HUNTER-GATHERERS IN TRANSITION: LATE PALEOINDIAN AND EARLY ARCHAIC ADAPTATIONS IN TENNESSEE

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INTRODUCTION

The late Pleistocene to early Holocene transition in North America marks a period of rapid and often dramatic climatic and environmental changes that exerted a significant impact on the adaptive strategies of human populations living at this time of transition. These shifts included changes in climatic conditions (temperature and rainfall), biotic communities (megafaunal extinctions, vegetation changes, movement of species into new latitudes and elevations), and landscape changes (e.g. stabilizing waterways). As biotic community structures changed, human populations would have been forced to adapt their cultural systems to accommodate for these shifts.

This chapter considers the cultural changes associated with this period of environmental transition in Tennessee. The Pleistocene-Holocene boundary encompasses the cultural periods labeled as the Late Paleoindian (ca. 12, 900 – 11,450 cal. B.P. / 10,800 – 10,000 rcbp; Anderson 2001) and Early Archaic (ca. 11,450 – 8,900 cal. B.P. / 10,000 – 8,000 rcbp; Anderson 2001). In Tennessee, the Late Paleoindian is identified by the presence of Dalton projectile points. The Early Archaic includes Early Side Notched (e.g. Big Sandy), Corner Notched (Kirk and Palmer) and Bifurcated Base (LeCroy, St. Albans, MacCorkle and Kanawha) projectile point types. These characteristic projectile point styles will be discussed below.

The goals of this chapter are 1) to provide an overview of how archaeological cultures in Tennessee fit into the broader regional sequence by comparing finds in the state to those from elsewhere in the Southeast, or more broadly in eastern North America; 2) to provide an overview of the history of Late Paleoindian and Early Archaic archaeological investigations in Tennessee, including important discoveries and intellectual milestones reached through investigations at important sites; and 3) to characterize the nature of Late Paleoindian and Early Archaic adaptations based on materials excavated in the state.

REGIONAL/HISTORICAL PERSPECTIVES AND CHRONOLOGY

The time span of concern in this chapter ranges from 12,900 to 8,900 cal. B.P. This time span corresponds to the onset of the Younger Dryas cold event at the end of the last period of glaciation, and ends with the beginning of the Hypsithermal warming and drying trend that signals the beginning of the Middle Archaic. The Late Paleoindian Dalton period coincides with the Younger Dryas, while Early Archaic occupations emerged in conjunction with a post Younger Dryas climatic amelioration. The end of the Early Archaic, characterized by bifurcate based projectile points, coincides with a brief return to cold conditions.

Understandings of these early periods of occupation developed slowly, unlike those of later periods in the Southeast (e.g. remains of mound-building groups) which have been recognized and investigated for much longer. Initial recognition of the earlier Paleoindian periods has been discussed by Miller et al. (this volume). I will consider the development of the Late Paleoindian Dalton and Early Archaic concepts. Locations of sites referred to in the text are shown in Figure 1, and illustrations of the various Late Paleoindian and Early Archaic projectile point types are shown in Figure 2.

Dalton

Morse (1997) notes that the term “Dalton” was applied first by Carl Chapman (C. Chapman 1948) and was named for a former chief justice of the Missouri Supreme Court. S.P.

Dalton was an avocational archaeologist who discovered and reported 134 sites in Missouri. One of these sites, the Dalton site outside Jefferson City, produced Dalton materials exposed during bridge construction. The entire region around the Dalton site was rich in Dalton projectile points. The proposition that Dalton represented a very early archaeological manifestation was confirmed during the 1949 and 1950 excavations at Graham Cave in Missouri (Logan 1952).

Dalton occupations were initially thought to have been restricted to Missouri until, in 1960, Cambron and Hulse demonstrated the existence of Dalton points in the middle Tennessee River Valley. Dalton materials were discovered at the Stanfield-Worley Bluff Shelter site in northwestern Alabama (Cambron and Hulse 1960), where Dalton was interpreted as Paleoindian or Transitional Paleoindian. An uncalibrated radiocarbon date of 9700 ± 500 B.P. (11,209 ± 752 cal B.P.) for the Dalton period was obtained first from Graham Cave (Crane and Griffin 1956: 667). Other dates were obtained from Rodgers Shelter (Wood and McMillan 1976), though Goodyear (1982: 385) notes that the two dates of 10,530 ± 650 B.P. (12,141 ± 834 cal B.P.) and 10,200 ± 330 B.P. (11,896 ± 523) “have either escaped the attention of many or have been purposefully ignored because of their extreme age compared to previously listed dates.” These early dates for the period have since been corroborated at sites elsewhere in the Southeast. For example, at Dust Cave, Alabama, Early Side Notched materials, located stratigraphically above Dalton materials, were dated 10,000-9,000 B.P. (Driskell 1994: 17; ca. 11,500-10,200 cal B.P. following Anderson 2001) and the late Paleoindian levels were dated between 10,500 and 10,000 years B.P. (Driskell 1994: 17; ca. 12,500-11,500 cal B.P. following Anderson 2001). It is recognized that Dalton points become widespread throughout eastern North America by approximately 10,500 rcbp (12,500 cal. B.P.; Anderson 2001: 155), being found in Missouri, Arkansas, Tennessee, Mississippi, Alabama, South Carolina, Georgia, Illinois and Kentucky.

Dr. Dan Morse, arguably one of the premiere Dalton scholars, began his research on Dalton materials in Arkansas in 1967. His focus was on reconstructing the whole of the Dalton lithic assemblage and on drawing interpretations of Dalton behavior. The first investigations at the Brand site in Arkansas began in 1970 and spawned the now infamous debate between Morse and Schiffer over the nature of Dalton behaviour. Morse (1971; 1973) viewed Dalton settlement as consisting primarily of temporary extraction camps, supplemented by a small number of long-term base settlements/villages and cemeteries. Schiffer (1975a; 1975b), on the other hand, proposed a system of seasonal camps of various sizes that were moved frequently across drainages and into the uplands. Morse contradicts Schiffer's proposition, noting that there appear to be activity clusters *within* watersheds, suggesting the existence of inter-drainage band territories. The sites that form these territories appear to have been located in ecotones between upland and lowland environments, to take advantage of the varied resources in these locales.

In addition to developing an understanding of Dalton toolkits and settlement, Morse's research revealed one more important aspect of Dalton behavior: mortuary activity. His 1974 excavation of the Sloan site in the Cache River drainage in northeastern Arkansas, revealed evidence of a Late Paleoindian cemetery, now recognized as the oldest known cemetery in the New World. Morse describes the finds:

> In total, 439 Dalton-period artifacts including 146 points, forty-two adzes, ninety-five other bifaces, thirty-three end scrapers, sixty-eight other unifaces, thirty-five abraders, and twenty other stone artifacts were recovered and precisely plotted. In addition, 211 small fragments of bone and a large series of soil samples were collected (Morse 1997: 140).

The bone recovered from the site was highly fragmented and poorly preserved, yet approximately 64% could be positively identified as human, while another 18% was identified as "probably human." Variation in the thickness of cranial fragments suggested that the sample of human bone encompasses a fairly wide demographic range (Condon and Rose 1997: 13), including adult and subadult individuals, and likely represents a cemetery for an entire local group (Morse 1997: 140). The fact that both adults and subadults were buried in this cemetery is potentially significant in the context of understanding Dalton social organization (Condon and Rose 1997: 13). The bioarchaeological research at Sloan was limited to the classification of the remains as human or non-human. Interpretations of diet and health were not attempted, likely as a result of the fragmentary and poorly preserved nature of the remains.

The archaeological and bioarchaeological results of the excavations at Sloan have painted a different picture of Late Paleoindian lifeways than had been traditionally assumed. It is apparent that at least this one group of Paleoindians who lived at the end of the last period of glaciation processed and consumed plant foods, utilized pigments, and buried their dead. The presence of a formal cemetery has implications for our understandings of Late Paleoindian Dalton settlement patterns, as it indicates that "this local group was relatively stable and did not merely wander about in search of food and stone outcrops" (Morse 1997: 142). The finely-made grave goods also provide evidence for a more complex socio-political and ceremonial organization than we might previously have assumed.

Sloan is a unique site in the Southeast, and interpretations of Dalton on a broader scale, as derived from this single site, may necessarily be biased. Fortunately, enough data have been recovered from other sites in the region to allow interpretation of aspects of Dalton behavior elsewhere in the region. Some of these cases will be discussed below.

<u>Early Archaic</u>

The term "Archaic" was first used by William Ritchie in 1932 in his definition of an "Archaic Algonkin Period" in New York (Ritchie 1932). Ritchie defined the traits of this period in his report on the Lamoka Lake site in New York, which became the type station for the Archaic as it was then understood. His definition was constructed around the presence of a series of artifact types, including the beveled adze; celts; hammerstones; mullers; netsinkers; perforators; narrow, notched projectile points; and decorative objects such as antler pendants (Ritchie 1932: 131). In addition, he noted the lack of pottery and bone artifacts. In an attempt to define a universally understood Archaic period, archaeologists focused on Ritchie's pair of negative traits: the lack of horticulture and the lack of pottery (Starna 1979). It became apparent, though, that many of these supposedly "diagnostic" traits of the Archaic persisted into later times or were present in the Paleoindian period (i.e. lack of horticulture, lack of pottery), and were therefore insufficient for defining the Archaic.

Not until almost thirty years after Ritchie's original definition of the Archaic was a synthesis proposed. Byers, in the introduction to a series of papers in *American Antiquity* proposed that the Archaic should be viewed as a broad pattern with diverse manifestations across regions, rather than as a cultural stage (Byers 1959). These discussions of the Archaic in the Northeast, however, focused entirely on Late Archaic manifestations, with no recognition of Early or Middle Archaic materials until the 1960s and 1970s (e.g. Ritchie 1965).

In the Southeast, the history of Archaic research followed a similar trajectory, as Early Archaic materials were not recognized until the 1950s, when Joffre Coe began to report deeply buried, stratified Archaic occupations indicative of greater time depth (J. Chapman 1985; Coe 1951, 1952). In the late 1950s and early 1960s, radiocarbon dates from some of these sites began to demonstrate an absolute time depth for these materials, and in 1964, Coe produced what has become the seminal work on Archaic cultures in the Southeast. His work established a temporal sequence for Archaic cultural complexes, developed a model for locating buried sites, and established the use of well-dated projectile points as temporal markers for use in defining chronologies on other sites with similar artifacts.

Broyles' investigations (1966, 1971) at the St. Albans site in West Virginia confirmed Coe's chronology and pointed to the potential for buried archaeological sites to produce Archaic period cultural remains. This potential was reaffirmed in the 1960s and 1970s when buried Archaic components were discovered as part of archaeological mitigation in areas such as the Tellico Reservoir in east Tennessee. As J. Chapman (1985: 142) notes, researchers had begun to realize the vast archaeological potential that lay buried in alluvial sediments along rivers in the Southeast.

One of the most significant archaeological projects in Tennessee, from the perspective of elucidating the nature of Early Archaic remains and adaptations, was the work conducted in the region of the proposed Tellico Dam on the Little Tennessee River valley. This project, conducted by the University of Tennessee's Department of Anthropology, began in 1967 and lasted until dam construction in 1981 (J. Chapman 1985; Davis 1990). One of the research objectives of the project was the location and excavation of stratified Archaic sites. J. Chapman (1985: 142) notes that the amount of Archaic archaeological data generated during this project is unparalleled elsewhere in the eastern United States. Nearly 250,000 artifacts were recovered from undisturbed, stratified Archaic contexts. Investigations in the Tellico Reservoir have since inspired researchers to pose questions regarding the nature of Early Archaic behavior, including site function, site patterning, and assemblage composition (e.g. Davis 1990; Kimball 1993).

While our understandings of Early Archaic material culture are now fairly well-developed, specifically as regards the stone tool technologies, the bioarchaeology of these early groups remains essentially unknown. In contrast to the unique discovery of a cemetery utilized by the Dalton inhabitants of Arkansas, no large cemeteries are noted for the Early Archaic.

With the exception of one cremation at Icehouse Bottom (40MR23; Walthall 1999), there appear to be no human burials found in Early Archaic contexts in Tennessee. Burials from the period are known from elsewhere, though, and include the example of Kennewick Man from Washington State, now one of the most well-known Early Archaic burials. Dated between 9,300 and 8,350 B.P. (Chatters 2000; ca. 10,000-9,000 cal B.P. following Anderson 2001), Kennewick Man has generated a storm of controversy over matters of repatriation. After a legal battle that lasted several years, scientists eventually were allowed to examine the remains. The remains were those of a male between the ages of 35 and 50, weighing approximately 70 to 75 kg (Chatters 2000). According to Chatters (2000), the man had a healthy childhood but later endured trauma to his skull, left arm, and hip, as evidenced by an embedded projectile point. He also suffered from minor periodontal disease and osteoarthritis. In addition, an acute antemortem infection was found endocranially. After a thorough examination, Chatters concluded that Kennewick Man was not significantly different from other early Paleoamericans.

At the Gordon Creek site in Colorado, the remains of a 25 to 30 year-old female were found in a primary interment dating to 9,700 B.P. (Swedlund and Anderson 1999; ca. 11,000 cal B.P. following Anderson 2001). Her burial position was flexed and, like the two subadults found at the Clovis-aged Anzick site in Montana, she was covered with red ochre. Associated burial goods consisted of lithics and animal remains.

Bioarchaeological evidence for Early Archaic diet is seen in individuals found at Sulphur Springs, Arizona and Gore Creek, British Columbia. The 25 to 35 year-old female discovered at Sulphur Springs was buried 10,000 to 8,200 years B.P. (ca. 11,500 to 8,900 cal B.P. following

Anderson 2001) and likely consumed a gritty diet, as shown by well-worn teeth (Waters 1986). The adult male discovered at Gore Creek, British Columbia lived 8,365 to 8,135 years B.P. (Cybulski et al. 1981; ca. 8,800 cal B.P. following Anderson 2001). According to carbon isotope analysis, the majority of the protein in his diet was derived from terrestrial resources, while 8-10% of it could be traced to marine resources (Ackerman 1988; Chisholm 1986; Chisholm and Nelson 1983).

Jantz and Owsley (2001) conducted a study of variation in early North American crania using the remains of several Archaic period individuals. The Early Archaic sample included three adult males, one each from Spirit Cave, Nevada (9,415 BP, ca. 10,700 cal B.P. following Anderson 2001; Dansie 1977; Jantz and Owsley 1997); Wizards Beach, Nevada (9,225 BP, ca. 10,200 cal B.P. following Anderson 2001; Dansie 1997; Owsley and Jantz 1999); and Browns Valley, Minnesota (8,900 BP, ca. 10,200 cal B.P. following Anderson 2001; Jenks 1937; Myster and O'Connell 1997). In their study of the Archaic crania, Jantz and Owsley (2001) concluded that the Americas were populated by different groups through multiple migration episodes.

ENVIRONMENTAL CONSIDERATIONS

The period of interest in this chapter begins with the end of the Pleistocene and the Clovis era approximately 12, 900 cal B.P. Following this period, population levels began to grow, regional cultural traditions emerged, and "technological organization changed to accommodate Holocene climate and biota" (Anderson 2001: 155).

The end of the Pleistocene, which coincided with the end of the Clovis era, was accompanied by the extinction of megafaunal species and the onset of climatic amelioration. Prior to the achievement of modern climatic conditions, though, one more climatic reversal occurred during the Younger Dryas event (see Meeks et al., this volume). The Younger Dryas lasted from 12,900 – 11,650 cal. B.P. (10,800 – 10,100 rcbp; see Anderson 2001). The onset of this climatic event occurred rapidly, and likely had a significant impact on Late Paleoindian populations who would have had to adapt to changes in biotic communities and resource structure as a result of these climatic fluctuations. Subsistence stress likely was an important concern to Late Paleoindian populations (see Anderson 2001) as megafaunal extinctions would have forced a shift in subsistence strategies toward more intensive procurement of smaller prey packages. The use of plant foods may also have increased at this time. Smaller prey packages would have produced greater resource unpredictability, forcing human populations to experiment with more resource types (Kelly 1995). The need to become more familiar with local resources in order to combat increased subsistence risk may have prompted a reduction in the degree of residential mobility. The expansion of the resource base and decreased residential mobility may have led to greater differentiation of technological assemblages through time.

Between the end of the Younger Dryas and the beginning of the Hypsithermal warming and drying trend is the period in which Early Archaic adaptations emerged (ca. 11,450 – 8,900 cal. B.P./10,000 – 8,000 rcbp). Anderson (2001: 156) notes that "While a 10,000 rcbp starting date makes for a distinctive and convenient number, no great changes in either climate or culture occur at this time." Approximately 100 to 200 years prior to this 10,000 B.P. mark, a return to warmer conditions was noted. The beginning of this climatic amelioration, during which the climate began to improve and become more predictable, may mark a more appropriate beginning point for the Early Archaic as global temperatures increased by approximately 7°C. Accompanying this climatic shift, a succession of projectile point styles with new types of hafting modifications were developed, including side notched, corner notched and bifurcated types.

Very broad reconstructions of palaeoenvironmental conditions have been produced for the Southeast, most notably through the work of Paul and Hazel Delcourt (e.g. Delcourt and Delcourt 1985; Delcourt et al. 1983). Delcourt and Delcourt (1985) provide a comprehensive general overview of trends in vegetation and climate from the end of glaciation into the Mid-Holocene. Expansion of oak-hickory forests began at the very end of the Pleistocene glaciation in response to an extension of the growing season and an increase in mean annual temperatures. Deciduous trees that previously had existed in refugia began to expand northwards, replacing earlier stands of boreal conifers (e.g. jack pine). At the temporal boundary between the Pleistocene and Holocene, boreal forest communities gave way to more temperate forest conditions.

As the cool-temperate forests moved northward, other tree species became dominant in the Southeast. Hornbeam reached 30% of the forest assemblage, and beech dominated in some areas between 12,000 and 10,200 B.P., with additional substantial representation of hickory, oak, elm and ash. By 10,000 B.P. a mixed coniferous/broadleaf deciduous forest emerged in some areas. Climatic conditions shifted from cool-temperate to warm-temperate. The biotic environment became more heterogeneous, and hence patchier, requiring human populations to adapt their settlement-subsistence strategies to compensate for the patchiness of the new environments. Nut-bearing trees, herbaceous plants, and aquatic resources in the newly stabilizing river systems in the Southeast would have provided diverse and ample subsistence possibilities for the Early Holocene occupants of the region.

In addition to influencing culture change, the environmental conditions exerted a significant impact on the development of the archaeological record. In the river valleys in the Blue Ridge and the Ridge and Valley province floodplains and depositional terraces developed and stabilized during the Early Holocene. In the Tennessee River Valley, the youngest of the depositional terraces (T1) was dated between 15,000 and 4,000 B.P. (J. Chapman et al. 1982; ca. 18,000 to 4,500 cal B.P. following Stuiver et al.1998). J. Chapman (1982: 117) explains the development of the thick alluvial sequences in the valleys, indicating that "During times of transition either from stadial to interstadial conditions or from late-glacial to interglacial conditions, rapid climatic change triggered downslope transport of substantial quantities of rock debris. Sediments accumulated within the Little Tennessee River Valley, producing a rapid aggradation of the floodplain surface and a thick alluvial sequence." Once deciduous forests began to spread, the mountain slopes would have been stabilized, thereby reducing the amount of sediment deposition in valley. The aggradation of T1 during the Early Holocene accounts for the deep burial of many Late Pleistocene and early Holocene sites in the river valleys in Tennessee.

Given an understanding of the environmental changes that occurred from the Terminal Pleistocene to the Early Holocene, as well as an understanding of the effects that these changes had on both cultural adaptations and on the development of the archaeological record, it is possible to consider the nature of Late Paleoindian and Early Archaic cultures in Tennessee as well as the history of investigations and development of research designs. In the following sections, I will consider the nature of adaptations, and the changes in adaptive responses across the Pleistocene-Holocene boundary. The development of these understandings will be considered in the context of the history of archaeological investigations throughout the state.

LATE PALEOINDIAN

Dalton period occupations generally are recognized by the presence of diagnostic, hafted projectile point types that were described initially by C. Chapman (1948: 13; Justice 1987: 40-42). These points exhibit lanceolate or traianguloid blades which often are serrated. Lateral margins of these points are parallel to slightly incurvate and frequently exhibit heavy grinding. The bases of these points, which also tend to be heavily ground, are concave (sometimes deeply concave) and are carefully thinned through the removal of flakes from a beveled striking platform (Justice 1987: 40). The heavy serration and right-hand beveling apparent on Dalton points is indicative of high degrees of resharpening or edge rejuvenation, with the final exhausted form often bearing the appearance of a narrow drill.

Unlike the dense concentrations of Dalton archaeological remains recorded in Missouri and Arkansas, Dalton materials in Tennessee appear to be more sparsely distributed. The number of Dalton sites published in Tennessee is relatively small, but a picture of Late Paleoindian adaptations in the state may be constructed with the data available. Norton and Broster (1992) note that in eastern North America, most Paleoindian studies have considered finds on multicomponent sites and tend to present only laundry lists of projectile points and other tool types found. This is especially true of early studies of Paleoindian materials, in which the research focus appeared to have been on identifying projectile points, describing types and creating typological categories. Little concern was given to understanding the nature of occupations, activities, broader regional settlement patterns and group organization.

This typological approach to understanding Late Paleoindian occupations is evident in reports on the early excavations at the Nuckolls site in the Kentucky Lake area of northwestern Tennessee. Excavations were carried out in 1958 by Lewis and Kneberg, and in 1961 by McNutt and Graham (Norton and Broster 1992). Lewis and Kneberg went in search of Paleoindian materials that were reportedly eroding from the bank, but their excavations did not penetrate deeply enough to encounter these materials in context. The 1961 excavations continued the earlier work, and while McNutt and Graham did excavate deeper, no intact Paleoindian cultural deposits were found. Nonetheless, many Paleoindian projectile points and unifacial tools had been collected from the site by Mr. Richard Anderson, along with a wide variety of Archaic projectile points. The original reports on these materials consisted of lists of tool categories and their associated traits.

Norton and Broster (1992) revisited the Nuckolls site with the goal of interpreting more than simply the presence of certain projectile point types. Their documentation of the full range of tool types and debitage on the site allowed Norton and Broster (1992) to propose an interpretation of site function. Artifacts recovered included over 200 Dalton projectile points, 8 preforms, blade knives, flake knives, backed knives, various side and end scrapers, and multipurpose tools. Norton and Broster (1992) interpret the artifactual remains as representing a retooling locale where prolonged occupations occurred.

Dalton period retooling stations are well known elsewhere in Tennessee as well. The Pierce site (Broster 1982) was excavated with the goal of filling the gaps in our knowledge of the Paleoindian period in western Tennessee. The site included two spatially and temporally distinct clusters of artifacts, one representing an earlier Clovis occupation, and the other representing a later Dalton encampment. In the Dalton assemblage, Broster (1982) noted a high percentage of resharpened projectile points, as well as triangular end scrapers (typical of eastern Paleoindian assemblages), side scrapers, knives, retouch flakes, trimming flakes, core choppers, core reduction flakes, and hammerstones. This collection of tools is indicative of “weapon renewal or post-hunt tasks such as the manufacture and repair of bindings, foreshafts, and shafts” (Broster 1982: 102). The recovery of resharpened projectile points from the site suggests that these tools may have been used in limited butchering activities. Use wear analysis on the end scrapers has demonstrated that that hide scraping likely was *not* an important activity at the Pierce site.

Broster (1982: 103) notes that the Pierce site exhibited the heaviest concentration of Paleoindian materials located during the survey of the surrounding area and offers several potential reasons for the intensive use of the site. First, the Pierce site was located near several permanent sources of water, making it attractive to human populations and to the prey they stalked. Second, the site's location on a bluff overlooking the Forked Deer River would have made it an excellent observation locale for hunting. Finally, the site lies in close proximity to a major stream dissected plain that would have been attractive to prey (large Pleistocene herd animals, specifically) thereby increasing the attractiveness of the site to its prehistoric inhabitants.

The Puckett site, excavated by Norton and Broster (1993) provides good evidence of another Late Paleoindian retooling site:

> The small amount of primary (n=11) and secondary flakes (n=17), and the high number of tertiary and angular debris suggest that prepared blanks were transported to this portion of the site for biface/projectile point manufacture (Norton and Broster 1993: 49).

Other research in the Kentuky Lake area demonstrated a wider variety of site types. Materials from the Twelkemeier site, reported by Broster and Norton (1990), were assessed in order to produce an interpretation of site function and the relationship of the Twelkemeier site to other contemporaneous sites in the region. In addition to diagnostic projectile points, the Twelkemeier artifact assemblage included a large number of unifacial implements interpreted as scraping and cutting tools. The presence of these tools, in addition to the recovery of many resharpened projectile points, suggests that Twelkemeier may represent a recurrently occupied secondary butchering locale (Broster and Norton 1990: 129). The site likely was a multipurpose base camp that was reused through time.

Kerr and Bradbury's (1998) survey of 20,000 acres around Kentucky Lake revealed the presence of Late Paleoindian materials on 11 sites, including the Nuckolls site, distributed across a more varied set of physiographic zones than were sites from the Early Paleoindian period. The number of sites had also increased from the previous period, indicating population increase, more intensive use of the valley, or different use of the valley when compared with earlier periods (see Kerr and Bradbury 1998: 6). The data recovered from the single component Late Paleoindian sites indicate varied site types. Of the three single component sites, two exhibited low artifact densities, while the third exhibited a more moderate density of artifacts. On all three single component sites, although the actual number of artifacts was not very high, the variety of artifacts represented was relatively diverse, and included hafted bifaces, other bifaces, cores, flakes, scrapers, and a drill (Kerr and Bradbury 1998: 6). From their extensive survey, Kerr and Bradbury (1998) offer two possible interpretations of the nature of Late Paleoindian organizational strategies in the Kentucky Lake region, assuming the sites recorded are representative of the overall range of site types at the time. First, the Kentucky Lake data may be indicative of "small, dispersed, highly mobile groups occupying a wide range of physiographic locales and conducting a wide range of activities at each site" (Kerr and Bradbury 1998: 6). Second, the data may be demonstrating a series of recurrent and functionally different occupations over time at each site.

Turning our attention to east Tennessee, the extensive surveys in Little Tennessee River Valley, as part of the Tennessee Valley Authority's dam construction projects, provide some of the best evidence for Late Paleoindian occupation and behavior in the eastern portion of the state. The Department of Anthropology at the University of Tennessee conducted archaeological investigations from 1967 to 1981 in the proposed Tellico Reservoir area along the lower Little Tennessee and Tellico Rivers. This project documented human occupation in the valley from the Late Pleistocene/Early Holocene boundary until the early 19th century. Davis (1990: 1) notes, though, that in spite of extensive archaeological projects and documentation of prehistoric occupations in the Little Tennessee River valley, little effort had been spent on understanding settlement systems and their changes through time. Davis (1990) attempted to remedy this oversight, and in the process of his research, documented the presence of Late Paleoindian Dalton period points in the valley. Remains from this period were distributed sporadically, being discovered as isolated finds on only 14 multicomponent sites. One other Dalton point was recorded in a private collection from the uplands. Six of the fourteen Dalton finds were from deeply buried strata along the first terrace of the Little Tennessee River. The remaining points were collected from all other valley and upland landform classes. Davis (1990: 197) notes that these points were sporadically but evenly distributed throughout the valley, a pattern that indicates “limited and sporadic use of the valley area by Dalton populations.” These finds likely represent small, temporary hunting camps, and Davis (1990) proposes that the larger base camps may have been located along the main Tennessee River.

The Dalton period research conducted in Tennessee has provided data on site types and some of the range of activities performed (e.g. hunting, retooling), and has encouraged interpretations of land use and settlement patterns. One category of data that is conspicuously absent from these studies, though, is a sense of Dalton period subsistence pursuits. Research from elsewhere in the region has provided some insight into the nature of Dalton subsistence strategies. Specifically, excavations at Dust Cave, a stratified rockshelter site in northwestern Alabama, have produced large faunal and paleobotanical datasets from which researchers have painted a detailed picture of the nature of Late Paleoindian subsistence pursuits.

Renee Walker’s faunal analysis from Dust Cave demonstrated that avian species comprised a large portion of the Late Paleoindian diet (Walker 1998). Bird remains, especially those of waterfowl, accounted for approximately 70% of the identifiable faunal remains from the Late Paleoindian levels. Other species identified in the assemblage included prairie chicken, bobwhite, passenger pigeon, and one turkey specimen. Mammal remains were comparatively infrequent, comprising only 20% of the faunal assemblage, and being represented primarily by smaller mammals such as moles, shrews, mice, rats and voles. A small number of white-tailed deer bones were identified. Fish species, including sucker, redhorse, catfish, and drum made up 8% of the identified faunal remains, with fish and amphibians comprising the remaining 2% of the assemblage. A malacological study also revealed 36 freshwater mussel valves in the Late Paleoindian assemblage (Parmalee 1994). The faunal remains indicate a varied diet in opposition to the traditional view of Paleoindians as focused, "big game hunters."

In her analysis of the botanical remains from Dust Cave, Kandace Hollenbach noted a similar diversity in the plant species that were exploited by the Dalton occupants of the site. Hollenbach (2005: 257) writes that "The collection and processing of hickory nuts, as well as acorns, appears to have been a major activity of the occupants of Dust Cave." Paleobotanical evidence also demonstrates that fruits (e.g. hackberry, persimmon, grape) and edible seeds (e.g. wild legumes, chenopod, smartweed) were also exploited.

The exploitation of such a wide variety of plant and animal species during the Dalton occupation of Dust Cave was facilitated by the site's location at the intersection of riverine, floodplain, forested slope, and open and forested upland environments. Several of the Dalton sites discussed from Tennessee were located in similar environmental contexts, suggesting that subsistence resource exploitation may have been as broad-based among the early inhabitants of Tennessee.

Summary

Dalton materials in Tennessee are sparsely represented when compared to the dense concentrations of contemporary finds in Missouri and Arkansas. Nonetheless, Dalton remains appear to be better represented than earlier components, suggesting the possibility of an increase in population at the time. The Dalton sites that have been reported from Tennessee may represent the beginnings of a shift from a residentially mobile settlement strategy (e.g. small sites with multiple activities represented at each; see Binford 1980) to a more logistically oriented form of settlement-subsistence organization (e.g. specific hunting camps, retooling stations; see Binford 1980). The majority of Dalton sites throughout Tennessee are located in ecotone environments (i.e. at ecological boundaries), often situated near water sources that would have been attractive to prey species. A wider range of resources might have been available in these ecotone environments, an important consideration to human populations living at the end of the Pleistocene. The extinction of megafaunal prey species, and shifts in the general biotic resource structure would have required human populations to diversify their subsistence pursuits and experiment with new and smaller prey packages.

The pattern of multiple, small extraction camps and special activity loci, along with Davis' (1990) proposed base camps in the main Tennessee River valley, is reminiscent of the settlement pattern noted in Missouri and Arkansas. Unlike the discovery of the Sloan site in Arkansas, no mortuary sites were documented in Tennessee. The question then arises of how the Dalton populations in Tennessee were disposing of their dead. Does the lack of cemetery sites in Tennessee represent a different form of mortuary treatment, or a function of preservation? The lack of mortuary sites in Tennessee might also signal the presence of a more mobile population.

EARLY ARCHAIC

Studies of the Early Archaic period in Tennessee present something of a conundrum. Several buried, stratified Early Archaic sites were discovered and reported during the heyday of dam construction by the Tennessee Valley Authority in the 1960s and 1970s. These sites helped to refine our understandings of Early Archaic cultural sequences, artifact inventories, and site use. In spite of the wealth of these discoveries and the interpretive potential that remains to be exploited, surprisingly little research has been conducted or published in recent years.

Recognition of Early Archaic materials was a relatively slow process, as the prevalence and greater visibility of later archaeological remains (e.g. traces of the mound-building groups) diverted attention from earlier occupations. Research in the lower Little Tennessee River valley, as part of TVA's Tellico Reservoir project, helped to remedy the earlier lack of information regarding Archaic occupations (J. Chapman 1977). The approach taken to archaeological testing in the lower Little Tennessee River Valley was inspired by Joffre Coe's (1964) research in the Carolina Piedmont. Coe recognized preservation of stratified Archaic sites in the alluvial valleys. This pattern of early site burial was echoed in Broyles' excavations (1966, 1971) at the St. Albans site in West Virginia. These were seminal projects, but little additional research was carried out in the decade following publication of their results. J. Chapman (1977) explains the reasons for a lack of focus on the Early Archaic. First, it had been assumed that river bottoms were not exploited during the Paleoindian or Early Archaic (J. Chapman 1977: 1). Second, many diagnostic artifacts were recovered from the second terraces and the on ridges in the uplands, and this pattern lead researchers to believe that early occupants utilized primarily the upland regions in their settlement organization. Third, these early sites often were so deeply buried that the many salvage projects associated with reservoir construction in the Tennessee Valley region did not penetrate deeply enough to allow recovery of these earliest materials. Time and monetary constraints prevented deep exploration, and the reluctance to use heavy equipment for trenching, as well as the reluctance to destroy the rich record of later prehistoric sites, all contributed to Early Archaic sites being overlooked until the later 1960s and early 1970s.

Jefferson Chapman's (1973, 1975, 1976, 1977, 1978, 1979) research in the Tellico Reservoir area of the Little Tennessee River Valley demonstrated the great productive potential of these alluvial settings for producing evidence of Early Holocene occupations. His work revealed Early Archaic deposits in stratified contexts and elucidated the relative and absolute sequences and dates for various occupations identified largely on the basis of diagnostic projectile point types.

Studies of Early Archaic settlement in the Little Tennessee River valley provided the basis for other researchers to begin investigating changing settlement-subsistence strategies. Larry Kimball's (1981) M.A. thesis considered occupation in the valley from the perspective of hunter-gatherer theory. With a strong theoretical basis to his research, Kimball (1981) constructed expectations for the structure of hunter-gatherer activities that were then tested through examination of the archaeological record from sites in the Little Tennessee River Valley. Paleoethnobotanical studies, as part of the original research designs, have allowed interpretations to be developed of subsistence pursuits and the role of plant foods in the diets of early hunter-gatherers. Davis (1990) examined the various Early Archaic site types that were identified through the Tellico Reservoir project and performed intersite comparisons in order to construct an interpretation of settlement systems. Finally, Kimball (1993) has reassessed grid count data from the Rose Island site in order to draw detailed understandings of intrasite spatial patterning, thus providing insight into the nature of Early Archaic site structure and use of space, and has considered synchronic and diachronic changes in settlement organization and organization of technology (Kimball 1996).

One other particularly significant aspect of J. Chapman's work (1976, 1977) in the lower Little Tennessee River Valley is the sequence of radiocarbon dates that was generated for the Kirk Corner Notched cluster in the region. Nine dates were obtained, ranging between 8575 ± 355 B.P. (9619 ± 463 cal B.P.) and 9435 ± 270 B.P. (10,733 ± 364 cal B.P.), and seem to conform to the dates obtained from sites elsewhere in the region.

These studies, though important and illuminating, have yielded a slightly biased view of the Early Archaic in Tennessee. Based simply on the nature of the project, J. Chapman's studies focused primarily on floodplain environments with a much lesser focus on Early Archaic materials in upland regions. These initial studies were also weighted toward the Early Archaic in *eastern* Tennessee. The nature of the Early Holocene archaeological record elsewhere in the state has received comparatively little attention. In spite of the great research potential presented by these early studies in east Tennessee, only a few researchers have mined the potential of the large database of Early Archaic materials in order to answer theoretically informed questions regarding the nature of human adaptations during the Early Holocene. Regardless of the potential biases inherent in these studies, research in the Tellico Reservoir area, as well as those studies from elsewhere in the state (discussed below), have provided quite detailed insights into the nature of Early Archaic occupations in Tennessee. From my research, I have seen little reference to Early Side Notched materials, a greater emphasis on the Kirk traditions, and a relatively strong emphasis on Bifurcate traditions, especially in some regions.

Early Side Notched

The boundary between the Late Paleoindian and Early Archaic is fairly indistinct, as forms that we tend to assign to the Late Paleoindian are also noted in traditionally Early Archaic temporal contexts (e.g. Dalton, 10,500-9,900 B.P.; ca. 12,500-11,200 cal B.P. following Anderson 2001), and the side notched points that we consider to represent the first Early Archaic forms have been associated with date ranges that overlap with the very latest Late Paleoindian (e.g. Big Sandy, 10,200-9,500 B.P.; ca. 11,800-10,700 cal B.P. following Anderson 2001). In this chapter, though, we will consider Early Side Notched (ESN) points to be characteristic of the first of the Early Archaic horizons in the Southeast. In Tennessee, the Early Side Notched horizon is characterized by Big Sandy projectile points. These points exhibit long, narrow, triangular blades that often have been resharpened (Justice 1987: 60). Haft elements are produced through shallow side notching that creates wide notches above squared basal corners. Basal margins range from straight to deeply concave, and are thinned.

Recent work at the Dust Cave site in Alabama has produced a set of radiocarbon dates for ESN materials. Sherwood et al. (2004) note that the two dates obtained from the Dust Cave samples range from 10,000 to 9,000 cal B.C. (12,000 to 11,000 cal B.P.), but that "the greatest probability associated with the Early Side Notched component falls immediately after the Late Paleoindian with a date of 9300 cal B.C. [11,300 cal B.P.]" (Sherwood et al. 2004: 547). These dates place the Early Side Notched Horizon firmly between the Dalton and Corner Notched horizons, at the very beginning of the Holocene, and representing a transitional adaptation, a link between Late Pleistocene and Early Holocene adaptations.

ESN hafted bifaces have been recovered in large numbers and from varied contexts in the Southeast, especially in the Tennessee River Valley (Walthall 1980). Despite the frequent occurrence of ESN hafted bifaces in the Midsouth, understandings of the chronology, toolkits, and subsistence practices have remained elusive (Sherwood et al. 2004: 547). Randall (2002: 5) notes that "problems with stratigraphic context have conspired to produce a coarse-grained representation of ESN adaptation in the study area [i.e. northwestern Alabama]. In particular, most ESN hafted bifaces are recovered from sites with mixed or deflated stratigraphy." As a result, full toolkits have not readily been identified and associated with ESN hafted bifaces, making it difficult to interpret the range of activities, and the technological and settlement-subsistence organizational strategies employed by these populations.

In Tennessee, more specifically, there is little information on ESN occupations. The Big Sandy projectile point type, characteristic of ESN in the state, was identified by Madeline Kneberg (1956) at the Big Sandy site in western Tennessee. In the wake of this initial identification and description of the point type, mention of Big Sandy points has appeared only sporadically in the archaeological literature in Tennessee, and discussion of the cultural systems of these tool makers is virtually absent.

Kerr and Bradbury (1998) note the presence of side notched forms recovered during their surveys in the Kentucky Lake reservoir, but condense all diagnostic Early Archaic materials into a general discussion of the entire time period, with no separate consideration of the Early Side Notched data. Some more discussion of the period is presented by Bradbury and McKelway (1996) in their article on an early Holocene site (40CH162) in Cheatham County, Tennessee. This site is located in the Western Highland Rim physiographic province, west of the boundary with the outer Nashville Basin. One Big Sandy point was found during Phase II testing, and several others were recovered during the Phase III data recovery. Side Notched forms were found several levels above a hearth from which a sample of material was submitted for radiocarbon dating. Radiometric analysis returned a date of 10,350 ± 60 B.P. (12,271 ± 195 cal B.P.). A comparable date is suggested for the ESN points recovered from the levels above the hearth. Similar dates for ESN were obtained during the excavations at Dust Cave in Alabama (Driskell 1994). Microscopic use-wear analysis on materials from the site, including ESN-associated tools, suggests that the site was used in hunting and processing (butchery, skinning) activities, likely during short-term, intermittent occupation of the site.

Interestingly, there does not appear to be any mention of ESN materials in the literature generated by the Tellico Reservoir project (e.g. J. Chapman 1975, 1977, 1978; Davis 1990; Kimball 1993, 1996). In a study as large and comprehensive as the Tellico project, surely these materials have not simply been ignored by researchers. Instead, might the apparent lack of ESN materials in the Little Tennessee River valley be related more to land use patterns, such as the use of the uplands rather than the valley bottom, or a shift in focus to the Tennessee River as opposed to its tributaries? Another possibility, of course, is that earlier materials may lie buried even more deeply in the alluvial sediments.

To gain a sense of ESN adaptations, we must turn to studies from outside Tennessee. Recent work at Dust Cave, a stratified rockshelter site in northwestern Alabama, has provided some of the best data on ESN in the Midsouth. The single component nature of the ESN assemblage is significant in light of the generally mixed contexts from which ESN materials have tended to be recovered. The "pure" nature of this assemblage has allowed the interpretation of patterns in the lithic technology and subsistence practices. In considering the ESN lithic assemblage, Sherwood et al. (2004: 547) note a "significant decrease in the importance of core-derived blade technology and an increased focus on bifacial technology." The data from Dust Cave have also provided information on the rest of the ESN tool kit beyond the hafted bifaces.

Tools recovered from the ESN deposits include stage bifaces, various hafted and unhafted bifaces, and organic tools including antler tines, a grooved antler handle, and bone awls and needles (Goldman-Finn and Walker 1994; Sherwood et al. 2004: 547). Sherwood et al. (2004: 551) have suggested that the technological shift witnessed between the Late Paleoindian and the Early Side Notched occupations, specifically the shift from a core-derived blade technology to a biface technology, "corresponds to the end of the Younger Dryas (ca. 9650 cal B.C. [11,650 cal B.P.]) and may reflect less need for a highly maintained, curated technology in response to the increasing stability of the early Holocene landscape."

Excavations at Dust Cave have also provided excellent evidence for the nature of ESN subsistence. Renee Walker's faunal analysis (Walker 1997; 1998; Walker et al. 2001) has shown a shift in the exploitation of faunal resources from riverine/floodplain species to terrestrial species during the ESN period. Paleobotanical studies, on the other hand, indicate that there was no apparent change in the use of plant resources from the Late Paleoindian to the ESN (i.e. continued use of hickory nuts and acorns, fruit, and edible seeds; Detwiler 2000; Hollenbach 2005). The focus on the use of plants in the ESN, and especially earlier in the Late Paleoindian, also hints at increasing stability at the beginning of the Early Holocene. Hollenbach (2005: 374) reminds us that "gathering activities comprise more than collecting nuts and fruits while walking. It includes monitoring and perhaps managing the landscape, and requires an intimate knowledge of the landscape and its resources." Such a heavy reliance on plant species suggests that the inhabitants of Dust Cave must have had ample opportunity to become familiar with their local landscape, an opportunity aided by the increased climatic stability and corresponding predictability of local resources.

The increasing environmental predictability during the ESN is a theme that has also been addressed by Asa Randall in his consideration of ESN materials from northwestern Alabama. Randall's (2002) study considers the reasons for the morphological variation noted in samples of ESN hafted bifaces, and from his analysis, he draws some important conclusions about the nature of ESN behavior. He suggests that "morphological variation is clearly linked with raw material procurement strategies. The data support the position that raw material was consumed and replaced regularly in a raw-material-rich environment" (Randall 2002: 102). It appears as though ESN tool makers exhibited a preference for high quality chert, but in cases where high quality raw materials were not easily available, thermal alteration was employed to facilitate the use of local raw materials. The patterns of resharpening noted on the ESN points from northwestern Alabama is postulated to represent a tool maintenance strategy, rather than a raw material conservation technique, as the lack of beveling suggests that ESN tool makers were not very concerned with conserving raw material (Randall 2002: 102).

Based on his analysis of raw material procurement and tool production and use, Randall (2002) draws some conclusions about other aspects of the ESN cultural system. First, he proposes that the paucity of materials derived from outside the central portions of the middle Tennessee River Valley suggests fairly restricted mobility ranges. Second, he proposes that the apparently sudden increase in ESN hafted bifaces in the archaeological record of northwestern Alabama, in relation to the lower prevalence of Dalton materials, may not indicate an increase in population density, but rather a decrease in the life span of ESN tools. Decreased life spans, as indicated by less resharpening of the hafted bifaces, may have resulted in greater numbers of less exhausted points entering the archaeological record. Finally, technological strategies appear to have shifted in order to allow toolkits to be supplemented with local raw materials. It appears, according to Randall's (2002) findings, that ESN tool consumption likely was related to the scheduling of other procurement activities. Specifically, deer hunting and collection of nuts would have been intensive activities, occurring during a restricted period of time in the fall. Gearing up for these activities certainly would have been facilitated by the use of local raw materials.

These studies of ESN materials from Alabama should serve as inspiration to researchers in Tennessee who have, at their disposal, untapped archaeological resources for study. Investigations of ESN occupations in Tennessee may serve to refine our understandings of the very earliest Early Archaic occupations in the Midsouth, and to demonstrate how cultural systems in Tennessee compare to those patterns described outside the state.

Kirk Horizon

The Kirk horizon was initially recognized and defined by Joffre Coe (1964) who identified and described the diagnostic triangular, corner notched projectile point type. Points characteristic of the Kirk Corner Notched cluster tend to be large to medium-sized points (although some variants like Palmer are smaller) with triangular blades, wide shoulders, and corner notches. Several variants have been defined within the Kirk Corner Notched cluster (including Kirk Corner Notched, Stilwell, Palmer Corner Notched, Charleston Corner Notched, Pine Tree Corner Notched, Decatur; Justice 1987: 71-82), and these are differentiated on the basis of size, presence or absence of basal grinding, shape of the basal margin, characteristics of blade morphology (e.g. lopsidedness, in the case of Charleston Corner Notched), and, in some cases, geographic extent. This characteristic style of projectile point, as well as the associated toolkit, was soon recognized across much of eastern North America, representing a "pan-eastern" tradition (Tuck 1974) that stretched from the southeastern United States (Coe 1964) into southern Canada (Ellis et al. 1991).

In the following discussion, I consider evidence for the Kirk Corner Notched horizon in Tennessee, beginning with a discussion of Jefferson Chapman's seminal work on buried Early Archaic sites in the lower Little Tennessee River Valley (see Figure 3 for site locations).

Kirk Corner Notched in the Little Tennessee River Valley

In Tennessee, Jefferson Chapman's program of buried site reconnaissance, directed at locating the sorts of Early Holocene sites that had been discovered by researchers elsewhere in the Southeast (e.g. Broyles 1966, 1971; Coe 1964), revealed the presence of Kirk Corner Notched points and associated toolkits and features in primary stratigraphic context in the lower Little Tennessee River Valley. These discoveries allowed interpretations of relative chronology to be developed, and associated radiocarbon dates on many sites provided an absolute chronology for these archaeological manifestations.

Kirk Corner Notched points represent what appears to be the earliest substantial occupation of the valley, or at least the earliest occupation for which evidence has been well preserved. It is possible that earlier materials were eroded out and washed away during flooding and periods of terrace formation (J. Chapman 1985).

Much of the evidence for Early Archaic occupations in the valley was buried under deep alluvial deposits. The first of these buried sites to be discovered was Rose Island, which has since provided an important contribution to our understandings of the Bifurcate tradition in East Tennessee (see discussion of the Bifurcate horizon below). Early Archaic Kirk and Palmer components were also documented at Rose Island. Identification of a deeply buried, stratified Early Archaic component at Rose Island prompted the development of a research design directed at testing for more deeply buried Archaic sites in the Little Tennessee River valley. Four more sites with buried Early Archaic materials were discovered during the initial phases of research in the valley: Icehouse Bottom, Harrison Branch, Patrick, and 40MR41, a buried site on Calloway Island. The data recovered from each of these sites contributed to initial understandings of Early Archaic occupations in Tennessee, including the nature of Kirk Corner Notched occupations.

First and foremost, research in the lower Little Tennessee River Valley produced radiocarbon dates for Kirk Corner Notched occupations in the region. From the Rose Island site, an average age of 9,270 ± 198 B.P. (11,106 ± 309 cal B.P.) was obtained for the Kirk levels (J. Chapman 1975: 212). At Icehouse Bottom, initial occupation of the site appears to have occurred 9,500 B.P. (Lower Kirk, J. Chapman 1977: 123).

Kirk Corner Notched technology and toolkits were also elucidated through J. Chapman's work in the Tellico reservoir (see Figures 4 and 5). Trianguloid, corner notched projectile points, attributable to the Kirk horizon, were found at each of the sites listed above. The projectile points recovered from Bacon Farm exhibited great within-type variability, arguing against the splitting of corner notched projectile points into as many distinct "types" as had been advocated by Cambron and Hulse (date; e.g. Decatur, Palmer, Pine Tree, etc.). There did, however, appear to be a stratigraphic separation between larger (younger) and smaller (older) corner notched, serrated projectile points, lending credence to the Upper/Lower Kirk dichotomy (J. Chapman 1978: 78). This separation between Upper and Lower Kirk was applied at other sites in the valley as well. Besides diagnostic projectile points, a wide range of other unifacial and bifacial chipped stone tool types was found associated with the Kirk occupations in the study area. These tool types included bifaces, small cobble spall chopper/scrapers, side scrapers, formal, teardrop-shaped end scrapers, drills, unifacial perforators, gravers, denticulates and utilized flakes (J. Chapman 1975, 1977, 1978). Two other features of the Kirk Corner Notched chipped stone toolkit were prominent in the lower Little Tennessee River Valley assemblages: blade tools and bipolar flaking. At the Bacon Farm site (J. Chapman 1978), these blade tools included utilized and unutilized blades, retouched blades, a particular blade-like knife type with retouch along at least one lateral margin, and side scrapers on blade-like flakes. Blade-like flakes were also found at Icehouse Bottom (J. Chapman 1977). Bipolar flaking was noted at Rose Island (J. Chapman 1975) and Icehouse Bottom (J. Chapman 1977), as evidenced by the presence of *pièces esquillées* and pitted cobbles.

In addition to the chipped stone tools, stone slab metates/anvil stones and worked and unworked hematite are also found in the Early Archaic Kirk levels at Rose Island and continued to be represented through the remainder of the Early Archaic (J. Chapman 1975). At Icehouse Bottom, multipurpose manos, hammerstones and anvils were also recovered (J. Chapman 1977).

Of particular interest in considerations of Kirk Corner Notched technology is one unique class of feature that was recognized first in the Lower Kirk levels and continued in use through the Middle Archaic: the prepared hearth. Prepared hearths were constructed from clay transported from the nearby hillside and placed over the sandy loams. Analysis of these prepared surfaces by Sherwood and Chapman (2005) suggest that they may have been used in processing plant foods (e.g. roasting, parching). Hickory nuts and acorns appear to have been exploited at this time, and may have been processed on these clay surfaces. In addition, the prepared clay surfaces in the Lower Kirk levels also exhibited textile and basketry impressions (J. Chapman 1977: 124; Sherwood and Chapman 2005). These impressions at Icehouse Bottom represent the earliest documented evidence for textiles in eastern North America.

In addition to elucidating the nature of Kirk Corner Notched technology, research in the lower Little Tennessee River valley also provided insights into Early Archaic subsistence patterns. I have already discussed the evidence from Icehouse Bottom for the use of nuts, specifically hickory and acorns (J. Chapman 1977). An examination of paleobotanical remains from the Bacon Farm site suggests that the use of hickory nuts was more common in the Bifurcate and early Middle Archaic periods, while the importance of acorns appears to have decreased after the Kirk phase (J. Chapman 1978: 86).

The technological and subsistence patterns discerned at the sites in the Tellico reservoir have allowed interpretation of site types and activities performed. Rose Island, Icehouse Bottom and Bacon Farm have all been interpreted as seasonal base camps (J. Chapman 1975, 1977, 1978). At Icehouse Bottom, interpretation of the site as a seasonal base camp was based in part on the wide variety of artifacts recovered, including tools used in hunting, butchering, food processing, and tool manufacture. Important activities performed at the Bacon Farm site include hide-working, bone-working, and plant food gathering and processing.

Finally, the Icehouse Bottom site (J. Chapman 1977) produced the only bioarchaeological evidence in the study area. A single cremation burial was found at the site.

These important Early Archaic sites, located on the first and second terraces above the Little Tennessee River, paint a picture of prehistoric hunting and gathering groups who lived in seasonal base camps in the valley and produced a wide variety of tools with which to exploit and process both animal and plant resources. Evidence for a cremation burial may also suggest the development of greater ties to the local landscape at this time.

An Overview of Kirk Land Use Patterns in the Tellico Reservoir (Davis 1990)

The rich Early Archaic dataset recovered during Jefferson Chapman's early work in the Tellico reservoir has continued to inspire researchers to ask new questions of the data. Davis' (1990) consideration of artifact patterning and interpretations of site function from these patterns enabled an interpretation of land use and settlement patterning in the Early Archaic of the Little Tennessee River valley. Kirk period occupations are much better represented than were the preceding Dalton phase occupations. Lower Kirk occupations are represented on 55 sites, while Upper Kirk materials were located on 101 sites. These components are distributed across all major landform classes within the river valley. Site types represented include base camps, logistical camps, and activity loci (Davis 1990: 197-200). Base camps tended to be located in the valley along the Little Tennessee River. Logistical camps were found in both the main valley and in tributary valleys, while activity loci were much more widely distributed.

Larry Kimball (1996: 149) examined the Tellico database in order to examine "interassemblage variation within the system and changes in these systems over the course of the Early Archaic period." His analysis demonstrated a greater prevalence of Kirk sites than later Bifurcate sites, and a wide distribution of Kirk sites across different landform types. He suggests that this pattern represents either a greater population in Kirk times, or a shift from logistical settlement organization during Kirk times, to residential organization in the subsequent Bifurcate period. Kirk populations in the valley appear to have positioned themselves to take advantage of the greater resource diversity (plants and animals) present in the ecotone environment of upper valley, as indicated by a greater intensity of use in the upper valley than in the lower valley.

Beyond Tellico: Kirk Throughout Tennessee

The Little Tennessee River Valley has been one of the most productive areas for research into the nature of Early Archaic Kirk phase occupations in Tennessee, but it represents only one small portion of the state, a state that is physiographically and environmentally diverse from east to west. Research relating to Kirk Corner Notched components has been conducted elsewhere in the state, but not to the degree seen in East Tennessee. The question naturally arises of whether this pattern is a function of a research bias (i.e. Early Archaic sites are found where the research has been done), or whether it is an accurate representation of the archaeological record. As will be discussed further below, in the section on the bifurcate point traditions, a similar pattern of diminishing representation of Bifurcate points is noted from east to west, in spite of these materials having been sought out in Middle and West Tennessee. The fact that a similar spatial pattern of diminishing frequencies of these Early Archaic components is noted for other sub-periods suggests that the pattern may be an accurate reflection of the archaeological record. It might be interesting to consider, then, why Early Archaic populations did not seem to venture as far into western portions of the state.

The majority of the research on Kirk Corner Notched components other than in the Tellico Reservoir area has come from Middle Tennessee, or from the very easternmost extremes of western Tennessee. Extensive research has been carried out around the confluence of the Tennessee, Cumberland and Ohio Rivers as part of the Lower Cumberland Archaeological Project (LCAP; reported by Nance 1987). Kerr and Bradbury (1998) have conducted extensive surveys around Kentucky Lake, covering 20,000 acres. Other important research, though on a less extensive scale, has been carried out by John Broster, Mark Norton, and Gary Barker (e.g. Broster and Barker 1992; Norton and Broster 1993). In contrast to the floodplain-oriented research of the Tellico Reservoir project, Bradbury and McKelway (1996) conducted an investigation of a limited activity Early Archaic site in Middle Tennessee, lending a different perspective to our understandings of Kirk Corner Notched activity patterns. Smith (1981) reported on research in the Columbia Reservoir in which limited Early Archaic activities were noted, contrasting the prevalence of large base camps and relatively intensive occupation noted during investigations in the Tellico Reservoir. Finally, research conducted in East Tennessee at High Knob by Benthall and Manning (1998) provided insight into the nature of Kirk occupation in the uplands.

<u>LCAP Project (Nance 1987a, 1987b)</u>

The Lower Cumberland Archaeological Project (LCAP) was "a long-term [multidisciplinary] research effort aimed at improving our understanding of the natural and cultural histories of the Tennessee, Cumberland, and Ohio Rivers of western Kentucky with a major emphasis on study of the Archaic period" (Nance 1987a: 93). Although the study area was confined primarily to Kentucky, it spread into a northern portion of western Tennessee. Results of the study revealed a Kirk Corner Notched component in the region, but Nance's report focused primarily on describing the projectile points and assessing whether differences existed between Kirk and Palmer Corner Notched points; little attention was given to the nature of the Kirk occupations.

<u>Various Middle Tennessee Studies (Broster and Barker 1992; Norton and Broster 1993)</u>

Studies carried out in Middle Tennesee by John Broster, Mark Norton and Gary Barker have provided some important insights into the nature of Early Archaic Kirk Corner Notched occupations in Middle Tennessee. Broster and Barker's (1992) research at the Johnson site revealed evidence for a stratified Late Paleoindian-Early Archaic site. The Johnson site is located in Davidson County, Tennessee, at the confluence of the Cumberland River with a major tributary. A Kirk Corner Notched component was recognized in the top portion of Stratum II. In total, 24 Kirk Corner Notched projectile points were recovered, most of which were produced on

Fort Payne chert. Broster and Barker (1992: 125) note that "The importance of this site lies in its potential to provide the first data on stratified Paleo-Indian and Early Archaic occupations in the Mid-South." Based on their collection of materials from the site, Broster and Barker (1992) suggest that the site represents an area that was used for projectile point manufacture over the course of 3500 years. As the site had not been fully excavated, no attempt was made to interpret any other activities that may have been carried out at the site.

Investigations at the Puckett site (Norton and Broster 1993), located on the banks of Lake Barkley in the Cross Creeks National Wildlife Refuge, revealed evidence for a Late Paleoindian to Early Archaic retooling station. A Kirk Corner Notched component was recognized on the site, though the Puckett site's true significance lies in the fact that it has produced the first radiocarbon dates for the Kirk horizon in Middle Tennessee. The Kirk phase at this site has been dated to 8,490 ± 180 B.P. (9,494 ± 230 cal B.P.) and 8,820 ± 180 B.P. (9,897 ± 235 cal B.P.), based on wood charcoal recovered from the Kirk zone (Norton and Broster 1993: 49).

Kentucky Lake (Kerr and Bradbury 1998)

The extensive investigations carried out at Kentucky Lake (see discussion in Late Paleoindian section above) revealed the presence of 38 Early Archaic sites distributed across a variety of physiographic zones. All Early Archaic components were grouped together, making it impossible to isolate the Kirk Corner Notched components for discussion. Still, an overall view of Early Archaic settlement in the region of Kentucky Lake is possible (Kerr and Bradbury 1998: 8-9). Of the 38 Early Archaic sites located, the highest percentage was found within the main Tennessee River Valley bottom. The next most frequently occupied physiographic locations were the margins of the main valley and the side drainages that flowed into the main valley. Most of the Early Archaic sites were located close to water sources, with only 7 of the 38 sites being situated further than 100 m from a water source. Nearly half of the Early Archaic sites represented single components, and the majority of these (n=10) exhibited low artifact densities. No features were located on the Early Archaic sites, though fire cracked rock was discovered on 3 sites, and a possible midden deposit was located on one site.

Kerr and Bradbury (1998: 9) note that "Artifacts recovered from single-component Early Archaic sites displayed a slightly more varied tool assemblage than the single-component Late or Terminal Paleo-Indian." Artifacts that were recovered from the Early Archaic components included bifaces, cores, drills, scrapers, flakes, flake tools, tested cobbles, hafted bifaces, one pitted cobble, and one pitted cobble/hammerstone. The pitted cobble was the primary addition to the artifact assemblage beyond the list of implements characteristic of the Late Paleoindian toolkits. Kerr and Bradbury (1998) suggest that the pitted cobble is indicative of the beginnings of plant processing, but emphasize that hunting still appears to have been the primary subsistence pursuit.

The patterns noted during the Kentucky Lake survey suggest an increase in population and more extensive use of the valley, though Kerr and Bradbury (1998: 9) note that little change occurred in the lifeways or settlement-subsistence patterns between the Late Paleoindian and Early Archaic. A pattern of numerous, briefly occupied smaller sites (likely more specialized activity areas) and larger residential bases that would have been occupied for longer periods of time is little changed from the observations made of Late Paleoindian site patterning. The central based transhumance system, proposed by J. Chapman (1978) for East Tennessee, may be operating in Middle Tennessee as well. Kerr and Bradbury (1998) note that many of the Early Archaic sites located during this survey were deeply buried, and urge that more buried sites may remain to be found in the Kentucky Lake region.

Limited Activity Early Archaic Site in Middle Tennessee: 40CH162 (Bradbury and McKelway 1996)

Site 40CH162, in Cheatham County, Tennessee, was excavated as a highway salvage project under the auspices of the Transportation Center and the University of Tennessee. The site is located on an alluvial terrace on the east bank of Harpeth River in the Western Highland Rim physiographic province. Among other temporal periods that were represented, a Kirk component was recognized during Phase II testing of the site (Bradbury and McKelway 1996: 3). Bradbury and McKelway (1996) used a combination of techno-morphological and functional analyses in order to determine occupation intensity and site function through time. They based their interpretations on the assumption that longer occupations should produce evidence for a wider range of activities performed at the site, and these activities should be detectable through examination of the range of tool classes and the types of use-wear present on these tools. The authors considered richness of the assemblage (i.e. number of tool classes) and evenness within the assemblage (i.e. how uniformly distributed the various classes were through time). The results of their analysis suggest that:

> the site was continually used over a long period of time for essentially the same purpose. The low diversity scores indicate that the site was most likely used as a limited activity location. These activities were probably related to the processing of animal products and the maintenance and manufacture of chipped stone tools based on the results of the debitage and modified artifact analyses (Bradbury and McKelway 1996: 21).

The fact that this site appears to have been used so minimally, but over such a long period of time, provides insight into another facet of Early Archaic settlement and subsistence that was not as apparent at the large floodplain sites reported from East Tennessee.

High Knob

The majority of the sites discussed so far have been lowland sites in alluvial contexts. High Knob, reported by Benthall and Manning (1988) represents Early Archaic occupation in an entirely different physiographic setting. The High Knob site (40MO82) is located on High Knob in the Appalachian Plateau, at an elevation of 3,020 feet above sea level. The site lies in close proximity to several different physiographic zones: the Ridge and Valley; the Cumberland Plateau; the Tennessee Valley Divide; and the drainage of Emory River, a tributary to the Tennessee River (Benthall and Manning 1988: 124).

The area of High Knob inhabited prehistorically is a relatively flat piece of ground "marked by natural depressions and two knolls" (Benthall and Manning 1988: 125). A spring ran nearby, and the site was located close to many chert sources that were accessible in the gorges and the plateau escarpment of the region.

Six Kirk Corner Notched projectile points were recovered during excavation, along with other Kirk artifacts, in the top 8 cm of Zone B in units 9 and 10. No hearths or other features were noted in this zone. The Kirk materials were the only diagnostic materials recovered *in situ* on the site, and included diagnostic hafted bifaces, decortication flakes, bifaces thinning flakes, and retouch flakes. Benthall and Manning (1988: 145) note that "Together with the presence of blades, drills and a probable hammerstone they suggest the possibility of an Early Archaic habitation floor." It appears as though tool manufacturing, butchering, hide processing, and even some plant food processing (based on the discovery of some ground cobbles) may have occurred at the site.

The presence of Early Archaic sites in upland contexts is not unknown. The authors note that in a survey of the Great Smoky Mountains, 72% of the Early Archaic sites that were located were found in the uplands (Benthall and Manning 1988: 145). The occurrence of these sites in upland contexts may be related to the fall nut harvest. The High Knob site, therefore, may have served a seasonal food procurement function, including the gathering of nuts, and the hunting of animals that were attracted to the mast producing forest during the fall.

Summary of Kirk Corner Notched

The Kirk Corner Notched materials recorded in Tennessee are typical of Kirk materials found throughout eastern North America. The Kirk Corner Notched toolkits from Tennessee include the variety of trianguloid, corner notched projectile points representative of the cluster, as well as blade and blade-like flakes and formal unifaces (e.g. formal end scrapers). The use of local raw materials and tool curation in the form of resharpening, beveling, and serration of blade edges are all characteristic of the Kirk Corner Notched horizon in Tennessee and elsewhere in eastern North America. One important technological innovation that seems unique to the Kirk phase in Tennessee is the development of textiles. Textile impressions were noted in the clay of prepared hearths at the Icehouse Bottom site in the Tellico Reservoir. These impressions represent the earliest documented evidence for textiles in North America.

The range of site types noted for the Kirk Corner Notched horizon include large base camps and isolated activity loci/extraction camps, suggesting the pursuit of a logistically oriented settlement-subsistence strategy. The presence of large base camps may indicate a decrease in the frequency of movement within the landscape, possibly as a result of increased climatic and environmental stabilization. As climate and resource structures became more predictable, Early Archaic populations may have been able to “settle in” to the landscape and become more familiar with local resources. It appears as though Kirk populations still moved about the landscape on a seasonal basis, and also to acquire particular resources.

BIFURCATE TRADITION

Initial recognition of bifurcated base projectile points can be traced back to William Henry Holmes. In 1897, he identified a class of “eccentric” shaped projectile points, from the Potomac-Chesapeake region of the mid-Atlantic coast, in which he included a group of basally notched, or bifurcated, points. Not until the 1950s did the temporal-cultural affiliation of bifurcated base points begin to be considered (e.g. Kneberg 1952a, 1952b). As more researchers became aware of the bifurcated base point type, it became apparent that this point style was distributed widely throughout eastern North America, with the Mississippi river representing its westernmost extension.

Bifurcate projectile points gained formal type status in 1956, when Kneberg (1956: 27-28) named them LeCroy Bifurcated Stem points, based on their frequency in the A.L. LeCroy collection from the Chickamauga Reservoir area near Chattanooga, Tennessee (Lewis and Kneberg 1952, 1956). It was not until 1966 when Bettye Broyles published her findings from the St. Albans site in West Virginia, though, that the chronological position and material culture associations of the Bifurcate projectile points began to be understood in detail. It was at the St. Albans site, among the 41 distinct strata noted by Broyles, that variations in bifurcated base projectile points were noted. Broyles (1966, 1971) defined a sequence of four stratigraphically separated Bifurcate variants: MacCorkle Stemmed, St. Albans Side Notched, LeCroy Bifurcated Stem, and Kanawha Stemmed. These four sub-types quickly became recognized for their utility as temporal markers of the Early Archaic, as the sequence defined by Broyles (1966, 1971) was confirmed by J. Chapman (1975) at Rose Island. While bifurcated base projectile points are widely recognized throughout eastern North America, different type names are utilized outside the Midsouth and Southeast (e.g. Lake Erie Bifurcated Base in Ohio, northern Indiana and

Michigan, reported by Prufer and Sofsky 1965: 31-32; Nottoway River from the mid-Atlantic states, reported by Painter 1970). Bifurcated base projectile points tend to be relatively diminutive, triangular forms, and all are identified by the presence of a deep basal concavity (the bifurcation), lending the base a more-or-less forked appearance. The degree of bifurcation differs among sub-types with some (e.g. LeCroy) being quite deep and pronounced, while others (e.g. Kanawha) exhibit much shallower basal concavities (see Justice 1987: 85-97).

In his overview of the Bifurcate point tradition, J. Chapman (1975) discusses the distribution of bifurcated base points in Tennessee. The general pattern noted is that the frequency of these projectile points tends to decrease significantly from east to west across the state. In the A.L. LeCroy collection, assembled from materials in the Chickamauga Reservoir near Chattanooga, these materials were common. At Rose Island (J. Chapman 1975), Bifurcate projectile points were also fairly common. They have been noted to occur in the foothills of the Smoky Mountains, but according to Charles Faulkner (personal communication to J. Chapman, in J. Chapman 1975: 250), they are absent from the higher elevations. These projectile points become much less common in Middle Tennessee and appear to be absent from sites beyond the Tennessee River in West Tennessee (J. Chapman 1975: 250). Morse and Morse (1964) surveyed the J. Percy Priest reservoir in the Nashville area, and recovered no bifurcated base projectile points. Faulkner and McCullough (1973) recovered only a small number in their survey of the Normandy Reservoir. Only 12 Bifurcate points were recovered in the western Tennessee River Valley by Lewis and Lewis (1961), Lewis and Kneberg (1960), and Sims (1971).

An examination of the occurrence of the general class of Bifurcate projectile points, including the wide variety of subtypes, indicates that the distribution of these projectile points conforms quite strictly to a distinct ecological boundary (J. Chapman 1975). J. Chapman (1975:

265) notes that Bifurcate projectile points appear to be distributed throughout, but confined to, the deciduous forests of eastern North America. Their distribution does not appear to extend past the fall line on the Chattahoochee River in Georgia, beyond which lies the oak-hickory-pine forest zone. The northeastern limits of the Bifurcate tradition correspond to the transition between the oak forests characteristic of the Appalachians to the hardwood forests of the north. The distribution of Bifurcate points in southern Canada appears to match the northern limits of the beech-maple-black walnut-hickory-oak forests. The western limits of the Bifurcate horizon seem to terminate at the eastern edge of the Mississippi Valley.

Despite the widespread distribution of the Bifurcate materials, their representation in the archaeological record appears to diminish in relation to the preceding Kirk phase materials. This pattern was recognized during excavations in the Little Tennessee River valley, and is noted elsewhere in the state where Bifurcate remains are reported. Interestingly, the opposite pattern has been noted by Henry (1992) in the region surrounding Asheville, North Carolina. Enough Bifurcate materials were recovered from the Little Tennessee River valley region to allow an initial interpretation of the nature of adaptations at the end of the Early Archaic.

The Bifurcate Tradition in the Little Tennessee River Valley

The most detailed documentation of the Early Archaic Bifurcate horizon in East Tennessee comes from Jefferson Chapman's research at Rose Island (1975). Deeply buried below evidence for much later Woodland and Late Archaic components was a stratified sequence of Early Archaic deposits that included a large collection of bifurcated base projectile points and associated cultural remains.

Three Bifurcate sub-types were noted at Rose Island: St. Albans, LeCroy, and Kanawha. The St. Albans phase, dated ca. 8870 ± 250 B.P. (9955 ± 300 cal B.P.), was characterized by the presence of a small, bifurcated base projectile point. The remainder of the St. Albans assemblage contained most of the tool types present in the Kirk phase, though the frequency and variety of tools increased from the previous period (J. Chapman 1975: 213). Ground stone tools, such as celts and chopper/scrapers, appear in the St. Albans phase, along with evidence for bipolar flaking and the use of hematite. Small, globular shaped pits are a common feature type and occur only during this phase.

The LeCroy phase, radiocarbon dated at Rose Island to approximately 8,300 B.P., witnesses the evolution of the bifurcated base projectile point into a bifurcated *stemmed* type. The rest of the artifact assemblage remains essentially unchanged from the preceding St. Albans phase.

The Kanawha phase represents the last vestiges of the Bifurcate horizon. This phase is poorly represented at Rose Island. Bipolar flaking and the use of hematite appear to retain their importance in this phase, but the assemblage is too small to allow much comparison to the earlier periods. In addition to the diagnostic projectile points discovered, J. Chapman (1975) recovered a graver, a bifaces and two side scrapers. The Kanawha phase was dated to approximately 8,200 B.P. at Rose Island.

Excavations at Icehouse Bottom (J. Chapman 1977) and Bacon Farm (J. Chapman 1978) also revealed evidence for Bifurcate occupations. Technological patterns observed at these sites confirmed the decreased emphasis on bifaces and blade tools, and increased emphasis on a bipolar flaking industry. From the sample of 3177 artifacts from the Bifurcate zone at the Bacon Farm site, J. Chapman (1978) noted that MacCorkle and St. Albans variants were the earliest, and appeared to share technological similarities with their Kirk predecessors, including blade serration, the angle of the base, and basal concavities rather than full bifurcation. The Bifurcate horizon represents a trend toward smaller points and the use of smaller flake blanks, and straight stems replace the earlier trend of corner notching. J. Chapman (1977: 124) suggests that the shift in projectile points at this time may signal the introduction of the atlatl at the end of the Early Archaic. In addition to the diagnostic tool types, several tool types that were noted in the earlier Kirk component and that continue into later periods are also noted in the Bifurcate zones: pitted cobbles, celts, manos, metates, utilized flakes, retouched flakes, and retouched nodules. Although little consideration was given to the nature of Bifurcate adaptations, J. Chapman (1977) did note an increased emphasis on the use of acorns and hickory nuts in the Icehouse Bottom sample.

In 1993, Larry Kimball published a re-evaluation of data from the LeCroy phase at Rose Island, in an attempt to draw conclusions regarding the nature of site structure and the use of space during the LeCroy occupation. Kimball (1993) outlined a series of propositions relating to the sorts of activities that might be expected to occur at residential sites at various times of the year. He then tested these propositions, derived from understandings of "known spatial patterns of observed hunter-gatherer behavior" (Kimball 1993: 93), against the archaeological record from the LeCroy component at Rose Island.

The results of his analysis identified six separate clusters that may elucidate the nature of late Early Archaic site structure at Rose Island. These clusters included: "the center of primary and bifacial reduction and weapon retooling for the study area" (Kimball 1993: 109); an area of primary, bifacial and bipolar lithic reduction; a knapping area; a bone/antler working and hide preparation area; a plant food processing area; and a possible warm-climate shelter area essentially devoid of artifacts. The picture generated by Kimball's (1993) study shows the presence of an ephemeral shelter, marked only by the lack of artifacts over a large area, an associated outdoor hearth, and various work areas, roasting pits, and hide working stations distributed outside the shelter.

An Overview of Bifurcate Land Use Patterns in the Tellico Reservoir (Davis 1990)

Davis (1990: 203) confirms the generally poor representation of bifurcate materials noted in earlier investigations in the valley, noting that "In contrast to the two Kirk phases, comparatively few St. Albans, LeCroy and Kanawha phase sites were identified in the study area." Thirty-one St. Albans sites were discovered, 9 of which were deeply buried and produced no artifact samples during this study. Most were located on the first terrace of the Little Tennessee River. Ten of the sites with St. Albans components were considered to represent base camps, including the Rose Island site. Three probable logistical camps were located around Calloway Island, and 9 activity loci were recorded in various locations (e.g. first terrace of the Little Tennessee River, Tellico River, Island Creek Valley, uplands, near streams; Davis 1990: 205).

The LeCroy phase is also fairly poorly represented, with components having been identified on only 23 sites. The spatial distribution of the LeCroy sites is similar to that of the St. Albans site distribution, with only two sites recorded outside the Little Tennessee or Tellico River Valleys. Within the river valleys, these sites were fairly sparsely distributed. Eight probable base camps were located along the first terrace of the Little Tennessee River. Artifacts and features similar to those described for Kirk and St. Albans phases were recovered from these sites, implying similar behavioral patterns at this time. Two logistical camps were located within the study area, one at the south end of the study area, and one on the second terrace at the mouth of Island Creek. Nine isolated projectile points were found and interpreted as evidence for activity loci. These were distributed throughout the study region and may represent the remains of hunting activities.

Only 17 Kanawha phase components were located, 10 of which were represented by single projectile points on multicomponent sites. Four probable base camps were identified, including Bacon Farm and Rose Island, though none was intensively occupied. These base camps were all located on the first terrace of the Little Tennessee River. Three logistical camps were identified, including Harrison Branch, Icehouse Bottom, and an upland site overlooking Calloway Island. Ten activity loci were more randomly distributed on all landform types across the study area. None were found in the Tellico River valley slopes, or on the slopes of major tributary valleys. Davis (1990) notes that, without a larger sample size, it is difficult to draw interpretations of Kanawha settlement patterns.

This discussion of the Bifurcate components in the Little Tennessee River valley suggests that "Following the Upper Kirk phase, the intensity of occupation within the study area apparently diminished for reasons not yet understood" (Davis 1990: 210). I would suggest that a prudent place to begin searching for the reasons for decreased settlement intensity might be in the record of climatic and consequent environmental changes at the time. At the beginning of this paper I noted that the end of the Early Archaic (i.e. the Bifurcate phase) the climatic improvement following the Younger Dryas gave way briefly to another cold period. As it has been noted that the Bifurcate points correspond closely to a very particular ecological boundary, it is likely that the technological, settlement and subsistence systems at this time were closely linked to some environmental conditions (e.g. nature of resource structure).

Very little additional discussion of the Bifurcate horizon can be found in literature from elsewhere in the state, apart from cursory mentions of small bifurcate components on some sites.

For example, brief mention is made of a Bifurcate component on site 40CH162 on the Harpeth River (Bradbury and McKelway 1996). The authors note that unifaces and modified flakes were recognized in the Bifurcate and earlier strata, and were not seen in later components at the site. One St. Albans site was reported by Broster and Barker (1992) from the Johnson site, and one feature – a charcoal and flake concentration – was recorded. The St. Albans feature contained flakes, a perform fragment, a burned white tailed deer patella fragment and wood charcoal. The scarcity of references to bifurcated base projectile points further west in Tennessee is not surprising in light of the diminishing frequency of Bifurcate components from east to west noted in earlier surveys across Tennessee (see discussion above).

Summary of Bifurcate Tradition in Tennessee

Other than at the Rose Island site and elsewhere in the Tellico Reservoir area, the Bifurcate tradition is fairly poorly represented in Tennessee. Sites in the Tellico Reservoir, in addition to suggesting a population decrease, indicate a settlement system that included base camps, logistical camps, and special activity loci. The bipolar flaking technique was well represented on many Bifurcate sites, but few other technological changes were noted from the preceding Kirk phase, other than the obvious shift in projectile point morphology. These technological changes and the apparent population decrease might usefully be considered within the context of environmental changes at the end of the Early Archaic. As noted earlier in this chapter, prior to the onset of the Hypsithermal warming and drying trend, one more climatic fluctuation was experienced and a return to colder conditions occurred. This climatic shift, and the accompanying changes in biotic resources, likely had a significant impact on human populations. This potential impact is an area of inquiry that hopefully will receive attention by researchers in Tennessee in the near future.

CONCLUSION

The shift from the Late Paleoindian to the Early Archaic appears to represent the beginnings of a shift from settlement-subsistence systems characterized by a higher degree of residential mobility, to those characterized by increased logistical mobility (following Binford 1980). These shifts in settlement and subsistence patterns likely are related to the suite of environmental changes that accompanied the Late Pleistocene to Early Holocene transition. The archaeological patterns noted for Dalton, Early Side Notched, Kirk and Bifurcate phases in Tennessee seem to correspond to the patterns noted for the same periods elsewhere in eastern North America.

In concluding this paper, I would like to take the opportunity to suggest several directions for future research into the Late Paleoindian-Early Archaic transition in Tennessee. These research directions can be divided into two categories: those that pertain to the materials within Tennessee only, and those that allow the consideration of the Tennessee archaeological record within a broader regional context. Research questions for the Tennessee materials alone will be considered first. First, the Dalton and Early Archaic materials from within Tennessee should be subjected to detailed studies of technological organization in order to consider technology in relation to the changing environment, subsistence resource procurement, and settlement strategies. What can be said about Dalton technological organization, from the perspective of lithic resource procurement, tool production, and how lithic technology enabled the Dalton inhabitants of Tennessee to cope with changing environmental circumstances? Second, questions regarding the nature of the Late Paleoindian and Early Archaic social systems could be addressed. For example, can we see evidence for band territories within Tennessee? How did these groups organize themselves in order to ensure sufficient access to mates? Third, microscopic use wear analyses could be directed at assessing the abandonment of certain tool classes. We might ask, for example, in what tasks formal end scrapers were employed. As a follow-up question, we might consider what replaced these scraping tools when formal uniface use diminished. Does another class of tools replace them, or is there some fundamental shift in the needs of human populations that reduces the need for formal scraping tools (e.g. a reduction in the need for preparing so many hides, perhaps as temperature improves and need for so much cold weather clothing diminishes)? Similarly, researchers might consider why we witness a decrease in the use of blade technology through the Early Archaic.

Other questions of a more comparative nature might also be addressed. First, how are Dalton groups in Tennessee disposing of their dead, compared to the Dalton populations in Arkansas. No site comparable to Sloan has been found anywhere in Tennessee. Second, how do Dalton occupations in Tennessee relate to the patterns noted in the heart of Dalton territory (i.e. Missouri and Arkansas) where the density of Dalton materials is much higher? And, finally, great research potential exists in the arena of applying settlement models developed elsewhere in the Southeast to the materials in Tennessee. For example, how do Morse or Schiffer's models of Dalton settlement compare to the Dalton materials found in Tennesssee? How do Early Archaic settlement models developed by Anderson and Hanson (1988) or Daniel (1996) relate to materials from Tennessee? Can models, even if they are not applicable to the Tennessee data, be utilized to inspire the construction of settlement models more appropriate to the various physiographic regions across Tennessee?

The archaeological record of the Late Pleistocene-Early Holocene transition in Tennessee offers a rich and sorely under-utilized database that has the potential to clarify our understandings of Late Paleoindian and Early Archaic adaptive strategies in the Midsouth. As far as I can see, the research possibilities seem virtually unlimited, and I can only hope that I will have the opportunity in the remainder of my archaeological career to address some of the intriguing questions that remain regarding adaptations to this period of environmental change in Tennessee.

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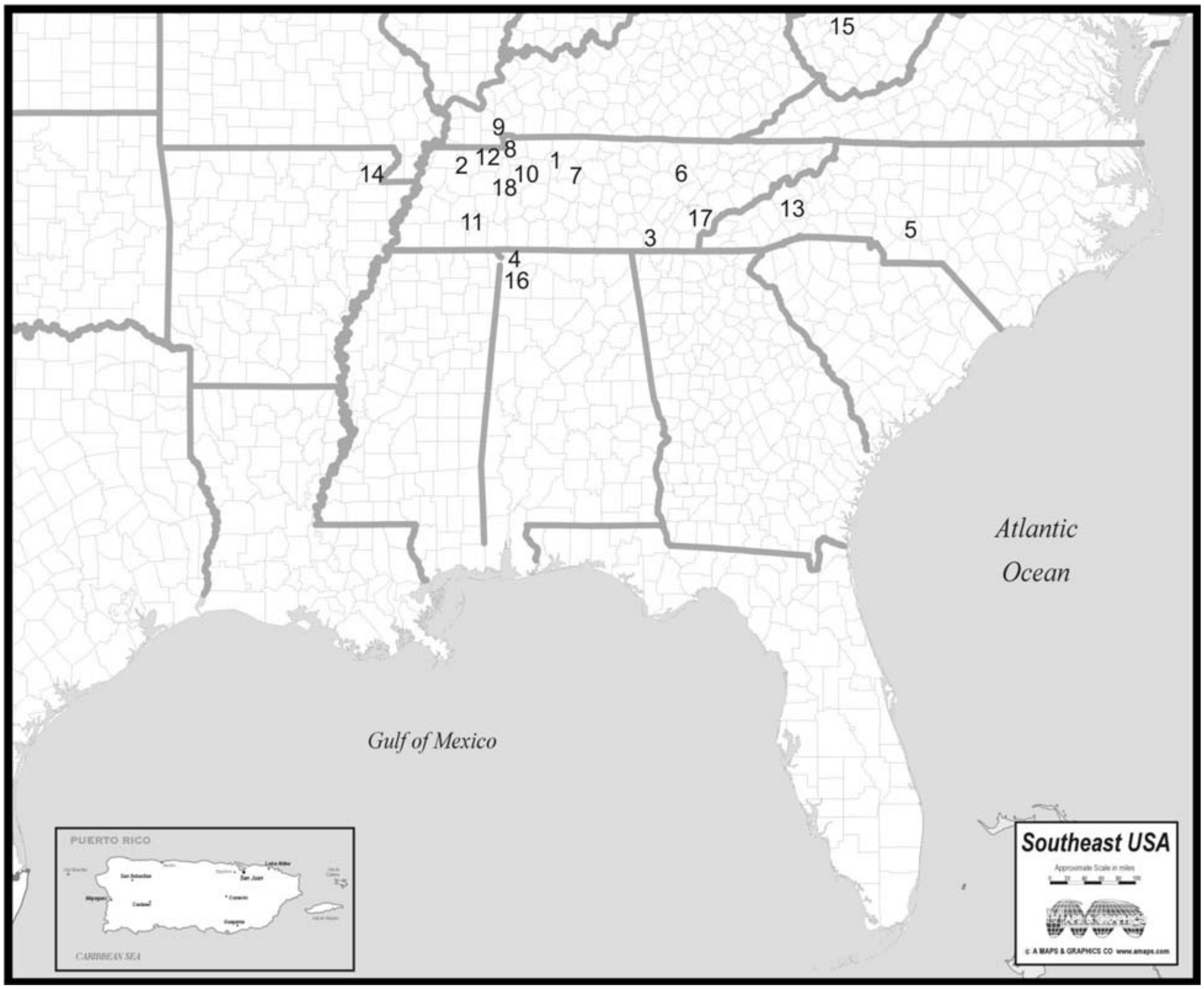

Figure 1. Location of Sites Discussed in this Chapter

1. 40Ch162
2. Big Sandy
3. Chickamauga Reservoir
4. Dust Cave
5. Hardaway
6. High Knob
7. Johnson
8. Kentucky Lake
9. LCAP
10. Nuckolls
11. Pierce
12. Puckett
13. Sandymush/Newfound Creeks
14. Sloan
15. St. Albans
16. Stanfield-Worley
17. Tellico Reservoir
18. Twelkemeier

Map produced from blank map at
www.amaps.com/mapstoprint/SOUTHEASTDOWNLOAD.htm.

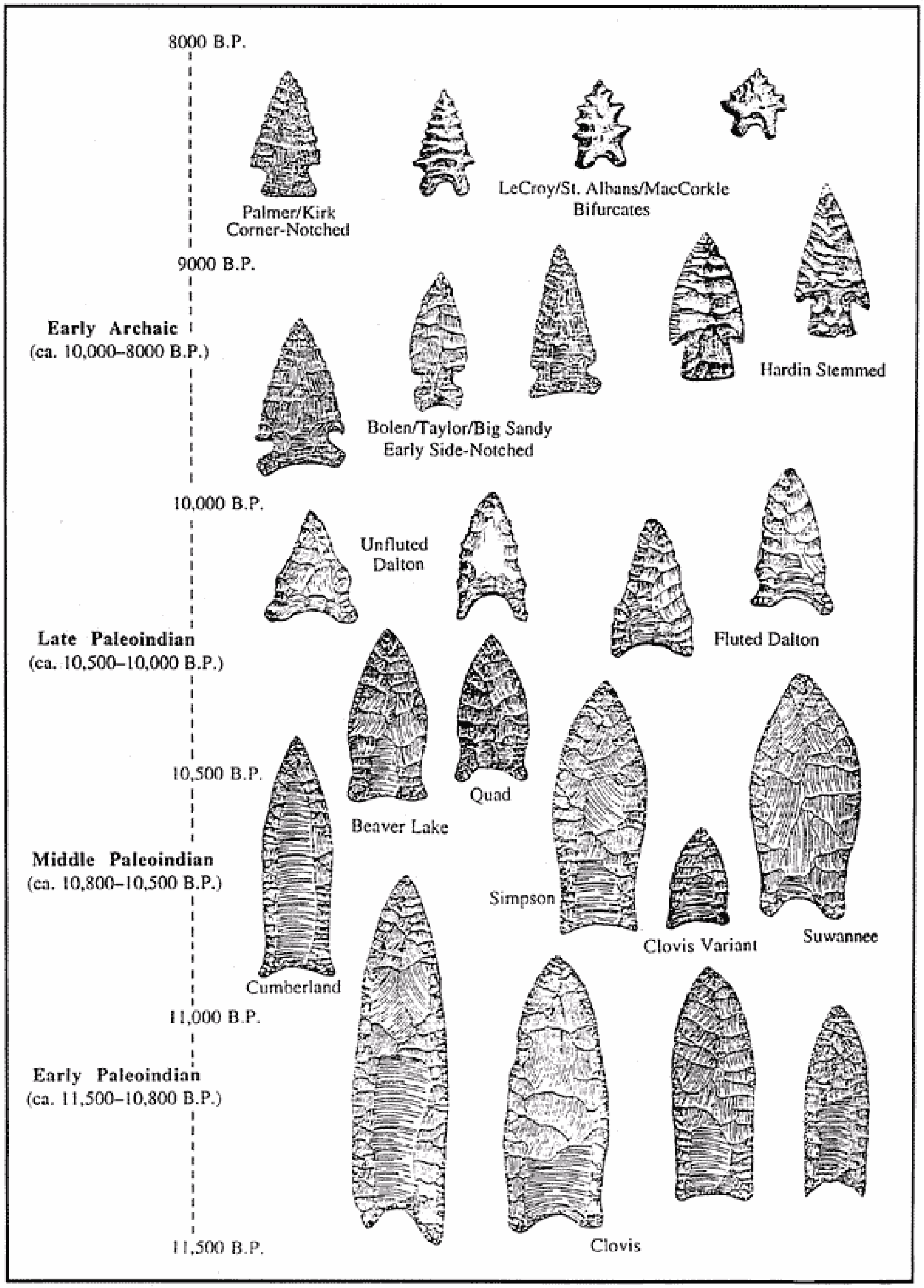

Figure 2. Diagnostic Paleoindian and Early Archaic Southeastern Projectile Points. From Anderson et al. 1996: 10.

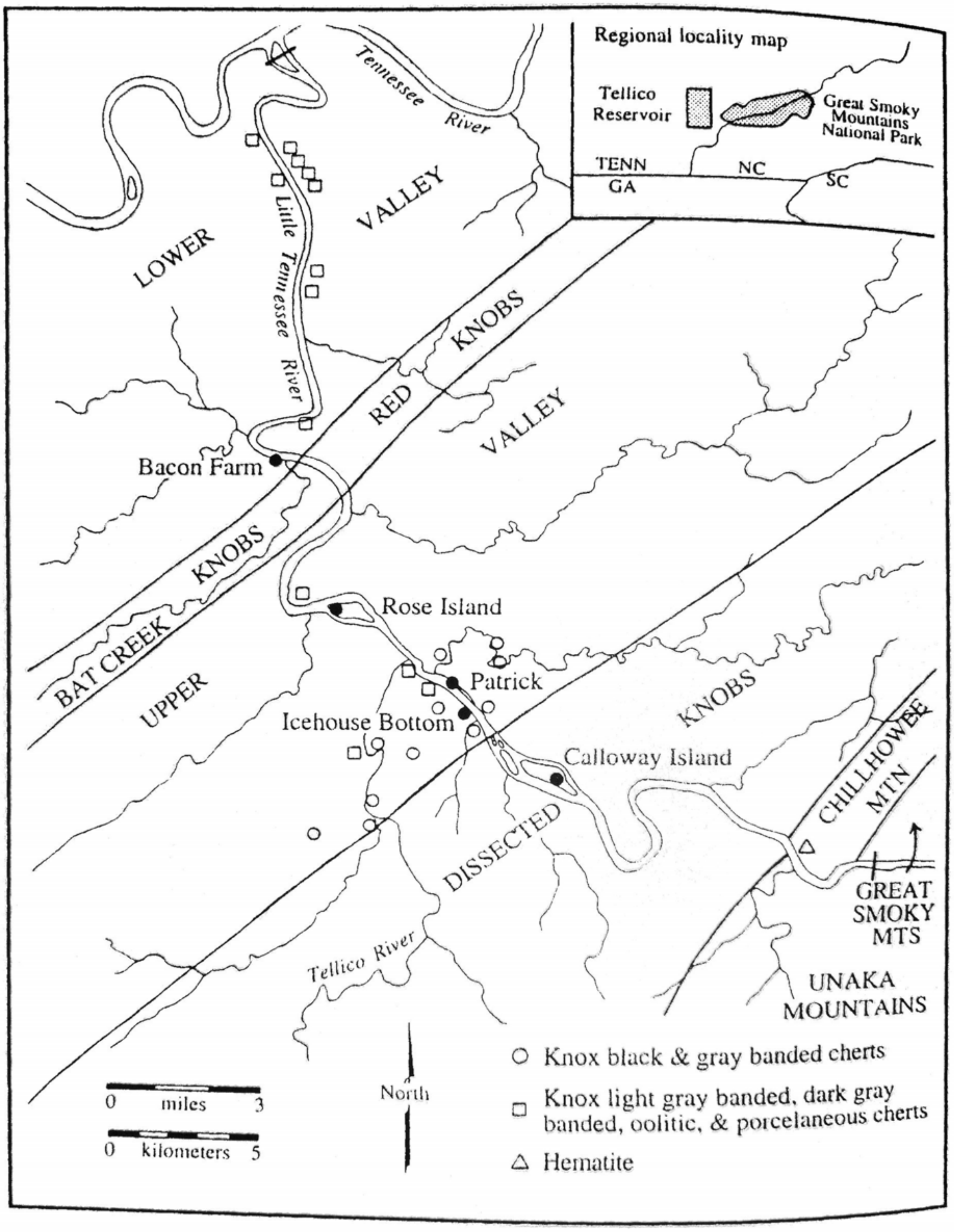

Figure 3: Locations of Sites in the Tellico Reservoir. From Kimball 1996: 150.

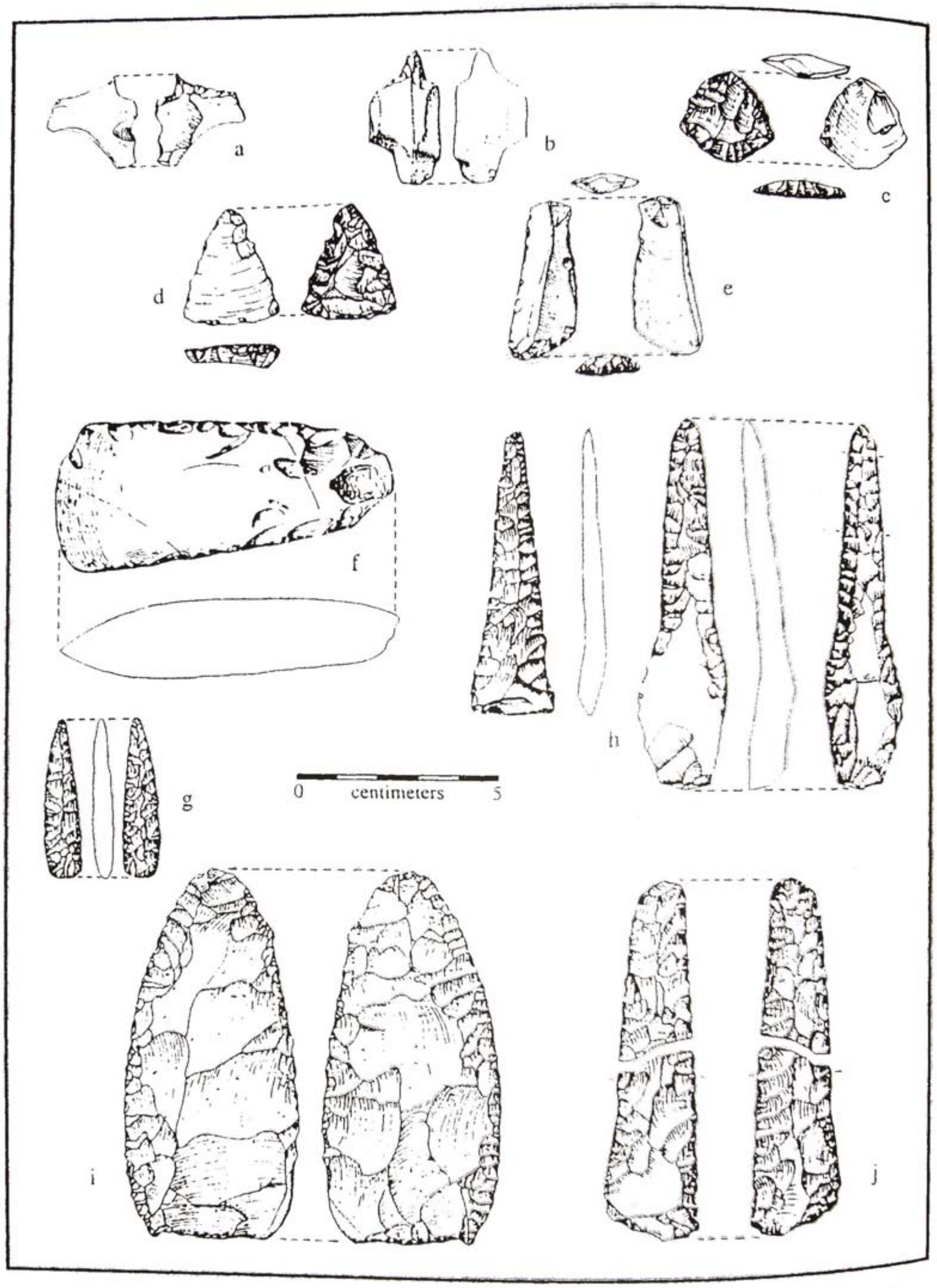

Figure 4: Early Archaic Artifacts from the Tellico Reservoir: a) graver; b) perforator; c) end scraper on flake; d) teardrop end scraper; e) end scraper on blade; f) ground celt; g) small drills; h) large drill; i) bifacial knife; j) drill preform. From Kimball 1996: 160.

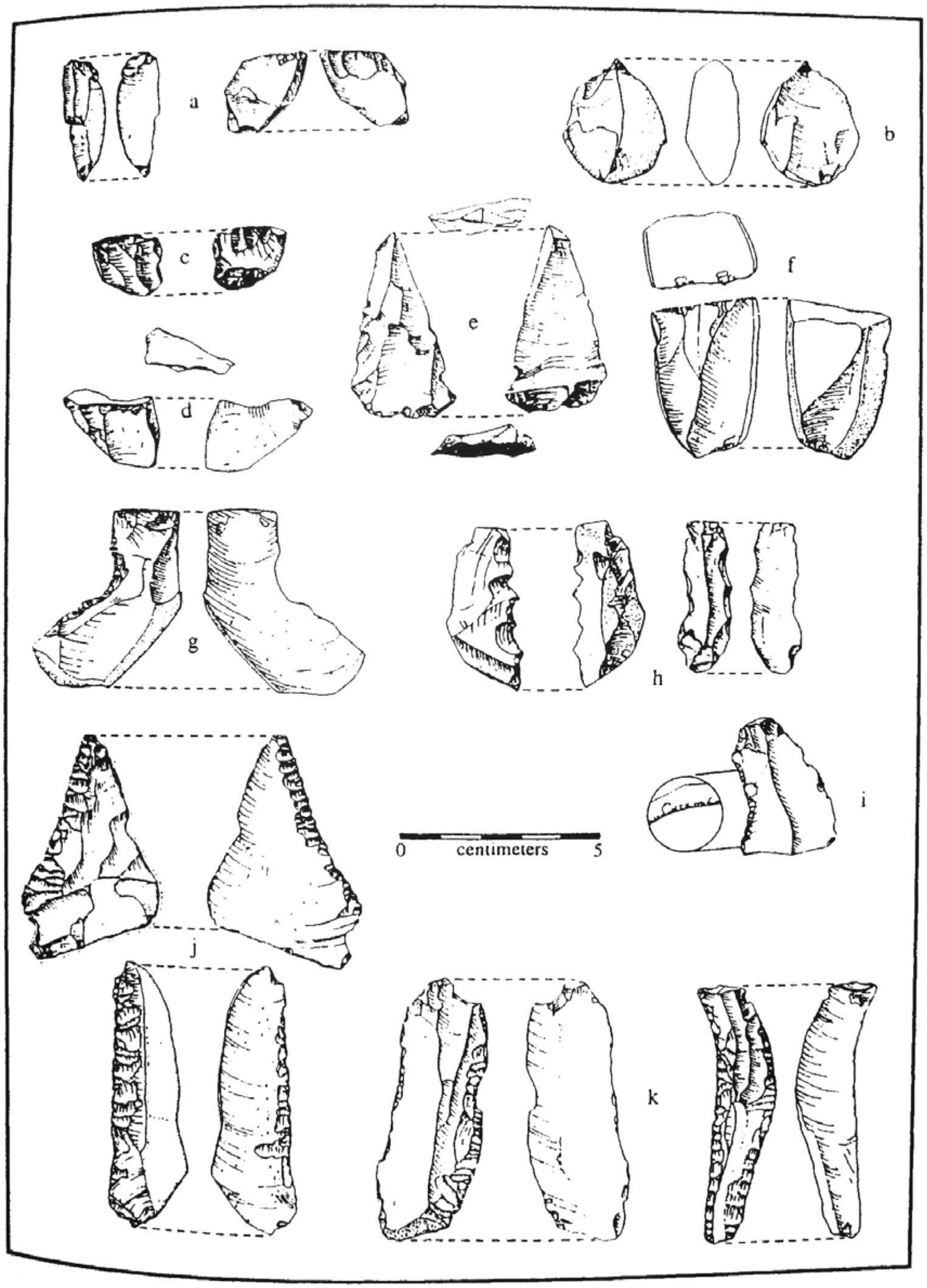

Figure 5: Early Archaic Artifacts from the Tellico Reservoir: a) bipolar flakes; b) bipolar core; c) *pièce esquilée*; d) core rejuvenation flake; e) *outre passée* blade; f) blade core; g) retouched concavity; h) denticulates; i) utilized blade; j) bifacially retouched flakes; k) side scrapers. From Kimball 1996: 161.