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Contents

A Limited Archeological Survey of the
Turkey Creek Drainage,
Dickinson County, Kansas

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KANSAS ANTHROPOLOGICAL ASSOCIATION

The Kansas Anthropological Association is the oldest amateur archeological organization in the state. Its membership is made up of individuals and institutions interested in the prehistoric and historic peoples of the area. The objectives and goals of the Association are the preservation and interpretation of archeological and ethnographic remains within the state; the scientific study, investigation, and interpretation of archeological remains and ethnographical materials; the publication and distribution of information concerning Kansas archeology and ethnology; and the development and promotion of a greater public interest and appreciation for the heritage of the state.

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A LIMITED ARCHEOLOGICAL SURVEY OF THE TURKEY CREEK DRAINAGE, DICKINSON COUNTY, KANSAS

Mud Creek Chapter
Kansas Anthropological Association

The Kansas Anthropologist 17(1), 1996, pp. 1-77

A limited pedestrian archeological survey of the Turkey Creek drainage was conducted during October 1978, 1979, and 1980. The creek is a tributary of the Smoky Hill River in central Kansas. The project was sponsored by the Mud Creek Chapter of the Kansas Anthropological Association (KAA) with statewide participation by members and the staff of the Archeology Office of the Kansas State Historical Society (KSHS).

Forty-nine prehistoric sites have been designated in the area covered by this project. Eight were recorded by the University of Kansas (KU) field crews in 1968 and two by KSHS archeologists in 1979. The remaining 39 sites were recorded as a result of the KAA surveys. Eight of the previously recorded sites were revisited.

Evidence recovered in the investigation suggests that the drainage has been occupied intermittently, but not continuously, since the Paleoindian period, or ca. 10,000 B.C., to the present. Most of the prehistoric sites appear to represent Ceramic Period occupation, presumed to date from about 0 to A.D. 1500. This report describes the recorded sites and the recovered cultural material. General conclusions based on this evidence are presented along with limited recommendations relative to future investigation. Some of these sites merit no further work; others require additional survey and subsurface testing to determine their archeological significance.

INTRODUCTION

The Kansas Anthropological Association (KAA) was formed in April 1955, and the Mud Creek Chapter was chartered in December 1974. Some objectives of the organization are to display and preserve the prehistory of Kansas and to make a scientific study, investigation, and interpretation of archeological remains, as well as to publish and distribute information concerning the ethnology and archeology of Kansas.

This report describes the results of investigations on Turkey Creek in Dickinson County, Kansas. The field work was conducted in two-day increments in 1978, 1979, and 1980, and periodic surveys as opportunities arose by members of the KAA working under the general guidance of the Kansas State Historical Society (KSHS) Archeology Office. Direct responsibility for the method of work, the integrity of the information, and the final report rested with the Mud Creek Chapter, which hosted the event. In recognition of the fact that archeological work is not complete until the written report has been made available to the scientific community and in compliance with the constitution of the KAA (Bylaws, Section 9 B), which requires the members to take responsibility for the entire process of such an activity, preliminary reports describing each season's work appeared in Volume 24 (1-2) of the *Kansas Anthropological Association Newsletter* (Detrich 1978) and Volume 1 (2-3) and Volume 2 (1) of the *Kansas Anthropological Association Journal* (Detrich 1980, Mulder 1981).

This report summarizes all that has been done to date and sets goals for further investigation. The KAA Turkey Creek survey was designed to obtain information related to the extent and nature of prehistoric occupation of the drainage. Reports of sites and collections in the vicinity suggested the need for further investigation. The proximity to Mud Creek Chapter members' homes and to Camp Brown were additional advantages in this location. Near the creek's mouth the natural topography of the vicinity has been altered by the construction of buildings, roadways, and other facilities associated with Brown Memorial Park, resulting in the disturbance and probable destruction of prehistoric evidence. Road construction, soil conservation efforts, and modern farm operations have also had significant impact upon the original landscape.

Recognizing these factors and desiring to sponsor a fall social event with a purpose for KAA members, the chapter decided to undertake this project, variously termed a "Fall Fling" and the "Turkey Creek Survey." As the project evolved, it became a limited survey of

the Turkey Creek valley from its mouth to a point nine road miles upstream. Participation by approximately 35 KAA members from across Kansas included several KSHS staff members: Thomas A. Witty, Jr., State Archeologist; John D. Reynolds, Assistant State Archeologist; Don D. Rowlison, Public Archeologist; Bill Brogan, Project Archeologist; Diane L. Good, Archeology Lab Supervisor; and Verna Detrich, Lab Technician. Several of the participants brought their families for fellowship, which was an emphasized part of the set goal. Many staff changes have occurred since the field work was begun. Most sincere thanks are extended to all of the Kansas state archeology staff.

The conclusions in this report are tentative, and the recommendations are intended to be a guide for future investigations. This watershed has an abundance of archeological evidence, but erosion and land use are continuing to impact the prehistoric and early historical cultural resources. It is hoped that the Fall Fling project will result in more intensive future investigations in the Turkey Creek drainage of Dickinson County.

PREHISTORIC NATURAL SETTING

If we are to appreciate the land forms that are familiar to us today, we must try to understand the continual process of change that has occurred and, indeed, is still occurring. This time of change precedes by millions of years the story of man on the plains. Paralleling the research in the archeological field, efforts by geologists, soil scientists, and others have added to our understanding of the natural setting. Most of this work has focused on the major drainages and includes little discussion of the tributaries, such as Turkey Creek.

The valley that is the location of our project has been studied, however, in a report by Sloanaker (1950), *The Geomorphology and Pleistocene Drainage History of the Turkey Creek Basin.* The project study area was not directly affected by the glaciation of North America during the Pleistocene as was northeast Kansas. However, during this period deposition of water-borne sediments from melting glacial ice, windblown loess, and stream down cutting began to fashion the landscape we know today (Dreezen 1970:9-10).

Sloanaker (1950) has identified three major terraces that he named after local communities. The highest, the Navarre terrace, is composed of conglomerate of probable Rocky Mountain origin, of varying degrees of cementation. Notable and datable in this terrace is the presence of Pearlette volcanic ash, "placed rather definitely in Pleistocene chronology at the late Kansas-Early Yarmouthian time ... indicating the building up of the major portion of the terrace presumably during the retreat of the Kansan glacier" (Sloanaker 1950:33-34). A mantle of reddish-brown loess is visible at many places on the top and slopes of this terrace.

The Hope terrace, the second defined by Sloanaker's work, yielded fossil molluscs that were compared with those of a known age from the higher terrace. Not enough was known about the association except to conclude that local conditions must have been much as they are today with the grassland and forest border along an unsilted stream. Identification and comments were made by A. B. Leonard (1950), paleontologist of the Kansas State Geological Survey.

The Elmo terrace, which was the lowest defined, was believed to represent a period of cut and fill, perhaps of Wisconsin or post-Wisconsin age, and at a time of fluctuations in precipitation. The stage then was set for the advent of early man into the plains into an environment very similar to that known to us today.

More recent research, however, has centered on the effect of Euro-American settlement upon the prehistoric record. In the Turkey Creek region agricultural practices and the resulting erosion from water and wind are changing the face of the land. Sloanaker (1950:69) described the declining productivity and the unsuitability for certain crops that is a result of soil movement down slope. This soil has been called post-settlement alluvium by soil scientists (Mandel 1993). The concern archeologically is identification of the degree of masking of prehistoric resources that has taken place. No studies of the immediate area exist. Three deeply buried sites have been exposed in the drainage by mechanical land modification within the past several decades: 14DN10, 14DN318, and 14DN441. More such sites can be assumed to be present in the valley.

MODERN ENVIRONMENTAL SETTING

Dickinson County lies in the eastern one-third of Kansas in the Central Lowland province of the Interior Plains. More specifically, the county is located on the western edge of the Flint Hills Upland, an area of flint-bearing limestone that extends from north to south across the state. The region is bisected by the Kansas River. South of the river the Flint Hills are bordered by the Osage Cuestas on the east and the gentle slopes of the Arkansas River valley on the west. North of the river elevations are less extreme, and the limestone strata are less apparent (Schoewe 1949:286-289). Elevation near the east Dickinson County line is 1,000 feet above sea level. Isolated elevations approaching

1,500 feet can be found along the western edge in the Smoky Hills region and along the Dickinson-Marion County line to the south at the divide between the Kansas and Arkansas River drainages. The cherty limestones and shales from the hills are presently much in demand for road surfacing materials and have furnished stone for many historic structures, as well as being a probable source of raw materials for aboriginal stone tool manufacturing.

The rolling topography of the county is interrupted by many small spring-fed creeks and by the Smoky Hill River, a tributary of the Kansas River. Turkey Creek is one of several perennial north-south-trending streams in Dickinson County that flow into the Smoky Hill River. The main stem of the creek and its several branches flow some 26 miles from their origin in northern Marion County to the junction with the Smoky Hill River south of Abilene. Turkey Creek valley is less than two miles wide, with the elevation at the hill line seldom exceeding 100 feet above the valley floor. The drainage area, however, includes 64.7 square miles, 80 percent of which is in Dickinson County and 20 percent in Marion County (Trump 1982).

Once an area of tall grass prairie, most of the uplands, as well as the alluvial terraces and bottom lands, are now cultivated. The fertile soils have supported a productive agricultural community since the arrival of the first Euro-Americans in the mid-nineteenth century. The water-laid soils on the flood plain and low stream terraces have been enriched for centuries by the accumulation of decomposing prairie grasses. Soil scientists have classified these characteristically deep and dark silt loam and silty clay soils as Hobbs, Muir, and Sutphen. The more shallow soils on the slopes and ridge tops along Turkey Creek were formed from material weathered from Permian rocks; these Irwin and Clime soils consist of dark gray or brown silty clay loam. The third major soil type in the survey area is the Geary series, found on some of the side slopes. The parent material of Geary soils was Loveland loess, deposited during the Illinoian glaciation (Jantz 1980:3-4).

The northeastern region of Kansas, which includes Dickinson County and the Turkey Creek survey area, has been described as being a temperate climate type with hot summers, cold winters, and moderate precipitation. Although the average temperature for the warmest months is 76 to 90 degrees, daily extremes may rise to more than 100 degrees for a few days during July and August. The highest temperature of 113 degrees was recorded at Herington in August 1936. The coldest months of the year may be well below freezing, with -29 degrees being recorded at Abilene in February 1899. Precipitation amounts range from 25 to 40 inches per year, with 70 percent of this moisture falling from April through September (Flora 1948). However, prolonged periods without rain are not unusual. This factor, combined with high temperatures and strong winds during much of the 183-day frost-free growing period from late April to early October, results in great variations in crop yield for the modern farmer, as it surely must have for prehistoric horticulturists.

On the other hand, small groups of people, who relied on hunting and gathering as a subsistence base, would have found the Turkey Creek environs a favorable place to live during at least a part of the year. Native prairie grasses, such as big and little bluestem, nourish the cattle herds today as they most certainly provided forage for bison, elk, and antelope in earlier times. Fringes of deciduous trees, including cottonwood, elm, hackberry, sycamore, oak, walnut, and ash, grew along the streams, supplying fuel, food products, and building materials. Underbrush furnished seclusion and browse for deer and habitat for smaller animals, such as fox, raccoon, bobcat, beaver, squirrel, and rabbit, and a variety of birds. Marshes and stream oxbows would have provided opportunities to add migrating waterfowl to the diet. Fish and shellfish were probably as abundant in the streams as they are now.

CULTURE HISTORY

Information for the understanding of culture history for Kansas is taken from the scheme proposed by the Archeology Office of the Kansas State Historical Society (Figure 1).

PRE-CERAMIC PERIOD

Probably the earliest known, though very thinly represented, time of human habitation in the Great Plains is the Paleoindian Period, beginning at least 12,000 years before the present. Small nomadic bands of hunters and gatherers, who hunted the now extinct mammoth and species of bison, left definitive cultural deposits, which today's archeologists can attribute to this time period. Possible fluctuations in climate at the end of the Pleistocene glaciation and the extinction of the large mammals were causative factors in the phasing out of the Paleoindian groups and their supplanting by a later people in the Archaic period (Rowlison 1980:11-12).

The Archaic period in the Central Plains is thought to have begun about 8000 B.C. and extended to the era of Christ, when human populations seemed to expand here. The economy was still primarily one of hunting

KANSAS CULTURAL SEQUENCE

	Archeological Period	Time Estimate	Physiographic Provinces: Dissected Till Plains	Osage Cuestas	Flint Hills Uplands	Arkansas River Lowlands	Dissected High Plains	High Plains	Subsistence Pattern
Historic	**Historic**	A.D. 1950	Americans of European, African, Asian, and Latin American Descent.						Industry & Commerce Mineral and Petroleum Exploitation Agri. & Livestock Production
		A.D. 1900	Large Numbers of Euro-Americans, Freed Slaves, and European Immigrants.						Industry & Commerce Agriculture & Livestock Production
		A.D. 1870	Immigrant Tribes Kansa	Immigrant Tribes Osage Kansa	Immigrant Tribes Osage Kansa	Wichita Comanche Cheyenne Kiowa Kiowa-Apache	Cheyenne Sioux Comanche Pawnee	Comanche Cheyenne Arapahoe Kiowa Kiowa-Apache Sioux Pawnee	Reservations Horse Nomads Bison Hunting Some Horticulture
	Euro-American Explorers								
	Historic **Late Ceramic** Protohistoric	A.D. 1800	Kansa	Osage Wichita	Osage Kansa	Wichita Dismal River Aspect	Kansa Pawnee	Pawnee Cuartelejo Apache	Hunting Horticulture Gathering
	Coronado Expedition	A.D. 1541	Oneota Tradition	Neosho Focus Great Bend Aspect	Wichita Great Bend Aspect	Great Bend Aspect	White Rock Aspect Great Bend Aspect	Dismal River Aspect	
Prehistoric	**Middle Ceramic** Village Farmer	A.D. 1500	Nebraska Phase Clinton Phase Steed-Kisker Phase Pomona Variant	Clinton Phase Pomona Variant	Smoky Hill Aspect Steed-Kisker like Pomona Variant	Pratt Complex Bluff Creek Complex	Upper Republican Phase Smoky Hill Aspect	Pratt Complex Upper Republican	Hunting Horticulture Gathering
	Plains (Late) Woodland **Early Ceramic** Middle Woodland	A.D. 1000 A.D.	Grasshopper Falls Phase Valley Variant Kansas City Hopewell	Greenwood Phase Grasshopper Falls Phase Cuesta Phase	Deer Creek Phase Schultz Focus Butler Phase Greenwood Phase Cuesta Phase	Keith Variant Kansas City Hopewell	Keith Variant	Keith Variant	Incipient Horticulture Hunting Gathering
	Archaic	B.C. 7,000 B.C.	Nebo Hill Phase Munkers Creek Phase	Nebo Hill Phase El Dorado Phase Munkers Creek Phase Stigenwalt Complex	Walnut Phase El Dorado Phase Chelsea Phase Black Vermillion Phase Munkers Creek Phase	Unclassified Archaic Cultural Manifestations		El Dorado Phase Logan Creek Phase	Hunting Gathering
	Paleoindian	10,000	Random Discoveries of Paleoindian Projectile Points (Clovis, Folsom, Plainview, Hellgap, Dalton, etc.)						Hunting

1993 KSHS

Figure 1. Kansas cultural sequence, proposed by the Archeology Office of the Kansas State Historical Society in 1993.

and gathering. Probably the Archaic people depended more upon vegetal foodstuffs than the earlier Paleoindians. This is indicated by the appearance of grinding slabs found in Archaic artifact assemblages. Chipped and polished axes, celts, and other chipped stone tools are found in these inventories. Though adequate for the task, these tools do not generally exhibit the fine chipping craftsmanship associated with the earlier Paleoindians. Archaic projectile points are usually large and heavy lanceolate forms, frequently stemmed or corner-notched.

Fauna on the Central Plains during Archaic times probably included the modern forms of bison, deer, elk, and other small mammals. Dog remains have been found among the archeological inventories.

The Archaic period is generally thought to be a time of change, necessitating adaptation to the environment to accommodate a growing population. Plains Archaic sites usually are small temporary camps or short term habitation sites.

CERAMIC CULTURES

The Archaic period seems to have ended on the Central Plains at about the time of Christ. This probably is because of an infiltration of new technologies, environmental adaptations, and social systems from the Eastern Woodlands. The most obvious of the changes, indicated by the artifact remains, was the introduction of ceramic materials. In Kansas the presence of ceramic materials indicates post-Archaic times. The gradual use of the bow and arrow, which replaced the larger dart point with the smaller arrow point, is another technological change in the Ceramic period. People of the Ceramic cultures were beginning to cultivate gardens as a means of supplementing the foodstuffs hunted and gathered (Thies 1981:12-15).

Early Ceramic Period

In Kansas the development of the Early Ceramic cultures brought the infusion of people and diffusion of ideas from the Eastern Woodlands. One of the earliest Eastern Woodland manifestations in this area is the complex culture of the Kansas City Hopewell. Materials with Hopewellian influence have been found throughout the eastern half of Kansas.

Other Early Ceramic cultures had simpler technologies. In this region three cultures have been defined: Keith focus predominately in western Kansas and Nebraska (Kivett 1953); Grasshopper Falls phase along the Delaware River in northeast Kansas (Reynolds 1979); and Greenwood phase in east-central Kansas, both in the Flint Hills and the Osage Cuestas south of the Kansas River (Calabrese 1967).

A variety of structural elements characterize the Early Ceramic period: burial mounds, or stone-filled tumuli, which are often found on prominent bluff tops, and house remains, indicated by widely spaced post mold patterns, sometimes associated with clay daub.

Artifact inventories include potsherds, chipped and polished stone tools, and ornaments made of stone, bone, and shell. Middle Woodland pottery vessels are usually medium to large with relatively straight or slightly rounded sides, conical bases, and smoothed surfaces. These are often decorated by cross hatching and/or zoned dentate stamping and rocker stamping. The Plains Woodland vessels are usually plain with cord-roughened exteriors, although the Greenwood phase includes smoothed surfaces.

The chipped stone artifacts range from small corner-notched points, which are indicators of the use of the bow and arrow, to the larger projectile points that are triangular or somewhat ovate with expanding, straight, or contracting stems, suggesting the use of atlatls. Chipped stone knives are usually thin ovate or triangular bifaces, either plain or stemmed, which were used as cutting tools. Also found in Plains Woodland sites are celts, drills, scrapers, and ground stone tools, such as mullers or axes. Bone tools, various ornaments, and several kinds of pipes are associated with Early Ceramic peoples.

Middle Ceramic Period

The cumulative changes in technologies and settlement result in a new culture grouping by A.D. 1000. This era, known as the Middle Ceramic period, was defined by John Champe (1946).

In discussing the Middle Ceramic period, Dr. Waldo R. Wedel (1959:566) lists the Central Plains tradition traits as follows: economy divided equally between maize horticulture and hunting; semi-permanent villages and house sites with no fortification; square or rectangular earthlodges with rounded corners, four primary roof supports arranged around a central fire place, and extended entryways.

The presence of domesticated corn, beans, and squash is documented archeologically. Middle Ceramic artifact inventories include gardening tools, such as bison scapula hoes, digging implements, and bone cleavers.

Middle Ceramic pottery inventories consist of small to large globular jars, having rounded bases with smoothed or cord-roughened exterior surfaces. Rims may be straight or flaring. Collared rims are common. Variations of incising, tool impression, pinching, or

notching of lips occasionally occur. Some of the vessels have handles. As a rule, Central Plains potters tempered their clay with sand, weathered shale particles, crushed sherds, or crushed bone. Pottery discs with drilled holes in the center are also present. It is possible that these discs are spindle whorls, which would indicate spinning or the use of a pump drill. Clay and stone pipes are also present.

Middle Ceramic tools include those made of chipped and ground stone. Small, thin triangular projectile points were made with single or double side notches, and sometimes a single basal notch is also present. The Pomona sites display a percentage of corner-notched and stemmed points. Knives were generally triangular, some being diamond-shaped with alternately beveled edges. Chipped and ground stone celts, mullers, and grinding slabs, grooved arrow shaft smoothers, plano-convex scrapers, and modified flakes are a part of the stone tool inventory.

The Middle Ceramic site 14OT5, a Smoky Hill culture village, had many bone tools, such as beamers, fleshers, rib shaft wrenches, awls, deer mandible graters, digging tools, beads, bone arm bands, and socketed digging stick tips made from bison tibia (Witty 1978:57-58). Some sites also contained drilled animal phalanges, which may have been used as a cup and pin game. The relatively small samples of bone and shell recovered from some sites may be attributed to soil conditions rather than indicating little hunting or usage of tools.

Besides camp and village sites, Middle Ceramic burial sites have been discovered. Perhaps the best known is the Whiteford Site (14SA1), also known as the Salina Burial Pit. This is a cemetery complex containing predominately flexed burials. A Pomona focus cemetery near Melvern Reservoir revealed similar flexed burials except these graves were usually covered with limestone slabs.

Wedel (1959:570-571) speculated that widespread drought caused horticultural difficulties and the abandonment of Central Plains sites by A.D. 1500.

Late Ceramic/Protohistoric Period

At the end of the Middle Ceramic period (ca. A.D. 1500), apparently the Central Plains was mostly abandoned by settled groups. Some distinct manifestations were present in the following years, which is known archeologically as the Late Ceramic or Protohistoric Period. To summarize, Witty's (1982:17) description is repeated:

Late Ceramic, ca. A.D. 1500 to 1800

Sometimes referred to as the Protohistoric, the Late Ceramic represents the period of contact of the preliterate aboriginal cultures with the Euro-American exploration and settlement. Gardening efficiency and the abundance of bison allowed populations to nucleate in large villages. In 1541 the Coronado expedition entered the Plains in search of the land of Quivira. Location of those villages has since been identified with sites in Rice and McPherson counties. The Indian group which he met was early Wichita bands who reportedly dwelt in some 25 villages, several of which had over 200 lodges. Archeologically, this culture has been identified as the Great Bend aspect. To the north, the people of Harahey, probably Pawnee bands, were recorded by the Spanish. To the west, the Dismal River phase has been identified with the Athabascan speaking peoples, bands of Plains Apaches using dog transport and hunting bison. In the middle or latter part of the seventeenth century, Siouan speaking peoples from the east established villages on the Osage, Missouri and Kansas rivers. Historically, these people are known as Osage and the Kansa. Representative artifactual traits of the Late Ceramic are: globular or conoidal flat-based pottery jars with smooth or simple stamped exterior surface treatment; small, plain, triangular projectile points, the grooved maul; extensive use of bone and antler tools for gardening and digging as well as hide fleshing and scraping.

Habitations of these protohistoric people have been found to be relatively large. The Pawnee built earthlodges, usually around four large central posts. The Great Bend aspect houses were large and dome-shaped, covered with thatch.

Late Ceramic sites often contain items of European manufacture, although those specific locations may never have been visited by Europeans. Extensive trade among aboriginal groups in this period is indicated by artifacts of marine shell, turquoise, obsidian and Alibates agatized dolomite from the Texas panhandle, and occasionally pieces of copper.

HISTORIC PERIOD

In Kansas the Historic Period begins with the advent of Coronado in A.D. 1541 and his visit to the

Quiviran villages, as mentioned by Witty (1982:17) in his discussion of the Great Bend aspect or Protohistoric Wichita. Sections of chain mail and datable Puebloan pottery sherds have been found at the Thompson site and the Paint Creek site (Wedel 1959:319-320).

Milton Reichart's (1978, 1979) research in 1977, using diaries and early reports, summarized the explorations of Bourgmont, who entered what is now Kansas in 1724. The Frenchman met with the Pawnee and traveled over much of central Kansas.

The Kansa were visited in 1792 by Pedro Vial, who was exploring for the governor of New Mexico. A Kansa hunting party mistreated Vial's group when they met on the Arkansas near the present city of Great Bend. The next summer Vial traveled with Pawnee guides up the Republican and brought back a report of a " ... village, on a river—the Smoky Hill, possibly in the vicinity of present Abilene, containing some 300 warriors" (Barry 1972:37).

John Wesley Powell (1891), Director of the Smithsonian Institution Bureau of American Ethnology in the 1890s, discussed the Caddoan family: "So the Caddoans must have held possession of the greater part of what is now Kansas down to about 1780" (Connelley 1918:443). In 1836 the Tappage (noisy) Pawnee, also known as the Smoky Hill Pawnee, pointed out remains of their villages to Powell's informants along the Smoky. Other Caddoans of the larger area include the Grand Pawnee, the Republican Pawnee, and the Loup Pawnee. However, the Siouan-speaking Kansa, for whom the state was named, seemed to inhabit only a small part of the territory, mostly in what is now eastern Kansas.

The Republican Band of the Pawnee has been identified with earthlodge sites in north-central Kansas. The Oneota are known to have settled in extreme northeastern Kansas and southern Nebraska. The Plains Apache lived primarily on the High Plains of western Kansas and Nebraska and eastern Colorado.

Documentary evidence becomes available to supplement the archeological record during the Historic period. The early Spanish and French writings and those left by the new Americans record a period of change and conflict during which many Indian groups entered and left the region. The Wichita villages were abandoned for locations in the Southern Plains. By the early 1700s the Comanche had entered the Western and Southern Plains. These equestrian nomads forced the Plains Apache to the south and west. Kansas was occupied by other displaced groups who had given up gardening, in many cases, for High Plains bison hunting with the horse. These were the Cheyenne, Arapaho, Kiowa, and Kiowa-Apache. These horse nomads dominated the western High Plains into the latter part of this period. The Pawnee, Kansa, and Osage village tribes still maintained semipermanent settlements, surrounded by their gardens. However, seasonal bison hunts during the summer and winter were made to the west for as much as six months each year.

The Indian removal policy of the United States government brought immigrant tribes from the east to resettle on specific reservation lands. These groups were the Shawnee, Delaware, Kickapoo, Chippewa, Ottawa, Peoria, Kaskaskia, Wea, Piankeshaw, Potawatomi, Miami, Sac and Fox, and Iowa (Witty 1982:18).

The Great Bend aspect encompasses the Late Ceramic, the Protohistoric, and the Historic time periods. In the early 1700s the Wichita apparently abandoned this Kansas land and moved into what is now Oklahoma and Texas. Other tribes were moving too.

> By 1792 the Kansa had abandoned their old habitat along the Missouri River and moved west, resettling in north-central or northeastern Kansas along the Kansas River .... Both the Kansa and Osage used the Flint Hills region as a hunting ground (Thies 1981:23).

The Osage had claimed lands in southwestern Missouri, Arkansas, Oklahoma, and southeast Kansas. They were forced west in the 1820s to the Verdigris and Neosho drainages of Kansas and eastern Oklahoma.

To describe the inhabitants and geography of central Kansas in 1806, Lieutenant Zebulon Pike's record for September 25 is quoted.

> We marched at a good hour, and in about eight miles struck a very large road, on which the Spanish troops had returned, and on which we could yet discover the grass beaten down in the direction which they went.
>
> When we arrived within about three miles of the village we were requested to remain, as the ceremony of receiving the Osage into the towns was to be performed here. There was a small circular spot, clear of grass, before which the Osage sat down. We were a small distance in advance of the Indians. The Pawnees then advanced to within a mile of us, halted, divided into two troops, and came on each flank at full charge, making all the gestures and performing the maneuvers of a real war charge. They then encircled us around, and the chief advanced in the center and gave us his hand. His name was Caracterish .... [A pipe was presented.]

> We then proceeded. The chief, Lieutenant Wilkinson and myself in front, my sergeant, on a white horse, next, with the colors, then our horses and baggage, escorted by our men, with the Pawnees on each side, running races, etc. When we arrived on the hill over the town we were again halted, and the Osage seated in a row; when each Pawnee who intended so to do presented them with a horse, and gave a pipe to smoke to the Osage to whom he had made the present. In this manner were eight horses given. Lieutenant Wilkinson then proceeded with the party to the river above the town and encamped ....
>
> I went up to our camp in the evening, having a young Pawnee with me loaded with corn for my men .... From the eastern branch (Smoky) of the Kansas river (by our route) to the Pawnee republic, on the Republican fork, the prairies are low, the grass high, the country abounding with salines, and the earth appearing to be impregnated with nitrous and common salts .... For some distance from the Osage villages you only find deer, then elk, then cabrie [antelope], and finally buffalo (Martin 1902:308).

In 1811 George Sibley, government factor at Fort Osage on the Missouri River, traveled through southern Nebraska and central and western Kansas visiting Pawnee, Kansa, and Osage villages. He crossed both the Solomon and the Saline rivers (Barry 1972:65-66).

In 1819 a detachment from Major Stephen H. Long's Sixth Cavalry visited the large Kansa village on the Blue River at what is now Manhattan and traveled to the Pawnee villages on the Loup River. After wintering above Omaha, this expeditionary force, which included zoologist Thomas Say; geologist August Jessup, naturalist Titan Peale, artist Samuel Seymour, guide and interpreter John Dougherty, and several others, followed the Platte River to the Rocky Mountains before turning back to the plains along the downstream course of the Arkansas River (James 1923).

The year 1825 began the reservation era in Kansas. The Kansa were confined to a 30-mile-wide reservation along the Kansas River. The Osage were restricted to a 50- by 75-mile strip in southeast Kansas. Though there were numerous rebellions, reservation desertions, "massacres," and other uprisings, Indians were slowly being pushed out of Kansas. Except for the reservations for the Sac and Fox and Kickapoo near Hiawatha in northeast Kansas, a strip along the Verdigris for the Osage, and in 1846 a small area around Council Grove for the Kansa (about 30 miles from Turkey Creek), white settlers were claiming the land. The Osage and Kansa were moved into Oklahoma in 1872 and 1873 (Thies 1981:22-23).

A growing number of Euro-Americans had settled in the area by the early 1800s. Principally, these were in eastern Kansas. Military posts were established to keep white squatters from infringing upon Indian reservations and incurring retaliatory raids of warfare. More civilians were brought into the area in support of the military establishments; these brought in friends and family, and so the cycle went. White educators, missionaries, and traders came with the eastern Indians to the reservations that were being established in Kansas. More goods were needed. More land was taken.

The first Euro-American to reside in Dickinson County was George W. Freeman, who settled on Chapman Creek in 1855 (Baker 1931:6; Cregan et al. 1989:249). An 1855 map by Johnson and Reed outlines Camp Creek (now Turkey Creek) with its east and west branches. In 1855 Richard Mobley located at Reeder, now a lost town of uncertain location which is said to be near the present Solomon City, about 10 miles west of the Turkey Creek settlement. Mobley became a member of the Kansas House of Representatives in 1866 (Dawson 1908:275).

The present name of Turkey Creek is said to have originated because of an abundance of turkeys.

> August Packard ... was out looking for timber to supply a new sawmill at Junction City. He came to Wainscott creek and saw a flock of turkeys and followed them up the creek, when he returned, his oxen had wandered off and had gotten stuck in the mud, at the mouth of the creek. This story was told so many times, that the creek was called Turkey creek and even the new maps came out with this name too (Bross 1964:26).

By 1857 the Charles Staatz family was living on Lyons Creek. Mrs. Friederika Staatz (Shields 1918:150) recalled, "We paid for it [our land] by making wood shingles and hauling them to Ft. Riley." She told of attending an early wedding celebration. The new couple was William Staatz and Mary Rekkan.

> We left our home on Saturday to attend the wedding feast on Sunday. We took with us our Wisconsin cow and our chickens in a coop, our stove, and in fact, everything we had, for fear the Indians would take them while we were gone. The Indians never had stolen anything from us, but they were always begging, and we did not want to leave all our

goods where they might easily get them (Shields 1918:150).

Dickinson County was organized in 1857, with William Lamb appointed County Commissioner. He later served three terms in the legislature as a Free Stater (Dawson 1908:274).

In the spring of 1859, James Mead (1986) wrote, "I organized ... a company of boys ... we 'lit out' for the great plains." That fall Mead and his boys established a headquarters for fur trading on the Saline known as Mead's Ranch. The Kansas or Kaw Indians came from their reservation at Council Grove to hunt.

> Chief Shingawassa and his band camped in the heavy timber immediately back of our ranch, and they constantly asked us to trade with them .... So I loaded up what few furs and hides we had and started a man down to Leavenworth ... (Mead 1986:71).

Mead also included several interesting sketch maps of the areas he visited. It is logical the wagonload of supplies he sent east followed the Old Military Road past Schippel's Ferry on the Saline and along the Smoky near the mouth of Turkey Creek.

Preston B. Plumb was prospecting for a town site in 1859. He found that government contractors had bridged the Blue River, Chapman's Creek, Mud Creek, and the Saline River (Connelley 1915:277). George S. Park wrote about his trip made in June 1854 on the steamer Excel.

> The Excel made a short trip up the Smoky Hill ... we had great difficulty in getting around the short bends ... we saw a band of Fox Indians crossing over, going north on a buffalo hunt; and their motley procession stretched over the prairies for miles. Here and there in the party was carried a pole with a swan's neck and eagle's head and tail stuck upon it for a flag. They had with them about 500 horses .... Great was the surprise at seeing the Excel in these waters ... (Greene 1906:323).

This same volume carries excerpts from the Kansas City *Journal* of May 1859, reporting that the steamer Gus Linn was carrying 100 tons of freight up the Kansas to Fort Riley. It drew 15 inches of water (Greene 1906:346). However, in 1864 the Kansas Legislature declared the Kansas, Solomon, Republican, and Smoky Hill rivers unnavigable and authorized their bridging.

Bridging these streams opened the way for the stage roads. Although the military road to Salina and on west had been open since 1857, it utilized Schippel's Ferry on the Saline River in Saline County, which itself had been built from planking washed out from an earlier attempt to bridge the Smoky (Hughes 1988:49).

Lieutenant J. Fitch in his 1865 report to Butterfield, Superintendent of the Overland Despatch, wrote about the Smoky Hill Route.

> The country from Junction City to a point twelve miles on our road west of Salina is the finest stretch of land by far in the West. Noted for its heavy timber, its luxuriant grass, and the extraordinary richness of its soil. The country for the most part is under cultivation ... (Montgomery 1928:191).

Dickinson County settler T. C. Henry reported that he arrived in the area in 1867 and began to introduce the propagation of winter wheat to other farmers, thus improving wheat yields and making area farms more profitable in this climate (Henry 1906:502-506).

In 1859 Paul Tischauser located in Dickinson County. He established a grist mill by damming Turkey Creek some six miles south of Abilene in Newbern township (Neil Tischauser, personal communication, Salina, 1983). Leonard Schlegel and wife, Anna (Tischhouser), arrived in May of 1866.

> It is believed later that year of 1867 Schlegel and his brother-in-law, Paul Tischhouser, Jr., damed [sic] Turkey creek with logs and built a frame of timbers to be used as a saw mill of the simpliest [sic] kind. In the spring of 1868 the saw mill was converting logs into boards which settlers were bringing in; also Schlegel and Tischhouser sawed for themselves rough lumber needed to enlarge and convert the building into a grist mill ... [which] began operating in 1874 ....
>
> The Schlegel-Tischhouser Mill was an industry on Turkey Creek for almost 20 years—the late 1860's to the late 1880's. It was located a mile north and about 1 1/2 miles west of Donegal (Belle Springs) in section 26, Township 14S, Range 2E ... (Glatt 1950).

Note that the two brothers apparently spelled their surname differently.

Other early mills located on Turkey Creek are indicated in the map of early Dickinson County, printed in Andreas' (1883) *History of Kansas*. Evidence of these commercial structures and others of a domestic nature related to the early settlement period should be represented in the valley.

PREVIOUS ARCHEOLOGICAL INVESTIGATIONS

The discussion of previous investigations by archeologists has been arbitrarily limited to those taking place within a 50-mile radius of the study project (Figure 2). This area touches upon 17 counties in east-central Kansas.

The following excerpts from previous archeological investigations are of interest to those studying the Turkey Creek area. One must be aware that these early interpretations reflect the theories of their times. More recent evidence sometimes contradicts earlier findings. However, many of the conclusions of earlier investigators have been substantiated by later work. Credit needs to be given to these pioneers. May our works today be considered as thorough by tomorrow's scholars.

At the end of this section is a table (Table 1), which presents the information in briefer form. Each location is given a number that corresponds to a plotting on Figure 2.

LINDSBORG, 14MP1
(Figure 2, #1)

The first known excavations in the area to be scientifically reported occurred near Lindsborg. Professor Johan August Udden began to dig at the Paint Creek site in 1886. He published his remarkably precise and insightful work, *An Old Indian Village*, in 1900. The report outlined his rationale for the conclusion that this area may have been visited by Spanish expeditions, such as Coronado's in 1541.

His basis for this was largely the finding of chain mail fragments and other metal artifacts. Udden carefully described both the lithic evidence and ceramic ware found along Paint Creek. He concluded that the people who left these artifacts were hunters and gatherers who supplemented their food with limited agriculture. He found similarities in their lodge styles to those of the still living Wichita Indians and likenesses in the ceramic material to that of the Pawnee. He speculated that these people of the 1500s probably had ties with both of these historic tribes. The report stands as a thorough archeological investigation that has not been discredited by the subsequent years and more recent discoveries (see Lindsborg, Again).

PROVINCE OF QUIVIRA
(Figure 2, #2)

In 1898 Jacob Vradenberg Brower published *Quivira*. His first page map, "Province of Quivira," delineated a land primarily south of the Kansas River, extending west along the Smoky Hill to Lindsborg in what is now McPherson County. The province spanned Turkey Creek. In 1896 Brower reported remains of an old village on McDowell Creek in Geary County, which he called the Elliott site (Martin 1902:43). He declared the Elliott site to be the "center of Coronado's Quivira" (Judge 1982:190). He located another of his villages of Quivira on [redacted] near Junction City (Martin 1902:364). Brower was a less painstaking reporter than Udden. Much of his work was based upon reports of citizens of the day and surface collections. However, he did conclude that these early inhabitants did some farming.

William E. Richey also researched the route taken by Coronado to Quivira about this same time. He felt that Quivira should extend from near Lindsborg to McDowell Creek, which is northeast of Junction City.

Sara Judge (1982:196) prepared a paper to examine this controversy and concluded:

> The main concentration of what Coronado was describing as the village of the Quivirans is further to the southwest, in Rice and McPherson counties. This conclusion is based upon the discoveries of datable southwestern pottery sherds and Spanish artifacts, as well as the archeological evidence of a large aboriginal population inhabiting the area during the sixteenth century.

RILEY COUNTY BURIAL MOUNDS
(Figure 2, #3)

W. F. Griffing of Manhattan was a member of the KSHS's "Committee of Explorations" in the early 1900s. He reported:

> We followed the stream to Riley, crossed over to [redacted] on the Republican river; here we noted a few burial mounds on the bluffs near to town. Turning south, we followed the public road down the river, locating the most promising ones. We found several mounds near [redacted] ....

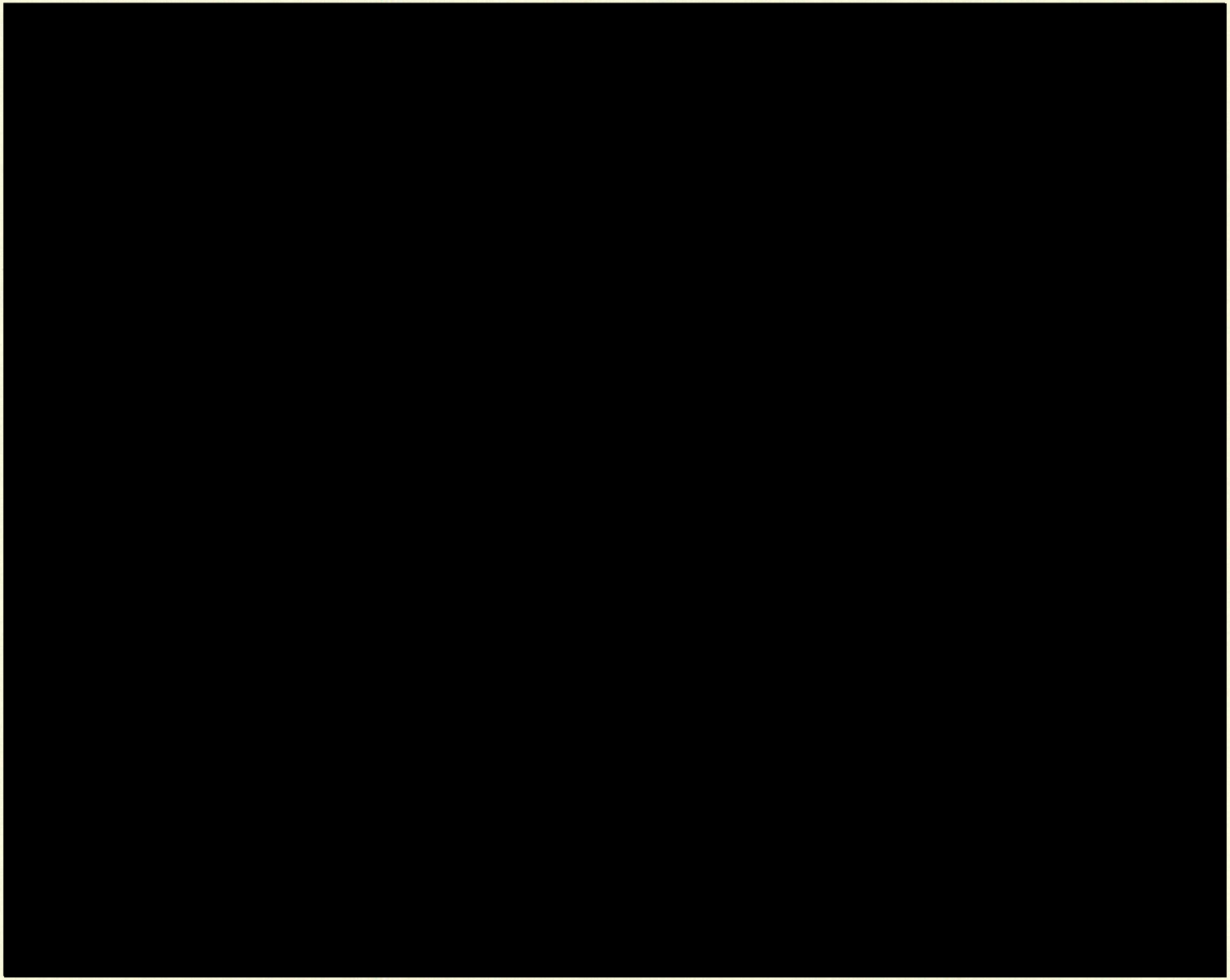


Figure 2. Approximate locations of sites within a 50-mile radius of the Turkey Creek valley.

> I have either opened or assisted in opening more than 100 of these mounds . . . (Griffing 1904:134).

SKIDDY
(Figure 2, #4)

The same source contains an account by W. E. Richey (1904:135-136), chairman of the above committee:

> Last winter Mr. J. A. Johnson, a bridge contractor, in excavating for the abutments for a bridge on [redacted] Morris county, at a depth of fifteen feet, came to a fireplace, or hearth, made of stones .... This was undoubtedly a camping place of white men in communication with Indians a long time ago.

Richey reached this conclusion due to the association of metal artifacts with the hearth.

ABILENE, 14DN318
(Figure 2, #5)

In 1928 Frank J. Landis of Abilene wrote letters to the KSHS describing a find there:

> While digging the new channel for the creek through Abilene, at the depth of 7 1/2 feet a stratum of dark soil was encountered which contained remains such as are found at ancient Indian camp sites found here. I found several flint spearheads. Flint chips are numerous, with a few animal bones. A few chunks of stone that are of a reddish yellow color from the exposure to fire, and layers of ashes .... These Indians probably made no pottery. No fragments can be found ... this buried village site ... is very old, anywhere from one thousand to fifteen, or older. The place is located on the [south] edge of [redacted]

This site was later described as Archaic and designated as 14DN318 by Dr. Patricia J. O'Brien in her report of November 1978.

SALINA BURIAL PIT OR
WHITEFORD SITE, 14SA1
(Figure 2, #7)

Another investigation within the 50-mile vicinity of Turkey Creek began in the late 1930s. G. L. Whiteford (1941) discussed the excavation of two earthlodges and the cemetery, now referred to as the Salina Burial Pit, on land belonging to the Price family. Whiteford with his wife and son took direction from visiting archeologists, A. T. Hill of the Nebraska State Historical Society and Waldo R. Wedel later of the Smithsonian Institution. The family carefully uncovered and documented a record of the evidence of the 140 inhumations mentioned in their brochure (Whiteford 1941).

Two lodges were excavated by the Whitefords. They found the first lodge 18 inches below the ground surface, demonstrated by a pattern of some 25 postholes, with a central hearth measuring 39 inches diameter and containing ash. It was bounded by thick walls of fired clay. The lodge had four center support posts and contained five cache pits. The cache pits contained shell, clamshell hoes, manos and metates, broken fragments of a gray stone pipe, and a bowl section of an effigy pipe, showing the bent arm and knee of a human figure. There were also charred corn and broken pottery sherds. The lodge floor was found to hold bone needles or awls, hide scrapers, clamshell beads, and pendants. There were three notched and five triangular arrow points and a diamond shaped flint knife. Whiteford also found a fragment of clay, molded and fired, which he said resembled a screech owl. Another ceramic sample, which he identified as a war club, was described. Whiteford said that 12 other lodges were located in the vicinity of the burial grounds, and he felt confident that these represented the remains of a large village.

While on the staff of the Smithsonian Institution, Wedel conducted extensive archeological investigations in Kansas. His *An Introduction to Kansas Archeology* is used as a basic text. Wedel (1959:522) interpreted Whiteford's findings as being from "... inhabitants of earth-covered lodges ... [who] followed a semi-sedentary mode of life, based in part on corn growing."

> There appear to be significant resemblances to prehistoric remains previously reported from the vicinity of Minneapolis on the Solomon river .... The ceramic remains are not identical with those from Minneapolis, but the relationship is very likely a close one ... [Similarities are also found in] point types, chipped knives, stone pipes, ground celts, the metate-mano complex ... the Salina materials are prehistoric ... no trace of contact, direct or indirect, with white men have been unearthed in the village site or among the burials (Wedel 1959:522-523).

In January 1990 the state of Kansas purchased the site from the Price family. The KSHS then became responsible for the site and its security. The

Archeology Office of the KSHS conducted an extensive study of the remains, including a thorough photographic record to document the site.

A contract was let to rebury the remains and any artifacts that could be documented as having come from the burial. The Pawnee tribe of Oklahoma was responsible for the ceremonies, which took place in association with the reburial on April 14, 1990. A concrete slab was poured over the formerly exposed area, and an earthen mound was placed over the concrete. A redwood fence now surrounds the area. No signs or markers are in place at this site at the time of this writing (Margie Reed, personal communication, Salina, May 1996).

MINNEAPOLIS AREA
(Figure 2, #6 and #8)

Wedel (1959:98) has discussed investigations by A. T. Hill and others, who opened remains of earthlodges on the Solomon River south of Minneapolis (Figure 2, #6).

From 1937 through 1940, Wedel made his own observations of the Minneapolis, Salina, and Lindsborg areas. He wrote in detail of the Minneapolis earthlodge site, 14OT5 (Figure 2, #8), using it as a type site to define the Central Plains phase, Smoky Hill aspect, Saline focus culture of its inhabitants. Wedel (1959:522) stated that it is somewhat reminiscent of the Upper Republican culture found in southern Nebraska. The Smoky Hill aspect Whiteford Burial site and Minneapolis earthlodge sites share the following traits (Wedel 1959:566):

(1) A subsistence economy, divided about equally between maize horticulture and hunting.
(2) Semipermanent villages, small, unfortified, and arranged in no apparent order.
(3) Villages located sometimes along larger streams, and as often on the lesser creeks, adjacent to water, wood, and arable land.
(4) Houses built on ground surface or semi-subterranean.
(5) Square to rectangular earth lodges, with rounded corners, four primary roof supports arranged around a central fireplace, and extended entryway.
(6) Bell-shaped and cylindrical cache pits, in and between houses.
(7) Burial by primary single interment, and also in communal ossuaries.
(8) Grit-tempered pottery, surfaces cord roughened or smoothed; simple to vertical to flared or collared rims, latter with incised or cord-impressed decoration.
(9) Chipped stone projectile points, small, unnotched, side-notched, or side- and base-notched.
(10) Diamond-shaped and ellipsoidal knives.
(11) Chipped end scrapers.
(12) Pipes of pottery (bent tubular) and of stone (equal arm or with slightly projecting stem).
(13) Scapula hoes.
(14) Longitudinally grooved sandstone shaft smoothers.
(15) Bone awls of split deer cannon bone.
(16) Arrowshaft wrenches of bone and antler.
(17) Bone fishhooks.
(18) Smooth-bladed fleshing tools of mammal leg bone.
(19) Grinding implements of stone.
(20) Scanty and simple work in shell.

LINDSBORG, AGAIN, 14MP1
(Figure 2, #9)

Wedel (1959:572) attributed the artifacts found around Lindsborg to people from the Great Bend aspect.

> So far as my present information goes, there appear to be no reported village sites of the Great Bend Aspect north of the Smoky Hill River, west of Larned on the Arkansas River, east of Marion, Butler, and Cowley counties, or south of the Arkansas.

According to Wedel (1959:574-580), additional characteristics associated with Great Bend aspect peoples are:

1. Medium to large ceramic jars with smoothed or simple stamped surfaces. A small portion have cord-roughening exteriors, and some pots have a red filmed surface. Temper is grit or sand.
2. Chipped stone end or side scrapers, small to medium sized;
3. Bifacial elliptical or ovate knives, often alternately beveled;
4. Small triangular projectile points, well made and most often unnotched;
5. Slender drills with wide basal flanges;
6. Milling slabs or metates and manos or mullers of ground stone;
7. Bison bone tools, including scapula hoes, digging tools, and paint applicators;
8. Bone awls, especially flat, split rib tools;
9. Tubular bone beads;
10. Shell beads, spoons, and scraping tools;

11. Charred corn from the deep storage pits, indicating that Great Bend aspect people were horticulturally advanced.

ELLSWORTH AND KANOPOLIS RESERVOIR
(Figure 2, #10)

In the summer of 1948, Dr. Carlyle S. Smith from the Museum of Natural History of the University of Kansas (KU) examined the Kanopolis Reservoir area of Ellsworth and Saline counties. He identified Great Bend aspect or Paint Creek culture sites in the Thompson Creek area, in four superimposed occupation levels, which he assigned to Wedel's Great Bend aspect (Smith 1949:294).

Smith designated a site on Clear Creek as belonging to the Upper Republican culture. The Elm Creek site, 14EW12, was also Upper Republican.

A site revealing Hopewellian influence, 14EW17, was found on Ash Creek, some 10 miles south of Ellsworth. This is more than 50 miles to the southwest of the present Turkey Creek studies. Smith also identified Woodland culture sites [redacted] near the Smoky Hill River at Red Rock Canyon.

REPUBLICAN RIVER VALLEY

As early as 1920 Floyd Schultz began excavating and collecting from village and burial mound sites along the lower valley of the Republican River. His notes, maps, and specimens were deposited at KU. This material has been analyzed and reported by students for decades. Marlin Hawley (1984, 1991) has written a detailed thesis covering this amateur anthropologist's life and work.

Younkin Mound
(Figure 2, #11)

Younkin Mound on the Republican River near Junction City was reported by Schultz and Spaulding in 1949. Wedel (1959:207) describes the site:

> Here groups of fragmentary and occasionally burned human bones, an extended skeleton, animal bones, and artifacts were found on a rough stone floor mounded over with earth and rocks. [It contained] quantities of plain and incised tubular bone beads, shell disk beads, and small stemmed serrate points ... pottery, a stone platform pipe and other material with apparent Hopewellian affinities ... long bone pins ... cut human and animal bones, perforated and cut deer phalanges ... reminiscent of Archaic specimens.

Other Schultz Focus Sites
(Figure 2, #11a)

Terrell Phenice (1969) published an analysis of the human skeletal material from the Schultz mounds of Clay and Geary counties. The artifacts from these 32 mounds were examined by Charles Eyman (Phenice 1969) of the University of Kansas to establish the Schultz focus designation. He stated that the mounds "... manifest a mixture of Hopewellian and Plains Woodland artifacts" (Phenice 1969:1). Eyman thought the mounds represented a temporal span of from A.D. 200 to 600, perhaps even A.D. 800.

Phenice analyzed the skeletal remains from the mounds. He concluded that these demonstrated a wide variety of burial customs. From his measurement of the crania, he postulated that nearly all belonged to the same physical stock, similar to the Kansas City Hopewell. He said both the Schultz people and the Hopewell were of the same average height. "Both of these groups are shorter than the northern Woodlands people of the Plains." He further stated, "The ... sample of Schultz crania appears to be almost identical to the Whiteford (Smoky Hill aspect, Central Plains phase) crania" (Phenice 1969:76). Eyman defined Schultz focus from burial data only. This material was found at 14GE41 and is further discussed under the Milford Reservoir section.

Bogan Site, 14GE1
(Figure 2, #12)

The Bogan site, 14GE1, was first investigated and named by Floyd Schultz. His notes, maps, and artifacts are curated by the KU Museum of Anthropology. In 1964 the university conducted some tests and field work at the site in connection with a salvage project before Milford Reservoir was completed. A 1967 report by James O. Marshall and Tom Witty of the KSHS was published in *The Kansas Anthropologist* in 1990. Marshall described the site as representing the remains of a Pawnee village that contained evidence of European trade. It appeared to have been fortified. There was evidence of extensive burning. The houses seemed to have been occupied only briefly and abandoned for unknown reasons. The dwellings had six posts around a central hearth and extended entryways to the east. The post molds were placed in three concentric circles. The house floors were of prepared clay and contained interior hearths (Marshall and Witty 1990:21).

ELLIOTT SITE, 14GE303
(Figure 2, #21)

The Elliott site, first investigated and named by Brower, was reported by O'Brien and Kansas State University students in the early 1970s. The site is located along the McDowell Creek drainage of Geary County. The time of occupation is not certain because of the multiple components present. The radiocarbon date obtained for the Woodland component hearth at 14GE303 was A.D. 15±75. The village also included evidence for Archaic (Munkers Creek), Smoky Hill, and a Woodland component, tentatively identified as Schultz focus (O'Brien, Hixon, et al. 1973:54-72). On one terrace Roger Sorrell's work affirmed the Schultz focus identification (Sorrell 1975:173-185).

SALINA AREA IN THE 1960s AND 1970s, 14SA403, 14SA415, 14OT5
(Figure 2, #17, #19, #20)

Witty and KAA members excavated an earthlodge at 14SA403 in 1968 (Figure 2, #17). It was determined to be of the Smoky Hill aspect and described in a *KAA Newsletter* (Witty 1968:7).

During the early 1970s several excavations were conducted in the vicinity of Salina and Minneapolis. Site 14SA415 (Figure 2, #19) east of Salina was the location of a KAA dig (Witty 1970) that produced an unusual earthlodge. The site map showed that the center posts were set in a diamond pattern in relation to the perimeter posts, as opposed to the usual square within a square pattern.

Near Minneapolis, 14OT5 (Figure 2, #20) was excavated to reveal a large earthlodge. House 8 (as mapped by Wedel) was excavated at the same site by a KAA crew under the guidance of KSHS archeologists (Witty 1974).

FORSBERG SITE, 14SA420
(Figure 2, #22)

South of Salina along the Smoky Hill River, Dr. George Taylor, a Salina sociology professor from Kansas Wesleyan University, took his classes to the field to investigate the remains of three earthlodges at site 14SA420. These efforts revealed the remains of homes of the Smoky Hill aspect people common to Saline and Ottawa counties. This site was also known as the Forsberg site (Margie Reed, personal communication, Salina, 1983).

Linda Whitacre (1978:39), a McPherson College student, in an unpublished manuscript dated June 1978, described the finding of two roughly square houses at 14SA420. She said the second house had four center posts and four interior pits. The third house seemed nearly round. All artifacts appeared to be from a hunting and gathering people of the Smoky Hill aspect.

MILFORD RESERVOIR
(Figure 2, #24)

O'Brien (1976) directed a shoreline survey of 163 miles around Lake Milford in 1976. She and her Kansas State University students confirmed 22 sites. Six were attributed to early Archaic or late Paleoindian, and four contained a Schultz focus component. O'Brien singled out 14GE21, an Archaic/Woodland multi-component site for recommendation to the National Register of Historic Places.

Another site, 14GE41, was tested by Sharon Parks (1978) and attributed to Schultz focus Woodland. Dates ranging from A.D. 415 to 700 were obtained from charcoal in the hearths.

MARION LAKE
(Figure 2, #16 and #25)

Marion Lake was investigated by Witty in 1963. His article, "Appraisal of the Archeological Resources of the Marion Reservoir," recorded three prehistoric sites (Figure 2, #16) and reported indications of habitation by people from Archaic times but no evidence of pottery making (Witty 1963a).

Walking surveys, interviews with landowners and other informants, and archival search provided the information for a report by Judith A. Malone and Dr. Arthur H. Rohn (1981:16-17, 30-31) of Wichita State University. The report discussed sites 14MN302, 14MN303, 14MN310, 14MN535, 14MN536, and 14MN537 (Figure 2, #25). The authors determined that large protohistoric Great Bend aspect sites occur both north and south of the city of Marion; these include small camp sites and activity areas. Because of this and other evidence, the Marion Archeological District was established. Malone and Rohn (1981:31) speculated that this area has attracted settlers over long periods of time as "... there is solid evidence for both Plains Woodland and Archaic peoples living here too."

COUNCIL GROVE, 14MO323 AND 14MO308
(Figure 2, #13)

Witty (1967) reported work done in the 1960s in the Council Grove area of Morris County. He worked with the older sites of White Mound, 14MO323, which

is a burial mound containing some ceramic material, and 14MO308, a dwelling site that revealed both daub and ceramic fragments. His paper on the Pomona focus describes the following determinants:

> ... small structures consisting of relatively large amounts of burned clay pieces bearing grass and pole impressions suggestive of clay daub used in the construction ... a rather distinctive clay-tempered, cord-roughened pottery ware ... scattered dwellings, often paired, located atop low terraces adjacent to flowing streams ... [globular or basin shaped] pits occur both inside and outside the dwellings ... [pottery] tempering material is clay inclusions often flaky and at times appearing to be crushed sherds. Grit or other lithic temper is definitely lacking .... Many sherds weather to have the appearance of "cell temper." The average hardness is a little above 2 with a range from below 2 to less than 4. The paste when viewed at a fresh fracture is gray in color with some tan and buff ... exterior color is usually pale buff often with an orange tinge, to tan with some brown and gray .... Sherd thickness ranges from 4 to 9 mm ... surface treatment is usually cord-wrapped paddle roughened with some smoothing .... Bone ... is particularly rare ... probably represents ... an environmental problem so that preservation is not possible (Witty 1967:2-3).

TURKEY CREEK DRAINAGE
(Figure 2, #28)

In 1968 Lawrence G. Quade and John Eoff, Dr. Alfred Johnson's KU students, tested and surveyed to produce information for "An Archeological Survey of Turkey Creek Watershed Management Area," which will be cited frequently in the site report section of this paper. They identified 13 sites. Three had Woodland components, and one had a Central Plains phase component (Quade 1968).

AVERY SITE AT MILFORD, 14CY301
(Figure 2, #14)

In Clay County in 1961, Witty investigated the Avery site, 14CY301, which is in the Quimby Creek valley south of Wakefield. It was revealed to be a stratified, multi-component site, extending four feet below the ground surface. It had been an intermittent camping place for small groups of hunter-gatherers over a long period. Witty (1963b:53-54) gives details:

> [Indicates] ... occupations by late Archaic peoples coming under some influence of Woodland Cultures. The presence of large stemmed and corner-notched points; a variety of blade forms, ovate, parallel-sided or chisel-like, and triangular; chipped celts and hoes; full-grooved ground stone axes; handstones and mullers; and grit tempered cord-roughened pottery are suggestive of an early ceramic horizon .... The heavy chipped stone artifacts of Zone A are somewhat similar to those of the Flint Hills chert industry ... whose remains are relatively abundant throughout this area of the Kansas river drainage.

The next lower strata, Zone B, contained a large, triangular point and the base of a large stemmed point but no ceramic material. The occupation was attributed to an Archaic group.

On the surface and from a much later occupation were a shaft smoother and a small plain triangular point, such as often are associated with the Central Plains phase.

WOODS AND STREETER SITES, 14CY29 AND 14CY30
(Figure 2, #15)

Witty also excavated the Clay County Woods site, 14CY30, in 1961. This was determined to be a Central Plains phase, Smoky Hill aspect site with pottery similar to the Riley Cord-Roughened Ware from the Griffing site (Witty 1963b:29). The Woods site was first investigated in 1931 by Floyd Schultz and appeared to be a Central Plains earthlodge house. In his excavation Witty obtained material for radiocarbon dates, which demonstrated an occupation of the site around A.D. 1200 (Witty 1963b:28).

The Streeter site is located less than a mile northeast of the Woods site. Witty (1963b:62) tested the Streeter site, 14CY29, in 1961. The cultural focus was identified as Kansas City Hopewell of the Middle Woodland period. It was first reported by Floyd Schultz after he visited it in 1924. His Streeter site artifacts were donated to KU.

FLINT HILLS QUARRY SITES
(Figure 2, #26)

In the Flint Hills region in the 1980s, Kenneth Ashworth and Robert Timberlake then of the KSHS investigated aboriginal quarry sites. A number of these are located on the Middle Creek and Diamond Creek

drainages (Ashworth 1982a and 1982b) and along the Walnut River (Timberlake 1984).

Some of these sites are of indeterminate time periods, partly because ceramic remains were not found. These artifacts would not be expected in such an activity area even if the inhabitants had used pottery. A great many cores and discarded samples of the banded, fossiliferous Florence chert, which abounds in the area, were found. Samples of this chert could be expected to appear in collections from the Turkey Creek area as the outcrops occur less than 40 miles to the east and south of the drainage.

COFFEY SITE, 14PO1
(Figure 2, #28)

This Pottawatomie County site, 14PO1, was first recorded by J. Mett Shippee in 1952 in conjunction with the Tuttle Creek Reservoir Project. Later O'Brien (O'Brien, Larsen, et al. 1973) and her students reported on lithic evidence gathered there, which indicated a Plains Archaic site.

Larry J. Schmits (1975) reported on excavations by KU in 1972 and 1973. The site yielded chipped stone tools resembling those from the Munkers Creek assemblage found in the William Young site at Council Grove Reservoir. Schmits used abundant evidence of plants and animals present to reconstruct the environment and subsistence at the site. Radiocarbon dates span from 5163 to 5270 B.P. A long series of Holocene fluvial and cultural deposits are documented at the Coffey site. "Five major periods of deposition ... are identified at the site ... a cultural sequence consisting of Paleo-Indian, repeated Archaic and possible Late Woodland occupations has been established for the site" (Schmits 1980:79).

LYONS CREEK WATERSHED
(Figure 2, #23)

Investigations in the Lyons Creek Watershed for the Soil Conservation Service were conducted in 1975 by Bruce Jones and in 1979 by Kenneth Ashworth of the KSHS. The Mud Creek Chapter of KAA assisted in both investigations. This work revealed an archeological district, which Ashworth recommended for the National Register of Historic Places. The survey entered Geary, Marion, and Morris counties but concentrated in Dickinson County around the new Herington City Lake. The artifacts collected include material from the Archaic, Plains Woodland and Central Plains cultures. This indicated occupations as early as 1700 B.C. and as late as A.D. 1500 (Jones 1975, 1976; Ashworth 1979a).

PETROGLYPHS
(Figure 2, #27)

Petroglyphs in the Indian Hill site, 14EW1, carved in the Dakota sandstone outcrops north of the Smoky Hill River were described by Smith (1949:293). However, he was not able to attribute them to any certain cultural group. He mentioned that artifacts from the cliff talus were similar to those found in both the Upper Republican and Great Bend aspect sites. One glyph, representing a horse, would seem to indicate work completed by people acquainted with horses.

In 1981 Bryan O'Neill authored *Kansas Rock Art*, which refers to the above glyphs and also maps petroglyph sites throughout Kansas. He indicates a number of glyph sites within the 50-mile radius of Turkey Creek. O'Neill (1981) did not attribute these to a specific people nor was he able to fix a time period closely.

Table 1. Summary of Previous Archeological Investigations.

Map Figure	Date of Work	Reported by	Location/ Site Name	County	Time of Occupation	Culture Assigned
1	1896-1898	Udden	Lindsborg area/ Paint Creek	McPherson	ca. 1541	grass lodge dwellers, village site, hunters & gatherers
2	1898	Brower	Junction City area	Dickinson, McPherson, Morris, Saline	undetermined	unspecified
3	1902	Griffing	near Riley on Republican River	Riley	undetermined	Middle Ceramic
4	1902	Richey	Clark's Creek	Morris	undetermined	unspecified
5	1928 1978	Landis O'Brien	buried site at Abilene, camp 14DN318	Dickinson	7000 B.C.-0	Archaic Pre-Ceramic
6	1934	Hill	Minneapolis on Solomon River	Ottawa	A.D. 1000-1500	Middle Ceramic (Wedel 1959)
7	1936-1940	Whiteford	Salina Burial Pit, 14SA1	Saline	A.D. 1000-1500	Middle Ceramic Smoky Hill aspect Saline focus
8	1937-1940	Wedel	Minneapolis earthlodge, 14OT5	Ottawa	A.D. 1000-1500	Middle Ceramic Smoky Hill aspect Saline focus
9	1940	Wedel	Lindsborg area	McPherson	A.D. 1541-1800	Great Bend aspect
10	1948	Smith	Kanopolis Lake area/14EW17 et al.	Ellsworth	0-A.D. 1000	Early Ceramic to Late Ceramic Great Bend aspect
11	1949	Schultz & Spaulding	Younkin Mound	Clay Geary	0-A.D. 1000	

11a	1969	Phenice	Schultz Mound	Clay Geary	A.D. 200-600	Early Ceramic
12	1964-1967	Marshall & Witty	Bogan, 14GE1, Schultz village	Geary	A.D. 1800-1870	Historic (Pawnee)
13	1959-1967	Witty & others	Council Grove, 14MO323, 14MO308	Morris	7000 B.C.-0 A.D. 1000-1500	Archaic Middle Ceramic
14	1961	Witty	Avery at Milford Reservoir, Quimby Creek, 14CY301	Clay	7000 B.C.-0 0-A.D. 1000 A.D. 1000-1500	Late Archaic Early Ceramic Middle Ceramic
15	1961	Witty	Woods Streeter	Clay	0-A.D. 1000 1176±150 1200±120	Early Ceramic Middle Ceramic
16 (see 25)	1963	Witty	Marion Lake area	Marion	7000 B.C.-0	Archaic
17	1968	Witty & KAA	Salina area, 14SA403	Saline	A.D. 1000-1500	Middle Ceramic Smoky Hill aspect
18	1968	Quade	Turkey Creek Watershed	Dickinson	0-A.D. 1000 A.D. 1000-1500	Early Ceramic Middle Ceramic
19	1970	Witty & KAA	14SA415 earthlodge	Saline	A.D. 1000-1500	Middle Ceramic Smoky Hill aspect Saline focus
20	1970, 1971, 1973	Witty & KAA	Minneapolis, 14OT5	Ottawa	A.D. 1000-1500	Middle Ceramic Smoky Hill aspect
21 (see 24)	1970s	O'Brien	Milford Lake shoreline Elliott, 14GE303 14GE41	Geary	A.D. 50 A.D. 15±75 0-A.D. 1000 A.D. 1000-1500	Archaic Munkers Creek Early Ceramic Schultz focus Middle Ceramic Smoky Hill Aspect

22	1973	Taylor	southeast of Salina, scattered lodges, 14SA420	Saline	A.D. 1000-1500	Middle Ceramic
23	1975	Jones	Lyons Creek watershed	Dickinson Geary Marion Morris	7000 B.C.-0 0-A.D. 1000 A.D. 1000-1500	Archaic Early Ceramic Middle Ceramic
24 (see 21)	1976	O'Brien Parks	Milford Lake shoreline	Geary Riley	10,000-7000 B.C. 7000 B.C.-0 0-A.D. 1000	Paleoindian Archaic Early Ceramic
25 (see 16)	1981	Malone & Rohn	Marion Lake Archeological District	Marion	7000 B.C.-0 0-A.D. 1000	Archaic Early Ceramic
26	1980-1982	Ashworth Timberlake	Strong City area Flint Hills Diamond & Middle Creeks, Cottonwood River	Chase Marion	undetermined	quarry sites
27	1981	O'Neill	14OT4 & others in Smoky Hills	Ellsworth Ottawa Saline	undetermined	petroglyph sites
28	1970s 1952 1975	O'Brien Shippee Schmits	Coffey site, 14PO1	Pottawatomie	10,000-7000 B.C. 7000 B.C.-0 0-A.D. 1000	Paleoindian Archaic Early Ceramic

RECENT ARCHEOLOGICAL INVESTIGATIONS IN THE IMMEDIATE AREA

The only formal archeological investigations in the Turkey Creek valley prior to 1977 occurred in July 1968 during the planning stages for 15 flood control structures to be built in the upper elevations of the drainage. Despite adverse weather and soil conditions, 13 sites were recorded in the watershed by a survey team from KU. Three of these sites yielded diagnostic artifacts that indicated the presence of three Woodland components and one Central Plains component (Quade 1968). As none of the sites were threatened by construction activities, no further work was recommended. Subsequent survey by KAA members added significant information. Both the KU and KAA work will be considered under the appropriate site discussion.

The archeological information available to us has come largely through investigations related to reservoir or watershed projects and to changes in county or state roads. Another very important source is the activities of avocational archeologists, especially amateur members of the KAA. As recently as 1975, only 2,156 sites were recorded with the Archeology Office of the KSHS. At that time 15 counties in the survey area each had less than 50 sites recorded, while only 2 had more than 50 recorded. Within the past two decades state institutions have cooperated in an attempt to assemble a master file of all recorded sites in Kansas. By July 1994 the total number of recorded sites had increased to 9,542. The 17 counties and parts of counties (Chase, Clay, Cloud, Dickinson, Ellsworth, Geary, Harvey, Lincoln, Lyon, Marion, McPherson, Morris, Ottawa, Pottawatomie, Riley, Saline, and Wabaunsee) in the survey area account for 2,782 sites. Three of these counties had less than 50 sites. Fourteen had more than 50, and 5 of these had more than 200. Amateurs reported 477 of the sites in the survey. Mud Creek Chapter KAA members had recorded 123 of the 291 sites in Dickinson County. Forty-seven of these sites are included in this report.

SUMMARY

Most of the sites discussed in this section have been of the Central Plains phase, Smoky Hill aspect people. Typical artifacts have been described earlier in this section. From this predominance and because of the geographical proximity, a majority of the inventory collected in this Turkey Creek Survey might be expected to resemble artifacts of the Smoky Hill people.

However, there were also some Archaic sites identified in this study area: notably the Landis site at Abilene, the Avery site at Milford Lake, and those in the Marion Lake vicinity. These were determined by the large, stemmed, and corner-notched points and the absence of ceramic materials. Archaic artifacts were also found at Council Grove Reservoir, Tuttle Creek Reservoir, and on Lyons Creek.

The KAA surveyors could well hope to locate other very old sites. There is the possibility of finding evidence of a Paleoindian presence in the Turkey Creek drainage. They might also watch for evidence of Hopewellian influence, such as was found at Younkin Mound and Kanopolis Lake. Evidence for Pomona occupations, like those found in the Council Grove area 40 miles to the southeast, may also exist.

METHODS

The pedestrian survey was confined to the Turkey Creek valley, for nine linear miles upstream from the junction of the creek with the Smoky Hill River (Figure 3). The creek valley was divided into survey units in order to maintain and efficient continuous record system which could be usable in successive surveys. These one mile tracts are bound on the north and south by section lines. The east-west limits are irregular, extending up the slopes to encompass the immediate drainage.

An uncontrolled-exclusive survey, as defined by King (1978:31), was the field method used. Kenneth Watkins and Verna Detrich contacted owners or tenants for permission to conduct the survey prior to the event and provided topographic maps for team use. The specific areas surveyed and certain tracts that were not accessible were appropriately marked on these maps in order to illustrate restricted areas and provide both negative and positive information.

Archeologists and area residents experienced in site survey who acted as team leaders were: Harold Reed, Don Traub, Kenneth Watkins, Milton Matthews, Bill Brogan, and Verna Detrich. Teams were made up of KAA members with varying degrees of archeological experience. At the end of each season's work, a composite map was prepared from field notes and maps to guide subsequent survey investigations.

Dry surface conditions and dense cover were present during each survey, reducing ground visibility. Most ground surfaces in the valley were obscured by unharvested milo and soybeans or wheat stubble. Recently seeded wheat fields were loose and dry. Limited survey work was conducted at other times of the year to compensate in part for these unfavorable conditions.

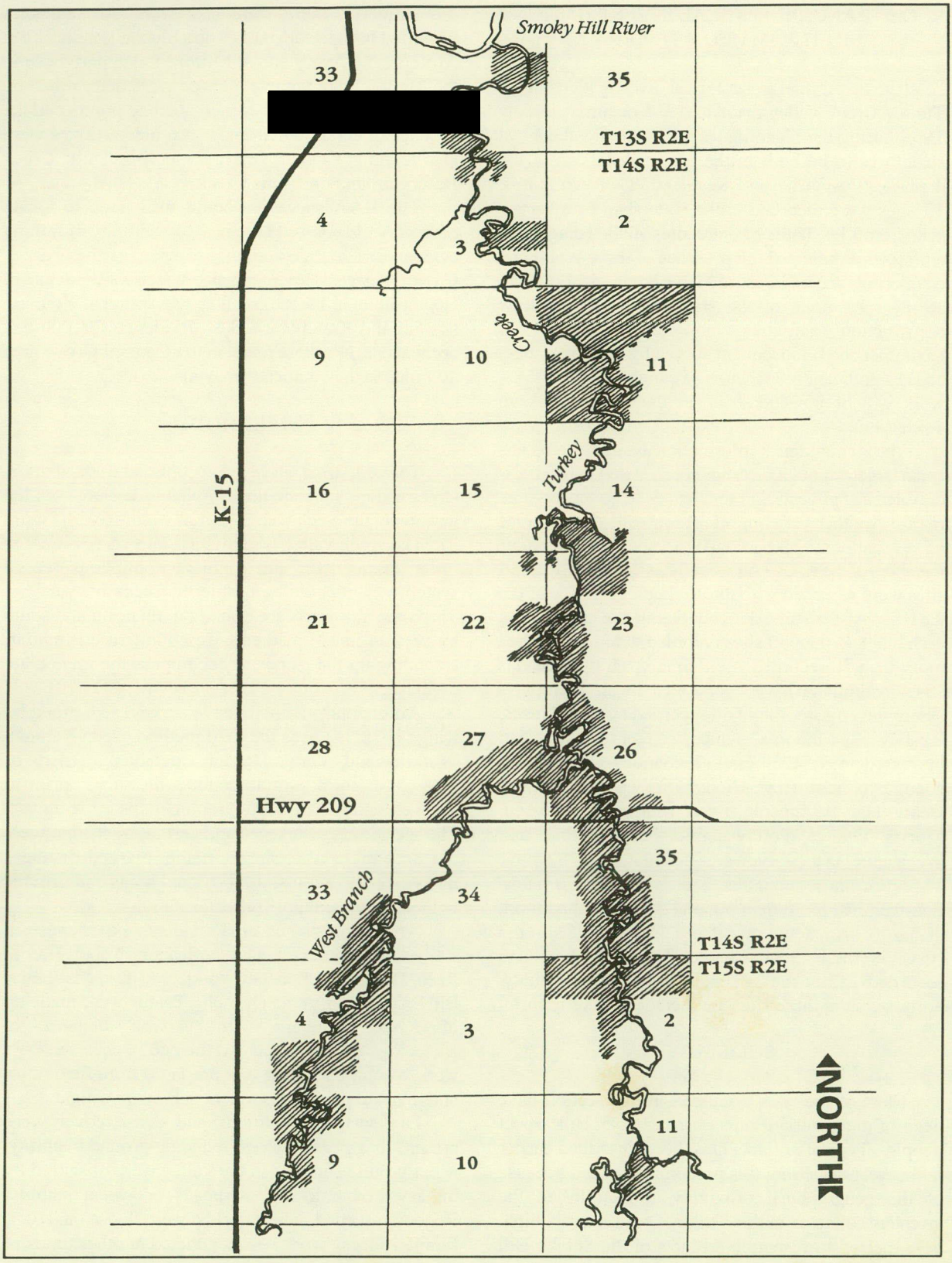


Figure 3. Areas covered in limited archeological survey of the Turkey Creek drainage.

Investigations were confined to a pedestrian survey; no subsurface tests were made. Recovered specimens were processed at a lab workshop which was part of the survey weekend in 1979 and at chapter meetings during the following winters. Verna Detrich assumed responsibility for the storage of specimens and records during the preparation of this report. Maps and field notes from each year's work, along with other records of the project, are retained in Mud Creek Chapter files. Copies will be transferred to the Archeology Office of the KSHS at the completion of the project.

The writing of the report was a joint effort by Mud Creek members. Two weekend campouts at Camp Brown provided the setting for initial writing sessions. Don Rowlison joined Mud Creekers and provided invaluable instructions, impetus, and editing. Writing and editing were accomplished in numerous special work meetings.

CONCLUSIONS AND RECOMMENDATIONS

The survey of the Turkey Creek drainage started as, and continues to be, an educational experience for all of those who participated in any phase of the project. As with any learning experience, those who were involved in the process from start to finish were the ones who gained the greatest amount of education and hands-on experience from the project. We would encourage other KAA chapters to accept the responsibility of a survey instead of an excavation project. This type of survey is very beneficial for a better understanding of the settlement pattern and cultural sequence of a region.

The drainage area was not completely surveyed because Mud Creek Chapter members felt one portion of the water course should be completed before proceeding to an unsurveyed area. The initial survey was limited to the area of the drainage from the mouth of the Turkey Creek, where it enters the Smoky Hill River, south to the New Basel Church road, a distance of some nine linear miles. The land was surveyed in varying distances from the stream as determined by the topography, probability of sites, and landowners' permissions. The methods used have been discussed in a previous section and need no further comment. It should be emphasized that limitations were encountered during all three field sessions. The surveys were conducted during dry conditions in October. Surveys during different times of the year could provide additional information that may have been overlooked or omitted for various reasons.

Some 40 previously unreported sites were located during the 3 field seasons, along with the relocation of 8 sites that had been reported by a KU survey team, which worked in the Turkey Creek drainage in 1968. Two other sites, which were identified by KAA crews and KSHS personnel almost simultaneously, also are included in this report.

Twenty-seven of the sites were situated in Muir or Hobbs soil types. The second highest number of sites was located on Irwin soil. In decreasing order, the balance of the sites was found on Clime, Sutphen, Geary, Hobbs/Irwin, and Irwin/Clime soils.

Sites were located from 1,140 to 1,230 feet (347 to 375 meters) in elevation. The average elevation was 1,190 feet (362 meters) above sea level, which also is the same height as the first or second stream terrace. The most utilized elevation for occupancy was along the stream from 1,170 to 1,190 feet (359 to 363 meters). This apparent concentration of sites at lower elevations may reflect survey bias toward areas with greater perceived site potential. Higher elevations received less thorough field reconnaissance or none at all. A future research design should include coverage of higher elevations.

The valley has been used by many people for a variety of reasons, dating from the Paleoindian period to the present. The Paleoindian period is represented somewhat tentatively by the presence of one basal section of a Plainview point from 14DN448. Considering that this specimen was a surface find, the possibility remains that this artifact was not necessarily deposited by the craftsman who made it but may have been picked up by a later individual and redeposited at 14DN448. However, two other Plainview base sections are in catalogued surface collections from Dickinson County, one from Chapman Creek and the other from an old terrace of the Smoky Hill River.

The Archaic Period was better represented with two and possibly three sites. Considering the numerous occurrences of sites of preceramic people to the east of the Turkey Creek drainage, a greater number of sites from this time period was expected. It is probable that Archaic sites are present but deeply buried near the Turkey Creek area (i.e., 14DN10, 14DN318, and 14DN441) thereby not encountered by today's surface survey methods. Sites such as these having hearths and bones of large animals but lacking diagnostic lithic remains, for example, have been found upstream on this drainage when stream straightening projects were conducted.

One interesting Archaic point (Figure 4n) is similar to the Munkers Creek points, Type I from the William Young site excavated at Council Grove Reservoir (Witty 1982:171, 178-179).

People of Early Ceramic (Woodland) cultures left evidence of their presence at four sites. One site has a

probable Early Ceramic affiliation, and three more are either transitional or multiple component sites with an Early Ceramic component represented in the surface collection. Additional Early Ceramic sites within the survey area are probable.

Four single-component Middle Ceramic (Central Plains) sites were encountered during the survey. In addition three multicomponent sites were located, each of which may have a Middle Ceramic component.

No sites of Late Ceramic (Protohistoric) affiliation were definitely identified. Site 14DN489 yielded five small, thin, red-orange sherds that were sand-tempered. These are somewhat reminiscent of Great Bend aspect wares. The incised sherd from 14DN485 is unique to collections from the area. Its cultural affiliation is unknown.

Five Euro-American sites were recorded that probably represent early white settlement. However, the possibility remains that they could represent reservation-period Indian encampments. Therefore, they are mentioned here, even though no trade goods were found.

In conclusion, several items are apparent:

1. The drainage needs to have a pedestrian survey during other times of the year to obtain a more complete overview of the aboriginal occupations.
2. Some of the recorded sites need to be resurveyed in an attempt to obtain additional cultural information to better determine the temporal and spatial range of the prehistoric peoples along Turkey Creek.
3. Three outstanding sites certainly deserve to receive further scrutiny—in particular 14DN448 with the Plainview point base, 14DN485 with the unique incised sherd, 14DN489 with ceramic samples similar to the Great Bend Aspect, and 14DN478 with the Munkers Creek point.
4. In addition, nine sites deserve testing to learn if they contain sufficient information for full-scale excavation. They include 14DN4, 14DN6, 14DN321, 14DN451, 14DN457, 14DN459, 14DN491, 14DN494 and 14DN1416.
5. The historic components in the Turkey Creek valley remain largely uninvestigated. Early home sites, schools, water mills, post offices, and other commercial ventures are indicated in the historic record. The field work did not attempt to identify any of these locations. However, some of them are mentioned elsewhere in this study. A thorough appraisal of the cultural resources of the valley should be extended to include this element.

Thus the book on the prehistory of the Turkey Creek valley of Dickinson County, Kansas, is not complete. This chapter has been written. The potential for adding to the information regarding the prehistoric people of Kansas exists along Turkey Creek; only the brush, trowel and patience of trained archeologists should be allowed to disturb its resting place. This information will surely be lost if that project is undertaken by anyone else.

Acknowledgments. This project could not have been completed without the support of several individuals and organizations, especially the Kansas Archeology Training Program under the patient guidance of Tom Witty, State Archeologist from 1967 to 1993, and the staff of the Archeology Office of the KSHS. This report could not have been accomplished without the step-by-step support of Don Rowlison, who served as Public Archeologist and *KAA Journal* editor from 1980 to 1985. Rowlison's exacting editing and his familiarity with the resources were most valuable to the writers. Thanks is also extended to the current KSHS Public Archeologist, Virginia Wulfkuhle, for her tact, patience, and editorial abilities.

Special acknowledgment goes to the farmers and landowners in the Turkey Creek drainage who pointed out known sites, showed their personal collections, and granted permission for a survey of their land. Sincere thanks are extended to the Brown Memorial Foundation and to the Coronado Area Council of Boy Scouts of America for their gracious permission to use Camp Brown facilities for the several weekend campouts. The camp was used to house and organize the survey groups and later as a meeting place to begin the writing of this report. Last and most important, we want to express the gratitude of the Mud Creek Chapter members to each other, for it was our combined courage and perseverance that brought this project to its ultimate completion.

APPENDIX 1: SOILS

Soil types relating to the survey sites were identified through the use of the soil survey of Dickinson County, Kansas, United States Department of Agriculture, Soil Conservation Service, approved in 1977.

Soil types relating to the sites are briefly described below. Table 2 lists each site number, elevation, culture affiliation, and soil type.

1. Irwin: Irwin soils are on narrow ridgetops and sideslopes. The surface layer is dark gray silty loam about 9 in thick.
2. Geary: Geary soils are on sideslopes along rivers and creeks. The surface soil is grayish brown silt loam about 13 in thick.
3. Clime: Clime soils are on side slopes adjacent to drainage ways. Typically the surface layer is dark grayish brown silty clay loam about 10 in thick.
4. Muir: Muir soils are on terraces and high bottom lands of the Smoky Hill River and larger creeks. The surface layer is dark gray silt loam about 8 in thick.
5. Hobbs: Hobbs soils are on the flood plains. Typically, the surface layer is dark gray silt loam about 8 in thick.

Table 2. Soil Types of Sites Recorded in the Limited Archeological Survey of the Turkey Creek Drainage.

Soil Type	Site Number	Culture Assigned	Elevation in feet
Hobbs	14DN4	Middle Ceramic	1,170
	14DN6	Early Ceramic	1,170
	14DN7	none assigned	1,180
	14DN458	none assigned	1,180
	14DN459	Ceramic	1,180
	14DN477	Ceramic	1,190
	14DN487	none assigned	1,230
	14DN488	Historic	1,200
	14DN489	Central Plains	1,210
	14DN1405	none assigned	1,170
	14DN1406	none assigned	1,210
	14DN1416	Early Ceramic	1,140
Hobbs/Irwin	14DN12	none assigned	1,190

Muir	14DN5	none assigned	1,180
	14DN451	none assigned	1,160-1,170
	14DN453	Middle/Late Ceramic	1,180
	14DN455	none assigned	1,140-1,150
	14DN456	none assigned	1,170
	14DN460	none assigned	1,190
	14DN461	none assigned	1,170
	14DN463	Prehistoric	1,180
	14DN466	Prehistoric/Historic	1,180
	14DN476	Ceramic	1,210
	14DN486	none assigned	1,200
	14DN493	none assigned	1,200
Clime	14DN448	Paleoindian/Prehistoric/Historic	1,170-1,180
	14DN457	Ceramic	1,220
	14DN465	Early Ceramic	1,210
Irwin	14DN450	none assigned	1,190
	14DN464	Early Ceramic	1,190-1,200
	14DN474	none assigned	1,170
	14DN478	Archaic	1,190
	14DN490	none assigned	1,200
	14DN491	none assigned	1,150
	14DN495	Early/Middle Ceramic	1,150
	14DN496	none assigned	1,190-1,200
	14DN497	Prehistoric	1,210
Irwin/Clime	14DN452	Early Ceramic	1,170
Sutphen	14DN475	none assigned	1,190
	14DN485	Late Ceramic	1,145
Hobbs/Geary/Muir	14DN494	none assigned	1,175
Geary	14DN498	Archaic	1,190

APPENDIX 2: SITE DESCRIPTIONS

14DN2

Site 14DN2 is eroding out of the [redacted] slope of an [redacted] trending terrace on the [redacted] bank of Turkey Creek at an elevation of [redacted] above sea level in Hobbs silt loam soils. Due to adverse ground conditions at the time of survey, the spatial limits of the site have not been determined.

Site 14DN2 was initially identified in July 1968 by a KU survey team. Chert flakes and a section of a gray chert Scallorn point were collected. The original site report refers to "many preforms, some with usage scars, which came from cache which he [the owner] plowed up" (Eoff and Quade 1968). The landowner described this discovery as a "bucketful" when he granted permission for the 1978 KAA survey.

In October 1978 the KAA survey team confirmed the site and filed an amended report with the Archeology Office at the KSHS. Weeds and harvested milo stalks nearly obscured the ground. Chert and burned rocks were observed, but no collection was made.

Information from 14DN2 is too meager for a determination of site function or cultural affiliation. The section of a Scallorn point recovered by the KU team suggests an Early Ceramic group (Quade 1968). The caches found by the owner and the fact that cultural debris is eroding from the terrace slopes indicate possible depth of cultural remains. Resurvey and subsurface testing are recommended.

Note: In 1987, 23 chert bifaces were donated to the KSHS by the grandson of the owner. These specimens were reported to have been found by the grandfather of the donor in the 1940s, presumably at 14DN2. It is tempting to assume that this may be the "bucketful" described to the KAA surveyors in 1968.

14DN3

Site 14DN3 was identified by a KU survey team in 1968 as chips and large concentrations of burned rock, eroding out of the southernmost of the two east-west trending terraces along the east bank of Turkey Creek. No collections were made, and exact site limits were not determined.

The site, as described by the KU report, is located in Section 14, T14S, R2E. Discrepancies exist in the legal description, the site map, and the indicated relationships among the site and the road, the bridge and the terrace.

During the October 1978 survey and again in November 1979, KAA team members visited the site under conditions of optimum soil visibility. They observed two areas of cultural debris in the southwest quarter section and designated these 14DN451 and 14DN452. Again no collection was made.

The KAA assessment of the sites at this location may be read in the discussion of sites 14DN451 and 14DN452. The possibility of buried evidence calls for resurvey and at least mimimal subsurface testing to attempt to determine site function and spatial limits.

14DN4

Site 14DN4 is represented by a scattering of cultural debris over an area of about 10 a (4 ha) at 1,170 ft (356 m) elevation in Hobbs silt loam. The site occupies [redacted] along the [redacted] side of Turkey Creek. A [redacted] gulley crosses this [redacted] near its constriction. Water flowing through the gulley is eroding the site. Three areas, Area 781, Area 791, and Area 792, have been designated to help control the artifact locations. Area 781 occupies the ground to the east of the [redacted]. This same area contains an old [redacted] and a [redacted] Several outbuildings have been razed at the site, seriously disturbing the appearance and archeological remains. Area 791 is near the north side of the meander scar. Area 792 is located on a natural terrace near the south side of the stream scar. All of the site areas have been cultivated for a number of years. Erosion is taking a serious toll on the cultural remains.

In 1968 a KU survey crew recorded the general site area. The KU maps do not provide sufficient information to ascertain the limits of site 14DN4. The KAA crew visited this site in October 1979 and again in October 1980. Both years found dry, dusty conditions and a heavy growth of crops or weeds covering most of the surface. KAA crews relocated the site and determined that the location should be redefined as one large site with three areas of concentrated material.

The recovered archeological material from 14DN4 will be discussed in Tables 3, 4, and 5, according to the specific areas in order that they may be separated for future study, if needed. Area 792 is deepest in the bend and least disturbed by farmstead activities. It contains the greatest amount of diagnostic material (Table 5).

Site 14DN4 probably represents a Middle Ceramic occupation. Prehistoric structural evidence may have been obliterated by stream and farming

activities, as well as construction by recent occupants. If any structural remnants exist, they would be found within Area 792. Future investigations should include subsurface testing for additional cultural evidence.

Table 3. Artifacts from 14DN4, Area 781.

Ceramics Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	The lithic specimens recovered can be assigned to three groups, according to color: light gray, dark gray, and shades of pink. The pink flakes could represent intentional thermal altering. An inventory of the flakes indicated 27 are varying shades of light gray, 8 are dark gray, and 16 are hues of pink and light brown. The smallest flake is about 1/4 in (6 mm) across, while the largest is 1 1/2 in (38 mm). Of the inventoried flakes three may be Alibates agatized dolomite. None of these flakes show any use or wear modifications.
	Ground/ Pecked Stone		Two stream cobbles have small battered surfaces. Both battered stones are of a size widely used as hammerstones, 3 in (75 mm) by 3 in (75 mm) and 2 3/4 in (70 mm) by 3 1/8 in (79 mm).
	Unaltered Stone		Two other cobbles collected have no altered surfaces.
Faunal Remains			Faunal remains are represented by six small bone fragments from large animals; one fragment has been burned. There is also one piece of tooth enamel from a large herbivore.
Historic Remains			One sample of stone crockery was collected to show occupation during the historic period.

Table 4. Artifacts from 14DN4, Area 791.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	One of two chipped stone tools found is a biface section, which is 1 3/8 in (35 mm) wide and 2 in (50 mm) long. This specimen appears to be a section of an alternately beveled knife.
		Uniface	The other chipped stone tool is a plano-convex end scraper of light gray chert, measuring 15/16 in (24 mm) by 1 3/8 in (35 mm) (Figure 5a).
		Chips/ Flakes	Other lithic materials consist of two dark gray chert flakes, seven flakes ranging from light gray to nearly white, and eight flakes of light brown to pinkish color, which could have been intentionally altered by heating.
Faunal Remains			Three unidentified pieces of bone were found. There was also a tooth from a large herbivore.
Historic Remains			Two items of historic interest were collected: a piece of brown crockery and a piece of concrete-like stone.

Table 5. Artifacts from 14DN4, Area 792.

Ceramic Remains			The prehistoric ceramic material collected consists of 11 pottery sherds. One sherd appears to be a vessel lip and may represent a small vessel with an out-flaring rim. Some of the sherds have cord-roughened exteriors. The tempering consists of crushed, burned limestone, crushed sherds, sand, and shale inclusions. The exterior colors are dark brown to gray except for one sherd, which has a reddish brown core.
Daub			Three pieces of daub were collected.
Lithic Remains	Chipped Stone	Bifaces	The lithic assemblage includes evidence of six small projectile points: two tip sections, one base section, two points with basal corners missing, and one complete point. The complete specimen is dark gray chert and has side notches and a basal notch (Figure 4b). It measures 1/2 in (13 mm) by 1 1/8 in (28 mm). One point with a missing basal corner is Florence chert and is also side notched (Figure 4c). Its maximum width is 7/16 in (11 mm) and length is 1 in (25 mm). The sixth point is plain triangular and of Alibates (Figure 4a). It measures 9/16 in (14 mm) wide by 13/16 in (21 mm) long. The remaining three sections are dark gray, dark brown, and mottled light brown chert. A section of an alternately beveled knife of dark gray chert completes the list of pressure-flaked tools. One crude, percussion-flaked axe and a celt were found. Both may be unfinished tools. The axe measures 3 3/8 in (86 mm) long by 2 13/16 in (71 mm) wide by 1 3/8 in (35 mm) thick. The celt is 5 13/16 in (148 mm) long by 2 3/8 in (60 mm) wide by 1 3/4 in (44 mm) thick at the mid-section.
		Chips/ Flakes	Chert debitage flakes were inventoried as 18 dark gray, 26 light gray, and 25 brownish pink to deep red in color. Flake sizes range from 3/8 in (10 mm) to 3 15/16 in (100 mm) in length.
	Ground/ Pecked Stone		One hammerstone with two battered ends was recovered. It measures 3 in (75 mm) long, 2 3/4 in (70 mm) wide, and 1 3/8 in (35 mm) thick.
	Unaltered Stone		Several representative local stones were collected, including a sample of limestone, a fragment of quartz, and some cherty gravel.
Faunal Remains			Faunal remains are represented by five sections of tooth enamel and one complete incisor from large herbivores. Other large mammal remains are a first phalanx, the proximal end of a tibia, a vertebra section, and six other bone fragments. Four small weathered pieces of freshwater clam shells were collected during the surveys.
Historic Remains			Five historic items were brought in by the KAA surveyors: a small rim sherd of flow blue porcelain, a whiteware sherd, a partial base section of a glass bottle, a piece of coal, and an old generator brush fragment.

14DN5

Lying on [redacted] two stream terraces, 14DN5 is on the [redacted] bank of the West Branch of Turkey Creek. The terraces are at an elevation of 1,180 ft (360 m). The artifacts are deposited in Muir silt loam. The terraces extend into a small meander of this tributary of Turkey Creek.

In July 1968 the site was recorded by an archeological survey team from KU. No collection was made. Due to uncertainty about the original designation of the site, the area containing cultural materials was separated into sites 14DN5 and 14DN459 during the KAA survey of 1979.

In October 1979 the surface of the site had been recently tilled and was powder dry. The KAA survey crew believed the site to extend over 1/2 a (.2 ha).

Artifacts are described in Table 6. There is insufficient material to determine a cultural affiliation for site 14DN5. The crew speculated that this was the remains of a campsite of prehistoric people. Additional survey of the surface should be conducted to determine who used the site and when. Some core testing would help to determine if the site contains subsurface cultural materials.

Table 6. Artifacts from 14DN5.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Uniface	A unifacially flaked scraper of yellowish tan chert was found. It measures 1 1/8 in (28 mm) by 1 9/16 in (40 mm) with a maximum thickness of approximately 5/16 in (8 mm).
		Chips/ Flakes	An unmodified white chert flake 1 1/4 in (32 mm) long was collected, and numerous small flakes were observed.
	Ground/ Pecked Stone		An ovate pinkish quartzite muller with almost one-fourth of one end broken away was collected in 1979 (Figure 6). It is about 4 5/8 in (117 mm) long, 3 1/4 in (83 mm) wide, and 2 1/16 in (52 mm) thick. It is smoothly ground on all surfaces except the broken edge. It weighs 35.14 oz (1004 grams).
	Burned Stone		Some burned limestone was collected.
Faunal Remains			No faunal remains were observed.

14DN6

This site occupies an area of about 1/4 to 1/2 a (.1 ha to .2 ha) [redacted] The soil is Hobbs silt loam.

In 1968 a KU survey crew recorded the general area of the site and made a small collection of artifacts. The site was visited twice during the KAA survey in October of 1979 and 1980. Both visits found standing milo with a heavy growth of weeds between some of the rows. The adverse impact of weather and cultivation was apparent. An area of what appeared to be burned stones was noted on the low saddle of the terrace just to the southwest of the primary area of cultural deposit. No subsurface testing was conducted.

Artifacts are described in Table 7. Due to the recovered ceramic material, the small corner-notched projectile points, and the type of surface debitage, this site is attributed to the Early Ceramic culture. Additional surface collection under better conditions and some subsurface tests should be conducted at this site to further determine the possibility of the presence of structural remains and to strengthen the cultural determination.

Quade (1968:7) is quoted here for additional information:

> One rim sherd was recovered. The surface is brown, smooth, and has incised lines. The zig-zag incising is 7 mm. in height, and is 15 mm. below the rim. The sherd is progressively thinner from the body to the lip. The inner surface is dark gray. Grit tempering is present. A daub fragment and a chert flake were also recovered .... No cultural affiliation has been assigned to these remains.

Table 7. Artifacts from 14DN6.

Ceramic Remains			The prehistoric ceramic artifacts from this site consist of 10 body sherds, ranging in size from 1/16 in (2 mm) to 1/8 in (3 mm) thick. Seven of the sherds have a light brown exterior. The exteriors of the other three are dark gray. The outer surfaces of four sherds are smoothed-over cord roughened. The interior surfaces are varying shades of gray with black cores. All are tempered with fine sand.
Burned Earth			Three small specimens of fired clay with grass impressions were also recovered.
Lithic Remains	Chipped Stone	Bifaces	Sections of two projectile points were recovered. One is a base section of light brown chert, which is 1 1/4 in (32 mm) wide and 5/16 in (8 mm) thick. It has a convex base and is corner notched (Figure 4m). The second projectile point is a midsection, measuring 1 1/8 in (28 mm) wide and 1/4 in (6 mm) thick. It appears to have been notched and is made from a mottled dark and light gray chert. One complete biface and two biface sections were recovered. The complete chert biface appears to be thermally altered, indicated by its gray and mottled brown hues (Figure 7f). This specimen measures 2 7/16 in (62 mm) long, 1 1/4 in (32 mm) wide at the maximum, and 3/8 in (10 mm) thick. A second biface that is incomplete measures 2 5/16 in (59 mm) long, 1 3/16 in (30 mm) wide, and 7/16 in (11 mm) thick. Its mottled brown color indicates that it also may be thermally altered (Figure 7c). A rounded basal section of gray chert measures 1 3/16 in (30 mm) long, 1 3/8 in (35 mm) wide, and 5/16 in (8 mm) thick. All three bifaces probably functioned as knives. Three other pieces of worked chert probably represent large tools. Their original shape and size cannot be determined due to their broken and incomplete conditions.
		Unifaces	Three plano-convex end scrapers were recovered (Figure 7a, d, e). All are dark gray chert. They range in length from 3 1/16 in (78 mm) to 2 1/8 in (54 mm). The widths vary from 1 3/8 in (35 mm) to 1 5/16 in (33 mm), and the shortest of the three is also the widest. None show a significant amount of wear on the wide distal edge. One light tannish gray side scraper was recovered. It is 3 3/8 in (86 mm) long, 1 1/4 in (32 mm) wide, and 11/16 in (17 mm) thick. Only one edge has been sharpened for use. One other scraper of gray chert was found (Figure 7b). It is plano-convex in cross section and has been corner notched to the point of being nearly stemmed, probably to facilitate hafting. It is 1 5/8 in (41 mm) long, 1 1/2 in (38 mm) wide, and 5/16 in (8 mm) thick. The stem is 3/4 in (19 mm) wide.

		Chips/ Flakes	Thirty chert flakes, resulting from tool manufacturing, were collected. Of these, 14 are dark gray, 7 are light gray to tan, 4 are dark red, and 5 are various shades of brown. The smallest is 5/16 in (8 mm) by 7/16 in (11 mm). The largest is 1 in (25 mm) by 2 3/8 in (60 mm).
	Ground/ Pecked Stone		Several waterborne cobbles were collected. All are hard chert-like material. Some are broken. Several appear to have been heated. Two show indication of battered surfaces. These may have been used as hammerstones. (Their use as boiling stones is also a possibility.) Of three samples of sandstone, one appears to have been used as an abrader.
	Unaltered Stone		Two small pieces of unaltered crystalline rock fit together to form a sample 1 1/8 in (28 mm) wide by 1 3/16 in (30 mm) long by 13/16 in (21 mm) thick. One unworked piece of petrified wood completes the lithic materials collected from the site.
Faunal Remains			Fourteen pieces of bone were collected, none of sufficient size to identify the source animal. There are five fragments of tooth enamel, all of which probably came from a large grass-eating mammal, such as bison. Historic domesticated animals also could have been the source of the bones and teeth.

14DN7

East of Turkey Creek lies 14DN7 [redacted] It is situated at [redacted] elevation in a field of Hobbs silt loam.

Covering about 1/2 a (.2 ha) in the small bow of the tributary, the site is indicated by a scattering of flint chips, bone, shell, and burned stone. A second but smaller area of the site occurs nearer to the east or right bank of Turkey Creek just above the junction of the tributary and the main stream.

The site was first reported in 1968 by KU archeological site surveyors. Nothing diagnostic was [redacted]

Artifacts are described in Table 8. This terrace location suggests the possibility of at least a short term occupation by a culturally unidentified prehistoric people. This location should be revisited when the soil is not so dry.

Table 8. Artifacts from 14DN7.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	Four chert flakes, varying from gray to pink in color, were gathered. These flakes range from 1/4 in (6 mm) by 9/16 in (14 mm) to 13/16 in (21 mm) by 1 1/4 in (32 mm).
	Burned Stone		Four samples of burned limestone were collected.
Faunal Remains			An unidentifiable bone fragment and a phalanx section of a large mammal were collected. A hinged mollusk bivalve fragment was also recovered.

14DN8

Site 14DN8 is located on the [redacted] side of Turkey Creek in Irwin silty clay loam on a north-south terrace at [redacted] An intermittent tributary enters the creek from the east, just south of the site. Site limits were not determined.

Site 14DN8 was recorded by the KU survey team, which also reported that the owner had a collection from this site. No materials were collected during the KU survey. A KAA surveyor visited the site in November 1979. Young wheat plants obscured the surface to some degree. No collection was made. Chert flakes and burned rocks were observed.

This area of cultural debris appears to be separated from 14DN478 [redacted] although it may be an activity area associated with that site. Resurvey and subsurface testing are recommended, especially to find boundaries of the artifact deposit.

14DN12

Located west of Turkey Creek, 14DN12 was found in wheat stubble on a [redacted] between [redacted] elevation just above the [redacted] bank of the creek. The soil type is Hobbs/Irwin.

In 1968 the KU surveyors were informed of the site by a local resident, who stated that he had collected from the area. No materials were collected by the college team. When the area was visited in 1979 by the KAA crew, only chert flakes and a biface tip were retrieved. Site boundaries were quite indistinct. Later in November chips were observed along the line of utility poles serving the two houses of the farmstead. Shell was seen on top of the red dirt in eroded areas on the terrace slope at 1,190 to 1,200 ft (363 to 366 m) elevation. The owner reported a good spring along the creek, which could have been a fresh water source for early inhabitants.

Artifacts are described in Table 9. It is recommended that 14DN12 be surveyed when vegetal cover is less intense. The spring area should be precisely located when the site is revisited. The observed flakes and shell where the utility poles had been set indicate that the area should be checked again for subsurface remains.

Table 9. Artifacts from 14DN12.

Ceramic Remains			No prehistoric ceramic material was observed.
Lithic Remains	Chipped Stone	Biface	The small tip of a gray chert biface measures 3/16 in (5 mm) thick and is 15/16 in (24 mm) along the worked edge. This artifact was the only tool collected.
		Chips/ Flakes	Three small chert flakes, varying in color from nearly white to shades of gray, and one of yellow jasper were recovered. These range from 5/16 in (8 mm) by 7/16 in (11 mm) to 3/8 in (10 mm) by 9/16 in (14 mm).
Faunal Remains			Fragmentary shell was observed but not collected.

14DN321

Site 14DN321 is situated on a [redacted] approximately [redacted] west of Turkey Creek. It is bordered on the [redacted] by a [redacted] and by a swale on the [redacted] The site covers about 3 a (1.22 ha) of Hobbs silt loam at an elevation of [redacted]

The site was initially discovered by the KAA survey team in October 1979. Before the site was recorded at the KSHS, W. T. Brogan, in checking the area for a bridge project in November 1979, located and designated the area as 14DN321. At the time of these surveys the terrace was covered with unharvested soybeans. Both visits were pedestrian surveys and no subsoil samples were taken. Only material collected by KAA will be described here.

Artifacts are described in Table 10. Although no evidence of structural remains was obtained, the abundance of lithic materials and the samples of cortex would point to a possible stone processing station or a prehistoric camp. An examination of the material collected by Brogan does not conflict with this interpretation.

The area is receiving adverse impact from cultivation and weather. It should be tested with an Oakfield coring tool to determine the depth of the cultural deposit and assess its potential.

Table 10. Artifacts from 14DN321.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	An unnotched triangular biface of mottled gray chert is 1 ½ in (38 mm) long, 1 1/16 (27 mm) wide, and 1/4 in (6 mm) thick (Figure 4q). A large, bifacially modified flake, 2 1/8 in (54 mm) long and 1 7/8 in (48 mm) wide, is present.
		Unifaces	Three unifacially flaked specimens appear to be scraper preforms.
		Chips/ Flakes	Thirty chips and flakes of miscellaneous cherts, many of which retain cortex, range from 1 7/8 in (48 mm) to 1/2 in (13 mm) maximum dimensions.
		Cores	A core remnant of gray flint also retains cortex. One river cobble retains evidence of primary flaking
	Ground/ Pecked Stone		One hammerstone is represented in the collection.
	Unaltered Stone		Of four river cobbles present, three show no modification.
Faunal Remains			No faunal remains were observed.

14DN448

Site 14DN448 lies on [redacted] and appears to be a multi-component site. It is on high ground, lying both above and below an outcropping of chert-bearing limestone, which appears to be a small historic quarry. The soil has been classified as Clime silty clay loam.

The site was recorded in October 1978 by KAA members. Most of the site was free of vegetation at the time of survey. The Crete soils above the site contain numerous quartz cobbles and other gravels, suggesting this location as a possible resource procurement station.

Artifacts are described in Table 11. The cultural affiliation is prehistoric and historic Euro-American. Due to the presence of the Paleoindian and Archaic artifacts, an in-depth controlled survey under optimum conditions, as well as subsurface testing, is recommended.

Table 11. Artifacts from 14DN448.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Bifaces	The base of what appears to be a Plainview type Paleoindian point was recovered (Figure 4g). This point section of mottled gray and caramel chert is 11/16 in (17 mm) long and 7/8 in (22 mm) wide. It is 3/16 in (5 mm) thick at the break. The depth of the basal concavity is estimated at 1/8 in (3 mm). The lateral edges of the specimen are ground smooth. The basal edge is less extensively smoothed. The base section of a side-notched point was also recovered (Figure 8a). It had been manufactured from dark gray chert. The only remaining corner contains a shallow notch near the base on the lateral edge. The midsection is 11/16 in (17 mm) wide at a point about 1/2 in (13 mm) above the base. No evidence of grinding appears on this specimen. A base section of a mottled gray chert biface measures 1 in (25 mm) by 1/2 in (13 mm) and 1/16 in (2 mm) thick.
		Chips/ Flakes	Twenty-one chert flakes were collected, ranging in size from 1/4 in (6 mm) by 1/4 in (6 mm) to 1 3/16 (30 mm) by 1 9/16 (40 mm). Twelve of these appear to be thermally altered. Eight of the remaining flakes are light and dark gray in color and lack cortex.
		Core	The final piece of chert debitage is small and tabular in form with brown cortex and a gray interior. One flake has been removed from its surface.
Faunal Remains			Two sections of clam shell were collected from the site. One retains the hinge portion.
Historic Remains			A ceramic base sherd decorated in blue on a white ground represents an early historic component at the site.

14DN450

Site 14DN450 occurs on a [redacted] bank of Turkey Creek. The soil is Irwin silty clay loam at an elevation of 1,190 ft (363 m). The sandy alluvium was partially covered by crop stubble in the fall of 1978, when the KAA crew surveyed it. A scattering of chert debitage and other stones, as well as some historic debris, was observed but left in the field. Due to the vegetal cover, site limits were not determined.

Artifacts are described in Table 12. Due to the absence of prehistoric ceramic samples or projectile points, no aboriginal culture was determined. The area does appear to have been used by both historic and prehistoric peoples. Due to cultivation and erosion, the site can be expected to deteriorate. It might be profitable to visit under better conditions with less vegetal cover.

Table 12. Artifacts from 14DN450.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Uniface	One chipped stone tool was collected. It is a plano-convex end scraper with little or no retouching except on the working or distal end (Figure 5b). It is mottled gray chert with a small amount of cortex on one side. It is roughly 1 1/8 in (28 mm) wide, 1 5/8 in (41 mm) long, and 5/16 in (8 mm) thick.
		Chips/ Flakes	Seventeen chert pieces, ranging from 5/16 in (8 mm) by 3/8 in (10 mm) to 2 5/16 in (59 mm) by 3 1/16 in (78 mm) were collected. All of these specimens are of varying shades of gray.
	Unaltered Stone		The survey crew also collected two sandstone fragments, a pea-sized piece of limonite, three small fragments of limestone, and a small piece of quartz.
Faunal Remains			Faunal remains include four bone fragments smaller than 1 in (25 mm), the medial phalanx of a young bovine or bison, a carpal or tarsal of a medium-sized mammal, the distal end of a right humerus from a coyote-sized animal, and a section of the glenoid fossa of a left scapula, probably from an immature deer or antelope. The largest specimen of bone retrieved was the distal end of a right femur from an immature bison.
Historic Remains			The ceramic materials are all of historic origin. There are three stoneware pieces. One is a brown glazed sample. The second is a tan glazed body sherd about 3 1/8 in (79 mm) long. The third is a smaller tan sherd. There is also one thin white glazed earthenware fragment. A cut glass sherd and a fragment of flat glass, such as window pane, were found. The last article of historic debris collected was a small, thin, sparkling cinder about 1/4 in (6 mm) long.

14DN451

Site 14DN451 is located on the [redacted] Turkey Creek [redacted] a cultivated field. It appears at 1,160 to 1,170 ft (353 to 356 m) elevation in Muir silt loam. The terrace has probably been modified by erosion along the northern portion, which drains westward into the creek.

At the time of survey, the soil was very dry and supported milo stubble so that site limits were undetermined. Fire-reddened limestone, much glacial drift stone, and large pieces of limestone were observed.

The 1978 KAA crew felt this was probably the same area visited by the KU archeological team in 1968 and designated by them as 14DN3. However, map references were unclear, and it was judged necessary to specifically record this site as 14DN451 in 1978, although it may be a duplication of the previously designated site 14DN3.

Artifacts are described in Table 13. Because the soil was powdery dry and obscured by the crop cover at the time of survey, a good representation of the site may not have been obtained. In view of the burned limestone and the presence of several types of bone, it is recommended that further investigations include some subsurface testing, so that site boundaries may be defined.

Table 13. Artifacts from 14DN451.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	The only biface retrieved is a brown jasper tool, retaining some cortex. It measures 1 3/16 in (30 mm) by 3 1/16 in (78 mm) by 1/4 in (6 mm). It is very finely worked and modified for hafting (Figure 5d).
		Chips/ Flakes	Two large, light gray flakes were collected. One is 1 9/16 in (40 mm) long, 1 3/16 in (30 mm) wide, and 3/16 in (5 mm) thick. The other is 1 1/8 in (28 mm) long, 9/16 in (14 mm) wide, and 1/8 in (3 mm) thick. There are seven smaller gray chert flakes in the collection. One brown and tan chip completes the inventory of flakes collected. The samples range from 5/16 in (8 mm) by 1/2 in (13 mm) to 1 9/16 in (40 mm) by 1 3/16 in (30 mm).
	Burned Stone		A sample of burned limestone was collected.
Faunal Remains			Six small fragments of unidentifiable bone and a section of tooth enamel from a grass-eating animal were collected by the KAA crew.

14DN452

Site 14DN452 lies on [redacted] which separates it from site 14DN451. The rocky soil is glacial drift debris, classified as Irwin-Clime. The site occurs at 1,170 ft (356 m) elevation. No reliable limits were determined, as the vegetal cover was heavy.

A milo crop covered the field at the time of the survey by the KAA crew. The site may overlap the 1968 KU site designated 14DN3.

Artifacts are described in Table 14. The amount of lithic material retrieved suggests the area was utilized by prehistoric people. A rather tentative Early Ceramic affiliation may be considered for this site, based on the broken projectile point section. Due to the poor surface conditions at the time of survey, additional survey is recommended.

Table 14. Artifacts from 14DN452.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Bifaces	A projectile point 1 in (25 mm) long, 11/16 in (17 mm) wide, and 3/16 in (5 mm) thick of pinkish gray chert heads the tool inventory (Figure 4j). There is also a midsection of a projectile point made of light gray chert (Figure 4h). It is corner notched but broken through the notches and missing its distal tip. The midsection measures 1 3/16 in (30 mm) wide, 1 1/8 in (28 mm) long, and 1/4 in (6 mm) thick.
		Uniface	Included in this inventory is a large, mottled gray chert plano-convex end scraper, measuring 3 1/2 in (89 mm) long, 1 5/8 in (41 mm) wide, and 1/2 in (13 mm) thick (Figure 5e).
		Chips/ Flakes	Tan, brown, and yellow chert flakes are also present. The chert flakes range from 3/8 in (10 mm) by 1/2 in (13 mm) to 1 in (25 mm) by 2 3/16 in (56 mm). Of 25 dark and light gray chert flakes, at least two have pink shading suggestive of heat treatment.
	Unaltered Stone		Unmodified sandstone and river cobbles were also collected.
Faunal Remains			Contained in the surface sample are two very small bits of clam shell body under 1/4 in (6 mm) in length.

14DN453

[redacted] site 14DN453. It occurs in Muir silt loam at 1,180 ft (360 m) elevation. The site encompasses about 2 a (.8 ha), which had been harvested just before the survey team's visit during the 1978 KAA Fall Fling.

Artifacts are described in Table 15. The landowner had reported collecting some projectile points of an undescribed type from this area. The one small point recovered by KAA members suggests that this site was occupied temporarily by a Middle or Late Ceramic group. The site should be revisited when crop cover is less dense in order to better evaluate the significance of the site.

Table 15. Artifacts from 14DN453.

Ceramics Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	A triangular, nearly white chert point, measuring 1 5/16 in (33 mm) long , 11/16 in (17 mm) wide and 1/8 in (3 mm) thick, was the only tool found (Figure 4k). The concave base had been thinned, perhaps to facilitate hafting.
		Chips/ Flakes	Five gray to white chert flakes range from 1 5/8 in (41 mm) to 2 7/16 in (62 mm) in length.
	Unaltered Stone		Other lithic materials gathered include a small river cobble and four limestone samples.
Faunal Remains			A small fragment of unidentified bone about 9/16 in (14 mm) long was found.

14DN455

Site 14DN455 lies in [redacted] The brown loam soil was densely covered with alfalfa except for occasional thin spots and ant hills. The site was investigated by a KAA survey crew on a rainy Sunday morning in October 1978.

Artifacts are described in Table 16. The cultural affiliations for site 14DN455 are unknown as no diagnostic artifacts were observed. Further survey under better surface conditions is recommended. It does appear that prehistoric people have utilized the area. Additional survey work may further explain the sparsity of cultural materials over such a large area and possibly define activity areas within the limits of the site.

Table 16. Artifacts from 14DN455.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	The sparse stone tool assemblage includes the midsection of a gray chert biface that is 1 11/16 in (43 mm) long by 1 1/8 in (28 mm) wide by 5/16 in (8 mm) thick. A jasper biface is 76 mm long.
		Chips/ Flakes	A variety of miscellaneous stone fragments was collected from the surface of 14DN455. A dark red chert flake, 1 1/2 in (38 mm) by 7/8 in (22 mm), is modified along both lateral edges. One unmodified gray flake measures 2 9/16 in (65 mm) by 1 1/8 in (28 mm). Seven small chips vary in color from yellow to buff to dark gray. They range in size from 7/16 in (11 mm) by 1/2 in (13 mm) to 15/16 in (24 mm) by 15/16 in (24 mm).
	Unaltered Stone		Two samples of yellow to near white field stone were collected along with a small piece of sandstone.
Faunal Remains			No faunal remains were observed.

14DN456

Site 14DN456 lies [redacted] Due to heavy cover, boundaries were not defined.

The site was investigated in October 1978 by KAA surveyors. At that time the surface was very dry and obscured by vegetal cover. The landowner reported that lithic materials had been collected from the general area.

Artifacts are described in Table 17. Due to the dry unfavorable conditions at the time of survey, not enough material was recovered to suggest a cultural affiliation. The worked stone appears to have been deposited by prehistoric people. Site 14DN456 should be visited again when ground cover is not so heavy and site limits can be determined.

Table 17. Artifacts from 14DN456.

Ceramic Remains			No prehistoric remains were observed.
Lithic Remains	Chipped Stone	Biface	The crew picked up one bifacially worked section of gray chert. This midsection measures 1 15/16 in (49 mm) by 2 3/16 in (56 mm) by 3/8 in (10 mm).
		Chips/ Flakes	Three chert flakes were recovered, ranging in size from 1/2 in (13 mm) by 13/16 in (21 mm) to 7/8 in (22 mm) by 2 in (50 mm).
	Unaltered Stone		One sample of limestone is included in the collection.
Faunal Remains			Two pieces of unworked, unidentified bone were found.

14DN457

Site 14DN457 lies on the [redacted] The ground was nearly obscured with native pasture grasses, and the site was first revealed in the tracks of the lane. The site covers about 1 a (2.5 ha) of Clime silty clay at 1,220 ft (372 m) elevation. The surveys were in October of both 1978 and 1979.

Artifacts are described in Table 18. The four body sherds collected place this site's occupation in the ceramic period. The possibility of a habitation is slim, as this site is on a gravely hill some distance from running water. But the site may be a special activity area. Therefore, the site should be surveyed under better ground conditions to discern if further testing is necessary.

Table 18. Artifacts from 14DN457.

Ceramic Remains			Four ceramic pieces from the bodies of pottery vessels were collected. They range in size from 3/16 in (5 mm) by 3/16 in (5 mm) to 11/16 in (17 mm) by 3/4 in (19 mm). The thicknesses average 1/4 in (5.4-7.5 mm). All are sand tempered and have smooth surfaces. They are buff and tan in color.
Lithic Remains	Chipped Stone	Biface	In the artifact collection is one very small, bifacially modified piece of dark gray chert, which may be a small projectile point, measuring 1/2 in (13 mm) along each side (Figure 4l).
		Chips/ Flakes	A number of chert flakes, ranging from 3/16 in (5 mm) by 3/8 in (10 mm) to 1 5/16 in (33 mm) by 1 1/2 in (38 mm) were collected from this location.
		Core	One small gray chert core (Figure 8c), showing five flake removal scars, was collected.
Faunal Remains			No faunal remains were observed.

14DN458

Site 14DN458 is on a high terrace covering most [redacted] Covering nearly 4 a (10 ha), the site is in Hobbs silt loam at 1,180 ft (360 m) elevation. The field was planted to wheat at the time of survey.

The dark sandy loam of this terrace contains a scattering of chert flakes, burned earth, and limestone. During the KAA survey of October 1978, some ash was observed. The crew suspected they were observing the remains of a prehistoric hearth.

Artifacts are described in Table 19. Site 14DN458 appears to be a prehistoric habitation site of an undetermined culture or time period. The KAA crew recommends a return to the site under more favorable ground and weather conditions. Subsurface testing for indications of additional site information and the presence of buried cultural materials is needed.

Table 19. Artifacts from 14DN458.

Ceramic Remains			No prehistoric ceramic remains were observed.
Burned Earth			Two samples of burned earth were collected.
Lithic Remains	Chipped Stone	Chips/ Flakes	A large dark red jasper flake with white crystalline mottlings was retrieved.
	Burned Stone		Three samples of burned stone collected.
Faunal Remains			Seven bone fragments were found. The largest section of bone was the proximal end of the left humerus of a bison or *bos*. The others were not identifiable.

14DN459

Site 14DN459 is [redacted] Material was found at the 1,180 ft (360 m) elevation in Hobbs silt loam. The artifact scatter covers about 3 a (1.2 ha).

KAA pedestrian surveys were conducted in October of both 1978 and 1979. The ground was densely covered with wheat stubble and other vegetation when surveyed.

Artifacts are described in Table 20. The projectile point section suggests the presence of a ceramic culture. Resurvey might provide more information concerning the extent of the site and the culture represented.

Table 20. Artifacts from 14DN459.

Ceramic Remains			No prehistoric ceramic material is included with the artifacts collected. However, there is one small piece of fired clay.
Lithic Remains	Chipped Stone	Biface	One long tan chert specimen with a broken base measures 1 5/8 in (41 mm) long, 7/8 in (22 mm) wide, and 3/16 in (5 mm) thick (Figure 4o).
		Chips/ Flakes	Debitage collected at the site consists of five gray chert flakes, two of tan and one of lighter gray. They range in size from 1/4 in (6 mm) by 1/2 in (13 mm) to 1 1/16 in (27 mm) by 2 3/8 in (60 mm). Numerous other flakes were observed but not collected.
Faunal Remains			There are nine unidentifiable bone fragments in the surface collection. Two of these had been altered by burning.

14DN460

Located at [redacted] elevation, 14DN460 lies on [redacted] of Turkey Creek. The soil is [redacted] silt loam. The site covers approximately 2 a (.8 ha). At the time of the survey by KAA members during the Fall Fling on October 27, 1978, the ground had been tilled but not yet planted. The surface conditions were very dry and dusty.

Artifacts are described in Table 21. This site is not very promising for archeological potential due to the small number of artifacts recovered. It does warrant additional survey when the surface conditions are less dry.

Table 21. Artifacts from14DN460.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	Seven gray chert flakes were collected from the site. One is a large primary flake, measuring 3 1/8 in (79 mm) by 2 in (50 mm), with a bulb of percussion at one end and cortex on its convex side. The flake appears to have been removed from a large chert cobble. The other flakes were not unusual.
	Ground/ Pecked Stone		One large, elongated cobble of very hard metamorphic material is a groundstone celt, which has a smoothed surface and evidence of battering at both ends.
	Unaltered Stone		One quartz cobble and two sandstone cobbles were also collected. One of the sandstone samples shows red stain on one surface, which might be evidence of burning.
Faunal Remains			The faunal material consists of a metapodial from a large mammal. This bone, which is too large to be from a deer, is well preserved and does not appear to be very old. It is probably from the bovine family.

14DN461

Site 14DN461 is on [redacted] of sandy loam near the [redacted] bank of Turkey Creek, extending about [redacted] to the [redacted] of the stream channel. The site has an elevation of [redacted] and covers approximately [redacted] The soil type is Muir silt loam.

The site was surveyed by KAA members in October 1978. At that time the field was obscured by standing milo.

Artifacts are described in Table 22. Site 14DN461 requires further collection efforts before a cultural affiliation can be assigned. The KAA survey crew recommends that this site be surveyed again under optimum conditions.

Table 22. Artifacts from 14DN461.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Uniface	The largest chipped stone tool collected is a scraper, measuring 3 3/4 in (95 mm) long, 1 5/8 in (41 mm) wide, and 1 3/16 in (30 mm) thick, made of a buff colored chert with cortex remaining on one surface. A smaller plano-convex scraper of gray chert is sharpened at a steep angle along its dorsal edge, which also retains cortex (Figure 5).
		Chips/ Flakes	There were three fingernail-sized chips of light gray chert.
Faunal Remains			No faunal remains were observed.

14DN463

Site 14DN463 is located nearly [redacted] It occupies about [redacted] an elevation of [redacted]

A pedestrian survey was conducted by the Mud Creek Chapter crew in October 1978. At this time the surface conditions were rated poor. The field was planted to wheat. Limestone, historic crockery, and chert flakes were observed.

Artifacts are described in Table 23. Site 14DN463 contains a light scattering of prehistoric lithic debitage, which is not diagnostic for a specific time period or cultural affiliation. There is evidence that an early settler's homestead was built on the same area. There is no recommendation for further investigation at this time.

Table 23. Artifacts from 14DN463.

Ceramic Remains			No prehistoric ceramic sherds were observed.
Lithic Remains	Chipped Stone	Cores	A gray hemispherical chert core with many flake removal scars was collected (Figure 9a). It measures 2 3/4 in (70 mm) long and 2 5/16 in (59 mm) by 1 1/4 in (32 mm) in cross section.
		Chips/ Flakes	A mottled gray chert decortication flake measures 3 15/16 in (100 mm) by 3 in (75 mm) by 1 1/4 in (32 mm). There are five other chert flakes, ranging from pink to light gray, and one tan flake that may have been modified.
Faunal Remains			Faunal remains consist of shell fragments and a section of a turtle carapace.
Historic Remains			The following historic artifacts were recovered: one white sherd from an ironstone bowl, decorated with a small blue figure; a white ironstone body sherd; another ironstone body sherd with a blue flower and leaf design on the upper surface; an earthenware rim sherd that is brown glazed on the interior and unglazed on the exterior surface; a fragment of milk glass with the letters "IN" along one edge; a small piece of window glass; and a thin, clear bottle glass fragment.

14DN464

Site 14DN464 is on the [redacted] Cultural materials are in the [redacted] at an elevation of [redacted] The valley floor slopes gently upward from the creek to the site. The site covers about [redacted]

A survey of the site was conducted in October 1978 by the KAA Fall Fling survey crew. The surface was densely covered with dried soybean plants and other vegetation.

Artifacts are described in Table 24. The presence of a small corner-notched projectile point suggests that this site is probably from the Early Ceramic period. No indications of structural evidence were observed. The site should be reexamined to confirm the cultural affiliation and the depth of any cultural deposit.

Table 24. Artifacts from 14DN464.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Bifaces	One small projectile point, measuring 11/16 in (17 mm) long, 9/16 in (14 mm) wide, and 1/16 in (2 mm) thick, was recovered (Figure 4d). This corner-notched point, manufactured from tan chert, has a slightly concave base. The stone may have been heat treated. Two end sections of bifaces were collected. One, measuring 1 9/16 in (40 mm) long, 2 in (50 mm) wide, and 3 1/2 in (89 mm) thick, is of gray mottled chert. The second of light gray chert measures 1 in (25 mm) long, 1 1/4 in (32 mm) wide, and 1 1/4 in (32 mm) thick.
		Chips/ Flakes	Thirteen chert flakes of varying shades of gray, tan, and red and white were collected. These specimens range from 1/8 (3 mm) to 3/4 in (19 mm) in length.
	Unaltered Stone		One stream cobble fragment completes the lithic material collected from the site.
Faunal Remains			No faunal remains were observed.

14DN465

[redacted] is the location of site 14DN465. It occupies about [redacted] and is almost [redacted] of the section line at an elevation of [redacted] The soil is [redacted]

The site was visited in October 1978 by the KAA survey crew. The ground was cultivated, but cover was dense and there had been no precipitation for some time.

Artifacts are described in Table 25. The presence of the corner-notched projectile point suggests an Early Ceramic cultural affiliation. The site is under cultivation and subject to erosion and should be checked again.

Table 25. Artifacts from 14DN465.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	One light gray chert corner-notched point with the tip missing was recovered (Figure 4p). Its dimensions are 1 1/4 in (32 mm) long, 1 in (25 mm) wide, and 3/16 in (5 mm) thick.
		Chips/ Flakes	Twenty-six chert flakes, varying in colors of gray, tan, red and white, were recovered.
	Burned Stone		One small sample of burned limestone was collected.
	Unaltered Stone		Two field stones were collected.
Faunal Remains			No faunal remains were observed.

14DN466

Site 14DN466 is located on the [redacted] of Turkey Creek, about [redacted] of the present stream and about [redacted] of the county road right-of-way. The area of the site is probably confined to [redacted] The soil is Muir silt loam and is at an elevation of 1,180 ft (360 m).

In October 1979 the site was planted to wheat. Is was inspected by a KAA pedestrian survey. No subsurface tests were made.

Artifacts are described in Table 26. The surface collection from 14DN466 contains insufficient diagnostic material to determine a cultural affiliation. The recovery of thermally altered flakes adds to the interest potential and should be considered in future investigations at this site. The historic component at the site is represented by the clinker. Additional survey and perhaps limited testing are needed to more clearly determine the prehistoric events at this site.

Table 26. Artifacts from 14DN466.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	A dark gray chert flake was recovered. Nine flakes are of light gray and light tan. Seven pieces of thermally altered chert include a primary decortication flake, five small secondary decortication flakes, and one irregular piece of chert shatter.
		Core	A small dark gray chert core was recovered.
	Burned Stone		Two pieces of burned limestone were also recovered.
Faunal Remains			Faunal remains from this site are represented by three small pieces of thick, heavy unidentified bone.
Historic Remains			One cinder or clinker was recovered.

14DN474

Site 14DN474 occupies an [redacted] the [redacted] The area covers [redacted] at an elevation of [redacted] The soil is Irwin silty clay loam.

The site was in milo stubble and was very dry and powdery when visited by the KAA survey team in October 1979. The ground surface was obscured by weed growth.

Artifacts are described in Table 27. No cultural affiliation can be determined from the material collected from 14DN474. Except for agricultural impact, the site is not presently in apparent danger. It is recommended that the site be visited again under optimum visibility conditions.

Table 27. Artifacts from 14DN474.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	The largest fragment of the bifacial tools is a gray chert base section, measuring 1 1/8 in (28 mm) long, 13/16 in (21 mm) wide, and 1/8 in (3 mm) thick. Another gray chert biface midsection measures 1 in (25 mm) long, 7/8 in (22 mm) wide, and 5/16 in (8 mm) thick. One other small chert fragment is bifacially worked.
		Uniface	One flake measures 1 3/8 in (35 mm) long, 1 in (25 mm) wide, and 1/4 in (6 mm) thick. Modification along one edge suggests use as a scraper.
		Chips/ Flakes	The inventory also contains eight chert flakes, three of which may have worked edges.
	Unaltered Stone		Two fragments of river cobbles and one small sample of yellow jasper were collected.
Faunal Remains			Faunal remains were represented by two sections of turtle carapace.

14DN475

Site 14DN475 lies on the [redacted] of the [redacted] of Turkey Creek on a slight elevation about [redacted] of the creek bank. The soil is Sutphen silty clay loam and the site occupies about [redacted]. The elevation is [redacted]

The site was visited in October 1979 by a KAA crew. At that time it was in cultivation with a sparse crop of new alfalfa. No prior surveys are known for this area.

Artifacts are described in Table 28. Site 14DN475 requires further survey under better conditions to obtain more definite information.

Table 28. Artifacts from 14DN475.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Core	One stream cobble with brown cortex and flake removal scars may be a core remnant or a crude tool.
		Chips/ Flakes	Several small chert flakes were collected.
	Ground/ Pecked Stone		One quartzite cobble, measuring 3 1/2 in (89 mm) by 2 7/16 in (62 mm) by 1 3/4 in (44 mm), may have been used as a hammerstone.
	Burned Stone		Some burned stone was observed.
	Unaltered Stone		A few samples of sandstone were recovered.
Faunal Remains			Several bone fragments were also observed.

14DN476

Site 14DN476 lies on the [redacted] bank of Turkey Creek on the [redacted] of [redacted] The site covers [redacted] at an elevation of [redacted] The soil is Muir silt loam.

The site was visited in October 1979 by the KAA Fall Fling crew. There are no known prior collections from this site. The soil was loose and dry with the ground surface quite visible.

Artifacts are described in Table 29. The size of the projectile point suggests an occupation by one of the ceramic cultures. The site should be revisited under better surface conditions in an effort to determine the specific culture.

Table 29. Artifacts from 14DN476.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	A small grey chert projectile point with its basal corners missing was recovered. It measures 11/16 in (17 mm) long, 3/8 in (10 mm) wide, and 1/16 in (2 mm) thick.
		Chips/ Flakes	Several chert flakes of various colors were collected. Three flakes are Florence or Kay County chert. Chert debitage was observed.
	Ground/ Pecked Stone		One gray quartzite hammerstone cobble was collected.
	Burned Stone		Other material observed was burned limestone.
Faunal Remains			Fragmented mollusk shell was observed at the site.

14DN477

Site 14DN477 is located on [redacted] on the [redacted] of Turkey Creek. Occurring at [redacted] elevation, the site covers about [redacted] of Hobbs silt loam. Two separate areas, which were about 200 yds (183 m) apart, were designated as Area 791 and Area 792 in order to provide a more accurate recording of the ceramic provenience.

The survey was conducted by members of the KAA during the Fall Fling of October 1979. The field contained milo at the time of the survey, and visibility was very poor. There had been no previously known survey or collections made at this site.

Artifacts are described in Table 30. Site 14DN477 should be resurveyed during better surface conditions. Only two areas containing cultural materials were identified, perhaps due to the poor visibility. The two clay-tempered body sherds indicate an occupation by one of the Ceramic cultures and also support the possibility of a habitation site that may have contained structures.

Table 30. Artifacts from 14DN477.

Ceramic Remains			Two clay-tempered, cord-roughened body sherds were recovered from Area 791. The outer surface of these sherds is light brown in color, while the inner surface is dark tan to gray. The cores are almost black. The larger of the sherds is 1 1/16 in (27 mm) by 1 in (25 mm) by 5/16 in (8 mm) thick. The other measures 1 in (25 mm) by 5/8 in (16 mm) by 1/4 in (6 mm) thick.
Lithic Remains	Chipped Stone		Evidence of worked stone tools includes a small section of bifacially modified chert, measuring 3/8 in (10 mm) long, 1/4 in (6 mm) wide, and 1/8 in (3 mm) thick. A very small section of a pinkish-gray chert biface may represent another tool fragment.
		Uniface	There is also a section of a plano-convex scraper made from gray chert, which measures 1 9/16 in (40 mm) in length from point to break, 1 5/8 in (41) mm in width, and 1/2 in (13 mm) thick. Another unifacial tool is represented by a large section of dark gray chert, measuring 2 7/16 in (62 mm) in length from its end to the break, 1 3/16 in (30 mm) in width, and 1/2 in (13 mm) in thickness.
		Chips/ Flakes	Assorted chert chips and flakes were present also.
	Ground/ Pecked Stone		A river cobble with slightly battered ends was collected.
Faunal Remains			A few small, unidentified bone fragments were recovered.

14DN478

On the [redacted] side of Turkey Creek, 14DN478 occupies a [redacted] The soil is Irwin silty clay loam. The site is separated from site 14DN8 by about [redacted] ft [redacted] of cropland and consists of about 1 a (.4 ha). Immediately to the west of the site is a timbered pasture. The pedestrian survey was conducted in October 1979 by KAA members.

Artifacts are described in Table 31. Based on the presence of the dart point, the site is considered to be of the Archaic period. The point is similar to those found on the William Young site at Council Grove Reservoir, which were classified as Munkers Creek Phase, Type I (Witty 1981:171). It is recommended that the site be surveyed again during better surface conditions. The nearby pasture land should also be surveyed to determine if cultural materials extend into this area.

Table 31. Artifacts from 14DN478.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Bifaces	An incomplete gray chert stemmed point, which is lenticular in cross section, measures 1 3/8 in (35 mm) in length, 11/16 in (17 mm) at its widest point, 1/2 in (13 mm) at the neck, and 1/4 in (6 mm) in thickness (Figure 4n). A portion of the original tool is all that remains of a light gray chert biface. One modified edge of this section appears to be smoothed from use and was possibly used as a cutting utensil. This artifact measures 3/8 in (10 mm) long, 1 1/16 in (27 mm) wide, and 1/4 in (6 mm) thick. The distal portion of a crude gray chert biface was collected.
		Unifaces	A plano-convex end scraper of variegated gray chert with a remnant of cortex on the keel measures 1 5/8 in (41 mm) long, 13/16 in (21 mm) wide, and 9/16 in (14 mm) thick through the keel. The distal end exhibits some wear or smoothing as the result of use. A section of a small gray uniface was collected.
		Chips/ Flakes	A number of flakes, some of yellow jasper and some of thermally altered gray and pink chert, were collected.
		Core	Also retrieved was a yellowish tan chert core remnant, roughly circular in shape.
	Ground/ Pecked Stone		One brown quartzite hammerstone measures 3 3/8 in (86 mm) by 2 1/2 in (64 mm) by 2 5/16 in (59 mm). One gray quartz hammerstone section measures 1 9/16 in (40 mm) by 2 9/16 in (65 mm) by 1 3/16 in (30 mm). One stream cobble with brown cortex exhibits evidence of battering on several surfaces.
	Unaltered Stone		One unmodified cobble and a marble-sized, fine-grained limestone nodule were collected.
Faunal Remains			No faunal remains were observed.

14DN485

Site 14DN485 lies on [redacted] near the [redacted] The area of the site is on the east or right bank of the Smoky Hill River and covers about [redacted] The site's elevation is [redacted] in soils consisting of Detroit silt loam and Sutphen silty clay loam. The field had been harvested and the surface was relatively clear when the surveyors visited it.

The site was identified by two KAA members in 1976. It was recorded in October 1980 by the Mud Creek investigators. During an earlier survey by Detrich and Matthews, articulated bones, probably bison, were found eroding from the bank of the adjacent Turkey Creek.

Artifacts are described in Table 32. Based on the one ceramic sample found at 14DN485, the site may contain additional artifacts of the Late Ceramic period and could possibly be a habitation site. Bison bone is known to have eroded from the banks of nearby Turkey Creek. A future survey should be conducted in conjunction with some subsurface testing.

Table 32. Artifacts from 14DN485.

Ceramic Remains			A sherd was recovered during a KAA survey (Figure 10a). It is thin and buff colored, measuring 13/16 in (21 mm), 9/16 in (14 mm), and 1/8 in (3 mm). This very smooth-surfaced, nickel-sized specimen displays three incised parallel lines that are finely drawn.
Lithic Remains	Chipped Stone	Chips/ Flakes	One light gray chert flake shows some modification. Several other chert flakes were recovered.
	Burned Stone		One sample of limestone may have been burned.
	Unaltered Stone		The collection also contains one sandstone cobble.
Faunal Remains			Several nondefinitive samples of bone and a fragment of tooth enamel from a grass-eating animal complete the inventory of collected materials.

14DN486

Site 14DN486 is a [redacted] tract on a [redacted] rising about [redacted] above the surrounding flood plain. It occurs in Muir silt loam on the [redacted] at an elevation of [redacted]. The site is on the terrace between the north-south hedgerow and the creek bank. The site was surveyed by the KAA members during October 1980.

Artifacts are described in Table 33. Absence of culturally diagnostic material and the sparsity of artifacts from 14DN486 make the designation of temporal or cultural affiliation impossible. Future survey should be conducted here to add to the archeological information of the site.

Table 33. Artifacts from 14DN486.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	The broken midsection of a gray chert biface, measuring 1 3/8 in (35 mm) in length from break to break, 1 1/2 in (38 mm) in width, and almost 3/16 in (5 mm) in thickness, could represent a section of a flint knife. It is the only tool fragment recovered at the site.
		Chips/ Flakes	Two large primary flakes, retaining some cortex, are of vari-colored gray chert. There were nine other chips and flakes collected. These are penny-sized and smaller, ranging in shades of gray, tan, and pink chert. There is also a larger decortication flake of red stone.
	Unaltered Stone		Three samples of sandstone complete the lithic inventory. A fragment of porous pink limestone cortex was collected.
Faunal Remains			No faunal remains were observed.

14DN487

This site lies on the first terrace on the west or left bank of Turkey Creek. The site elevation is 1,230 ft (375 m). When the site was surveyed in the fall of 1980 by members of the KAA, the field of Hobbs silt loam had recently been disked and it had not rained recently. Surveying was very difficult, and site limits were not determined.

Artifacts are described in Table 34. Due to the poor conditions for inspection another survey is recommended to determine a cultural affiliation and to better define the area of the site.

Table 34. Artifacts from 14DN487.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	Two flint chips were collected by the KAA crew.
	Ground/ Pecked Stone		A small ovate hammerstone was found at this site. Its dimensions are 2 3/16 in (56 mm) by 1 9/16 in (40 mm) by 1 1/16 in (27 mm).
Faunal Remains			No faunal remains were observed.

14DN488

Site 14DN488 is located on the [redacted] of the [redacted] The stream flows [redacted] and is about [redacted] of the site. At the [redacted] elevation, the area is flat and somewhat low. The site appears to be about [redacted] in diameter. The soil is Hobbs silt loam.

In early October 1980 at the time of the KAA pedestrian survey, the site was in waist-high milo. Vegetation between the rows also hampered visibility. Dry and dusty surface conditions prevented recovery of diagnostic material.

Artifacts are described in Table 35. Site 14DN488 is identified as the habitation site of an early settler's farmstead or possibly a schoolhouse, although no school is located here in the 1909 plat book. No further archeological work is recommended at this time.

Table 35. Artifacts from 14DN488.

Ceramic Remains			No prehistoric ceramic sherds were located.
Lithic Remains	Chipped Stone	Chips/ Flakes	One brown jasper flake, having no evidence of modification, was obtained.
	Unaltered Stone		One piece of limestone and a quartz sample were collected.
Faunal Remains			Animal remains were represented by one small fragment of bone. The specimen is too small and its condition too deteriorated for adequate identification.
Historic Remains			Two pieces of crockery, one with a brown interior and light gray exterior, were collected. There are eight fragments of undecorated whiteware and one that has a pink rose design. Another artifact, which could be the bottom of a cup, has a stamped mark with the remaining letters ". . . NY." Seven pieces of glass represent tableware and storage containers. The most interesting piece of all the ceramic materials is the china arm of a small doll. This arm (right) has a hole in the shoulder to allow attachment. There are two pieces of slate and two pieces of weathered red brick in the artifact inventory. Metal machinery parts were observed here.

14DN489

The site lies to the [redacted] of an [redacted] on the West Branch of Turkey Creek at an elevation of [redacted] Its location appears to be above the flood plain. The soil is Hobbs silt loam. Site 14DN489 is about 263 ft to 328 ft (80 m to 100 m) in diameter.

The area was visited by the KAA Fall Fling crew in October 1980. At that time milo and weed cover was sparse in some areas and very dense in others.

Artifacts are described in Table 36. On the basis of the ceramic and lithic evidence, 14DN489 represents a site of the Middle or Late Ceramic culture. No indications of a structure were observed. When conditions are better or there is less ground cover, a further inspection of the surface should be conducted to look for additional habitational evidence. The site is being adversely impacted by cultivation and surface erosion and will probably be destroyed soon.

Table 36. Artifacts from 14DN489.

Ceramic Remains			Five small burnt orange body sherds were collected from this site (Figure 10b-f). All are tempered with fine sand and indurated clay. The sherds are thin, ranging from 1/8 in (3 mm) to 3/16 in (5 mm) in thickness. They range in size from 13/16 in (21 mm) by 13/16 in (21 mm) to 5/8 in (16 mm) by 1/2 in (13 mm). None show modification or surface treatment.
Lithic Remains	Chipped Stone	Bifaces	One incomplete plain triangular projectile point of red jasper with the tip missing measures 9/16 in (14 mm) long from base to break by 1/2 in (13 mm) wide by 1/16 in (2 mm) thick (Figure 4e).
		Unifaces	One end scraper was recovered (Figure 8b). Its dimensions are 1 5/16 in (33 mm) long by 3/4 in (19 mm) wide by 3/16 in (5 mm) thick. It is banded brown jasper. Another uniface section of caramel jasper is unifacially worked and somewhat worn. A brown jasper uniface section, which is possibly a scraper midsection, was recovered.
		Chips/ Flakes	Eight pieces of chert debitage were retrieved. Five specimens are of gray chert, and the remaining two are of brown jasper.
	Unaltered Stone		One quartzite stream cobble was also collected.
Faunal Remains			Twenty-five unidentifiable bone fragments were collected. One is burned; another is possibly an antler section. There are two turtle shell fragments in the collection.

14DN490

Site 14DN490 lies on the [redacted] side of Turkey Creek and on the [redacted] side of a bend in the creek at an elevation of [redacted] It is no more than 230 ft (70 m) in diameter. The soil, which had been freshly tilled prior to the survey, is Irwin silty clay loam.

The survey of site 14DN490 was made October 12, 1980, by KAA members. No previous collections are known to have been made at this site.

Artifacts are described in Table 37. Surface conditions were dry, and the field had recently been prepared for seeding when it was visited. Another survey under optimum surface conditions is recommended.

Table 37. Artifacts from 14DN490.

Ceramic Remains		No prehistoric ceramic remains were observed.
Lithic Remains	Unaltered Stone	Two pieces of chert and one reddish cobble of dense, fine-grained quartzite were collected during the survey.
Faunal Remains		No faunal remains were observed.

14DN491

This site lies on the west or left side of the West Branch of Turkey Creek. The creek borders the site on the west, north, and east sides. The material is scattered over a low terrace at an elevation of 1,150 ft (351 m). The soil is Irwin silty clay loam. The site area does not exceed 1/2 a (.2 ha).

The site was planted to wheat at the time of inspection. The KAA investigations were restricted to a rather quick pedestrian survey during early October 1980. The wheat was up, but generally the surface was visible. Sufficient material was recovered to determine that the area is an archeological site.

Artifacts are described in Table 38. Site 14DN491 did not yield culturally diagnostic artifacts. Hence cultural affiliation cannot be determined. The site is near the creek and eventually may be buried or eroded. Only limited subsurface testing is recommended for the site because of the sparsity of material recovered during the survey.

Table 38. Artifacts from 14DN491.

Ceramic Remains			No prehistoric ceramic remains were observed.
Burned Earth			Two fragments of burned earth that contain a high percentage of fine sand were collected.
Lithic Remains	Chipped Stone	Chips/ Flakes	Two samples of gray chert debitage and one small piece of jasper were collected. These specimens did not exhibit secondary work.
Faunal Remains			Large grass-eating animals are represented by three large teeth and several fragments of large bone. One of the bones is a phalanx, and another is a carpal or tarsal. Both are from the bovine group.

14DN492

Site 14DN492 lies on the [redacted] side of Turkey Creek [redacted] The area occurs on a second terrace above the creek bank. The site acreage was not estimated, but it covers the terrace toe and extends north nearly to the roadway and down to the treeline. The soil is Muir silt loam.

The site was surveyed by KAA members during October 1980. No excavations are known for this location.

Artifacts are described in Table 39. The projectile point suggests that the area may have been used by one of the Middle Ceramic cultures. A sherd found on 14DN493, which is located just to the west of this site, should be considered when determining a relative date for 14DN492. If the two sites are representative of a single occupation, that occupation probably should be designated as Middle Ceramic. Due to the heavy vegetation and powdery surface conditions, any signs of habitational structures that may be present were not visible. The site should be inspected again during optimum surface conditions to determine a need for further testing.

Table 39. Artifacts from 14DN492.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	One plain triangular point of translucent white chert, missing the tip, measures 9/16 in (14 mm) long, 1/2 in (13 mm) wide, and 1/8 in (3 mm) thick (Figure 4f). It has a concave base and is very nicely worked.
		Chips/ Flakes	Two chert flakes were collected, one of which has a small area of secondary flaking along one edge.
Faunal Remains			Only three fragments of unidentifiable bone were recovered.

14DN493

Site 14DN493 lies on the [redacted] It is on an eastwardly draining slope at [redacted] elevation. The artifact deposit spreads about 100 ft (30 m) in diameter over Muir silt loam soil.

The site survey was conducted in October 1980 by the KAA crew. The vegetation in the field consisted of waist-high milo and dense weeds. The surface was dry and powdery. There are no other collections reported from this site.

Artifacts are described in Table 40. The single sherd suggests a Middle Ceramic period affiliation for the site. Further survey is needed. Site 14DN492 immediately east may well have been contemporary.

Table 40. Artifacts from 14DN493.

Ceramic Remains	The entire ceramic inventory is represented by one indurated clay-tempered body sherd, measuring 1 3/4 in (44 mm) long, 1 1/4 in (32 mm) wide, and 7/16 in (11 mm) thick (Figure 10g). The buff exterior of this specimen bears cord roughening, placed in a random pattern. The dark gray interior of the sherd has been well smoothed.
Lithic Remains	No lithic remains were observed.
Faunal Remains	No faunal remains were observed.

14DN494

Site 14DN494 is on the [redacted] of Turkey Creek at the north end of a high terrace that overlooks the creek. The site probably extends to the south and west. To the south is a meadow. A road bisects the terrace on the west. Some of the site may have been destroyed by road construction and erosion. The remaining area of the site is in a field and includes about 1 a (.4 ha) at an elevation of [redacted] The soil is Hobbs, Geary, and Muir silt loam.

A pedestrian survey was made during the ΚΑΑ Fall Fling of October 1980. The land was cultivated, and no subsurface investigations were conducted. Chert flakes were found in various rodent mounds in the meadow to the south.

Artifacts are described in Table 41. The artifacts and debitage observed at 14DN494 seem to indicate a habitation site of undetermined cultural affiliation. No evidence of a structure was seen. The abundance of chert debitage and the clam shell would indicate a need for testing with a soil coring tool to determine the extent and depth of the deposit. Wind and water erosion and cultivation are endangering this site.

Table 41. Artifacts from 14DN494.

Ceramic Remains			No prehistoric ceramic material was observed.
Burned Earth			There are also two samples of burned earth.
Lithic Remains	Chipped Stone	Bifaces	Four samples of crudely chipped chert and quartzite were collected. The three broken specimens range from 1 3/16 in (30 mm) to 1 3/4 in (44 mm) in length, 1 3/4 (44 mm) to 2 in (50 mm) in width, and 3/8 in (10 mm) to 1 1/8 (28 mm) in thickness. The fourth section measures 1/4 in (6 mm) long, 11/16 in (17 mm) wide, and 1/8 in (3 mm) thick.
		Uniface	One uniface fragment of light gray chert was collected.
		Chips/ Flakes	Chert debitage in various shades of gray and brown were also collected. Some of these specimens may have been thermally altered.
	Ground/ Pecked Stone		One sandstone abrader was recovered that retains smoothing from use as a grinding tool (Figure 11a). It measures 4 1/8 in (105 mm) along the longitudinal axis and 3 in (76 mm) across. It is approximately 1 9/16 in (40 mm) through the thickest part. The rough side of the artifact contains random grooves, which are probably not of prehistoric origin. Two quartzite hammerstones were collected. These are ovate in cross section, and the ends show battering.
	Burned Stone		Included in the lithic inventory is one small sample of burned limestone.
	Unaltered Stone		Stream cobbles were collected.
Faunal Remains			One section of a turtle shell was found. Also collected were 13 fragments of clam shell. Six of these shell fragments retain connective hinges.

14DN495

This site is located on the [redacted] bank of Turkey Creek and on the [redacted] of a long, sloping, relatively high terrace. The soil is Irwin silty clay loam. An Osage orange hedge row delineates the southern boundary of the site. Cultural material was found about 41 ft (12.5 m) north of the hedgerow and about halfway up the hillside at an elevation of [redacted] The cultural material is scattered over at least 1/2 a (.2 ha).

KAA investigations were limited to a pedestrian survey during October 1980 through a rather sparse stand of milo with few weeds to block the view of the ground surface. The cultural material was widely scattered.

Artifacts are described in Table 42. On the basis of the point section, this site was probably occupied during the Early or Middle Ceramic periods. Site 14DN495 has been adversely affected by cultivation. The chance of archeological information remaining below the surface is doubtful. However, some cultural material may be revealed to the south of the hedge row, if it is revisited during optimum surface conditions. Further investigation probably is not necessary except for an occasional return survey. This locale may represent an activity area related to one of the adjacent sites.

Table 42. Artifacts from 14DN495.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	One midsection of a small point or knife of light gray chert measures 1 1/4 in (32mm) long, 9/16 in (14 mm) wide, and 3/16 in (5 mm) thick. Both the basal end and the extreme tip are missing. A tabular piece of brown jasper with worked surfaces on alternate edges was recovered. Measurements of the specimen are 1 3/8 in (35 mm) long, 1 1/2 in (38 mm) wide, and 5/16 in (8 mm) thick. This fragment is insufficient to indicate the former size or function of the tool.
		Uniface	A uniface section of gray chert measures 1 3/16 in (30 mm) along its worked edge, 1 1/8 in (28 mm) to the break, and 1/4 in (6 mm) thick.
		Chips/ Flakes	Four additional pieces of chert debitage complete the collection from 14DN495.
Faunal Remains			No faunal remains were observed.

14DN496

At 14DN496 the area of cultural material consists of [redacted] on the [redacted] of the West Branch of Turkey Creek. Irwin silty clay loam occurs within a bend of the creek, which flows [redacted] and then turns [redacted]. The site's elevation is 1,190 to 1,200 ft (363 to 366m).

The area was surveyed by the KAA Mud Creek Chapter crew in October 1980. At the time of the survey, the unharvested milo contained many weeds, and ground visibility was poor.

Artifacts are described in Table 43. Due to lack of diagnostic material, no conclusions can be drawn as to the type of site or its cultural affiliation. It is recommended that the site be inspected again during better surface conditions.

Table 43. Artifacts from 14DN496.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	One large gray chert flake has a worked edge. It is 2 1/16 in (52 mm) long, 1 5/16 in (33 mm) wide, and 5/16 in (8 mm) thick. Also eleven small chert flakes were gathered.
	Ground/ Pecked Stone		One jasper cobble, measuring 3 3/4 in (95 mm) long, 2 3/16 in (56 mm) wide, and 1 1/2 in (38 mm) thick, exhibits modifications at both ends.
	Unaltered Stone		One unmodified quartz cobble was also collected.
Faunal Remains			Faunal remains are represented by six small fragments of unidentifiable bone, one of which appears to have been burned.

14DN497

This site covers approximately 1/2 a (.2 ha) on the northeast slope of a terrace on the [redacted] West Branch of Turkey Creek at an elevation of [redacted] The soil of 14DN497 is Irwin silty clay loam.

Recently harvested milo resulted in fair surface visibility for the KAA members who surveyed the area in October 1980. There was a thin scattering of chert and bone on this terrace slope.

Artifacts are described in Table 44. These finds indicate that there was some prehistoric activity at this location. Additional survey might yield further information.

Table 44. Artifacts from 14DN497.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	One primary, one secondary, and two tertiary flakes of gray chert were collected at the site.
		Core	One specimen of modified brown jasper measures 1 3/8 in (35 mm) long by 1 3/8 in (35 mm) wide by 5/8 in (16 mm) thick. It resembles a cobble core with the cortex almost entirely removed.
Faunal Remains			Small unidentifiable bone fragments were present, and a few were collected.

14DN498

The site is on the [redacted] on the [redacted] side of the [redacted] Branch of Turkey Creek. It is approximately [redacted] above the junction with Turkey Creek. Site 14DN498 covers 2 to 3 a (.8 to 1.2 ha) at 1,190 ft (363 m) in elevation. The soil is Geary silt loam.

Chert debris is present on the slopes of the terrace toe, suggesting that the site may have some depth. In October 1980 this stubbled area was inspected by the KAA survey team.

Artifacts are described in Table 45. Site 14DN498 is tentatively identified as an Archaic habitation site. This classification is derived from the dart point section and the lack of ceramic materials. The debitage sample appears to show there was little, if any, primary flaking done at this location. All of the flakes are either tertiary or thinning flakes. It is interesting to note the apparent absence of thermally altered chert. The amount and type of debris indicates occupation of the area over an extended time span, perhaps revisited many times, rather than a habitation site. Site 14DN498 should be monitored as erosion and continued cultivation are harming the site. It would be helpful to conduct some minimal subsurface testing to determine the presence of subsurface cultural materials.

Table 45. Artifacts from 14DN498.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Biface	One biface fragment was collected. It appears to be the proximal end of a large dart point or knife (Figure 8d). The stem is contracting with a straight base. The remaining section measures 1 1/8 in (28 mm) long, 1 3/8 in (35 mm) wide, and 5/16 in (8 mm) thick. The tool was made from a nearly white, fine-grained chert. This is different from the other chert samples collected at the site, which primarily range in shades of gray and are probably a Flint Hills variety.
		Unifaces	Two uniface fragments were found.
		Chips/ Flakes	One modified flake was recovered. There were numerous pieces of debitage collected, but no decortication surfaces appear in the waste. The flakes are primarily of gray chert with the exception of two: a mottled yellow-gray chert and a jasper.
Faunal Remains			No faunal remains were observed.
Historic Remains			Subsequent historic activities are represented by one small piece of dark, sparkling material. This specimen was interpreted as a cinder, perhaps from an old steam engine or forge.

14DN1405

The site is on [redacted] on the [redacted] side of the [redacted] Branch of Turkey Creek. Presently the creek flows to the [redacted] about 82 to 90 ft (25 to 30 m) from the site area. The elevation of the site is 1,170 ft (356 m), and the soil is Hobbs silt loam. Site limits were not determined due to heavy vegetal cover.

Archeological investigation of this area consisted of one survey by KAA members on a dry day in October 1980. The survey was handicapped by heavy milo cover; however, a small amount of cultural material was collected.

Artifacts are described in Table 46. Insufficient cultural materials were collected from 14DN1405 to permit its placement within a specific time period for occupation. The chert samples are very similar to those recovered from the surface of 14DN6. Considering the proximity of the two sites, it may well be that they represent a single occupation, with 14DN1405 being some form of activity area. This site should be revisited and analyzed when further testing is conducted at 14DN6.

Table 46. Artifacts from 14DN1405.

Ceramic Remains			No prehistoric ceramic materials were observed.
Lithic Remains	Chipped Stone	Biface	Specimens collected include one large flake of light to medium gray chert, which measures 3 3/16 in (81 mm) long, 2 3/8 in (60 mm) wide, and 13/16 in (21 mm) thick (Figure 9b). Along one lateral edge is a concave modification, measuring 11/16 in (17 mm) across and 3/16 in (5 mm) deep, suggesting its probable function as a shaft smoother.
		Chips/ Flakes	A second large gray chert flake, which measures 1 5/8 in (41mm) long, 1 in (25 mm) wide, and 5/16 in (8 mm) thick, has evidence of some modification along one lateral edge. Seven smaller dark gray chert flakes were collected. These range from 1 1/4 in (32 mm) to 3/8 in (10 mm) in length. Three smaller flakes are pink, tan, and light gray. Two of these may have been thermally altered.
	Unaltered Stone		There is a fragment of a quartzite stream cobble.
Faunal Remains			Two small fragments of undiagnostic bone and one piece of tooth enamel were collected.

14DN1406

Site 14DN1406 lies [redacted] on the [redacted] side of the West Branch of Turkey Creek. Being about 10 ft (3 m) above the usual water flow level, it probably floods often. The elevation is 1,210 ft (369 m). The 98 ft (30 m) diameter site area is in Hobbs silt loam.

Site 14DN1406 was surveyed by a KAA team in 1980. Large areas of open soil were visible as the soybean stubble and chaff were dry and scattered. Bone, chert, and broken cobbles drew the investigators' attention.

Artifacts are described in Table 47. The cultural material collected is minimal. No determination of site limits nor cultural affiliation was possible. Presently there is no plan to conduct additional testing at 14DN1406.

Table 47. Artifacts from 14DN1406.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	The two chert samples collected are small, thin flakes. Both are light gray in color. A slightly larger chert fragment, 5/16 in (8 mm) long, is of a darker gray. None of the specimens show special modification.
	Unaltered Stone		One broken river cobble was collected because it did not occur naturally in the area. This cobble does not exhibit alteration by pounding or grinding.
Faunal Remains			Only small unidentifiable bone fragments were found.

14DN1416

Cultural debris occurs between [redacted] and a hill on a low alluvial terrace at 1,140 ft (347 m) elevation on the [redacted] bank of Turkey Creek. Two apparent concentrations, each of somewhat less than 1 a (.4 ha), are separated by what may be an old stream scar. These have been designated as Area 801 and Area 802. The dark brown soil was subsequently identified as Hobbs silt loam, a deep, well-drained flood plain soil.

The survey of the site was made in October 1980 by two KAA members in response to the rumor of the presence of a shell midden within the bend of the creek. A thin stand of wheat obscured no more than 20 percent of the ground surface.

Artifacts for the two areas are described in Tables 48 and 49. The cultural remains recovered from 14DN1416 represent a habitation site of prehistoric people. The large sherd is of a style associated with Early Ceramic cultures. There is no evidence of a structure or of horticultural activities in the collected materials. The site may have been a gathering place. However, its sheltered location along the creek would be favorable for a winter camp site. Further survey and at least minimal subsurface testing is recommended for this location.

Table 48. Artifacts from 14DN1416, Area 801.

Ceramic Remains			Two types of pottery were collected. The first is represented by one cord-roughened body sherd that has been extensively smoothed (Figure 12a). The paste is tempered with very fine sand with an occasional, and perhaps incidental, occurrence of limestone fragments. The sherd measures 5/8 in (16 mm) by 1 1/16 in (27 mm) and is 1/4 in (6 mm) thick. The second type of pottery from Area 801 is represented by one large rim sherd (Figure 12c) with a vertical measurement of 3 1/8 in (79 mm), a width of 2 1/2 in (64 mm), and a thickness of 3/8 in (10 mm), 14 body sherds (Figure 12b and d), and a number of very small sherds. The color of these cord-roughened sherds is light gray on both the exterior and the interior surfaces. The cores are black. The tempering agent is coarse sand. The texture of the paste is lumpy and friable, having a somewhat layered appearance. The sherds break easily along irregular lines. Several sherds, representing a single vessel, were fitted and glued together to form a large body section, measuring approximately 3 1/2 in (89 mm) by 3 1/2 in (89 mm) and 1/2 in (13 mm) thick (Figure 12d). The cord impressions on the exterior surface were placed vertically to slightly obliquely on the rim and upper body, being criss-crossed haphazardly lower on the vessel. The interior of the body sherd bears vertical smoothing marks. The interior of the rim sherd is smooth with faint striations that are horizontal to the lip. The lip is 1/4 in (6 mm) thick, flattened, and beveled slightly to the exterior.

Lithic Remains	Chipped Stone	Biface	One thin light gray chert biface section shows some wear and crushing on the slightly curving lateral edge. The length of the section is 13/16 (21 mm), its width is 15/16 in (24 mm), and it is 1/4 in (6 mm) thick at the break.
		Uniface	One unifacially modified plano-convex end scraper, which retains some limestone cortex along one edge, is 1 3/8 in (35 mm) long, 1 in (25 mm) wide, and 5/16 (8 mm) thick.
		Chips/ Flakes	Chert debris from the tool manufacturing processes found at Area 801 includes seven gray chert chips and flakes, one small white chert flake, and one pink primary flake that may have been subjected to heat.
		Core	One stream cobble with a tan cortex has had several flakes removed to expose a finely-grained gray interior. This specimen is probably a core or core remnant (Figure 9c).
	Ground/ Pecked Stone		Another cobble, which is hemispherical in form, exhibits an extensively battered exterior (Figure 11b). It has a gray chert interior with a tan cortex exterior.
Faunal Remains			Animal bones in the collection include one small burned fragment and a section of long bone from an unidentified large mammal. One small, unfused epiphyseal area on this specimen indicates that it came from an immature animal. Three complete bivalve sections were recovered. Other smaller sections of shell were observed.

Table 49. Artifacts from 14DN1416, Area 802.

Ceramic Remains			No prehistoric ceramic remains were observed.
Lithic Remains	Chipped Stone	Chips/ Flakes	One unifacially modified flake of gray chert and nine other chert flakes of gray and tan were recovered. One flake retains indications of thermal alteration. A thick flake from a chert nodule with a heavy light gray limestone exterior and a dark gray interior shows modification along one interior concave edge.
	Unaltered Stone		A broken quartz cobble with no other modification completes the lithic inventory.
Faunal Remains			One small fragment of tooth enamel is the only faunal evidence observed at Area 802.

A secondary area in 14DN1416 was identified. Two very small chert flakes and the ulna of a small mammal were found on the brow of the hill immediately west of the site. These were given no area number. The presence of the chert flakes suggests some human activity, possibly connected with the larger site below the hill.

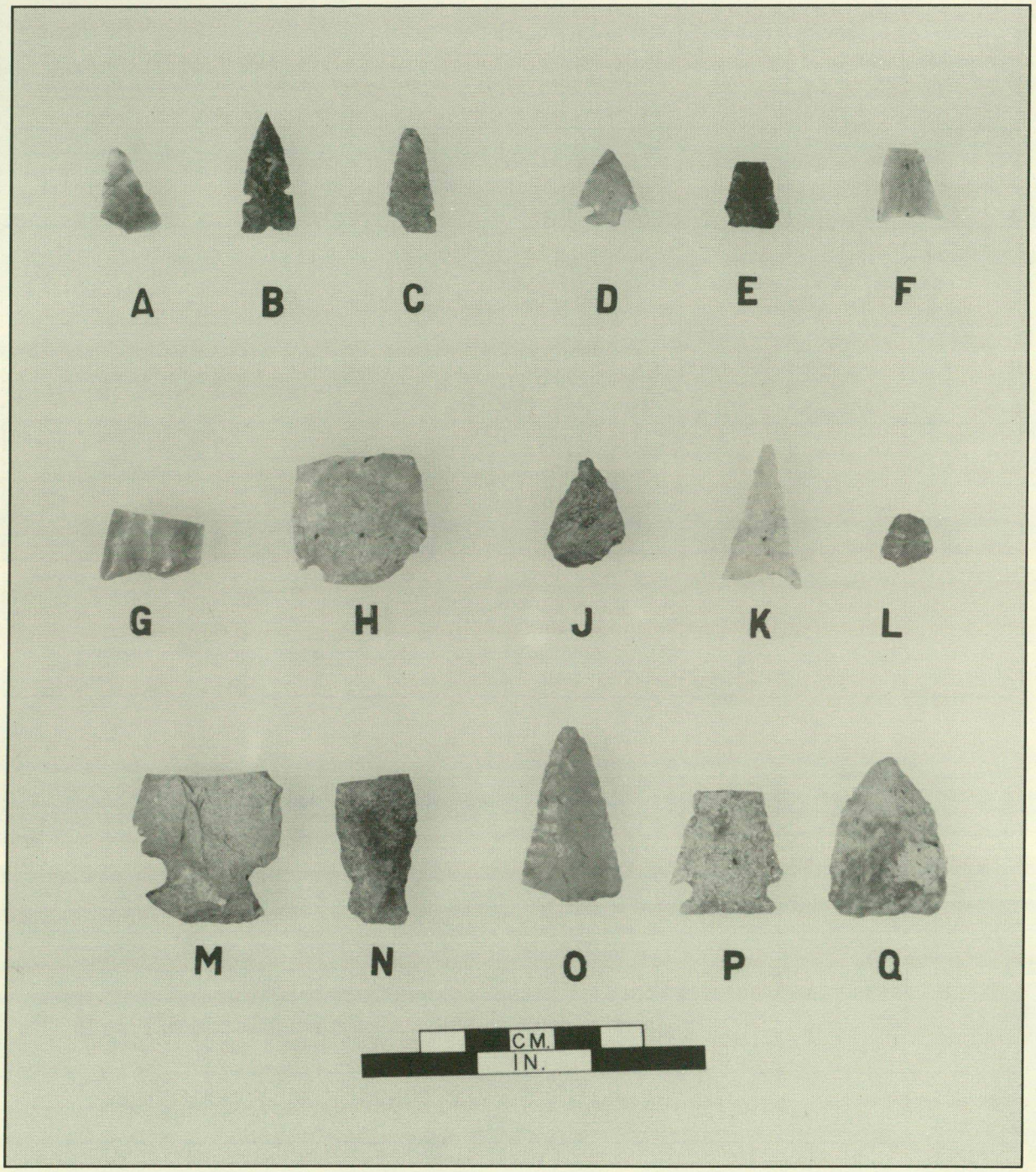


Figure 4. Chipped stone bifaces from Turkey Creek valley sites.

a. 14DN4-160
b. 14DN4-157
c. 14DN4-113
d. 14DN464-2
e. 14DN489-7
f. 14DN492-5
g. 14DN448-1
h. 14DN452-3
j. 14DN452-4
k. 14DN453-11
l. 14DN457-29
m. 14DN6-12
n. 14DN478-18
o. 14DN459-20
p. 14DN465-1
q. 14DN321-45

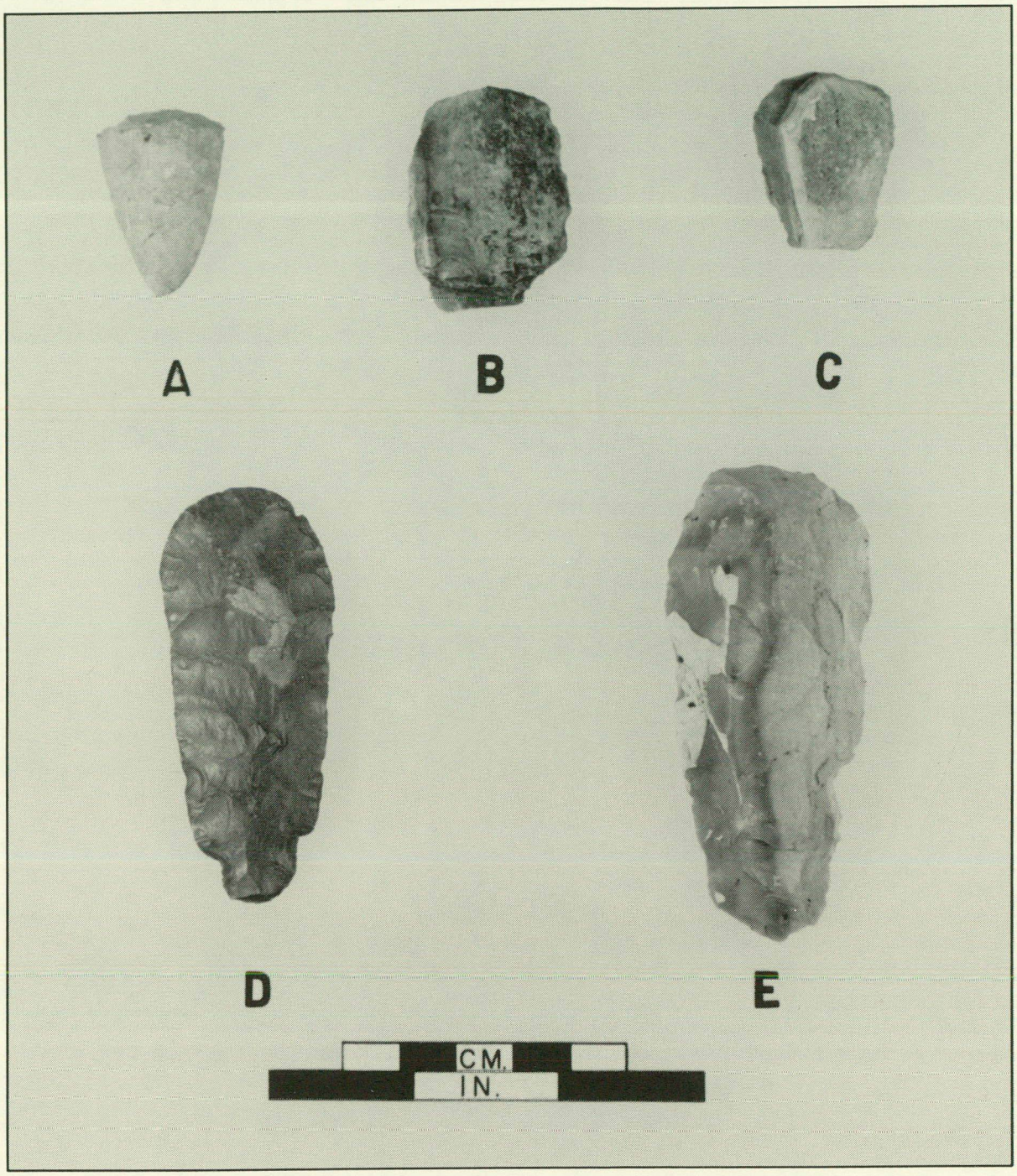


Figure 5. Chipped stone unifaces from Turkey Creek valley sites.

a. 14DN4-179
b. 14DN450-25
c. 14DN461-1
d. 14DN451-1
e. 14DN452-1



Figure 6. Ground stone muller (14DN5-1) from 14DN5 in the Turkey Creek valley.

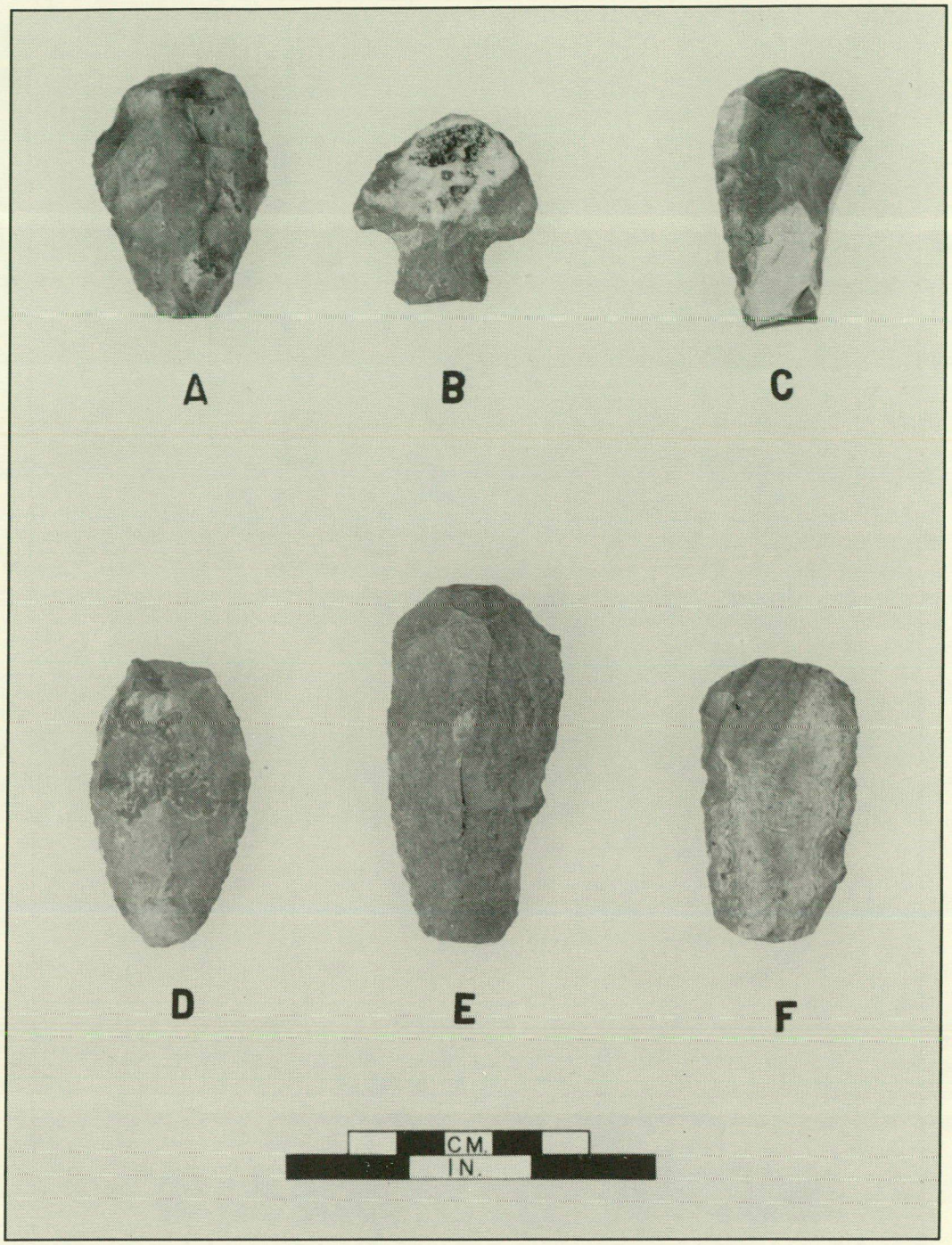


Figure 7. Chipped stone artifacts from 14DN6 in theTurkey Creek valley.

a. 14DN6-8
b. 14DN6-69
c. 14DN6-66
d. 14DN6-1
e. 14DN6-64
f. 14DN6-7

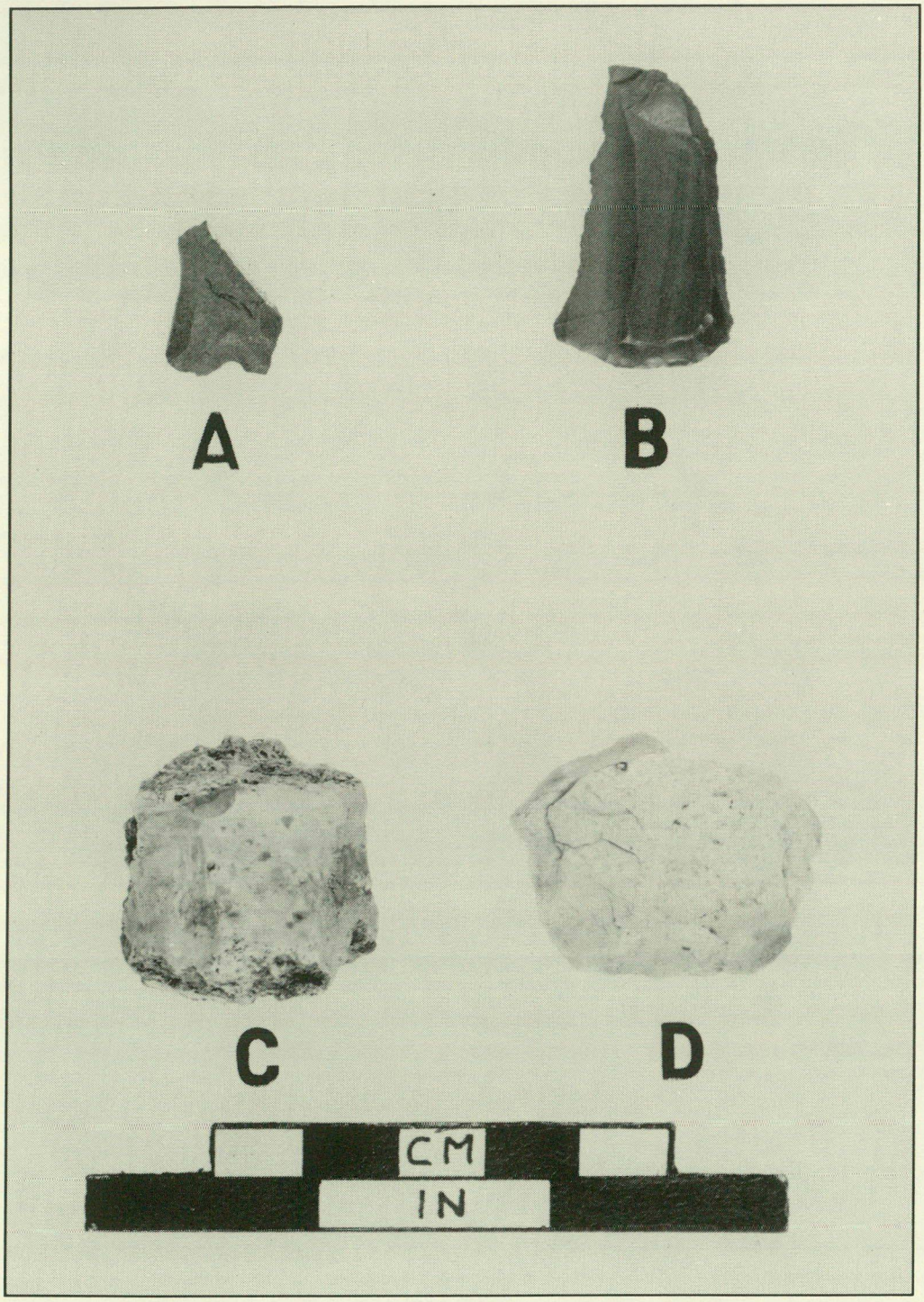


Figure 8. Chipped stone artifacts from Turkey Creek valley sites.

a. 14DN488-2
b. 14DN489-3
c. 14DN457-1
d. 14DN498-7

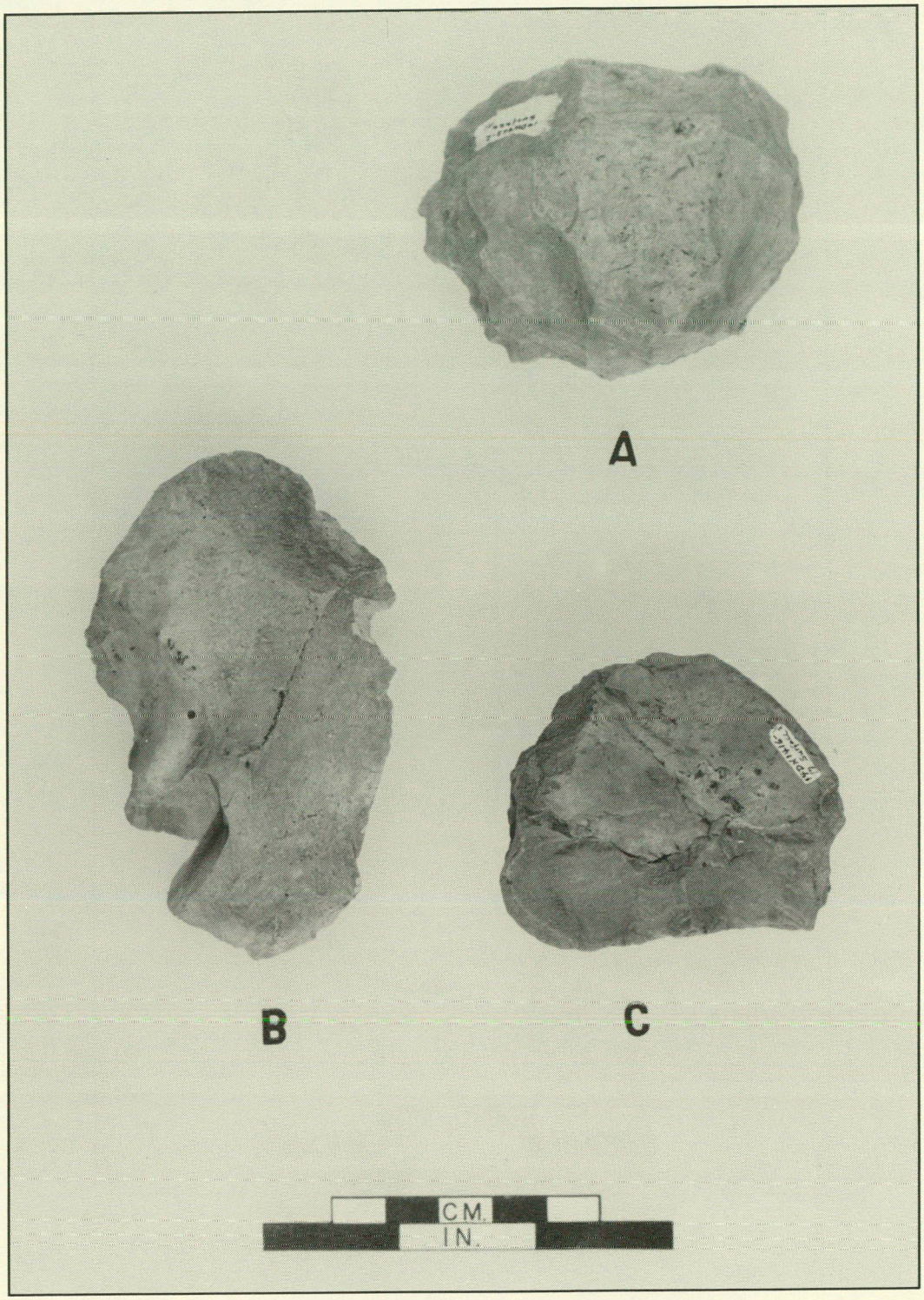


Figure 9. Chipped stone artifacts from Turkey Creek valley sites.

a. 14DN463-2
b. 14DN1405-2
c. 14DN1416-17

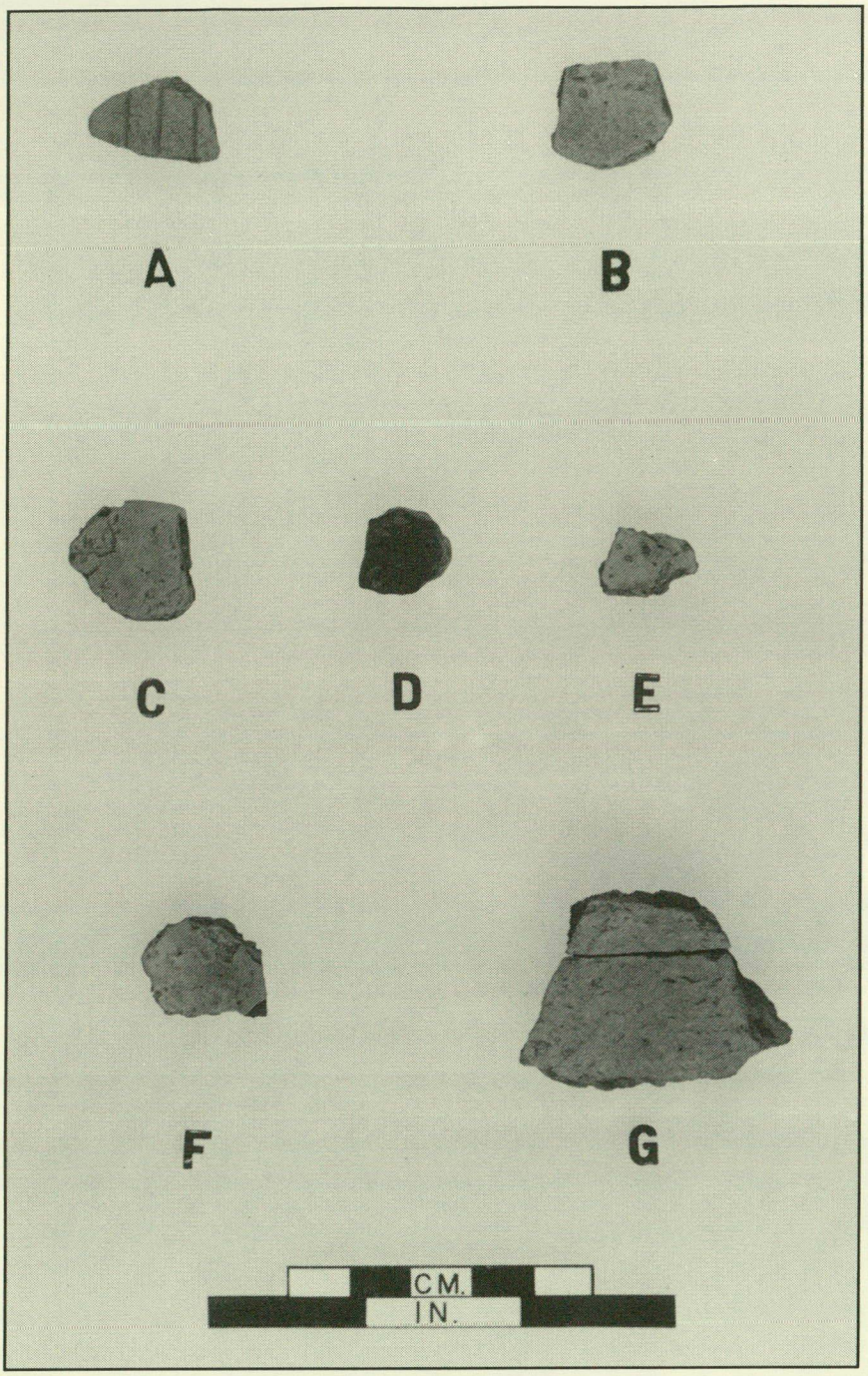


Figure 10. Ceramic rim and body sherds from Turkey Creek valley sites.

a. 14DN485-1
b. 14DN489-35
c. 14DN489-36
d. 14DN489-37
e. 14DN489-38
f. 14DN489-39
g. 14DN493-1

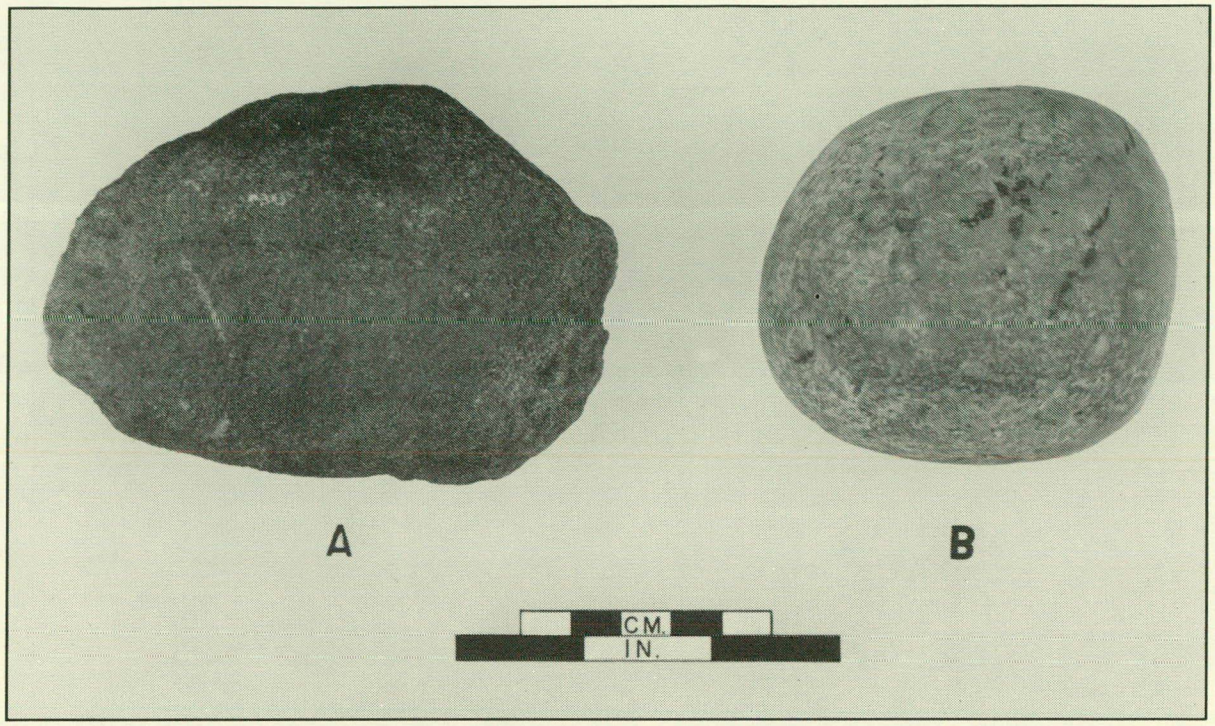


Figure 11. Ground stone artifacts from Turkey Creek valley sites.

a. 14DN494-7
b. 14DN1416-18

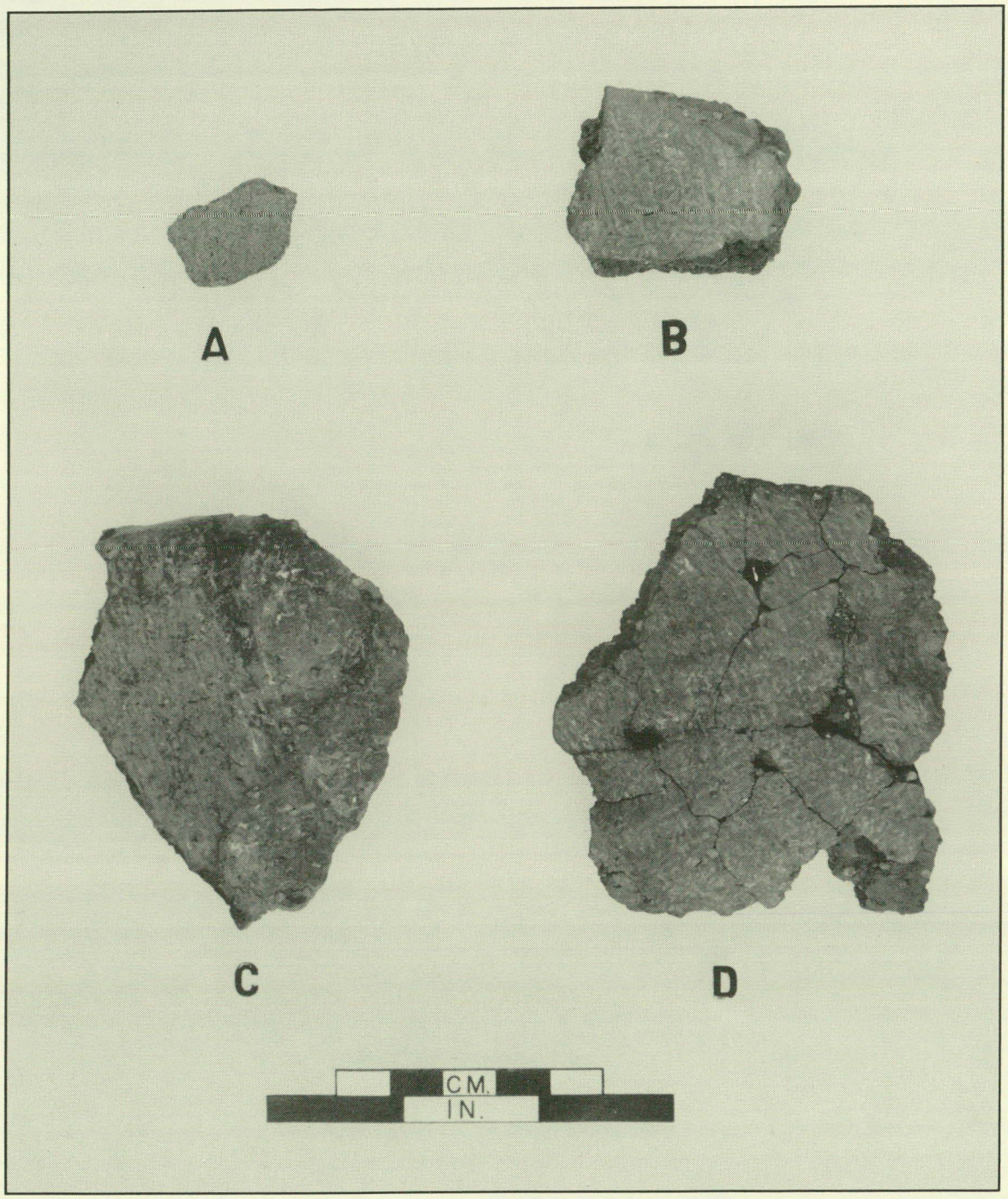


Figure 12. Ceramic rim and body sherds from 14DN1416 in Turkey Creek valley.

a. 14DN1416-4
b. 14DN1416-2
c. 14DN1416-1
d. 14DN1416-3

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BOOK REVIEWS

Paradigms of the Past: The Story of Missouri Archaeology. MICHAEL J. O'BRIEN. University of Missouri Press, Columbia and London, 1996. ix + 561 pp., index. Paper $29.95. ISBN 0-8262-1019-8. *Reviewed by* Chris Benison, Kansas State Historical Society

O'Brien's excellent account of the practice of "Missourian" archeology expands on the work of Willey and Phillips, as presented in their landmark volume *Method and Theory in American Archaeology* (1974). An important difference in O'Brien's work naturally has to do with the scale at which he approaches and addresses his material. While Willey and Phillips devote considerable time and space to considering the influence of non-Americanist archeological practice (i.e., European-based method and theory), O'Brien has adopted an explicitly Americanist archeological perspective.

Given this standpoint, O'Brien ably and succinctly discusses the frequently dynamic interplay between archeological research as conducted by native Missourians and by outsiders (in one particular case, by Bureau of American Ethnology ethnologists). In this regard O'Brien notes that Missouri-based archeologists typically have not contributed significantly to an expansion in Americanist archeological method and theory. However, in the same breath and especially early on in his volume, O'Brien emphasizes that Missouri researchers have provided Americanist archeology with material that has either sparked notable debates or, in contrast, has proved crucial for resolving other important problems. O'Brien adduces Albert Koch, a collector of dubious paleontological finds, as a representative example of the former. With regard to resolution of stubborn debates, O'Brien argues persuasively that investigation of Missouri mounds by the Mound Exploration Division of the Smithsonian Institution played an important contributory role in the protracted, and sometimes painful, refutation of the Moundbuilder controversy. Some participants in this debate argued that a legendary, non-Indian "race" was responsible for the thousands of mounds in the Mississippi and Ohio river valleys. Other scholars contended that the direct ancestors of the Native American peoples, encountered (and denigrated) by the Europeans, had built the mounds. Ultimately, the "truth" of the latter position was demonstrated beyond reasonable doubt.

O'Brien carefully organizes his material largely in chronological order, from earliest to most recent period of archeological research, into nine chapters. The volume's introduction (Chapter 1) is centered on a treatment of concepts and principles that O'Brien considers central to the practice of archeology in North America. For example, North American archeologists to this day are concerned with formulating systems intended to impose order on past cultural variability (with regard to both time and space). To this end O'Brien describes different kinds of time-space frameworks and discusses the assumptions and pitfalls associated with the practical use of each. Also in Chapter 1 O'Brien introduces his readers to a fundamental dichotomy that be believes is operative whenever archeologists try to account for patterning in the archaeological record. The terms used to refer to these two tools of archeological inquiry are **interpretation** and **explanation**, which O'Brien contends are polar opposites in terms of the logical structures associated with each and the manner in which conclusions are arrived at by researchers.

A number of archeological theorists—for example, Gibbon (1989) and Watson et al. (1984)—have spilt considerable ink characterizing the nature of the difference between these two categories of argument. This long-standing debate (yet another!) has its (shallow) roots in the emergence of the "New Archaeology" in the 1960s and has much to do with attempts to set archeology on an explicitly "scientific" footing during that same period. The protracted and sometimes bitter arguments over the difference(s) between "interpretation" and "explanation" over the years has forced researchers to understand their particular thought processes in a clear light. Still, it is the **opinion** of this reviewer that the interpretation/explanation dichotomy is more perceived than real and thus artificially imposed by archeologists with specific philosophical leanings but with an important agenda. That the interpretation/explanation dichotomy is more a rhetorical construct than a real entity may be reflected in this reviewer's failure to respond to O'Brien's considerable efforts to point out differences between the two. O'Brien should not be faulted for my failure to grasp the difference between interpretation and explanation. His discussion of the logical constructs that archeologists use when attempting to "make sense" (O'Brien's phrase) ventures onto very difficult, treacherous ground. In this regard the value of O'Brien's treatment of this material lies in the realization that researchers should continually strive to devise more appropriate and logically consistent means of **thinking about** the archeological record.

The chapters following O'Brien's introductory chapter deal with Missouri archeology as this was

practiced during different periods. Chapter 3, entitled "Mounds and the American Paleolithic," covers the period between 1881 and 1910 and is for many reasons the most interesting of the first five chapters of O'Brien's volume. It describes the nature of the debate about the antiquity of human occupation in North America and characterizes the various personages (some famous and some notorious) involved in the prosecution of this very important research issue. In characterizing the nature of the "American Paleolithic" argument of the early twentieth century, O'Brien provides context and thus sheds light on a very similar debate now currently underway in North American archeology—namely, the so-called "pre-Clovis" controversy.

While some may choose to take O'Brien to task on some very minor points, his volume is eminently recommendable. The book is distinguished by some extremely lucid writing, and the illustrations that O'Brien has included are excellent and strongly support points made in the accompanying text. Anyone wishing to further his or her understanding of how Americanist archeology came to assume its current form (at least in part) should own, or at least get hold of, this well-researched, capably presented, and highly readable book. This reviewer should close by expressing his genuine hope that archeologists with a historical bent may follow O'Brien's lead and write retrospectives covering other parts of North America. As O'Brien repeatedly notes in his volume, an understanding of Americanist archeology in general will undoubtedly benefit from increased knowledge of archeology as practiced in particular areas of North America.

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The Origins of Agriculture and Settled Life. RICHARD S. MACNEISH. University of Oklahoma Press, Norman, 1992. xix + 433 pp., 18 figures., 70 tables, bibliography, index. Cloth $75. ISBN 0-8061-2364-8. *Reviewed by* Jim D. Feagins, Saint Joseph Museum

Through time, as various agricultural products were developed in different locations around the world, what a series of wonderful milestones were obtained for humankind! The products from these domesticated plants forever altered the way of living for countless generations of humans. The title, *The Origins of Agriculture and Settled Life*, suggests the close relationship between settled life and agriculture. Of course, one can find exceptions. For example, the settled life of the Northwest Coast Indians was not dependent upon agriculture but rather on the bounty from the ocean. However, generally for most of humankind, a settled lifestyle would not have been possible without the preceding domestication of certain crops.

MacNeish has written a *tour de force* on worldwide agricultural development. The volume, using an interdisciplinary approach, contains so much data that a review can only focus on the more salient features. This publication describes the main centers of agricultural origins: the Andes, Mesoamerica, the Near East, the Far East, the American Southwest, Europe, the Eastern United States, India, Southeast Asia, Oceania, the New World Tropics, and Africa. The volume contains a handy list of the native cultivated and/or domesticated plants found in each center.

A leading archeologist in the Americas, MacNeish is Director of Research for the Andover Foundation for Archaeological Research. He is a former president of the Society for American Archaeology and is probably best known for his pioneering research on the origin of maize and for his early use of an interdisciplinary approach in archeological research. Scotty MacNeish is well qualified to write this volume.

However, it is impossible for any one author to be an expert on all the centers of agricultural development. Agricultural origins in some centers are described in greater detail. The volume's somewhat uneven treatment reflects the differences between the centers in which the author is one of the foremost experts and the centers in which he has done little or no personal research but has had to rely totally on the work of others. Also researchers simply have not given some centers as much attention as others.

The Origins of Agriculture and Settled Life should be an especially good source of references and other information useful to paleoethnobotanists on regions of the world with which they are not particularly familiar. A truly awe-inspiring number of references—645—are found in the volume's extensive bibliography. I expect that this volume will be received by the paleoethnobtany experts very much like A. V. Kidder said his volume on the Southwest was received many years ago. According to Kidder, some other researchers thought his volume was not quite complete for the areas in which each was an expert; however, they all thought the areas in which they were not quite so familiar were well done.

A trilinear theory was developed by MacNeish concerning the origins of agriculture. Each of his three models (Primary Development, Secondary Development, and Tertiary Development) has a set of necessary and sufficient conditions leading to different paths of food production and sedentary village life. Climatic change, population growth, resource abundance, decreasing carrying capacity, regional diversity, and interregional interactions were important factors leading to agriculture developments. While I do not wish to discuss specific theories and hypotheses in this review, I will make a few general comments about MacNeish's methodology. He has attempted to test various hypotheses about the development of village agriculture using data gleaned from various regions representing all continents of the world. He has presented a tremendous amount of data. Since some regions have not received as much research as other areas, the data available for testing was uneven and occasionally rather inadequate. This, of course, is not a criticism of MacNeish. He was simply working with the data that was available. The information he assembled seems to support his three main hypotheses. MacNeish realizes that, as more work is done in some regions, his hypotheses may very well need to be modified. He considers it the fleshing out of scientific generalizations.

Considering the tremendous amount of data presented in the volume, the errors are relatively few. A few examples are: "Oneota" is spelled "Oneonta" (page 248 and in index), the map location for Cahokia is in error (page 234), the Bony Spring site in Missouri is called "Bony Creek" (page 247), and there seems to be some confusion on the age of some cultigens from Bony Spring and Phillips Spring in the Truman Reservoir.

Probably most Kansas readers would be interested primarily in the agricultural origins described in Chapter 5 (The American Southwest) and in Chapter 8 (The Eastern United States). There is some mention of the Plains in general (page 242) and of the southern Plains (pages 230-231). While *The*

Origins of Agriculture and Settled Life is not for everyone, it does contain an impressive amount of information on the centers of agricultural origins worldwide. Also MacNeish's theory building is of interest. It is nice to have this much data so readily available. The volume may be obtained from the University of Oklahoma Press, 1005 Asp Avenue, Norman, Oklahoma 73019-0445, or it can be ordered through your local book store.

ABOUT THE AUTHORS

Chris Benison

[redacted]

Chris Benison graduated from the State University of New York at Binghamton in 1993 with an M.A. in anthropology. The title of his thesis is "Horticulture and the Maintenance of Sociocultural Complexity in Late Woodland Southeastern New England." He is currently employed by the Kansas State Historical Society as a Special Projects Archeologist.

Jim D. Feagins

[redacted]

Prior to his association with the Saint Joseph Museum, Jim served as archeologist for the Kansas City Museum from 1976 to 1990. For 30 years he has taught science for Consolidated School District #4 in Grandview. Jim received a B.S. in Education from Kansas State College at Pittsburg in 1965 and a M.N.S. degree from the University of Oklahoma in 1973. Active in promoting archeological education, he is President Emeritus of the Missouri Archaeological Society. Jim is a life member and former officer of the KAA. He has over 200 articles, reviews, and reports in print. His primary area of research interest concerns the prehistory of the eastern Central Plains with a focus on the ceramic period.

Mud Creek Chapter of the Kansas Anthropological Association

The Mud Creek Chapter was organized in 1974 and received its state charter at the KAA annual meeting in April 1975. Members from Abilene, Chapman, Ellsworth, Enterprise, Industry, Lindsborg, and Salina have attended most Kansas Archeology Training Program events, volunteered for field and lab, worked on field crews, given programs, provided exhibits and window displays, recorded sites, held most state Executive Committee offices, and donated their personal collections to the Kansas State Historical Society. The chapter has been very preservation and service oriented throughout its history. The survey described in this report was preceded by a survey on Lyons Creek at the location of a new city lake at Herington, Kansas. Chapter meetings are held in Salina or Abilene, usually on the second Saturday of the month. The current president is Greg Jackson.

Verna Detrich

[redacted]

Verna Detrich is a member of the Mud Creek Chapter of the KAA and has served in various capacities on the KAA Executive Committee. Since 1978 she has been a part-time staff member of the Kansas State Historical Society as archeology lab technician. She has assumed responsibility for the Kansas Archeology Training Program field labs since 1989 and for the general fund lab work since 1993. In addition to her consuming interest in all phases of archeology, she is an informal student of ethnography and of regional and local history, but it is the fields and hills and what they can tell us about the people who lived there that have brought the most pleasure of all.

Laverna and Walter Ernst

[redacted]

Walter and Laverna Ernst joined the KAA and the Mud Creek Chapter in the spring of 1975. From that time on, they have attended the field schools and digs. Both helped one summer with the archeology around Constitution Hall in Lecompton. Walter has helped train many in proper techniques and has worked with the state on various surveys and excavations. Laverna helped set up the system for taking and recording soil flotation and other special samples used at the Kansas Archeology Training Program field schools at Lindsborg and Arkansas City.

Robin and Paul Johnson

[redacted]

Robin Flippo Johnson joined KAA as a high school student and attended the Rice County digs. Her interest in archeology has drawn husband Paul and children Eric and Erin into participation in most training program events from their family home near Gypsum. Robin entered into the computer the early drafts of the Turkey Creek report and sat in on many chapter editing sessions. In addition to utilizing his excavation skills, Paul has videotaped classes for the Kansas Archeology Training Program, in particular Kansas Prehistory and Material Culture of the Frontier Army, 1827-1900.

Cleta J. Mulder

[redacted]

Cleta Mulder received her B.A. from Kansas Wesleyan University, Salina, in elementary education. She is currently a homemaker and grandmother. Since 1980 she has worked both as a volunteer and on paid crews as an archeological surveyor and an archeological crew member with the Kansas State Historical Society and for other agencies.

Cleve E. Mulder

[redacted]

Cleve Mulder obtained his Certificate of Diploma in Business Management from Salina's Brown Mackie Business College. He has operated his own business in retail sales since 1958. When able to squeeze time off from the store, he has worked as an archeological surveyor, an excavation crew member, and a metal detector surveyor for the Kansas State Historical Society. His major hobby and second profession is the study and collection of bullets, cartridges, and loading tools of the Civil War era and later.

Harold and Margie Reed

[redacted]

Harold and Margie Reed own and operate Central Millwork and Supply, Inc. in Salina. They have manufactured woodwork products and formica counter tops for schools, banks, churches, hospitals, and similar commercial buildings all over Kansas and in the surrounding states for over 35 years.

The Reeds have been active KAA members since 1967 and have participated in nearly all of the KAA digs and field schools since joining. They have both worked on KSHS field crews at various locations several times. Both of the Reeds have completed the requirements for KAA certification.

Harold served as KAA state president in 1974 and 1975. The field school program (today the Kansas Archeology Training Program) was developed and initiated during his presidency. Governor Mike Hayden appointed Harold to the Kansas Unmarked Burial Sites Board, and he continues to serve in that position.

Margie is well known to KAA members for the beautiful Indian beadwork she does. She has contributed some of her work for fund raising projects for the Kansas Anthropological Research Fund.

PECKING STONES

by Mud Creek Anonymous Jester

The debitage from site #14DNX3X3 also included one pecking stone ...

Now pecking stones are very interesting—
Actually a pecking stone is a displaced river cobble.
They are cobbles who have lost their river.
This is very frustrating to a river cobble—
Now known as a pecking stone—so they become
despondent and sometimes even vicious. Stranded
on dry land is no life for a river cobble, so
if some Indian happens to walk by a displaced
river cobble, it takes a peck at him—or her,
usually right on the end of the big toe. These
frontations can be quite violent, consequently,
the pecking stone ends up with a small dent and
the passer-by receives a not-so-small bump on
the end of the toe. After many years, the poor
river cobble has collected many small indentations.
Now, it becomes a true pecking stone. Pecking
stones should be avoided at all costs.

INFORMATION FOR AUTHORS

Manuscripts are actively solicited for *The Kansas Anthropologist*. Articles should have a relationship to Kansas anthropology (archeology, ethnography, ethnohistory, cultural/social anthropology, physical anthropology, etc.). All manuscripts must be the original, unpublished work of the authors. The varied readership of the journal should be kept in mind when preparing papers. **Jargon should be avoided**. The style authority is *American Antiquity* (see Volume 57, Number 4, 1992). Professionals are expected to submit their manuscripts in this form; others who are not familiar with the *American Antiquity* style guide will receive editorial assistance. Illustrations are encouraged; at least two or three should be included if possible. All illustrations must be of reproduction quality and should be designed to fit within 6 x 8.5-inch margins, including caption. If protected by copyright, this must be noted so permission for use can be obtained. If IBM compatible computer technology is available, please submit papers on diskette in WordPerfect 5.1 or 6.1, as well as in single hard copy. Manuscripts will be reviewed by the editorial committee who will judge whether or not articles are appropriate and what revisions may be necessary for publication. Outside reviewers may be used. Five reprints will be provided free of charge to the author of each major article.

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