

## CHAPTER 9

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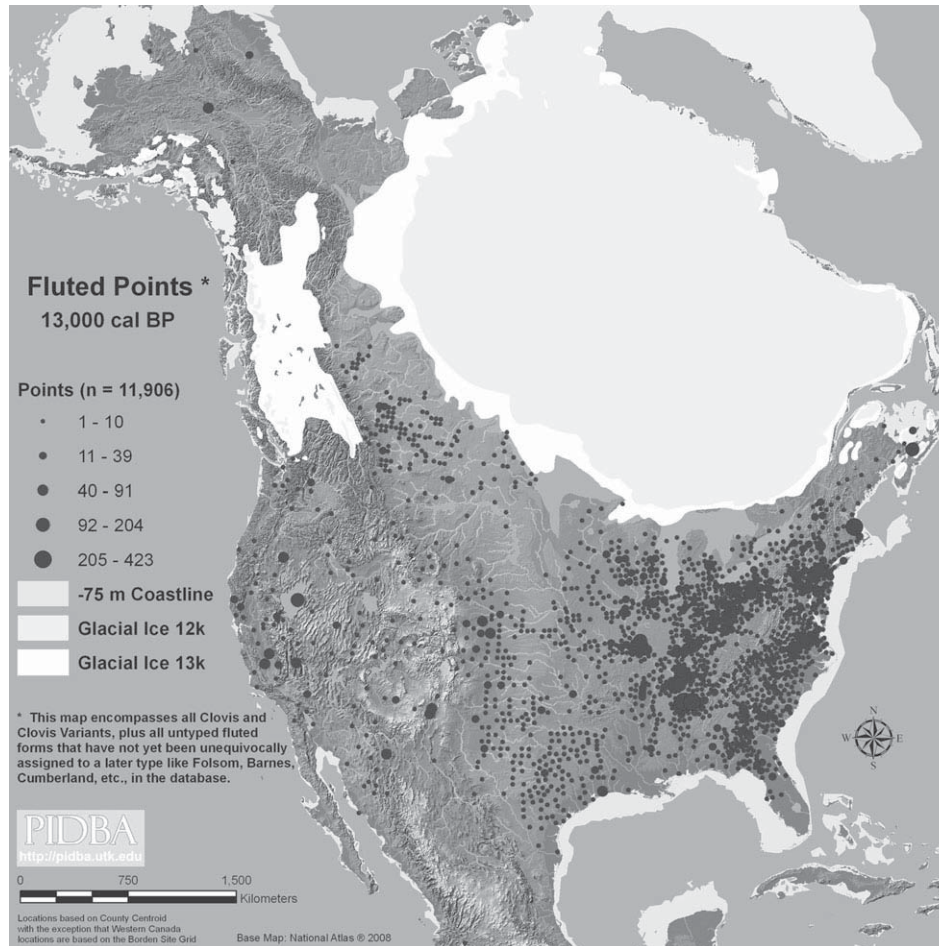
**PLEISTOCENE SETTLEMENT  
IN THE EAST**

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EXACTLY when people first entered eastern North America is currently unknown, but settlement is assumed to have occurred during the Late Pleistocene, around or more likely after the Last Glacial Maximum, which dates from ca. 18000 to 21000 cal BP. Widespread human presence is evident by ca. 13000 to 12000 cal BP and is documented by the occurrence of Clovis and a number of successor fluted projectile point types in all parts of Eastern North America away from areas covered by ice sheets or periglacial lakes or seas (Figure 9.1). Fluting, the removal of large channel or thinning flakes from the base of these points, is a uniquely Paleoindian phenomenon, never duplicated again in prehistory in the Americas, or indeed anywhere else in the world before or since. North American archaeologists are fortunate in this regard because the occurrence of fluting technology, which occurred for a period of no more than about 1,500 years, provides an unambiguous marker of these early occupations.

Diagnostics from possible pre-Clovis occupations, in contrast, are currently somewhat equivocal in nature, although appreciable effort has been devoted to finding early assemblages and artifacts. Several likely sites have been identified, including Cactus Hill in Virginia and Meadowcroft Rockshelter in Pennsylvania, where small, unfluted, triangular or lanceolate point forms are found. Possibly related forms have also been noted at several locations in Florida, such as at the Page-Ladson site, suggesting it is only a matter of time before pre-Clovis diagnostics are securely established and dated in the east (Adovasio et al. 1999; Dunbar and Hemmings 2004; Goodyear 2005; McAvoy and McAvoy 1997; Webb 2006). Although the origins of eastern Paleoindian populations were likely from further to the west, and ultimately from northeast Asia, some researchers have recently suggested

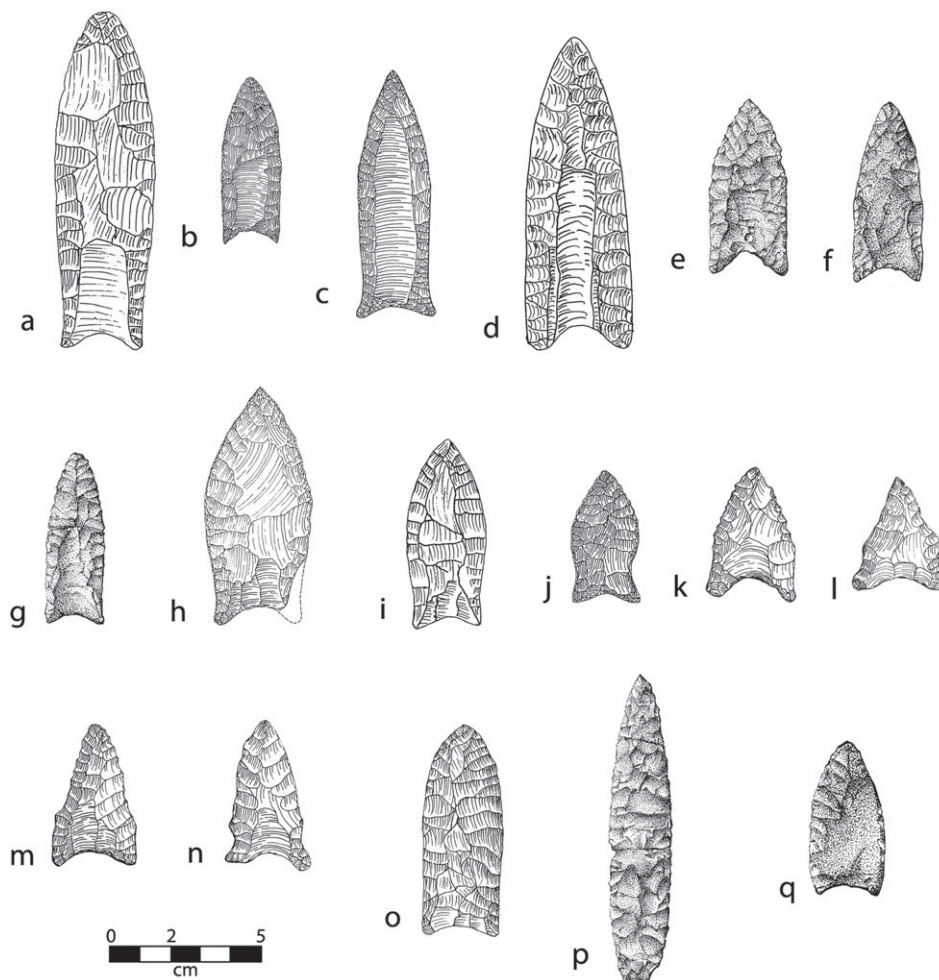


**Figure 9.1** Occurrence of fluted projectile points in eastern North America. Image courtesy PIDBA (Paleoindian Database of the Americas, <http://pidba.utk.edu/>).

movement across the north Atlantic also occurred, although the idea is highly contentious (cf. Stanford and Bradley 2002; Strauss et al. 2005).

Early fluted Clovis points are characterized by short and narrow flutes rarely extending more than a third to half way up the blade (Figure 9.2:a, b). They have been radiocarbon dated at a number of locations, mostly in the western United States, to between ca. 13150 and 12850 cal BP (Waters and Stafford 2007), during the warmer Allerød period and before the onset of the much colder and more variable Younger Dryas period, which occurred from ca. 12850 to 11650 cal BP (Fiedel 1999; Hughen et al. 2000). Later fluted point forms in Eastern North America, of the Folsom, Cumberland, Barnes, Vail-Debert, Bull Brook-West Athens Hill; Michaud-Neponset, and Redstone types (e.g., Figure 9.2:c-g), in contrast tend to be characterized by broad flakes that frequently extend much or all of the way up the blade to or near the tip, forming a “full fluted” horizon dating to the early centuries of the Younger Dryas (Anderson et al. 2010; Bradley et al. 2008; Goodyear 2010).

Many of these later fluted point forms are also characterized by deeply indented, concave bases, particularly in the Northeastern and upper Midwestern parts of the region, where fluting continues to as late as the Pleistocene-Holocene boundary at ca. 11500 cal BP. In areas further to the south, in contrast, “full” fluted forms are apparently replaced within a few centuries by unfluted lanceolate and waisted forms such as the Suwannee, Simpson, Quad, Beaver Lake and, somewhat later, Dalton and Cormier-Nicholas types (Figure 9.2:h–n, q), by ca. 12000 cal BP if not before (see McElrath and Emerson, this volume). Successive side- and corner-notched forms follow, and in the northern and western parts of the region lanceolate points



**Figure 9.2** Diagnostic Paleoindian projectile point forms in eastern North America: (a–b) Clovis; (c) Cumberland; (d) Redstone; (e) Vail-Debert; (f) Bull Brook-West Athens Hill; (g) Michaud-Neponset; (h–i) Suwannee/Simpson; (j) Beaver Lake; (k) fluted Dalton; (l) Hardaway Dalton; (m–n) Dalton; (o) unfluted lanceolate; (p) Ste. Anne-Varney; (q) Cormier-Nicholas (images drawn by R. Jerald Ledbetter and William Burgess, used by permission of the artists and the Maine Archaeological Society).

resembling Plains types like Agate Basin, Scottsbluff, and Angostura are also found in some incidence, such as the Ste. Anne-Varney type (Figure 9.2:p) (Anderson and Sassaman 1996; Bradley et al. 2008; Johnson 1989). The occurrence and restricted distribution of these differing point forms, at least compared to the preceding Clovis type, is thought to reflect the emergence of local adaptations and cultures, and perhaps population movements between major physiographic regions such as the Plains and the eastern woodlands. Morphological variation, stratigraphic relationships, and the temporal range of many of these forms remains to be better documented, and particularly during the earlier part of the Younger Dryas from ca. 12850 to ca. 12000 cal BP, an interval for which few excavated or dated sites are currently known in the east.

Pre-Clovis sites in eastern North America include Big Eddy in Missouri, Cactus Hill and Saltville in Virginia, Little Salt Springs and Page-Ladson in Florida, Meadowcroft Rockshelter in Pennsylvania, Topper in South Carolina, and Schaefer and Hebior in Wisconsin (Goodyear 1999, 2005; Meltzer 2009; Overstreet 2005; Figure 9.3). Though some doubt remains as to whether all are Pre-Clovis in age, their occurrence suggests small numbers of people, thin on the landscape and hence nearly archaeologically invisible, were present in the east for as much as several thousand years prior to Clovis. Clovis sites, in contrast, are far more common, with several thousand locations currently known that have yielded one or more diagnostic points, some associated with dense quantities of stone tools and debitage (Anderson and Faught 1998, Anderson et al. 2005, 2010; Haynes 2002). Many of these are surface finds exposed and disturbed by plowing or timber harvesting, but dense Clovis assemblages have also been reported in subsurface context at a number of sites, among them at Topper in South Carolina; Cactus Hill, Williamson, and Thunderbird in Virginia; Carson-Conn-Short in Tennessee, and Shoop in Pennsylvania. Many of these are associated with prominent physiographic features or major outcrops of high-quality knappable stone, leading some scholars to suggest that Clovis populations were tethered to quarries; that is, their mobility was shaped, to an unknown but presumably significant amount, by the need to periodically revisit these sources and replenish their supply of toolstone (e.g., Gardner 1989; Goodyear 1979). Easily located places on the landscape, such as falls or fords in rivers, or mountain peaks or unusual geological formations such as monadnocks or craters (i.e., such as the Eagle Hill, Louisiana; Wells Creek Crater, Tennessee; and Stone Mountain, Georgia, Paleoindian sites), would have been ideal places to rendezvous with other groups to maintain interaction and mating networks. Some highly productive locations may have been staging areas, where populations could have settled for a time and grown, and groups radiating away from them would have been able to relocate should problems arise (Anderson 1990, 1995). Archaeologists examining paleosubsistence remains, specifically the plant and animal remains found in these sites—from extinct fauna such as mammoth or mastodon to forms that survived the late Pleistocene such as white-tailed deer, migratory waterfowl, and acorn or hickory nuts—have argued that the foraging behavior and mobility strategies of Paleoindian groups were also strongly shaped by division of labor, notably the

seasonal availability of resources that would have likely been obtained and processed by men as opposed to women and children (Hollenbach 2009; Surovell 2000; Walker 2007; Walker and Driskell 2007). Consideration of gender roles is increasingly being considered by Paleoindian researchers, particularly since the presumed rapid population growth sometimes associated with Clovis and post-Clovis occupations would have required a lifestyle facilitating fertility and the survival of children.

Even though surface finds of presumably immediate post-Clovis full-fluted points and associated artifacts are fairly common throughout the southeastern part of North America, few have been found or dated in an excavation context. Their occurrence corresponds to the initial centuries of the Younger Dryas, a major cold

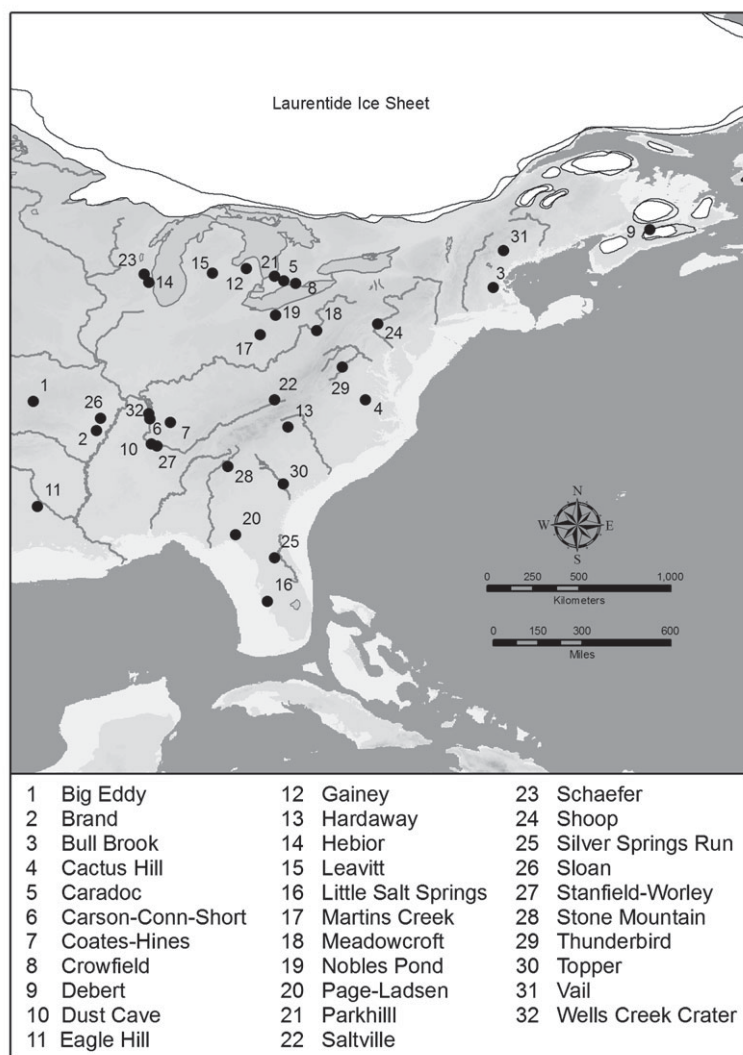


Figure 9.3 Paleoindian site locations in eastern North America.



reversal, and perhaps not coincidentally when the last of the Pleistocene megafaunal extinctions is thought to have occurred. There is a decided drop in site and artifact incidence compared to Clovis, suggesting a population decline or a change in settlement patterning, perhaps in response to the dramatic climate change. In the upper Midwest and northeast, in contrast, a great many presumably post-Clovis fluted point sites have been found and a number extensively excavated, including Nobles Pond in Ohio, Gainey and Leavitt in Michigan, Bull Brook in Massachusetts, Vail in Maine, and Debert in Nova Scotia, as well as a number of sites in Ontario, namely Caradoc, Crowfield, and Parkhill (Anderson et al. 2004; Ellis and Dellar 1997). Many of the northern sites are thought to be associated with caribou hunting, and some appear to have been used repeatedly, as at Nobles Pond and Debert, or alternatively to have involved both reuse as well as gatherings of a fairly large number of people, perhaps multiple bands, as suggested at Bull Brook (Robinson et al. 2009). At a few of these northern sites, evidence for ritual behavior is indicated, including the intentional burning of a large number of functional tools and performs at the Crowfield site (Deller et al. 2009). Paleoindian caches, of stone and bone or ivory tools and raw materials, though reported at a number of locations in the western United States, are uncommon in the east, at least until Dalton times, when clusters of tools are sometimes found with burials, as at the Sloan site in Arkansas (Morse 1997; McElrath and Emerson, this volume). The difference in the occurrence of caches between the two regions is puzzling, and their presence in the west is interpreted as a response to greater long-distance mobility, and hence the need to place stores of raw material on the landscape (e.g., Kilby 2008; Meltzer 2002, 2009). Some of the western caches include large and elaborately worked items that are clearly not utilitarian but instead appear to have served some religious or ceremonial purpose. Paleoindian use of stone thus encompassed both ceremonial as well as functional considerations. Indeed, the use of elaborate, carefully manufactured and curated tool forms continued for several thousand years past Clovis times, well into the early Holocene, suggesting this was a very important and conservative cultural tradition.

The last centuries of the Pleistocene, from ca. 12000 to 11500 cal BP, saw the Younger Dryas come to an end and the disappearance of fluting in most areas save in the extreme north near the retreating ice sheets. Terminal Pleistocene sites are recognized by points ranging from lanceolate to side- and corner-notched types, described using many local names and each stylistically somewhat unique. Most of these later point forms were extensively resharpened, apparently from use as multi-purpose tools and a need to process numerous animals. Major Dalton sites that have been excavated are Brand and Sloan in Arkansas, Dust Cave and the Stanfield-Worley Bluff Shelter in Alabama, and Hardaway in North Carolina (Daniel 1998; DeJarnette et al. 1962; Goodyear 1974; Hollenbach 2009; Morse 1997). The Sloan site was apparently a marked cemetery, the earliest currently known in the Americas, with more than 20 discrete clusters of human remains and hypertrophic as well as normal-sized Dalton points and tools (Morse 1997). A complex interaction network or social-ceremonial complex is inferred to have been present in the Central Mississippi Valley during Dalton times, an early and precocious organizational development

that soon ended, with similar phenomena not noted again in the region until the Mid-Holocene, when hypertrophic Benton points circulated widely in the Midsouth (Sassaman 2005; Walthall and Koldehoff 1998).

Paleoindian lifeways, particularly aspects of subsistence and perishable material culture, are poorly documented over much of eastern North America until fairly late in the period. Part of the reason is preservation. With the exception of a number of submerged sites in Florida such as Page Ladson or Little Salt Spring, and a few rock shelters such as Meadowcroft, Clovis, and pre-Clovis, assemblages are almost exclusively found in open-air settings, where the preservation of organic remains is typically very poor. Not until after ca. 12000 cal BP, during the latter part of the Younger Dryas in Dalton times (and after, in fact), is much evidence found for human use of caves and rock shelters anywhere in the region—something that has been attributed to a decrease in range mobility (Walthall 1998). Several of these sites have yielded well-preserved paleosubsistence remains, as at Dust Cave, Alabama; Modoc Rock Shelter in Illinois; and Rodgers Shelter in Missouri (Hollenbach 2009; Walker and Driskell 2007). Generalized adaptations characterized by an array of wild plant and animal resources are well documented for these terminal Pleistocene occupations, with an apparent emphasis on caribou in the north and a wider range of species in the south: birds, fish, and plant foods, as well as larger mammals such as deer. Generalized subsistence adaptations are also thought to apply to Clovis and presumed earlier occupants of the region (Meltzer 2009), but there is little direct evidence available to test this inference. Perishable textiles have also been found in early Holocene cave and rock shelter deposits, a form of material culture often overlooked by archaeologists emphasizing the surviving stone and bone industries of the Paleoindian era (Adovasio et al. 2004). The oldest textile impressions known from eastern North America, in fact, come from presumed Clovis-age deposits at the Hiscock site in New York (Adovasio et al. 2003).

Whether, and how regularly, Pleistocene megafauna were hunted in the east is currently the subject of some debate. Megafaunal kill sites are rare in the east, unlike the situation in the west, where numerous bison, mammoth, and mastodon kills are known (Grayson and Meltzer 2002). Even so, kill sites from the margins of the region—such as at Kimmswick in Missouri, where mastodon were taken—certainly indicate that these and other large animals could have been hunted further to the east. A number of possible human-proboscidean associations have, in fact, been reported elsewhere in eastern North America, including at the Hebior and Schaefer sites in Wisconsin, the Martins Creek site in Ohio, Coates-Hines in Tennessee, and Silver Springs Run and Page Ladson in Florida (Lepper and Funk 2006; Overstreet 2005; Webb 2006). More telling, tools of bone and ivory from mammoth, horse, and other extinct Pleistocene species that were worked green or fresh are found in large numbers in the rivers and sinks of Florida, indicating a clear association of humans and megafauna, if not direct exploitation (Hemmings et al. 2004). One probable kill site is in Florida, a *Bison antiquus* with a projectile point fragment embedded in the skull in an unhealed wound, meaning the animal died soon after (Webb et al. 1984).

Changes in Late Pleistocene climate, such as the Younger Dryas (ca. 12850–11650 cal BP), appear to have strongly shaped the location and character of early occupations throughout the east. Certainly the rise and fall of sea level and expansion and contraction of ice sheets and periglacial water bodies influenced where on the landscape people could live, while the ongoing extinction of megafauna and shifting of plant and animal ranges over the landscape would have affected the kinds of subsistence resources available to them. Belief systems were also likely influenced. It is suggested, for example, that adoption of an elaborate and highly predictable stone tool industry during Clovis and slightly later times was a reaction, in part, to the uncertainty in the world around them (e.g., Goodyear 1979; Kelly and Todd 1988; Meltzer 2002, 2009). The reason fluting technology was not readopted later in prehistory was it was difficult to accomplish. Yet this same challenge may have helped promote a sense of cultural identity between widely dispersed populations. Possessing exceptional flint-knapping skills, which also helped foster amicable relations among differing groups, would have certainly enhanced the survival of human populations ranging far from raw material sources and needing to conserve toolstone as much as possible.

The disappearance of large Pleistocene megafauna, if previously taken with any regularity, would have likely forced an expansion in breadth of diet, to include smaller package sizes, and experimentation with resources that might not have been considered previously, such as seeds, roots, and greens. Greater use of local, relatively immobile, or minimally ranging resources could have lessened the need for long-distance movement. A pronounced diversification in stone tool assemblages, particularly among projectile points, is noted later in the Pleistocene occupation of the east, particularly following the onset of the Younger Dryas. No point forms are found spanning the entire region, and many are restricted to fairly small areas, on the order of a few hundred kilometers in extent at most. Range restriction is indicated, with human populations assumed to have become increasingly localized and isolated from one another—something that may also reflect the weakening or disappearance of a shared belief system centered around elaborate stone tool manufacture and possibly the hunting of large animals. Adoption of a generalized subsistence economy capable of maximizing the potential of postglacial era biotic resources was once thought to have developed slowly in the east, over the thousands of years of the Archaic period, from ca. 11500 to 3200 cal BP, but it now appears likely that many of these changes were accomplished by Paleoindian peoples.

By the onset of the Holocene about 11500 cal BP, an essentially modern biotic and climatic regime was in place, although sea level would continue to rise and vegetational communities shift over large areas for several thousand more years, in reaction to the northward melting of the continental icesheets and changes in insolation and atmospheric circulation. Conditions were nonetheless stabler, compared to the preceding Pleistocene era, and numerous archaeological sites are found across eastern North America. No uniform way of life was present, however, either then or during the earlier Pleistocene human occupation of the region. Instead, the nature and scale of interaction, group range, social organization, technology, and ceremony appear to have varied greatly and changed over time. The Pleistocene



human occupation of eastern North America resulted in a rich, yet still all too incomplete and only minimally examined, archaeological record. Whether Clovis technology arose here remains unknown, but it is certainly plausible given the dense assemblages that occur in greater incidence than in other parts of the Americas. During the Paleoindian period, traditions were established that shaped behavior for millennia to come in the east, such as emphasis on elaborate and hypertrophic stone tools, use of key spots on the landscape to facilitate rendezvous and perhaps ritual, and a highly diversified and generalized approach to subsistence.

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