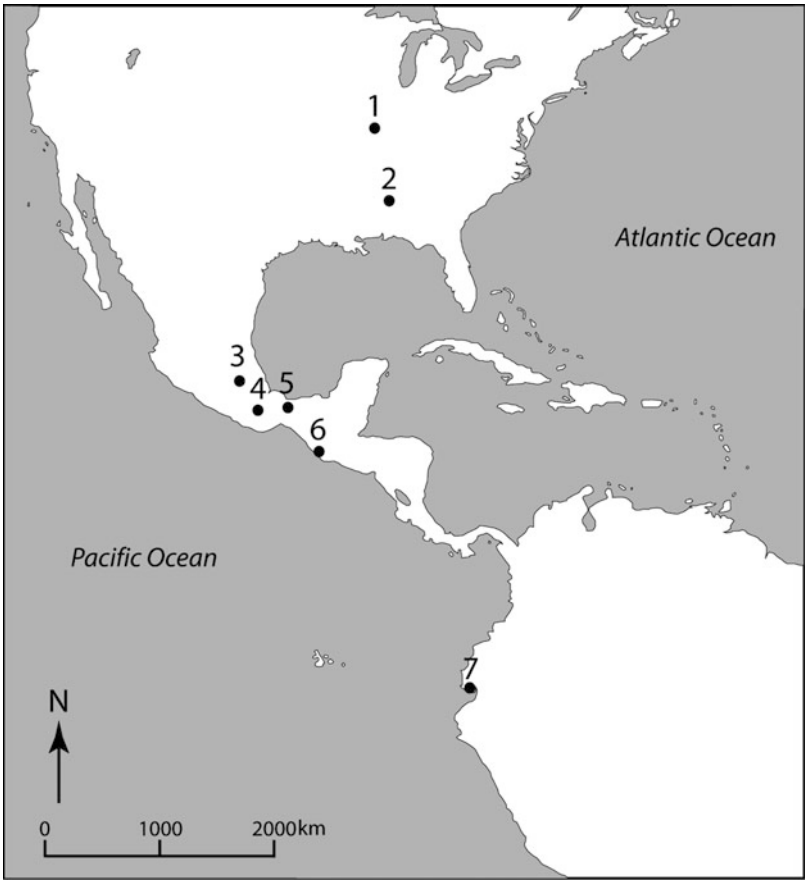
1. The institutionalization of asymmetrical social relationships between people and between communities
2. The emergence of new forms of social integration and frameworks of organization
3. The evolution of these along different historical trajectories dependent on geographic, temporal, and historical context

Definition

Early regional centers were human settlements with a permanent and sedentary residential population. But they were more than just a permanent spot on the map; they were involved with ushering in new kinds of regional relationships. What set a regional center apart from a network of villages was the daily operation of an asymmetrical regional social network, with the central settlement being most prominent. While interactions between villages within any region would take place on relatively equal grounds, regional centers created imbalanced relationships among communities. The regional asymmetry, however, was not just demographic in nature. It was often operationalized across one or more key dimensions, including (1) economy, (2) politics, or (3) ideology. As such, early regional centers could assume regional prominence when social groups living there utilized their standing as key economic, political, or ideological players to organize other regional populations.

Historical Background

Throughout much of the early twentieth century and with the advent of large-scale regional surveys, a series of checklist traits were established



Early Regional Centers: Evolution and Organization,
Fig. 1 Map of several sites in the Americas mentioned in the text, including: (1) Cahokia, (2) Moundville, (3) Tlapacoya, (4) San José Mogote, (5) San Lorenzo, (6) Paso de la Amada, and (7) Real Alto

that allowed for the typological classification of known archaeological sites. Regional centers were identified when evidence recovered from a site matched a series of expected features, including certain presumed population and settlement sizes, the presence of central and public spaces, the occurrence of specialized buildings, recognition that the settlement served as a nexus for regional trade, or indications that a segment of individuals living there were specialists who made unique and important craft goods. These traits allowed archaeologists to quickly distinguish probable regional centers from smaller scale villages, larger urban centers, or other settlement types.

The development of processual archaeology in the 1960s and 1970s saw a shift in focus towards understanding the organization and operation of human social systems, with the objective to develop and assess models to describe the evolution of those systems. Regional centers were often the central settlement of a regional polity, consisting of a group of villages that found themselves under the authority of a more dominant settlement. This kind of network, resulting from the loss of village autonomy to a politically dominant group, is commonly referred to as a chiefdom (Carneiro 1981). Whereas chiefly rulers who lived at regional centers were sometimes assumed to direct the organization of not only politics, but also economic and ritual-ideological life, already by the early 1970s, many archaeologists were aware that smaller human settlements often contained facilities for local ritual affairs (cf. Flannery 1976).

More recently, archaeologists have begun to decouple the study of human groups, and their settlements and social practices, from research objectives that more generally study the

evolution of human culture and social organizational formations (Flannery & Marcus 1983; Yoffee et al. 1999). Mirroring advancements researchers have made when using anthropological concepts like the chiefdom or state, the analytical focus on the place of early regional centers in human history is being directed towards tracking and understanding the dynamic social processes that were occurring within these central settlements and between people residing in centers and those residing in smaller villages, hamlets, or with people engaging a mobile lifestyle.

New approaches recognize that greater diversity exists in the ways humans organize, and that an analytical focus upon any number of historical trajectories can provide important information about social change through time. Thus, a focus on the development of regional centers and the kinds of activities that they embodied is a significant research objective in its own right. Importantly, this allows archaeologists to better understand the conditions under which regional centers and social complexity emerged, and it also positions researchers to ask questions about why many of these settlements suffered drop-offs in regional prominence or were abandoned outright.

Key Issues

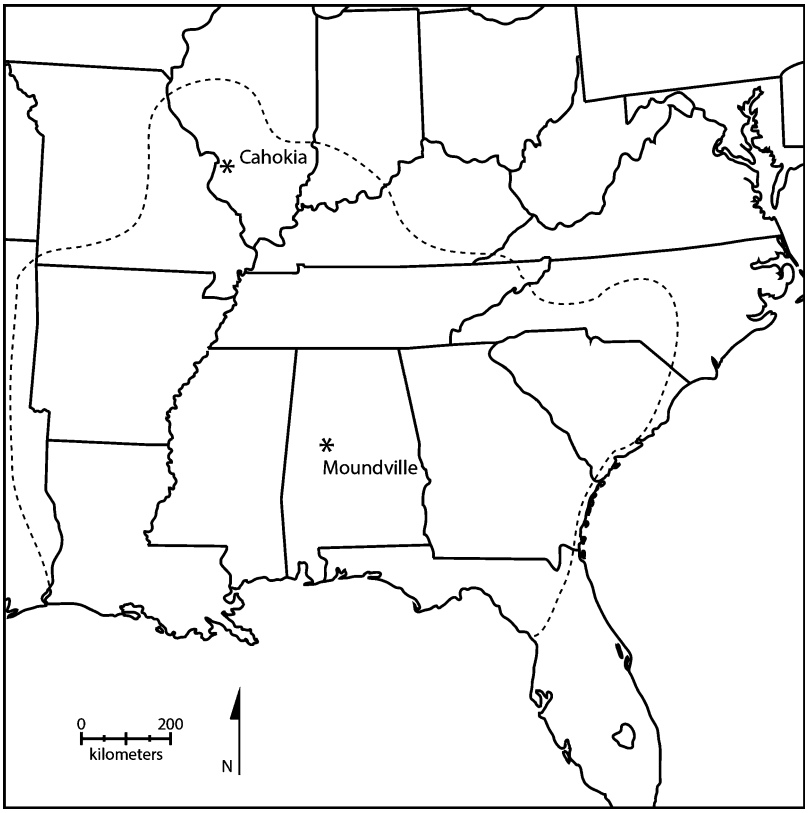
Archaeologists studying early regional centers have identified several key issues involved with their emergence and organization. Four primary issues considered here are the following:

1. The human institutions that developed to take advantage of the new opportunities and the challenges of living in regional centers
2. The structural organization of early regional centers that resulted from the intersection of these institutions and how regional groups were centralized (i.e., through economic, political, or ideological dimensions)
3. The dynamics of local and regional institutions and the trajectories of their emergence, persistence, growth, and collapse
4. The tempos of variable trajectories

Local and Regional Institutions

Early regional centers presented new opportunities and challenges for the people living in and around them. In response to these novel conditions, new institutions – the socially mediated and communally accepted sets of rules for interaction and conduct – developed as means to organize economic, political, or ideological aspects of life. Commonly, archaeologists have focused on those institutions that structured the flows of people, resources, and ideas within a region. These include chiefly political offices, religious beliefs and practices, and institutions involved with kinship or identity. Within a chiefdom, for example, the institution of a regional chiefly political office is one way that decisions affecting people throughout a region are carried out. While chiefdoms are normally thought of as hierarchically structured political polities, the decisions of chiefly personae often deal with regional economic matters as well as major aspects of ideology.

Other forms of institutional arrangements associated with early regional centers are less hierarchical in nature, but nonetheless place important decision-making responsibilities into the hands of certain groups. For instance, sodalities, which are organizations whose members come from several kinship groups, perform or organize important tasks associated with ritual, key portions of the economy, or political matters. In the southeastern United States (Fig. 2), for example, the Mississippian settlement of Moundville was constructed around a very large plaza, ringed by several monumental earthen mounds, the summits of which were spaces where elite sodalities or representatives from distinct kin groups carried out tasks that ranged from the crafting of ritual items to processing of ancestral human remains (Blitz 2008; Knight 2010). Assuming important ceremonial roles, these groups fueled religious and productive cycles that demanded access to surplus foods, labor for building monuments and ceremonial architecture, and acquisition of the prized materials that specialists crafted into ritually charged items. Situated around those mounds and extending out to a wooden palisade and perhaps beyond



Early Regional Centers: Evolution and Organization, Fig. 2 Map showing geographic extent of the Mississippian world, with Moundville and Cahokia highlighted

were several spatially discrete residential neighborhoods housing large kin groups that may have immigrated from different areas or sought to maintain distinct group identities. These kin groups, likely responsible for constructing and performing the important ritual and economic tasks on adjacent mounds, presumably joined together to construct two of the largest monuments at the site – Mound A in the plaza center and Mound B at its northern end. Kinship and sodality institutions operating within Moundville's larger regional society may have been one way that a more politically focused and hierarchical chiefly institution was organized. The most successful kin groups may have also taken on roles overseeing important ceremonies associated with death and the afterlife, and attendant mortuary practices.

The development of widespread ideologies and the practice of rituals, ceremonies, and religious activities in centers and their regional networks allowed numerous social groups, each tasked with much of their own subsistence, ritual, or political responsibilities, to overcome the new problems associated with living in close quarters. In many developed regional centers, archaeologists have recovered evidence for social institutions that operated to maintain a sense of commonality among the various groups that resided at the site. Ideology was important at the Terminal Formative settlement of Tetimpa in Central Mexico (Plunket & Uruñuela 2002). Early on in its history, families would mark their distinctive household compounds with burials to venerate their ancestors. During subsequent phases of growth, more recently arrived families constructed their domestic compounds following the standardized architectural pattern of several domestic rooms around a central courtyard space. Because these new arrivals did not have founding leaders to commemorate, these groups marked their central courtyards with

shrines that displayed serpent and feline imagery associated with more widespread and commonly recognized worldviews.

Security and defense were important factors in the development of some regional centers. A village in a defensible location or protected by a strong leader may attract new residents, especially in situations where competition over resources was increasing between multiple villages, or when sedentary groups were seeking protection from ethnically distinct neighbors or in frontier situations. Political leadership institutions may develop when an individual or group is able to effectively mitigate the negative effects of increasing warfare either through overseeing a larger group of warriors or through managing the construction and maintenance of defensive structures like palisades or other fortifications (Earle 1997). Globally, it has been recognized that warfare intensified alongside the demographic, economic, and institutional changes associated with increased sedentism and the adoption of agriculture (Haas 2001). The ability of leaders or institutions to funnel surpluses into channels for protection, but also to plan and carry out their own raids and acquire new lands, would attract scattered groups from across a region to these new centers. Strength in numbers, defensive structures, and public symbols of success in battle or social violence can also lend a source of ideological power to the groups most associated with success (Earle 1997).

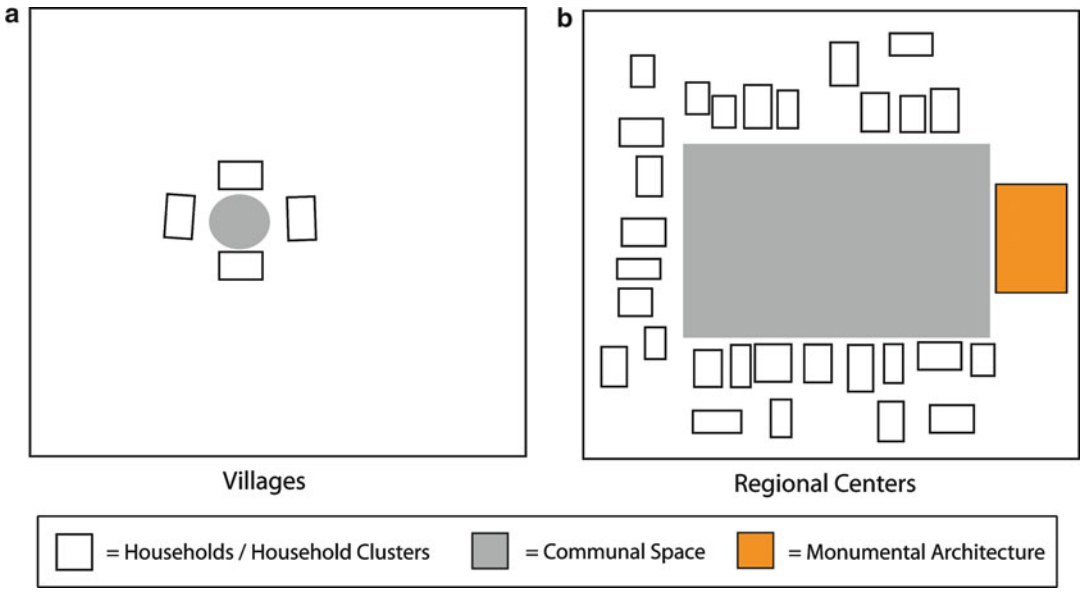
The range and qualities of institutional arrangements associated with early regional centers varied depending on the histories of specific regions. Understanding the conditions influencing regional center development comes from recognition that new institutions represented, in some way, novel solutions to extant social problems. But institutions also struggled to deal with new problems associated with these changing social conditions. When archaeologists track a settlement's growth with attention to how populations were relationally organized, they are better equipped to understand the subsequent dynamics and trajectories of particular local and regional histories.

Structure and Organization of Early Regional Centers

It is important to note that regional centers are part of human social systems that consists of several interrelated networks organized at multiple social and geographic scales. In fact, the development of regional centers is necessarily linked to the emergence of new scales of human organization. As a result, the structure and makeup of these settlements from households, to the sites themselves, to their regional settings, requires multi-scalar investigations by archaeologists. Researchers have been quick to note that studying the emergence of regional centers requires an evaluation of the scale at which different organizing processes occur and how organization at one level does or does not alter organization at other levels (Arnold 1996). Two spatial scales, those being the site and regional levels, are discussed here.

Intra-Site Scale. Regional centers are locations where some of the earliest forms of public meeting spaces and monumental constructions within permanent settlements were constructed (Fig. 3). Since people no longer live solely among their relatives, large plazas, temples, earthen mounds, and pyramids, to mention a few examples, provided spaces for ceremonies and economic transactions to occur. New forms of architecture, like buildings that served specialized ritual or political functions, are evidence that institutions necessary for community and regional integration existed. Likewise, the amounts of work required to construct large monuments and clear spaces for public plazas demonstrate that several families or regional populations provided labor at a central site.

Often, regional centers will have distinct residential sectors made up of multiple families who may have relocated from different settlements across the region. Sometimes, differences between these neighborhoods are recognizable, as when archaeologists discover variation in house sizes or the uneven distribution of materials like special foods, exotic goods, or craft items. When patterned differences along these lines are documented, archaeologists usually associate those neighborhoods with elite



Early Regional Centers: Evolution and Organization, Fig. 3 Idealized schematic of intra-site organization and interaction in (**a**) villages and (**b**) early regional centers. Population growth, large communal space, and monumental architecture are important characteristics of most early regional centers

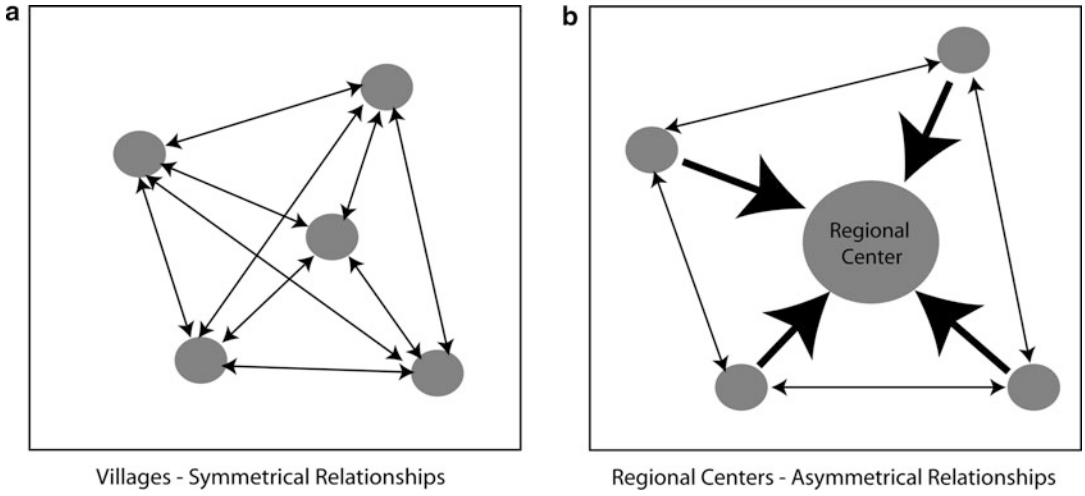
individuals. Elite leadership roles normally develop when regional-level economic, political, or ideological institutions form.

The intra-site configurations of human activity can vary significantly both within and between cultural contexts. For example, the layout of settlement sites in the US Southwest varies a great deal across the region. At Anasazi pueblos, public architecture is often in the form of large kivas, great houses, and plazas (Fish & Scarry 1999). In contrast, Hohokam settlements display ballcourts, platform mounds, and, at Paquime, nonresidential effigy mounds. Similarly, there is variability among residential architecture. While Puebloan settlements have highly nucleated room blocks, Hohokam settlements are dispersed with spaces between and within residential compounds.

Regional Scale. At a regional level, these settlements are the central settlement in an asymmetric interaction network involving surrounding settlements and the groups of people residing in those spaces (Fig. 4). Because this centrality can take on economic, ideological, or political qualities, regional scale organization can vary significantly.

Prominent settlements that organized key portions of the economy will show material evidence of their elevated economic standing. This could include signs that people in regional centers had greater or privileged access to exotic goods and craft items, or maintained storage facilities for surplus foods shipped in from outlying settlements. Regional centers can also assume prominence through ideological means and thus become centralized settlements that structure the flow of people and ideas through ritual and religious networks. Archaeologists see evidence for this type of situation when centers contain spaces for ritual performances, buildings for housing ritual specialists and ceremonies, and relatively greater amounts of ritual paraphernalia.

Commonly, central settlements assumed their position through political means. Archaeologists have shown that regional centers are often the seat of elite personnel that asserted political authority region-wide. In a politically centralized system, outlying villages lose autonomy when decision-making power is co-opted by or transferred to a prominent leader, a process that has been linked to the emergence of chiefdoms (Marcus & Flannery 1996). Interestingly, studies



Early Regional Centers: Evolution and Organization, Fig. 4 Idealized schematic of regional organization and interaction in (**a**) village level societies and (**b**) contexts where early regional centers develop. A primary characteristic in the emergence of early regional centers is the development and expansion of asymmetric regional interactions

of chiefdoms from around the world have demonstrated that substantial variation existed even within this type of politically centralized network. This highlights the importance of understanding a settlement system on a regional scale, because knowledge of how polities are structured allows archaeologists to better understand how political centralization developed and changed through time.

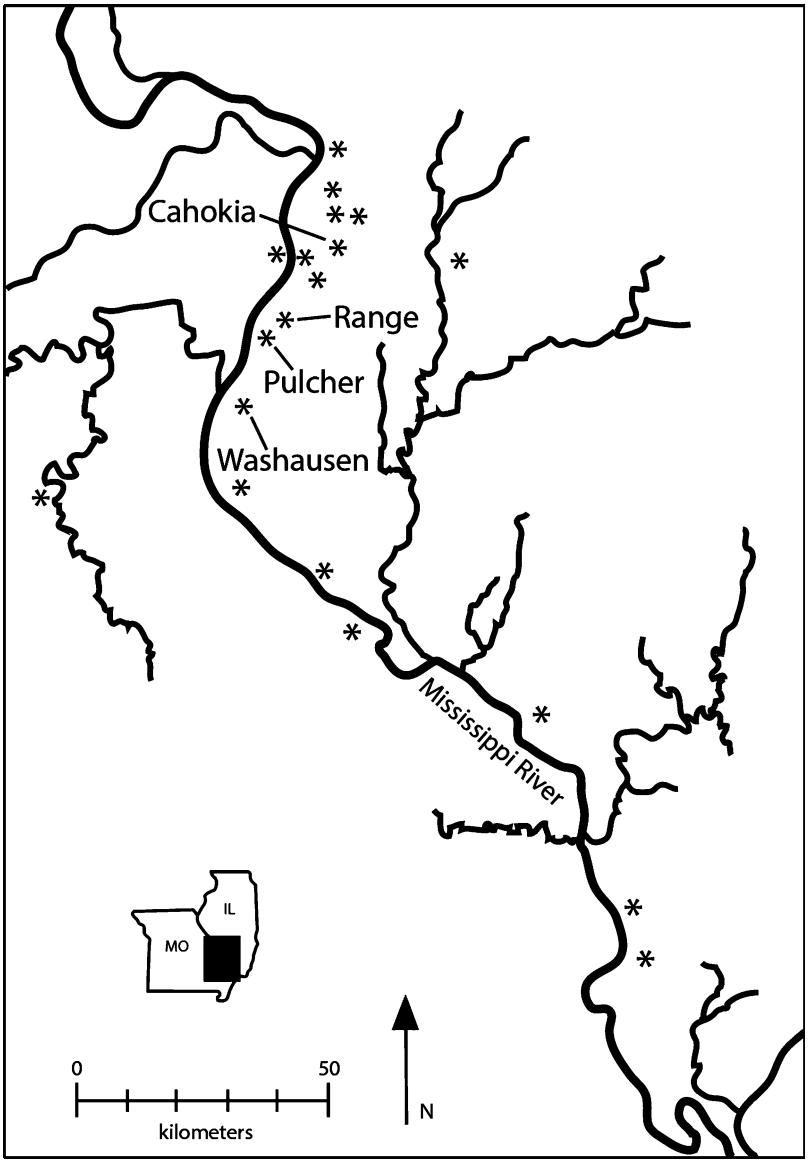
As people became attracted to a regional center's prominence, whether because of primarily economic, political, or ideological reasons, these emerging settlements would grow at the expense of neighboring settlements (Clark et al. 2010). The positive feedback between continued population growth and the regional importance of a center persists until these settlements and their regional networks decline and break apart, or take on new lives as even bigger regional centers. Thus, tracking regional demographic shifts is a necessary component within studies of regional center development.

Once regional centers emerge, it is often the case that important leaders develop interaction networks with leaders in centers from neighboring regions. In Mexico, for example, the early centers of San Lorenzo, San José Mogote, and Tlapacoya appear to have engaged in an exchange network of prestige goods including obsidian, marine shell, iron ore mirrors, turtle shell, and several types of fineware ceramics (Flannery & Marcus 2000). These elite-centric prestige economies may have played a key role in negotiating elite identities across regions as well as the relationships between elite and the nonelite within the respective settlements themselves.

Trajectories and Dynamics of Early Regional Centers

A major analytical problem to be confronted in the study of early regional centers concerns the dynamics and trajectories of the social organizational formations associated with the operation of regional asymmetrical networks. What is becoming clearer to archaeologists is that these central settlements emerged out of constellations of various local and regional institutions, and that their rates of development and subsequent histories followed a series of different paths, marked by distinct patterns of emergence and change.

Although much of this discussion has focused on the emergence and organization of centers, archaeologists have shown that these settlements and their regional networks changed over time. After a few generations, most experienced significant declines in population, were taken over by



Early Regional Centers: Evolution and Organization, Fig. 5 Map of the greater American Bottom region showing location of several Mississippian period settlements, with sites mentioned in text highlighted

other emerging centers, or were abandoned outright. Not always were new institutions able to outpace problems arising from how they were structured. For example, the social evolutionary changes associated with early regional centers rarely led to the development of social organizational forms like the state. Thus, it may be that the various forms of institutional life that developed with early regional centers often led to other and divergent evolutionary paths (Yoffee et al. 1999).

The prehistoric Mississippian period of the southeastern United States provides numerous examples of regional center growth and decline (Fig. 2). Across this macroregion from about CE 1000 and up through European contact in the sixteenth century, several dozens to hundreds of settlements emerged as central nodes that organized regional populations through various means. Some of the earliest developed in the American Bottom portion of the Mississippi River Valley, near the modern-day US city of St. Louis, Missouri (Fig. 5). By CE 900, a few local villages showed signs of growth as several small family groups moved to these settlements.

Although each family group built their houses around small courtyards, it was not until sometime in the tenth century that there is evidence for centralizing public spaces and specialized buildings more indicative of larger and more integrative institutions. The best excavated example of this type of settlement is the Range site (Kelly 1990). At Range, distinct families constructed their own house-courtyard groups around two, small central plazas and a handful of specialized buildings and ritual features. Archaeologists are unsure of the exact mechanisms of integration at this time, but the kinds of buildings, features, and artifacts recovered through excavations hint at the importance of ideological institutions involving new forms of religious symbolism and ritual adherence.

Growth at Range was not sustained, however, as archaeologists have documented a decline in population by sometime in the early eleventh century (Kelly 1990). This population decline appears to have resulted from the fissioning of several individual family groups that ushered in a reorganization of the settlement focused upon only one central plaza. Concurrently, a series of other local settlements appear to have experienced rates of growth and changes unseen at Range. Sites like Cahokia, Pulcher, Washausen, and a few others have evidence of new, larger-scale integrative social institutions (Milner 1998). It is at these settlements during the eleventh century that people in the region first began constructing monumental earthen mounds around large open plazas. Data show that by CE 1050, these nucleated settlements served to integrate outlying populations scattered throughout the region living in smaller villages and farmsteads. Again, archaeologists are still weighing evidence to see exactly what kinds of integrative mechanisms were active, but asymmetrical regional networks were in place that served to organize agricultural production and bring together regional populations at centers for large ceremonies and rituals.

By the end of the late eleventh century, however, some of these centers were abandoned, others saw continued growth, and even newer regional centers were founded. What is particularly interesting about this example of multiple center growth and decline is that throughout each transformative case of aggregation and dispersal, a more protracted process of larger-scale integration accrued. In fact, the settlement at Cahokia grew so large that it may have been something more akin to an urban center (Pauketat 2009). The institutions structuring Cahokian society took on a political nature not previously witnessed regionally. Residential neighborhoods at Cahokia were now larger, maintained their own institutional facilities and plazas, and were perhaps aligned according to a settlement-wide grid. The dominating feature of Cahokia was the largest prehistoric monument constructed north of Central Mexico, an earthen mound (named Monks Mound) that eventually stood around 100 ft in height. An extremely large open space marked the central point of the settlement (aptly called the Grand Plaza by archaeologists) that was ringed by smaller mound-and-plaza complexes. However, despite the fact that Cahokia outpaced neighboring settlements to become the de facto regional center, by CE 1200, signs of stress are evident as competition between population segments at Cahokia and throughout the region emerged. By the end of the CE 1300s, the Cahokia site and much of the American Bottom region were abandoned.

What this regional case demonstrates is (1) that early regional centers can be centralized along one or more dimensions (in the case of Range, it may have been a form of ideological centralization), (2) that the institutions for integration were often insufficient for long-term and sustained success, (3) that the direct evolutionary development into larger and more regionally integrative centers may not often occur, and (4) that the cultural knowledge of successful and failed institutional arrangements may make it possible for later regional centralization processes to spur the development of more complex organizational formations.

International Perspectives

Archaeologists cannot sufficiently understand the evolution of early regional centers without

placing them in their broader social and historical milieu. What is required in their study is to recognize the significance of novel scales of human integration at regional levels and how this integration is enacted at the local scale and modified by human agents. Contextualizing and identifying the organizational mechanisms, institutions, and tempos by which they emerged and changed through time allows archaeologists to better understand context-specific trajectories. The benefit of developing these context-specific trajectories is that they can be used in comparative research that informs global anthropological perspectives of early regional centers and new scales of human social integration. One key issue that these comparative international perspectives can elucidate is the tempo of changes associated with the emergence of early regional centers.

Tempo of Early Regional Center Development

Regardless of the constellation of mechanisms that provide the foundation for new institutional arrangements, the tempo of change can provide further nuance into understanding specific trajectories and individual decision-making in the past. Archaeological research on the emergence of novel forms of social organization has placed renewed emphasis on the importance of chronology, timing, and tempo of human action and systemic change (Prentiss et al. 2009). The study of early regional centers in the Americas is an ideal context for highlighting the diversity in tempos of continuity and change in human social systems. Among the numerous ways central settlements can (and do) emerge, two alternative models for the tempo and social context of their emergence are highlighted. These models, linked with specific case studies, underscore the importance of analytical approaches to trajectories of human social organization that are nonlinear, dynamic, and embedded within both human agency and system-level perspectives.

Model 1: Regional Centers Emerge Slowly: A Consideration of Paso de la Amada. In this model, one existing village among many interacting villages gradually assumes a more central role within the regional network. Economic, political, and ideological institutions emerge separately, over a period of time, as the village grows (Lesure & Blake 2002). In Chiapas, Mexico, archaeologists working at Paso de la Amada have suggested this type of development. The village at Paso de la Amada was founded by 1900–1700 BCE. Within the early village, ceramic evidence suggests special purpose vessels were used for drinking either corn beer or chocolate during festive occasions, and there is evidence that nonlocal obsidian was imported into the site (Clark & Blake 1994; Clark et al. 2010). It was not until almost 300 years after the initial founding of the site that some of the institutional changes in settlement, such as the presence of public architecture in the form of elevated platform mounds and plazas, were seen. Other evidence, from variability in settlement size within the region to differences in domestic house size, location, and complexity, suggests that Paso de la Amada became a regional political center, with some form of inequality. In this case, Paso de la Amada existed for a period of time, with some evidence of centralization emerging throughout the development of the village. Finally, by 1700–1500 BCE, the role of Paso de la Amada within the region had resulted in a qualitative change in its relationship to other villages in the area.

Model 2: Regional Centers Transformed Rapidly: A Consideration of Real Alto. In this model, one existing village within a regional network undergoes significant and rapid changes in economic, ideological, and/or political organization. Human agents play a vital role in the shift, as an institutional "package" associated with regional centralization is adopted. In this scenario, a more rapid demographic reorganization at the site and regional levels plays an important role in both necessitating and precipitating changes in the institutional mechanisms by which people and communities become integrated. This tempo of development and centralization can be seen at the site of Real Alto along the Pacific coast in southern Ecuador. Real Alto was initially settled as a small village around 4400 BCE, but it was not

until c. 2900 BCE, when a reorganization of the site layout, regional economy, and demographic distribution quickly changed, that the settlement was transformed (Clark et al. 2010). The emergence of Real Alto as a regional center coincided with a quadrupling in site size, as much as a doubling of on-site population, the construction of a central ceremonial precinct, and diversity in residential structures suggesting the presence of status differences.

Future Directions

Future research into early regional centers will benefit from an investment in three directions:

1. *Theoretical advancements*. Archaeologists can develop additional and more complex models for the emergence and development of early regional centers. These include integrating agency and system-level perspectives and designing research that can better identify and measure processes of institutionalization and interaction.
2. *Methodological advancements*. The study of early regional centers will continue to require a wide range of methodologies. An understanding of the regional context of these types of settlements will be advanced as more data and instruments become widely available and utilized, including the integration of satellite data (such as ASTER) and LIDAR imagery alongside more traditional survey approaches. Geophysical survey, including the use of magnetometry, resistivity, and ground-penetrating radar, may provide minimally invasive and cost-effective methods for understanding the layouts of large settlements and the makeup of regional settlement patterns. The integration of new methodological approaches to artifact studies, including the sourcing of materials through XRF and pXRF, can provide comparative data at both intra-site and regional scales. Perhaps most importantly, techniques for generating highly refined chronologies, including more accurate dating techniques, are needed to both ensure synchronic comparisons are warranted and to track diachronic changes in central settlements and their regional networks.
3. *More case studies and comparative frameworks*. New case studies of early regional center emergence and evolution, designed to integrate multiple scales (from houses to macroregions), are needed. Differing historical trajectories identified with new case studies can be integrated into comparative global frameworks. Comparative projects will allow researchers to discuss early regional centers as a general phenomenon, perhaps with some modal organizational attributes, without requiring that early regional centers all looked the same or were the result of homogeneous social processes.

Cross-References

- ▶ Aerial Archaeology
- ▶ Archaeological Theory: Paradigm Shift
- ▶ Authority and Legitimacy in Political and Social Archaeology
- ▶ Ceramics: Scientific Analysis
- ▶ Chaco Canyon, Archaeology of
- ▶ Culture in Archaeology
- ▶ Dating Techniques in Archaeological Science
- ▶ Demographic Transitions
- ▶ Earle, Timothy
- ▶ Excavation Methods in Archaeology
- ▶ Flannery, Kent Vaughn
- ▶ Fortifications, Archaeology of
- ▶ Histories of the Archaeological Discipline: Issues to Consider
- ▶ Marcus, Joyce
- ▶ Mesoamerica in the Preclassic Period: Early, Middle, Late Formative
- ▶ North American Mound Builders: Hopewell, Natchez, Cahokia
- ▶ North American Rock Art
- ▶ Processualism in Archaeological Theory
- ▶ Southwest United States and Northwestern Mexico: Geography and Culture
- ▶ Spatial Analysis in Field Archaeology
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Earthen Architecture in Archaeological Conservation and Preservation

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Introduction

Earth has been used a building material for at least the last twelve millennia with the earliest evidence for earth as a building material coming from sites within Western Asia. Later, structures were built using both hand-shaped mud blocks and rammed earth, for example, at Çatalhöyük (Turkey) and Carchemish (Turkey). However, earthen architecture is not restricted to hot, desert climates, and archaeologically and historically, it is distributed throughout the world. From the characteristic "tell" sites comprised of the multiple and varied stratigraphies of abandoned and rebuilt earth structures, through to vernacular, secular, religious, and monumental buildings in urban and rural settings, and earthworks in temperate climates. As such the distribution and variety of earthen architecture and construction spans both continents and millennia with evidence within archaeological contexts, extant structures, alongside still-used earth structures throughout the world.

Definition

The term *earthen architecture* is loosely used to refer to a broad range of structures found in archaeological contexts including earthworks (Fig. 1) and those structures comprised of earth (subsoil) dug from the ground and shaped by hand or machine and used in a number of different ways – most commonly mudbricks (adobe) (Fig. 2), rammed earth (pise), placed earth (cob), alongside earthen mortars, plasters, and the use of earth within timber-frame structures.

Key Issues/Current Debates/Future Directions/Examples

The identification and excavation of earthen architecture is complex with much anecdotal evidence of archaeologists "missing" earth structures as the material of construction is so very similar to surrounding nonstructural archaeological strata. The failure to identify earth structures during their excavation alongside the poor interpretation of archaeological evidence has a net result that the scale and complexity of excavated earth structures has probably been hopelessly underrepresented.

The identification of earth structures in archaeological contexts has improved with better knowledge of earth as a building material, alongside the application of allied disciplines of remote sensing (aerial photography and geophysical surveying) and ground-based observations (Fig. 3). Moreover, the growing awareness of earth structures in living contexts throughout the world has increased knowledge and understanding of earth as a building material across different disciplines, with archaeologists working alongside anthropologists and engineers (amongst many others) to better understand performance and significance of earthen architecture.