Archaic Hunters and Gatherers in the American Midwest

Edited by

JAMES L. PHILLIPS
JAMES A. BROWN

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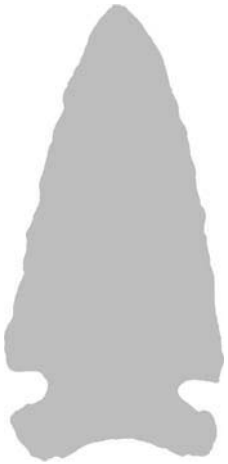

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For Joe, who began it,
For Jimmy, who nurtured it,
For Mark, who died before its completion,
And with love for M-T. K.

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Preface

This volume is addressed to all archaeologists and anthropologists who are interested in hunter–gatherers, and who are not familiar with the recent developments in hunter–gatherer studies in the American Midwest. This volume brings together a series of new articles on the Archaic Period in the North American Midwest that show that recent multidisciplinary projects have increased our knowledge substantially and have caused a shift in both our intellectual outlook and our interpretation of the period. It has now become clear that the Archaic Period, previously thought to be only a transition between the big-game-hunting Paleoindians and the sedentary Woodland peoples, was actually a period of innovation and technological achievement.

This volume enables the reader to visualize the Archaic Period as one in which environmental, social, and economic factors operated over long periods of time to initiate and develop the trends that eventually led to the adaptations of the Woodland Period. Because our focus lies on the operation of these factors and not simply on material culture, this volume emphasizes the subsistence, settlement, and environmental basis of hunter–gatherer adaptations. Environmental conditions constitute one of our major variables, one that we have used as the basis for organizing the chapters. Accordingly, we have chosen to deal only with studies of locales that fall within a specific latitudinal band across the Midwest. Within that band, the reports are arranged from west to east, in the direction of increasing available moisture.

All but two chapters of this volume were first presented in a symposium organized by the editors at the Midwest Archaeological Conference in Chicago, October 1980. The contributions by Emerson and McElrath and by Fortier were written especially for this volume.

From the beginning, James B. Griffin participated in our project as an advisor to the editors in the organization of the symposium, as a discussant at the conference, and as a reader and commentator on the written contributions. We thank him for his overall contribution to midwestern prehistory and for his more immediate contribution to the editors.

The Archaeological Studies Committee of the University of Illinois at Chicago assisted with the funding of the conference and the symposium. We thank Elizabeth Gebhard—then chairperson of the committee—and the other organizers of the conference, Bruce G. Gladfelter and Robert L. Hall, for their support.

Archaic Hunters and Gatherers in the American Midwest

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1

Introduction

James L. Phillips

The Archaic Period in the Midwest is firmly dated from 10,000 to 2,500 years ago. Deeply stratified sites, reported on in this volume, represent occupations of some 7,500 years. Some sites, such as Koster and Modoc, contain a sedimentary and archaeological record for the entire period, whereas others, such as Phillips Spring, Rodgers Shelter, and Napoleon Hollow, contain a major part of the Archaic record (Figure 1.1). For the main, however, many of the sites reported in this volume are nonstratified and represent only one of the Archaic periods (Table 1.1).

The term *Archaic,* to quote Howard Winters (1974:xviii),

> has been defined in terms of the absence of pottery, burial mounds, agriculture, and settled village life, and the presence or absence of certain stone tools and preparation techniques thereof. And the general understanding of *Archaic* as a 'Stage' has long been a normative one, even though regional variants and such factors as seasonality have been recognized.

The chapters in this volume present evidence that all of these features—pottery (see Reid), burial mounds (see Charles and Buikstra; Jefferies and Lynch; Reid), agriculture (see Kay; Brown and Vierra), and semisettled village life (see Phillips and Gladfelter; Emerson and McElrath; Brown and Vierra)—are to be found in the Archaic. The classic view of the Archaic way of life, developed before modern recovery techniques, has been altered to include those variables usually associated—in the Midwest—with the Woodland stage beginning about 2500 years ago. Therefore, the authors in this volume view the Archaic as a *Period* rather than a *Stage* in the cultural evolution in the American Midwest.

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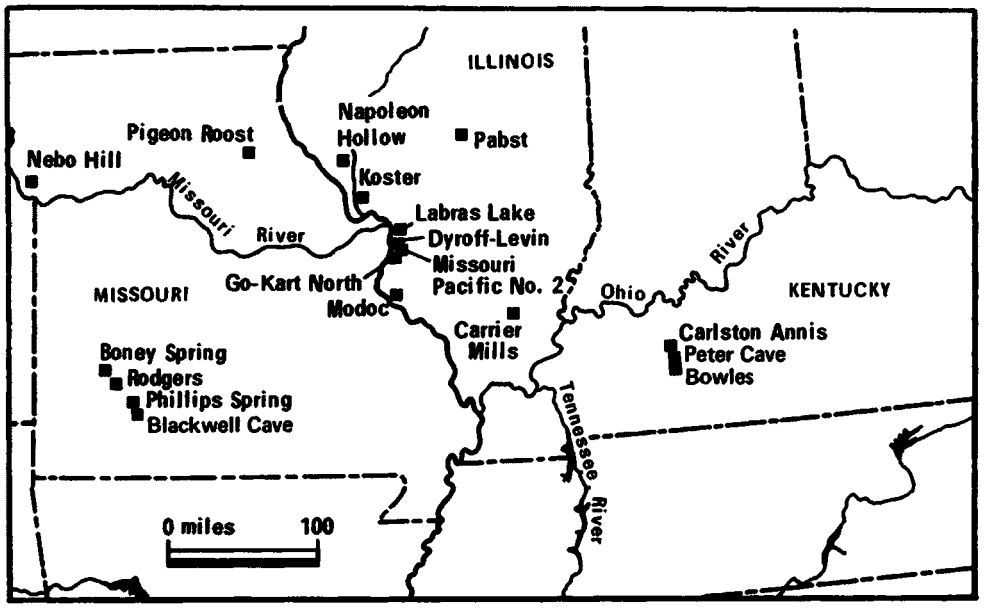

Figure 1.1. Archaic sites mentioned in this volume.

Each author necessarily approaches the problem of the Archaic from both similar and dissimilar perspectives. Naturally, those concerned with excavating, analyzing, and interpreting the sedimentary and archaeological record from deeply stratified rock-shelters have a different viewpoint from those excavating single-component, open-air sites. However, it is just these different viewpoints that make the analyses exciting.

The description of the Archaic Period exposed in this volume necessarily represents views that have been shaped by the "archaeological revolution" since 1960. Additionally, large-scale multidisciplinary research projects—such as the Pomme de Terre and Lower Illinois River Valley projects—and large-scale salvage projects—such as the FAI-270 and the Cannon Reservoir projects—have produced an enormous amount of new information concerning habitat, ecology, subsistence, settlement systems, burial practices, and so forth in the Archaic. Much of the work is still not completed, and therefore one should view some of the conclusions in this volume as preliminary. It will be abundantly clear, however, that the Archaic Period is much more complex than previously believed and this complexity clearly increases through time. Thus, we cannot view the Archaic Period in the Midwest as monolithic, nor represented by a single mode of existence. The Archaic population of the Midwest practiced many modes of life, from foragers and collectors, to harvesters and semiagriculturalists; and, although changes in the environment

TABLE 1.1

Sites and Occupations during Archaic Stages in the Midwest

Early Archaic[a]	*Middle Archaic*[b]	*Late Archaic*[c]
Rodgers	Rodgers	Rodgers
Phillips Spring	Phillips Spring	Modoc
Modoc	Modoc	Koster
Koster	Koster	Labras Lake
Pigeon Roost	Black Earth	Missouri–Pacific #2
	Napoleon Hollow	Go-Kart North
	Pigeon Roost	Dyroff–Levin
		Carlson Annis
		Bowles
		Peter Cave
		Pabst
		Napoleon Hollow
		Pigeon Roost
		Boney Spring
		Blackwell Cave
		Nebo Hill

[a]About 10,000–8,300 BP.
[b]8,300–5,000 BP.
[c]5,000–2,500 BP.

spurred new adaptive and exploitive strategies, it is just as true that these adaptive strategies structured and changed their environment.

Developments in recovery and analytic techniques over the past 30 years, such as the flotation method for small-fraction recovery (Struever 1968; Watson 1976); edge-wear analyses of stone tools (Gerwitz 1980; Yerkes and Phillips 1982; cf. Keeley 1980, 1982); and the recent emphasis on lithic refitting as a technique for understanding process and change in technology (Yerkes and Phillips 1982; Phillips and Hall, in press; cf. Van Noten, Cahen, and Keeley 1980) have all contributed to our understanding of settlement systems in different ecological situations and of the context of the human ecology throughout the period (see Butzer 1982).

The chapters in this volume are organized along an east–west transect in order to cover most of the environments occupied by Archaic Period groups. Thus, it will become clear to the reader that group response to particular environments, whether prairie, forest, or other habitats, can be seen as adaptive, shifting, and increasingly more complex through time. In general, the authors are in agreement about the sequencing of the various stages within the Archaic Period. However, it should be noted that the contemporaneity of these stages is not certain; indeed it appears that, depending on local cultural variations and ecology, the Middle and Late Archaic begin at different times. This

volume, it is hoped, will alert the readers to the vast potential of Archaic Period research in the 1980s.

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2

Summary

James A. Brown

The beginning of the new perspective toward midwestern archaeology began in 1964 when buried archaeological strata were discovered at Rodgers Shelter in southwestern Missouri. Up to that time, it was routine to regard sterile sediments underlying surface sites as the bottom of the occupation. But, after this discovery, one could no longer be content that this was so, especially with regard to sediments in shelters and on floodplains that have been subject to aggradation since the Pleistocene. What had once been treated as a safe presumption had now to be treated very differently. The so-called sterile layers below an occupation began to be subject to careful reexamination.

In the nearly 20 years since that discovery, a radical change has occurred in midwestern archaeology. The surface is no longer treated as our basic source of archaeological evidence for prehistory before the Christian Era. Furthermore, the hidden subsurface occupations are no longer regarded as totally inaccessible to investigation on a systematic basis.

This change is still underway. The realization that buried subsurface sites are a practical target for discovery, exploration, and analysis has come slowly with the accumulation of experience in where and how such buried records could be found. There is still much progress to be made because the geological experience necessary to implement a strategy of subsurface exploration is in the developmental stage. Nonetheless, the fact that geological investigations have resulted in the recovery of highly significant buried archaeological records is indicative of the potential of this approach. Despite these successes, surface sites continue to be treated in some quarters as the principle source of information on Archaic subsistence and settlement, albeit by a declining num-

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ber of archaeologists. This book serves as a testament to the futility of the totally surface-site orientation to Archaic Period archaeology in the midlands of the United States. In a sense, the study of the hunter–gatherers of the prehistoric Midwest is in large part wedded to the examination of buried sites.

The archaeology of the Archaic Period in the Midwest has its beginnings in the investigations of the shell mounds of Kentucky. These highly visible heaps of ancient midden provided ready-made sources for recovering rich inventories of prepottery material culture and the first tangible evidence for cultural sequences. With the exception of the Riverton culture investigations, however, shell mounds have not been utilized in these roles in excavations to the north.

Investigation of the Archaic Period took a different direction in Illinois and Missouri with the exploration of rock-shelters. Modoc provided an astonishingly deep record by midwestern standards by extending the record back to a period dated originally to around 10,000 BP. Graham Cave was thought to possess an equally old history, although its deposits were shallower and the occupational record more compressed.

The archaeological record from Modoc was particularly important in stimulating subsequent investigation into the Archaic Period. It had a continuous record in 8.2 m of sediments that testified to a slow change in material culture over thousands of years. In this record was a highly significant story of a trend from generalized to specialized hunting patterns that set the stage for viewing the Archaic Period as the context in which to examine the change from mobile to sedentary settlements of the Woodland Period patterns. Thus, subsistence and settlement pattern studies were established early as important research topics in midwestern investigation in the Archaic Period.

Because of the role that environment holds in Archaic Period studies, our arrangement of chapters helps keep in focus the possible cultural response to the west–east environmental gradient at this latitude in the Midwest. Starting at the edge of the Prairie Peninsula around Kansas City, these chapters form a transect across the southern border of the Prairie Peninsula, over the central Mississippi River valley and then south of the Shawnee Hills into the midlands of Kentucky. This latitudinal belt extends from the drier environments of the Prairie–Plains to the moister interior forests of the central midlands.

An important result of this transect perspective is that it reveals how little fundamental difference there is between the technologies and economies from one end to the other, for the Archaic Period at least. Probably the major difference is represented in the economy of the Nebo Hill phase along the fish-poor Missouri River. Projectile points are amazingly similar over this transect. Variations in settlement location exist, but it is not altogether clear to what extent these variants were not conditioned by local geography. In the future, as more information on subsistence and settlement is accumulated, there will be more attention placed on gradients of change.

The chapters in this collection provide details on the trends in subsistence change and on variability in the Late Archaic. Subsistence has been a well-

established research focus for the Midwest, beginning with Fowler's analysis of Modoc Shelter in 1959. On the basis of faunal remains, he recognized the existence of three phases in an adaptive trend of central Mississippi River valley hunter–gatherers. A brief initial foraging adaptation utilizing all resources was followed around 9000 BP by an increasingly localized adaptation to particular environmental settings. Later, around 5500 BP, a specialized adaptation to narrowly focused procurement arose.

Since this early formulation of the dominant subsistence trend, the model has been modified significantly by new investigations in the Midwest. A reinvestigation of Modoc by Styles, Ahler, and Fowler, reported herein (Chapter 13), reaffirmed the basic model with modifications to the dates and with considerable new data on additional dimensions to this trend. The most significant addition to Fowler's original formulation brings the utilization of native weedy seeds and their domestication into the Late Archaic Period after 5000 BP. Furthermore, the area saw in this period the appearance of tropical cultigens in the regional subsistence economy. Bottle gourd has been dated back to around 4000 BP and domestic squash to about the same time. There is even some indication that squash is really a native domesticate of the native, eastern species, *Cucurbita texanum*.

However, of great significance here is the spotty record of squash and gourd among contemporary sites. Kay points out that were it not for the Phillips Spring site record there would not be the slightest indication of squash and gourd in the western Ozark Highland during the Late Archaic. The record of squash at Koster exemplifies this spotty pattern. Small seeds, probably referable to the native species, are found in the early base camp (Hz 8C) of 7000 BP, but are not found in the later, more intensively occupied Helton phase base camp (Hz 6A). Yet, upstream, squash is found in the Helton phase layers at the Napoleon Hollow site. The uneven record of collected plants is replicated by the presence of *Iva* seeds at Koster in the Helton phase but not in the contemporary deposits at the Black Earth site in southern Illinois.

From this rather small sample of paleobotanical studies we can conclude that native plant domestication had occurred in a period when the very use of these plants depended on local conditions. Thus, although plant domestication was in the subsistence repertoire of the affluent midwestern foragers, the utilization of these domesticates varied considerably, quite probably according to local conditions.

Faunal utilization has received less treatment than plants in this book, but trends toward greater utilization of fish and other aquatic and lacustrian resources is apparent at both Modoc and Koster after 7000 BP. Thereafter, there is a slow but steady increase in dependence on fish, shellfish, and waterfowl. This finding has considerable relevance to the growth of settlement systems with a single, long-term multiseasonal camp in the major floodplains.

The study of settlement patterns has long occupied the attention of archaeologists working on the Archaic Period, partly because of the intimate connec-

tion between the size, location, and duration of settlement and the economic activities carried out at each settlement. However, because of the poor quality of floral and faunal remains at many sites, archaeologists frequently have been forced to investigate solely the settlement and its component features and artifacts. In the Midwest, settlement studies focused early on the effect that different settlement types in a settlement system had in limiting the range in material inventory. Research at Modoc and later at the Riverton sites made great advances in the development of settlement systems models.

In the years that have followed, further efforts have been made in the Midwest to increase the precision of our settlement type models and to bring a wide range of geological, biological, and chemical methods to bear on the task of identifying both the size of the local group inhabiting the site at a single time and the season of occupation.

The chapters in this collection represent very different approaches to the problem. One approach to settlement identification is to examine the distribution of activity areas, with or without the aid of use-wear analysis on tools (Phillips and Gladfelter; Jefferies and Lynch). This is an approach that single-site investigations have employed by necessity. Another approach has been to evaluate the aggregate assemblages of several sites that differ in both their contents and their locations (Nebo Hill phase) (Reid, Lewis, and Kay). A third approach is represented by Brown and Vierra, who focus on the duration of occupation at the major base camp through artifact and feature densities.

Each of these approaches has a different set of problems to overcome and a correspondingly different area of opportunity in its data set to exploit.

Unfortunately, a uniform and consistent definition of settlement types is not employed in these chapters. The typologies found in the Lewis and the Brown and Vierra chapters reflect differences in the strategies of analysis used to handle variables of site function, season of occupation, and community size. Future work on hunter–gatherers in the Midwest will have to devote more attention to developing a subtle but practical system for handling settlement variability.

The proper objective of this interest in settlement analysis is to monitor the development toward sedentary settlement systems. It is evident from the various chapters on Late Archaic and late Middle Archaic complexes (Helton phase at Black Earth and Koster; Titterington, Labras Lake, and Prairie Lake phases in the American Bottom; Sedalia phase in southwestern Missouri and Nebo Hill phase in western Missouri) that most investigators have identified a multiseasonal, long-term occupation with the major encampment in a seasonal round. Koster research identified the earliest such base camp in Horizon 8C at 7000 BP. Permanent shelter was identified in this and later components at the site. A good number of Late Archaic sites also yielded evidence of structures (Labras Lake, Missouri–Pacific #2).

The duration of occupation during the year seems to increase in the millenia after 7000 BP. Large semipermanent occupations have been studied at Carlston

Annis, Black Earth, Koster, Dyroff–Levin, Labras Lake, and Missouri–Pacific #2. Among them, a wide range of locations are represented: point bars, stream and marsh edges, hilltops, and protected reentrants in the valley edges where secondary streams emerge. In each case there are economic factors that exercise a pull on settlement. Only in the cases of the protected site locations does the effect of severely cold conditions clearly emerge as an additional factor.

One of the more important findings of recent investigations is the clear demonstration that low burial mounds were constructed in the Nebo Hill, Sedalia, and late Helton–Titterington phases circa 5000 to 4000 BP, long before the Woodland Period. Prior to 5000 BP, only cemeteries are known. The Helton phase Black Earth cemetery is one of the largest known; the contemporary Koster cemetery plots being much smaller.

The discovery of these concentrated burial plots and, more important, the off-site burial mounds, reinforces the general concensus that hunter–gatherers were becoming more sedentary during the Middle and Late Archaic periods. One of the expectations that sedentism brings in its wake is the development of territorial exclusion and with it the creation of the cemetery markers of territorial claims by a social group attached to the territory.

The finding of Late Archaic mounds should do much to dispel whatever traces linger as to the importance of diffusion to explain the appearance of mound building in the eastern United States. I find it revealing that these mounds resemble later and larger mounds more for their hilltop locations and the compactness of interment in a single disposal facility than in their "moundedness." It suggests that the actual size of the fill placed on top of these facilities was unimportant in the beginning and only took on the "Woodland-sized" dimensions much later and as a by-product of other factors.

No review of hunter–gatherers would be complete without touching on the subject of the effect that environment change had on cultural stability. In the Midwest, this subject revolves mainly around the effect that the Hypsithermal had on groups living on or near the upland grasslands of the Prairie Peninsula. Different positions are taken on this subject in this book. O'Brien and Warren take the position that the Hypsithermal drying did have an effect, although it is not specified. The customary argument recently is that the uplands declined in population during this mid-Holocene dry period. But the degree of decline depends on the perspective of the investigator. In this book, Lewis argues that the uplands were not deserted and that the evidence for such a desertion is based on the all-too-uncertain age identifications of surface finds. From an environmental perspective, it would seem logical that the Hypsithermal drying would have left a stronger impact on the uplands in the west and north than in the south and east. The reports in this volume offer little in support of this notion, although the findings from Rodgers Shelter, Graham Cave, and Cherokee seem to support such a position.

The decline in upland population is an event that has prompted some thoughts on its impact on the populations occupying the floodplains. Brown

and Vierra dismiss upland drying as affecting the lowland groups, either through its direct impact on river valley vegetation or through migration of hunter–gatherers out of the uplands. The floodplain environments of the major rivers were probably resistant to drying effects and the duration of the drying trend would have left plenty of time for generations of hunters to adjust their population levels to location carrying capacity. Rather than upland conditions' forcing groups out, it is far more likely that the long-term increase in natural floodplain productivity would have attracted upland groups to the major river valleys. Thus, it is the increase in the aquatic resource base that had major influence on hunter–gatherer groups, rather than the drying of uplands during the Hypsithermal. Although it downgrades the impact of the major climatic shifts of the Holocene, the import of these investigations has shifted the focus of cultural and environmental research to changes in the food yield of floodplain environments.

3

The Nebo Hill Phase: Late Archaic Prehistory in the Lower Missouri Valley

Kenneth C. Reid

INTRODUCTION

The purpose of this chapter is to summarize in the form of a conventional phase definition the existing data on formal, temporal, and spatial dimensions of the culture historical taxon variously referred to as the Nebo Hill "complex" (Shippee 1948), "focus" (Hill 1960), or "aggregate" (Chapman 1975). In addition, certain aspects of Nebo Hill behavior are briefly discussed. These include settlement variability, subsistence economy, and ceramic technology.

Previous Research

The Nebo Hill complex was first defined from surface collections made from the type site 23CL11 (Figure 3.1) and three related sites located in the loess uplands along the lower Missouri Valley in Kansas City, Missouri (Shippee 1948). A trait list for these sites included narrow lanceolate projectile points, bifacial hoes, three-quarter grooved axes, flat celts, and oval manos, sometimes accompanied by small numbers of notched or stemmed points and potsherds that were assumed to be intrusive. The complex was identified as centered along the lower Missouri Valley in northwestern Missouri and southwestern Iowa, and Shippee attributed it to a pre-Hopewellian time frame. In a later paper, he argued for a direct historical relationship between Nebo Hill and the

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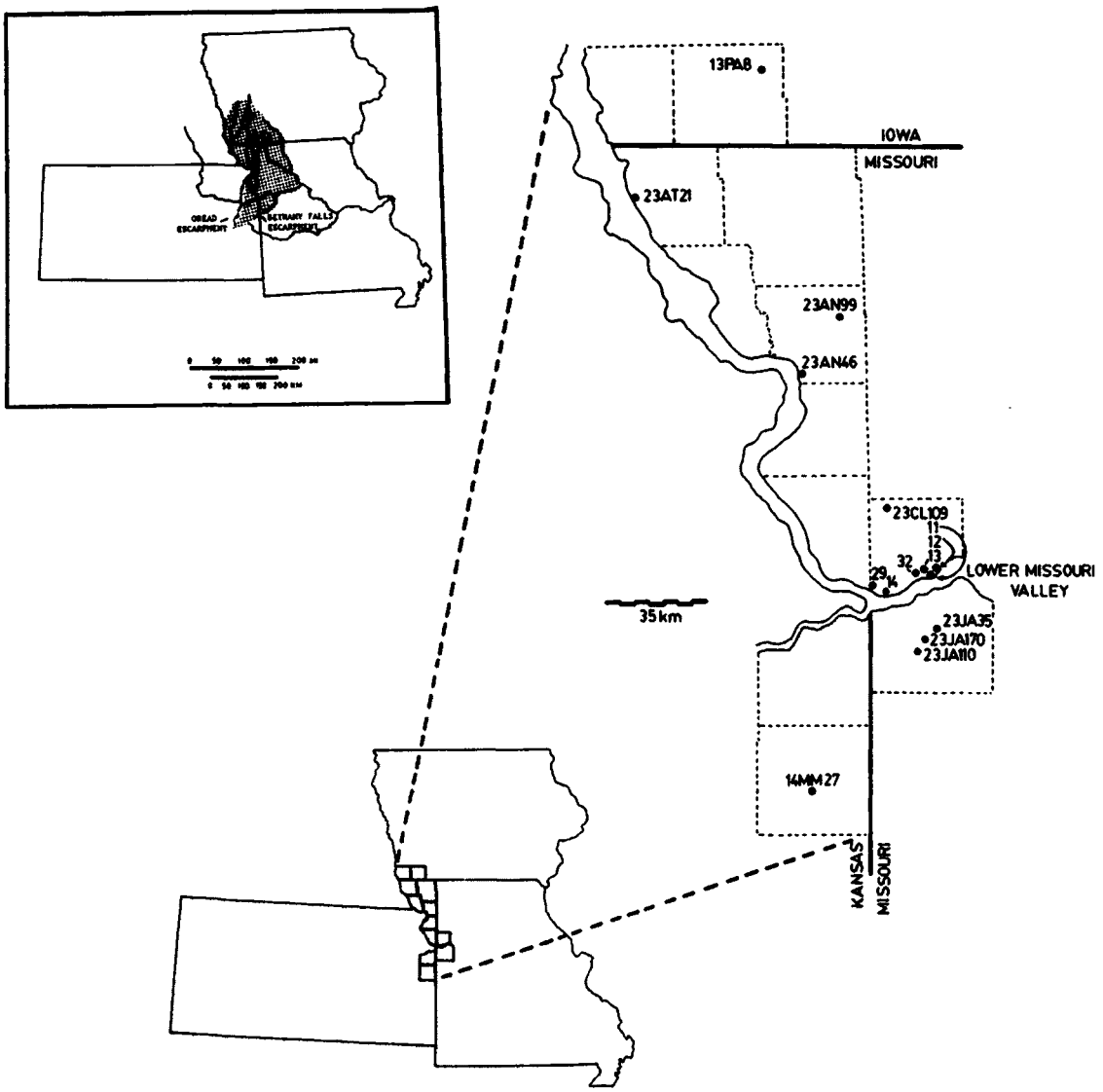

Figure 3.1 Location of Nebo Hill sites discussed in the text. Inset shows the estimated boundaries of the Nebo Hill region based on survey data and examination of private collections in Kansas, Missouri, and Iowa, but not in southeastern Nebraska.

Angostura materials from western South Dakota, and suggested that the complex dated to about 6000 B.C. (Shippee 1957:46).

These two papers stimulated a considerable interest in the Nebo Hill materials that is reflected in a wide range of commentary that continued over the next two decades (Bray 1963; Chapman 1975; Griffin 1955; Henning 1961; Hill 1960; Johnson 1974; Martin 1976; Mayer-Oakes 1960; Shippee 1964; Wilson 1962; Wormington 1957).

Most of these studies were based on the examination of uncontrolled surface collections, and temporal and historical inferences tended to rely on the juxtaposition of artifacts to illustrations of similar artifacts, rather than on the comparison of defined types. Their most useful conclusions concern the spatial rather than the temporal or formal dimensions of what will be defined here as the *Nebo Hill phase.* For example, a distribution map of Nebo Hill artifacts in amateur collections showed them to be concentrated along the Missouri River between the Platte (Nebraska) and Grand rivers, with core areas in the environs of Kansas City and St. Joseph, Missouri (Henning 1961:7); and both Johnson (1974) and Martin (1976) were able to discern a basic upland–lowland Nebo Hill settlement dynamic from the distribution of surface materials in surveys of tributary valleys.

A second stage of Nebo Hill investigations began in 1975 with controlled excavations at a series of Nebo Hill components scheduled for destruction by highway, flood control, and reservoir projects. These include the type site 23CL11, overlooking the Missouri trench in southern Clay County, Missouri (Reid 1978, 1980b); the Nebo Hill component at 23JA110, a small terrace camp on the Little Blue River in Jackson County, Missouri (Reeder 1978, 1980); and another small terrace camp, 14MM27, in the Marais des Cygnes Basin southwest of Kansas City in Miami County, Kansas (Blakeslee and Rohn 1982).

In addition to these three block-excavated components, controlled test excavations and surface collections were made at 23CL109 on the Little Platte River in northwestern Clay County, Missouri (O'Brien 1977), and at 23JA35 and 23JA170, two large upland sites overlooking the Little Blue Valley (Brown *et al.* 1977). Excavated materials from these six sites, and surface collections from four other high-density Nebo Hill components, including 23CL12 (Reid 1978; Shippee 1948), 23CL13 (Shippee 1948, 1964), and 23CL14 (Shippee 1948, 1964), three large upland sites in the loessial river hills of southern Clay County; and 23AN99, a chert quarry on the Platte River in northeastern Andrew County, Missouri (Reid 1981), provide the data base for this discussion (Table 3.1).

It should be emphasized that these are not the only investigated Nebo Hill components in northwestern Missouri (see Johnson 1974; Martin 1976; Reagan 1980; Stubbs 1950). They were selected for this discussion because they include the known range of variability in settlement type (exclusive of transient bivouacs); site size, as measured by area of surface scatter; and physiographic position and geographic range; and because they have all yielded

TABLE 3.1

Locations, Areas of Surface Scatter, and Settlement Types of Nebo Hill Components Discussed in the Text

Site	*Landform*	*Area (ha)*	*River basin*	*Settlement type*	*Sources*
23CL11	Interfluve	9–16	Lower Missouri	Warm-weather base camp	Shippee 1948; Reid 1978, 1980b
23CL12	Interfluve	5–10	Lower Missouri	Warm-weather base camp	Shippee 1948, 1964
23CL13	Interfluve	5–10	Lower Missouri	Warm-weather base camp	Shippee 1948, 1964
23CL14	Interfluve	5–10	Lower Missouri	Warm-weather base camp	Shippee 1948, 1964
23CL109	Floodplain knoll	4.9[a]	Little Platte	—	O'Brien 1977
23JA35	Interfluve	10	Little Blue	Warm-weather base camp, workshop	Brown *et al.*, 1977; Shippee 1962; Wilson 1962
23JA170	Interfluve	1.5	Little Blue	Warm-weather base camp	Brown *et al.*, 1977
23JA110	Terrace	0.2	Little Blue	Small cold-weather camp	Reeder 1978
14MM27	Terrace	1	Marais des Cygnes	Small cold-weather camp	Blakeslee and Rohn 1982
23AN99	Interfluve	12	Platte	Quarry, hunting camp	Reid 1981

[a]Based on the overlapping distribution of at least four cultural components. The Nebo Hill Occupation is believed to be much smaller.

artifacts assignable to at least three of the formal types defined in the following.

THE NEBO HILL PHASE

Formal Criteria

The Nebo Hill phase is understood here as a "paradigmatic class of occupations defined by types and/or modes" (Dunnell 1971:202). The types are assumed to have historical specificity and to represent normative standards of artifact manufacturing behavior shared by members of the same social group, the Nebo Hill people. Seven lithic types and one ceramic ware, each of which is represented by artifacts at 3 or more of the 10 selected components, are used to define the formal dimension of the phase (Table 3.2). These include Nebo Hill points, bifacial hoes, bifacial gouges, rectangular and ovate manos, rectangular celts, three-quarter grooved axes, and fiber-tempered pottery (Figures 3.2, 3.8).

It is likely that other formal types will eventually be incorporated into this definition. For example, a flat subrectangular metate was associated with the Nebo Hill component at 23CL109 (O'Brien 1977:76); quartzite "bowl-shaped mortars" have been collected from 23CL14 (Shippee 1948:31); a fully grooved

TABLE 3.2

Formal Determinants and Type Definitions[a] for the Nebo Hill Phase

Artifact type	*23CL11*	*23CL12*	*23CL13*	*23CL14*	*23JA35*	*23JA170*	*23CL109*	*23JA110*	*14MM27*	*23AN99*
Nebo Hill point[b]	+	+	+	+	+	+	+	+	+	+
Bifacial hoe[c]	+			+	+	+		+	+	
Bifacial gouge[d]	+	+	+	+	+	+	+			
Rectangular mano[e]	+	+	+	+			+			+
Ovate mano[f]	+	+	+	+						
Rectangular celt[g]	+	+	+		+					+
Three-quarter grooved axe[h]	+	+	+	+			+			+
Fiber-tempered pottery[i]	+				+				+	

[a]All metrics are from the 23CL11 sample.

[b]*Nebo Hill points* have a narrow lanceolate plan form (reshaped fragments may have a parallel-sided, straight-based stem); base morphology varies from straight to incurvate to excurvate, with the former sometimes formed by the striking platform remnant of the original flake blank; grinding of the haft margins or base is rare; cross sections vary from planoconvex to lenticular to biconvex; facial flaking varies from collateral to selective nonpatterned; and shaping includes heat treatment and pressure flaking (metrics: [n = 47] length = 77.21 ± 16.89 mm; width = 20.11 ± 2.75 mm; and thickness = 10.32 ± 2.24 mm).

[c]*Bifacial hoes* have an elongate plan form with a double-beveled transverse working edge; hafting margins are ground but not notched or indented; shaping includes heat treatment and percussion flaking of tabular flake or core blanks; facial flaking is nonpatterned; cross section is planoconvex; and transverse working edge commonly displays silica polish with greatest invasiveness on the dorsal face (metrics: [n = 5] length = 95.6–126 mm; width = 39.2–52.5 mm; thickness = 17.5–30.5 mm; haft length = 40–70.4 mm; and weight = 70.8–200.8 g).

[d]*Bifacial gouges* have an ovate to elongate to trapezoidal plan form with a single-beveled transverse working edge; haft margins are often ground but not notched or indented; facial flaking is nonpatterned; and shaping includes heat treatment and percussion flaking of tabular flake or core blanks (metrics: [n = 5] length = 45.4–67.1 mm; width = 35.4–54 mm; thickness = 7.8–20.9 mm; and weight = 14.3–72.4 g).

[e]*Rectangular manos* have a (sub)rectangular plan form and longitudinal cross section; ventral surfaces are use-beveled; dorsal surfaces commonly display a nutting (or bipolar) depression accompanied by dark gray staining; shaping includes percussion trimming and pecking and grinding of exfoliated slabs of Sioux quartzite and other glacial erratic lithologies (metrics: [n = 1] length = 130.6 mm; width = 106.4 mm; thickness = 38.1 mm; and weight = 943.2 g).

[f]*Ovate manos* have an oval plan form but are otherwise very similar to the rectangular forms in their wear patterns and dimensions.

[g]*Rectangular celts* have rectangular rather than petaloid plan forms; proximal ends are straight to excurvate in plan form and rounded in cross section and were not used as polls; grooves are absent, but bilateral marginal notching is present on some examples; longitudinal cross sections are narrow and parallel sided, tapering gradually toward the bit; and shaping includes percussion flaking of greenstone or dark igneous blanks, pecking, grinding, and occasional polishing (plan form dimensions are similar to three-quarter grooved axes, but they are thinner and lighter, usually weighing less than .5 kg).

[h]*Three-quarter grooved axes* are grooved along both faces and on the outer but not the inner side; polls are cubical rather than rounded, with well-defined planes; blades are straight on the inner, ungrooved side and curve toward the bit on the outer side; the groove is oriented perpendicularly rather than obliquely to the blade; bits are slightly excurvate with working edge chords consistently shorter than the hafting groove; hafting grooves are asymmetrical when viewed from the outer face, perhaps to facilitate lashing in the split haft; longitudinal cross section is wedge shaped rather than parallel sided; and shaping includes percussion flaking of greenstone (dark igneous) blanks, pecking, grinding, occasional polishing (especially on larger specimens) (metrics: [n = 1] length = 84.5 mm; width = 50.2 mm; thickness = 29.4 mm (at poll); groove width = 16 mm; and weight = 224 g).

[i]Fiber-tempered pottery is defined in the text.

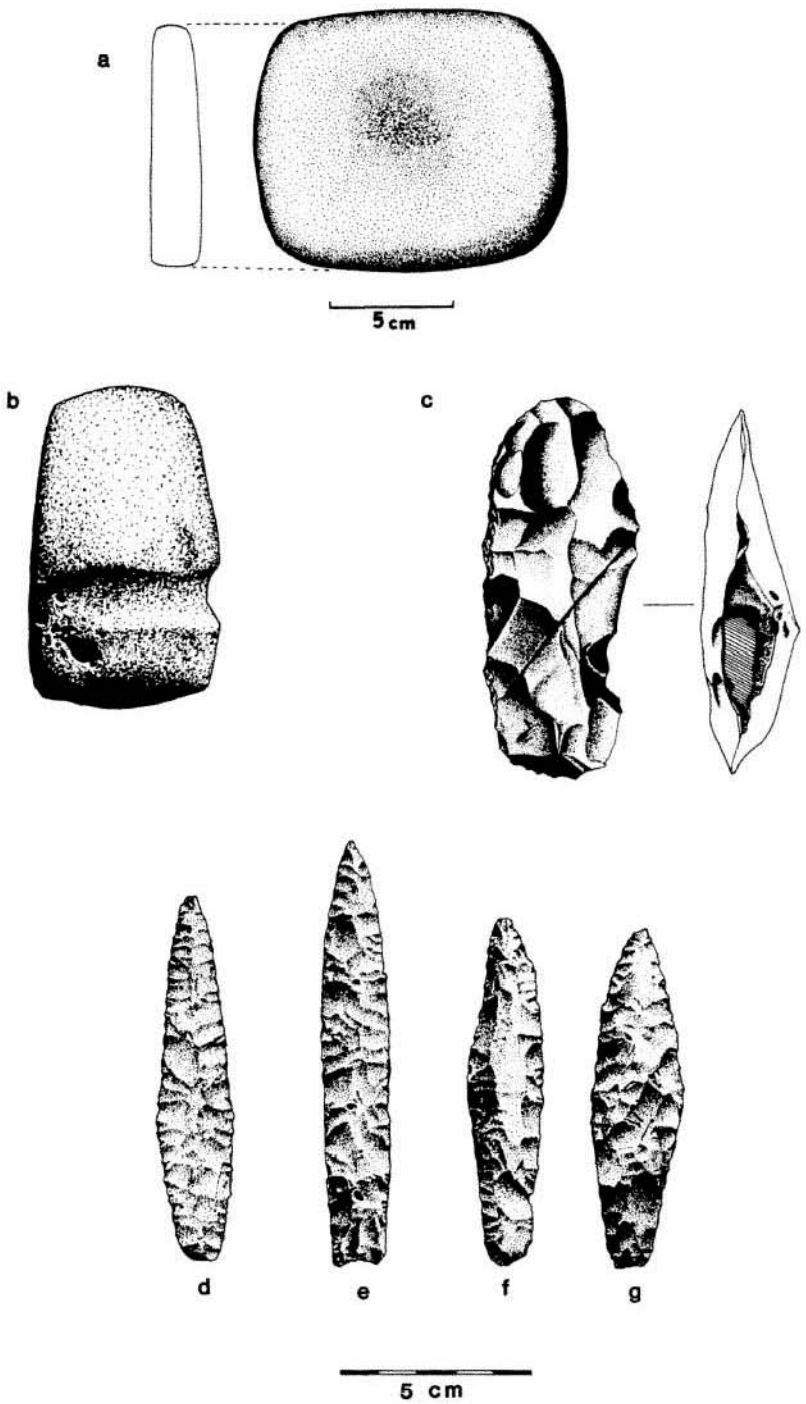

Figure 3.2 Nebo Hill diagnostic artifacts: (a) rectangular mano; (b) three-quarter grooved axe; (c) bifacial hoe; (d–g) lanceolate projectile points.

axe is associated with a three-quarter grooved axe, a rectangular celt, and at least 12 Nebo Hill points at 23AN99 (Reid 1981:81); and fragments of at least 1 fiber-tempered human effigy clay figurine are reported at 14MM27 (Blakeslee and Rohn 1982). However, none of these formal types has been represented by artifacts at more than one Nebo Hill component, and their utility as phase-defining criteria remains to be established.

Chronology

At 23CL11 a date of 3555 ± 65 BP: 1605 B.C. (UGA 1332) was obtained from carbonized walnut shells recovered from a sealed hearth below the A_p horizon (Reid 1980b:30–31). A smaller sample of charred wood from the Nebo Hill component at 23JA110 produced a date of 2970 ± 490 BP: 1020 B.C. (DIC 913) (Reeder 1978:91). Currently, these are the two most acceptable radiocarbon dates for the Nebo Hill phase. Absolute dating of these shallowly buried components has been plagued by poor preservation of organics and by the scarcity of sub-plow-zone pit features.

For example, two small charcoal samples built up from small bits of carbonized wood picked out of the Nebo Hill midden produced dates of 410 ± 100 BP: A.D. 1540 (UGA 1329) and 1605 ± 105 BP: A.D. 345 (UGA 1330), whereas a larger sample of carbonized bark immediately below the plow zone was dated at 470 ± 60 BP: A.D. 480 (UGA 1342). These dates are obviously too late for the Nebo Hill component; and because there was no stratigraphic or typological evidence for either a Middle Woodland or a late Central Plains Tradition component, all three are rejected as anomalous. They may provide accurate dates of postoccupational forest or prairie fires, or they may simply represent badly contaminated (or insufficiently decontaminated) samples. Another date of 2220 ± 195 BP: A.D. 270 (DIC 914) was obtained from a composite sample of charcoal from the Nebo Hill component at 23JA110, but was regarded as too late to date the Archaic occupation (Reeder 1978:91–92). It may reflect disturbance from the Middle Woodland component, dated at A.D. 150 ± 150 and A.D. 290 ± 75 (Reeder 1978:219).

A series of thermoluminescent (TL) dates run by Ralph Rowlett of the University of Missouri, Columbia on heated chert flakes recovered from the clay foundation wall of a small Nebo Hill structure at 14MM27 has produced dates that are compatible with the 1605 B.C. date for 23CL11 (Table 3.3). Data from this important site are still being analyzed, and will be discussed fully in a forthcoming report (Blakeslee and Rohn 1982). However, these preliminary results suggest that TL dating of thermally altered chert may play an important future role in securing the chronology of carbon-deficient Nebo Hill occupations.

In the meantime, a number of analyzed components can be typologically cross-dated to absolutely dated phases and cultures in surrounding areas of the

riverine Midwest. Small notched points that fall within the range of variability associated with Merom expanding stem and Trimble side-notched forms (Winters 1969:41) were recovered *in situ* at 23CL11 and 23JA110, and suggest contemporaneity with the Riverton culture of southern Illinois. Sedalia lanceolate and Etley stemmed points recovered *in situ* from at least three Nebo Hill components indicate contemporaneity with the Titterington phase or Sedalia focus of east central Missouri and western Illinois. At 23CL109, the proximal fragment of a large, shallowly side-notched blade reminiscent of Osceola or Hemphill notched forms was recovered *in situ*, and a complete specimen measuring 27.4 cm in length was in the landowner's collection from the site. These artifacts suggest contemporaneity with the Old Copper culture of the northern Midwest. Finally, a stemmed Dustin point recovered from 23JA35 indicates contemporaneity with the El Dorado phase centered in the Flint Hills of eastern Kansas. These data are summarized in Table 3.3.

I have chosen not to include the two "Hardin Barbed" points identified at 23CL109 (O'Brien 1977:64) as evidence of Early Archaic cross dates because this type is so easily confused with reworked proximal fragments of angularly stemmed and barbed Etley points. However, a single Helton and a single Graham Cave notched point found *in situ* at 23CL11 do represent clear historical anomalies, although both show signs of being recycled. Thus the Helton point falls within one standard deviation of the Koster sample ($n = 10$) in width and thickness, but is considerably shorter (within two standard deviations), probably because of blade reduction. The Graham Cave notched fragment is barely recognizable as such due to severe bilateral reduction of the blade and notches. The simplest explanation for the presence of these two points at 23CL11 is that they are surface finds that were found at or brought to the site and recycled by Late Archaic occupants.

Spatial Distribution

The core area of Nebo Hill settlement is concentrated along the lower Missouri Valley, especially between St. Joseph and Kansas City, Missouri. In part this distribution reflects a simple geologic control, for it coincides with a belt of cherty Upper Pennsylvanian limestones that outcrop along a southwest–northeast axis between the Bethany Falls escarpment on the east and the Oread escarpment on the west. Lasting archaeological traces are more likely to be concentrated on landscapes formed in cherty limestones than those formed in shales, sandstones, or thin and nonsiliceous carbonates; and there is doubtless a recognition bias involved in the apparent scarcity of large, high-density Nebo Hill campsites between the Bethany Falls and Burlington escarpments to the east, and between the Oread escarpment and the Flint Hills on the west. Nevertheless, for the area south of the line of Pleistocene glaciation, which coincides approximately with the lower Kansas–lower Missouri river system,