

THE KANSAS ANTHROPOLOGIST

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FLOYD SCHULTZ: AN EARLY AMATEUR ANTHROPOLOGIST IN KANSAS

Marlin F. Hawley
Kansas State Historical Society

The Kansas Anthropologist, 12(2), 1991, pp. 1-10

Clay Center businessman and civic leader Floyd Schultz was active as an amateur anthropologist from perhaps as early as the 1890s until the time of his death in 1951. His archeological work focusing on north-central Kansas and his ethnographic work among the Potawatomi have been recognized by professionals as significant and lasting contributions. In 1948 Schultz donated his well catalogued collections to the University of Kansas where they remain an important research collection.

In April and May of 1948 Mr. Floyd Schultz of Clay Center, Kansas, donated his archeological collection, comprising some 3,000 catalogued entries of artifacts as well as his notes and some related correspondence, to the Division of Anthropology, Museum of Natural History, at the University of Kansas. The collection, now housed in the Museum of Anthropology, was the result of three decades of collection and first-hand archeological work.

Schultz was for many years an avid collector of prehistoric artifacts, ethnographic items, photographs depicting Native Americans, western memorabilia, and antiques. Beginning in the mid-1920s he began to conduct archeological excavations of burial mounds and habitation sites in the lower valley of the Republican River in Clay and Geary counties. Of a truly anthropological bent, Schultz began visiting the Potawatomi Reservation in Jackson County, Kansas, in 1926. In 1948 Schultz was the senior author of a paper entitled "A Hopewellian Burial Site in the Lower Republican Valley, Kansas" with Albert C. Spaulding in *American Antiquity*.

BIOGRAPHIC BACKGROUND

Floyd Schultz, Clay Center businessman and civic leader, led a remarkable double life (as it were) as archeologist, ethnographer, and collector (Figure 1). Of military parentage, Schultz was born at Fort McKavitt, Texas, November 11, 1881, and spent his formative years in the environs of Fort Riley, Kansas. It

was there that "as the son of a member of the U.S. Army, he became steeped in the history and ethnography of the Great Plains through association with men who knew the Indians as both a friend and as an enemy" (Smith 1951). The influence of his early environment was to mark him for life; he carried with him to his death a deep (and perhaps paradoxical) interest

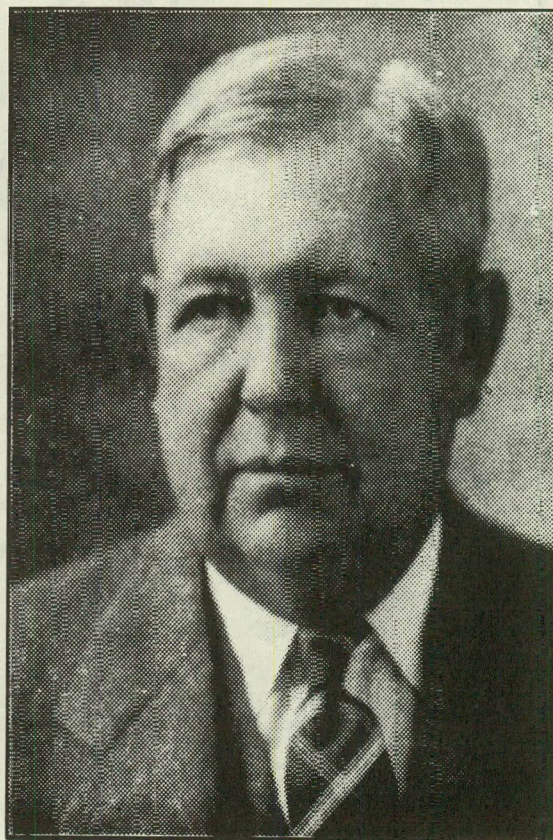


Figure 1. Floyd Schultz.
Courtesy Kansas State Historical Society

in the Native Americans and western history.

Schultz had no formal education beyond high school, and was employed by the Union Pacific Railroad in Junction City, Kansas, and later Omaha and Grand Island, Nebraska. As a mechanic, he was privileged to work on the Union Pacific's "first successful gasoline railway motor car designed for passenger service" (Schultz 1935). In 1911 after retiring from the railroad, he and his wife, Adah Jane (nee Broceus), took up residence in Clay Center to enter into a business partnership operating the local theater. The Schultzes resided in Clay Center for the remainder of their lives. As the theater business grew and evolved, Schultz became a leading businessman, which provided ample entree into the civic (and later social) arena of Clay Center.

Adah Jane was a faithful partner in Floyd's business activities until her death in 1935. Four years later Schultz remarried, this time to Marguerite Morrison. Marguerite, a staff member at the Kansas State Agricultural College (now Kansas State University), did much to further her husband's social life. Both women took an interest in Floyd's archeological and ethnographic endeavors. The emphasis varied, however, with Adah Jane perhaps more interested in the archeological work than Marguerite, who was very interested in the ethnographic (Figure 2).

Floyd Schultz died April 8, 1951, in Clay Center as the result of a heart attack.

COLLECTING

It is difficult, if not impossible, to determine whether Schultz was more interested in artifact collection, archeological excavation, or ethnographic study since all three appear to have been perceived by him as integrally related. His collection of archeological and ethnographic artifacts predated both his archeological excavation and ethnographic studies. Evidence indicates

that Schultz had begun collecting in the 1890s and had actively hunted surface artifacts in the Clay Center area prior to his initiation of archeological excavations in 1924. Archeology and ethnography are, then, outgrowths of collection--a common pattern for amateur archeologists. Once he commenced excavations and work on the Potawatomi Reservation, collection became completely entwined with archeology and ethnography. Long after he had given up excavating sites, he continued to collect.

Presumably Schultz began collecting artifacts that he had come across or that had been given him when he was a child and retained them as curiosities. As his interest grew, however, his motivations changed. By the mid-1920s he was already interested in endowing the Kansas State Historical Society (KSHS), an institution of which he became a lifetime member in 1925, with a large collection of archeological and ethnographic materials



Figure 2. Marguerite Schultz (far left) on the Potawatomi Reservation at the time of her adoption into the Prairie Band, 1947.

Courtesy Clay County Museum

from various areas and tribes. Although he frequently bought, sold, or traded artifacts, it was for the purpose of securing a representative core collection for the KSHS.

To the end of acquiring this collection, Schultz corresponded with dealers, farmers, missionaries, and auction houses in half a dozen states. His archeological work also netted a considerable amount of prehistoric material, just as his visits to the Potawatomi Reservation allowed him to obtain many ethnographic items. All of the material that passed through his hands was carefully catalogued. He maintained a separate catalogue for archeological material, ethnographic items, and photographs and tried to be as thorough as possible. Items were given catalogue numbers and described.

Since the collection of artifacts is often associated with the looting of sites, it is generally discouraged by many professional archeologists today. Through collecting and sale of artifacts, site destruction has reached epidemic proportions throughout the world. Moreover, a critical aspect of any artifact is its context and collectors are too often unaware of and unconcerned with such details. It is pointless, however, to discredit Schultz for not sharing our present point of view. He believed that he was acting to preserve at least some of what he perceived as the vanishing culture of the Native American. The living cultures, it seemed, were on the path to assimilation; the prehistoric and historic remains were being destroyed apace. Mounds that he excavated frequently showed signs of looting. Schultz expressed his attitude toward collecting in a letter to Warren King Moorehead, an archeologist affiliated with the Phillips Academy in Andover, Massachusetts, and with whom Schultz corresponded:

I am not very well acquainted with collectors in Kansas. I know a few, but...most of the collectors that I have come in contact with, collect and look upon their relics as "curios" and do not seem to be interested in Indian culture or the scientific value of their collection [Schultz to Moorehead, September 30, 1933].

Although Schultz did not always collect with great sensitivity, he clearly perceived artifacts as important clues to the lifeways of America's native peoples.

ARCHEOLOGY

In 1917 Schultz wrote to George Remsburg, a journalist, amateur archeologist, historian, and frequent contributor to the *Archaeological Bulletin*, saying that he had a small collection but found little in Clay County: "I think the only Indians that occupied the county were roving Buffalo hunters, as there are no signs of village sites or graves" (Schultz 1917). The discovery of a burial mound in the process of land leveling on the Louis Dittmar farm that same year proved him wrong. The year 1922 saw yet another burial site come to light, this time on the Clay Center Country Club grounds. In both cases Schultz was able to obtain some of the relics. Spurred on by the two discoveries he "walked miles over the country searching for mounds and village sites" (Schultz 1926) and conducted his first excavation of a mound site in 1924. By June 1926 he had located and investigated, by his own count, 22 mounds and several habitation sites. He actively, if not aggressively, continued these investigations into the 1930s. His collection grew in size and diversity. From 1935 through the late 1940s, however, his forays into the field became infrequent.

The core area investigated by Schultz was the lower Republican River valley in Clay, Geary, and Riley counties, Kansas. He did some surface collection of a wind-scoured field in Washington County and some limited excavations in Republic and Chase counties. Beyond this he obtained small collections from more than a dozen other Kansas and Nebraska counties. Some of this material was given or sold to Schultz by landowners, tenants, and friends. Though he collected rather widely, there can be no doubt that his archeological work focusing on the lower Republican River basin remains one of his lasting achievements.

Schultz's methods of excavating mound and lodge sites have been reconstructed in sufficient details to indicate that he was a reasonably

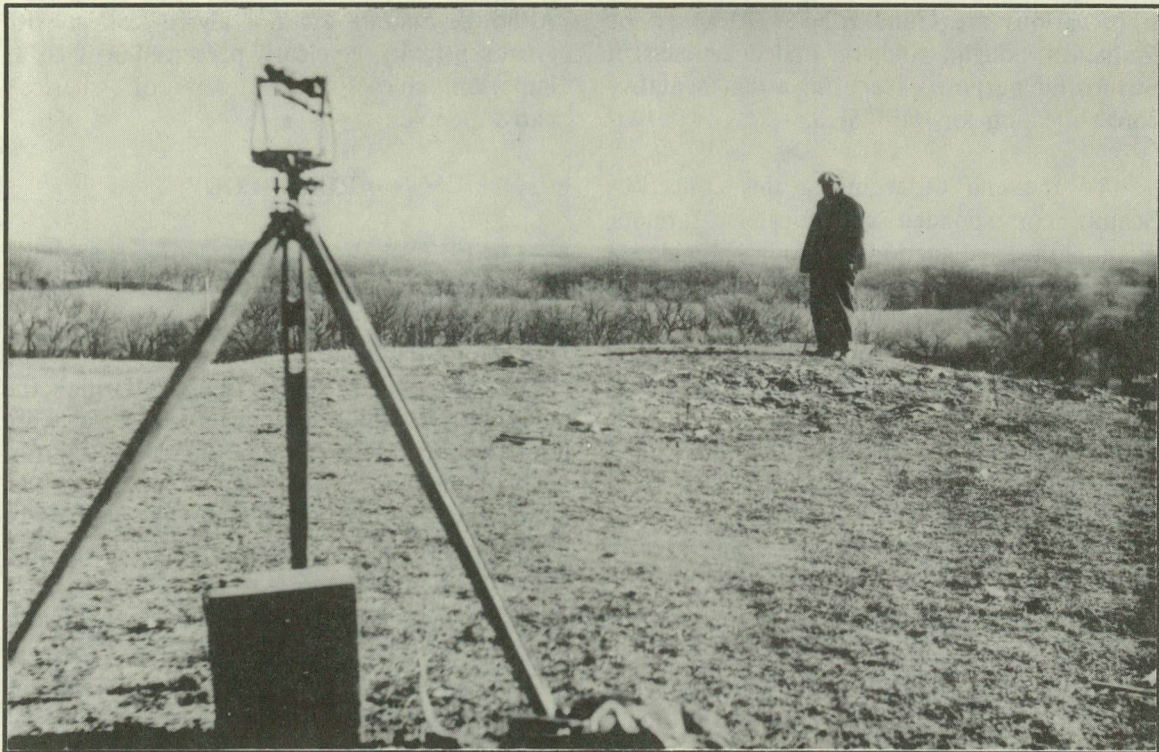


Figure 3. Floyd Schultz at the Kesl mound prior to excavation in 1933.
Courtesy University of Kansas Museum of Anthropology

competent investigator (Figure 3). Elsewhere his archeological efforts have been compared in some detail to those espoused by the National Research Council's 1930 "Guide Leaflet for Amateur Archaeologists" and found comparable (Hawley 1991). In some instances, especially his earthlodge excavations, Schultz often was even more precise.

After locating a site and securing access, Schultz established E-W and N-S lines across the mound or lodge feature. Schultz had a preference for excavating burial mounds, opening 38 burials out of a total of over 50 investigated sites. Earthlodges, workshops, and other kinds of sites might offer clues to subsistence, housing, crafts, etc., but burials netted actual human remains, from which he felt even more could be learned. It is the burials that are best documented.

In the case of mounds, Schultz dug trenches along the established E-W and N-S lines. Cultural material, burials, and details of mound construction were observed and noted with respect to the datum lines. Provenience was

limited to depth measurements below surface and general spatial locations of skeletons and other major finds. The size and contours of the mound were measured. All of this information was noted and diagrams of the mound in plan and profile were drawn. It is not clear if he extended the trenches laterally outward in order to repeatedly cross-section the mound (as per the NRC's "Guide Leaflet") or if he excavated by quadrants.

Lodge sites were identified by surface artifact concentrations or depressions. These concentrations or depressions were probed using a two-inch auger until a hearth was found. Assuming that the hearth marked the center of the lodge, trenches were then opened down to the floor and out from the hearth to the edge of the house. These trenches were set on E-W and N-S axes. The house was then divided in quadrants for further excavation. Stakes at the ends of each trench with strings across allowed Schultz to measure vertical and horizontal provenience. Because he worked alone, each quadrant was promptly backfilled after it was excavated. Shovels were used to

move fill; smaller tools, such as trowels, ice picks, etc., were used for finer work around artifacts. Soil from around artifacts and concentrations of artifacts was also screened through three-eighths-inch wire mesh (which far exceeded the standards of the NRC's "Guide Leaflet") (Bill Bork, personal communication 1987). The artifacts themselves were carefully removed to boxes and taken home.

Although Schultz was fairly thorough, his notes and sketches of lodge excavations are not without their problems. Many of these stem from the fact that he redrew comparatively few of his earthlodge plans. Those floor plans that were redrawn, while incorrect in many details, have few published precedents. "He was familiar with the characteristics of the Upper Republican earth lodge before any had been dug by professionals" (Smith 1951). Hence, with nothing to guide his efforts, it is hardly surprising that he missed important details. His excavation techniques doubtless prevented further understanding. As he opened no more than a quadrant at a time, he was never able to see a fully exposed floor (the technique of opening the entire floor was an innovation of amateur archeologist A.T. Hill). Locations and dimensions of post molds (which he recognized as such only if wood was still present), hearths, and pits were noted insofar as he was able to discern them. Maps also recorded the locations of major artifacts. He kept only the larger materials; such things as debitage were routinely discarded.

Secure in his basement, away from the press of everyday life, Schultz cleaned and catalogued the artifacts (Figure 4). His catalogue recorded the type of site (earthlodge, cache pit, burial, village, workshop, or surface find), a brief description of each artifact, and location (which regrettably are often inaccurate or very general; Schultz may have relied too much on memory and recorded legal locations much later). An artifact description typically included some functional-descriptive term (e.g., knife, point, hammer), raw material type, form (e.g., ovoid, triangular), condition, and general dimensions in metric units. Each artifact or lot of artifacts was given a catalogue number.

Schultz took matters of artifact preser-

vation, be it archeological or ethnographic, very seriously. On these matters he frequently consulted the Smithsonian Institution. Queries (for which copies exist) indicate that he sought information on preserving and restoring bone, antler, wood, shell, pottery, stone, and hide (Figure 5). Often he began this work and then requested clarifications and refinements of his techniques. For example, before attempting to reconstruct pottery vessels, he wrote to find the proper glue to use and if it was appropriate to paint the plaster bridging. Altogether he reconstructed nearly 30 ceramic vessels (Figure 6). All bone was treated with celluloid cement and occasionally repaired with glue and/or plaster. Shell was similarly treated. The materials in his possession fared rather well and are still well preserved.

Schultz believed that the archeological materials excavated or collected from burials and habitation sites were Pawnee, either historic or prehistoric. Today the cultural entities represented are identified as Schultz focus (Eyman 1969; cf. Wedel 1986:82; Brown and Simmons 1987:12-26-32), Smoky Hill (cf. Wedel 1959:563), Historic Pawnee, (Marshall and Witty 1990) and other groups of varying ages.

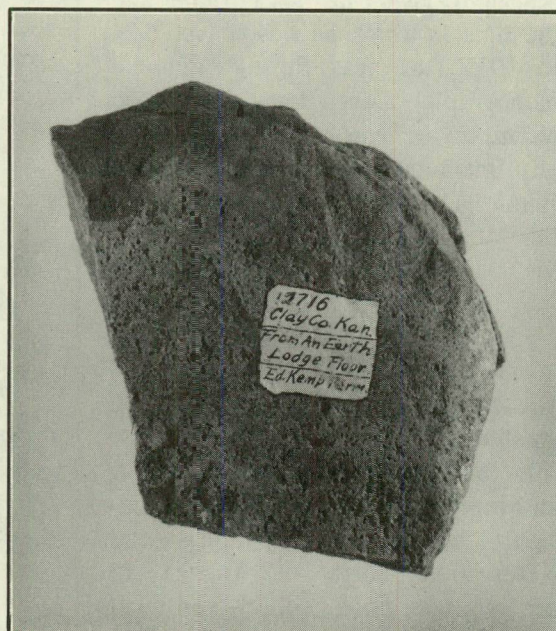


Figure 4. Grinding stone fragment catalogued by Schultz clearly showing painted background and catalogue information. Courtesy University of Kansas Museum of Anthropology

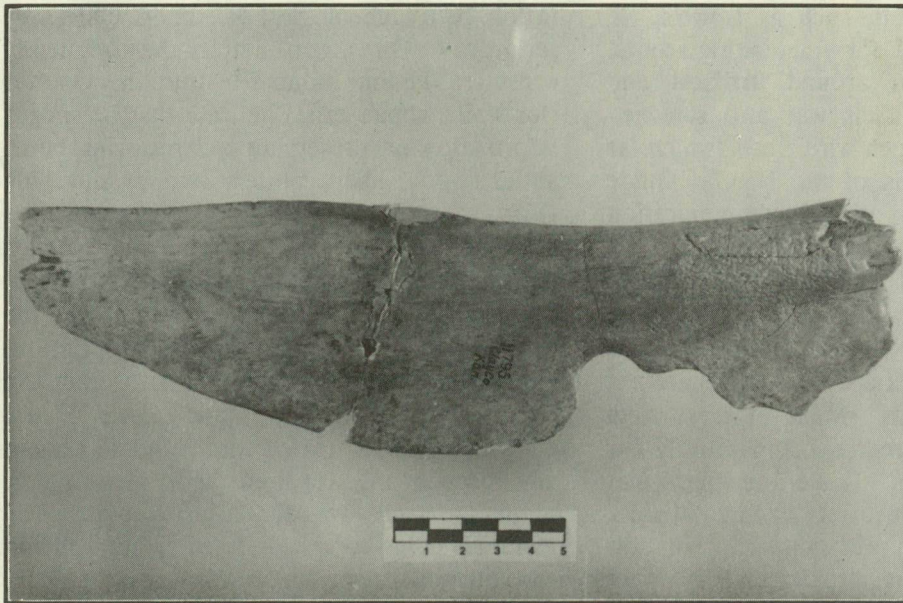


Figure 5. Bone knife reconstructed by Schultz and treated with either amyl acetate or shellac.
Courtesy University of Kansas Museum of Anthropology

Given the state of knowledge of his era, Schultz's assumptions on taxonomic appellations were not unwarranted.

In sum and in retrospect, Schultz's excavations were generally thorough, especially given his background and the time in which he was active, 1924 to 1935 (the year Strong's seminal monograph, *An Introduction to Nebraska Archeology*, was published). His methods and techniques were simple. Doubtless, they improved with time and experience.

ETHNOGRAPHY

Schultz, as has been indicated already, transcended the mold of the amateur archeologist to become something more unique, the amateur anthropologist. Beginning in the mid-1920s he visited the Potawatomi Reservation north of Topeka to observe, take notes, collect, and most interestingly perhaps, shoot film footage. The catalyst for these activities, which continued into the late 1940s, was likely a performance

by a troupe of Potawatomi dancers at the Kansas State Historical Society annual meeting in 1925. Dates on notes, when they appear, bracket the main portion of his ethnographic work from 1927 to 1941.

Schultz found from his visits to the reservation that many traditions were fast falling by the wayside. His concern about this "manifested itself

in an emphasis on 'salvage ethnography,' the recording of native practices and beliefs which were believed to be fast disappearing" (Stull 1979). Hence, his notes, film footage, and even collecting were, he felt, contributing towards the



Figure 6. Large vessel reconstructed by Schultz and showing painted bridging.
Courtesy University of Kansas Museum of Anthropology

goal of preserving some remnant of the culture of the Native Americans. His archeological work in the Lower Republican valley had amply demonstrated a considerable prehistoric Native American population in his own locale, although none occupied the area during Schultz's lifetime. Moreover, sites were being encroached upon with increasing frequency. Confined as they were to reservations, it must surely have appeared a virtual certainty that the native cultures could not endure.

That Schultz chose the medium of film to record Native American life at such an early date is somewhat remarkable. His long involvement in the theater business makes it seem, if not inevitable, then at least appropriate. The footage included rare glimpses of reservation life in the 1920s, 1930s, and 1940s. Schultz filmed games, a bow and arrow contest, weaving, construction of a bark lodge, processing foodstuffs, and religious ceremonies. His notes cover not only these filmed activities but also such things as native medicine, language, and a funeral. Totalling 74 minutes, his 16-mm black-and-white footage was eventually donated to the University of Kansas in the 1960s. It was edited by Donald Stull in 1978-1979 to produce the film *Neshnabek: The People*.

Fortunately, Schultz's worst fears about the Potawatomi have not come to pass. More than half a century has gone by since he began his ethnographic work and the Potawatomi endure and still possess a vital culture, exhibiting no signs of dying out. Native American culture has proven itself to be unexpectedly resilient. But even though he was wrong on that score, his work remains important:

The significance of the Schultz footage extends beyond the area of anthropological history. Our knowledge of present day Kansas Indians is very limited, and visual material on Algonquin groups (of whom the Potawatomi are representative) is virtually nonexistent. This, coupled with the fact that many of the activities depicted in the footage could not be filmed today (either

because they are no longer practiced or because they are of a sacred nature and not open to prying outsiders), makes Schultz's work of lasting anthropological and historical value. The activities captured by Schultz on film attest to the strength of Potawatomi cultural persistence in the face of intensive and prolonged acculturational pressures by the non-Indian community. The interviews which comprise the soundtrack of NESHNABEK show the Potawatomi to be a people who have endured, often in the face of overwhelming odds. Therein may lie the major contribution of this film. Thus, NESHNABEK ranks among a select number of ethnographic films which accurately portray traditional Native American culture [Stull 1979:8].

SCHULTZ AND THE ANTHROPOLOGICAL COMMUNITY

Schultz was not unaware of the discipline of anthropology. Rather, he was reasonably well-versed in the literature of the day. The supporting documentation on his collection contains numerous copies of letters requesting publications. These correspondence date from the early 1920s into the 1940s and had been sent to the Smithsonian Institution's Bureau of American Ethnology, the Field Museum of Natural History, the American Museum of Natural History, the Phillips Academy in Andover, Massachusetts, as well as book dealers recommended by the Smithsonian. The largest number of orders were to the Bureau of American Ethnology requesting both bulletins and annual reports.

Volumes ordered included topics in ethnology, ethnography, and archeology. A listing of authors of these many works reads like a who's who of the leading men and women in anthropology at the time. These include, among others, volumes on Pecos by A.V. Kidder, *The Handbook of the Indians of California* by Alfred Kroeber, a report on a site in Mexico by A.M. Tozzer, archeological reports by Frank Roberts and volumes by Ruth

Benedict, Eddie Gifford, Franz Boas, John Swanton, Paul Radin, and James Mooney. There was also the classic *Handbook of Aboriginal American Antiquities: The Lithic Industries* by William Henry Holmes, plus an annual report by the great physical anthropologist Ales Hrdlicka. Schultz also received books written by Warren King Moorehead. Late in his life he subscribed to the *Plains Anthropology Newsletter* and was a member of the Society for American Archaeology.

Schultz's involvement with the outside world of anthropology was not confined to the armchair. He corresponded sporadically over the years with Warren King Moorehead. Moorehead looked at some of Schultz's collection in 1918 and tried to coax him into assisting with Moorehead's Arkansas River survey. In the early 1930s, when Moorehead was planning a nationwide trip to look at collections for the revision of his *The Old Stone Age in North America*, Schultz lobbied long and hard to attract Moorehead to Clay Center but to no avail.

Schultz corresponded with and very likely met Nebraska's pioneering amateur, A.T. Hill. Although they never became friends (indeed, they were almost adversaries), Schultz struck up a lasting friendship with Hill's field foreman and fellow amateur, George Lamb. The unfortunate relations between Hill and Schultz are a tragic episode in Kansas prehistory. Had the two become colleagues, Schultz would have been in an ideal position to receive technical advice and assistance. Such an association may also have led to publications by Schultz in *Nebraska History*, which functioned as the principle outlet for regional site reports. That none of this came to pass did nothing to further studies of Kansas prehistory, which lagged noticeably behind those in Nebraska.

Those amateurs with whom Schultz came into direct or indirect contact in Kansas, such as George Remsburg, Mark Zimmerman, and Ed Parks, were not as active nor were they as progressive in their thinking as their Nebraska counterparts. Even Schultz's one attempt to publish a 1938 address (read before a local

women's group) in the *Kansas Historical Quarterly* met with failure. His life membership in the Kansas State Historical Society came to nothing; Society secretary Kirke Mechem had no interest in publishing papers "about artifacts" (Mechem to Schultz, February 12, 1938).

Schultz lived long enough, though he no longer remained active as an amateur, to be recognized by the professional community. His meeting with Albert C. Spaulding led to their article in *American Antiquity* in 1948. It was Carlyle S. Smith, Spaulding's successor at the University of Kansas, who really understood the value of Schultz's efforts and his collection: "it represents an important contribution to Great Plains archaeology" (Smith 1948). In Floyd Schultz, Smith found an individual interested in and knowledgeable about archeology. He was, as Smith recalls, the first such person he encountered upon coming to Kansas. The two men remained friends until Schultz's death. Smith persuaded Schultz to donate his collection to the University of Kansas, where it could be studied. The Kansas State Historical Society had no archeologist on its staff at that time and so the collection would, Smith argued, languish there.

Schultz's legacy is his collection, which was donated to the Anthropology Division, Museum of Natural History, the University of Kansas (KU) in 1948. Officially known as the "Floyd and Adah Jane Broceus Schultz Collection," it became the core collection around which Smith was able to build a master's program in anthropology at the University over the next decade. It is a fitting tribute to Schultz that the first master's thesis granted in anthropology at KU was awarded to Maria Bozzoli de Wille (1958) for *A Comparative Study of Ceramic Traits Within the Central Plains Tradition*. This thesis utilized ceramics from a number of Schultz's sites. A study of the mortuary sites Schultz had excavated many decades earlier formed the subject of Charles E. Eyman's thesis (1966) at the University of Alberta. Eyman used the artifacts to define the Schultz focus, so named in honor of Floyd Schultz. The skeletal material from many of these same burials was studied as part of the research for a doctoral dissertation, *An Analysis of the Human Skeletal*

Material from Burial Mounds in North Central Kansas, by Terrell Phenice (1968). This dissertation was subsequently published as the inaugural monograph in the University of Kansas' Publications of Anthropology series (Phenice 1969). The series was initially funded by Schultz's widow, Marguerite Schultz Daughtrey.

CONCLUSION

Ultimately, it is difficult to assess the importance of individuals like Mr. Schultz. He obviously possessed great enthusiasm coupled with unflagging curiosity about Native American culture and this resulted in much fine work. Critics who contend that such work is of minor interest or does not measure up to modern standards miss the point. Floyd Schultz and many others like him labored tirelessly, often with no success or recompense in obtaining recognition for the kinds of discoveries that they had made. Given the rapid changes in the discipline, the second charge can be seen to be equally irrelevant: future archeologists may well regard our best in the same harsh light. That he published little, and then mostly locally, delayed the impact of his work, but to some extent time has corrected this. Waldo Wedel, writing in the early 1960s, made the following comments on the history of anthropology on the Central Plains:

Not until after the turn of the century did professional anthropologists take note of the antiquities of the Central Plains. The stimulus was the finding of human skeletal remains in 1902 near Lansing, Kansas, and in 1906 on Long's Hill near Omaha, Nebraska, under circumstances suggesting considerable geological antiquity. Both finds were critically investigated by geologists and anthropologists; neither is now accepted as evidence of ancient man. Probably as a result of the wide interest aroused at this time, however, important investigations were begun soon after in some mounds and village sites with which this stretch of the Missouri abounds. Gilder, of Omaha, Sterns, of Harvard's Peabody Museum, and

Fowke, of the Bureau of Ethnology were the principal figures involved; but none carried his researches more than a few miles beyond the main stem. Farther west, it remained for a few dedicated and inquiring private individuals, such as Blackman and Hill in Nebraska, Schultz and Jones in Kansas--all lacking formal training and thus unhampered by the professional dogma of their time--to give the lie to the widespread misconception that there could have been no fixed Indian settlements and therefore no archaeology more than one hundred miles west of the Missouri. It is no reflection upon the character or accomplishment of professional archaeologists of the past three decades to observe that if we today see a little farther and somewhat more clearly than those who preceded us, it is in large measure because we stand with one foot on their shoulders [Wedel 1961:82-83].

Acknowledgements. This paper is a distillation of my 1991 master's thesis and was presented in a slightly different form in "The Schultz Archaeological Project Phase I, A Survey of Selected Prehistoric Sites in North-Central Kansas" by Lauren W. Ritterbush and Brad Logan, Office of Archaeological Research, University of Kansas, Museum of Anthropology, September 1991, and incorporates several editorial changes made by Ritterbush.

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**QUIXOTE AND REICHART:
ARCHEOLOGICAL INVESTIGATION OF GRASSHOPPER FALLS PHASE
HABITATION SITES IN THE PERRY LAKE PROJECT AREA,
NORTHEASTERN KANSAS**

Brad Logan
Museum of Anthropology
The University of Kansas

Michael Fosha
Office of the State Archeologist
University of Iowa

The Kansas Anthropologist, 12(2), 1991. pp. 11-31

Our understanding of the Grasshopper Falls phase of the Plains Woodland period in the Central Plains has been derived from at least twelve excavated sites in northeastern Kansas. All of these sites shared one unfortunate characteristic--their deposits had been at least partly disturbed by modern farming activities. Two sites of this phase, Reichart and Quixote, have not been subjected to plowing. Limited investigations show these sites to have abundant and varied cultural inventories with significant research potential. Research problems derived from data obtained at these and other sites of the phase and that can be addressed during future investigation are presented.

Archeological investigations were conducted at seventeen sites in the Perry Lake project area during the summer of 1988 by Kaw Valley Engineering and Development, Inc., of Junction City, Kansas, and the Museum of Anthropology, University of Kansas under a contract with the Kansas City District, U.S. Army Corps of Engineers. These investigations consisted of surface surveys, test excavations, and the acquisition of geoarcheological data sufficient to determine, on the basis of the integrity of cultural deposits and their research potential, the eligibility of the sites for placement on the National Register of Historic Places (Logan 1990a). This paper reviews information obtained from the Reichart and Quixote sites--two habitations of the Grasshopper Falls phase that were determined to be eligible for such placement and that promise to provide future investigators with significant insight into the nature of this archeological culture of the Plains Woodland period.

ENVIRONMENTAL SETTING

The Perry Lake project area is located in the Delaware River basin, a major northern watershed of the lower Kansas River (Figure 1). Located entirely in Jefferson County, Kansas, the project area is within the Dissected Till Plains physiographic province of northeastern Kansas. This region is characterized by gently rolling uplands that become more steeply dissected near the principal stream and its larger tributaries. These streams have eroded the Pleistocene loess mantle that covers earlier deposits of glacial till dating to the same epoch. Although the Delaware River itself is largely entrenched in its own alluvium, its tributaries have incised into Pennsylvanian-age bedrock of the Shawnee group, which includes two chert-bearing limestone members, Plattsmouth and Toronto. These members were readily available sources of raw materials for chipped stone tools. Glacially transported Tertiary chert gravels that occur in isolated upland deposits and alluvial bars in the Delaware River basin

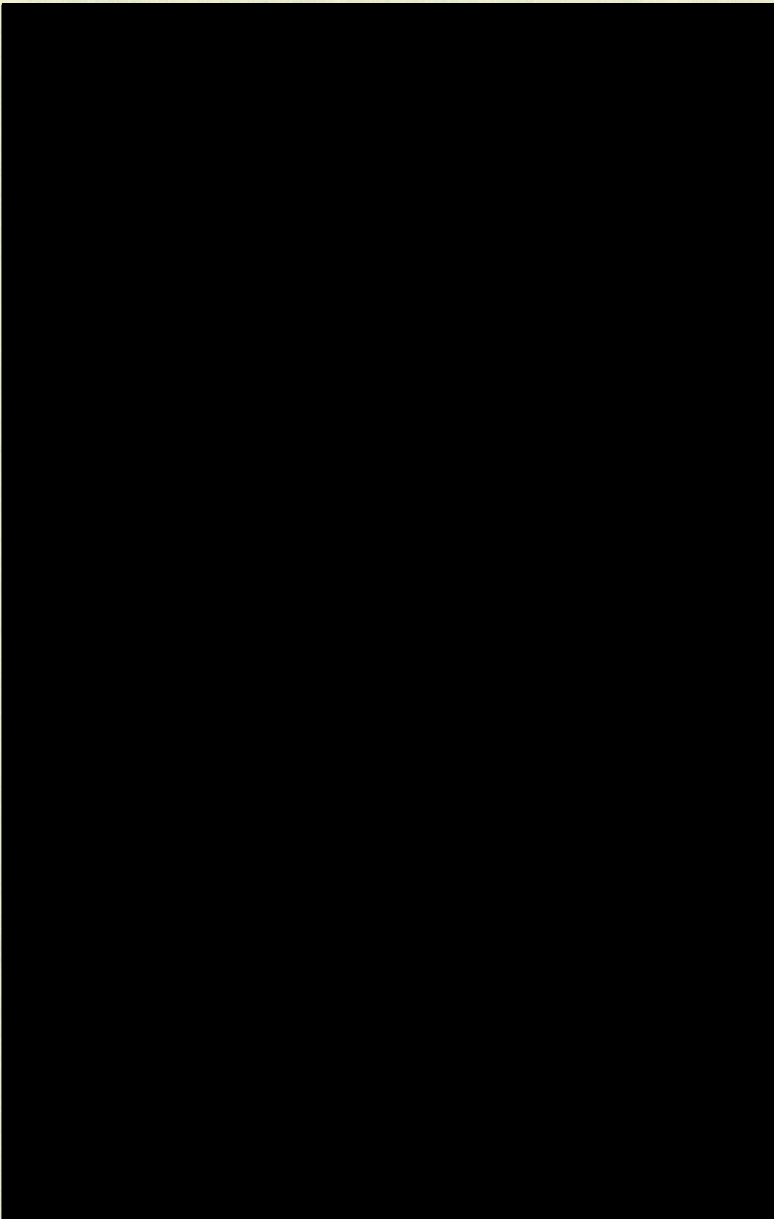


Figure 1. Location of Perry Lake and Grasshopper Falls phase sites discussed in text.

also provided such raw materials.

The study area is within two major vegetational zones. The upper half of the watershed is in the tallgrass (bluestem) prairie zone that dominated northeastern Kansas prior to Euroamerican settlement. The lower half of the basin, which includes most of the Perry Lake project area, occurred in an ecotone that consisted of a mosaic of tallgrass prairie and oak-hickory woodlands. The native wildlife of the study area included a variety of species

characteristic of the grassland, woodland, and riverine biomes. Of importance to its prehistoric hunter-gatherer inhabitants were such game animals as white-tail deer, wapiti, bison, raccoon, beaver, rabbit, squirrel, and turkey and other fowl, as well as a variety of aquatic animals including fish and mollusks.

THE GRASSHOPPER FALLS PHASE

Although the Grasshopper Falls phase is one of the more well known archeological cultures of the Plains Woodland period in the Central Plains, we still lack the answers to many questions concerning its nature, geographical extent, and temporal range. Reynolds (1979) defined the phase on the basis of data from three sites excavated in the Perry Lake area by the Kansas State Historical Society in 1967. These sites, Malm (14JF307), Anderson (14JF331), and Teaford (14JF333), all had evidence of oval house structures and, with the exception of House 2 at the Malm site, extramural features such as storage pits and hearths. House 2 at the Malm site contained interior

pits. Paired houses were indicated at the Malm and Anderson sites and the outline of a single house was recorded at the Teaford site.

The sites yielded a variety of chipped stone and ground stone artifacts, including corner-notched arrow and dart points, scrapers, drills, axes, gouges, celts, mullers, grinding stones, sandstone abraders, and hammerstones. Their ceramic assemblages consisted of large samples of a relatively monotypic pottery defined by Reynolds (1979) as Grasshopper Falls ware.

Sherds of this material indicate medium to large wide-mouthed vessels with conical bases. Exterior surfaces are cordmarked, partially or completely smoothed, or brushed. Temper consistently is dense amounts of angular grit. Rim decoration is rare and usually limited to a single line of tool impressions on the rim. A nearly complete vessel of Grasshopper Falls ware from a storage pit at 14JN349, the first recovered to date, fits this general description (Fosha and Williams 1990; Williams 1990a-c).

Subsistence data from the type sites reflect a hunting and gathering economy. No evidence of agricultural practices was recovered at the type sites. Reynolds (1979:79-80) suggested the subsistence economy characteristic of the phase was comparable to Caldwell's (1958) concept of "primary forest efficiency," an intensive exploitation of the resources of a woodland environment.

Since the description of the type sites, formal information about the Grasshopper Falls phase has been obtained from intensive excavations at seven other sites (Figure 1), including Hamon (14JF350) (Barr 1971, Reynolds 1987) and 14AT2 (Williams 1986) in the Delaware River basin; 14JN313, 14JN314, 14JN315, and 14SH322 (Reynolds 1987) in the Soldier Creek drainage; and Avoca (14JN332) (Baugh 1991) in the Cross Creek drainage. The information acquired from most of these sites has not substantially altered the phase description provided in Reynolds' (1979) original treatise. However, new information concerning settlement patterns and subsistence practices has been obtained from test excavations at two sites, one in the Perry Lake project area (Senn's Hill, 14JF414) (Logan 1990a) and the other in the Soldier Creek drainage (14JN339) (Williams 1990a-c; Fosha and Williams 1990; Adair 1991).

Partial excavation of a large, oval basin hearth and its associated artifacts and faunal and botanical remains at the Senn's Hill site indicates occupancy of upland settings. Botanical remains from Avoca and 14JN349 include domestic cultigens (corn, marshelder, and sunflowers at the former; corn and marshelder at the latter; Adair 1991; Williams

1990c) and testify to the practice of agriculture to some extent. Recent analyses of the subsistence and structural data, from the Avoca site in particular, indicate that there is more variability in those aspects of the phase than was heretofore recognized.

With a minimum floor area of 133 m², the single house at the Avoca site is considerably larger than the other nine structures for which dimensional data are available (range 10.58 m² to 91.10 m²; cf. Reynolds 1987:163-164 and Baugh 1991). The dimensions of the post molds that outline this elliptical structure also indicate larger timbers were used for its construction than in all other known houses of the phase. The greater size and more substantial nature of the Avoca house points to more variability in residency patterns and a longer period of occupancy than at other sites. Unlike the other dozen, the Avoca lodge also contains an internal hearth (Baugh 1991). The economic and habitational data from Avoca suggest a greater degree of sedentism may have been achieved during the Grasshopper Falls phase than was heretofore known.

The core area of the phase as it is currently known includes the Dissected Till Plains of northeastern Kansas. Sites in the Osage Cuestas south of that region have yielded finds of Grasshopper Falls ware (Reynolds 1987:22-25), though their presence may reflect interaction with Plains Woodland populations indigenous to that area. Though lowland sites remain the most numerous of the phase, sites in upland settings such as Senn's Hill, which is located on a ridge above the Delaware River north of Valley Falls, Kansas, indicate occupation of such terrain did occur (Logan 1990a). Sites of the Grasshopper Falls phase are distributed throughout the Delaware River basin and its contiguous drainages to the west (Soldier Creek) and east (Stranger Creek) (Logan 1981, 1983). South of the Kansas River two other complexes of the Plains Woodland period, the Wakarusa and Deer Creek phases, have been recognized (Johnson 1968; Logan 1987). Finally, another northeastern Kansas contemporary of the Grasshopper Falls phase, the Edwardsville phase, occurs in the Kansas City locality. This complex is a Late Woodland

expression of the Kansas City Hopewell culture (Johnson 1983). The locations of the type sites of these phases, Kampshroeder (Wakarusa), Anderson (Deer Creek), and Miller (Edwardsville) are shown on Figure 1. The relationship, if any, among these cultures is as yet unclear (cf. Logan 1990b).

At present, the temporal limits of the Grasshopper Falls phase are not well defined. Six radiocarbon dates have been obtained from as many sites of the culture (Table 1). Though the lower range of one date (Tx-6483) and the upper range of another (I-1137) fall beyond the suggested span of the Plains Woodland period in northeastern Kansas (Johnson 1984; n.d.), all fall to a greater extent within that range of A.D. 500 to 1000. They support the general

temporal placement of the phase suggested by Reynolds (1979:101).

All of the excavated sites of the Grasshopper Falls phase share one unfortunate characteristic. Prior to their archeological excavations they had been disturbed to some extent by cultivation. For example, at the type sites, cultural material was not found at depths greater than about 45 cm (1.4 ft) and at each the upper 15-20 cm had been disturbed by plowing. The other seven sites of the phase thus far excavated had also been subjected to prior agricultural disturbance with consequent diminishment of the spatial and structural information they might otherwise have provided. The Quixote and Reichart sites are comparable in many respects to these sites. However, they

Table 1
Radiocarbon Dates from Grasshopper Falls Phase Sites

Lab. Number	B.P. Date	Calendar Date	Calibrated Age Range*	Site Name or Number	Reference
Gak-1734	1190±90	A.D. 760	689 (781, 789, 805, 821, 829, 839, 862) 978	Anderson 14JF331	Reynolds 1979
I-11371	1000±95	A.D. 950	978 (1004, 1008, 1019) 1156	14JF350	Witty 1983
Beta-10120	1350±60	A.D. 600	641 (661) 760	14AT2	Williams 1986
Tx-6483	1530±170	A.D. 420	264 (539) 660	14JN349	Fosha and Williams 1990
Beta-29434	1200±60	A.D. 750	694 (780, 790, 803, 848, 853)	Senn's Hill 14JF414	Logan 1990a
Beta-33220	1220±50	A.D. 730	691 (777, 793, 798) 879	Avoca 14JN332	Baugh 1991

*One sigma calibrated age ranges and (intercepts) based on Stuiver and Becker 1986.

have deep deposits that occur in untilled settings. The relatively intact nature of these sites, the assumed integrity of any associated structural remains and features, and the abundance and variety of artifacts sampled during the investigations indicate their great potential for addressing a variety of research problems. Following descriptions of these sites and their investigation, some of these problems will be discussed.

THE REICHART SITE

The Reichart site (14JF448/449) [REDACTED]

[REDACTED] The site consists of two mounds recorded individually as 14JF448 and 14JF449, but here referred to as a single site under the name of its discoverer, Milton Reichart, who recorded the mounds in 1974. He had surveyed the cultivated field immediately west of the mounds on earlier occasions and not noticed the mounds, which are well concealed in the trees during most of the year. Figure 3, a photograph of 14JF448 taken in the autumn, shows how conspicuous the mounds are during that time of the year. Mound 14JF448 is about 10 m in diameter, 60 cm high, and about 21 m northeast of 14JF449, which is about 6 m in diameter and of lower relief. Reichart excavated a small trowel test (12X16 in to 16 in deep) at both mounds and recovered a few sherds of Grasshopper Falls ware in both, as well as a single projectile point and small amounts of debitage, and burned limestone, quartzite, earth, and daub.

The current investigations occurred in mid-August, when both mounds were obscured by dense vegetation. A single 1 m² test pit was excavated near the center of mound 14JF449 and within an estimated 25 cm of Reichart's trowel test (Figure 2). Cultural material, including ceramics, lithic debris, burned limestone, fire-cracked quartzite, mussel shell, and animal bone, was found to a depth of 55 cm. Disturbance of the deposits by tree roots was noted throughout the unit but was more prevalent in the upper 20-30 cm. Evidence of rodent activity was noted as well. Artifacts

were distributed evenly throughout the unit (Table 2). For example, the relative frequencies of ceramics and flakes are comparable throughout most levels. Daub was also found throughout the unit, though in relatively small amounts. Two soil cores 1.75 and 2.0 m long were extracted from the mound with a Giddings soil probe. These demonstrated that the contact of the base of the cultural deposits with the underlying sterile, yellowish-brown B horizon occurs at a depth of 50-60 cm.

Two 1 m² units were excavated in mound 14JF448, one near the center and the other near its southern edge (Figure 2). The former contained artifacts, including potsherds, chipped-stone tools, lithic debris, mussel shell, animal bone, over 1200 g of daub, and a considerable quantity of burned limestone, quartzite, and sandstone (Table 3). This material was encountered throughout the unit to its maximum depth of 57 cm. Unit 2 contained a comparable amount and variety of cultural material to a depth of at least 60 cm (Table 4). From about 56 cm to this depth a great amount of daub occurred throughout the unit, including a mass of large fragments in one area, designated Feature 1. This mass of daub, which extended to 66 cm, was removed as a single sample and retained for flotation. As in Unit 1, artifacts were found at all levels and their horizontal distribution is fairly uniform (note the quantities of ceramics, flakes, and daub; Table 4). Aside from a minor peak of body sherds found in level 3, the most striking difference in distribution is a significant increase in the amount of daub encountered in the lowest level.

Flotation of a sample from the lowest excavated level in Unit 1 and of Feature 1 from Unit 2 yielded a variety of cultural material (Table 5). Of particular interest is the presence of animal remains, including fish vertebrae and scales from both units and a turtle plastron from Unit 1, in both samples. Given the yield from the small samples recovered, use of flotation at any future investigation of this site will undoubtedly provide more information about subsistence practices of the Grasshopper Falls phase and, perhaps, on the duration or

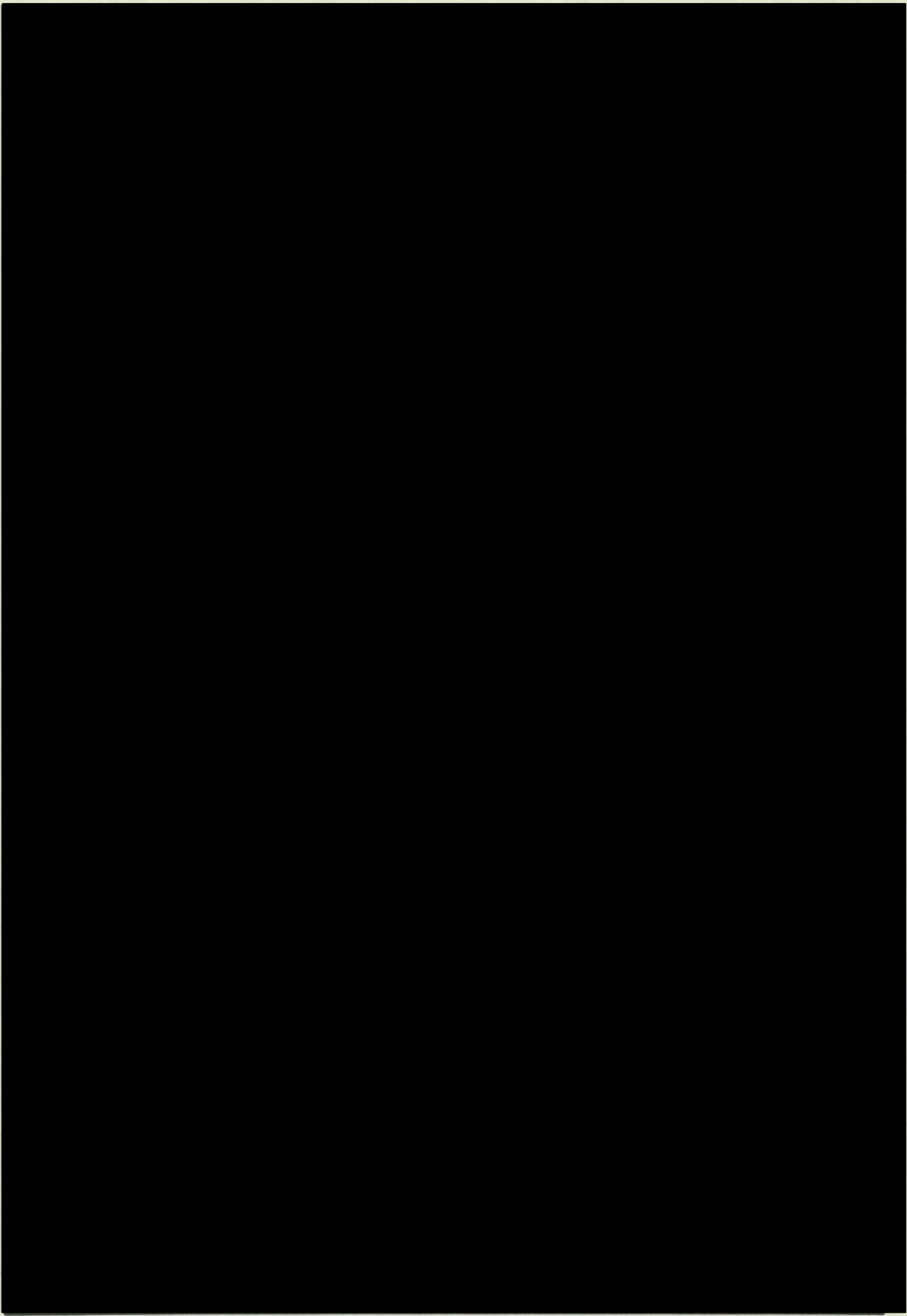


Figure 2. Map of the Reichart site.



Figure 3. Autumn view of site 14JF448.

season of site occupation.

A soil core 1.7 m long was extracted from the mound between the two excavation units (Figure 2). It showed that the daub zone encountered in Unit 2 extends from 56 to 75 cm in depth. This zone may represent the remains of a structure from the major period of occupation. A few pieces of daub and burned earth were noted between that zone and the abrupt contact of the AB horizon with the B horizon at 96 cm. If these lower pieces of material are not attributable to rodent disturbance, then the cultural deposits near the center of the mound may well be almost 1 m thick.

Though of limited extent, the excavations detected a contrast between the two mounds in terms of structural evidence. Mound 14JF449 contains little daub; mound 14JF448 contains a considerable quantity of this material. Whether this reflects differences in the nature of any habitation structures that existed at each

locality is a problem that can be addressed by more extensive excavation.

Artifacts recovered at both mounds are comparable. The two test units at mound 14JF448 yielded 371 ceramic sherds, including 9 rims. The single test unit at mound 14JF449 yielded 105 sherds of which 4 were rim fragments. The total sample of 476 sherds provided a sample of 145 analyzable pieces (i.e., those with surface areas of at least 2 cm²). Within this sample, body thickness ranged from 5 to 14 mm with a mean of 9 mm. Temper was either grit (n=99) or sand (n=45). Evidence of shell temper was found in 1 sherd. Exterior surfaces of the majority of sherds were either cordmarked, partially smoothed, or brushed. Rim sherds represent the variety currently recognized for Grasshopper Falls ware. They include slightly constricted, straight, and everted forms. One of the larger fragments from mound 14JF448 (Figure 4c) came from a vessel with a mouth diameter of 26 cm. Three rim sherds bear decorative treatments including

Table 2
Cultural Material from Unit 1,
Mound 449: Reichart Site

Level (cm)	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60
Rim Sherds	--	--	--	2	--	--
Body Sherds	18	15	11	24	31	4
Potlids	--	--	--	2	1	--
Shatter	4	8	2	9	8	4
Flakes	20	28	26	35	35	13
Cores	--	3	1	2	2	2
Tested Material	1	--	--	--	1	1
Biface	--	--	--	1	--	--
Shell	--	--	--	--	--	25
Bone	--	--	--	5	1	??
Daub (gms)	9	9	8	20	38	11
Limestone (gms)	--	--	144	97	854	164
Sandstone (gms)	--	22	92	73	22	--

oblique impressions near a thinned lip (Figure 5b) and oval stick impressions just below the lip (Figure 5c-d). Chipped-stone tools include a Scallorn arrow point, small biface tip, and larger biface fragments (Figure 5).

THE QUIXOTE SITE

Like the Reichart site, the Quixote site consists of paired mounds. [REDACTED]

[REDACTED] Like the Reichart site, the Quixote site area has never been cultivated. It was in a pasture that included some native prairie grasses when it was discovered by Milton Reichart during his survey of Cedar Creek in 1972-1973 and remains so today (Figure 7) (Reichart 1974). The only apparent disturbance to the site occurred when a windmill, of which only remnants of the foundation currently exist, was constructed on the mound nearest the stream. It was this feature which led Reichart to name the site for Cervantes' romantic character, who was known to tilt at windmills. The low

mounds are both about 17 m in diameter and about 12 m apart. Reichart (1974:54-55)

Table 3
Cultural Material from Unit 1,
Mound 448: Reichart Site

Level (cm)	1 0-10	2&3 10-30	3 30-40	4 40-50	5 50-57
Rim Sherds	1	5	--	--	2
Body Sherds	11	70	19	43	19
Potlids	--	3	--	1	--
Shatter	4	16	8	6	3
Flakes	22	71	23	27	31
Cores	--	1	2	--	2
Tested Material	1	1	--	--	2
Ret./Ut. Flakes	--	2	1	1	1
Projectile Points	--	1	--	--	--
Hammerstone	--	--	--	--	1
Shell	--	5	--	--	1
Bone	4	8	6	11	1 vial
Daub (gms)	138	446	183	195	270
Limestone (gms)	7	57	57	562	510
Sandstone (gms)	15	45	87	--	--
Quartzite (gms)	75	340	128	230	315

Table 4
Cultural Material from Unit 2,
Mound 448: Reichart Site

Level (cm)	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60
Rim Sherds	--	1	3	1	1	--
Body Sherds	17	15	65	14	12	37
Potlids	--	2	1	1	--	--
Shatter	7	10	12	5	9	12
Flakes	23	20	32	19	27	25
Cores	--	--	4	2	4	2
Tested Material	--	--	2	1	1	--
Projectile Point	--	--	--	--	1	--
Shell	--	--	1	--	--	--
Daub (gms)	203	145	172	191	131	599
Limestone (gms)	5	33	136	140	205	1013
Sandstone (gms)	2	--	2	--	12	--
Quartzite (gms)	27	32	280	11	198	350

excavated a small (12x16 in deep) trowel test in each mound and recovered a few flakes, body sherds, pieces of bone, and burned limestone and earth from each.

Fifteen shovel tests were dug in the vicinity of the mounds to determine the extent of the site (Figure 6). These tests demonstrated the site extends to a ravine on its southeastern margin and for a distance of about 10 m beyond the mounds to the west and southwest. A single 1 m² test pit was excavated near the center of each mound and a third in the area between them where shovel tests had suggested a hearth might be present. Unit 1 occurred in the northernmost mound, designated Mound A, and Unit 2 occurred in Mound B. At a depth of 40 cm in Unit 1, a few large pieces of burned limestone, pottery, and other debris were encountered and designated Feature 1. While the level at which this material occurred might have been a living surface, it does not represent the earliest occupation of the site. Artifacts continued to be found here to a depth of 61 cm (Table 6). Below that level was a sterile substrate of compacted fine sands, weathered quartzite pebbles, and ferrous oxides.

Large pieces of burned limestone and other artifacts like that in Unit 1 were also encountered in Unit 2. Designated Feature 2, this concentration occurred at the same depth as Feature 1 and may represent a contemporaneous living surface. However, as in the case of Mound A, the deposits in Mound B extend to greater depths. Moreover, the concentration of artifacts at depths of 40 cm in both mounds (i.e., the features) is not reflected in the overall vertical distribution of cultural material, as a comparison of Tables 6 and 7 reveals. In Unit 2, artifacts were found throughout all levels to a depth of at least 62 cm. As at the Reichart site mounds, the vertical distribution of cultural material is fairly uniform and there is no apparent occupational hiatus. Unlike mound 14JF448 at the Reichart site, however, neither of these mounds yielded significant quantities of daub. Whether this is attributable to a difference in the habitations that resulted in the mounds remains to be seen.

Unit 3 failed to yield the hoped-for hearth, though it contained an assortment of lithics, ceramics, and burned stone (Table 8). Given the lower elevation of the ground in the area of this unit, however, it was not surprising to note

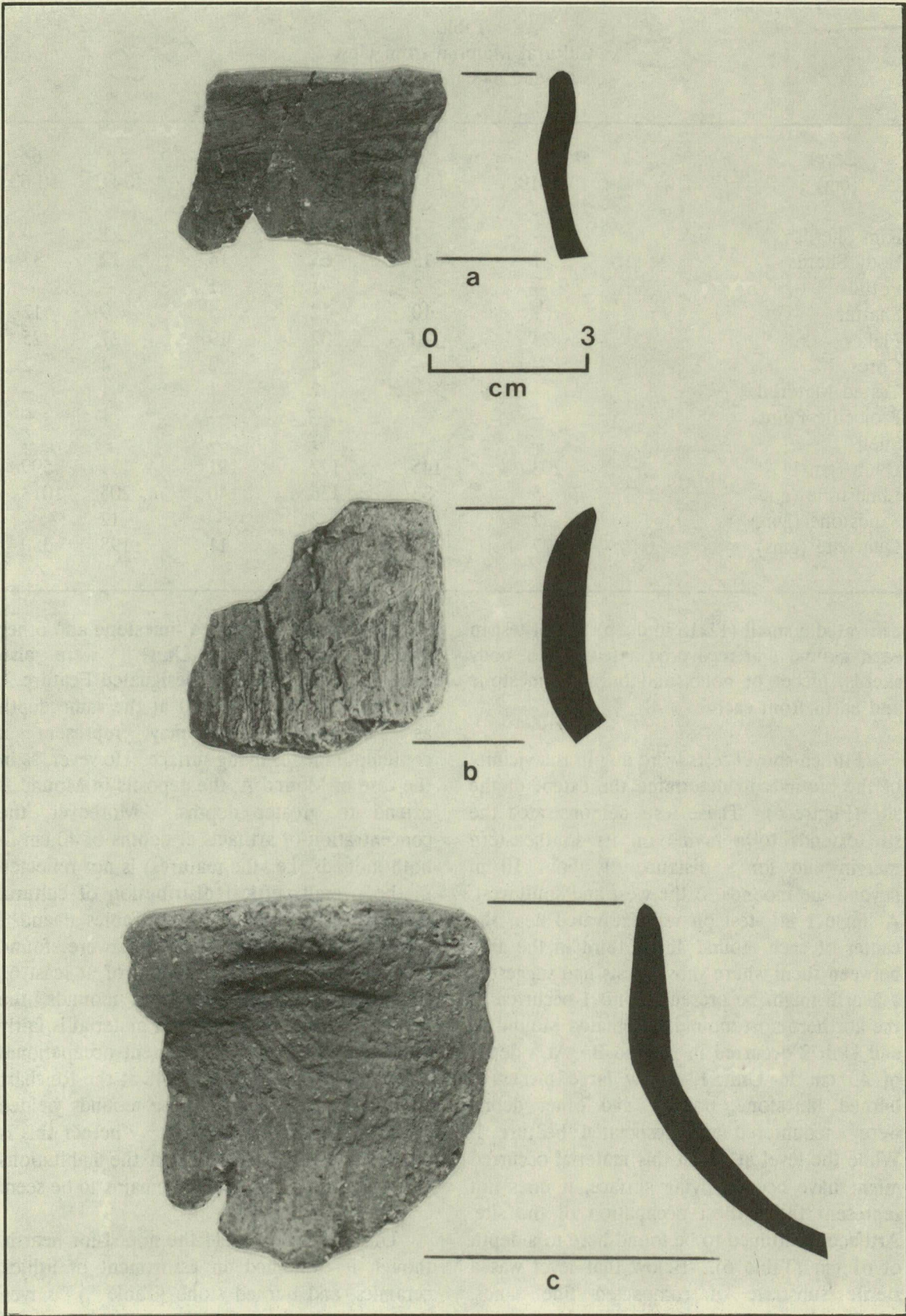


Figure 4. Selected rim sherds from the Reichart site. Right side of all profiles is exterior surface of sherd.

Table 5
Material from Flotation Samples,
Mound 448: Reichart Site

Test Unit	xu1	xu2
Level	5	Feature 1
(cm)	50-60	56-66
Body Sherds	34	--
Chips	84	60
Bone	82	66
Charcoal (gms)	1	2.5
Daub (gms)	120	884
Quartzite (gms)	5.5	--
Sandstone (gms)	4.5	--

that the deposits here were more shallow and that the sterile substrate was encountered sooner (i.e., at a depth of 35 cm). Five gallon flotation samples were recovered from each of the lower two levels in both mound units and these contained finer amounts of the debris encountered during excavation (Table 9). As at the Reichart site, this process yielded animal remains, including mussel shell, fish vertebrae and scales, a tooth of an unspecified canid, and rodent elements (probably intrusive). This technique should be applied during any future work at the site in order to obtain greater samples of such subsistence data. Other faunal remains recovered during excavation include elements of cottontail, beaver, and deer. In conjunction with flotation remains, these indicate reliance on animals of woodland, riverine, and prairie-forest edge habitats.

The test units and shovel tests yielded a total of 264 ceramic sherds, of which 4 are rim fragments. Forty-four of these pieces, including all rims, were of analyzable size. Body thickness of the sample ranged from 6 to 13 mm with a mean of 9 mm. Temper was either sand (n=23) or grit (n=19). Exterior surfaces were cordmarked (n=13), smoothed (n=12), or partially smoothed (n=18). Rim sherds display the variety characteristic of Grasshopper Falls ware (Figure 8, 9b). Among them are cordmarked, brushed, and smoothed forms with

flattened or rounded lips. Profiles range from constricted to straight to everted. Interior horizontal brushing is evident on 1 rim (Figure 8b); others are smoothed in that respect. Mouth diameter, measurable on 1 of these fragments (Figure 8c), was at least 26 cm.

A ceramic pipe stem from Feature 1 (Figure 9a) is a new addition to the inventory of the material culture of the Grasshopper Falls phase. Its color, excluding dark gray fire clouds, is dark yellowish brown. The bore hole enters the mouth symmetrically but is off-center at the broken end of the stem. Slight flaring of the stem at this end suggests it broke just at the point of inflection of the bowl. The soil within the bore, though saved for that purpose, has not yet undergone microscopic analysis for plant remains. Macroscopic inspection of this soil, however, has not revealed any carbonized material. Chipped-stone tools include 6 biface fragments and 3 Scallorn arrow points. Of the latter (Figure 9c-d), 2 are complete and a third lacks its base.

RESEARCH PROBLEMS: A GUIDE TO FUTURE INVESTIGATION

In summary, findings from the Reichart and Quixote sites indicate both have single components with deep deposits that have been spared agricultural disturbance. In this regard, they are unique and promise to yield to future excavation a great deal of new information about the nature of the Grasshopper Falls phase in particular and about Plains Woodland adaptations in the lower Kansas River basin in general. Among the problems that can be approached during such research are the following:

- 1) Do the sites represent continuous occupation or periodic abandonment and reoccupation?

Excavations indicate that the mounds at both the Reichart and Quixote sites were built up through what appears to have been uninterrupted occupations. However, more extensive excavation of these sites entailing three dimensional plotting of artifacts and documentation of natural disturbance processes is required in order to document this. If the

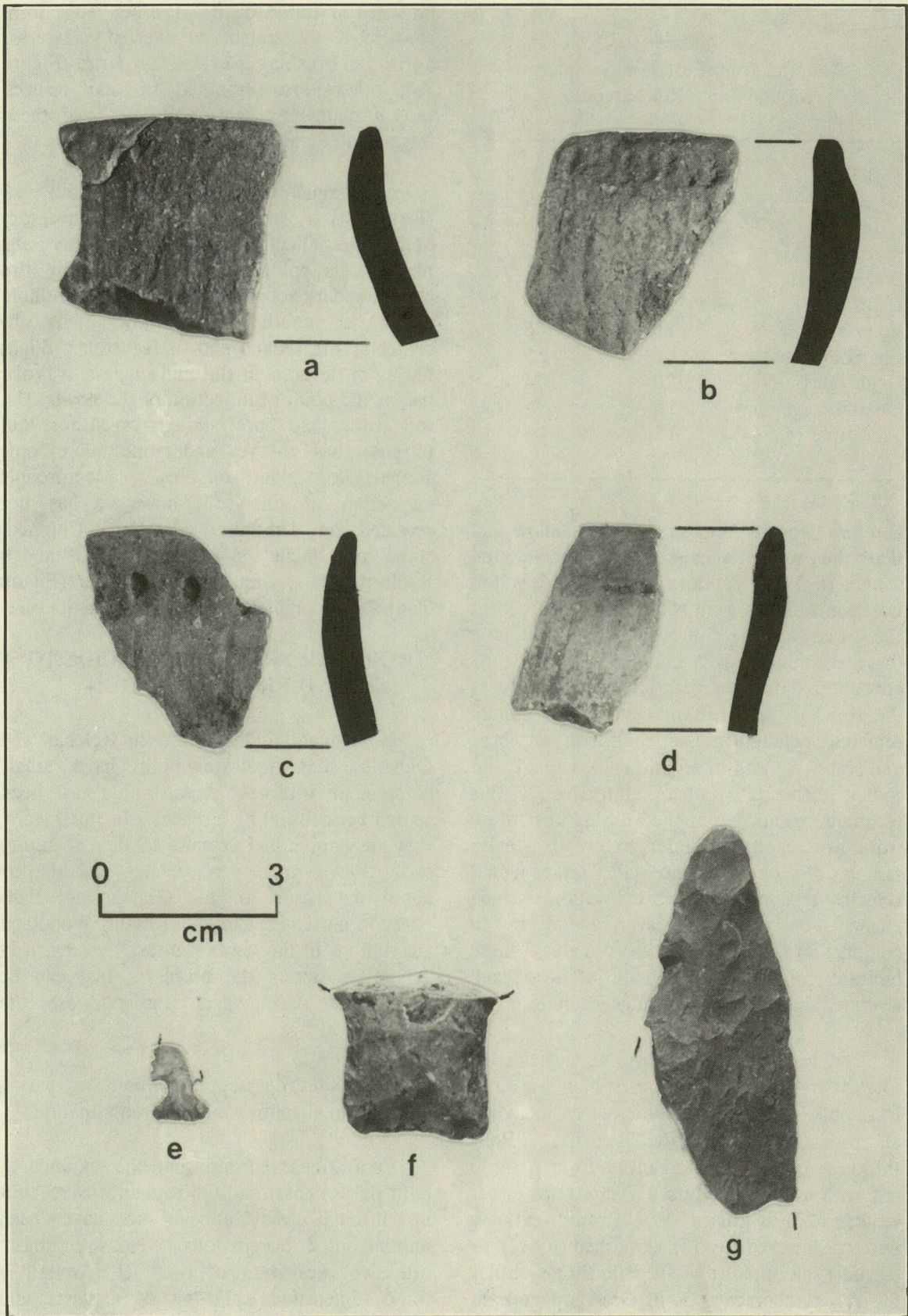


Figure 5. Rim sherds (a-d), arrow point fragment (e), base of a square-stemmed biface (f), and biface tip (g) from the Reichart site.

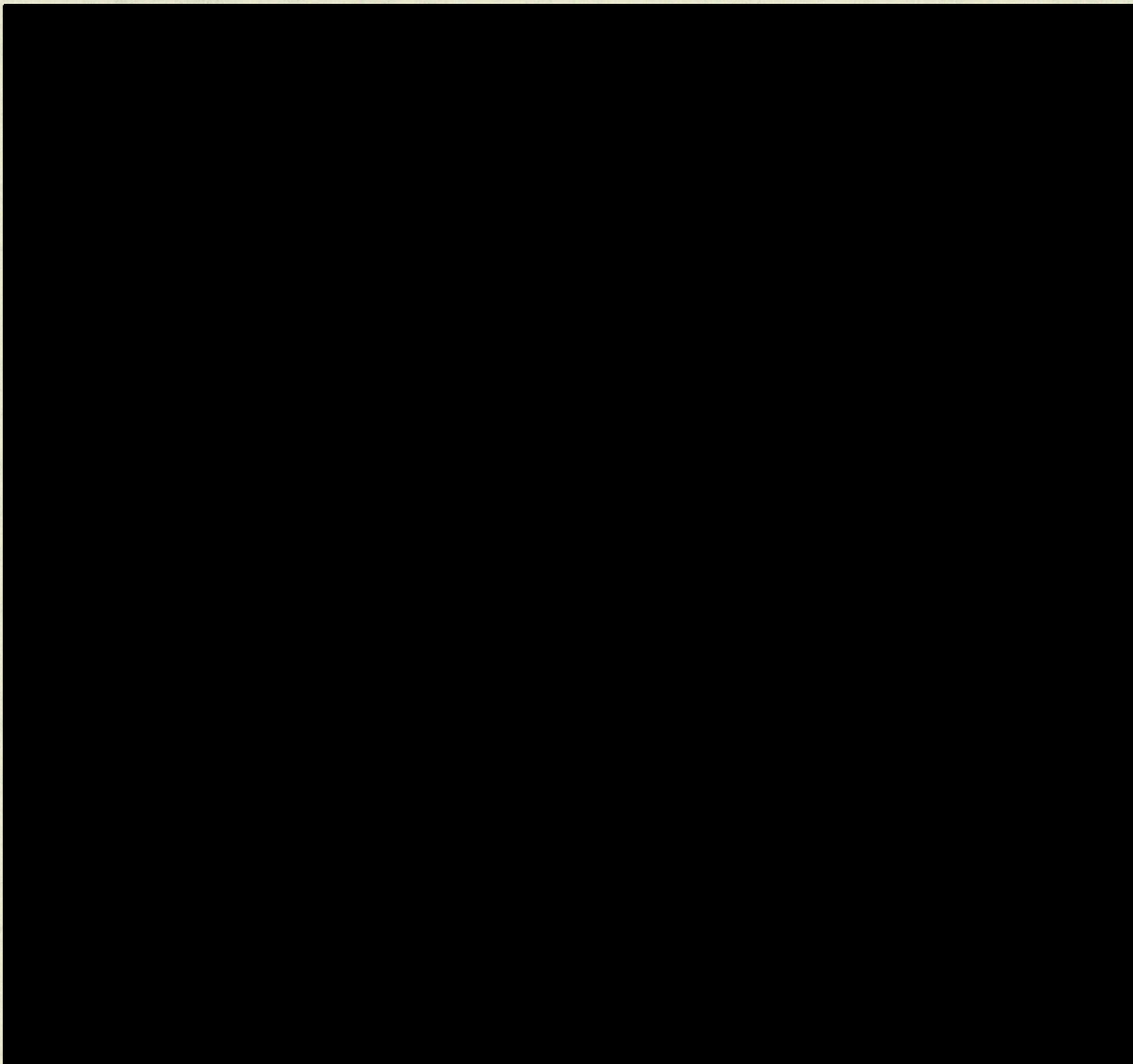


Figure 6. Map of the Quixote site.

occupations were indeed continuous, such a finding would support the evidence of sedentism from the Avoca site and differ from the brief or periodic occupancy characteristic of most other Grasshopper Falls phase habitations.

2) To what extent does the biological assemblage from the sites reflect the form of subsistence practiced by the inhabitants and the season of their occupation?

This question can be addressed through the use of flotation and detailed analysis of floral and faunal assemblages. Evidence of seasonal occupation (e.g., autumn-winter) in combination with complementary evidence from upland sites

such as Senn's Hill may demonstrate the seasonally-determined shifting residence pattern inferred by Kivett (1970) for some Plains Woodland groups in Nebraska and tentatively applied to the Grasshopper Falls phase by Reichart (1974) and Reynolds (1979:81-82). Conversely, evidence for year-round occupation would provide additional support for a sedentary residency pattern.

3) Does the floral evidence preserved at both sites include evidence for agriculture?

No evidence of food production, either in the form of farming implements or cultigens, was found at the type sites (Reynolds 1979:78-

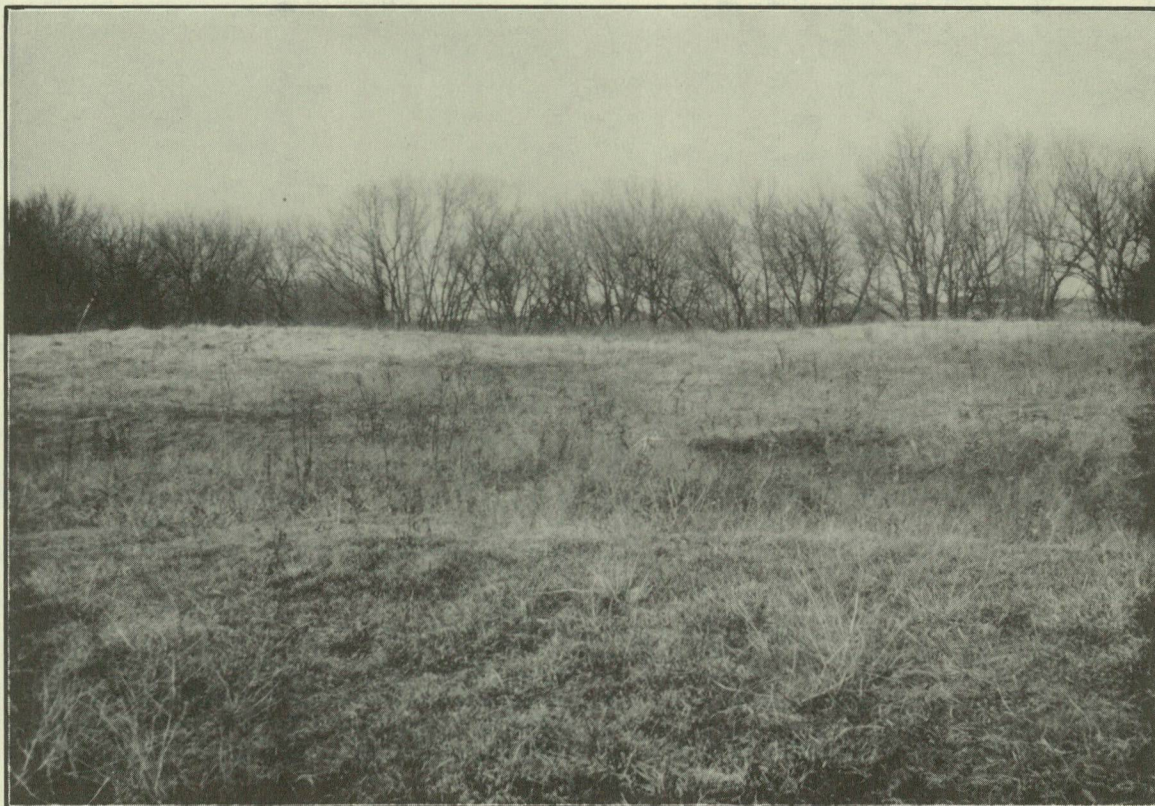


Figure 7. Paired mounds in pasture at the Quixote site.

79) or the four sites excavated in the Grove Reservoir area (Reynolds 1987:185). However, these sites had not benefited from the application of the flotation technique. As noted above, limited application of this method during excavation of the Avoca site and 14JN349 in Jackson County, Kansas, yielded some remains of cultigens, possible evidence of an agricultural component to the economy (Adair 1991). An attempt to discern cultigens in the flotation samples from the Reichart and Quixote sites either as macrofloral or phytolith remains was not successful (Adair 1990; Bozarth 1990). However, extensive use of this method during any future work at the sites may yield such evidence or, conversely, support the alternative hypothesis that the subsistence pattern of the Grasshopper Falls phase was one of "primary forest efficiency."

4) Do the sites contain structural evidence such as post molds that enable us to reconstruct the habitations?

The shape of the mounds at the Reichart

and Quixote sites is circular. Whether this reflects the shape of any lodge is now conjectural. The structures outlined by post molds at all other sites of the Grasshopper Falls phase are oval and the variable amounts of daub noted at each indicate they may not have been completely covered with earth (Reynolds 1987:161-182; Baugh 1991). The thick daub zone in the lower levels of mound 14JF448 at the Reichart site may attest to a more substantial structure, perhaps comparable to that of the Avoca site. The relative scarcity of daub at the other mounds is more in keeping with the variable presence of this material at most other Grasshopper Falls sites. Should the mounds prove to mask structural remains, their undisturbed nature promises a fair degree of integrity. Post molds and pits would not be truncated. Consequently, their shape, dimensions and other attributes should be distinct, provide the basis for fruitful comparison with other excavated houses, and perhaps yield new structural information.

5) What are the form, function, and location

Table 6
Cultural Material from Unit 1,
Mound A at the Quixote Site

Level (cm)	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-67*
Rim Sherds	--	--	--	1	2	--	--
Body Sherds	--	26	46	7	16	10	2
Ceramic Pipe Stem	--	--	--	--	1	--	--
Potlids	--	2	3	2	1	1	--
Shatter	1	6	8	4	4	--	1
Flakes	--	43	44	28	40	33	9
Cores	--	1	--	--	3	1	--
Tested Material	--	--	1	2	1	2	1
Ret./Ut. Flake	--	2	--	--	--	--	--
Projectile Point	--	--	1	--	1	--	--
Biface Fragment	--	2	--	--	--	--	--
Hammerstone	--	1	--	--	--	--	--
Bone Fragment	--	--	1	--	2	4	3

*one half level excavated

of any associated features (e.g., storage pits and hearths)?

None of the excavated habitations at the type sites had interior hearths and, indeed, most of the storage pits discovered were extramural (Reynolds 1979). If this pattern holds true at the Reichart and Quixote sites it may reflect some aspect of the social organization or season of site occupation. For example, the single large hearth between the houses at the Anderson site might have been a "communal" gathering place. Similar findings at the two sites might also be so interpreted. The single structure excavated at the Avoca site contained a central hearth and at least 12 interior storage pits. The contrast between this site and other excavated sites of the Grasshopper Falls phase may reflect differences in seasonality of occupation. If indeed the occupations of lowland sites other than Avoca were seasonally determined and occurred during the colder months, the extramural location of their associated hearths is a peculiarity that begs explanation. Such an explanation may be

possible with seasonal data recovered from the Reichart and Quixote sites.

6) Do the paired mounds at both sites reflect the social organization and size of the occupying group?

Reynolds (1979:81) describes paired habitation structures at the Malm and Anderson sites and suggests these reflect occupation by nuclear or extended families with a total site population of 12 to 15 persons. Two houses were also present at 14JN313 and 14SH322 (this latter site may have had a third house). The presence of two mounds at both the Reichart and Quixote sites may also reflect paired structures. Further work at the sites may support the residence pattern and population estimate inferred by Reynolds for the Grasshopper Falls phase. In contrast with the single structures at other sites and in conjunction with radiometric dates, data from the mound sites may indicate whether the differences in the number and size of structures reflect changes in residency patterns through

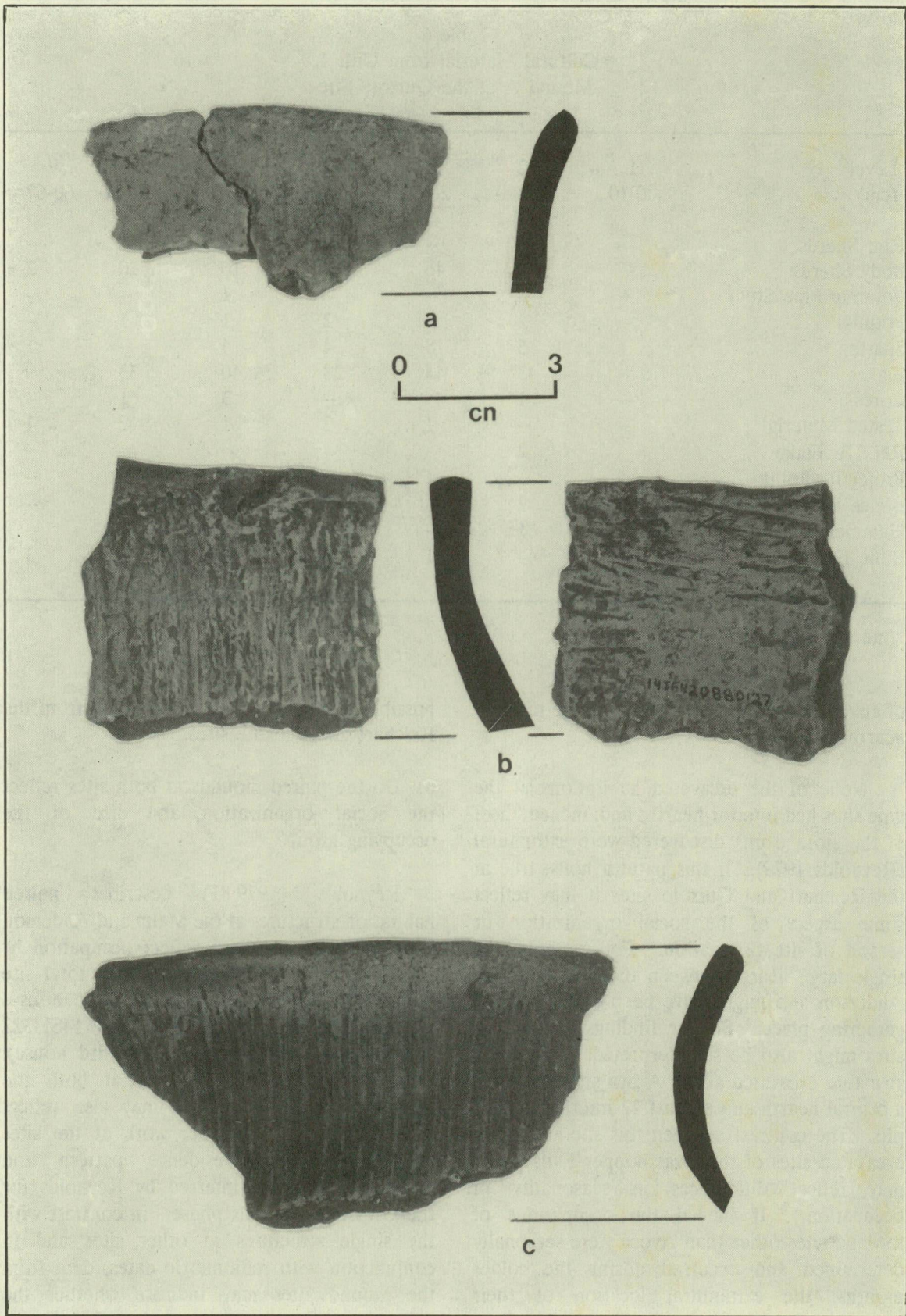


Figure 8. Rim sherds from the Quixote site. Right side of the profiles is exterior surface. Artifact b includes exterior (left) and interior (right) surfaces.

Table 7
Cultural Material from Unit 2,
Mound B at the Quixote Site

Level (cm)	1 0-10	2 10-20	3 20-30	4 30-40	5 40-50	6 50-60	7 60-64*
Rim Sherds	--	--	--	--	1	1	--
Body Sherds	2	24	12	17	8	15	3
Potlids	--	2	3	--	--	--	--
Shatter	1	2	1	3	1	--	--
Flakes	6	26	12	17	14	10	4
Cores	--	1	--	--	--	--	--
Tested Material	--	4	2	2	2	4	--
Projectile Point	--	--	--	--	--	1	--
Biface Fragments	--	2	--	1	--	--	--
Bone Fragments	--	3	1	8	8	22	1
Shell Fragments	--	--	--	--	--	2	1

*one half level excavated

Table 8
Cultural Material from Unit 3
at the Quixote Site

Level (cm)	1 0-10	2 10-20	3 20-30	4 30-40
Rim Sherds	--	--	1	--
Body Sherds	2	28	14	4
Potlids	--	--	1	--
Shatter	1	5	2	1
Flakes	4	35	15	9
Tested Material	--	1	1	2
Ret./Ut. Flake	--	1	1	--
Biface Fragment	1	--	--	--
Bone Fragments	--	--	1	1

time during the Grasshopper Falls phase, as opposed to variability attributable to seasonal differences.

CONCLUSIONS

The Quixote and Reichart sites offer archeologists the rare opportunity to address the research problems outlined above, as well as others, from a strict comparative approach. For example, excavation of one mound at each site with identical methods of comprehensive data recovery and state-of-the-art documentation will provide the basis for meaningful pattern recognition on an intersite scope. Such an approach would overcome the shortcomings inherent in comparison of data from these sites to Grasshopper Falls sites excavated with different methodologies that carried technological or financial constraints. At the same time, information acquired at either of the sites can also be compared to others of the phase in order to enhance our understanding of the variability within the Grasshopper Falls culture. Finally, the Quixote and Reichart sites can be compared to Plains Woodland sites elsewhere in the Central Plains and provide greater comprehension of the nature of regional adaptations which characterized that period.

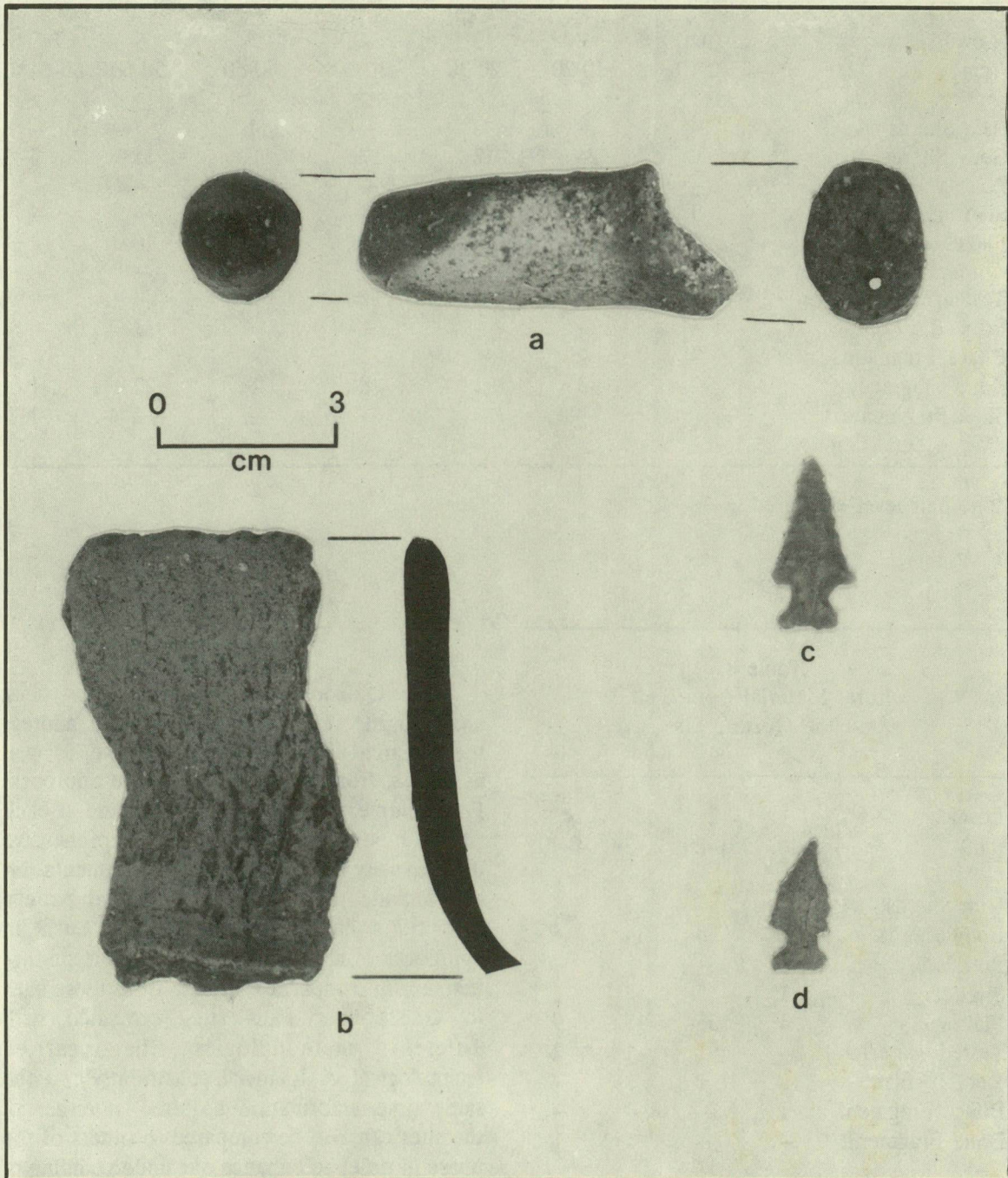


Figure 9. Pipe stem (a), rim sherd (b), and arrow points (c-d) from the Quixote site.

Table 9
Heavy Fraction of Flotation Samples
Quixote Site

Test Unit	xu1	xu1	xu2	xu2
Level	5	6	5	6
(cm)	40-50	50-60	40-50	50-60
Rim Sherds	--	--	--	--
Body Sherds	--	1	8	3
Bead	1	--	--	--
Chips	126	91	43	82
Bone Fragments	50	??	84	125
Charcoal (gms)	4	1	1	1
Daub (gms)	12	12	11	11
Limestone (gms)	4	2	5	2
Sandstone (gms)	5	5	17	9
Quartzite (gms)	2	--	9	1

Acknowledgments. Our investigation of the Reichart and Quixote sites was supported by the Kansas City District, U.S. Army Corps of Engineers. Since both sites were recommended for nomination to the National Register of Historic Places, the Corps has taken steps to protect them from any future disturbance. We are grateful to those persons who participated in the investigation of these sites in the field and laboratory, including Steve Bozarth, Ted Craig, Michelle Dunlap, Tim Gillen, Aaron Longenecker, Byron Loosle, and Heather Wright. We extend a special thanks to Milton Reichart. Milton discovered and recorded the sites, provided us with valuable information about them, guided us to the sites (drawing our attention, in particular, to the Quixote site, which had not been included in the original Corps contract) and participated in our test excavations. Though we are responsible for any flaws in this work, a lion's share of any merit it contains will be shared with him.

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- 1990a Tale of a Pot. *Kansas Anthropological Association Newsletter* 2(1):3-4.
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BOOK REVIEWS

The four Oklahoma Archeological Survey technical reports summarized below are generally easy to use, thorough, and well written. Although two lack abstracts, all are arranged so that basic project information is readily available. Site and artifact descriptions are included as appendices, and tables, maps, and photographs are clear. Illustration of diagnostic artifacts, rather than simply assigning type names, is particularly helpful.

Reviewed by Virginia A. Wulfsuhle, Kansas State Historical Society.

Archeological Investigations within the Central Little River Drainage Basin, Cleveland and Pottawatomie Counties Oklahoma. MICHAEL C. MOORE. Archeological Survey Report 31. Oklahoma Archeological Survey, University of Oklahoma, Norman, 1988. xii + 186 pp., \$6.00 (paper).

In the summer of 1985 the Oklahoma Archeological Survey carried out a survey and testing project along the central Little River, a major east-west drainage in the Osage Savanna biotic district of central Oklahoma. The reconnaissance located forty-two prehistoric and five historic sites that indicated lengthy occupation and varied use of the river basin. Prehistoric sites were classified as base camps (n=11), temporary camps (n=27), and quarry/workshops (n=10, predominantly Ogallala quartzite). Artifacts indicated diverse activities, including stone tool manufacture (hammerstones, tested cobbles, cobble bifaces, thick and thin bifaces, waste flakes, and blocky debris), hunting/butchering (projectile points, sidescrapers, and bone), plant processing (manos), hide processing (endscrapers), and storage/cooking (pottery). Sixteen of the prehistoric sites were attributed to Archaic, Woodland, and Plains Village occupations. Components represented are one Archaic (on the basis of unidentified dartpoints, boatstone, gorget, and celt fragments), one Early to Middle Archaic (Plainview, Calf Creek, and unidentified dart and arrowpoints), one Middle Archaic/Woodland (Calf Creek, parallel and contracting stem dartpoints, corner-notched

dartpoints, Reed and Scallorn arrowpoints, unidentified corner- and side-notched arrowpoints), seven Late Archaic/Woodland (Ensor, Gary, Edgewood, and unidentified corner-notched dartpoints), two Woodland (cordmarked pottery sherds, Gary dartpoint, and small points), one Middle Archaic through Plains Village (numerous dart and arrowpoints), and two Plains Village (Washita and unidentified small arrowpoints). Forty are situated on upland ridges, and eight occupy high terraces overlooking wide floodplains. Alluviation either discouraged long-term habitation of the floodplains or buried the remains. Comparisons were made with Steinacher's (1986) work in the upper Little River drainage. Test excavations at the Thunderbird Dam site (34CL46) demonstrated that this site no longer has integrity. However, the Rose-Fast site (34PT28) has 80 cm of cultural deposit, two trash pits (one of which yielded a radiocarbon date of A.D. 390 \pm 80), burned rock oven, daub concentration, cache of chert, and diagnostic artifacts (Gary and Scallorn projectile points, cordmarked and plain pottery). This base camp was judged eligible for nomination to the National Register of Historic Places.

Archeological Survey of Clearcut Areas along Little River, McCurtain and Pushmataha Counties, Oklahoma. LARRY NEAL. Archeological Resource Survey Report 32. Oklahoma Archeological Survey, University of Oklahoma, Norman, 1988. x + 201 pp. \$6.00 (paper).

In 1984 the Oklahoma Archeological Society initiated field work in the Ouachita Mountains region to determine the kinds of sites that could be expected in the uplands along Little River and to assess the affects of clearcutting practices on sites in the oak-hickory forests of southeastern Oklahoma. Approximately 3,000 acres in thirty-one clearcuts were surveyed in parcels varying from 10 to 640 acres. Thirteen base camps, thirty-six limited activity sites, and two historic habitations were recorded and analyzed on the basis of eight variables: landform, height above water, distance to water,

soil series and type (texture), aspect or facing, site type, and cultural affiliation. Components, ranging in age from late Paleoindian/Early Archaic to recent historic, numbered four Early Archaic, twelve Middle Archaic, fourteen Late Archaic, three possibly Woodland, five Caddo, and four historic. Clearcutting was found to be extremely destructive to sites, especially to small base camps and limited activity camps for resource extraction in upland settings where soils are shallow.

Archeology of the Mixed Grass Prairie, Phases II and III: Hay and Cyclone Creeks Surveys and Predictive Modeling in the Quartermaster Watershed. MICHAEL C. MOORE. Archeological Resource Survey Report 33. Oklahoma Archeological Survey, University of Oklahoma, Norman, 1988. xiv + 244 pp. \$10.00 (paper).

Between the summer of 1983 and spring of 1985 the Oklahoma Archeological Survey carried out a systematic reconnaissance of the Hay and Cyclone creek drainages in Roger Mills County of west-central Oklahoma to better understand the ways in which prehistoric people exploited different settings and resources within the Quartermaster Creek watershed. A predictive model was developed, using data from one hundred and ninety-two sites with one hundred and ninety-six components, analyzed on the basis of ten variables: time period (i.e., Paleoindian, Archaic, Incipient Plains Village, Plains village, and temporally unassigned), site function (i.e., village, large base camp, small base camp, secondary camp, quarry/workshop), environmental zone, site size, site slope, nearest water source, distance to water, tributary order, elevation, and altitude above water.

The model shows that shifts in the use of environmental zones and in site functions took place between the Incipient Plains Village and Plains Village periods. Incipient Plains Village sites are most likely to occur in floodplain/terrace zones, permanent stream settings, and lower elevations, while Plains Village sites usually are found in upland zones, permanent and intermittent stream settings, and higher elevations. Base camps occur in both floodplain/terrace and upland settings, whereas

secondary camps and quarry/workshops are in upland areas. Base camps and secondary camps are generally found along permanent streams, and quarry/workshops are on both permanent and intermittent streams. About half of all sites occur between 0 and 100 m from water, with the vast majority between 0 to 200 m, and between 0 and 25 m above nearest water source. Over half of the quarries are found at elevations between 570 and 623 m.

An Archeological Reconnaissance of the Wolf Creek Drainage Basin, Ellis County, Oklahoma. RICHARD R. DRASS AND CHRISTOPHER L. TURNER. Archeological Resource Survey Report 35. Oklahoma Archeological Survey, University of Oklahoma, Norman, 1989. xi + 205 pp. \$9.00 (paper).

The Oklahoma Archeological Survey performed a reconnaissance of a portion of Wolf Creek basin on the eastern margin of the High Plains in northwestern Oklahoma during the winter of 1986-1987. A 25% sample of the 20 mi² study area between Shattuck, Oklahoma, and the Texas state line was surveyed to identify the variety of topographic/environmental settings within the basin utilized by various prehistoric groups. A total of thirty-eight new sites were discovered, one previously recorded site was visited, and eighteen animal bone locations and isolated artifact finds were documented. Occupation of the area spanned Late Archaic (about 2000 B.C.) through the early historic periods, and fossilized bison and mammoth bones may be evidence for use extending back 10,000 years. The best documented sites were late Plains Village (A.D. 1200-1500) base camps, situated on ridge toes and terraces near tributaries. Examination of pottery and other artifacts suggested that these were related to Antelope Creek phase groups of the Oklahoma and Texas panhandles, although no stone slab structures characteristic of this culture were found. Eleven historic farmsteads, dating from the 1890s to 1950, were identified. Four were dugouts in the uplands north of Wolf Creek. Disturbances to sites appear to be relatively minor, with cultivation and erosion being the most widespread factors.

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