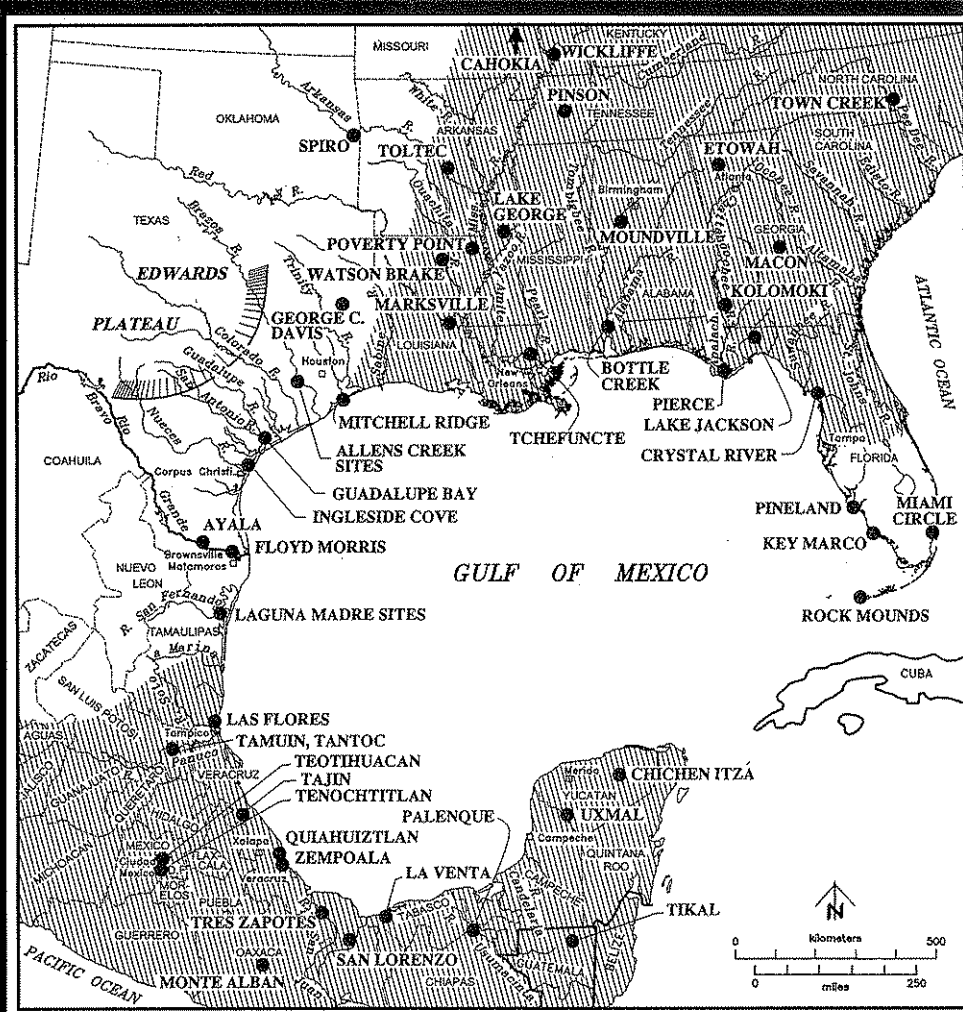


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ARTICLES

HARVEST PRESSURE AND ENVIRONMENTAL CARRYING CAPACITY: AN ORDINAL-SCALE MODEL OF EFFECTS ON UNGULATE PREY

Steve Wolverton

*Zooarchaeologists have long realized the analytical potential of ungulate mortality data in studies of temporally shifting foraging efficiency. An additional but seldom examined form of evidence from ungulate remains is the morphometry of age-independent body size. Together simple bivariate morphometric and mortality data from ungulate remains reveal shifts through time in harvest pressure and/or environmental carrying capacity. A proposed model of these effects is validated using wildlife biology data from white-tailed deer (*Odocoileus virginianus*), an ungulate taxon that is very common in North American archaeological faunas. Several archaeological implications that bear on studies of foraging efficiency in subsistence hunting economies arise from this ordinal-scale model, such as the conditions under which harvest pressure increases or decreases or when carrying capacity rises or declines.*

*Desde hace mucho tiempo los zooarqueólogos han realizado el potencial analítico de los datos de mortalidad ungulados adquiridos a través de estudios en los cuales se cambia temporalmente la eficacia buscada. Una adicional pero rara forma de examinar las pruebas del ungulado es el morfometría del tamaño de cuerpo independientemente de la edad. Juntos simples datos de vicariato morfométrico y la mortalidad del las permanencias ungulado revelan cambios a través del tiempo durante presión de cosecha y/o capacidad de transporte ambiental. Un modelo propuesto de estos efectos es validado usando datos de biología de fauna del venado "white-tail" (*Odocoileus virginianus*), un taxón ungulado que es muy común en la fauna arqueológica Norteamericana. Varias implicaciones arqueológicas que tienen que ver con estudios de buscar la eficacia en la subsistencia que caza economías provienen de este modelo de escala ordinal, como las condiciones en las cuales la presión de cosecha aumenta o disminuye o cuando la capacidad cargada sube o hay decadencia.*

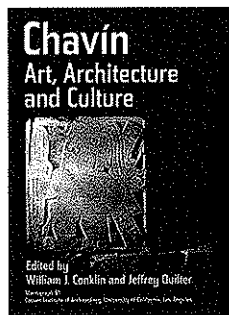
Zooarchaeological studies that demonstrate long-term changes in human foraging efficiency generally cite one of two factors as causal: (1) fluctuations in prey availability that relate to human harvest rates (sensu Broughton 1999; Cannon 2000, 2003; Nagaoka 2002a, 2000b; Stiner et al. 1999, 2000), or (2) changes in prey availability that relate to inferred habitat fluctuations, such as those related to climate change (Byers and Broughton 2004; McMillan and Klippel 1981; Wolverton 2005). The conclusion that human harvest rates affected prey availability through time (e.g., exploitation depression) can be strengthened by determining that changes in prey choice, diet breadth, and/or prey mortality fail to correlate with prehistoric climate changes using independent environmental datasets, such as pollen records and oxygen isotope data (e.g., Broughton 1999; Stiner

et al. 1999). The gold standard with which to study long-term changes in foraging efficiency has been taxonomic abundance data derived from zooarchaeological assemblages. It is possible, however, for the zooarchaeologist to approach these same issues with additional lines of evidence from within zooarchaeology without relying solely on independent environmental datasets. There are important ecological parameters of prey, ungulates in particular, that can be used to distinguish human harvest impacts on prey populations from those caused by fluctuations in food availability related to environmental change. A model of the interrelationships of prey mortality and prey body size provides greater analytical potential than either variable does on its own for studies of foraging efficiency in subsistence hunting economies.

Morphometric data (sensu von den Driesch

Steve Wolverton ■ University of North Texas, Department of Geography, Institute of Applied Sciences, PO Box 305279, Denton, TX 76203-5279 (wolverton@unt.edu)

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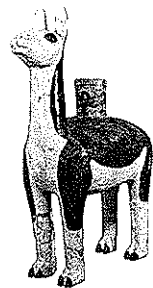
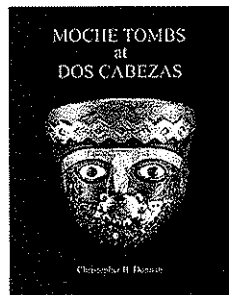
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THE MEXICAN CONNECTION AND THE FAR WEST OF THE U.S. SOUTHEAST

Nancy Marie White and Richard A. Weinstein

New World archaeologists have long agreed that there was prehistoric cultural interaction between the southeastern United States and Mesoamerica, but seldom are the details of such potential relationships discussed, especially recently. The farthest westward extent of Southeastern cultural influences, as shown through the distributions of fiber-tempered pottery, Archaic and Woodland mounds, later platform mounds, ceramic styles, and other material culture, seems to be east Texas. Only a few Mexican artifacts have been found at the edges of the Southeast—obsidian at Spiro and coastal Texas, asphalt-covered pottery extending northward from Mexico into southern Texas—though general ideological connections, not to mention the sharing of maize agriculture, seem obvious. In northeast Mexico, outside the Mesoamerican heartland, Huastecan people made artifacts similar to types in the Southeast. But long-distance interactions overland or via the Gulf of Mexico were apparently sporadic, despite some common cultural foundations. Strong Southeastern cultural identities plus the presence of the north Mexico/south Texas desert may have discouraged movement into the Southeast of many important Mesoamerican traditions, such as cotton growing and beer drinking.

Por mucho tiempo arqueólogos del Nuevo Mundo han estado de acuerdo en que hubo interacción prehistórica entre el Sudeste de los Estados Unidos y Mesoamérica, pero rara vez se han discutido los detalles de estas relaciones, especialmente en años recientes. La extensión mas al oeste de la influencia cultural del Sudeste es el lado este de Tejas, mostrado por los distribuciones de las cerámicas muy tempranas templadas con fibra de planta, montículos muy tempranos del Arcaico y otros de más tarde, montículos piramidales del periodo prehistorico tardío, estilos ceramicos, y otras formas de cultura material. A los margenes del Sudeste sabemos muy pocos artefactos Mexicanos—obsidiana de Hidalgo y Querètero en Oklahoma y en la costa de Tejas; cerámicas asfaltadas en el sur de Tejas—aunque parece que las conexiones de ideología general y de agricultura de maiz son evidentes. En el nordeste de Mexico, afuera del hogar central de Mesoamerica, la gente Huasteca hicieron algunos artefactos parecidos a tipos del Sureste, como pipas y concha grabada. Pero interacciones de larga distancia, por tierra o por el Golfo de Mexico, eran evidentemente esporádicas, a pesar de que había fundaciones culturales en común. Las fuertes identidades culturales en el Sudeste, y además la presencia del desierto en el norte de Mexico y el sur de Tejas, probablemente impedían la entrada en el Sudeste de tradiciones Mesoamericanas muy importantes, como la producción de algodón y bebidas fermentadas.

Archaeologists have long been interested in the possibilities of prehistoric cultural interaction between the U.S. Southeast and Mesoamerica, but seldom are the nature and processes of such interactions discussed; the issue is sometimes seen as a "fringe" topic. There is tantalizing evidence of such interaction, but there also are glaring absences of evidence. To examine the issue, we must understand the western boundaries of the Southeast and also discuss eastern Texas, an area considered outside the Southeast, and north-eastern Mexico, an area similarly beyond the

Mesoamerican heartland. Besides material culture "traits," specific socioeconomic systems, cultural practices, and the geographic potential for movement and interaction must all be considered. We presented some of these ideas at a 2001 Society for American Archaeology symposium on circum-gulf archaeology that has now become a book, *Gulf Coast Archaeology* (White, ed. 2005), with contributions from many researchers. This article extends the discussion, cites new evidence, and examines the topic from the specific viewpoint of the Southeast and its westernmost extent. We suggest that

Nancy Marie White ■ Department of Anthropology, University of South Florida, 4202 E. Fowler Ave. SOC107, Tampa, FL 33620 (nwhite@cas.usf.edu)

Richard A. Weinstein ■ Coastal Environments, Inc., 1260 Main St., Baton Rouge, LA 70802 (rweinstein@coastalenv.com)

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there were common cultural and environmental foundations and sporadic long-distance interactions between the Southeast and Mesoamerica, with closer relationships and interaction between the lower Texas coast and northeastern Mexico.

History of the Discussion

Connection between the Southeast and Mesoamerica is an old topic in American archaeology, with a venerable, sometimes wildly speculative history, from the time of the earliest descriptions of mounds (e.g., Brackenridge 1962:186–191 [1814]; von Humboldt 1814:28) to later evaluations by professionals in archaeology (e.g., Bennett 1943, 1944; Benson 1977; Griffin 1944, 1949, 1966; Kelley 1952; Phelps 1969; Phillips 1940; Willey 1966, 1985; etc.), art history (e.g., Covarrubias 1954), and other disciplines. We do not explore in detail here all the colorful arguments over the decades that derive Southeastern cultures from Mesoamerica or postulate other relationships. Most traditional treatments of the issue simply state that there must have been some connection, given general similarities in mounds, iconography, and maize agriculture, and that it must have been trade. Little has been said on the topic in recent years (though there are increasingly more discussions of Mesoamerican relationships with the U.S. Southwest [e.g., Erickson and Baugh 1993; Foster and Gorenstein 2000; Gummerman 1994; Hers et al. 2000; Kehoe 1999; Lekson and Peregrine 2004; McGuire et al. 1994; Peregrine and Lekson 2006; Reyman 1995; Riley 1987, 2005; Schaafsma 1999; Schaafsma and Riley 1999; Taube 2000; Weigand and García de Weigand 2000; Woosley and Ravesloot 1993]), but it is generally recognized as a continuing topic of interest in the Southeast (Watson 1990).

Typical discussions use the label “culture contact,” suggesting temporally limited episodes between previously isolated groups, as opposed to regular interaction among groups well aware of each other. For example, the once-famous Spinden (1917) hypothesis combined agriculture and pottery-making with figurines and pyramidal temple bases as a complex originating in Mexico and radiating northward. George Vaillant’s “Q-complex” of Mesoamerican ceramic traits became traceable into the Mississippi Valley (Ford 1969:1), and Kroeber (1930) and others worked out com-

mon cultural, especially agricultural, foundations for all the Americas.

Philip Phillips (1940) appears to have been the first to look comprehensively at Mesoamerican influences specifically in the Southeast, noting mound-plaza combinations with directional orientation and surrounding stockades as one complex of traits seen in common. Other traits of lithic, ceramic, and shell artifacts and artistic motifs showed similarities, though they never were identical in both regions. Bennett (1944) tried to go further, treating the historical and functional problems of such trait lists, noting Mesoamerican influences in the Southeast but, significantly, not items of Mexican manufacture. He dealt awkwardly with differing levels of cultural complexity in the two regions, saying that Southeastern Early Woodland cultures needed to be sedentary and more complex to be able to accept Mesoamerican ideas but also had to have such ideas to become that way in the first place.

Both professional and popular literature continued in this vein. For example, Vaillant (1944:104) noted that Mixteca/Puebla expansion out of Middle America provided “religious elements” affecting the Southeast. Radin (1944:192–202) derived mound builders of the eastern United States from (proto-)Mayan invaders who set out by sea from Veracruz and landed in the Lower Mississippi Valley (their degenerate descendants being the Caddo and Natchez). Dealing specifically with the Southern Cult or Southeastern Ceremonial Complex, a late prehistoric manifestation of particular images and artifact types (Galloway 1989; King 2007; Reilly and Garber 2007; Waring and Holder 1977 now call it the Mississippian Iconographic Interaction Sphere) that offers the best comparative material, Krieger (1945:501) provided probably the most valuable insights: first, the few elements that are *generally* comparable in the two regions are seldom *strictly* comparable; second, the Southeastern elements that might indicate contact and borrowing do not consistently fall together in any particular culture complex; and third, no definite trade pieces from Middle American cultures have yet appeared in the eastern United States. From the late 1940s onward, Southeastern cultural development was seen mostly as a process of absorbing slow and diverse Mesoamerican influences, not necessarily northward-moving people (e.g., Grif-

fin 1949); trait-by-trait comparison was the major method of documenting the process.

A few promising logical arguments were made using comparative data. Mason (1935, 1943) and Ekholm (1944a, 1944b) examined the details of Huasteca material culture of late prehistoric northeastern Mexico and proposed diffusion, mostly in terms of movements of people, from that region along the Texas and Louisiana coasts into the Caddoan area. Texas became important to examine. One questionable view (Smith 1984) derived coastal Texas Indians from Caribs coming across the Gulf from the West Indies. Newell and Krieger (1949:231–232) saw the George C. Davis site (now Caddoan Mounds State Historic site) in northeast Texas, with its early circular platform mounds, as representative of at least a small migration from Middle America during the Formative. Based on the work of Michigan ethnobotanist Melvin Gilmore, Krieger (1948) suggested a “Gilmore Corridor” overland from northeast Mexico along the Texas coastal plain that could have been a route for movement of maize horticulture from Mexico into the Southeast. Kelley considered part of this corridor to have been occupied by hunter-gatherers, but such people could have brought things back and forth between regions, including “bags or jars of maize and beans, and stories of how to raise or manufacture these products” (1952:143). The question remained why these peoples would not have dropped their wandering ways and begun planting maize themselves, but Kelley (1952:144) thought this might upset the fragile balance of their food-collecting pattern. Thus there were finally some specific statements about the nature of interaction, the routes, and the mechanisms.

Most other treatments remained as statements of trait lists, usually invoking either general diffusion or real movements of peoples. This was especially true for late prehistoric Mississippian culture, in the Mississippi Valley and across the Southeast, which was variously derived from visits by Mexican traders (Silverberg 1968:296), intermittent contact and occasional immigration (Caldwell 1958:61, 64–65; Willey 1966:293), or outright Mexican invasions, if not Missouri or Arkansas natives visiting more southerly destinations and returning with vivid impressions of things they tried to copy at home (e.g., Spaulding 1955:24–25). Mesoamerican specialists similarly discussed diffusion of stylistic ele-

ments and various other traits northward (e.g., Coe 1962:145; Weaver 1972:281–283), and many acknowledged common continental cultural foundations.

The mid-century was a time of intense interest in “culture contact” situations. A typology of these was established, with two major classifications: “site-unit intrusion” and “trait-unit intrusion” (the former obviously more intense), each broken down into four subtypes depending on how much of the original culture was retained or fused with the new (Willey et al. 1956). There were problems with such a typology, from the value judgments and implications inherent in the terminology to the lack of quantification or any way to operationalize the classifications. In addition, as a product of its time, the typology was missing many logical categories, such as a situation where neither the “intruding” nor the “receiving” culture ended up dominant. It also noted only general diffusionist mechanisms, from trade to conquest, but did not entertain any other possible explanations (scavenging, for example [Park 1993]). While this typology has gone out of fashion, we still do not model cultural interactions in ways that can generate testable hypotheses. Interaction means that either people move, or things or ideas move, or some combination thereof, ideas of course being the most mobile. But it has been hard to trace even ideas when they are altered during movement and when material items are out of context.

There have been occasional noteworthy attempts to compare cultures by examining not individual traits but integrated structural complexes or systems. Muller (1971) emphasized looking beyond similarity of form to see use, arrangement, and context. A good example of this approach is Wicke’s (1965) study of Mesoamerican influences on Southeastern temple mounds. He compared architectural plans, arrangements, shapes, and eastward orientations of mounds and their relationships with plazas, building stages, ramps or functionally analogous steps, and temples on platforms. Also notable along these lines is Griffin’s (1966) discussion of Mesoamerican–Southeastern connections through the “seepage of ideas.” He (1966:129) compared items such as pots, bottles, and ceremonial knives and specifically noted some filed human teeth around Cahokia whose mutilation looked so Mesoamerican that he thought these individuals must have had their dental work done

in Mexico. Griffin also criticized other researchers who used untraceable devices such as boats for postulating migration, but Wicke notes that "the prowess of the American Indian as a navigator has been grossly underestimated" (1965:417).

The most astounding diffusionary approach is James A. Ford's *A Comparison of Formative Cultures in the Americas. Diffusion or the Psychic Unity of Man* (1969), packed with foldout charts of comparable traits across North and South America. The movement of influences that produced material similarities in all the ear spools, effigy vessels, ceramic decorations, and other material items through some variety of migration/diffusion is of course not an explanation at all. To his credit, Ford tried to place the different traits within cultural systems, but he did have them moving around a lot, across seas and elsewhere, with little discussion of routes, means, or reasons.

Migration/diffusion theories of the earlier twentieth century went out of favor with scientific archaeology but now are reappearing with historical and postprocessual approaches, even with scientific treatments for some areas (e.g., Jones and Klar 2005 for transpacific contact). But the subject of prehistoric relationships between the Southeast and Mexico is still somewhat taboo (Kehoe 2002; Peregrine and Lekson 2006). Here we summarize current information and discuss natural environments and potentials and then look at material culture and the westernmost extent of the Southeast culture area around the Gulf of Mexico. It is important to see what connections can be drawn as well as what expected ones appear to be missing. A problem we have noted before (White 2005) is modern national boundaries, which delimit languages, present-day political geography, and archaeological practice. Archaeologists in the southeastern United States and Mexico seldom communicate with each other. Basic comparisons of site data, settlement, subsistence, or other cultural systems from one region to the other are rarely attempted, even around the Gulf, where it should be easy.

Geography, Environments, and Subsistence

Water and Land Travel

Northeast Mexico is considered archaeologically remote from the Mesoamerican heartland, and the

Texas coast is similarly thought to be beyond the U.S. Southeast (Figure 1), except for the upper portion (Aten 1984). The latest synthesis on all of northern Mexico (Hers et al. 2000) deals predominantly with relationships to the U.S. Southwest, California, and Texas. But both the land and water connections on the east side, around the Gulf of Mexico, need to be better investigated.

The Gulf is warm, circumscribed, shallow, and usually friendly to navigate, except during storms and hurricanes. Its geographic setting could be seen to foster human interaction (e.g., García Valencia 2005). The marine continental shoreline from the southern tip of Florida to the Yucatán Peninsula is about 5,800 km, but the total tidal shoreline is some 27,360 km long when all the bays, inlets, and other features are included (Gore 1992:53). Such features provide both sheltered passageways and abundant resources, especially in the highly productive estuaries. The Loop Current carries things around the Gulf, in opposite directions seasonally, sometimes with unpredictable spin-off arcs (Gore 1992). Archaeologist Anthony Andrews (personal communications 1999, 2006) told us of firsthand experience with this phenomenon: a boat moving off the Yucatán coast can easily get caught in the current and end up in the Florida Keys or New Orleans or be stuck in the endlessly circling gyre of the Loop. One kayaker was documented in 1998 paddling 900 km from the eastern Yucatán coast across the Gulf to New Orleans in 20 days (Canter 2006). Palm-log canoes from Mexico or beyond have washed up on the Louisiana coast (Gresham 2002). We know even more about Gulf currents now because of modern events and politics. Experts evaluating proposed new oil drilling have noted how the conveyor-belt effect of the current could carry slicks from spills around to the northern Gulf at different times (Wheeler 2006). Three weeks after Hurricane Katrina, toxic plumes and debris from New Orleans were being swept by the Loop Current into two paths, one toward the Florida panhandle and the other past the Florida Keys toward the Atlantic (Associated Press 2005). Because barrier islands, mangrove lagoons, and other coastal features are such dynamic landscapes, and prehistoric settlement on them was thus probably ephemeral and intermittent, the potential evidence may now be deeply buried or obliterated.

At the western margin of the Southeast the for-

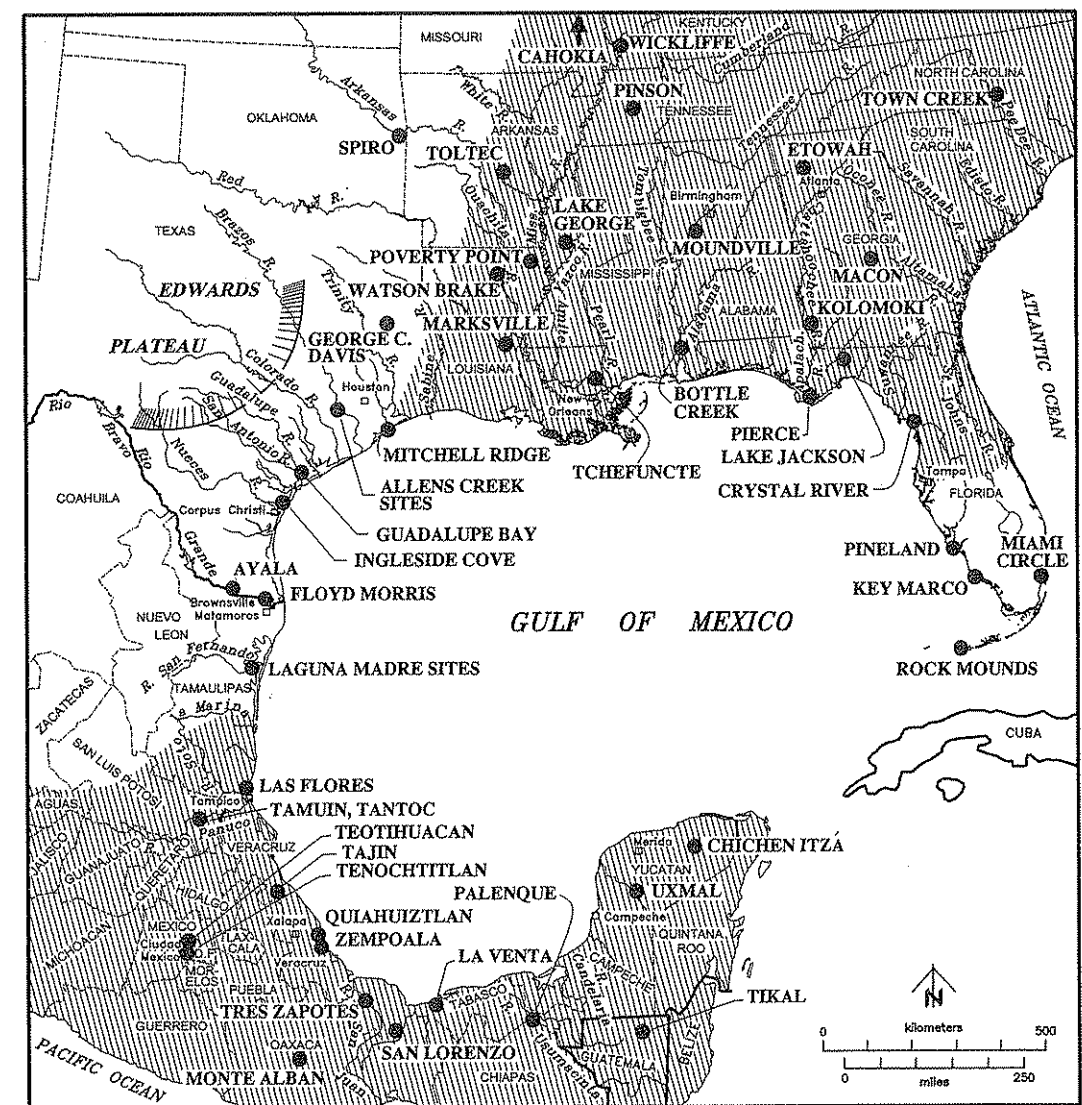


Figure 1. The southeastern United States and Mexico, showing Southeast and Mesoamerican culture areas (hatched), geographic features, and selected important sites.

est gives way to grasslands except near stream valleys (Gremillion 2004:55). There is a decreased potential for permanent settlement all along the narrower coast of south Texas and northeast Mexico because of desert or semidesert conditions. Griffin (1966:116) supposed that this area comprised an environmental barrier that separated the humid Southeast from tropical Mexico. He (1980:13) thought Mesoamerican interaction with the Southwest was more likely, and perhaps Mexican ideas reached the Southeast after modification in the

Southwest. In the coastal Laguna Madre region of northern Mexico and south Texas, rainfall is low and biotic resources are limited due to the increased salinity and restricted exchange of seawater through widely dispersed passes (Gore 1992:212; Tunnell and Judd 2002). Temperatures in the hypersaline lagoons often reach 100°F, and the water can be two to eight times as salty as the sea, making biological productivity far lower than elsewhere in the Gulf. Still, there are rich sea-grass beds, fish, crustaceans, extensive habitats for migrating birds, and

abundant turtles in complex food webs (Nature Conservancy 2005). However, recent work in southernmost Texas (Kibler 1994, 2005a) has demonstrated that it was usually an inhospitable area, with sparse prehistoric human occupation. The Gilmore Corridor was farther inland, crossing the prairie and alluvial streams, along routes that were used by historic natives (Foster 1997:23–24; Krieger 1948). Thus it would seem to be a far better choice for a pathway by which Mesoamerican influences, especially maize, reached the Southeast. Yet evidence of prehistoric food production remains lacking for most of this corridor (Kibler 2005b). Furthermore, there are few other known trails, unlike the extensive trail system that linked the Southwest to Mexico and from there into the western edges of the Southeast through north Texas and Oklahoma (Riley 2005:107–109).

However, with easier, faster movement by water, why walk through desert or prairie? As central communication, transportation, and organizational arteries, the many large southeastern rivers offer entrance far into the interior. As early as Olmec times, major sites along the Mexican Gulf Coast were situated along networks of rivers and other streams not far from the coast (Diehl 2004; Pool 2007). Even if water routes are longer than overland paths, boaters can sit and carry more cargo. Coastal natives would have known sea currents well, and river travel is easier. A canoe could go from Yucatán all the way up the Mississippi River and over to Spiro, Oklahoma. Well-informed, well-traveled Southeastern natives knew the landscape over enormous distances, being aware of the Great Lakes, the Great Plains, and probably Southwest and Caribbean areas (Tanner 1989). Waselkov (1989) documents an early-eighteenth-century map by a Chickasaw headman who demonstrated geographical knowledge as far west as Texas and Kansas and as far east as New York and Florida. Maya traders traversed a wide network of waterways to exchange commodities, including slaves, though many of their sites may now be underwater (McKillop 2005; Sabloff 1977). Aboriginal traders worked off the north Honduran coast, with men, women, children, copper, cacao, pottery, cotton, obsidian, and other stone, in canopied boats some 2.3 m wide (Morley et al. 1983:257). Chontal Maya merchants controlled sea trade from Tabasco around to Belize and Honduras during the

Postclassic (Sabloff and Rathje 1975). On his second voyage, Columbus saw near Jamaica a dugout that was nearly 30 m long and 2.4 m wide, and another was described that could carry 70 to 80 people (Gould 2000:100). There was waterborne socioeconomic interaction between the west coasts of Mexico and Ecuador (Anawalt 1997). Early Spanish sources recorded mainlanders visiting the Bahamas (Sauer 1966:189). Relationships between Olmec and Chavín imply intercontinental transport. Though the perishability of boats means there is little evidence for water travel, more canoes are becoming known in the Southeast, some possibly designed for larger, rougher bodies of water, with the bow extending up and out to become a marked platform for riding over ocean waves (Purdy 1991:270). The sophisticated design and large size of native canoes have been tied to the emergence of prehistoric cultural complexity (Arnold 1995; Wheeler et al. 2003), and Kehoe (2005) has noted parallels between Mesoamerican and U.S. Southeast canoe paddler symbolism.

Food

Subsistence studies in the coastal Southeast emphasize shell midden sites, which are less investigated on Mexican coasts, limiting comparative study. For the continental interior, food production has always been paramount in discussions of Southeast–Mesoamerican relations. We now know that horticulture originated independently in the rich alluvial valleys of the U.S. Midwest and Midsouth (Smith 1998), with local weedy species such as chenopods and amaranths, so we need no longer postulate the clever idea of food production originating in Mesoamerica and diffusing northward. The earliest domesticated plant in the Southeast, appearing some 5,000 years ago, seems to be a gourdy squash, *Cucurbita pepo*, whose ancestor grew wild along the Gulf Coast from Tamaulipas to Florida at the end of the Pleistocene (Fritz 2000:225). But the later crops themselves, the staples of maize, beans, and *Cucurbita argyrosperma* squash, were all domesticated in Mexico and had to arrive somehow in the Southeast. Recent work on the southern Mexican Gulf Coast (Lentz et al. 2001; Pohl et al. 1996; Pohl et al. 2001; Pope et al. 2001) documents very early cultigens in the Grijalva River Delta near La Venta: maize at over 5000 cal B.C., manioc at about 4600 B.C., and cotton

and sunflower by 2500 B.C. The sunflower remains were large enough to suggest that this plant was already domesticated, leading these researchers to challenge the notion that it was domesticated in the eastern United States, even independently; they think the major crops might all have been imported into the eastern United States from a Mexican Gulf hearth of domestication.

Maize appeared in the eastern United States over 2,000 years ago (Riley et al. 1994). It was already in the Southwest between 4,000 and 3,500 years ago, though about 2,000 more years were needed for it to change from a casual or supplemental resource to a staple there. Genetic studies suggest that southwestern maize was carried eastward across the Plains to become ancestral to the eastern forms. But in the Southeast there is greater genetic variability in the different strains of maize (Fritz 2000:235–236), possibly indicating more direct connections with Mexican varieties. No matter how it arrived, maize had to be brought to the Southeast in human hands (Kehoe 2002:25, 2005:263).

At southwest Florida's Pineland site, remains of squash, chili pepper, and papaya have been recovered from a waterlogged midden dating to about A.D. 50–100 (Karen J. Walker, personal communications 2004, 2007, based on the work of Lee Newsom and Margaret Scarry); they are being interpreted as natives, but it might not be surprising to find tropical cultigens in Florida. The Florida Strait has been considered a major divide between aboriginal cultures, yet boat travel over this short distance is not difficult. Today people regularly make it to Miami from Cuba floating in inner tubes or other marginal craft. Similarities are seen between native languages of Florida and South America (Granberry 1991), but south Florida is also considered culturally outside the prehistoric Southeast, and such connections have not been explored in detail.

Material Culture and Symbolism

There is a long history of documenting similarities in artifact design motifs, iconography, symbols, and styles between Mesoamerica and the Southeast (Krieger 1945 remains one of the best). Some comparisons list general traits (e.g., Griffin 1980; Neurath 1994); others note specific artifacts or

designs, for example, Chacmool-style pots in the Mississippi Valley (Phillips et al. 1951:167) or iconography at Etowah mounds in Georgia (Nuttall 1932). Carved in shell, ceramics, or other media, motifs and combined elements include scrolls, spirals, snakes, feathered serpents, crosses or swastikas inside circles, beaded forelocks and hair knots, trophy skulls, winged dancers, long-nosed gods, birds, other animals, and many additional designs. Common artifacts and features have included copper ear ornaments, pipes, carinated vessels, negative painting, similar burial customs involving skull caches, fronto-lambdoidal cranial deformation, shell gorgets, effigy vessels, columella pendants and other shell jewelry, greenstone celts, and, of course, truncated pyramids and plazas. Since the work of Ekholm (1944a, 1944b) and MacNeish (1947, 1949, 1956), researchers have looked specifically at material similarities between the Huasteca area of northeastern Mexico and the Caddo region of the Southeast (northeast Texas, northwest Louisiana, southwest Arkansas, southeast Oklahoma) to hypothesize direct cultural connections.

We do not offer here an extensive review of all such past comparisons (but see Cobb et al. 1999) or interpretations of what the imagery or designs mean or how closely they may all be associated. One frequent comparison is of the winged beings or bird dancers from Spiro and Veracruz, both engraved on shell (Neurath 1992:Figure 7; Phillips and Brown 1975–1982:128; Waring and Holder 1977). Many other birds or plumed human forms in the Mississippian Southeast can be compared with similar but not identical Mesoamerican counterparts (Figure 2). Huastecan artifacts and designs in northeast Mexico make a better specific case for resembling Southeastern element combinations. Besides feathered human costumes there are many other motifs; for example, the so-called sun circle with a cross inside (Figure 3). One we noticed only recently is the rectangular ladder-shaped design painted on plaster floors in the Huasteca area (Dávila 2005:Figure 4.7) and carved into bone pendants in the Brownsville complex of south Texas (Kibler 2005a:Figure 7.3). Common design combined with an artifact form itself is even stronger evidence: Huastecan shell discs have long been known to resemble Mississippian shell disc gorgets (Dávila 1997a, 1997b, 2000; Kaplan 1959; Willey

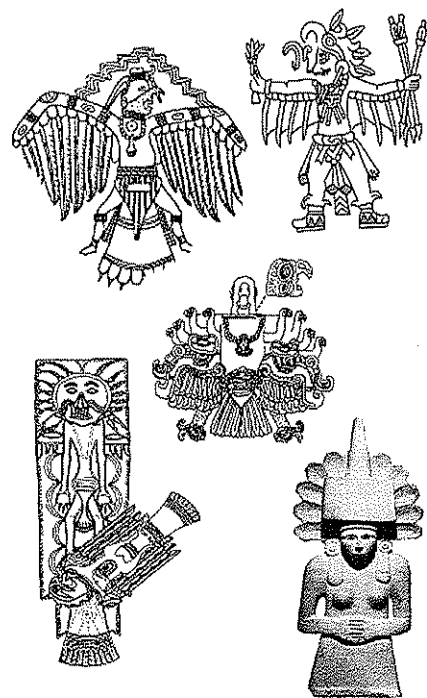


Figure 2. Feathered figures from the Southeast and Mexico: upper left, from Spiro, Oklahoma; right, from northern Veracruz, Mexico (adapted from Phillips and Brown 1975-1982:128; Waring and Holder 1977:Figure 6b); center, from Copan, Honduras (adapted from Fash and Fash 2000:444; Kehoe 2005:Figure 12.2); lower left, from Lake Jackson mounds, northwest Florida (adapted from Jones 1982:Figure 8b); right, from San Luis Potosí, Mexico (adapted from Zaragoza 2005:Figure 11.6).

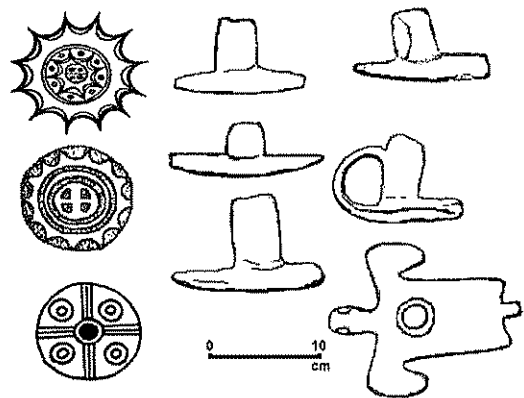


Figure 3. Left, sun circle or cross-in-circle motif: top, from San Luis Potosí, Mexico, ceramics (adapted from Zaragoza 2005:Figure 11.4); center, from Etowah (Georgia) ceramics (adapted from Willoughby 1932:Figure 33c); bottom, from Spiro, Oklahoma, copper (adapted from Waring and Holder 1977:Figure 4f). Center and right, stone platform and monitor pipes from San Luis Potosí, Mexico (adapted from Dávila 2005:Figure 4.10).

1966:169-171; Zaragoza 1998, 1999, 2005), though Krieger (1945) said that the Huastecan examples may not have been gorgets but items glued onto ear ornaments. Interaction between the Caddo region and the Potosino Plateau of the Huastec area is now seen to include many more artifact types than was originally thought, with influences moving from the Southeast into Mexico instead of vice versa. There are even Mexican polished stone biconcave discoidal artifacts that look like Mississippian chunky stones, though it is uncertain whether they were contemporaneous or used for the same purpose (Mexican archaeologists have called them grinding implements [Dávila 2005:100-101; Zaragoza 2005:254-256]).

Mississippian and Huastecan cultures are contemporaneous; other comparisons have temporal problems. For example, platform pipes, both in simple monitor shapes and with animal effigy bowls, from the San Luis Potosí region of northeast Mexico (Figure 3) are probably late prehistoric (Dávila 2005:100-101; Dávila and Zaragoza 1991; Delgado 1991), perhaps 1,000 years later than examples from Hopewell-related sites. Even harder to justify are the many comparisons of Olmec and Mississippian motifs or practices, such as the widespread symbolic use of greenstone; the 2,000+ years of time separation is possibly greater distance than the 2,000+ mi of space, unless, as Webb has quipped, "it was a slow trip north" (1989:283).

These areas of investigation are ripe for new research. Many Southeastern artifacts look as if they walked right out of Mexico, yet they are made of local materials. More detailed study of common stylistic elements might profit from the techniques of art history and structural analysis, to see associations that are clear after the local interpretive and idiosyncratic factors are taken into account. For example, winged serpents or trophy heads can be compared but also the design elements composing them, the contexts in which they appear, and how they are transformed as they move through space and time. Individual elements, even seen in context, can still be ambiguous, of course. For example, could the long tongues or balloons issuing from the mouths of some Southeastern Ceremonial Complex figures (e.g., Phillips and Brown 1975-1982), suggested to represent regurgitation of the black drink (Milanich 1979:110-112), be related to Mesoamerican speech scrolls?

Obsidian

Despite all the common imagery, there was until recently no artifact of clear Mexican origin known in the Southeast. An obsidian scraper from the famous late prehistoric mound center at Spiro has been traced to Pachuca, Hidalgo, in central Mexico (Barker et al. 2002; Evans 2004; Stewart 2002). The specimen, taken from the Craig Mound in 1935, had been donated to the Smithsonian Institution. Paleo-Indian and Late Prehistoric obsidian from Mexico and other sources occurs in southeast Texas (Kibler 2005b). On the west Texas plains, central plateau, and inland margins of the Gulf coastal plain adjacent to the Edwards Plateau, there is obsidian from Malad, Idaho, as well as from Obsidian Cliff, Yellowstone, Wyoming, suggesting a north-south Plains exchange network from the Archaic onward. In west and central Texas there is also obsidian from Jemez, New Mexico, during the Late Prehistoric. However, on the southern Texas Gulf Coast and in the Lower Rio Grande Valley there is obsidian from Mexican sources in Querétaro and Hidalgo, mostly at Late Prehistoric Brownsville complex sites (Hester 1988a, 1988b; Kibler 2005b). A late Paleo-Indian dart point fragment from Kincaid Rockshelter in south-central Texas, on the southern margin of the Edwards Plateau, has been sourced to Querétaro (Hester 1988b). Hester (1988b) also reports a Clovis point from the central Texas coast of obsidian that could not be traced to a known source. He suggests that Paleo-Indian obsidian sources were perhaps more numerous and diverse than in later prehistoric times. An Archaic-style contracting-stem dart point of obsidian from McFaddin Beach, on the upper Texas coast, was sourced to Zacualtipán, Hidalgo, more than 1,000 km to the south (Hester et al. 1992). Obsidian pieces from central Mexico, Idaho, and New Mexico have all been found at sites in Texas hundreds of kilometers upriver along the Rio Grande, suggesting interaction of Brownsville complex peoples with groups far inland.

Obsidian finds in the Southeast are increasing in number. Hester reports a "spurred uniface of possible Paleoindian age" (1988b:28) from Cross Lake, northwest Louisiana, at site 16CD118; it cannot yet be traced to a source and could be associated with components ranging from Clovis and Archaic to Caddoan (Jeane 1984). Jon L. Gibson (2000:173, personal communication 2003) has

noted a piece of obsidian from Poverty Point in northeast Louisiana—a squarish flake about 3 mm thick, possibly a snapped blade midsection, with retouch. He found it in 1988 off the end of Ridge 5 in the northern section of the Poverty Point rings, where the eroding bluff line on Bayou Maçon had cut into the ridge. As to sourcing, he has learned that it resembles Wyoming material but is definitely not from Yellowstone (one major source of Hopewellian and earlier obsidian in the Ohio/Midwest/Upper Mississippi Valley region, other sources being in Idaho [Davis et al. 1995; Hughes 2006; Stoltman and Hughes 2004]). Poverty Point is well known for having stone and other materials brought from great distances (Gibson 1990a).

Samuel O. Brookes (personal communications 2003, 2004, 2006) provided information on the first known obsidian occurrences in Mississippi. One is a poorly made stemmed point base from the Parker Bayou II site in west-central Mississippi. Traced to Obsidian Ridge in the Jemez Mountains of northern New Mexico (Bruce 2003; Peacock and White 2007; Skinner and Thatcher 2002), it may have arrived via Texas or Arkansas, or perhaps it went down the Rio Grande out to the Gulf and up the Mississippi. The second specimen, from the Myer site in Coahoma County, northwest Mississippi (Peacock and White 2007), is a corner-removed point sourced to Malad, Idaho. Brookes noted that both points look Woodland in age, though the former is from a site recently suggested to be associated with Poverty Point culture (Underwood et al. 2006).

A bipolar obsidian flake also traced to Malad, Idaho, was found at the Brown Bluff site in northwest Arkansas (Hughes et al. 2002), but a later investigator, now reporting and analyzing all the site data, shows this specimen to have been in a shallow, disturbed zone (Guendling 2007). A Middle Woodland obsidian flake from southeast Missouri has been traced to Yellowstone (Lopinot 2003:28) and perhaps arrived in the Mississippi Valley along the same cross-continental routes as those traveled by the Myer site piece and the Hopewellian obsidian.

Some obsidian made it even farther into the Southeast. Mark Norton (2005) has traced a flake from western Tennessee to Nevada; a diamond-shaped Archaic point from central Tennessee to the Napa Valley, California; and two points from north Alabama to the Napa Valley and Oregon. Ham-

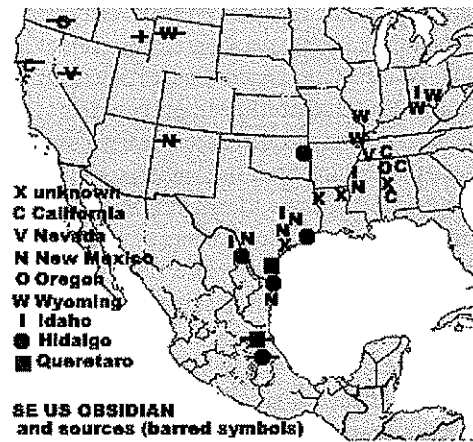


Figure 4. Locations of obsidian finds in the eastern U.S., with source locations.

merstedt and Glascock (2006) have analyzed two pieces from Moundville, in west-central Alabama: a large, black and red, heavily stemmed point that best matches a source in northern California, and a small convex-base point that best matches an obscure source in Highland Guatemala. Concerning the latter, they now think (Scott W. Hammerstedt, personal communication 2007) that the Guatemala source is not as secure as they would like and are sending the specimen to another laboratory. All these obsidian occurrences in the Southeast are shown in Figure 4 (which does not reflect the reliability of the data) and summarized in Table 1.

Additional obsidian may become known in the Southeast as researchers become more familiar with it; even as we write this, various colleagues are contacting us about possibilities. However, caution is needed in interpreting some finds. One Florida specimen turned out to be only dark gray chert (White 2005:9). The Spiro scraper and Moundville items are from unreported old collections, which could be suspect. Another Moundville specimen turned out to be black glass, and the red and black point may have been purchased and included in the collections (Hammerstedt and Glascock 2006). The Arkansas piece is clearly modern and intrusive (Randall L. Guending, personal communication 2007). We have heard of undocumented finds, such as pieces brought up from the Gulf in fish and shrimp nets or reported by collectors. But modern people transport stone for knapping or collecting, and stories of site contamination are not

uncommon. However, some obsidian items now known were indeed brought in prehistorically. Water transport on the gulf and up rivers probably accounts for much of small obsidian distribution in the Southeast, even as it may account for obsidian movement from the West to the Hopewellian Midwest.

The important facts in the Southeast are that there are just a few isolated finds of obsidian, their distribution shows great discontinuity, and the variety of sources suggests infrequent but long-distance, down-the-line movement. As for a Mesoamerican connection, the Spiro specimen is the only example close to the Southeast outside of south Texas. This opinion is confirmed by Jeffrey R. Ferguson (personal communication 2007; Ferguson and Skinner 2006), who is also tracking down obsidian blades within the United States and finds that all other known Mesoamerican obsidian cases in the United States, from the Plains and Southwest (which are outside the scope of the present article), might be explained by the movements of early Spanish explorers and their accompanying Mesoamericans. Hammerstedt and Glascock (2006) point out how all the obsidian items so far known in the Southeast appear unremarkable and utilitarian, as opposed to elaborate Hopewellian obsidian artifacts in the Midwest. Notably, they are also all distributed on the west and north sides of the Southeast—except that there is a reported piece from Town Creek, North Carolina, for which a source remains to be determined (Scott W. Hammerstedt, personal communication 2007). In sum, however, there is very little obsidian in the Southeast; it is everyday stuff, and none of it is *securely* tied to prehistoric Mesoamerica except for items in south Texas.

Ceramics

Southeastern ceramics show many resemblances to Mexican styles and designs, but they were apparently all made at home. Wanting a complex-society heartland from which innovation diffused to less impressive, nonstate societies, archaeologists used to see pottery making spreading northward from Mesoamerica. Now we know there is no Mexican pottery as early as the 4,500-year-old fiber-tempered ceramics in the Southeast, which occur from Louisiana eastward to Florida (Saunders and Hays 2004). Later fiber-tempered pottery, dating

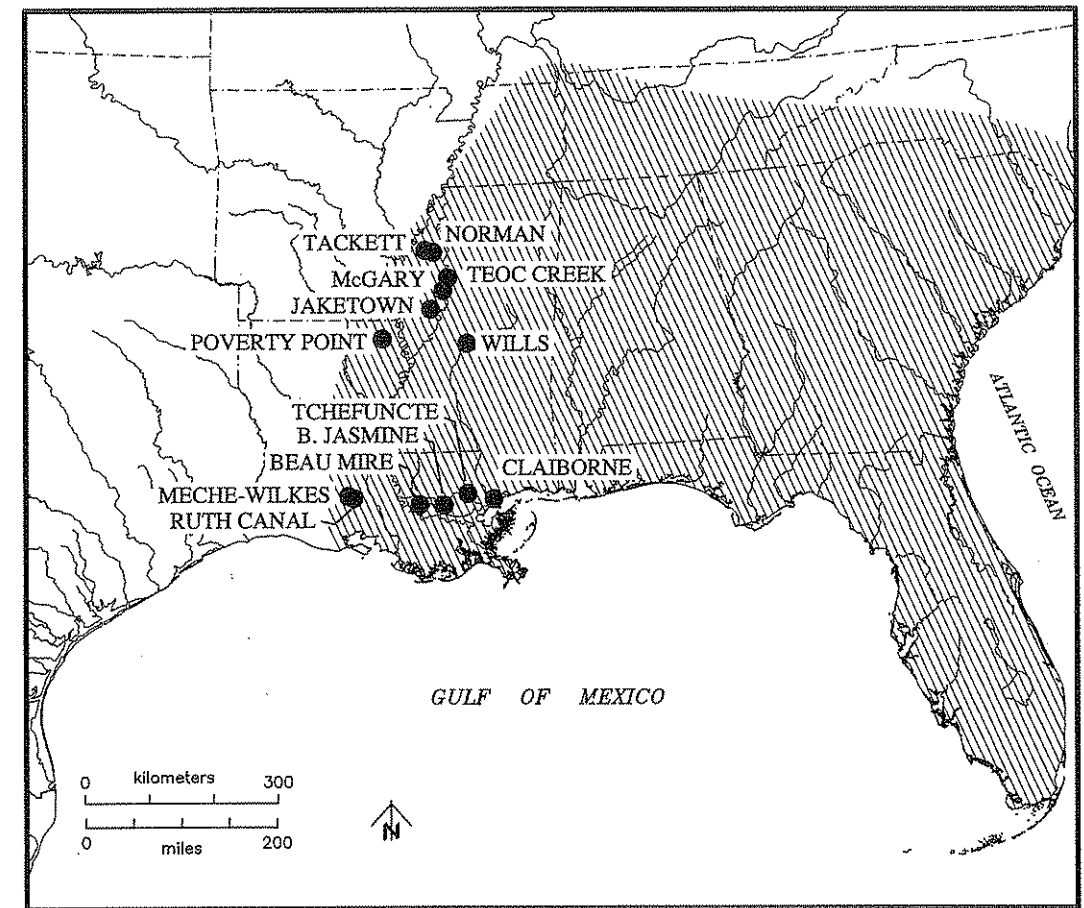


Figure 5. Distribution of fiber-tempered ceramics (hatched area) in the Southeast, with selected westernmost individual sites identified. This is the earliest pottery in North America when it appears on the east coast, though it is much later on the west side of the Southeast.

to c. 3300 B.P., extends far westward into northeast and south-central Louisiana but not as far west as Arkansas or Texas. Figure 5 shows the westernmost known sites with this pottery, including the Meche-Wilkes and Ruth Canal sites in southwest Louisiana (Gibson 1976, 1990b; Gibson and Melançon 2004; Hays and Weinstein 2004:164) and Poverty Point in northeast Louisiana (Gibson 2000:117; Hays and Weinstein 2004; Webb 1982). Because of their similarity to Wheeler ceramics in northwest Alabama and northeastern Mississippi (Sassaman 1993; Saunders and Hays 2004), fiber-tempered ceramics in southern Louisiana are thought to have arrived there by way of the Tombigbee River, Mobile Bay, and the Mississippi Gulf Coast, particularly through the Claiborne site at the mouth of the Pearl River (Blitz and Mann 2000:20;

Jenkins et al. 1986:550; Webb 1982; Weinstein 1995). Similarly, the fiber-tempered pottery at Poverty Point and other more northerly locales is thought to have originated in the Wheeler heartland but to have spread westward from the Tombigbee River drainage to sites in the Yazoo Basin (i.e., Teoc Creek, McGary, and Jaketown) and thence to northern Louisiana (Connaway et al. 1977:88–89; Ford et al. 1955:65–66; Hays and Weinstein 2004:163; Weinstein 1995; Williams and Brain 1983:354–356).

The ceramics known as Altamirano, Santa Luisa, and San Lorenzo are the earliest along the Mexican Gulf Coast, in north, central, and south Veracruz, respectively. They are at least 2,000 years later than Southeastern fiber-tempered wares and are already elaborate (e.g., García Cook 1998;

Table 1. Obsidian Finds in the Southeastern U.S. as of 2007.

Location	Artifact	Source	Culture/age	Reference	Comments
Spiro, NE Oklahoma	scraper	Pachuca, Hidalgo, Mexico	Mississippi	Barker et al. 2002	previously unreported old collection in Smithsonian from Craig mound in 1935
Mcfaddin Beach site, upper Texas coast	contracting-stem dart point	Hidalgo, Mexico	Archaic	Hester et al. 1992	
central Texas coast	Clovis point	?	Paleo-Indian	Hester 1988a	
S Texas coast, Rio Grande valley	various	Querétaro and Hidalgo, Mexico	Paleo-Indian through Late Prehistoric, mostly Brownsville complex	Kibler 2005b	
W Texas plains and central plateau	various	Malad, Idaho; Yellowstone, Wyoming; Jemez, New Mexico	end of Late Archaic through Late Prehistoric	Kibler 2005b	
Kincaid Rockshelter, S-central Texas, S edge of plateau	dart point	Querétaro, Mexico	Late Paleo-Indian	Hester 1988a	
Cross Lake, NW Louisiana	spurred uniface	?	Clovis through Caddoan components	Hester 1988a; Jeane 1984	
Poverty Point, NE Louisiana	retouched flake	?	Late Archaic	Gibson 2000	resembles Wyoming material but not Yellowstone
Parker Bayou II site, W-central Mississippi	stemmed point base	Jemez, New Mexico	Woodland or Late Archaic	Bruce 2003; Peacock and White 2007; Underwood et al. 2006	
Myer site, NW Mississippi	corner-removed point	Malad, Idaho	Woodland?	Peacock and White 2007	
Brown Bluff rock shelter site, NW Arkansas	bipolar flake	Malad, Idaho	?	Hughes et al. 2002; Guending 2007	probably modern, intrusive
southeast Missouri	flake	Yellowstone, Wyoming	Middle Woodland	Lopinot 2003	
W Tennessee	flake	Nevada	?	Norton 2005	
central Tennessee	diamond-shaped point	Napa Valley, California	?	Norton 2005	
N Alabama	2 points	Napa Valley, California, and Oregon	?	Norton 2005	
Moundville, W-central Alabama	large black and red stemmed point	N California	Mississippi?	Hammerstedt and Glascock 2006	in previously unreported old collection, possibly purchased and included there
Moundville, W-central Alabama	small convex-base point	Guatemala??	Mississippi?	Hammerstedt and Glascock 2006; Scott W. Hammerstedt, personal communication, 2007	in previously unreported old collection
Town Creek, North Carolina	?	?	?	Scott W. Hammerstedt, personal communication, 2006	not verified; not shown on Figure 4

Wilkerson 1981). Willey (1966:336; and see García Payón 1971; Griffin 1966) noted that Archaic and Woodland rocker-stamped pottery and figurines in the Southeast that resemble Mesoamerican forms might just be simple ideas that could have originated independently many times in many places. We do know of figurines of clearly Mexican origin found at four separate locations in south Louisiana, photos of which are on file at Louisiana State University (Robert W. Neuman, personal communication 2006), but they were all reported by nonprofessionals, and the circumstances of their discovery are unknown. They could be colonial trade items, such as the figurines and knickknacks found on the *Nuevo Constante*, a Spanish vessel wrecked on the Louisiana coast in 1766 (Pearson and Hoffman 1995:189–190).

Other ceramic attributes, from painting and negative painting to podal supports, and many styles and shapes, such as compound or double-bodied pots, carinated bowls, rim effigies, depictions of personages wearing feathers or elaborate head-dresses and holding staffs or trophy heads, and so forth, might be general New World notions. Both simple ideas, such as running-scroll designs, and complex vessel shapes may indicate sharing of ideas (Figure 6). For example, though the stirrup-spouted vessels from the Mississippi Valley (Phillips et al. 1951:172) and northwest Florida (Moore 1903:464) are surely the result of concepts imported from as far away as South America (Weber 1971) or Mesoamerica (Phillips et al. 1951:452), they were manufactured with local clay and decoration (Figure 6). Also, they are late prehistoric, possibly even postcontact, whereas the stirrup-spout form is something like 2,000 years older in the Valley of Mexico and far older in South America.

The use of asphalt (crude petroleum or *chapopote*) is known from the Mexican coast northward into Texas (Ricklis and Weinstein 2005), at least as a pottery decoration. This natural tar seeps out of the ground and the seafloor and washes up on the beaches. It was used prehistorically in Mexico for paint, possibly also body paint, and for mixing into plaster for mound floor surfaces. The black-stained sherds that Sanders (1978) reports from the Tampico area compare well with asphalt-painted Rockport ceramics (Figure 7) that occur on the Texas coast as far north as Matagorda and

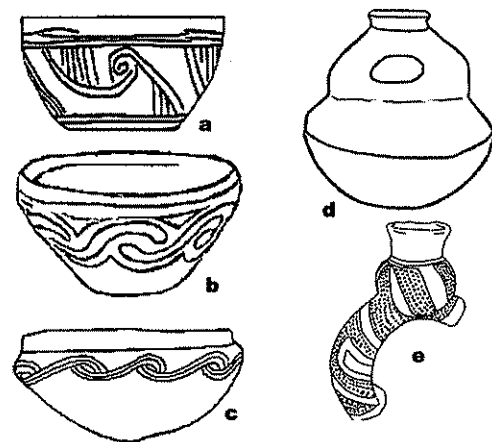


Figure 6. Ceramic designs and forms: left, running-scroll design on (a) Tanquil phase bowl from the Huasteca (adapted from Merino Carrión and García Cook 1987:Figure 12e), (b) Leland Incised bowl from the Lower Mississippi Valley (adapted from Phillips et al. 1951:Figure 99n), and (c) Fort Walton/Pensacola Incised bowl from northwest Florida (adapted from Lazarus and Hawkins 1976:14); right, stirrup-spout vessels from (d) the Mississippi Valley of Arkansas (adapted from Phillips et al. 1951:Figure 106c) and (e) northwest Florida (adapted from Moore 1903:464).

Galveston bays (e.g., Gadus et al. 1999; Weinstein 1991:14). Asphalt has even been reported on turtle shell and garfish scales from the central Texas coast (Weinstein 1994), and its use is known at least as far south as southern Veracruz (e.g., Stark 1978:231) on Formative and Classic Olmec ceramics and apparently for other purposes such as waterproofing.

Mounds and Community Architecture

Earliest Mounds

Though mound building in the eastern United States was once thought to have derived from Mesoamerican stimulus, we now view this stereotype as invalid. There is no known Mexican monumental construction as early as the mounds and earthworks at Watson Brake, Frenchman's Bend, Monte Sano Bayou, Poverty Point, and other Archaic mound sites in Louisiana and Mississippi or even the year-round-occupied shell mounds in Florida (Russo 1994a, 1994b; Saunders et al. 1997; Webb 1968, 1977), which are as early as 7,000 B.P. It has taken a while for the early nature of these

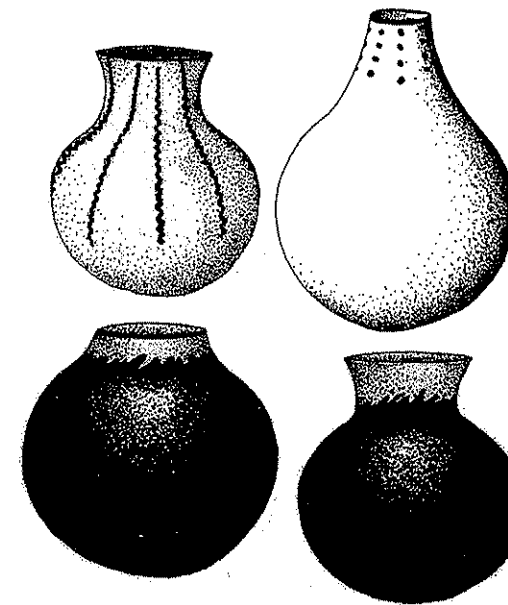


Figure 7. Asphalt-painted ceramics of the Rockport phase of the central Texas coast (Top right from Weinstein and Hutchins 2002; others from Ricklis and Weinstein 2005).

mounds in the Southeast to be accepted; now there is too much evidence to doubt it. The latest estimate suggests at least 14 Middle Archaic mound sites in Louisiana and Mississippi that date between 6000 and 5000 B.P. (Saunders et al. 2005:662). Many more date to the later Poverty Point period (c. 2500–1800 B.P. [Ford and Webb 1956; Gibson 1994; Gibson and Shenkel 1988:12–13; Russo 1994a:Table 1]), but none have yet been confirmed for the intervening Late Archaic period (Saunders et al. 2005:663), although they almost certainly exist. Locations of these early earthen constructions are shown in Figure 8. They do not extend very far west of the Mississippi Valley.

One of the best known of the early mound sites is Watson Brake (Feathers 1997; Jones 1985; Saunders 1998, 2000, 2004; Saunders and Allen 1997; Saunders et al. 1994; Saunders et al. 1997; Saunders et al. 1998; Saunders et al. 2005). It consists of 11 conical or oval mounds, the tallest of which is over 7 m high, arranged in a circle atop a low ridge/midden deposit that is also circular. The entire complex sits on the edge of a Pleistocene terrace overlooking the Ouachita River Valley; it is well dated at between 5500 and 4900 B.P. (Saunders et al. 2005:640–648, Tables 1–2, Figure 8). French-

man's Bend, another important early mound site 30 km north of Watson Brake, is also at the edge of a Pleistocene terrace overlooking the Ouachita Valley. It consists of at least five conical or oval mounds, with the tallest measuring about 5 m high (Saunders et al. 1994:Figure 3). A hearth found beneath a 3-m-high oval mound yielded a calibrated age of 6600 ± 232 B.P., while another hearth about midway up in the mound produced a calibrated age of 6309 ± 140 B.P. Another early site is Hedgepeth, with two conical mounds (6 m and 1 m high), on the upper reaches of Bayou D'Arbonne. Testing by Saunders and Allen (1994) uncovered a hearth beneath Mound A that produced a calibrated age of 4858 ± 100 B.P., plus numerous artifacts similar to those from Watson Brake and Frenchman's Bend. The westernmost of all the early mound sites is Kieffer, situated along Saline Bayou in northwest Louisiana. It once had three, low conical mounds less than 1.5-m high and 20 m in diameter (Gibson 1968:14–15; Gibson and Shenkel 1988:10). Although no radiocarbon dates are available for it, Archaic projectile points (including the Evans type, a diagnostic Middle Archaic form [Saunders and Allen 1997:4–18, Figure 3; Saunders et al. 1994]) and tubular and barrel-shaped stone beads were found associated with one of the mounds when it was leveled in 1964 (Gibson 1968:14).

The function of these early mound sites is unknown. Most are located adjacent to lowland riverine and shoreline environments. While they could demonstrate the need for dry space during flood conditions, the notion that these landscape elevations served a purely utilitarian purpose until proven otherwise is a minority view (White 2004:19). Many see in these mounds evidence for sociocultural complexity, even hierarchy, and ritual symbolism, by about 4000 B.C. (Claassen 1996; Gibson and Carr 2004; Saunders 2004). Rebecca Saunders (1994:133) notes that the tallest of the Middle Archaic mounds occur at Monte Sano Bayou (Coastal Environments, Inc. 1977:I:237; Gibson and Shenkel 1988; Haag 1992; Saunders 1994:120–122, Figure 2) and LSU Campus Mounds sites (Homburg 1991, 1992; Saunders 1994:122–123), atop prominent bluffs overlooking the Mississippi River in Baton Rouge, where they were focal points for information, trade, and ceremony over a larger area. Russo and Fogleman

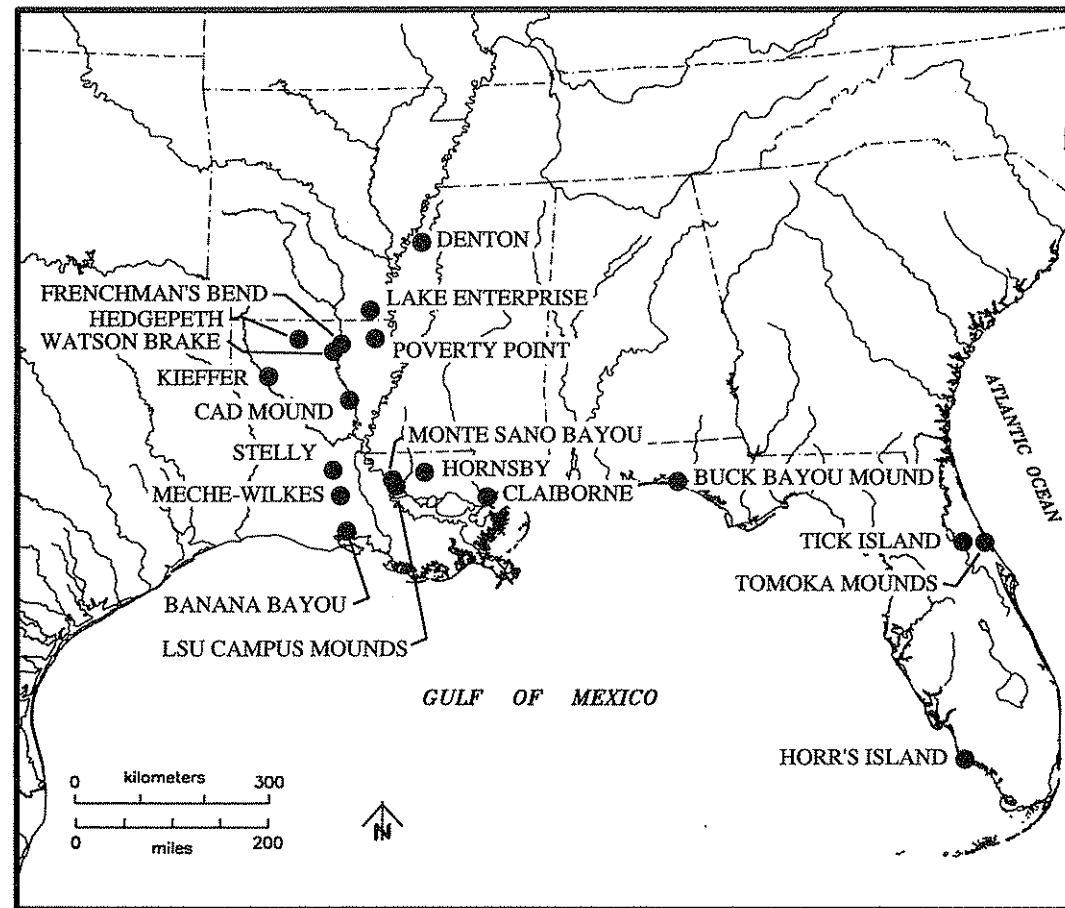


Figure 8. Distribution of early mounds and earthworks in the Southeast at Middle and Late Archaic sites.

(1996:153) similarly speculate that the Stelly Mounds, at the edge of a Pleistocene terrace remnant within the Mississippi River floodplain, may have served some symbolic purpose.

Joe Saunders et al. argue that mounds at Watson Brake were not for human burial but, rather, for "daily secular events" (2005:665). However, data from the two mounds at Monte Sano Bayou, the only fully excavated mounds dating to this early time period, suggest just the opposite. Mound A, a conical structure 6-m high, was built in a single construction episode and covered a low platform that measured 8.5 by 6.5 m. This platform had served as the base for several cremations, one of which yielded a radiocarbon age of 6220 ± 140 cal B.P. (Gibson and Shenkel 1988:Table 1-1). The pyramidal platform, in turn, had been built atop a pre-mound structure represented by a square, single-post pattern that measured about

10.5 m on each side (Gibson and Shenkel 1988:9; Saunders 1994:120–122, Figure 2). The other mound (B) yielded only a few "pillow-sized blotches" of white material on the original ground surface, possibly ash from other cremations. Thus, for Monte Sano Bayou, and possibly the nearby, almost identical, LSU Campus Mounds, these early structures had been built to mark those places where cremations of (select?) individuals had occurred. More work is needed to determine precise ceremonial, utilitarian, social, and other purposes of the early mounds (e.g., Clark 2004; Sassaman and Heckenberger 2004; Saunders et al. 2005). The Archaic populations who engineered them were hunter-gatherer-fishers and presumably not completely sedentary. They also had not yet begun to make ceramics, an innovation once so closely tied into the definition of "formative" cultures.

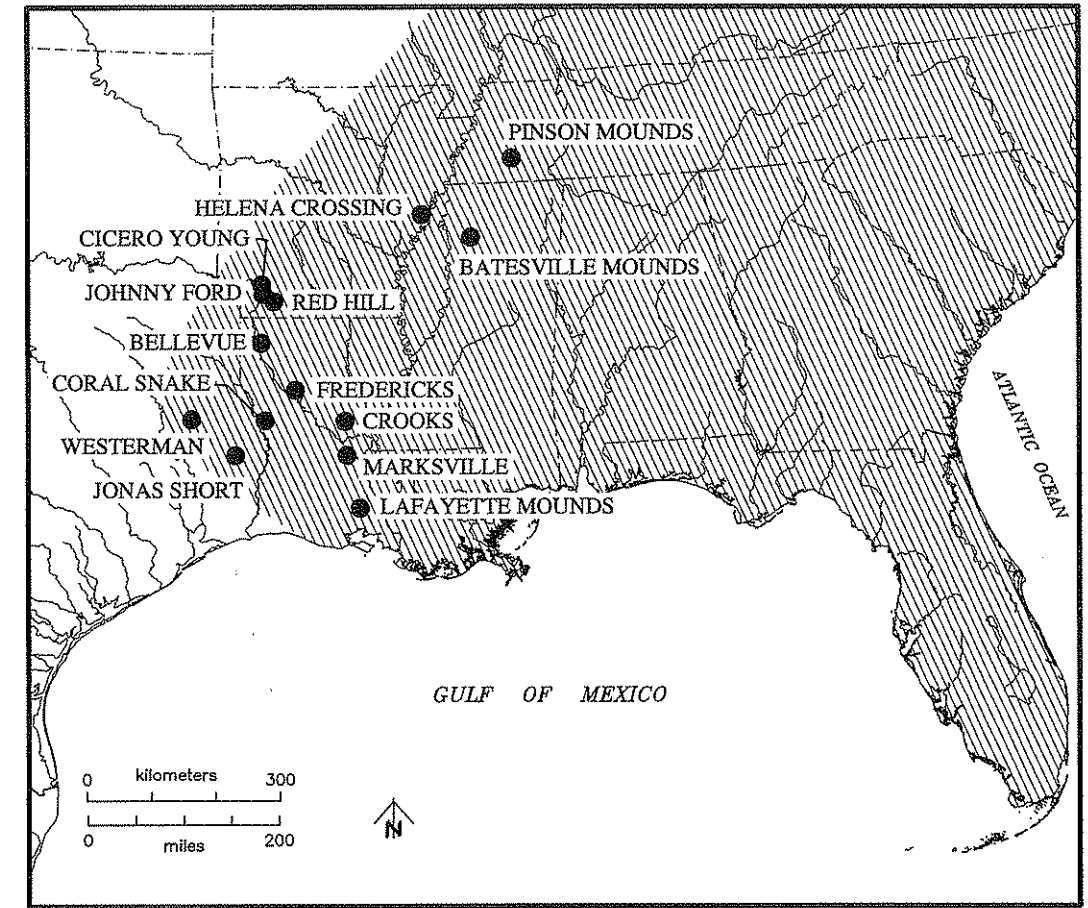


Figure 9. Distribution of Early and Middle Woodland mounds (hatched area) in the Southeast, with selected westernmost sites identified.

Nothing like these early mound constructions appears in Mesoamerica until over a millennium later (though there is a considerable amount of early monumental construction in South America). Clark and Knoll (2005) trace the patterns of the emergence of mound building, maize, manioc, and ceramics in the entire New World and find that they do not vary together but, rather, behave independently in time and space. And yet, Clark (2004) has suggested that the earliest mound planners in the Southeast, Mesoamerica, and South America may all have used the same measurement system and units, perhaps from shared knowledge indicating historic relationships.

Woodland Mounds

By Woodland times there are conical burial mounds and additional earthworks such as berms, walls, and

enclosures throughout the eastern United States (e.g., Mainfort 1988a, 1988b; Mainfort and Sullivan 1998), including peninsular Florida. Figure 9 shows their westernmost extent in the Southeast. But connections between these and the early monumental architecture of northern Mexico or Mesoamerica are unknown. Again there are temporal differences, and when Mesoamerican monumental construction begins, it is often along very different site plans and encompasses the use of stone (although often over an earthen core). Classic examples of Southeastern Woodland mounds, complete with Hopewellian-like log tomb elite burials, are Mound 4 at Marksville in central Louisiana (Fowke 1927, 1928; Setzler 1933a, 1933b, 1934; Toth 1974, 1988; Vesceilius 1957) and Mounds B and C at Helena Crossing, Arkansas (Ford 1963). Examples of other conical mounds, often built in stages and

sometimes containing up to several hundred individuals, are Mound A at the Crooks site (Ford and Willey 1940; Toth 1988) and Mound 1 at the Lafayette Mounds (Ford and Quimby 1945:21–24; Gibson 1974, 1976; Weinstein 1986:115–117, Plate 9.9), both in Louisiana. Mounds with a large number of burials may have held the remains of the general population, the bones of which may have been kept in charnel houses prior to interment (Ford and Willey 1940:41–42).

Of the mound sites shown in Figure 9, two are worth additional discussion because they represent the best known of the westernmost Woodland examples. These are Coral Snake and Jonas Short (McClurkan et al. 1980; Story 1990:279–289). Coral Snake Mound was a conical structure on the east side of the Sabine River in Louisiana (McClurkan et al. 1966). It was surrounded at its base by the remains of a shallow borrow pit and apparently had been built in three stages (Jensen 1968). The first stage entailed excavation of a depression 1.2 m deep and 6 m in diameter into the existing floodplain sands. Several *in situ* cremations were put in the basin; then it was filled, and a low primary mound was added as the second stage. This mound measured 1 m high and 12 to 15 m in diameter and included 10 secondary burials, the remains of 27 cremations (all secondary deposits), and at least two “artifact caches” probably once associated with other burials that did not survive. In the third stage a secondary mantle of sand was placed over the entire primary mound, forming a final conical mound 3 m high and 30 m in diameter. Within this mantle were two additional secondary burials and up to seven artifact caches that also likely represent burials. Significant artifacts that point to an early Marksville age (c. A.D. 1–200) include two whole vessels of Marksville Stamped, Gary and Kent dart points, boatstones, and copper items such as ear spools, a pendant, and rolled beads, two with twine attached. Uncorrected radiocarbon dates of 20 ± 100 B.C., A.D. 180 ± 80 , and A.D. 300 ± 90 also support an early Marksville age (Jensen 1968:39).

The Jonas Short site (Jelks 1965), on the first terrace above the Angelina River in east Texas, had a truncated cone-shaped mound 30 m in diameter and 2.5-m tall. A shallow depression, originally about 1.2-m deep and 4.5-m wide, completely encircled the mound and probably had served as

the source of soil for its construction. This mound was also built in three stages, similar to Coral Snake. The first stage was a shallow, saucer-shaped depression that contained the cremated remains of at least two individuals and two copper bracelets. This depression was then filled, and a primary mound of light gray sand was built over it to a height of c. 1.8 m. Three “artifact caches,” again almost certainly representing burials, were found within the mound fill. A final building stage of stiff clay then was added, bringing the total height of the structure to about 2.5 m. Three additional artifact caches were found within this stage. Artifacts include two hornblende boatstones, a perforated quartz pendant, 10 quartz crystals, a reel-shaped copper gorget, several stemmed chert knives, and Gary and Kent dart points of silicified wood (Jelks 1965:35–44). Although no reasonable radiocarbon dates are available for Jonas Short, it appears to be a Middle Woodland burial mound similar to that at Coral Snake (Guy 1990:63; McClurkan et al. 1980; Shafer 1975; Story 1981, 1990). These westernmost mounds are not very different from their Woodland counterparts all over the Southeast.

Truncated Pyramidal or Platform Mounds

The resemblance between Mexican stone pyramids and flat-topped earthen mounds is easy to see (e.g., Wicke 1965), and was one of the major reasons for originally deriving Mississippian cultures from direct Mexican invasion. There are flat-topped platform or truncated pyramidal mounds all over the Southeast, along the Gulf Coast and far into the interior, but none is located farther west than east Texas (Figure 10). During Early and Middle Woodland times conical mounds predominated, but we now know that platform mounds appeared in the Lower Mississippi Valley and elsewhere long before the Mississippian period (Anderson 1998; Jefferies 1994; Willey 1966, 1999). Probably the earliest Woodland platforms known are at the Batesville Mounds in northwest Mississippi (Holland 1994; Holland-Lilly 1996; Johnson et al. 2002), where at least two were dated to the late Tchula period, an Early Woodland manifestation in the Lower Mississippi Valley. The large Middle Woodland Pinson Mounds site near Jackson, Tennessee, also has low platforms (Mainfort 1980, 1986, 1988a, 1988b; Mainfort, ed. 1988), while Mounds 2 and 6 at Marksville most likely represent similar Middle Woodland

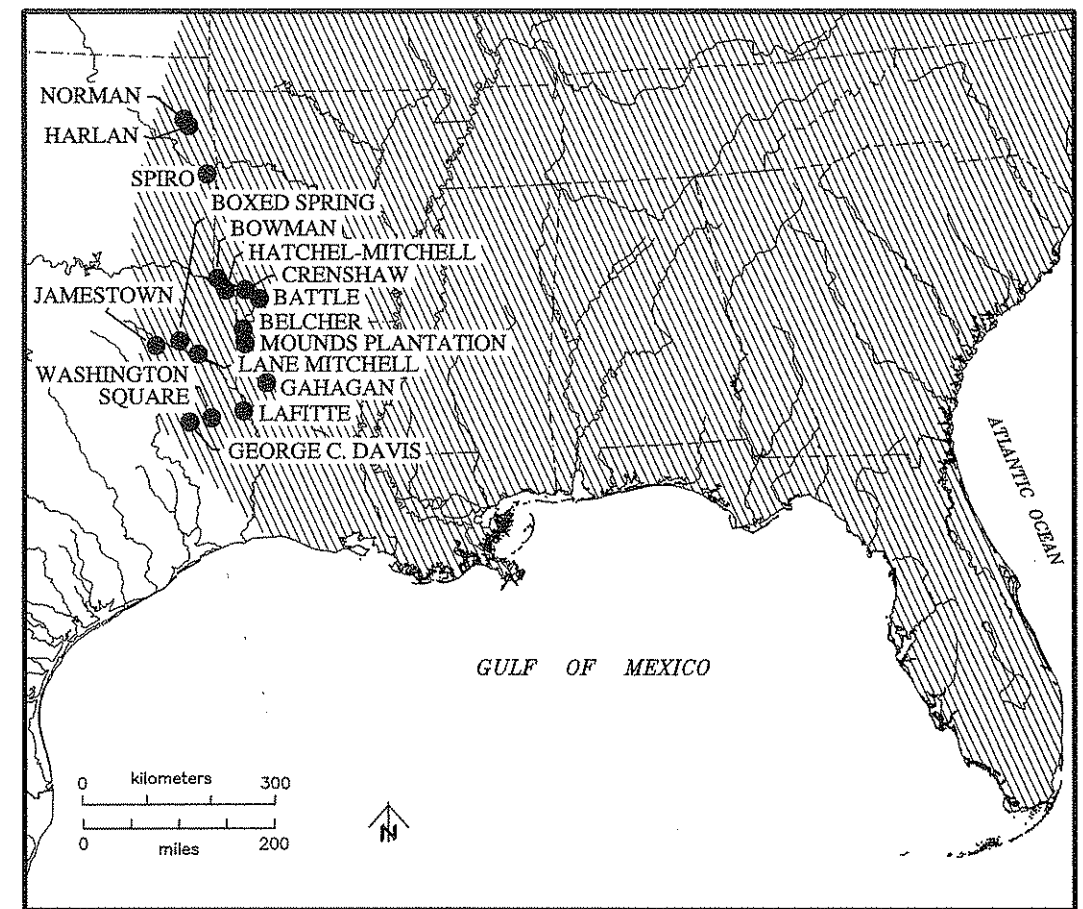


Figure 10. Distribution of Late Woodland, Mississippian, and Caddoan platform mounds (hatched area) in the Southeast, with selected westernmost sites identified.

structures (Toth 1974:28–31, 38–40; Vesceius 1957). Late Woodland platform mounds are even more numerous (e.g., Milanich et al. 1997).

Woodland platforms may not all have been for supporting important buildings but could have been structures on their own. Furthermore, they are at diverse sites with variable architectural composition, sometimes with plazas, sometimes with conical burial or other mounds. Some may have bridged the transition from Woodland to Mississippian (Willey 1966:289), but whether they were directly ancestral to those of the Mississippian period or even served similar functions is still unclear (e.g., Jefferies 1994). The same can be said for plazas, which may have evolved independently from or earlier than mounds (e.g., Kidder 2004). The more mundane house mounds seen not only in the Mesoamerican heartland but also along the Mexican Gulf Coast

(e.g., García Payón 1971:523), built for flood protection, elite residence, or both, are either not present in the Southeast, not widely distributed outside of Lower Mississippi Valley mound centers, or not well recognized. Occasionally, Southeastern platform mounds are circular instead of rectilinear. One example is at the George C. Davis site (Caddoan Mounds State Historic Site) in east Texas (Newell and Krieger 1949), one of the southwesternmost mound complexes in the Southeast. Comparison is invited with circular earthen platforms of north-eastern Mexico (discussed below).

By Mississippian times or earlier, the classic temple mound centers had single or multiple truncated pyramids with ramps leading to ceremonial or elite structures on the summit, typically arranged around a plaza (Lewis and Stout 1998; Payne 1994). This was also a Mesoamerican pattern, seen too along

the Mexican Gulf Coast, where mounds were also sometimes made of earth. Southeastern sites (Figure 11) are seldom shown in ways facilitating comparison with Mesoamerican pyramids; their earthen corners are usually rounded from centuries of soil slump. But the shapes are the same as those of stone pyramids, and if they are squared up on their site maps (not a new idea [see Morgan 1980, 1999; Williams and Brain 1983]), they could fit comfortably in Mesoamerican archaeology books. Many Mexican archaeologists are as unaware of such site architecture to the north as Southeasternists are of Mesoamerican and especially north-eastern Mexican prehistory.

Construction Materials and Design

Mound-building materials simply consisted of what was available. The Southeast has fewer mountains or other rock sources than Mesoamerica. There are some mounds made of stone or covered with boulders from the Woodland period in north Georgia and the southern Appalachians (Jefferies 1976, 1979; Kelly 1979; Willey 1966:287). Large and small rocks were incorporated into mound fill at more southerly sites as well, for example, at Kolomoki (Pluckhahn 2003:60–66) and within the Walter F. George Reservoir area (Knight and Mistovich 1984:99–100) in southwest Georgia. (One small earthen mound, never published but observed by White along the Lower Chattahoochee River Valley near that reservoir, is circular, with radii of rocks on top, forming a large asterisk in the forest.) If the limestone bedrock in parts of the Southeast were more accessible and not so soluble and friable, it might have been used for construction. Indeed, where it is the only thing available and soil is scarce, it was used: late prehistoric mounds of limestone rock are known in the Florida Keys (Goggin 1949). Newman and Tesar (1997) have investigated on Key Largo one such rock mound that has several construction strata composed of earth midden, with faunal remains and Glades ceramics, and limestone rocks up to 45-cm in diameter. It was roughly kidney shaped, about 30-m long and over 2.5-m high, with a ramp and possibly other accompanying rock features such as a long wall and even a causeway. Other mounds in the Florida Keys are faced with large conch shells (Fundaburk and Foreman 1957:106), carrying through the theme of using

whatever works (not to mention what ritual associations might also be present).

The pattern of accretional construction of Southeastern mounds includes individual building stages and sometimes burned layers, covered by new floors or mound caps, often of colorful clay or other soil (red, yellow, gray, black, even blue [e.g., Walker 1936:21, 25]) that would have been distinctive and visible from afar in the green forest. Such floors or caps are comparable to the plastered, painted surfaces of Mesoamerican pyramids. Kehoe (2005:275) points out that comparisons are more difficult today because original pyramid surfaces are gone, replaced by grass or weathered stone. Southeastern mounds of many ages may have other elements in common with Mesoamerican mounds, such as compound shapes and staircases, as at Etowah (King 2003:72) or Troyville (Walker 1936). Comparisons of Mesoamerican architectural layouts with the astronomical alignments and engineering designs of mound centers in the eastern United States from many time periods (e.g., Sherrod and Rolingson 1987), as well as the possibility of common systems of measurement in the New World (Clark 2004), suggest an ancient set of core design and engineering systems. A part of these systems might be reverential deposits—ceremonial burial of artifacts or sacrifices during monument construction and at the repeated rebuilding or termination episodes of these monuments all over Mesoamerica. Such deposits are like modern ribbon-cutting ceremonies, a material demarcation of grand events, and there is no reason not to expect them in the Southeast, though this concept is only rarely emphasized (e.g., Phillips 1940:350). Certainly the ritual burning and destruction of the temple at the death and burial of an important person, followed by construction of a new temple, was a common New World event.

Northeast Mexican Mounds

There are no mounds within the somewhat desolate arid zone of south Texas and extreme northeast Mexico, but earthen architecture picks up again around 100 km north of Tampico in the Huasteca region. The Pánuco River Valley has many earthen pyramids and house mounds, often in groups around plazas (Ekholm 1944a; Muir 1926; Sanders 1978), roughly contemporaneous with Mississippian sites in the Southeast. The platform mounds

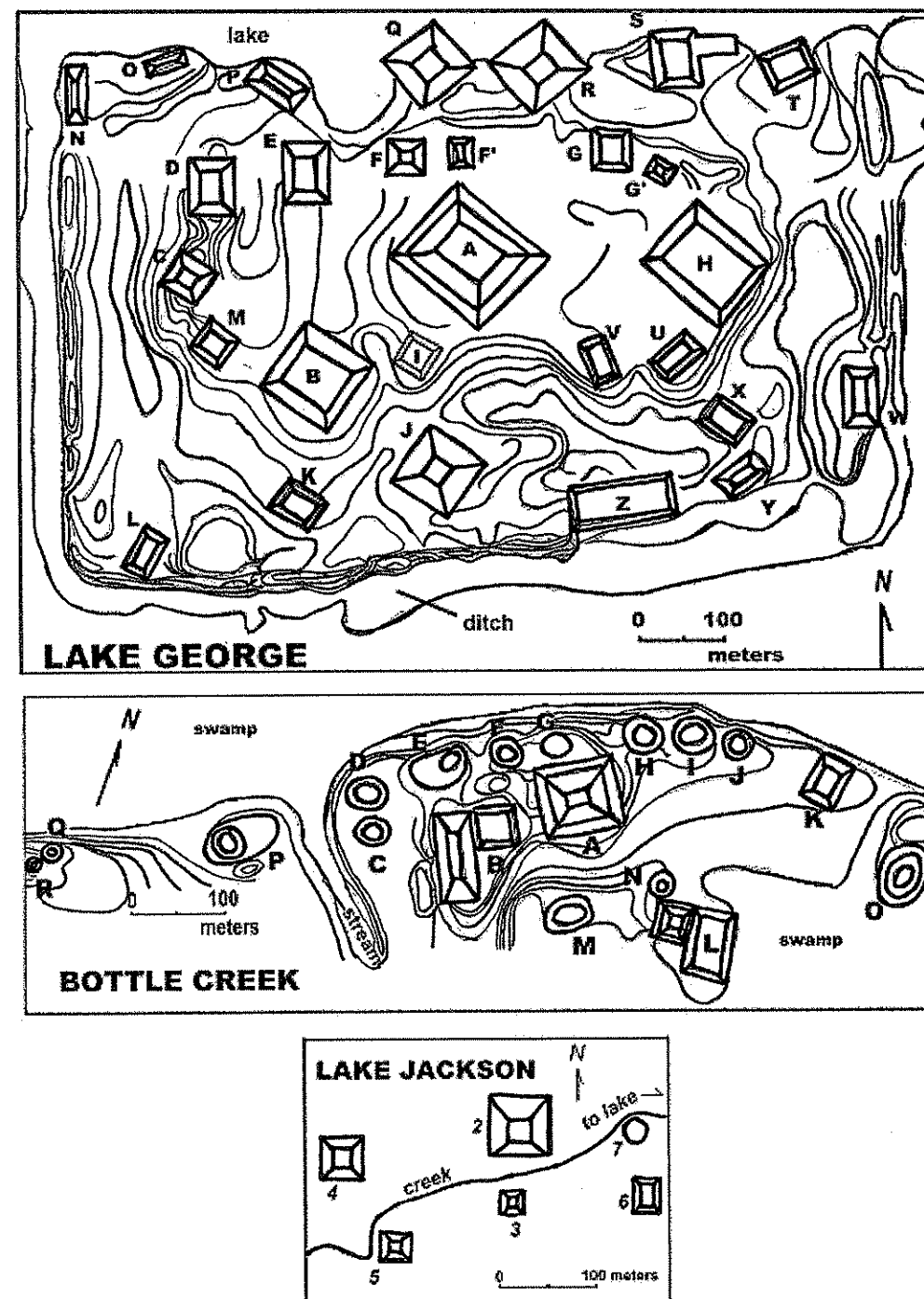


Figure 11. Some Mississippian mound centers with platform mounds squared up to permit comparison with Mexican pyramids: Lake George, Mississippi (adapted from Williams and Brain 1983:Figures 1.2b and 10.7); Bottle Creek, Alabama (adapted from Brown 2003:Figure 1.3); Lake Jackson, northwest Florida (adapted from Payne 1994).

are usually circular, with evidence of round perishable structures on top and successive construction phases marked by distinctive clay, plaster, or asphalt floors, sometimes with painted designs, and burning. An example is Las Flores, located today in the middle of urban Tampico. There several mounds had many superimposed platforms, with stepped ramps leading to summits where round wooden and thatched buildings stood. This distinctive architecture is unlike anything in the Mesoamerican heartland. The round shape may be associated with Quetzalcoatl personifying the wind god, Ehécatl, and the direction east (Stresser-Péan 1971; Weaver 1993:413).

South of Tampico stone architecture appears, resembling that in the rest of Mesoamerica. However, inland in the state of San Luis Potosí there is more monumental earthen construction. An example is the great architectural complex at Tantoc, one of the largest sites in Mexico at 1.5 km across, which flourished from the Preclassic through the Late Postclassic. It is of earthen construction, with mounds, long berms, and plazas comparable to Woodland and Mississippian centers of the Southeast (Dávila 2005:Figure 4.5; Dávila and Zaragoza 1991, 2002; Sanders 1971:552; Stresser-Péan 1991; Zaragoza 2005). (Tantoc has recently made headlines for the discovery there of a possible calendar stone dating to 700 B.C., which would be the earliest in Mesoamerica [Associated Press 2006].) Farther to the south, in the Totonac area, Wilkerson (1974) has noted the presence of earth-filled mounds in southern Veracruz as early as the Early Formative and the earliest earthen platform mounds in northern Veracruz even before 1000 B.C. (Wilkerson 1981:188). Elsewhere in Mesoamerica many classic pyramids had earthen fill that was then covered in stone, plastered, and painted. In the U.S. Southeast, floors and mound mantle strata were often of colorful soil but not plastered. Painted floors are rare; an example from a Mississippian house at Wickliffe Mounds in Kentucky (Wesler 2001:52), on display in the museum there, consists of a fired-clay floor segment painted with a cross-in-circle motif in red, black, yellow, and white. A painted red floor was encountered in a structure under Mound C at Etowah (Morse and Morse 2004:209), and daub painted red and white has been documented in an architecturally unusual earth lodge structure at Moundville (Sherard 2005).

South Texas and Extreme Northeastern Mexico: The Area In Between

Both archaeological and ethnographic data can help illuminate relationships between settled farmers of the Southeast and Mesoamerica and mobile hunter-gatherers in coastal Texas and northern Mexico. One problem in understanding such relationships is that descriptions of the latter come from the former or from outsiders, and the early historic sources (chroniclers, missionaries) are of course biased (Chapa 1997 [1630–1695]; Hers et al. 2000:17). In addition, we try to understand the northern Mexican cultures through the traditional culture-history framework that includes not only neatly organized timetables with named periods but also the implicit assumptions about cultural evolution. The path from Formative/Preclassic through Classic and Postclassic—from hunter-gatherer to village farmer to urbanite—is stereotyped as a trajectory with increasing complexity, sedentism, and logical orderliness. The problem with it is that even in the middle of Mesoamerica this normative, confining, hypothetical sequence of cultural periods with value-laden names is not crystal clear, and it certainly does not fit well with archaeological evidence from northern Mexico, where farmers sometimes returned to foraging, cities were ephemeral, and the frontier fluctuated through time (Escobar Ohmstede 1998; Hers and de los Dolores Soto 2000:40). The same can be said for the other side of that pesky modern international border, where the general time periods of southeastern U.S. prehistory (Archaic, Woodland, Mississippi—at least the terms themselves do not conjure up rises, falls, or cultural climaxes as do the Mesoamerican ones) do not fit the archaeological record of many of its subregions very well. They certainly do not work in south Texas, where the sequence goes from Archaic directly to Late Prehistoric. The transition is somewhere between A.D. 200 and 700, from a post-Pleistocene foraging lifestyle to a more sedentary (perhaps), gardening (perhaps) adaptation characterized by social and ritual elaborations and technological change, including the earliest pottery and the introduction of the bow and arrow (Story 1990:243).

Similarities in conch shell tools, engraved shell gorgets, and asphalt-painted pottery of southern and central coastal Texas must relate to the

Huasteca region, while farther north, Galveston Bay ceramics are extremely similar to Coles Creek and Plaquemine wares of the Mississippi Valley (Ricklis and Weinstein 2005). The few east Texas mounds may have mixed elements. For example, the George C. Davis site, on the Neches River, has features and materials similar to forms in the Mississippi Valley and the northeastern Gulf Coast, with copper, maize, bison, the platform mound, and even the suggestion of a U-shaped structure (Newell and Krieger 1949). Influences appear to have moved in both directions toward Texas, but the general coastal adaptation there may have involved less regional interaction and more local or subregional isolation (Gadus 2005). Plus, there are distinctive differences that imply complete lack of communication across the greater area. Shell middens are prominent in Texas coastal archaeology; we know they exist south of the Rio Grande, but they are rarely mentioned, so we do not know if there are fewer in Mexico.

Mechanisms for possible interaction across this intermediate zone remain unknown. The Aztecs had *pochteca*, wandering traders, who may have ranged far but probably not that far (cf. Neurath 1992). The concept of the Gilmore Corridor remains an unsupported hypothesis (Kibler 2005b), as noted. Other proposed routes, for the entrance of maize, for example, have included coastal plain and shoreline transportation. The old question of whether Coahuiltecan foragers brought maize grown by their southern neighbors up into Caddo country and thence to the Mississippi Valley has never been answered. There is still no evidence for major population movements around the Gulf. For now we can continue to postulate small groups or individual travelers who were aware of settled farmers and probably often related to them, moving back and forth between them but unable to be similarly situated because of their less favorable environment or perhaps just not interested in burdening themselves with unnecessary fancy ornaments of status.

South Texas

For all the discussions of cultural relationships between Mesoamerica and the Southeast, it is curious that the area in between—buffer, borderland, frontier, or whatever it might be called—has been largely ignored (Hers and de los Dolores Soto

2000:43). This area needs closer examination, especially as frontiers become envisioned not as borders or no-person's-lands but as regions of multiple dimensions of interaction (e.g., Parker and Rodseth 2005; Rodseth and Parker 2005).

Beyond the far west of the Southeast, this coastal zone of desert or semidesert ecosystems and lower biological productivity is less dense with prehistoric human settlement and does not have major ceremonial centers or mounds, even though hunter-gatherer-fisher folk can move innovations great distances and also become complex in their own right (e.g., Arnold 1995; Widmer 1988). Sites of this region come in a myriad of forms. Many of the largest are simply extensive earth or earth and shell middens that stretch for hundreds of meters along the margins of bays or river valleys or atop barrier islands or lengthy peninsulas and spits that span most of the Texas coast. In some cases such sites occur as a series of distinct occupation areas, often separated by large gullies or streams. Together these occupations can extend for many kilometers and probably formed the large “villages” noted by some of the first Europeans to explore south Texas (Ricklis 1995a, 1995b, 1996). The most intensively studied sites of this type include three (Ernest Witte, Leonard K, and Little Bethlehem) associated with the Allens Creek complex (see Figure 1), a group of over 30 individual earth middens and large aboriginal cemeteries dating from c. 3000 B.C. to A.D. 1500, situated along the edge of a Pleistocene-age bluff overlooking the Brazos River floodplain (Hall 1981). Well over 200 burials at these sites were replete with numerous burial goods indicative of Late Archaic interaction with nearby groups on the Texas coast, the inland Edwards Plateau area, and farther away across the Southeast (Hall 1981:291–309).

The Guadalupe Bay site is another valley-margin locale within a series of extensive earth and shell middens on the east side of San Antonio Bay (Ricklis and Weinstein 2005:134–139; Weinstein 2002). Although no evidence of contact with exotic groups was found here, the site is important for its data relative to changes in local subsistence patterns between c. 500 B.C. and A.D. 1800 (Scott 2002). Examples of sites on barrier islands include the Late Archaic to protohistoric midden and cemetery complex at Mitchell Ridge on Galveston Island (Ricklis 1994) and the Late Archaic/Late Prehis-

toric shell midden at Ingleside Cove (Story 1968). As with the Allens Creek burials, the late prehistoric and protohistoric burials at Mitchell Ridge showed evidence of contact with groups to the east, while the subsistence data from Ingleside Cove foreshadow the later findings at Guadalupe Bay and elsewhere and help form the basis for the area's aboriginal settlement model proposed by Ricklis (1992a, 1993, 1995b, 1996; Ricklis and Cox 1991; Ricklis and Weinstein 2005).

On the lower Texas coast are sites of even less complexity than those of the upper and central coasts. Sites of the Rio Grande Delta, for instance, consist simply of scattered artifacts and shellfish remains found along the margins of bays and lagoons or atop relict natural levees or the numerous clay dunes (commonly referred to as "lomas") that are ubiquitous across the region. Most of these sites had been grouped previously into a somewhat nebulous cultural-historical construct termed the "Brownsville complex" that was thought to date generally to the Late Prehistoric period (c. after A.D. 1200 [Black 1989; Bousman et al. 1990; Hester 1969, 1975, 1980, 1994, 1995; MacNeish 1947, 1958; Ricklis 1995b; Ricklis and Weinstein 2005]). Recent research by Terneny (2005) and Weinstein et al. (2005) indicates that some Brownsville-complex sites have a much greater time depth than originally estimated and that many shell tools and ornaments normally associated with the complex can occur in Late Archaic contexts in the area. Generally, the area is very poorly known and needs archaeological research.

Perhaps the only sites in the Rio Grande Delta area to receive anything more than a cursory examination are the aboriginal cemeteries at Ayala and Floyd Morris. Ayala was found in 1948 when excavation of a sewer trench revealed human remains on a farm just south of McAllen, Texas. The cemetery was located on a pronounced rise above a relict channel of the Rio Grande (Campbell and Frizzell 1949; Hester and Ruecking 1969:147-148, Figure 1). Initial investigations revealed 11 Late Prehistoric Brownsville-complex burials that contained 15 individuals, almost all flexed and placed in circular pits that had intruded into a thick Archaic-age midden. Artifacts with the burials include *Oliva* shell beads, disc-shaped beads of whelk or conch shell, and tubular bone beads (Hester and Ruecking 1969:147). Several burials had red pigment. In

1952 seven more burials were encountered; as many as 44 burials may actually have been present (Hester and Ruecking 1969:155). Again, all the burials were flexed and in circular pits and included many artifacts typical of the Brownsville complex: *Oliva* shell beads and tinklers; conch or whelk disc-shaped beads; perforated canine teeth; tubular bone beads; and perforated rectangular bone pendants, some with engraved lines filled with asphalt, and one perforated, large triangular whelk or conch pendant. Although such items may be part of the Brownsville complex, similar artifacts have been found in unquestionable Late Archaic contexts farther up the Texas coast at both the Ernest Witte and Guadalupe Bay sites (Dreiss 2002:480, Figure 9-12d-e; Hall 1981:201-202, Figure 47).

Floyd Morris was examined in 1966 after human remains were uncovered during land-leveling operations just north of Harlingen, Texas. On a slight rise adjacent to a probable relict Rio Grande channel, the site included the remains of 18 burials (11 fairly intact, seven badly disturbed), plus a few isolated individual artifacts and small clusters of faunal material (Collins et al. 1969:121, Figure 2). There may once have been 75 to 100 burials; they consisted of single flexed interments in shallow pits, although a few contained multiple flexed individuals. As with Ayala, a few had red pigment. In one instance (Burial 11), an initial flexed interment of an adult had been disturbed by a subsequent bundle burial that included three individuals (an adult male, a young female, and a newborn infant or fetus). The bones of the initial individual were highly mineralized, while those of the bundle burial were not, suggesting that a significant period of time had elapsed between the two interments (Collins et al. 1969:128-133, Figure 5). Other burials at the site showed the same pattern: some mineralized, and others not. Given the presence of an Archaic dart point, plus a wealth of items associated with the later Brownsville complex (shell disc beads, bone tubular beads, *Oliva* tinklers, perforated *Noetia* shells, *Marginella* beads, a Matamoros point, and a small end scraper), it has been argued that Floyd Morris was used as a cemetery for a relatively long period of time (Collins et al. 1969:121). Of particular interest for Mexican-U.S. connections is a large, tubular jadeite bead found by the landowner near where one of the burials was subsequently discovered. This bead must be a trade

item from the Huastecan area; it matches quite well a large jade bead noted by Ekholm (1944a:487, Figure 54) from burials at the Las Flores site. Collins et al. (1969:137) also cite MacNeish (1947:7) as having noted two other Huastecan-like jadeite items (a large spherical bead and a small celt-like object) found at other Brownsville complex sites in south Texas.

Northeast Mexico

Farther south, well over the border, the historic Huasteca (or Huasteca or Teenek) were Maya-speaking hunter-gatherers and farmers (Ariel de Vidas 2004; Sandstrom and García Valencia 2005) in a zone sometimes labeled as a buffer between Mesoamerica proper and the agricultural societies of the Southeast. It is unclear what a buffer is supposed to be or why one was needed. The coastal Huasteca built prominent ceremonial centers during the Early Postclassic (the earthen mounds described above). Their monumental stone sculptures depict important people during the Late Postclassic, and their unique black-on-white Panuco-phase pottery was traded north "to the wild tribes, some of whom carried it as far as southern Texas" (Willey 1966:170). Their carved circular shell gorgets may have inspired similar artifacts in Mississippian cultures, though, as mentioned, the influence actually may have moved from north to south (Zaragoza 2005), as tobacco may have done in earlier times (tobacco might also have originated in South America [von Gernet 1995], or there may have been stronger tobacco varieties in Mexico, which then moved north [J. Brown 2004:685]). Huastec bowls illustrated by Merino Carrión and García Cook (1987:Figure 12) for the Tanquil phase (A.D. 600-900) in the Pánuco Valley appear similar to slightly later Mississippian ceramic types (see Figure 6).

North of the Huasteca, Willey (1966:329-331) includes northern Tamaulipas above the Rio Soto la Marina and all the Texas coast in a culture area that also extended into Nuevo León, Coahuila, and eastern Chihuahua and was characterized mostly by what it was not: not the Southeast, or the Southwest, or the Plains, or Mesoamerica, or the Huasteca, the major culture areas that surrounded it; not suitable for agriculture, with only scrubby vegetation; not characterized by elaborate cultural development, just the general Desert Archaic. Tay-

lor (1966) notes how archives show that historic Indians of this region traveled a great deal and could easily have influenced recipient cultures. Griffin (1966) describes similarities in Archaic points and other stone tools from south Texas to Tamaulipas but notes the absence in Mexico of distinctive Southeastern Archaic artifacts such as bannerstones and copper implements. The richer coastal environments in this region, with their good-sized river valleys and wetlands, must be distinguished from the surrounding arid physiography. The coastal plain is narrow in the Mexican portion of this area, widening in Texas, and not all sandy wasteland. Those lagoons behind barrier island formations have bountiful resources (less so in the salty Laguna Madre, as noted). We know that bison made it to the central Texas coastal zone during prehistoric times (e.g., Hester and Parker 1970; Prewitt and Paine 1988:162; Ricklis 1988:30, 1989, 1992b, 1995a:85, Figure 31, 1996; Schmiedlin 1979; Shaffer 1989) and were present across south Texas in the nineteenth century (e.g., Dillehay 1974). They must have been in Mexico as well. Occupants of the whole region had other faunal resources besides deer, fish, and reptiles. However, as stereotyped as it sounds, it may be the case that cultural complexity only "picks up" close to the Mississippi or Pánuco rivers.

The Chichimec Connection

Hunter-gatherer-fishers north and northwest of the Huasteca are described as "nomads or seminomads of a rather low culture" (Stresser-Péan 1971:585) and were called *chichimecas* or "dog people" in Mexico. The word was used not only for specific ethnic groups inhabiting the northern Mesoamerican frontier and occasionally invading southward but also for any mobile barbarian-type folks (in a very Western sense) who sometimes produced lineages that took over (compare Rome, A.D. 476). They were characterized as "wild" peoples, not only in post-Columbian histories but also much earlier, in original native chronicles. They were "uncivilized," possibly cannibals, but nonetheless apparently ancestral to Toltecs, Aztecs, and others (Weaver 1993). Similar to the Vandals of Europe, whose name is now a generic term for people behaving badly, *Chichimec* became a term for uncivilized groups of the borderlands.

Hers and de los Dolores Soto (2000:42) explain

that, from the sixteenth century to the present, *chichimec* has been used to mean a specific time, a "level" of cultural development, an ethnic group, a geographic place, a savage barbarian, and a personification of the unknown or "the other," outside civilized Mesoamerica. Most of this comes from the one-sided descriptions of Chichimecs given by their contemporaries. But the Vandals were a specific Germanic ethnic group, with origins that can be traced to some degree; this is probably also true of the Chichimec. Hers and de los Dolores Soto (2000:42), expanding the work of Beatriz Braniff (e.g., 1993), note that we should not envision a Chichimec culture as a single great unsettled ethnic group atemporally occupying all of north Mexico. Instead, archaeology and ethnography here can investigate the symbiosis or other relationships of foragers with more sedentary villagers, the movement from one means of production to the other and back, and the instances of mutualism between the two that may have fostered peaceful conditions, and not just conflict (Hers and de los Dolores Soto 2000:43).

Chichimecs were usually located in northwestern Mexico and the U.S. Southwest. The area considered the Mesoamerican frontier is sometimes not pictured extending as far east as the Gulf of Mexico, and it also fluctuated through time, with the northern border as far south as the Pánuco River by A.D. 1500 (Braniff 1993:67). In discussing the dynamics of socioeconomic interaction along the northern frontier, Weigand and García de Weigand (2000:120; and see Weigand and Harbottle 1993) show many long routes for the exchange of turquoise, for example, running from central Mexico in a large north-northwestward arc into Arizona and New Mexico. One lone route heads eastward from there to Spiro, then south-southwest to the northeastern Mexican Gulf Coast, before concluding the return trip to the center of Mexico. A branch of it (with question marks) moves from New Mexico southeastwardly, along the southern Texas border (the Rio Grande), to join the route from Spiro to northeast Mexico. None of these routes includes the Southeast proper, however.

Chichimecs may have facilitated a great deal of socioeconomic interaction, whether they were raiding or trading, moving minerals or ideas, though it is still unclear who they all were or where they went. Most descriptions appear to be based on the

accounts of the colonial Spanish, where the word *chichimeca* was picked up to use as an ethnic slur, to mean general untamed natives (perhaps much as an early Agatha Christie mystery novel uses *apache* to mean a mugger in a dark London alley). But one fascinating possibility comes from some of the earliest history of the colonial Southeast, where Spaniards as early as the 1620s (Hann 2006:12) applied the name Chichimeco (or Chichumeco) to a native group with a fierce reputation as warlike savages (Hann 1988:401–402, 2006; McEwan 2000) who attacked Guale, Apalachee, and other native provinces. Mission-period and later documents record the Chichimeco as early as 1661 possibly coming from Virginia and moving around coastal Georgia and northwest Florida, often preying on mission settlements, slave raiding, and even practicing cannibalism. Though the Spaniards or their Mexican Indian associates in Florida may have been using *chichimeca* simply as the word for savages, the term may also have referred to a distinct ethnic group (Hann 1988, 1996, 2006). The Chichimeco of the Spanish documents were apparently the same as the Westo or Ricahecrians/Rickahockans of English records on the Atlantic coast, Virginia, and the central Georgia area, who apparently originally derived from the Erie of northern Ohio (Bowne 2005; Hann 1996:67–68, 2006:12, 52–68; Worth 1995). Mobile historic groups may point to more connections than we realize; Kehoe (2005) has postulated Mesoamerican relationships for Powhatan, the historic native leader of Virginia. The detailed Spanish description of the ball game played by the Apalachee (Hann and McEwan 1998) and other native cultures in Florida and Georgia shows that it may have close connections with the Mesoamerican ball game, not only in procedures and social and ritual associations but also in terminology (Wilkerson 2005). Though tenuous, such connections merit further investigation.

Disconnections: What Is Missing?

Theoretical Frameworks

To this point, we have discussed both evidence and potential evidence and conditions needed for interaction between the U.S. Southeast and Mesoamerica. From a purely materialist perspective we see enormous potential, mostly amenable geography

(especially along the Gulf Coast), technological expertise in water travel, and the great knowledge of the landscape that aboriginal peoples would have had. But this approach also requires empirical demonstration of material connections through testable hypotheses. So far, unquestionable empirical evidence is scant except along the Texas coast and the Rio Grande. Showing more sustained and widespread cultural interaction between these regions requires more. To Muller's (1971) framework of comparing not just individual traits but integrated functional and structural complexes, we add the need for demonstrated material connections (through trace analyses or other scientific means) and also for evidence of important traditions that would be expected to move easily between regions.

A less-than-rigorous scientific framework will be, we feel, inadequate. Structural analyses of design motifs are useful, but in prehistoric time we can never see their clear referents. The difficult and long-standing iconographic issues are hard to resolve when we do not know if similarities derive from common origins or convergence or something else. Indeed, by historic time, when actual meanings might have been recorded, most of the Southeastern and Mesoamerican aboriginal cultures were either extinct or so altered as to be less useful ethnographic examples for comparison. Shared practices for which there is unmistakable evidence, from the taking of trophy heads to the incising of interlocking scroll motifs on pottery, are also known as far away as Borneo, for example, so there is no need to invoke contact across one continent for explanation. The several points made so far (some requiring a bit of intellectual gyration) support the idea of cultural interaction only in the borderland region. Even there, one could hypothesize long-distance traders, intermarriages, political alliances, or other interaction mechanisms, but designing ways to test for each would be more elusive.

Yes, the expected and necessary hard evidence for more sustained and longer-distance interaction may be either gone or not yet found. But the rapidly expanding archaeological record, especially as the Gulf Coast becomes increasingly bulldozed for "development," has not turned up much so far, and it would be unlikely that only perishables were exchanged. At the risk of being accused of using "bait and switch" tactics (as one reviewer sug-

gested), after listing so much possible evidence, we must explain why it is just not enough to establish the case. Like good detectives asking why the dog did not bark in the night, we must understand where Mesoamerican–Southeastern connections should be evident but are *not* there.

Materials and Technologies

Of the obsidian coming to light in the Southeast recently, none from Mexican sources has yet been found east of the Mississippi, only at the edges of the Southeast. The Moundville piece may not even be from Guatemala; either way, it would fit comfortably into a picture of a few odd, mostly utilitarian obsidian items scattered around the Southeast and obtained from long distances, most probably by individual and idiosyncratic means. The remains of tropical plants in south Florida, just like the connections between south Florida and Caribbean native languages, are beyond the margins of the heartland Southeast, and these plants did not move north from there. Items from Mexico that moved into the western United States might not be present in the Southeast because equivalents were already available. For example, the western exchange in macaw feathers may have been unnecessary in the Southeast, where the green and red Carolina parakeet (extinct), ivory-billed woodpecker (extinct?), and other colorful birds were abundant. Mexican jaguars, so distinctive with their spotted coats and so important in Mesoamerica, ranged prehistorically only as far north as south Texas (McCarthy 2004), but the cougar or panther once native to the entire United States (now remaining only in the West and in south Florida) probably served equally well to inspire Southeastern cat imagery.

While ceramic similarities have been mentioned, there are too many discontinuities in timing, style, and other characteristics to see definitive connections. For example, there are relatively few clay figurines in the Southeast as compared with the northeast Mexican Gulf Coast, with its smiling Totonac figurines and small, wheeled pottery figures, not to mention mold construction of ceramic artifacts. Northeast Mexican ceramic styles from many time periods are similar to many found farther south in Middle America and northern South America, but apparently there was not much spread northward. Metallurgical techniques in the Southeast did not include using molds, as was common

in Mesoamerica, or indeed anything beyond cold hammering raw metals. Other technologies that seem as if they would have been easy to pick up from neighbors around the Gulf apparently did not spread either, such as making bark paper, which is recorded for the Huasteca (Stresser-Péan 1971:589–590), or burned-shell plaster, also done in the Huasteca and throughout Mesoamerica. With standard daub-covered houses and so much shell available in the coastal Southeast, why did mounds or houses not end up with plastered floors or walls?

Inexplicably absent in the prehistoric Southeast is cotton, an important Mesoamerican crop known on the Mexican Gulf Coast as early as 1500 B.C. (Griffin 1980:15). No cotton artifacts, not to mention evidence for the entire labor-intensive production system, have been found. Historically, of course, cotton was enormously abundant and important in the Southeast; but prehistoric fabrics were made only from grasses, hair, and other fibers. The only known cotton occurrence is a fragment from Spiro that is considered to be an exchange item from the Southwest, where it was grown and woven on looms (Brown and Rogers 1999:140; Drooker 1992:201–202). Once cotton was introduced in historic times it quickly became ubiquitous for native use in the Southeast (Miner 1936; Whitford 1946:11). Perhaps there were cultural barriers to its acceptance earlier, or, perhaps like obsidian and other things, it just did not make it that far away from Mexico like maize did. There is no archaeological evidence of which we are aware for looms in the Southeast, and the possibility of spindle whorls is so far limited and tentative (Alt 1999; Drooker 2001:180). Wild cotton (*Gossypium hirsutum*) does grow in south peninsular Florida (e.g., Widmer 1974:10) beyond the heartland Southeast; it was apparently not used aboriginally.

Alcohol and Other Drinks and Drugs

The greatest mystery to an archaeologist is the absence of any prehistoric alcoholic drink in the Southeast (and indeed most of North America north of Mexico). There is neither archaeological nor ethnographic evidence for it (a tentative case has been made for maygrass beer in Kentucky caves [Schoenwetter 2001]). The *sofkee* of the Creeks and other versions of cracked hominy soup may have been allowed to sour or ferment slightly (Hudson 1976:305), but apparently this was for taste. No

tradition of alcohol production or consumption has been identified: no maize beer, and no wine, despite the fact that any fruit or starchy grain food left for just a short time easily starts fermenting in the warm temperate South (sometimes in the field camp refrigerator). Prehistoric Mesoamericans (and Central and South Americans) were imbibing great quantities of maize beer and pulque, as well as alcoholic drinks made from fermented fruits, palms, and baked mescal (not to mention mushrooms, morning glory, datura, peyote, and other mind-altering substances that also were apparently not used in the Southeast).

The fermentation process was likely known long before food production (Furst 2000:x). The tradition of making beer in the New World is thought to have originated with the Olmec or even earlier (Bruman 2000). Though both palm wine and pulque (fermented juice of the agave or maguey plant) were made by the Huastec in northeastern Mexico, and pulque may even have originated there, the best agaves do not grow there (Bruman 2000:63–64). The Mexican highlands have been suggested for the early origin of pulque, but maguey imagery is prominent at places such as El Tajín (Figure 12) on the Gulf Coast (Sheehy 2001:254–255). Stresser-Péan (1971:586–587, 599) notes the strong association of pulque with the Huastec, who were known for a ritual of drunkenness associated with male nudity, fertility, and magic. Coahuiltecan in north-central Mexico and possibly south Texas made mescal from agave (and also ingested peyote) and had all-night dance feasts (Newcomb 1961:41, 55). How could all of this not move around the Gulf Coast into the Southeast?

The tradition of alcoholic beverages in general apparently did not even reach all the way to extreme northeastern Mexico. A possible reason is the hypothesized prehistoric absence of suitable microorganisms for the fermentation process (Bruman 2000:109), which may also have been true in the U.S. Southeast. Without them the liquid would just sit, mold, and rot. Or perhaps the lack of alcohol is related, again, to the remoteness of the entire Gulf Coast from the south-central Mesoamerican plateau, where several traditions of producing alcohol converged (Bruman 2000:7–11). It is also possible that coastal environments somehow did not provide the right additional natural or cultural conditions for

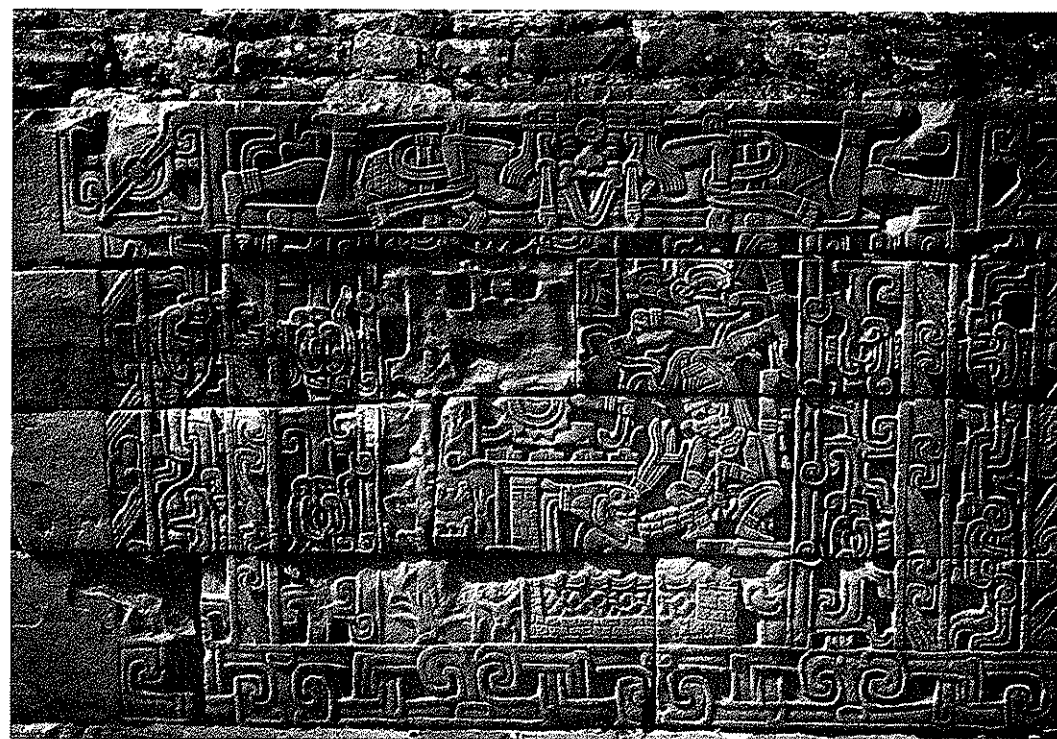


Figure 12. Bas-relief in South Ball Court at El Tajín, on the central Mexican Gulf Coast, showing possibly Tlaloc, the rain god (squatting, at right center), practicing bloodletting self-sacrifice and giving drink to fish-helmeted figure in a small pool (at left center); a maguey plant at lower left celebrates the source of the alcoholic drink pulque; central face (at top, connected to two bodies) may be happy from the effects of the pulque ceremony (photo by N. White, 1999).

fermentation, or for the right species of plants, or for the acceptance of alcohol use.

The “black drink,” caffeine-packed tea made from yaupon holly, appears to have been the only substance of psychochemical effect regularly used in the prehistoric Southeast, though there were other medicinal brews, many powerful tobacco varieties (some of which may have been hallucinogenic [von Gernet 1995]), and apparently datura or jimsonweed at Cahokia, at least (Emerson 2003). The black drink was often taken from cups of large Gulf Coast shell, which are often found archaeologically in ceremonial contexts. The holly leaves were dried or parched to make the tea, though one account suggests that in historic times some leaves were slightly fermented (Sturtevant 1979:155). Yaupon is the holly species known as *Ilex vomitoria*, after its emetic properties when infused and drunk in large quantities. It grows along the entire northern Gulf Coast extending as far west as central Texas (Merrill 1979:42) and was used all over the eastern United States for this sacred, socially significant drink from probably Archaic

through recent times (Hudson 1979). Related species of *Ilex* occur along the Mexican Gulf Coast and inland in Chiapas and Hidalgo (Hu 1979). We therefore might ask why natives in these areas of Mexico did not take up the custom of making black drink, but then, they had so much else to ingest.

One of the other Mexican drinks is cacao, another missing element in the Southeast, whether as the plant, the drink, or the associated complex of customs and material culture. Chocolate was enormously important in Mesoamerican value systems, for ritual, payment of tribute, and drinking by elites. The preparation of the frothy drink is well documented. One account of “black drink” preparation among the Karankawa of coastal Texas notes that the process occasionally included stirring the tea with a whisk until a yellowish froth covered the top of the liquid, at which point it was passed around and drunk (Merrill 1979:69). This sounds very much like the preparation of chocolate, but it must be a coincidence. There appears to be no connection between the special tea brewed along the northern Gulf and a drink made from the beans of an

intensely cultivated tree in Mexico. Cacao does require intensive labor and the year-round humidity of a tropical climate (Sanders 1971:548; Weaver 1993:244–245), and the plant does not survive too far north of the Mesoamerican heartland. However, the sturdy beans could have been traded far; yaupon holly grows mostly on the coast but was traded far inland because of its importance. Meanwhile, we might ask how Southeastern natives had interesting spiritual, physical, or social experiences facilitated only by tea and tobacco.

Other Cultural Systems

Continuing along the social–ritual–spirituality continuum, perhaps it is too much to ask for the same kind of Mesoamerican ball game in the Southeast if there are no rubber trees for balls or stone for courts. The world's earliest team sports played by men and women with a rubber ball developed along the Mexican Gulf (Fox 1996; Scarborough and Wilcox 1991; Whittington 2001), but the distribution of rubber beyond the tropics as a manufactured product may not have reached far northward, even though the game spanned many time periods, types of societies, and regions beyond Mesoamerica proper. There were equivalent sports, such as the Southeastern ball game mentioned above. Perhaps real ball courts are going unrecognized in the Southeast because researchers are unfamiliar with them. In the Southwest, a ball court may survive as merely a couple of parallel earthen berms and little else, and in the Huasteca region there are traces of small, simple, prepared ball fields (Stresser-Péan 1971:599).

The study of salt procurement and exchange as a mechanism of socioeconomic interaction may illuminate possible Mexican–Southeastern connections around the Gulf of Mexico, though so far this potential is untapped, and the archaeological evidence for salt-making activity is very diverse. Besides mineral requirements, salt is needed for preserving fish and meat. Ian Brown's (1980, 1981, 2004) study of prehistoric salt making on the northern Gulf points to the need to compare methods, technologies, and accompanying material culture along the whole coast. Andrews (1983) and McKillop (2002) focus on Yucatán but mention sources both there and on the Pacific coast. Kibler (2005a) suggests salt procurement as a factor structuring occupation of areas on the south Texas coast and

interior. Again, the evidence may be of the kind with which archaeologists in the Southeast are less familiar.

Water Management

Another type of integrated system that appears to be absent in the Southeast is irrigation. Investigations of prehistoric water management usually focus on the larger, more visible systems of complex states or arid areas, but now it is clear that they existed even in areas with abundant water, such as the Maya Lowlands (Darch 1983; Davis-Salazar 2003; Fedick 1996; Scarborough 2003), so there is no reason they could not have been constructed prehistorically in the Southeast. Irrigation canals and raised fields for agricultural intensification, as well as wells and reservoirs for obtaining and managing still water (not to mention aquaculture of fish and shellfish), were constructed and manipulated in Mesoamerica and the Southwest. But little of this was apparently included in Southeastern food production. Perhaps it was not needed, since double cropping was not possible in a region subject to winter frosts, or else the ideas just did not occur or move into the region. Another possibility is that the lack of irrigation was associated with the maintenance of matrilineal kinship and the division of labor by gender that meant that women were the farmers. In the historic aboriginal eastern United States, women usually did the farming, in systems that have been labeled “simple” (nonmechanized) farming (Boserup 1970) or even horticulture (Martin and Voorhies 1975), though they were intensive agriculturalists with large maize fields. Mesoamerican and north Mexican labor, kinship, and social systems took a different direction, involving men in farming and also in building and maintaining irrigation systems and other intensification.

Discussion of prehistoric water management includes asking whether central authority was needed or community-level organization sufficed (e.g., Scarborough 2003). Either way, extensive irrigation systems were possible for nonstate societies in the Southwest, and maize arrived there early along with early irrigation (e.g., Damp et al. 2002). Southwestern groups were also matrilineal, and women did agricultural labor, but of course there was little water available without cultural assistance. But intensive, nonmechanized, maize/beans/squash cropping in the Southeast

seems to have been confined to river floodplain meander belts and dependent on rainfall and consequent flooding to renew soil nutrients and bring water (e.g., Smith 1978:480–490). These agricultural zones have been seen as environmentally circumscribed, such that population growth brought increased competition and conflict in later Mississippi times (Smith 1978:483). This interpretation leads to the question of why further intensification through irrigation was not then a natural development, even if rainfall agriculture was productive. There is just as much rainfall along the humid Mexican Gulf Coast (Sanders 1971; Siemens 1998), where irrigation systems became well developed. The difference may be in the scheduling of growing season coordination with rainy seasons.

But perhaps Southeasternists do not recognize raised fields and irrigation channels because we are not looking for them. Large rivers in the eastern United States can change course and dump many meters of alluvium over the centuries that might hide evidence of old canals and drainage ditches. Raised fields and irrigation canals in Mexico have often been discovered by chance, such as during unusual flooding (Daneels et al. 2005) or air reconnaissance (Siemens 1998). Several other kinds of huge, human-made landscapes have been harder to discover until technology allowed or other chance events took place. The earthen rings at Poverty Point were not noticed until aerial photography became available (Gibson 2000:79). The massive center of El Pital on the Mexican Gulf Coast became known only when the thick jungle was cleared for agriculture and what looked like natural hills were investigated (Wilford 1994; Wilkerson 1994).

Beyond irrigation, other water-management systems may have been present in the Southeast. Borrow pits from mound building may have been utilized as water sources. Prehistoric canals are now documented (e.g., Luer 1989, 1998; Wheeler 1995, 1998) in northwest and peninsular Florida. In south Florida they were apparently for transport, as there was no agriculture there, but some may have been for aquaculture. Detailed study of their construction evidence might provide baseline data for recognition of such manufactured elements in other Southeastern landscapes. We know of other constructions such as the channels surrounding Mississippian centers at Etowah (Georgia), Lake

George (Mississippi), Bottle Creek (Alabama), and elsewhere (Brown 2003; Lewis and Stout 1998). These ditches or canals might have been for defense, transport, raising aquatic species, or simply convenient water sources. One suspected example of protohistoric water management has been identified at the Jordan site in northeast Louisiana (Kidder 1992; Kidder and Saucier 1991).

Cultural Complexity

Sociopolitical evolutionary histories, the paths to statehood or complex chiefdoms, are perennial topics in the investigation of Mesoamerican–Southeastern interaction, though parallels or divergences are seldom specifically addressed. Years ago, Kent Flannery's (1986) keynote address at the annual meeting of the Southeastern Archaeological Conference (SEAC) presented for comparison a fascinating study of what early Mesoamerican agricultural villages looked like; there seems to have been no research pursuing such comparisons. Similarly, other Mesoamerican specialists have addressed SEAC—George Stuart in 1995 on the Maya and David Freidel in 1999 on recognizing warfare and ritual succession events—but similarities among sociopolitical systems between the regions are rarely examined (cf. Pool 2005). There are clear areas of comparison, such as offerings or sacrifices buried during the construction of a new mound or temple stage.

Archaeologists long ago discarded unilinear (even multilinear) and normative evolutionary trajectories that would have started with apparently similar adaptations and ended up with chiefdoms in one place and states in another. But the debates continue concerning what it does take to produce a true state. Some still ask if states would have developed in the Southeast had outside conquerors not arrived or whether the region was too distant to have developed secondary states through association with or conquest by a Mesoamerican world system. Others (a minority) ask if we are blinded by our training and unable to see Mississippian states or cities such as Cahokia for what they were (Kehoe 2005:270–272; O'Connor 1995; Webb 2006). There is no single teleological trajectory, with the Southeast just stuck in the slow lane, since the many paths of sociopolitical development do not all end up in greater complexity. Statehood is hard to see in northeastern Mexico as well (Wilk-

erson 1974:89). Meanwhile, complex societies emerged all over the Southeast fairly contemporaneously and independently (e.g., Rogers 1991), not what would be expected if the processes were tied with imports of Mesoamerican ideas.

Compared with relations between the U.S. Southwest and Mexico, which were probably more fluid and continuous and involved sparser populations, less complex social systems, and shorter distances, relationships between the Southeast and Mesoamerica might have involved some deliberate or unintentional resistance. Southwestern populations were relatively egalitarian in social organization and less agriculturally productive, in a less rich and more uncertain environment (Cobb et al. 1999; Cordell and Milner 1999:113). More populous ranked or stratified groups of the Southeast, from perhaps the Late Archaic onward, were strong and complex both politically and economically. This may have meant that they could withstand or ignore large-scale interference or influence from the outside or be isolationist themselves in not exploring beyond the geographic areas of their own control.

Conclusions and Future Directions

In the U.S. Southwest there is clear evidence of sustained long-distance interaction and movement of artifacts across what is today the Mexican border, but we agree with those who say that the same is not true for the Southeast (e.g., Cobb et al. 1999; Griffin 1980; Weaver 1993:413). Natives of the Mexican Gulf Coast, discoverers of rubber and petroleum, sports fans and players on the ball courts, users of chocolate, alcohol, cotton, and other useful items, may not have spread these innovations as far as the northern Gulf simply because of distance or perhaps because of resistance. They had near-monopolies on luxury trade items such as feathers, cotton, and cacao (Sanders 1971:549), but closer customers may have consumed these goods. Southeastern cultures, early potters and tobacco smokers, makers of engraved shell gorgets, might have sent just a few of their ideas and commodities southward to Mexico. Technologies such as copper working were too different and separated in space and time even to be related (early in the U.S. Midwest; later and more complex in Mexico). Sociopolitical evolution was perhaps too local to

be connected on a much wider scale. Only ritual imagery and religious notions seem to have connected these regions somewhat continuously.

Common Symbolic/Ideological Foundations?

We suggest that between the Southeast and Mesoamerica there was just a filtering in of occasional people and ideas—mostly down the line and sporadically through time—that has left enough archaeological traces to be suggestive but not definitive. There is too much discontinuity in the material culture and the systems that produced it to hypothesize much more at present. Many tenuous similarities look like they were acquired “second-hand” (Covarrubias 1954:272) or could be attributable to common and ancient ideological foundations (e.g., Cobb et al. 1999; Muller 1999:149). These opinions are not new; Webb (1989) and others (e.g., Jackson et al. 2004:39) have noted the long-standing discussion of both the very old religious and iconic themes and also the independently emerging evolutionary parallelisms between Mesoamerica and the Southeast. We are encouraged by continuing studies of Southeastern symbolism (e.g., Hall 1989, 1997; King 2007; Reilly and Garber 2007; Robbins 2005; Townsend 2004). It is not impossible that Mississippian culture was a revival of old-time religion from both Olmec and Hopewellian days, with imitation of (or even reuse of) discovered or curated artifacts from earlier times. We moderns continually reinterpret important cosmologies, such as Christianity over two millennia, so that the motif of the cross is seen everywhere in every medium, from huge neon versions over buildings to jewelry attached to pierced body parts.

Pan-American ritual and belief systems may have had common foundations renewed now and then at just those times of rare physical contact and then left to be continually locally reinvented, released from original limits. The similarities we have discussed should probably be explained through both diffusion and independent invention; symbols moved around and changed with each new generation and each trip to see how someone else conceived of the universe. Any individual unit of imagery can be examined chronologically and over horizontal space for its earliest manifestation and countless permutations. For example, the idea of conflict and taking a life required proof in the form

of a decapitated human head throughout the New World (and elsewhere). It may have been both diffusion and the “psychic [psychotic?] unity of humankind,” in cultures with common foundations for millennia, that led to the taking of trophy heads and the trophy skull motif as a crucial symbolic element throughout North and South America and elsewhere.

Sporadic Specific Interaction?

Based on the distant “smoking gun” of a piece of obsidian and the more obvious similarities of Cad-doan and Huastecan cultural complexes, we could say that, over short distances, interactions among prehistoric aboriginal groups of Mexico and the U.S. Southeast certainly existed but that long-distance connections were intermittent. The Mexican obsidian in Oklahoma and Texas possibly got to those locations not in the backpack of a long-distance trader but through down-the-line transfer of interesting objects. Nevertheless, it is also not impossible that a few adventurous/foolhardy individuals made really long trips and left a few items in a new place or returned home with souvenirs or influential ideas. Hall (2006) has recently described a Hopewellian copper cutout from Illinois that resembles the skull of the Central American caiman. DeBoer’s (2004) reconstruction of bighorn sheep imagery in Hopewell supports the idea of a single journey around A.D. 200 from Ohio to Wyoming to get obsidian and ideas for fancy grave goods. Individual Southeastern aboriginals could have made similar, if rare, long voyages (perhaps 8,000–12,000 km) into Mexico, possibly acquiring ideas or objects that may have conferred useful supernatural power (J. Brown 2004:684; Helms 1988).

The filed teeth cited by Griffin (1966:129) from the Cahokia region are an example of such a possibility, and it is worth noting some aspects of the original study. Griffin recognizes these specimens as evidence of people who had been to Mesoamerican dentists. Stewart and Titterington (1944) had known of only one skull (from the Pueblo region of Arizona) out of thousands examined from North America north of Mexico that had filed teeth when they undertook their study of these four cases, all of which came from within a 65-km radius of Cahokia. A 25-year-old male from a Jersey County bluff mound on the Illinois River had six λ-shaped

grooves or notches filed in his upper four incisors. A single incisor from a Cahokia village area had four notches and a single transverse (horizontal) groove. Three loose upper incisors from east of Monk’s Mound each had two or three shallow notches. A bluff burial 13 km south of Cahokia had upper medial incisors each with three notches. All these cases are apparently from Mississippian or Woodland contexts, and all have λ-shaped notches filed into the upper incisor teeth. This style of dental mutilation is typical of teeth from Michoacán and Veracruz in Mexico, as well as from Honduras and elsewhere in Central America. The horizontal groove is not typically Mesoamerican, but the authors note that horizontal grooves were also found on both central incisors of a skull at a Lamar site near Macon, Georgia. The rest of the associated skeletal remains of these cases, where present, indicate apparently local people, as opposed to immigrants from long distances (though this is of course not yet demonstrable for the finds of individual teeth with no other skeletal remains).

Since this original study, more cases of such dental alterations have been documented, many in old collections with inadequate recorded contexts (Milner and Larsen 1991). Most are also from the American Bottom region in west-central Illinois, around Cahokia, and are of Mississippi age and found on teeth of both sexes. In addition, a Tennessee specimen from the Mound Bottom site, from an elderly male, also of Mississippi age, is an upper incisor with both the notch and the transverse groove. Two Texas cases may be Archaic in age: a young adult female with single notches on upper and lower central incisors and an adult male with three lower incisors notched. Many or all of these individuals may have had a common origin for their mouth adornments. Milner and Larsen point out that these filed teeth “are not associated with superordinate status positions consistent with any putative dealings with distant peoples” (1991:360–362) and think such dental alteration was developed independently in the Cahokia region, just as we now see Mississippian culture as an indigenous development, not derived from Mesoamerican origins. But there is a chance (perhaps testable) that the individuals with the filed teeth may have been Mexican immigrants or perhaps a group of friends from the South who traveled to Mexico and back, having become interested in new forms of body alter-

ation. The addition of the horizontal groove and other aspects of the dental alteration not reported in Mesoamerica might mean local variation added to the borrowed practice, as Stewart and Titterton (1944:320) originally suggested. It should be noted that filed and otherwise altered teeth in Mexico (even seen in ceramic effigies) are not necessarily associated with high-status individuals either, including those at Tamuin, on the Gulf Coast (Romero 1970:57–58).

An example such as the filed teeth, even if it could be demonstrated to indicate Mexican travel or influence, by its rarity suggests very sporadic, not sustained, interaction. This sporadic character may be related to other factors besides mere physical distance. As noted, travel by water would have been easier than that by land, but coastal dynamism may have inhibited it, or transient hydrological and geological features may have obliterated the evidence. With rising sea levels, shifting deltas, and wandering barrier islands, coastlines may have prohibited anything but ephemeral settlement for travelers or colonizers. Evidence for human settlement, let alone cultural interaction across a wide area, will necessarily be more sketchy and less well preserved under such conditions. Late prehistoric societies along the northern Gulf were constantly shifting in size, alliances, and compositions (e.g., Davis 1984), probably partly because of this environmental dynamism, and such an evolutionary history might have prevailed earlier. Indeed, if travelers from Mexico made it to the Southeast or vice versa, they would be better off paddling far upriver to avoid such coastal hazards.

Useful Models

In sum, we believe that there was no sustained, large-scale interaction between the Southeast and Mesoamerica, only sporadic contact through the centuries, with fundamental ideological similarities between the regions originating in deeper time and perhaps sustained by those sporadic contacts. Rather than minimizing the achievements of ancient peoples, as one reviewer suggested, we believe we are demonstrating the great sophistication of the cultures of the Southeast in maintaining their own strong traditions and resisting outside intrusion, not to mention dominance. Their incredibly dense populations and complex achievements are often overlooked because they had no stone to

leave more impressive monuments and they were the first contacted and devastated by Old World invasions.

New hard data could change our conclusions. Southeastern archaeologists should be on the lookout for possible connections, not only with Mesoamerica but also across the Caribbean with South America, where a few similarities do invite discussion (Jackson et al. 2004:39). In the lushly forested Southeast, most material culture would have been of perishable substances. It is difficult to conduct a detective investigation if most of the evidence has decomposed, but the increasing research at wet sites is promising. We know that socioeconomic exchange systems extended over thousands of kilometers across the continent (e.g., Baugh and Ericson 1994). This included Southeastern economies, expanding and contracting over time, perhaps, with punctuations during Poverty Point, Middle Woodland, and Mississippi times. Some details are so clear that we can use them to build and debate various models based on ecological factors, political economy, or other interpretive emphases (Johnson 1994). And a very few sites, such as Spiro, seem to have been hubs for such exchange, especially in sumptuary items, from all directions (Lafferty 1994). Spiro is in a transition zone, west of the Mississippi River, at the edges of the Southwest, the Plains, and the Southeast, so it is not surprising to find there the tiny amounts of Mexican obsidian, cotton, and other exotics, even California olive shell beads (Kozuch 2002).

Our models are now more sophisticated; for example, we no longer see Mississippian cultures as derived from Mesoamerica and thus less “worthy of respect” (Carlson 1980). The old notions of culture contact and site-unit intrusions should give way to newer models that include world systems theory and core-periphery relationships, symmetrical and nonsymmetrical interactions (based on size and complexity of the societies involved), and colonization (e.g., Cusick 1998; Hoerder 2002; Lesick et al. 2002; Woosley and Ravesloot 1993), not to mention emic approaches that seek to model human agency, social identity, and power inequalities (e.g., Schortman 1989; Stein 2002). Peregrine and Lekson (2006:354) have recently asked why we shy away from examining large-scale sociopolitical processes across North America, such as tying together factors behind the end of Classic

Mesoamerican societies and those causing massive regional change in the late prehistoric Southwest and Southeast. They think that perhaps it is very difficult to do, especially given the amount of work archaeologists need just to process the data overload in the Southwest; this overload is clearly present in the Southeast and Mesoamerica as well, but it should make us better able to evaluate the questions than archaeologists of earlier generations. Indeed, many (e.g., J. Brown 2004; Johnson 1994) have been looking at large-scale interactions for a while now.

Some recent models from the Pacific might be useful for comparison; they depend on scientific sourcing of archaeological materials coupled with ethnographic data. Radiocarbon dating and DNA sequencing have provided firm evidence for the late prehistoric introduction of chicken into Chile from Polynesia (Storey et al. 2007); this seems to show just the kind of sporadic contact we propose. It is even more likely in the Pacific, where the sea is more an avenue for cultural interchange than a barrier to human interaction. Pacific groups were not “primitive isolates” on different islands but, rather, sophisticated constant travelers; boats meant few barriers (Terrell 1998). While the vast Pacific is very different from the Gulf of Mexico, with many small and large islands instead of a continuous enclosing coast, the comparison may be instructive. Terrell (2001) has noted how far-reaching relations (marriage, warfare, exchange, inherited friendships) among hundreds of radically different linguistic groups in Oceania have probably been constant through time, though the supporting evidence is usually fleeting—perishable or even intangible, such as songs, dances, house styles, cults. He (1998) shows that our construct of an archaeological “culture” is fraught with problems, as ethnographically many diverse cultures have identical material remains. Evidence for obsidian transport gives a biased picture in the Pacific. Distances between obsidian finds and their sources are many times farther than the known range of any of the ethnographic exchange systems recorded in recent history. Terrell (2001:63) quotes the work of White (1996), who notes that the wide obsidian distribution in western Melanesia probably renders invisible the numerous interconnecting exchanges resulting from individual, more frequent, much shorter voyages. Differences in material culture

can mask interactions among societies, and similarities in material culture can range across very different social and linguistic groups. These ideas are well supported by new findings from eastern Polynesia. Basalt adzes in the Tuamotu Islands have been traced to various nearby island sources but also to one source in Hawai’i, 3,400 km to the north; the archaeological evidence is correlated with oral histories of such voyages (Collerson and Weisler 2007; Finney 2007).

Future Research

To continue seeking connections between the Southeast and Mesoamerica, we can take good studies of design and art style distribution (e.g., Lesure 2004) and expand them across the major regions in concert with materials sourcing. A good example for Southeasternists is the tracing of Olmec ceramics from diverse locations to a single clay source at San Lorenzo (Blomster et al. 2005), which provided scientific support for the Olmec “mother culture” hypothesis that no stylistic analysis ever could (Diehl 2005). Especially interesting would be both stylistic and materials studies of the greenstone ax or celt, of crucial significance in offerings and burials for something like 3,000 years, from Olmec ritual deposits to Woodland and Mississippian elite graves. (A recent study has already traced 1,500-year-old jadeite axes from the island of Antigua to a possible source in Guatemala, some 3,200 km away [Harlow et al. 2006].) Comparisons of Mexican with Southeastern shell middens, and perhaps more underwater searches for prehistoric occupations on old shorelines now far out on the continental shelf of the Gulf of Mexico (e.g., Pearson et al. 1986), would be useful. Additional underwater work should investigate sinkholes of the Southeast, which are the same kind of formations as sacred Mesoamerican cenotes. There are also the possibilities of molecular anthropology, plant genetics, and human genetic and skeletal analyses to look at biological relationships and possible movements of peoples (e.g., Fix 1999) between regions at different times in the prehistoric past, in the way people have lately been examining the human population movements into the Pacific islands. DNA analysis of large burial populations throughout the New World, along with tooth and bone chemistry, to see degrees of biological relatedness and to compare the places where individu-

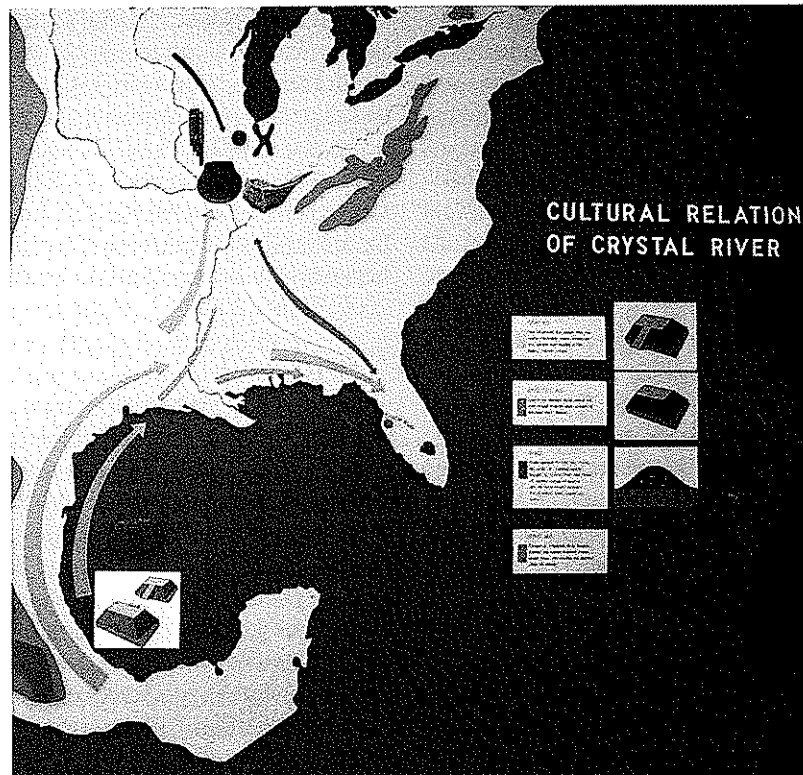


Figure 13. Old-fashioned map displayed in the museum at Crystal River State Archaeological site, a multimound center on the central peninsular Florida Gulf Coast; arrows show supposed Mesoamerican origins for the elaborate Middle Woodland culture (photo by Julie Rogers, 2006).

als grew up with the places where they were buried, could also show interregional connections.

Southeastern archaeologists should become familiar with regions beyond their own specialized geographical areas and be open to things they may not initially recognize, such as irrigation systems. Water was associated with sacred imagery and ritual behavior in the Southeast probably as much as in Mexico, increasing the likelihood that its management would have been important. Useful models might be derived from the Amazon Basin, where management of waterways for access to resources is known ethnographically to involve canal construction and other manipulations that differ from wet to dry seasons (e.g., Raffles 1997) and may not be archaeologically visible. People might dig during high water to pile up dry land and during low water to connect transportation routes, as well as for irrigation (not to mention social and ideological reasons).

Visiting and learning the record of archaeolog-

ical sites both throughout the Southeast and in Mexico enlarge the potential for interpretation. First we must throw out the old ideas of Mesoamerican invasions that linger in the textbooks and public consciousness, such as the museum display at the famous Middle Woodland Crystal River site, where a large map shows arrows bringing Mexican cultural elements right to the Florida Gulf Coast (Figure 13). But then we must look more carefully for possible connections that could involve convergence or parallelism as well. The incised stone slabs among the many Crystal River mounds were originally called stelae (Bullen 1966) and thought to resemble Mesoamerican monuments. They look like worn, old scratched boulders, so many researchers have discounted the term. But they were dragged there to mark something and are not very different from many Olmec or other Mesoamerican monuments that are equally nondescript, worn boulders. As we draw from ethnographic examples in the western Southeast (e.g., Goddard et al. 2004)

and northeastern Mexico (e.g., Ariel de Vidas 2004) we should look for similarities that might be traceable from prehistory.

Finally, Southeastern and Mexican colleagues should look and learn beyond regional boundaries. Language differences across continents can result in hugely different archaeological interpretations and approaches (e.g., Otte 1993:245), but continued communication helps. Since the beginning of this research, we have been amazed at the amounts of data that remain unpublished or poorly known and at the number of colleagues who have contacted us with ideas. We hope to continue the dialogue and begin to understand why Southeastern Indians had no chocolate, no cotton, and no beer.

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On the Cover: The southeastern United States and Mexico, showing Southeast and Mesoamerican culture areas (hatched), geographic features, and selected important sites. From "The Mexican Connection and the Far West of the U.S. Southeast" by Nancy Marie White and Richard A. Weinstein, p. 231.

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