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The D. Heasty Cache Revisited

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Introduction

In 1985, Dale Heasty found a lithic cache in Sumner County, Kansas. It was located in a small pit on a site of unknown cultural affiliation near the Chikaskia River. His son, Don Heasty, eventually donated 28 specimens from the cache to Wichita State University. The collection was then incorporated into a comparative study of three caches by Jason Weston in his Master's thesis (Weston 2000).

Recently, Don Heasty, now retired, became aware that his uncle, Dwight Heasty of Oxon Hill, Maryland, had another dozen specimens from the cache in his possession (Figures 1 and 2). Through his intermediation, Dwight donated the specimens from the site to Wichita State University, along with a bag containing what he said were a dozen flakes from the site.

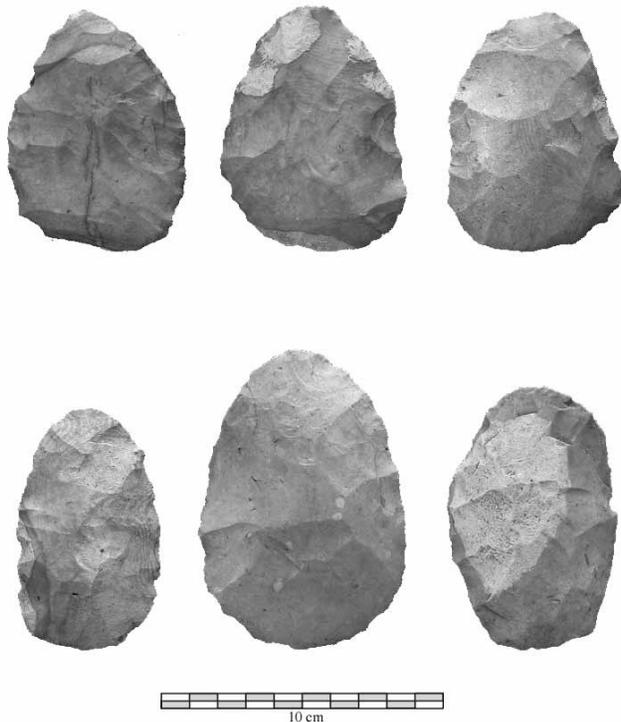


Figure 1. Six of the bifaces donated by Dwight Heasty

Since the donation has enlarged the original collection significantly, this brief report re-examines the cache and presents the pertinent data.

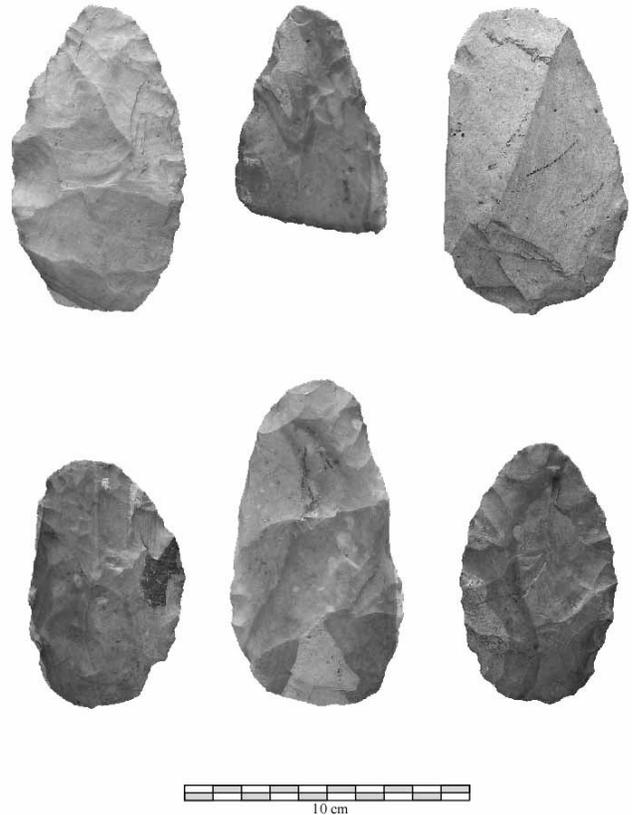


Figure 2. The remaining bifaces donated by Dwight Heasty

The Cache

Information on both the site and the cache is minimal. The site, 14SR532, was originally reported by Bill Brogan in 1976. He noted that the site had been disturbed badly by road construction and that there were a few small potsherds and many flakes scattered along both sides of the road. He also recovered one piece of daub and a piece of charred bone. He found nothing that was diagnostic of a particular cultural affiliation.

Information on the cache itself is almost as scanty. All we really know is that the pit was 46

cm deep. Some charcoal and soil stains that Brogan identified as possible postmolds were nearby, but no further excavation was done. Thus, the cultural affiliation and age of the site are unknown.

The Artifacts

The recent donation brings the number of artifacts in the cache to 40. There can be no doubt that the new specimens are from the same cache, as the data in Table 1 indicate. The new specimens

are statistically identical to the original 28 in length, width, and thickness. In addition, they are made from the same material and were treated in the same fashion.

Weston originally classified one artifact as a flake and the other 27 as bifaces. This is both correct and somewhat misleading. The intent of the flintknapper in all 40 instances was to create a biface from a thick decortication flake. All pieces have been extensively worked on the dorsal face, removing most of the cortex, but the extent of working on the ventral face is variable, and some of the specimens show extensive areas of the original flake surface. Also as a result, all of the specimens are somewhat plano-convex in cross section.

All 40 specimens are of Florence A chert, and all have been heat treated. A feature of Florence A nodules is that they are more highly silicified near the cortex than near the center of the nodule. This results in better quality stone for flintknapping near the surface of the nodule than deep inside it. All 40 specimens derive from near the surface of nodules, as indicated by the relatively thick silicification bands that occur only near the cortex of Florence A nodules (as opposed to the fine banding that looks like fingerprints that can occur throughout the nodules). The evidence is also clear that the bifaces were heat-treated after they had been manufactured. The clearest evidence comes in the form of potlid scars present on a few of the specimens. These are produced when a piece of stone is heated so rapidly that water in the stone does not have time to escape and causes a steam explosion. Weston (2000:63) reported potlid fractures on both faces of one of the original specimens, demonstrating that both surfaces had been formed prior to the heat treatment. In addition, none of the specimens have flake scars with glossy surfaces, an indication that the flakes that formed the bifaces had been removed prior to heating. In contrast, 24 of the recently donated flakes have glossy surfaces, evidence that they had been removed after heat treatment, possibly from specimens similar to those in the cache.

The newly donated bifaces range in length from 84 to 115 mm with a mean of 101 mm. Widths

Table 1
Dimensions (mm) of Bifaces
from the D. Heasty Cache

Original Donation			New Specimens		
<u>L</u>	<u>W</u>	<u>Th</u>	<u>L</u>	<u>W</u>	<u>Th</u>
84	55	15	109	75	19
89	58	21	89	56	22
103	56	20	110	65	21
92	59	21	94	57	13
100	66	25	88	66	18
117	55	20	83	55	19
85	59	20	108	64	21
99	57	20	94	62	20
87	58	21	115	61	24
100	59	21	106	65	21
100	56	20	107	51	21
102	54	17	109	62	19
89	62	17			
110	60	20			
93	55	17			
112	58	19			
105	57	19			
115	60	19			
97	62	17			
103	61	20			
102	57	16			
87	55	15			
92	64	21			
103	55	17			
107	64	15			
120	63	16			
110	65	18			
105	61	20			

range from 51 to 75mm with a mean of 61 mm, while the mean thickness is 18 mm, with a range from 13 to 24 mm. Table 1 reports the dimensions of both the new and the old specimens from the cache. It documents a quite homogeneous collection. Three quarters of the specimens are from 85 to 109 mm long, while all but three are from 55 to 66 mm wide. All but three range in thickness from 15 to 22 mm.

Other Specimens

The other specimens from the site sent to us by Dwight Heasty included mostly simple flakes but also two formal artifacts. The flakes are all of Florence A chert, and most are heat treated. Most appear to be biface reduction flakes, large enough to have been picked up by a collector.

With the flakes was one combination end scraper and knife. It is also of heat-treated Florence A chert and is 80 mm long, 36 mm wide, and 14 mm thick. Formed from a single thick flake of chert, it has a distinctive scraping edge at the distal end. The details of this edge in terms of shape, type of wear, and location of the most intensive wear are similar to specimens from some other sites where we have a better indication of cultural affiliation.

The distal end of this specimen is not smoothly convex nor is it symmetrical. Instead, the right-hand edge (as viewed on the dorsal face) has a convex outline that reaches its apex well to the left of the center line of the artifact (Figure 3). Wear is evident in the form of rather extreme unifacial crushing all along the convex edge. The same kind of wear is also visible on distal end of the left hand edge. In this case, the worn edge has a fairly straight outline which meets the convex working edge on the right hand side at a blunt point.

The rest of the left-hand side of the specimen has a cutting edge formed by unifacial flaking of the dorsal surface. The relatively acute edge of this portion of the tool contrasts strongly with the somewhat obtuse edge angle of the crushed edges. Finally, a portion of the proximal

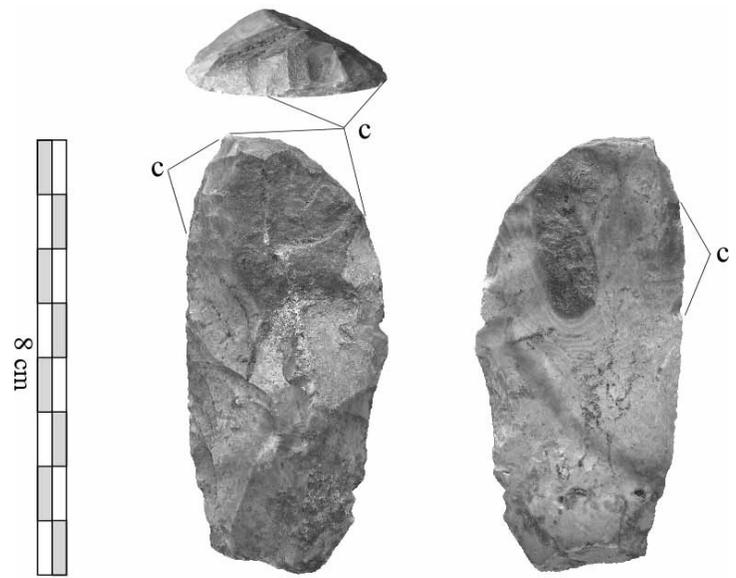


Figure 3. Scraper from 14SR532. Letter c marks areas of crushed edge and obtuse end of the right-hand side has the same crushing angle as the distal end of the artifact, but it is on the ventral rather than the dorsal surface. All in all, this is a complex artifact.

Nevertheless, it has some parallels elsewhere. In preparation for the 2006 Kansas Archaeological Training Program, James Dougherty examined specimens from 14MO403, a site that has yielded large collections of Middle Woodland and Middle Archaic age. In those collections (made by Dick Stauffer, Brendy Allison, and Clint Thomas) are a fairly large number of large end scrapers, apparently of Middle Woodland age. Close examination of these specimens had revealed the same general conformation as on the specimen from 14SR532. They exhibit extreme crushing on the distal ends, and the wear is not uniformly distributed around the end of the specimens but tends to occur laterally (Figure 4). These tools are clearly not hide scrapers but some other kind of tool used on very resistant material; none of them exhibit the rounded wear on their working edges expected on hide-working tools. It is not clear from handling these specimens whether they were used with a pulling or a pushing motion while held at a high angle to the material

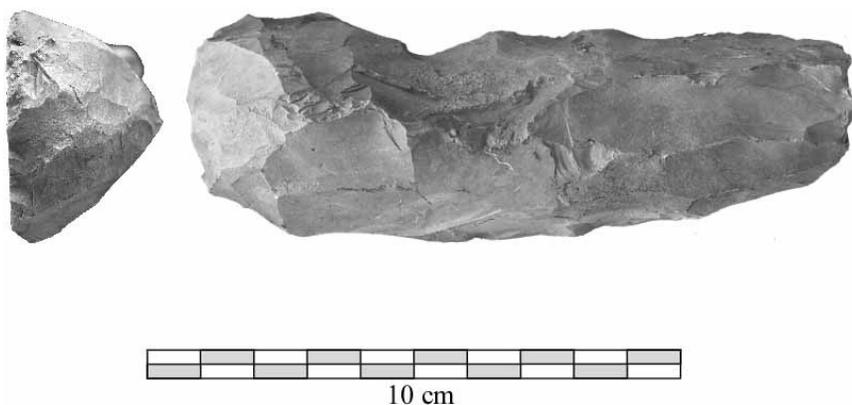
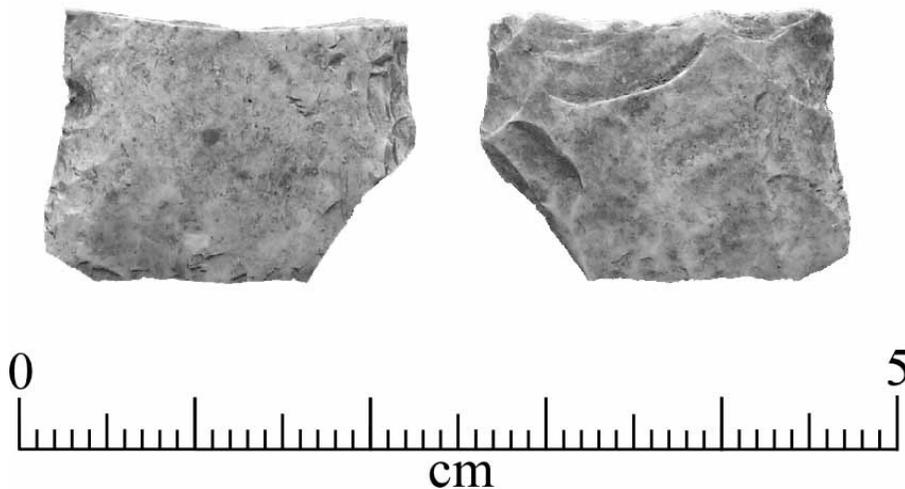


Figure 4. Scraper from 14MO403.
Crushing readily visible on end view

being worked.

The other artifact included in the bag of flakes from Dwight Heasty is the stem portion of a projectile point (Figure 5). It has a straight base that is missing one corner and has slightly expanding lateral edges. The length of the specimen, which appears to have broken just below the shoulders of the point, is 15 mm. The width at the base, which exhibits very light basal grinding, is 21 mm, while the width at the break is 19.5 mm.



The thickness is 5.6 mm. Like all of the other specimens from the
Figure 5. Point base from 14SR532

site (except one flake of a light beige quartzite),

the point had been made from heat-treated Florence A chert.

By itself, the point fragment is not diagnostic, but it certainly could have come from one of the straight-based points of the latter part of the Middle Woodland period, roughly AD 250 to 500. And although end scrapers are not usually considered diagnostic artifacts, our recent

examination of the huge Stauffer-Allison collection from eastern and central Kansas suggests that we eventually will be able to distinguish a variety of types of scrapers. The specimen from 14SR532 definitely is not an example of the scraper types that were in use in the Middle and Late Ceramic periods, nor does it compare well to the large scrapers of the early historic period or the very small scrapers associated with Table Rock points in the Archaic period. The closest parallels so far are with the large scrapers of the Early Ceramic period (50 BC–AD 1000), and we can narrow the

range even more. In south-central Kansas, end scrapers are conspicuously absent from sites of the latter half of this period (Hurshal Clark, personal communication, 2006). A further point is that our examination of the Stauffer-Allison collection has shown that Middle Woodland scrapers, regardless of form, tend to have the sort of crushed edges seen on the specimen from 14SR532.

Some Archaic period sites contain end scrapers, but so far, we have not seen any this large in Archaic period collections. Furthermore, the small ceramic sherds from 14SR532 provide evidence that it must date to one of the ceramic periods in this part of the state. The ceramics suggest an date after 50 BC, while the scraper indicates an age before AD 500, and the

projectile point fragment appears to be from a large, straight-based corner notched specimen that should date to about AD 250 to 500.

Conclusions

The recent donation of specimens from the D. Heasty cache has expanded our understanding

of the site, and the additional artifacts donated by Dwight Heasty have allowed us to propose a late Middle Woodland age for the site.

Reference Cited

Weston, James D. 2000 Three Lithic Caches from

Eckles Collection from the Montana Creek Sites, Lovewell Locality, Jewell County, Kansas

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In the fall of 2001, Mr. Dick Eckles, an avocational archaeologist with intimate knowledge of the archaeology of Lovewell Reservoir in Jewell County, Kansas, shared a portion of his artifact collection with Brad Logan and me. He later showed us the area from which these materials were collected along the lower reach of Montana Creek near its confluence with White Rock Creek. Based on his information and our initial visit to this area, we recorded the Montana Creek East (14JW46) and Montana Creek West (14JW47) sites. These two sites are inundated part of the year by waters impounded in Lovewell Reservoir. Inundation, fluctuations in water levels, and pothunting (as observed during our 2002 visit to the area) adversely impact these sites. As described in the previous issue of *Current Archaeology in Kansas*, professional surface survey and test excavations were conducted at these sites in 2004 (Logan 2004:53-67). Analysis of the recovered remains is presently underway and will be described in a future report. This present article describes artifacts from these two sites that are in the Eckles collection.

Initial inspection of the Eckles collection of artifacts from the Montana Creek sites sparked our interest due to subtle differences between parts of this collection and others from neighboring sites, especially Warne, Intermill, and White Rock, which lie nearby and have been the focus of previous investigations. These sites provide evidence of Oneota peoples in the Central Plains. Initially it

was thought that the remains at the Montana Creek sites may provide additional evidence of Oneota use of this area, especially since these sites were littered with bison bone, similar to what has been found at White Rock phase sites. Ceramics were not commonly found on the surface of the Montana Creek sites, unlike White Rock sites, impeding the cultural identification of at least the Montana Creek East site (14JW46).

At the same time that Dick Eckles took us to the Montana Creek sites, he also showed us another artifact scatter on a similar surface, but east along the north bank of White Rock Creek. Unlike the area along the lower reach of Montana Creek that was littered with bison bones and occasionally fire-cracked rock and other lithic artifacts, this second site was much smaller. Its surface manifestations were also different, consisting of a scatter of potsherds, lithic artifacts, and charcoal. This site, later designated the Phil site (14JW48) (Logan 2004:53-67), is clearly affiliated with the Central Plains tradition. Although Central Plains tradition remains have been found previously in the Lovewell locality, they have not been thoroughly investigated and are overshadowed by study of the large White Rock phase sites located primarily on the upland ridges. Excavation of the Phil site in 2004 revealed the remains of a Central Plains tradition lodge. Analysis of these remains is presently underway. These provide a second comparative base for analysis of the Montana Creek remains.

Following is a description and preliminary comparisons of artifacts in the Eckles collection that were found at what is now designated the Montana Creek East (14JW46) and West (14JW47) sites. Although inundation of the mouth and lower reach of Montana Creek has masked its original form, it appears that these two sites were once separated by this stream. Changes in the channel of Montana and White Rock Creeks may have further divided parts of these sites as suggested by subtle topographic variations occasionally visible in the field and on aerial photographs. The majority of the Eckles artifacts were recovered from the surface of the Montana Creek East site (14JW46). When initially visited more than 30 years ago, this site consisted of an island over which bone and artifacts were densely concentrated (Dick Eckles, personal communication, 2006). Deposits of silt have now filled the old channels, and the Montana Creek East site is part of an expansive flat when floodpool levels are low. Two small "islands" occasionally exist between the Montana Creek sites in what appears to be an old channel of that stream. All artifacts described below were recovered from the Montana Creek East site unless otherwise noted.

Ceramics

A single reconstructable pot was excavated on the west side of Montana Creek (14JW47). It was reportedly found when its collector (Phil Eckles) noted a flat bone, probably a scapula hoe, partially buried below a layer of silt along the right (west) bank of Montana Creek. The bone was in poor condition and could not be salvaged. Beneath the bone was found remains of an inverted pot. A complete grooved ax (described below) was reportedly also found in association with these remains, which are believed to have been cached in a storage pit, whose outline was not identified when originally excavated.

Mr. Darrell Wilson carefully and finely reconstructed this pot into its original form (Fortunate 1999). It stands about 30.5 cm tall and has a circumference of 141 cm. It is shell tempered with minor amounts of hematite, has a smooth exterior surface and very thin walls (3-6 mm). The

body is broadly rounded with flattened shoulders. The shoulder is decorated with narrow trailed lines that are organized into alternating panels of parallel vertical (7-9 lines per set) and horizontal (10-12) lines. The lines are somewhat haphazardly placed giving an impression of being quickly and sloppily made. The rim of this vessel is short (13.6 mm high, 22.0 mm long) and flared with a sharp interior angle. The diameter of the rim is 28.0 mm and that of the orifice is 24.8 mm. A vertical knob of pinched clay is located on the interior portion of the rim. No other corresponding knob is found although a small area of the rim nearly opposite this knob is broken and missing. Along the interior of the rim immediately (3-4 mm) below the lip is what appears to be a single discontinuous horizontal trailed line encircling the pot. This decorative element consists of a series of 15 narrow horizontal lines ranging in length from 27.2 to 66.5 mm long that are aligned end to end with short undecorated space between them. Finally, this pot appears to have been repaired several times as ten holes were drilled into the pot near its base.

This pot is clearly of Oneota manufacture although it is somewhat unique. The shell-tempered paste, broadly rounded form, thin walls, well-smoothed exterior surface, flaring rim, trailed line form of decoration, and alternating sets of parallel lines on the shoulder are comparable to many Oneota ceramics from the Midwest. One of its unique characteristics is its large size (30.5 cm tall, 141 cm maximum circumference). A review of the literature describing Oneota pots from the Midwest reveals no known pots of equal size. The Ageson vessel from the Blood Run site is believed to be one of the largest known reconstructed Oneota vessels. It has an estimated height (part of the base is missing) of 25 cm and a maximum circumference of 122 cm (Henning and Shermer 2004:460-461, Fig. 55). Like the Montana Creek West vessel, the walls of the Ageson pot are also very thin. Not only is this pot larger than Oneota pots from the Midwest, but likely much larger than White Rock Oneota pots from the Lovewell and other Plains localities. At present, no complete pots have been fully reconstructed from well-known and documented White Rock phase sites in Kansas and

Nebraska. Reconstructed vessel fragments from the White Rock and Green Plum sites, as well as rim and body sherds from these and other White Rock sites suggest much smaller vessels (Blakeslee et al. 2001; Marshall 1969; Neuman 1963; Rusco 1960; Wininger and Logan 1995).

The decoration of this pot using trailed lines is comparable to Oneota decorative techniques represented in the Midwest, as well as at White Rock Oneota sites in the Central Plains. Placement of decorative elements on the shoulder and interior portion of the rim is also typical of Oneota ceramics. However, subtle differences exist. These include that the trailed lines are not as finely applied as on many other vessels, although they are within the range of skill and form of trailed lines on some Oneota pots. I have not yet seen or read of a similar form of interior lip decoration. Although trailed lines on the interior portion of rims is well represented among Oneota rims, they are commonly diagonal lines or chevrons extending across the entire length of the interior portion of the rim rather than as a discontinuous horizontal line just inside the lip. Likewise, I am unaware of comparable lip tabs on other Oneota vessels.

In summary, this pot from the Montana Creek West site (14JW47) shares enough diagnostic Oneota attributes to indicate its cultural affiliation, although certain attributes make it somewhat distinctive. Its overall size and paste, especially the quantity and relative size of the shell tempering, are not comparable to local-made White Rock ceramics (Walnut Decorated Lip). These traits are more comparable to ceramics from Oneota sites in the Midwest including the Leary, Dixon, and other western Oneota sites. These clues suggest that this pot was made by an Oneota individual, but perhaps not locally. Given the interpretation of the White Rock phase as representing the habitation of the Central Plains

by late prehistoric Oneota migrants, I suggest that this large and somewhat unique pot may have been brought to the Lovewell locality by Oneota migrants from the east. Given the large number of repair holes, it postulated that this pot may have been a treasured container that was repeatedly repaired. No doubt this pot, the grooved ax, and probably a scapula hoe were cached in a pit for future use that never occurred.

Chipped Stone Artifacts

Arrow Points. Among the chipped stone tools from the surface of the Montana Creek site are 20 arrow points. (Many others have been collected from the site over the years, but are not included in this description [Dick Eckles, personal communication, 2006].) Among the 20 points are complete and fragmentary specimens of triangular unnotched and side-notched points (Figure 1). Seventy-five percent are made from Niobrara jasper. Other raw materials utilized include Alibates



Figure 1. Arrow points from the Montana Creek East site (14JW46) identified materials.

Two of the incomplete points consist of tip fragments. Of the remainder, complete and basal fragments, 11 (61%) are from unnotched points and seven (39%) have a single pair of side notches. The unnotched points generally have either a concave or straight base. The five side-notched points with complete bases are slightly to deeply concave. One of the unnotched points is thick, transversely and longitudinally asymmetrical, and has a rounded base.

The length of the complete or nearly complete arrow points (n=9) ranges from 15.3 to 35.1 mm with a mean of 18.3 mm. The three side-notched points have a longer mean length. This argues against the idea that the unnotched points are performs rather than finished tools. However, two of the unnotched points fall at the long end of the range of the total sample of points. These and the other unnotched points appear to be finished tools. One of the latter points is not only unnotched with a concave base, but also has concave lateral edges that are slightly beveled in the opposite direction resulting in a diamond-shaped cross-section (Figure 1, upper right). These attributes suggest that this point had been resharpened. Given that the concavity of the margins extends to the basal corners, it is unlikely that it was resharpened in its haft. This long, narrow Niobrara point is thin (2.8 mm) and very finely retouched along both edges. In general the Montana Creek points are thin (range = 2.4-5.6 mm; mean = 3.1). Only two points are more than 3.3 mm thick. Maximum widths range from 10.4 to 22.4 mm with a mean of 14.8 mm.

It is impossible to identify the original blank form for 70% of these points because they have been extensively

flaked on both surfaces. However, 6 or 30% have remnants of an unmodified flake surface. This is most obvious on the largest specimen in this collection. This unnotched point was clearly made from a flake. A very tiny segment of the tip of this point has broken away, but it is still possible to discern that the tip was very near the original striking platform. One surface is very carefully and finely flaked, removing all evidence that this was the dorsal surface of the flake blank. The ventral surface has not been modified except for a very tiny portion of the tip and by three basal thinning flakes. The asymmetrical longitudinal cross-section reveals the curvature of the flake blank. Only two other points in this collection exhibit unifacial edge modification along one or two of their lateral edges. The others are bifacially retouched.

Drills. Two additional points are present; however, these have been reworked into drills. Both appear to have been originally side-notched arrow points (Figure 2). The first has a slightly concave base and falls within the range of measurements of the other points, although is relatively thick (4.1 mm). This is probably due to the nature of the material from which it was made. It is a light gray quartzite, which is more coarse-grained than Niobrara jasper and other cherts. The

Figure 2. Bone awls, bone “pendant” (?), small shell disk beads, and two drills formed on notched points from the Montana Creek East site (14JW46)



distal half of the blade has been reworked into a narrow (4.0 mm; 2.1 mm thick) bit. The second drill has broader side notches and an unevenly rounded base. It is slightly longer than the longest arrow point in this collection and is thicker than most of the complete arrow points. In this case, most of the blade has been resharpened (except for right above the notches) to form a narrow drill (4.5-7.9 mm; 3.0 mm thick). This recycled tool was made of a light gray chert.

Gravers. Three gravers are included in this collection. Each is a unique, edge-modified (retouched) flake (Figure 3). The most distinctive is a combination end scraper-graver. The thick end of this Permian flake has steep unifacial retouch to form a working edge suited for scraping. The opposite end has been unifacially retouched into a short, thick tapering point (8.2 x 5.1 mm) suited for engraving (Figure 3, top middle). The concave edges adjacent to and forming the point show crushing, suggesting it may have been used to scrape or shape relatively hard materials. Another graver was also made through unifacial retouch forming a blunt tip (Figure 3, top right). This tool

is made of a different Permian chert (possibly Shroyer). The final flake graver is made of Niobrara jasper. It has two short, thick graving points, each on opposite ends of the flake (Figure 3, top left).

Knives. Four complete alternately beveled (Harahey) knives have been found along Montana Creek (Figure 3, bottom). These are thin bifacial tools that have been resharpened, generally along four edges to form a diamond shape. The largest of these was found on one of the small islands in Montana Creek (considered part of 14JW47) in a cache along with flakes and pieces of Niobrara jasper. It had broken and was placed in the cache with the two pieces of the tool on edge and against one another and the other cache materials. When complete, this knife is 184 mm long. Near its center it is 50.9 mm wide and ranges in thickness from 4.7-9.0 mm. It has four thin working edges exhibiting some beveling on opposite faces, especially near the two pointed ends. A somewhat small knife of yellowish red (heated?) Niobrara jasper had broken previously and the tip reworked. It measures 82.8 mm long, as much as 34.0 mm wide, and 6.6 mm thick. A third knife of Niobrara

jasper appears to have been formed into a thin perform before it was heated. The edges appear to have been retouched after intensive heating that turned the stone to a deep maroon color. It measures 142.8 mm x 42.5 mm x 8.9 mm. The fourth complete beveled knife in this collection is made of a brown quartzite with black speckles that may be from the Spanish Diggings region of eastern Wyoming. The latter is 86.6 mm long, 28.0 mm wide at



Figure 3. Three gravers (top) and a beveled diamond-shaped (Harahey) knife (bottom) from the Montana Creek East site (14JW46)

its widest point near the center of this diamond-shaped knife, and up to 7.8 mm thick.

A fragment of a retouched piece of unidentified white chert may be a midsection of a largely unifacially retouched knife. The ridges between the flake scars on the retouched surface have been worn smooth. Both surfaces are tinged slightly green giving the tool a light greenish gray color. It is up to 19.9 mm wide and 6.6 mm thick.

One complete flake of Niobrara jasper has been clearly retouched along portions of two edges and one marginal point. The distal margin of this broadly expanding flake is straight and has been retouched on the dorsal surface along nearly three-quarters of the length of that edge. The remaining quarter of this edge and a short portion of the adjacent lateral margin where the flake is relatively thick has been bifacially retouched into a dull point. The ventral surface of the opposite lateral edge has been finely and completely retouched to form another working edge. This relatively large flake would have served as a versatile hand-held knife with two cutting edges.

Debitage. A small sample of unmodified debitage (flake fragments and broken flakes) was collected from the Montana Creek East site (14JW46). These flakes are interesting due to the variety of materials they represent. They include two pieces of a quartzitic material that has the same brown color as the common form of Niobrara jasper, a more translucent and finely speckled quartzite, a light brownish gray quartzite, a white quartzite, and three flakes of obsidian. Also represented are single pieces of Alibates agatized dolomite and basalt, as well as an unidentified light gray chert with a pale red streak. The quartzites may represent materials obtained from the Spanish Diggings area of eastern Wyoming. Richard E. Hughes of the Geochemical Research Laboratory identified trace and selected minor elements in the obsidian pieces using x-ray fluorescence. The probable place of origin of the obsidian was interpreted through comparison of elemental composition with comparative samples from known obsidian sources in the western United States. The largest flake (8.0 gm) and an obsidian

flake fragment (3.8 gm) have signatures that compare favorably with samples from Obsidian Cliff, Wyoming. The third piece of obsidian, a smaller hinge flake (1.7 gm) is most like obsidian from Wild Horse Canyon in western Utah (Hughes 2001). (Another flake of obsidian recovered during test excavations in 2004 has also been identified with the Obsidian Cliff, Wyoming geochemical type [Hughes 2005].)

A sample of debitage and retouched or utilized flakes (along with three pieces of mussel shell) was also collected from the Montana Creek West site (14JW47) by Dick Eckles. These were reportedly found together as part of a surface-exposed cache (Dick Eckles, personal communication, March 2006). Included in this cache were 18 pieces of Niobrara jasper and four of Flint Hills cherts.

Chipped Stone Summary

This small sample of chipped stone tools and debitage from the surface of the Montana Creek site area contains artifacts that represent hunting and butchering activities, as well as manufacturing debris and tools for scraping, engraving, and drilling. Most of these artifacts are not especially diagnostic, as small side-notched and unnotched arrow points, beveled and flake knives, and drills are present in various late prehistoric and protohistoric assemblages from the Central Plains. Given the close proximity of this site to the Warne, Intermill, and White Rock sites, White Rock phase (Oneota) affiliation is possible. The presence of Central Plains tradition sites in the area suggests possible Central Plains tradition association for the Montana Creek materials. Many chipped stone tools comparable to those in the Montana Creek collection have been found at nearby sites representing the remains of White Rock and Central Plains tradition peoples (Neuman 1963; Logan 1995; Rusco 1960; Padilla and Ritterbush 2005). Nonetheless, several aspects of the Montana Creek collection hint at other possible affiliations.

First, the variety of lithic materials represented in this small artifact collection is broader than commonly seen at sites in this locality. Niobrara jasper (also known as Niobarite; Graham

County, Smoky Hill, or Republican River jasper or silicified chert) was most frequently utilized by the White Rock phase inhabitants of this locality, with secondary use of Permian (Flint Hills) cherts and rare use of other materials (Logan 1995:96-98; Ritterbush and Logan 2000:257-272). Nearly half of the chipped stone artifacts in this collection are made from Niobrara jasper, while Flint Hills cherts were minimally represented (7.3%). The remaining 44% of the chipped stone artifacts represent a wide variety of materials including six pieces of variable quartzite, three flakes of obsidian, two pieces of Alibates agatized dolomite, one piece of basalt, and seven other unidentified materials. Even the interpreted source areas for the obsidian from the Montana Creek sites (Obsidian Cliff, Wyoming, and Wild Horse Canyon, Utah) differ from those previously identified from obsidian recovered from the nearby Warne (White Rock phase) site (Malad, Idaho, and Obsidian Ridge, New Mexico) (Logan et al. 2001). Similarly varied lithic raw materials have been identified with other cultural traditions represented by sites in Kansas and Nebraska. These include various southern Plains complexes, such as the provisionally labeled Plains Border variant (Brosowske and Bevitt 2006; Bevitt 1999), some Central Plains tradition assemblages (e.g., from the Medicine Creek locality (Kivett and Metcalf 1997:103, 105), the Dismal River aspect (Gunnerson 1978, Scheiber 2006), and possibly the Great Bend aspect (especially as represented by sites in Rice County) (Roper 2000; Zehnder 1998). The Alibates and possibly some of the other materials suggest a southern orientation, yet the obsidian flakes do not. (Obsidian from other assemblages in Kansas commonly reflect procurement from Jemez Mountain sources in New Mexico, rather than western or northern sources.)

Small triangular arrow points and beveled knives similar to those collected at Montana Creek are common at late prehistoric and protohistoric sites in the Plains and Midwest and are not often considered to be culturally diagnostic. Oneota arrow points are typically unnotched, although side-notched examples occur in some Oneota assemblages, especially in the Central Plains

(Padilla and Ritterbush 2005). A mix of side-notched and unnotched points are found at Plains Border variant, Central Plains tradition, Dismal River, Great Bend, and other sites in the Plains.

Other traits in the Montana Creek chipped stone tool collection are not comparable to White Rock or most Central Plains tradition chipped stone subassemblages. Among these is the reworking of side-notched points into drills. The two drills in this collection were formed through flaking of the blade of side-notched points made from quartzite and a light gray chert into a narrow, but relatively thick drill bit. Drills similar to these are not documented in White Rock assemblages. A "perforator" with a form very similar to the broadly side-notched example from Montana Creek is illustrated by Rohn and Emerson (1984:136 Fig. 35a) from a Great Bend site in the Marion locality. Wedel (1959:315) briefly described three drills reworked from projectile points from the Great Bend Thompson site in Rice County. A drill fashioned from an unnotched arrow point is illustrated by Bevitt (1999:75 Fig. 32) from the Lundeen site in south-central Kansas. Although not common, drills formed from projectile points are also present at some Central Plains tradition sites in the Medicine Creek locality (Kivett and Metcalf 1997:108) and at the Dismal River Lovitt site (Hill and Metcalf 1941:191).

Probably the most distinctive stone tool type represented in the Montana Creek collection is graters. Graters have short, but thick tips that are suitable for engraving relatively hard materials. These tools have been recorded in a number of assemblages, including one each from the Blue Stone and Green Plum sites, White Rock phase sites in southern Nebraska (Rusco 1960:25). Likewise, two graters are illustrated by Blakeslee (1999:136 Fig. 41r-s) from Central Plains tradition sites along the Solomon River. Graters are also present in small quantities at other Central Plains tradition sites (e.g., Kivett and Metcalf 1997:108) and in Dismal River assemblages (Champe 1949:289, 1976:40; Gunnerson 1978). Although graters are present in a variety of assemblages, one specific form of grater, that which is formed on an end scraper opposite the scraper edge,

appears commonly in Dismal River assemblages. As noted by Gunnerson (1978:248) “end scrapers with graver points or tangs, is diagnostic of Dismal River.” Gunnerson (1978, 1969) interprets combination end scrapers-gravers as unique to Dismal River assemblages not only based on assemblages from Kansas and Nebraska, but also based on similar assemblages in northeastern New Mexico. The only somewhat similarly described artifact I have read about is a possible combination end scraper-drill from the Great Bend aspect Tobias and possibly other sites in central Kansas (Wedel 1959:268-269). Based on this comparative information, the one clear example of a graver tip on an end scraper from the Montana Creek site may indicate possible Dismal River aspect (protohistoric Plains Apache) use of this locality.

Ground Stone

A single small piece of faceted hematite was recovered from the Montana Creek site. Although several edges of this piece are rounded, it appears that at least three of the surfaces may have been ground.

As noted above, a complete grooved ax was recovered from the Montana Creek West site (14JW47), reportedly in association with the aforementioned pot. This ax was formed through pecking and grinding fine-grained dark gray rock. The groove is shallow and encircles nearly the entire stone, except for a small area of one surface. There is minimal damage to the bit and some battering on the poll end.

Bone

Three well-worn awls form part of this collection (Figure 2). All were made from split long bones, although the exact element and taxon have not been identified. Two may be made from deer metapodials; however, this preliminary identification has not been confirmed. Each of these awls is complete and has been formed into a very sharp point. The third has a very worn butt end that consists partly of cancellous tissue. The very tip of this awl is missing.

Another bone object also has a pointed end, although it has been formed into a much blunter

tip (that shows little breakage). This object is very thin (2.4 mm) and appears to be made from a split rib or vertebral spine (Figure 2, center). It is 84 mm long and up to 16.3 mm wide, tapering slightly to the bluntly pointed end. Cancellous tissue forms the interior surface although that half closest to the tip is worn smooth. Longitudinal striations can be discerned on the exterior surface. The butt end is straight but slightly rough (perhaps due to natural cartilaginous attachment). Near the center and 4.9 mm from the broadest end is a circular perforation 3.0 mm in diameter. The perforation appears to be slightly biconvex. No obvious wear is visible around this hole. This object may have been a pendant or other ornament.

The most distinctive bone objects from Montana Creek are 17 edge-notched bison ribs. Numerous rib fragments and other bison bones are scattered over the surface of the Montana Creek East site (14JW46), although most are unmodified. The modified ribs, on the other hand, have been notched along one edge, except for two with notching on both edges. Many of these ribs are incomplete, but between 4 and 51 notches are evident on individual artifacts. The notches are ‘V’-shaped on all but one of the ribs. On the latter, the notches have a more rectangular cross-section, as if made by chopping. The widths of the notches at the tool’s edge range between 1.2-3.2 mm. Some are up to 3.2 mm deep. The spacing between the notches varies considerably between about 1.2-10.5 mm. Smoothing or wear across the notches is visible on several of these artifacts suggesting possible use as musical rasps.

The large number of rib artifacts at this site is unusual. Modified bison ribs occur at archaeological sites in the Plains and adjacent regions, but not always of this form and not in such large quantities. Two common forms of modified ribs include the form found at the Montana Creek site (edge-notched ribs) and another that has grooves scored across one of the flat (usually exterior) surfaces of the rib. This latter form has been found at Plains and Midwestern sites, including one from the nearby White Rock site (Anderson 1994:60, 62-63; Anderson et al. 1995:167; Bray 1991:90-91; Dunlevy and Bell

1936:199; Lintz 1984:332-333; Wedel 1959:258, 259, 451-452, 509, 595). Wedel and Hill (1942) suggest that many of these scored ribs and similarly scored vertebral spines served as pottery paddles, which when pressed against the exterior surface of an unfired pot produced a slightly roughened surface called simple stamping. Simple stamping is found associated with certain ceramic styles in the Plains, including some White Rock (Walnut Decorated Lip) ceramics. The edge-notched ribs likely served a different function, perhaps as musical rasps or tally sticks. These occur at various sites, best documented in the southern Plains (e.g., Bell 1984:315; Lawton 1968:67; Pillaert 1963:35; Schneider 1969:159; Wedel and Hill 1942) Two other sites that include notched ribs similar to those from the Montana Creek site are the Bell and Lundeen sites in south-central Kansas (Beaver 1999:117, 118; Bevitt 1999:90).

Shell

The Montana Creek East site collection includes eight small shell disk beads (Figure 2). They are flat, ranging in thickness between 1.8-3.0 mm, and circular, ranging in diameter between 4.2-7.2 mm. Each has a perforation that is between 1.8-2.4 mm in diameter. They appear to have been drilled from one or both sides of the bead resulting in uniconical, biconical, and straight perforations. (The smallest of the two drills in this collection might have been useable for making holes this small, but not the other.) Somewhat similar beads have been reported from the Woodruff Ossuary (14PH4) in northwestern Kansas (Kivett 1979:123-124), the Dismal River/protohistoric Puebloan site (14SC1) in western Kansas (Wedel 1959:461), several Central Plains tradition sites in the Medicine Creek locality of southern Nebraska (Kivett and Metcalf 1997), and possibly other Central Plains tradition sites (e.g., Falk 1969:42, 43; Wedel 1986:113).

The surface cache found by Dick Eckles on the west side of Montana Creek (14JW47) includes one nearly complete mussel shell and two other pieces of mussel shell.

Metal

A single metal object was recovered from the Montana Creek East site. This is an evenly cut, generally rectangular sheet of thin (0.3 mm) non-magnetic metal (copper). It measures 37.4 mm long and ranges in width from 16.4-21.8 mm. The metal has been cleanly perforated 2.5 mm from the end of the slightly narrower portion of this object and slightly off-center. The perforation measures 1.6 mm in diameter. Although somewhat warped or bent along its longitudinal axis, it is otherwise in good condition. It is unclear whether this was deposited during native occupation or use of this site or in more recent (post-settlement) times (e.g., fishing gear).

Summary and Conclusions

The Eckles collection from the Montana Creek site includes an interesting sample of ceramic, stone, bone, and shell artifacts. Noteworthy of this collection is that among these artifacts are several distinctive objects that are not obviously similar to artifacts found elsewhere in this study locality, namely to those from the nearby Warne, Intermill, and White Rock Oneota sites and the Phil site, a recently excavated Central Plains tradition lodge.

The most diagnostic artifact in this collection is the restored pot recovered from the Montana Creek West site (14JW47). This pot is clearly Oneota, but varies in terms of paste and overall size from the more typical Walnut Decorated Lip ceramics found at White Rock phase sites. This suggests that this pot was not made locally, but may have been brought into this area by an Oneota migrant from the east. The precision of the trailed lines and the form of the interior lip decoration vary somewhat from common decorative styles and motifs found elsewhere, making this pot somewhat distinctive. It appears from the description of the context of this find, that this well-made and used pot was cached in a pit along with a complete grooved ax and possibly a scapula hoe for later use. It is possible that this cache was associated with late prehistoric use of the area by Oneota migrants such as those who lived at the Warne site on the nearby upland ridge.

I speculate that it was stored in a pit near White Rock phase gardens that may have been located on the terrace or floodplain of Montana Creek.

The remaining Montana Creek artifacts in the Eckles collection are not as diagnostic, although they compare favorably with late prehistoric and protohistoric artifacts seen elsewhere in the Plains. It is possible that more than one cultural tradition is represented by these remains. The single compound end scraper-graver is comparable to similar tools recovered from Dismal River sites in the High Plains of Kansas, Nebraska, and New Mexico. If this tool has Dismal River origins, it implies protohistoric use of this site by ancestors of the Plains Apache. To date, no other Dismal River sites have been recorded this far east. The closest known Dismal River site lies roughly 110 km west of the Lovewell locality. Some of the other chipped stone and bone artifacts, such as the notched and unnotched arrow points, drills formed through reworking arrow points, other forms of graters, and bone awls, as well as the varied lithic materials are similar to artifacts recovered from other Dismal River sites. However, these artifacts, the varied lithic materials, as well as the small shell disk beads also are associated with other cultural traditions. For example, notched and unnotched arrow points, drills on reworked points, and awls have been found at some White Rock phase, Central Plains tradition, Great Bend, and Plains Border variant sites. Forms of graters, excluding graters on end scrapers, are also found at White Rock phase and some Central Plains tradition sites. The edge-notched ribs and the large number of these artifacts from the Montana Creek East site seem to indicate a more southern origin. Although this form of artifact has been documented at at least one Great Bend site in the Marion locality south of this study area (Rohn and Emerson 1984:174, 180), a larger number have been recovered from the Lundeen and Bell sites in south-central Kansas (Beaver 1999:117, 118; Bevitt 1999:90). It is important to note that many of the artifacts described above and the variety of lithic materials represented at the Montana Creek East site compare favorably with the artifacts from these more southern sites. Also, the Bell site and several others from south-

central Kansas include definite Oneota potsherds in the ceramic subassemblage (Bevitt 1999).

In conclusion, the Eckles collection of artifacts from the Montana Creek sites is intriguing and raising new questions regarding the prehistoric occupation and use of the Lovewell locality. Previous investigations into other sites within this locality clearly reveal intensive Oneota use of this area during the Late Prehistoric period (Logan 1998:248-267, Logan 1995). On-going research, combined with limited prior knowledge of Central Plains tradition settlement along White Rock Creek adds to our understanding cultural dynamics of this region during the late prehistoric period. Given our present knowledge of White Rock and Central Plains tradition sites in proximity to Montana Creek, it is logical to expect artifacts of these cultural traditions at the Montana Creek sites. This appears to be true in terms of the pot recovered from the Montana Creek West (14JW47) site, which represents Oneota presence. Other individual artifacts (e.g., arrow points, knives, awls) are comparable to those from White Rock phase and Central Plains tradition assemblages, thus may be additional evidence of White Rock phase and Central Plains tradition peoples living at Lovewell. However, many of these artifacts also are comparable to those found in assemblages outside this locality that represent other traditions. A few artifacts in particular are not commonly associated with White Rock phase and Central Plains tradition sites and raise the potential for interpretations that other groups visited the Lovewell locality. For example, a single compound end scraper-graver in the Eckles Montana Creek East assemblage may represent the Dismal River aspect or a protohistoric Plains Apache visit to this area. The large number of edge-notched ribs potentially suggests other peoples from the south, potentially Great Bend aspect (protohistoric Wichita) or late prehistoric peoples from south-central Kansas. This latter interpretation is appealing given the presence of Oneota potsherds at several late prehistoric sites in south-central Kansas that hold lithic and bone assemblages similar to that represented by this collection. Unfortunately, basic questions of cultural affiliation

of Montana Creek artifacts in the Eckles collection cannot be fully addressed solely through analysis of this collection. As noted elsewhere (Logan 2004:53-67), additional investigation of the Montana Creek sites has been initiated and will continue through this year. It is hoped that laboratory analysis of additional remains from these sites will further our understanding of the diversity of peoples who utilized the Lovewell locality and potentially the relationships between those peoples.

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I am deeply grateful to Dick Eckles for sharing his time, collection, and knowledge with Brad Logan and meduring our various investigations of sites in the Lovewell locality, especially as pertaining to the sites and artifacts described here.

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Archaeological Excavation Adjacent to Fort Osage

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Over six months of archaeological field work at the Fort Osage National Historic Landmark's proposed Education Center has recently been completed. This excavation led by Jim D. Feagins and John K. Peterson discovered over 200 features. Fort Osage is located on a high bluff overlooking the Missouri River just east of Kansas City, Missouri, in the small town of Sibley. It was built under the supervision of William Clark in 1808 for the United States government. Its primary purpose was to provide a trading factory for the Osage and for other nearby tribes such as the Kansa.

The excavation of 23JA266 was undertaken to mitigate damage from the construction of an education center with an adjoining geothermal well field (for heating and cooling the center) and a surface water retaining structure. This location is slightly over 100 meters south of the fort itself, in the park's former picnic

area. While some materials were found that relate to the inhabitants of the fort (1808-1822), most of the associated features prehistoric occupation, that Kansas City Hopewell (estimated to be approximately A.D. 500 or 600), or associated with the early town of Sibley (established in 1837). The Hopewell features consisted of large basin and slightly bell shaped trash-filled storage pits. The town site features consisted primarily of post molds and numerous pits. The largest historic structures were an early root cellar and a brick-lined cistern. Steven DeVore from Midwest Archeological Center (MWAC) of the National Park Service in Lincoln, Nebraska, conducted remote sensing on a small portion of the site and Mike Chalfant, from the Missouri Department of Natural Resources, conducted soil analysis. At this writing, thousands of artifacts are in the process of being washed and labeled, prior to analysis and writing.

Ceramic Period Components at the Claussen Site, 14WB322

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Introduction

The Claussen site, 14WB322, lies in the middle reaches of the Mill Creek valley in north-central Wabaunsee County, Kansas (Figure 1). It is a complex site, with multiple components that span much of the Holocene period. Most components are buried in one of two terraces. The higher, older, and more extensive terrace, the T-2, contains a series of Paleoarchaic components (Mandel et al. 2006). Erosion on the downstream arm of meander loop of Mill Creek is cutting into the lower and younger T-1 and exposing Ceramic period archaeological remains at two locations, here termed the North and South locations (Figure 2). Test excavations at each location were conducted in 2003 by the Kansas Archaeology Training Program (KATP) of the Kansas Anthropological Association (KAA).

North Location

In July 2003, the exposed materials at the North location occurred over a vertical span from about 1¼ to 3½ meters below the present surface. They clearly indicated a cultural horizon about 1¼ to 1½ or so meters below the surface. The number and depth of additional lower horizons is uncertain. Summer 2003 time constraints and available resources made it practical to test only the uppermost component. A total of 5 m² were excavated in a 2-x-2-meter miniblock and a detached 1-x-1-m square two meters south of the miniblock. The excavation was set back about 3 to 4 meters from the bank edge.

Material recovery was limited to twelve ceramic body sherds, two small expedient chipped-stone tool fragments, 178 pieces of unmodified lithic debitage, a small quantity of highly fragmented animal bone and mussel shell, and a

very small quantity of charcoal and burned earth. No features were observed. The pottery is not diagnostic except, of course, to indicate an occupation during either the latter part of the Early Ceramic or the Middle Ceramic period. Either the occupation was very light in density or the excavation was not placed into the main part of the occupation area. The nature of this occupation,

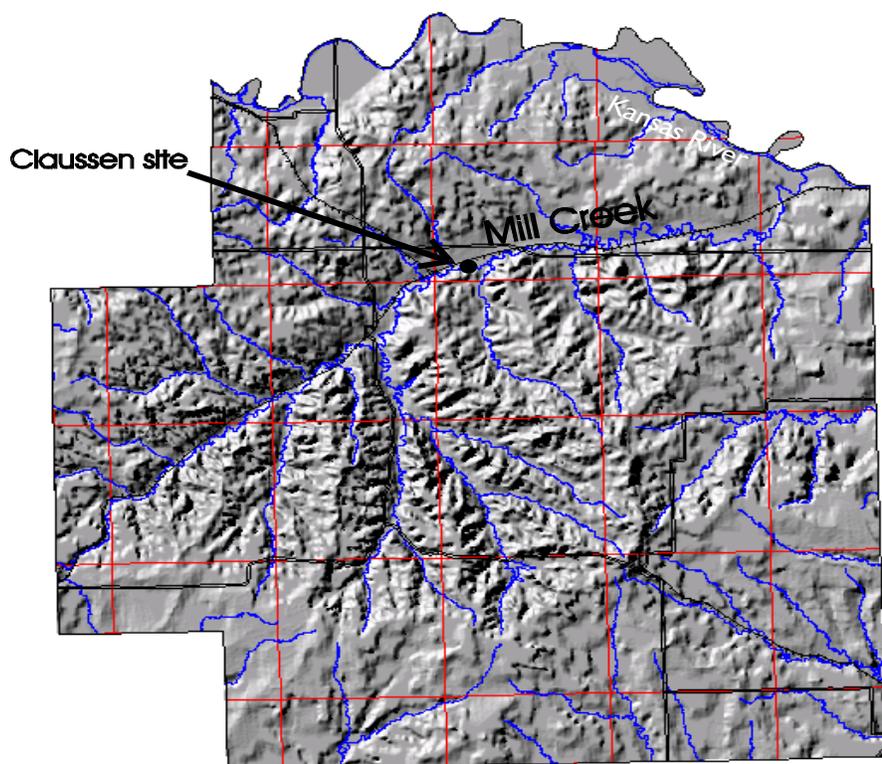


Figure 1. The Claussen Site in the Mill Creek Valley in Wabaunsee County

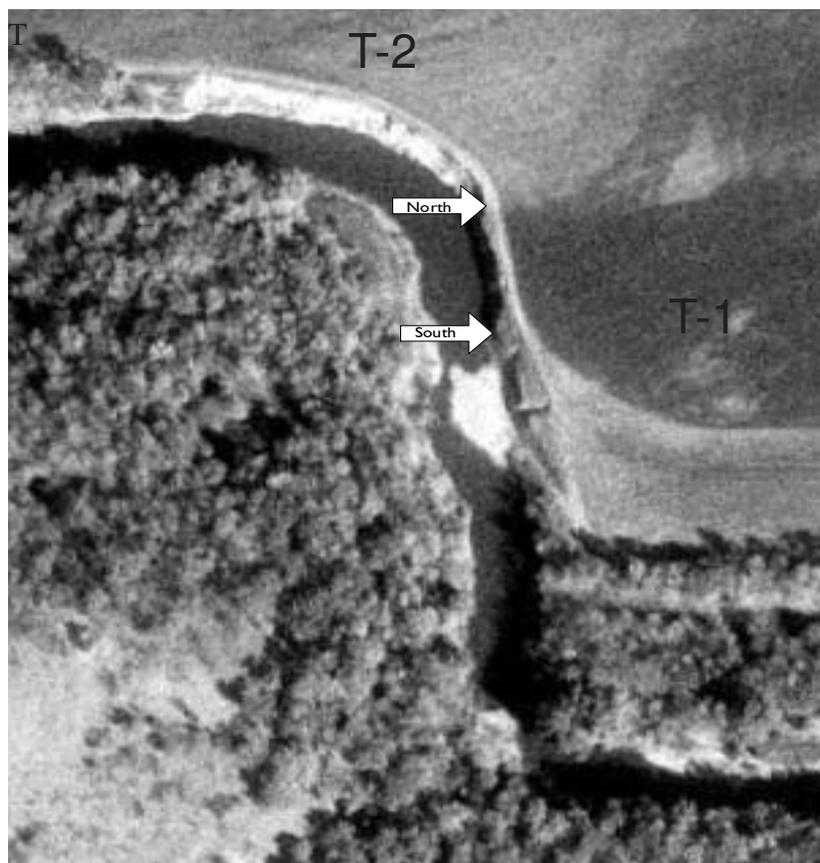


Figure 2. Aerial View Showing the North and South Locations (photo courtesy of USGS via Terraserver)

therefore, remains largely unknown.

South Location

The South location occupation is just under 50 meters south of the North location occupation. In this south location, eroding materials indicate a single cultural horizon about 2½ meters below the present surface. An excavation block encompassing 28 1-x-1-m squares, some of them partial (on the bank edge), was conducted in the summer and fall of 2003 (Figure 3).

The occupation surface exposed in the block was a complicated mosaic of artifacts, faunal remains, and features. A total of 12 feature numbers were assigned in the field, but evaluation in the laboratory and office suggested that only two are actual features. Each is a shallow hearth feature, irregular in plan view, and without discrete edges, representing two hearths built on the ground surface. The full report of this occupation (Roper

2005:90) discusses ethnoarchaeological parallels to this situation with particular reference to John Yellen's (1977; see also Brooks and Yellen 1987) study of !Kung camps. Other features are small and irregular patches of charcoal, ash, and/or burned earth surrounding the two hearths and probably representing material displaced during removal of food from the hearth, tending the fire, or wind.

Artifacts were not abundant. Pottery is limited to a single partially reconstructible vessel (Figure 4) and two small sherds that cannot be from this vessel. The vessel was extensively burned and badly spalled. It also had extensive residue on both the interior and exterior. The partial vessel is a small, shell-tempered, globular jar. As reconstructed,

vessel walls converge to a circular orifice with no neck and no rim rising above the constriction. Vessel height is about 144 mm; maximum width is about 170 mm; and the orifice is about 100 mm in diameter. The vessel shoulder is decorated with a bold and repeating filled-chevron motif. A plug-shaped handle displays a human effigy face on the end (Figure 5). The journal article reporting the excavation discusses vessel identification and function at considerable length (Roper 2005:93-98). That discussion shows shell-tempered pottery as an element, albeit a minority element, of Smoky Hill phase pottery assemblages. The discussion also considers the function of globular, neckless jars, often called coconut pots, seed jars, or seed bowls, and considers their role in the Smoky Hill phase settlement system. It also notes that sample of the residue on the vessel was submitted to the Laboratory of Archaeological Sciences at California State University-Bakersfield. Here, it was tested with a suite of plant anti-sera, but no positive match was obtained (Parr 2005).

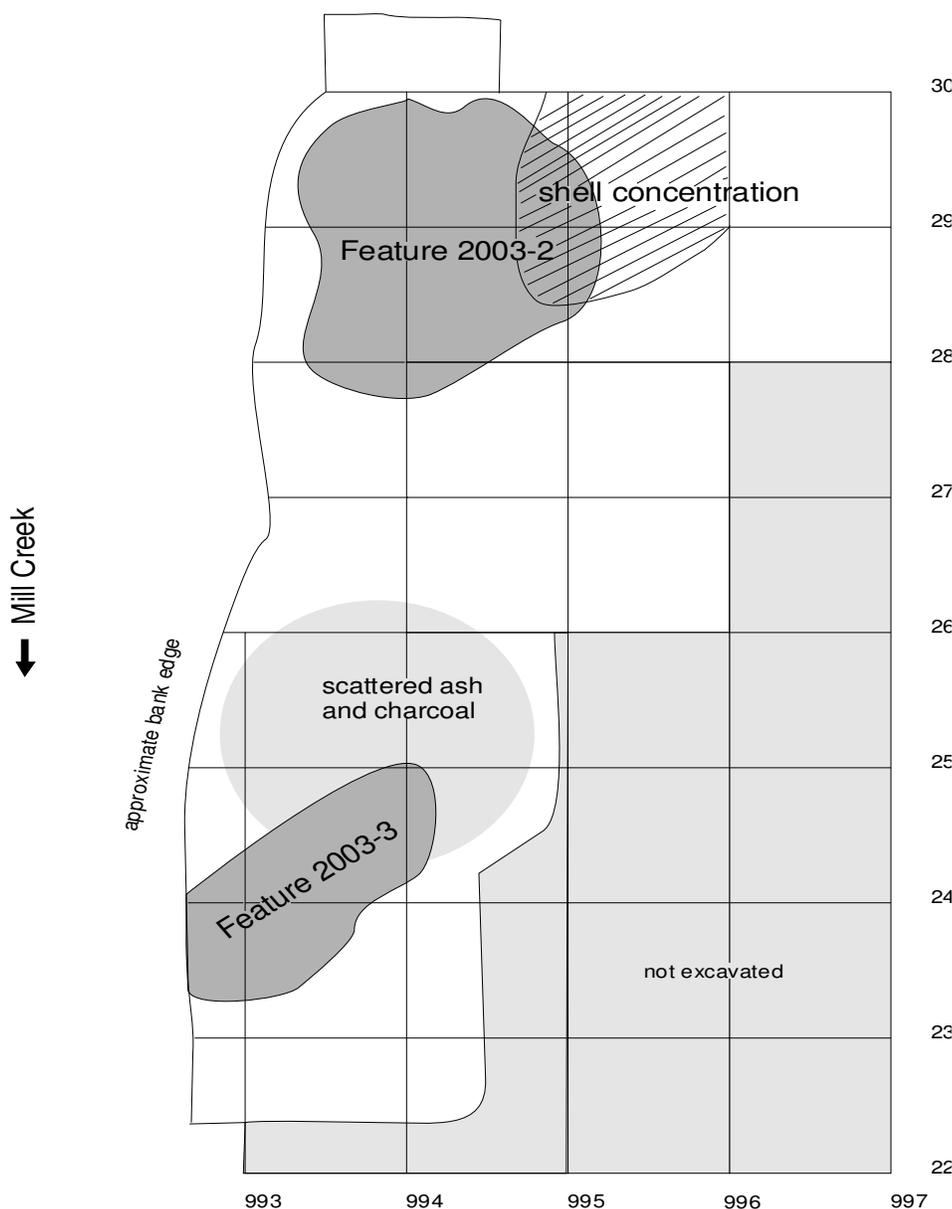


Figure 3. Plan View of the Excavation Block and Major Features

The chipped stone element of the assemblage was limited to three incomplete projectile points, two perforators, fourteen retouched flakes, and abundant lithic debitage (Figure 6). All tools and over 98% of the debitage is Permian chert from the Flint Hills. While Minimum Nodule Analysis (Larson and Kornfeld 1997) *per se* was not performed, it is apparent that a large amount—possibly nearly half—of the debitage is from a single nodule of Florence D chert that probably was procured nearby and received

some initial trimming on the site. Some of the retouched flakes are from this nodule. A second nodule accounts for a smaller proportion of the debitage. This nodule apparently was in a more advanced state of reduction when it was worked at this site. No tools other than some of the retouched flakes can be attributed to either of these nodules.

All projectile points exhibit impact fractures and none are salvageable. They probably were discarded as archery tackle was refurbished during the short occupation. Each perforator has a red substance in the interstices of the step fractures on its working edge. This material is tentatively identified as pipestone.

Ground stone included several rock slabs, two of which were

recovered adjacent to features. They are not shaped and do not reflect extensive use modification, if they reflect modification at all. They may have been expedient tools. A small sandstone slab recovered near a concentration of debris has a red (10R4/6) substance adhering to a portion of its smooth surface. This substance matches the red substance on the perforators. Together they suggest that someone may have been working on a pipestone pipe during the encampment. Kansas pipestone is available in the glaciated region immediately north of the Claussen site locality.

The most prominent material in the Claussen site assemblage is freshwater mussel



Figure 4. The Partially Reconstructed Pottery Vessel



Figure 5. The Effigy Face on the Partially Reconstructed Vessel

shell. The total amount of shell is at least 12.97 kg (28.6 lb) represented by at least 368 hinges, 168 of which are on complete valves. Much of the shell was found in a single, spatially restricted concentration adjacent to one of the features (Figure 2). Other faunal material included badly fragmented, and generally not specifically identifiable, animal bone. Mammals include deer, medium-sized and small carnivores, and rodents. Also represented are a single turtle (*Graptmys* sp.), a few elements that probably are from birds, and a considerable

amount of bone from small fish. Much of the fish bone was intermingled through the shell concentration; much of the rest of the bone was more widely dispersed through the excavation.

Interpretation of the South Location

The South location occupation is attributed to the Middle Ceramic period and more specifically identified to the Smoky Hill phase. It may have been associated with one of the permanent lodge sites in the Blue River valley, about 30 or so miles to the northwest. Pottery assemblages from these sites include shell-tempered vessels and are dominated by Florence, especially Florence D, cherts. The also contain red pipestone piles. Prior to the KATP excavation, Rolfe Mandel had obtained a radiocarbon age determination on charcoal associated with one of the features. The age is 810 ± 70 rcybp, which calibrates to a one-standard-deviation range of cal A.D. 1163–1281, or a two-standard-deviation date of cal A.D. 1030–1296. This is an appropriate age for a Smoky Hill



Figure 6. Formal Chipped Stone Artifacts

phase component. An attempt to date the features exposed in 2003 by archaeomagnetism was unsuccessful.

The occupation appears to represent a very short-term encampment by a procurement party that probably had been somewhere else away from with impact before occupying the valley. They probably had a fire after procurement could indicate consumption of some meat that was procured elsewhere. The main procurement task at this camp was collecting and processing aquatic resources, including freshwater mussels and small fish. These probably were prepared by steaming in the expedient hearths that were exposed during the 2003 excavation. The quantity of mussels and fish seems so large that, while it is difficult to demonstrate one way or another, it is possible that some of this meat was being processed and prepared for consumption elsewhere. Also while the camp was occupied, hunting arrows were refurbished and someone apparently was working on a pipe they must have been carrying with them.

Smoky Hill phase—indeed, Central Plains tradition—sites are best known from the lodge sites that lined the valleys of the larger trunk streams of the Central Plains. Yet the lodge sites must have been part of a settlement system that included limited-activity sites, perhaps of several types. The South location of the Claussen site upper components provides a window into a poorly-known element of the Smoky Hill phase settlement system.

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The 2005 Kansas Obsidian Sourcing Project

C. Tod Bevitt

Background

At the 2004 Plains Conference in Billings, Montana, a topic of conversation in the casual settings outside of the organized sessions concerned the need for a symposium on obsidian source provenance studies across the Plains. Envisioned as a state-by-state (or even groups of states) synthesis of obsidian research to date, the symposium would offer the opportunity to pull together the latest information on the subject, provide a clearinghouse for source provenance data, and offer the possibility of looking at broad patterns in the movement of obsidian through time and space across the Plains. Out of those discussions a plan for a symposium to be held during the 2006 Plains Conference in Topeka, Kansas, was developed.

This planned session has served as motivation to expand on the existing database for Kansas. Prior to 2005, 55 obsidian artifacts had been sourced from 27 sites across the state. Of those, nineteen pieces from nine sites had been sourced in the preceding 18 months, indicating both an increased effort to use obsidian source provenance studies as an integral part of archaeological research and improved access to funding for such studies.

That small sample of sourced obsidian represents the results of analyses from approximately fourteen different projects/reports (CRM, academic, and other research combined) over the past fifteen years. A search of the Kansas site database indicated at least 60 sites in Kansas were noted to have obsidian present. While many sites have only isolated specimens or very limited amounts, others have dozens, even hundreds of specimens. Taking into account that this total should represent the bare minimum number of sites that probably include obsidian in collections housed somewhere in the state (various institutions and private collections) it is easy to see that there is an abundant source of material available for analysis.

In the spring of 2005, several potential sources of funding were identified and funding for trace element studies was obtained for a number of obsidian artifacts. Each of the funding agencies had slightly different requirements for the selection of these artifacts. For example, funding provided by the Kansas Anthropological Association (KAA) necessarily focused on obsidian recovered from past training programs (KATP) as well as other sites excavated and/or recorded by KAA members. Other funds were limited to sourcing material from

sites on the National Register of Historic Places, while another source allowed for consideration of sites not covered in the first two cases. In the end these varied sources allowed for a wide number and variety of sites from across the state to be considered.

A ranking system for the selection of obsidian artifacts was established for this study. The highest priority was placed on obsidian obtained from excavated contexts, especially from features or sites that had been dated. A second tier of specimens was selected because they were associated with sites that had an established cultural or temporal affiliation (i.e., Great Bend aspect, Pomona variant, Pratt complex, etc.). A third tier of obsidian specimens included those collected from surface contexts of sites identified as having a single components. Finally a small number of artifacts were included from sites with multiple components or sites with more tenuous ties to particular time periods or taxonomic units.

The Study

A total of 181 specimens from Kansas were sourced during this focused study. An additional six specimens from 25CH1 (the Dismal River aspect Lovitt site in Nebraska) were submitted as well from collections housed in the Archaeological Research Center at the University of Kansas, resulting in a total of 187 artifacts. At the end of 2005 a total of 236 obsidian artifacts (more or less) from 25 Kansas counties have been analyzed over the past 15 years or so (Table 1).

The majority of the artifacts (n=100, 53.5%) came from 22 Great Bend aspect sites (Little River/Cow Creek locality, n=70; Lindsborg locality, n=17; Lower Walnut locality, n=13). Another 27 artifacts (14.4%) were submitted from three sites with Dismal River aspect components (including the Lovitt site in Nebraska). Middle Ceramic period sites comprise the bulk of the remaining specimens (n=50, 26.7%). This group includes archaeological complexes from across the state (14CM406- unaffiliated Plains Border variant, n=26; Pratt complex, n=18; Odessa phase, n=3; Pomona variant, n=2; Smoky Hill phase, n=1). The remaining ten specimens include one (0.5%) from

a Late Archaic-Early Ceramic site, four (2.1%) from Early Ceramic sites around the state, four (2.1%) from Middle-Late Ceramic period contexts, and one (0.5%) for which no temporal/cultural relationship is currently known.

All of the materials in this study were sourced via x-ray fluorescence (XRF) trace element analysis through the Archaeological XRF laboratory at the University of California-Berkeley under the direction of M. Steven Shackley (Shackley 2005a, 2005b). When combined with the existing obsidian source provenance data from Kansas and surrounding areas, several patterns begin to take shape with varying degrees of clarity and confidence based on the sample sizes considered. Two such patterns are considered briefly here as examples of the regional patterning that may become more clearly seen and more accurately portrayed with larger sample sizes.

Middle Ceramic-Late Ceramic Obsidian-Southern Kansas

Overall these assemblages are dominated by two New Mexico sources located in the Jemez Mountains- Cerro Toledo (aka Obsidian Ridge) and Valle Grande (aka Cerro del Medio). This is not surprising considering most of the material comes from protohistoric Great Bend aspect as well as various Middle Ceramic period sites that are located in the southwest quarter of the state. This appears to be characteristic of late period sites based on limited sourcing from the region in the past (Baugh and Nelson 1987; Brosowske 2004; Hawley 2000; Hughes and Lees 1991; Hughes and Roper 1999).

Middle Ceramic period sites associated with the Pratt complex, Odessa phase, and sites grouped generally in the Plains Border variant have demonstrated ties of varying intensity with areas to the southwest through lithic assemblages containing high percentages of Alibates, *Olivella* and other marine shell, turquoise, and related material, and occasional Puebloan ceramics (Bevitt 1999; Brosowske 2004, 2005; Brosowske and Bevitt 2006; Ranney 1994). In that context it is hardly surprising that obsidian from these sites is from sources in the Southwest.

Site Number	Cultural/Temporal Association	Number Sourced	Identified Source(s)*	Reference(s)
14BA401	Pratt complex	5	1	Shackley 2005b
14BA406		1	2	Shackley 2005b
14BU1308	Middle Archaic	2	2	Glasscock 2004
14CM406	Plains Border variant	30	1	Hughes and Lees 1991; Shackley 2005b
14CO1	Lower Walnut focus	2	1, 2	Hawley 2000; Shackley 2005b
14CO3	Lower Walnut focus	8	1, 2	Hawley 2000; Shackley 2005b
14CO331	Lower Walnut focus	1	2	Hawley 2000; Shackley 2005b
14CO332	Lower Walnut focus	3	2	Hawley 2000; Shackley 2005b
14CO382	Lower Walnut focus	1	2	Hawley 2000
14CO385	Lower Walnut focus	2	1, 2	Hawley 2000; Shackley 2005b
14CO501	Lower Walnut focus	4	2	Hawley 2000; Shackley 2005b
14CO1509	Lower Walnut focus	2	1	Hawley 2000; Shackley 2005b
14CS375	Early Ceramic	1	8	Shackley 2005b
14JW8	White Rock phase	4	2, 4	Logan, Hughes and Henning 2001; Logan and Banks 1993
14JW24	White Rock phase	2	4	Logan, Hughes and Henning 2001; Logan and Banks 1993
14JW46	Protohistoric	4	5, 6	Logan 2004a
14KW311	Plains Border variant	3	1	Brosowske 2004
14LO1/401	Unknown	3	1, 2, 6	McLean 2004
14LV1079	Early Ceramic	1	4	Logan 2004b
14MD306	Odessa phase	2	2, 8	Shackley 2005b
14MD310	Odessa phase	1	2	Shackley 2005b
14MN328	Great Bend aspect- Marion	2	1, 2	Hughes and Lees 1991
14MP1	Great Bend aspect- Lindsborg	7	1, 2, 7, 8	Shackley 2005b
14MP408	Great Bend aspect- Lindsborg	10	1, 2	Shackley 2005b
14MY305	Pomona variant or Cuesta phase	2	4	Hawley and Hughes 1999
14OS365	Pomona variant	2	4	Shackley 2005a; Shackley 2005b
14OT5	Smoky Hill phase	1	4	Shackley 2005b
14PA307	Pratt complex, Great Bend aspect	7	1, 2, 8	Shackley 2005b
14PA318	Early Ceramic	1	2	Shackley 2005a
14PT420	Pratt complex	11	1, 2	Shackley 2005a
14RC2	Great Bend aspect- Little River	5	2	Shackley 2005b
14RC3	Great Bend aspect- Little River	2	2	Shackley 2005b
14RC5	Great Bend aspect- Cow Creek	4	1, 2	Shackley 2005b
14RC8	Great Bend aspect- Little River	16	1, 2	Shackley 2005b
14RC9	Great Bend aspect- Little River	5	2	Shackley 2005b
14RC301	Great Bend aspect- Cow Creek	12	1, 2, 4	Shackley 2005b
14RC303	Great Bend aspect- Little River	1	1	Shackley 2005a
14RC305	Great Bend aspect- Little River	2	1, 2	Shackley 2005a
14RC306	Great Bend aspect- Little River	10	1, 2	Hughes 1991; Loosle 1991; Shackley 2005b
14RC308	Great Bend aspect- Little River	1	2	Shackley 2005a
14RC309	Great Bend aspect- Little River	3	1, 2	Shackley 2005a
14RC313	Great Bend aspect- Little River	5	1, 2	Shackley 2005a
14RC315	Great Bend aspect- Little River	4	2	Shackley 2005a
14RC420	Great Bend aspect- Little River	4	2, 3	Shackley 2005a; Sundermyer 2005
14RY601	K.C. Hopewell	1	5	Roper 2000
14RY603	K.C. Hopewell	1	4	Roper 2000
14SC1	Dismal River aspect	19	1, 2, 8	Shackley 2005b
14SC315	Early Ceramic	1	2	Shackley 2005b
14SD305	Upper Republican phase	3	4	Roper 2003
14SD410	Early Ceramic	1	1	Shackley 2005a
14SN3	Late Archaic/Early Ceramic	1	1	Shackley 2005b
14SN4	Unknown	1	7	Shackley 2005b
14SN307	Dismal River aspect	2	1, 2	Shackley 2005a
14TO305	poss. Upper Republican phase	3	1	Shackley 2005b
14TO313	Middle Ceramic/Protohistoric	1	2	Shackley 2005a
14WC1/409	Unknown- poss. Late Archaic	1	1	McLean 2004
14WC6	Protohistoric- poss. Dismal River	1	2	McLean 2004
14WC39	Unknown	1	2	McLean 2004
14WY1	K.C. Hopewell	1	5	Hughes 1995; Roper 2000

1- Cerro Toledo, NM, 2- Valle Grande, NM, 3- El Rechuelos, NM, 4- Malad, ID, 5- Obsidian Cliff, WY,

6- Wild Horse Canyon, UT, 7- Sierra de Pachuca, Mexico, 8- Unknown

*Cerro Toledo=Obsidian Ridge, Valle Grande=Cerro del Medio, El Rechuelos=Polvadera Peak

A recent trace element study of obsidian in the panhandle region of Oklahoma and Texas has focused on Odessa phase and Antelope Creek phase sites that date between AD 1250 and 1450

(Brosowske 2004). In Odessa phase contexts, Valle Grande obsidian was identified in limited quantities (n=7, 10.8%). This material was found in only one instance (1.5%) among Antelope Creek phase sites. By comparison, Cerro Toledo obsidian is found in abundance (n=52, 80%, Odessa phase; n=62, 93.9%, Antelope Creek phase) in these panhandle complexes (Brosowske 2004:Table 1 and Table 2). This general trend is reflected in the obsidian samples from archaeological complexes in southern Kansas during the same period (Pratt complex, Odessa phase, and related sites of the Plains Border variant). Here Valle Grande accounts for 11.1% of the obsidian (n=6) while Cerro Toledo dominates these assemblages (n=48, 87%). Small quantities of obsidian at sites throughout the region have sources in the Northwest- Obsidian Cliff, Wyoming, Malad, Idaho, Owyhee, Idaho, and Fish Creek, Wyoming as well as unknown sources. (Brosowske 2004:22).

The obsidian identified in Protohistoric/Late Ceramic Great Bend aspect sites (AD 1450-1700) is typically from Valle Grande. The majority of obsidian artifacts recovered from Lower Walnut sites is sourced to Valle Grande (n=18, 78.2%) and the remainder is from the Cerro Toledo source (n=5, 21.8%). In the Little River locality, Valle Grande accounts for 68.1% (n=49) whereas Cerro Toledo comprises 27.8% (n=20) of the material. Material from 14MP408 in the Lindsborg locality is almost entirely Valle Grande (n=9) as opposed to Cerro Toledo (n=1). In contrast, the nearby 14MP1 site has a high range of sources represented by its small collection of obsidian; including material from central Mexico (n=2), an unidentified source (n=1), Cerro Toledo (n=3), and Valle Grande obsidian (n=1). Little River sites also occasionally have material from other sources present, including at least one instance of material from the Northwest (Malad, Idaho).

While the trend is apparent, the reasons behind this shift are less certain. Perhaps it is tied to complex issues such as socio-political organization (particularly in the Southwest after Spanish contact and later colonization) and/or changing access to and control of specific sources. The appearance of nomadic groups on the High

Plains in late prehistory such as the Tierra Blanca and Garza complexes, archaeological complexes argued to represent the Querechos and Teya mentioned in accounts of the Coronado expedition, represents another possibility for changes in patterns of exchange that could be reflected in archaeological assemblages (Blakeslee et al. 2003; Habicht-Mauche 1992). Additional research concerning this aspect of Plains cultural interaction is warranted, as it would provide for a better understanding of trade/exchange relationships during the period as a whole.

The timing of the shift can be inferred from the Middle Ceramic complexes in question that date to approximately AD 1250-1450, as well as information from early Little River focus sites. Site 14RC306, one of the earliest Little River components (based on radiocarbon dates and Puebloan glaze ware ceramic cross-dates) suggests an occupation in the mid AD 1400s to early 1500s (Bevitt 2005; Loosle 1991), is evenly split between Cerro Toledo and Valle Grande sources (n=5 apiece). Feature 2449 at 14RC8, with a radiocarbon date statistically the same as the dates from 14RC306, yielded equal numbers of Cerro Toledo and Valle Grande obsidian as well (n=5 apiece). This suggests that with more refined temporal controls the shift could be isolated to a fairly short period of time though even now it seems that by AD 1500 (+/-) the source of obsidian most common on sites in the area was shifting noticeably from the Cerro Toledo source that dominates earlier Plains Village period sites to the Valle Grande source that becomes the common source among the Protohistoric Great Bend sites. This is particularly interesting considering that several of the Southern Plains complexes mentioned are among the likely antecedents of the Great Bend populations in Central Kansas and that the geologic sources in question are essentially in the same location. Valle Grande represents a consistently high quality tool stone in a relatively small area restricted to the Valles Caldera whereas Cerro Toledo obsidian is more often flawed but is widely distributed due to extensive secondary deposits outside of the caldera vicinity (Shackley 2005c:69-72; Church 2000). The extensive secondary

deposits would make Cerro Toledo obsidian more widely accessible and presumably harder for any one group to control access to as compared to obsidian restricted to the vicinity of the Valles caldera itself. Despite this situation, Baugh (1997) noticed a similar pattern in his study of the distribution of Jemez Mountains obsidian and postulated that Pueblo populations on the Pajarito Plateau (Bandelier National Monument area) were controlling access to the Cerro Toledo source.

Middle Ceramic Period Obsidian- Northern and Eastern Kansas

A different pattern emerges from the Middle Ceramic period sites (AD 1100-1450) in the northern and eastern parts of the state. The obvious difference is that obsidian is a rarely noted item in lithic assemblages in these areas. Source provenance studies have been conducted on all of the suitable material that has come to light. Malad, Idaho is the source for almost all of the obsidian identified to date in the area. Obsidian acquired from the Southwest by those groups outlined above stretching from the Southern Plains northward into the Arkansas River valley was apparently not being passed along to Central Plains populations or groups along the eastern edge of the Plains except in isolated instances.

While the sample size is quite small (n=12), and will likely remain that way due to the isolated nature of the material, the trend is too distinct to dismiss out of hand, particularly when contrasted with the emerging pattern to the south. This small sample of material comes from no less than four different complexes- Upper Republican phase, Smoky Hill phase, Pomona variant, and White Rock phase. These groups represent the western Central Plains tradition, a similar Middle Ceramic manifestation along the eastern edge of the Plains, and an intrusive unit of the western Oneota respectively.

The occurrence of obsidian in similarly rare quantities among these Middle Ceramic period groups suggests that these parties had similar means of access in this low intensity, down-the-line, exchange system. Just how obsidian is entering the Central Plains region is a matter of

conjecture though there are probably a limited number of groups responsible for its movement into the area. The fact that very little of this material comes from the Southwest indicates that for the most part the means of exchange by which obsidian was being acquired did not include Middle Ceramic groups along the Central/Southern Plains border and areas to the south. This point is further reinforced by the general lack of obsidian from sources outside of the Greater Southwest among those same southern groups. Source provenance data from temporally related groups to the west on the High Plains and into the foothills of the Rockies might help identify possible groups and directions for this exchange.

In the case of White Rock, it does not appear likely that the Malad obsidian is coming to them via other Oneota groups as that particular source has yet to be identified at other Oneota sites where obsidian is similarly rarely noted (Logan et al 2001:Table 1; Ritterbush 2006). In light of the earlier discussion regarding Southern Plains obsidian source shift in late prehistory it is interesting to note that the two flakes of Southwestern origin are identified with the Cerro Toledo source in the Jemez Mountains (Logan et al 2001:Table 1).

The Leary site (25RH1) is the only other Middle Ceramic period site outside of the Southern Plains where obsidian has been identified from the Cerro Toledo source (Ritterbush 2002). In this case all of the material was of southwestern origin (n=7). This plus the presence of other items at Leary that are common occurrences on the Southern Plains sites (Alibates agatized dolomite, *Olivella* shell beads, turquoise, etc.) suggests a different (or perhaps additional) exchange orientation directed south of the Arkansas River into southwest Kansas or beyond. The occurrence of ceramics on a number of southern Kansas sites bearing distinctively Oneota decorative design elements including trailed opposing diagonals, punctate borders, nested punctates, and bull's-eyes on plain ware ceramics as well as Kansas pipestone identified at related sites in the same area supports a connection between Oneota populations (at least as it appears at the Leary site) and populations represented

archaeologically by the Plains Border variant and possibly Odessa and Antelope Creek phases, all Middle Ceramic period complexes dating to the mid AD 1200s through late 1400s (Bevitt 1999, Bevitt and Garst 2003, Ritterbush 2006).

Conclusions

As a result of this recent focus on obsidian sourcing, source provenance information is no longer a rarity in Kansas. Material from every major cultural period in the state except Paleoindian contexts has been sourced in some quantity. While data on the Archaic and Early Ceramic periods are limited, there is now at least a larger database upon which to base discussions of obsidian movement onto and through the Central Plains, particularly when consideration is made of sourced material from adjacent states/regions. Kansas and adjacent areas undoubtedly represent an important crossroads in the movement of this rare and exotic material out of the Southwest and Northwest United States.

The cultures to whom and through whom commodities like obsidian moved have been studied to varying degrees though it is only relatively recently that specialized analyses of particular items (pipestone, obsidian, and ceramics for example) have been employed with increasing regularity and favorable results. The routes by which obsidian and other commodities traveled are currently not well understood and many may never be confidently identified. Through specialized analyses archaeologists are increasingly able to account not only for presence but point of origin and in so doing offer glimpses of the directions and destinations involved.

A database for the sourced Kansas obsidian is in the process of being completed using a modified format of a database created by Chris Lintz. Once all of the information has been input this compilation will offer a wide range of information from basic provenience (site number/name, catalog number, etc.) and cultural/temporal affiliation to the trace element concentrations measured for individual specimens. Research on the various aspects of the recent sourcing is currently being pursued and will undoubtedly be

the subject of future articles and presentations, particularly the 2006 Plains Conference symposium, the impetus behind the 2005 Kansas obsidian sourcing project.

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- Dyche Collection from the Fanning Site***
Jim D. Feagins
Belton, Missouri

One of the collections at the Wyandotte County Museum in Bonner Springs, Kansas, is currently being studied by Jim D. Feagins. This collection had been donated by the family of the late avocational archaeologist, Terrance Dyche. In 1963, he excavated 12 pits at the Fanning site (14DP1), an Oneota site in northeast Kansas (often thought to be associated with the ancestors of the Kansa tribe). Dyche had never washed this material and this collection had remained in the original bags in his home for many years. Unfortunately, the only records discovered so far about his excavation are what are written on the individual paper bags. It is suspected that at one time there may have been a map and additional notes; if so, they are now missing. However, the remains in his Fanning site collection can be grouped by feature and there are written dimensions on the bags for a few of the pits. The Fanning site collection mainly consists of decorated and plain, shell-tempered pottery (quite a few sherds can be mended together), animal bone

(canid, deer, and bison are among the animals represented), chipped-stone tools (blunt-end scrapers are common), and charred plant remains.

Also there are a few sherds that are sand/grit tempered (or in a couple of cases sand/grit combined with shell). Also the Dyche collection from the Fanning site contains two artifacts of EuroAmerican manufacture—a strip of sheet copper (probably from cut from a trade kettle) and a badly weathered glass bead. At this writing, most of this collection remains to be photographed and certain specialized analysis remains.

The Phil Site House: Analysis of a Central Plains Tradition Lodge, Lovewell Reservoir, North-Central Kansas

Brad Logan and Sarah J. Meitl
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Introduction

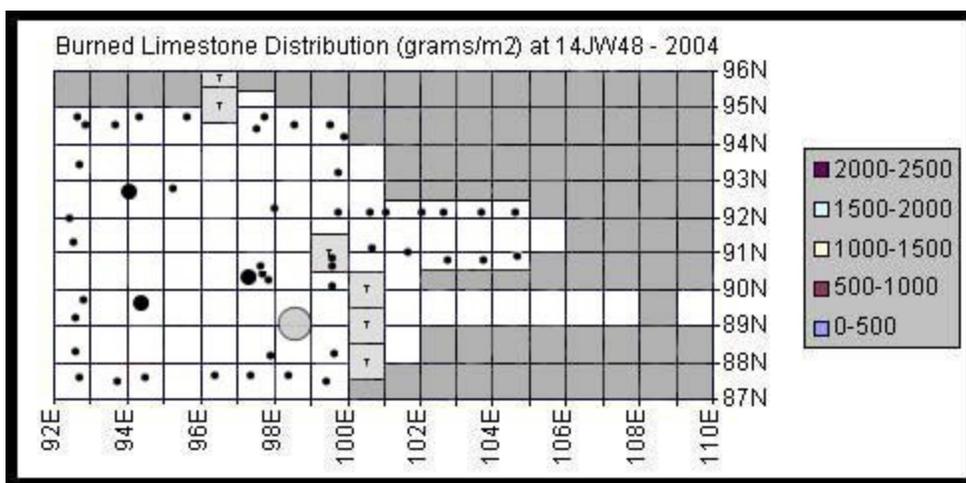
As reported in the last issue of *CAK* (Logan 2005), on-going archaeological investigations at Lovewell Reservoir, Jewell County, Kansas have focused on sites that were exposed on the lakebed in autumn 2004 when dam maintenance required lowering the water level. Among them is Phil (14JW48), a Central Plains tradition house site on the northern side of White Rock Creek that was the focus of National Register of Historic Places evaluation (Phase III) and mitigation (Phase IV) efforts. Phase III field work in September had entailed controlled surface collection and test excavations that delimited the extent of the site, sampled the variety of artifacts present, and discovered traces of a structure. During Phase IV investigation in November and December, a block excavation exposed the floor, features, and contents of the lodge (Logan 2005). Here we summarize the findings of the Phil site project to date (January 2006).

The Phil house excavation uncovered an area of ca. 87m², including most of the Phase III test units (Figure 1). The block revealed the floor of a square (7x7m) house with a 5m long entryway, peripheral and internal post molds, central hearth (Feature 5), bell-shaped cache pit (Feature 14), and a concentration of

burned limestone (Feature 3; shown in Logan 2004:60). The excavation included units dug along the 89N line eastward from some tests to determine if the house lay in that area. Further excavation there was stopped when work to the west encountered substantial house remains.

The summer of 2005 was devoted to a variety of outdoor tasks necessary to complete the “field” phase of the project, as well as to preliminary lab work. From mid-June through early July, three persons completed flotation of 160 soil samples (5gal; 18.9l) with a Flote-Tech machine on the KSU campus. These had been recovered from most of the 52 lodge features, including 42 of the 49 peripheral and internal postmolds (three of the latter may have been krotovinas). In late July, a seven person crew spent seven days water-screening ~1,100 samples of fill from the house excavation that had been stored in a secure place at Lovewell at the end of the 2004 field season (while 150 bags had been screened during the excavation, cold weather had prevented processing the balance). In August, at the KSU Archaeology Lab, all screened samples were rinsed in a solution of Sodaphos (sodium hexametaphosphate) that

Figure 1. Plan of the Phil site, showing the Phase IV block excavation, incorporated Phase III test units, and features (those numbered are referred to in the text)



dissolved remaining soil, permitted skimming their light fractions, and facilitated subsequent sorting.

During the fall semester, five students sorted water screen and flotation samples and piece-plotted artifacts into material categories and prepared a computer database (catalog number, material type, object, artifact type, provenience, counts and mass). Current research includes analysis of household ceramics (Lauren Ritterbush), lithics (Toby Blake and Dan Keating), and faunal remains (Logan). Flotation samples from all features have been sorted; those taken from the southwestern quadrant of excavation units are being sorted. At present, we are interpreting the spatial distribution of material types within the block excavation in order to delineate patterns that might reflect house construction or destruction and intramural activities such as cooking, tool use, production or maintenance, and trash disposal. Here we present a few preliminary interpretations.

Discussion

Table 1 presents the mass (and counts for ceramics and chipped stone) of various material categories; relative abundance is shown in Figure 2 (flotation samples are excluded from this discussion). Daub and burned earth account for slightly more than half of this material from the block excavation. Figure 3 shows their distribution across the block (Note: most of the burned earth is likely small pieces of daub that did not acquire or retain the tell-tale grass impressions that characterize the latter; Figures 2-3 do not include 16,448g [18.9lt] of oxidized soil recovered by flotation of the hearth fill). One might expect daub to be centered within the structure, reflecting the inward collapse and overlap of its walls and roof and the clay that plastered them. For example, Calabrese (1969:48) noted that daub was more abundant at the center of House 2 at Friend and Foe, a Steed-Kisker phase lodge site in

**Table 1
Phil House Water-Screen/Non-Feature Cultural Material**

Material Type	Object Class	Mass (gms)	Count
Ceramic		17,633.80	5,791
	Rim Sherd	2,293.70	104
	Body Sherd	15,340.10	5,687
Stone		17,726.90	
	Burned Limestone	10,976.80	
	Chipped Stone Debris	3,833.60	20,213
	Chipped Stone Tool	859.80	232
	Fire-Cracked Rock	218.70	
	Sandstone	1,259.10	
	Ferrous Oxide	63.40	
	Natural Pebbles/Sands	578.90	
Bone		4,034.90	
Daub		39,684.30	
Unplotted Charcoal		1,456.40	
Shell		27.40	
Glass		1.70	
Metal		176.80	
Miscellaneous		1.00	
Total		80,743.20	

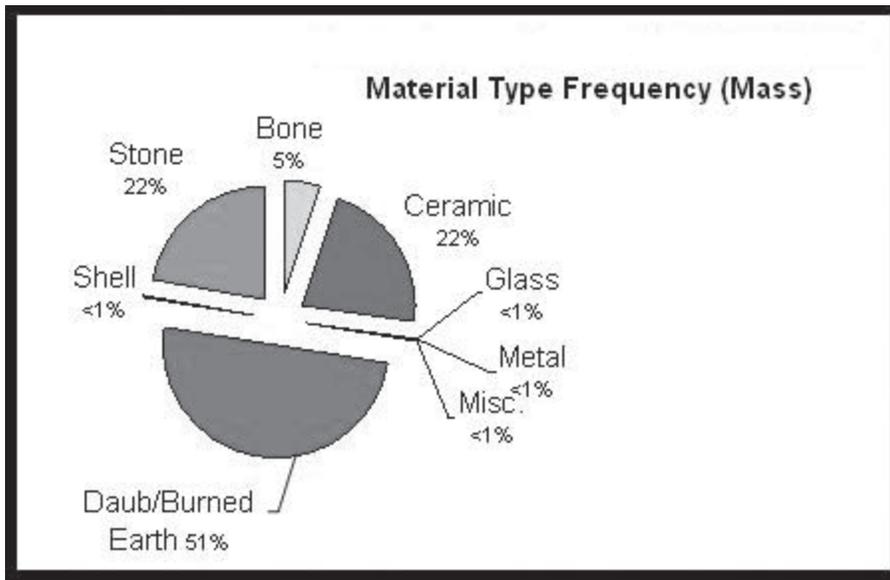


Figure 2. Relative Frequencies (mass) of cultural material types from the waterscreen samples of the Phil site block excavation

northwestern Missouri. While this expectation is fulfilled by a peak of daub at the center of the Phil house, one of greater mass appears in its southwestern quadrant.

The pattern of daub distribution may be attributable to the manner in which the lodge burned. As daub was fired during destruction of the structure, its formation would have been prevalent in areas where more fuel was available. The greater density of daub southwest of the hearth may reflect that aspect of the Phil lodge. Lending credence to this interpretation is the fact that the only section of the lodge where the bases of support posts were found in place was the northeastern portion of the structure, opposite that which contained the greatest amount of daub. While this indicates the lodge also burned in that area, the incineration of supports there was not as complete as elsewhere. While it is possible that more clay was plastered to the south and west walls of the lodge, this seems counterintuitive. Given frequently cold winters and northerly winds, there must have been a need to wind-proof the northern side of domestic structures. Alternatively, the daub concentrations may reflect post-depositional differences in preservation, that is, some may have been removed through surface erosion.

What the daub pattern at the Phil site indicates is that, in the absence of post molds or any other cultural material, archaeologists may not be able to accurately infer the outline of a structure from the distribution of daub alone. The senior author relied on daub patterns, in part, to infer the general shapes and sizes of houses at DB and Caenen, sites with Late Prehistoric components in Leavenworth County, Kansas that did not contain

post molds or other intramural features (Logan and Hill 2000; Logan 2005). Using daub distribution alone, we might have inferred a smaller structure (6x6m) at Phil. But inferences about house structures and activity areas at DB and Caenen also relied on the distribution of other cultural material, such as bone, pottery, and chipped stone tools/debris. Doing so provides a critical check on the delineation of structures. Here we present one example of how this augments spatial analysis of the Phil house.

Figure 4 shows the distribution of 4,034.9g of non-feature bone, both burned and unburned, across the block. This material better approximates the edge of the lodge floor, particularly its northwestern corner. Relatively bone-free areas are within a radius of at least 1m from the hearth and throughout the entryway; the greatest concentrations are at the northwestern, southwestern, and south-central edges of the structure. Some of this density is attributable to tools, specifically bison scapula hoes, found in these areas. For example, a burned and fragmented but nearly complete specimen found in 93N/94E (380.9g; illustrated in Logan 2004:62) and another one meter distant (94N/94E; 161g) account for some of the bone in the northwestern corner. Bison scapula fragments in 89N/93E (256g) and 87N/97E (100g) correspond to other points of greater density. Yet when these artifacts are removed from the bone total, the distribution retains the general

pattern (cf. Figures 4 and 5). From this we can infer that bone, whether from tools or food refuse, was kept clear of the hearth and the extended entryway, areas where occupants would most often sit or traverse. Moreover, the combined patterns of daub and bone more accurately approximate the known extent of the structure. A check of this accuracy is provided by the very low densities of both types of material in units along 89N, beyond the eastern edge of the house.

Stone items comprise 22% of the mass of non-feature material from the block, nearly the same as ceramics. Other categories comprise the balance and of these only bone (5%) exceeds 1% of the total. Lithic artifacts were sorted among six classes (Figure 6). More than half of the combined mass of these classes consists of burned limestone, a proportion that increases to 75.6% when pieces of this material (plotted and flotation) from Features 3 (5,049.1g), 5 (3,634.6g), and 14 (1,289.1g) are included.

It is apparent that the finishing and maintenance of chipped stone tools was a major intramural activity at the Phil site. Chipped stone debris, the second largest class of stone by mass, consists predominantly of tertiary flakes (the average mass per piece, 0.2g, provides a rough estimate of the small size of most of these flakes). Niobrara jasper is the predominant raw material represented, but the assemblage also includes non-local stone, mostly Permian cherts from the Flint Hills east of Lovewell, and lesser amounts of Alibates agatized dolomite and chalcedony from sources well to the southwest and west. The presence of artifacts made of the latter exotics is in striking contrast to their absence from the chipped stone assemblage of the White Rock site, a Late Prehistoric Oneota settlement just 700m from the Phil house (Padilla and Ritterbush 2006:268; Ritterbush and Logan 2000). At White Rock Niobrara jasper is the raw material of nearly 70% of an assemblage of 963 artifacts, Permian cherts account for another 21%, and the balance is an assortment of eastern Pennsylvanian and Mississippian sources. The contrast may reflect the differing nature of Central Plains tradition and

White Rock contact and trade with other groups in the various source areas.

According to a preliminary count of 232 chipped stone tools, 130 are formal pieces, including arrow points (41; complete and fragments), point preforms (2), scrapers (71), drills (6), knives (3), gravers (2), and bifaces (5) with the balance (102) consisting of modified/utilized flakes and blades. Another contrast between the Central Plains tradition occupants of the Phil house and those of the White Rock site is the form of their associated projectile points. Whereas the predominant point from White Rock is a triangular, unnotched form (29 of 33; the balance are notched; Padilla and Ritterbush 2006), most of the points from Phil are side-notched. The greater length of the few exceptions suggests they are point preforms. More detailed lithic analyses will be completed this spring.

The Phil house contained a considerable quantity of charcoal, indeed much more than the amount shown in Table 1. Thirty-four burned fragments of wood, most probably remnants of structural supports, were exposed, plotted, removed by undercutting them and a portion of their supporting soil pedestal, and wrapped in foil. As all of these pieces still retain some soil and would render misleading results if weighed, their mass is not included in the total given in Table 1.

A 12.6g sample of a burned support base (Feature 1; Figure 1) that was found in place at the junction of the lodge proper and its entryway was submitted for radiocarbon dating. The resulting assay (ISGS-5877) of 770 ± 70 BP calibrates AD 1047-1390 (two-sigma range; Calib 5.0.2). Within this range, 88.3% of the area under the probability distribution is AD 1149-1317, with the balance split between earlier (6%) and later (5.6%) portions. Within the one-sigma range (AD 1186-1289), 90.5% of the area under the probability distribution spans most of the 13th century (AD 1205-1289).

In the last issue of *CAK*, it was suggested, with regard to the temporal relationship between the Central Plains tradition and the White Rock phase in the Lovewell locality, that “the Central Plains tradition presence preceded White Rock, ending sometime before AD 1300” (Logan

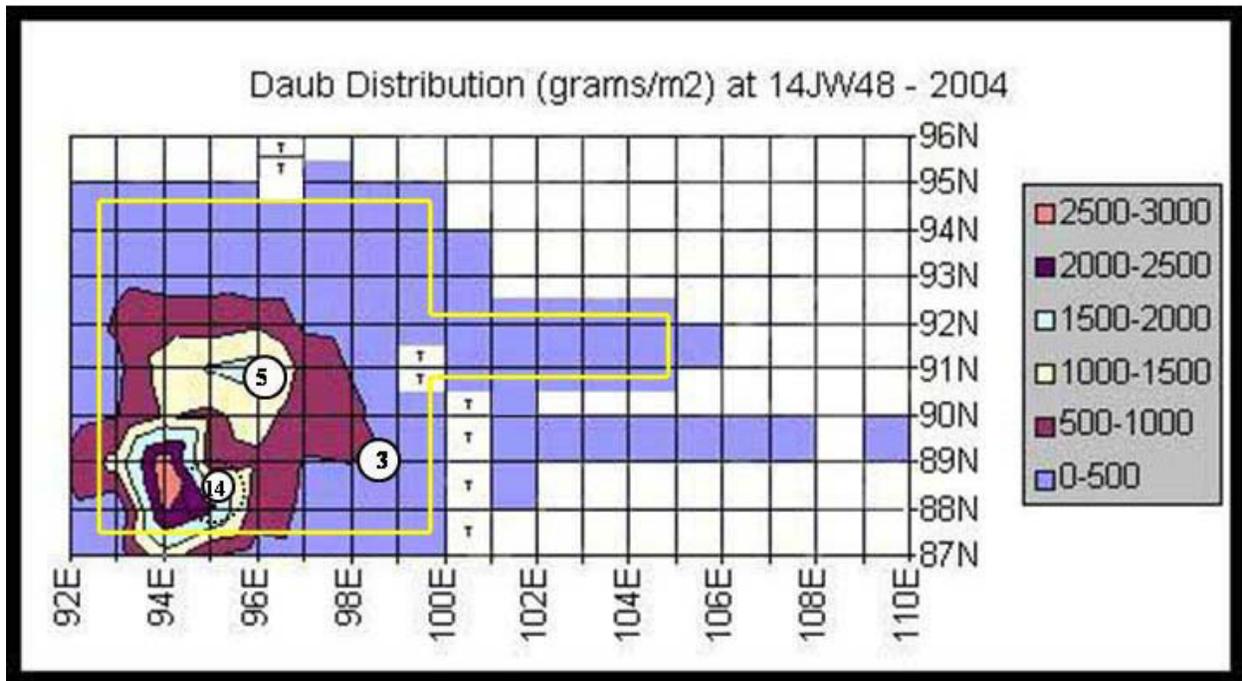


Figure 3. Contour map of daub and burned earth across the Phil house block excavation and associated features. The house outline (yellow) approximates the postmold pattern shown in Figure 1

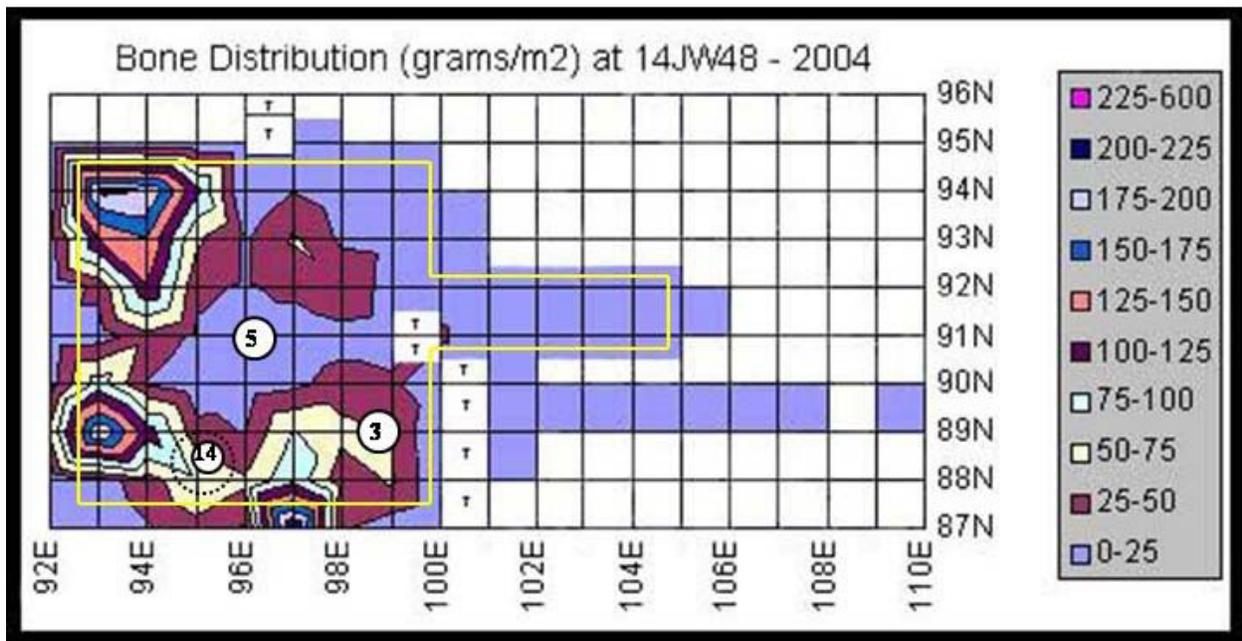


Figure 4. Contour map of bone across the Phil house block excavation and associated features

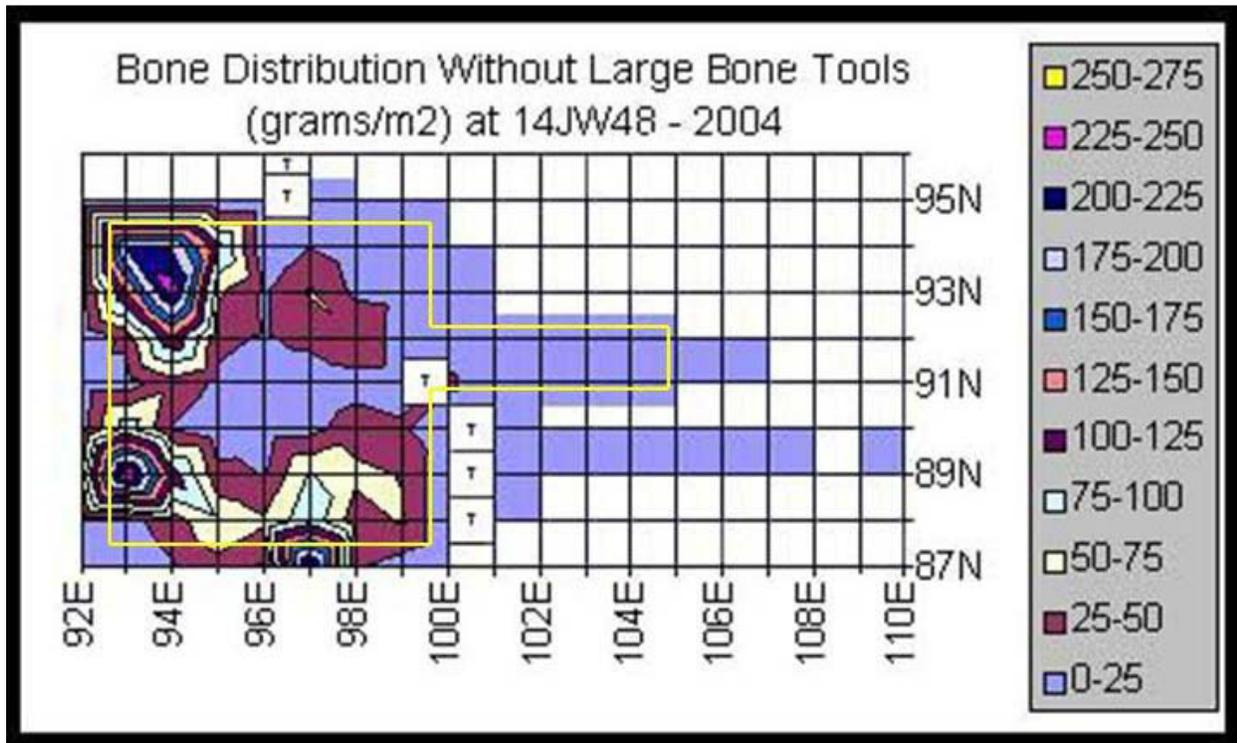


Figure 5. Contour map of bone with bison scapulae removed

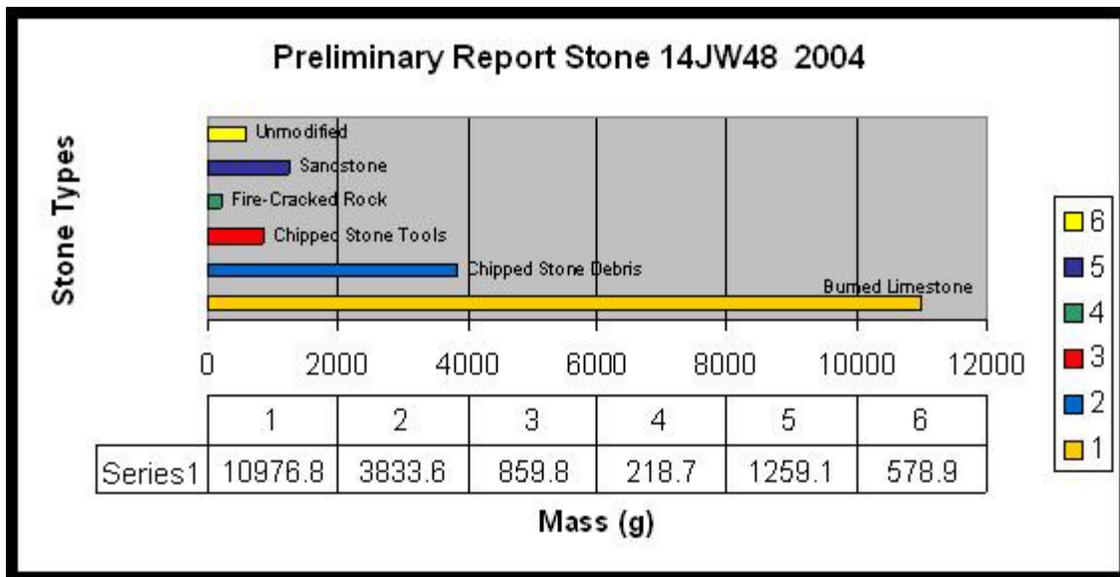


Figure 6. Relative mass of the types of stone material from the Phil site block excavation

2004:64). This inference was based on the lack of evidence of relations between the groups reflected by these two archaeological cultures. More specifically, there is no evidence of interaction at

either the Phil or White Rock sites and four radiocarbon dates from the latter point to its occupation between ~AD 1300 and 1450 (comparable to that of two dates from Warne,

another White Rock phase site at Lovewell; Logan 2006). Thus, the hypothesis offered last year is supported by the Phil house date. More radiocarbon assays will likely refine the ca. 170 year span given by the single date for the lodge and, hopefully, better indicate whether Central Plains tradition and White Rock occupations at Lovewell were as proximate in time as they were in space. Such chronological refinement is critical to understanding the nature of the relationship, if any, between these cultures (Logan 1998; Ritterbush 2006:163-164).

Our goal is to finish analyses of the Phil house assemblage before summer this year and to present a comprehensive, interpretive account of the lodge within its greater site context (during Phase III investigation, 188 surface artifacts beyond the block, perhaps indicative of a sheet midden, were identified and mapped), as well as its local and regional settings.

Acknowledgements

The KSU students who devoted time to the various field and laboratory tasks described above are: Toby Blake, Dan Keating, Sarah Meitl, Luke Bockleman, Cornelius Hugo, Lindsey Reiners, Eric Skov, and Phillip Wellons. We are grateful to Scott McElwain, Director of the KSU Gardens, for providing a comfortable site on campus with access to water and electricity for flotation and to Kenny Garst, Dam Superintendent at Lovewell, for providing a secure location for the water screen samples from December 2004 to July 2005, as well as an ideal site at the reservoir for the water screen station.

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An Archaeological Survey of Front Nine: Fort Hays Municipal Golf Course, Ellis County

Mark A. Latham, Susan Houghton (Burns and McDonnell), and C. Tod Bevitt

During the first week of March, 2005, Burns & McDonnell conducted archaeological investigations to provide the City of Hays with data related to the location of intact cultural resource features and deposits, including those related to the National Register of Historic Places (NRHP) site of Fort Hays (14EL301). C. Tod Bevitt and Mark A. Latham surveyed the 75-acre golf course leased from the State of Kansas by the City of Hays, and an additional 15 acres around the Fort Hays State Historic Park (Latham 2005). The golf course wraps around the state park on the west, south, and east sides. The U.S. Highway 183 by-pass creates the northern boundary (Figure 1) of the golf course and the state-maintained Fort Hays Historic Park.

The primary objective of the archaeological investigation was to systematically survey the golf course and portions of the adjacent property at Fort Hays State Historic Park to identify cultural resources presence or evidence of the potential for additional cultural resources. It was known prior to the survey that elements or cultural features associated with the historic fort were within the golf course (Pankratz 1979:52, Pankratz, Reynolds, and Stein 1996:2-3, Reynolds and Stein 1994:19, CSC 1990:11-12, Oliva 1980:61-62). Our goal was to locate these features and other cultural deposits.

Site 14EL301 includes the area of the second Fort Hays, a military facility established to protect Euroamerican travelers on the Smoky Hill Road and to protect workers constructing the railroad. The site is south of Big Creek, on the southwestern edge of Hays, Kansas. The NRHP site has been defined as the remains of the major buildings concentrated in what is the state historic site. The results of this investigation clearly demonstrates that the features associated with the site, throughout its history, are found scattered across the state-owned and City of Hays managed golf course.

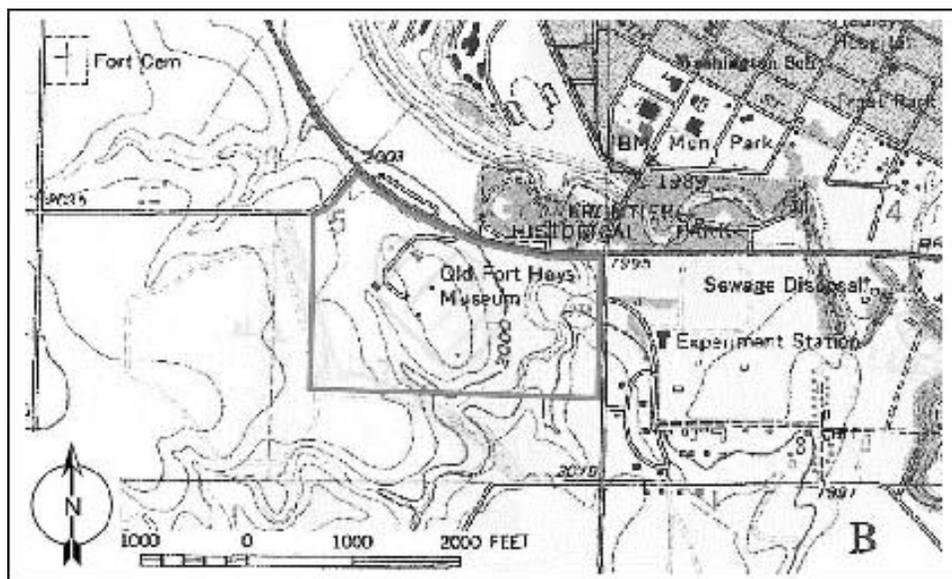


Figure 1. Area of Site 14EL301 and 2005
Survey Area, Ellis county, Kansas

Eight previous archaeological investigations have been undertaken at Fort Hays (14EL301). All of these investigations have been conducted by staff of the Kansas State Historical

Society (KSHS) in the form of data recovery of known and prominent features within the fort proper.

The present investigation relied heavily on the historic maps and photographs, as well as previous archaeological and historic research, for identification of features. As a result of the current investigation, 100 features associated with the Euroamerican occupation of the site were documented, but one feature, Burns & McDonnell Feature (BMF) 58, was later determined to be associated with the golf course established around the site. Eight feature types were identified including (Latham 2005):

Rifle pits	=	24
Dugouts	=	16
Ovens	=	2
Walking/horse paths	=	10
Roads	=	12
Foundations	=	4
Pits/Depressions	=	26
Depressions	=	6

A more detailed discussion of our findings is being prepared by the authors and will be presented at a later date.

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Searching for Dr. Doy?: Archaeology and the Underground Railroad in Douglas County, Kansas

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Introduction

On a sweltering summer day in July of 2000, a young boy living on the outskirts of Lawrence, Kansas, wandered off to explore a wooded lot in his neighborhood. When he first moved to the area, neighbors had warned his parents about an open well in the woods and now he was determined to investigate this mysterious threat hidden in the woods. The strip of trees and brush that boarded nearby Deer Creek stood out like an island in the expanding sea of suburban development. Crashing loudly through the dense branches and undergrowth, the boy was surprised to discover not only the well, but also something even more wondrous: the remains of a large Territorial Period building foundation. Shrouded in vines and choked with heavy underbrush, the crumbling stone foundation took shape as he traced its outline by walking along its rocky edge.

Soon the press and the local community caught wind of the young man's find. Local historian Judy Sweets of the Underground Railroad Association discovered that Dr. John Doy, an activist in the Underground Railroad (UGRR) movement built a home in this area in 1854. Anxious to determine if the site was indeed associated with Doy, members of the Underground Railroad Association contacted Washburn University to inquire about the possibility of conducting archaeological research on the site.

In the summer of 2005, Washburn University students participating in an archaeological field school conducted test excavations on the site (14DO174). Our objectives were to determine if intact archaeological strata were present, determine if artifacts and strata related to the Territorial Period were present, assess the function of the structure, determine the construction date of the foundation, and determine the overall occupation date range of the site. As we began the project we were skeptical about the

possibilities of actually associating the structure with Doy, but we nonetheless saw this as an opportunity to explore the history of Territorial Period Kansas, and to examine the challenges faced by all settlers who established themselves in Kansas during this turbulent period and the years that followed.

The Underground Railroad, Bleeding Kansas and Beyond

Kansas was established as a territory in 1854 with the passage of the Kansas-Nebraska Act. At this moment in history, slavery was the issue that haunted the nation. Congress put the question of slavery on the shoulders of the new territories of Kansas and Nebraska and determined that each would determine for itself if slavery would be allowed. Kansas quickly became both a figurative and a literal battleground for pro- and anti-slavery forces. As settlers recruited by both sides of the issue streamed into the territory, armed and violent conflicts raged within and between communities. Battles also occurred between anti-slavery Kansans and their neighbors in Missouri, a slave state. The territory was appropriately dubbed "Bleeding Kansas."

John Doy was one of the early anti-slavery settlers in the Kansas Territory. Trained as a homeopathic physician in Hull, England, Doy migrated first to New York and then to Kansas, settling in Lawrence in 1854. Lawrence was known as a free-state town and Doy quickly found comrades that shared his feelings about slavery. He staked his claim to 160 acres (SW¹/₄ of Sec 23, T12S, R19E) which today is the property bordered on the south by Peterson Road and on the west by Kasold Drive in Douglas County. Dr. Doy, his wife and nine children lived on the property for six years. During this tenure in Douglas County, Doy worked as a physician and farmer, and was an active conductor on the UGRR.

Although it is not common to associate Kansas with UGRR activity, routes in the Midwest became increasingly important after the passage of the Fugitive Slave Act (1850), which made it legal for bounty hunters to capture and return slaves who had sought refuge in the north. This meant that slaves needed to flee farther north to Canada. This law also made it a crime for whites to help enslaved people seeking freedom.

The UGRR was a vast network of people who helped fugitives escape north and into Canada during the era of slavery. The efforts of the UGRR were not orchestrated by any one organization or person. Rather, the UGRR consisted of many individuals, including free blacks and sympathetic whites that participated in ways that were sometimes highly organized and at other times were spontaneous and diffuse. Some estimate that over 100,000 fugitive slaves were transported to freedom with the help of abolitionists.

Some of the participants in the UGRR, such as Harriet Tubman, rose to national fame for their daring efforts to usher slaves to freedom. Others, who helped thousands along their routes, remain more obscure, but no less important in the story of the struggle against slavery. Indeed, thousands who participated will never be known by name. In Kansas, however, we are fortunate to know the background of several participants in the UGRR and the abolitionist movement, including John Ritchie, John Brown, and Dr. John Doy of Douglas County.

Doy's most prominent exploit occurred in 1859 when he was captured as he escorted thirteen people fleeing from slavery along one leg of their journey north. Doy and his son were taken to Missouri (a slave state) where they were imprisoned on charges of "slave stealing." Ten months after his incarceration, a group of men from Lawrence (now known as the "Immortal Ten") helped Doy escape his prison cell and return to Lawrence. In 1860, Doy and his family moved to Battle Creek, Michigan, where he lectured on his experience and continued to practice medicine. Doy's financial and personal difficulties continued in Michigan, however, and he eventually took his own life. After being convicted of assisting in an

abortion, which was illegal in the State of Michigan, Doy swallowed a bottle of morphine.

Before his death, Doy sold his farm in Douglas County to a man named Reuben Randall (1863). Randall was born in Massachusetts and was a 31-year-old bachelor when he purchased the property. Four years later he married Lizzie Wood, a native of Missouri and eleven years his junior. They lived on the property and raised five children there. In 1883 Ruben Randall passed away; however, his family continued to reside on the property until at least 1887. The Randalls and the subsequent owner John Quinlan (1903 -?) used the property as a working farm. Although the post-Civil War occupation of the site represents a less turbulent time, it was nonetheless equally dramatic. The personal struggles of early farmers in Kansas who worked to make ends meet is perhaps a less told, but equally compelling tale.

Previous Work

Only a few months after the site was discovered, Frank Gagné was contracted to conduct a survey of the area to assess the archaeological potential of the site. Gagné described the site and excavated shovel test pits around the major features in 5-meter intervals. His results were encouraging and he recommended that more work be done to determine the boundaries and occupation period of the site.

In addition to the work conducted by Gagné, members of the Underground Railroad Association and concerned neighbors periodically collected artifacts from the surface of the site. On several occasions bulldozers stood ready to prepare the lot for construction. Community members attempted to salvage what they could. Although destruction of the site seemed imminent at times, the UGRR Association convinced the landowner to refrain from building on the site until a fuller assessment of the significance of the structure and associated features could be completed.

A variety of artifacts ranging in date from the early-19th century to the late-20th century have been collected from the surface by a variety of people. The artifacts also range in function from glass medicine bottles and tin cans to door hinges

and roofing nails. The UGRR Association has made these available for research and this collection will be considered as an undifferentiated surface collection in future analysis.

The Site

The site (14DO174) is situated near the center of John Doy's original claim. It is located on a low-rise south east of Deer Creek. Areas surrounding the site have been severely impacted by suburban development and high voltage power lines cut across the west boundary of the site. The site itself is covered with thick, low underbrush and the first task of field school students was to clear the area. Heavy concentrations of poison ivy made work in many areas difficult as well.

The site is roughly oval measuring 34 meters north-south by 28 meters east-west. Surface artifact scatters define the boundaries of the site, although the stone-lined well feature is located 20 meters north west of the foundation and is an outlier to the main site. No artifact concentrations were identified in this area. The features on the site include: a deep stone lined cellar, a stone foundation (possible half cellar), a well, and a cistern. The precise boundaries of the eastern portion of the site are difficult to precisely discern because artifact concentrations west of the cellar and structural foundation are obscured by heavy undergrowth.

Stone Lined Cellar and Foundation

One of the first features identified on the site was a large stone lined cellar (Feature 1). Initially the precise boundaries of the structure were not clear because a large amount of stone rubble litters the area and obscures the precise outline of the feature. The cellar was apparent on the surface as a large stone filled depression, which incidentally provided an excellent habitat for the local snake population. At least twenty-four pieces of cut lumber were also mixed in the debris filling the cellar. The lumber was riddled with primarily cut nails (count: 85) of various sizes, although a few boards also contained wire nails (count: 6) as well. Cut nails were used primarily between 1815 and 1900.

The structure is roughly rectangular, measuring 4-x-10 meters with what may be the gable ends in the north and south. A bulkhead entry is located in the southwestern corner of the building. The arrangement of the building and the placement of the bulkhead suggest that the rear of the structure was oriented toward the south.

We excavated two trenches in and around this feature, each measuring one-meter by three meters. Trench number one was located in the interior southeast corner of the building running parallel with the south gable end wall. The second trench was immediately adjacent to the first, and indeed extended the first to the exterior of the structure. The first trench we placed to determine if we could identify intact occupation levels (primary deposits) on the interior of the structure. We placed the second trench to determine if a builder's trench or some sort of construction related strata were present on the exterior.

The interior trench was excavated until we reached the packed dirt floor of the structure; a total depth of 2.3 meters (Figure 1). The first level consisted 1.8 meters of stone rubble mixed with some soil and a few modern artifacts such as glass and plastic buttons, modern sanitary cans and pop can tops. This level was clearly a secondary deposit associated with the intentional demolition of the structure that appears to have been completed sometime in the 1960s. Below the rubble layer was 17 cm of black soil that contained far more promising material culture including animal bones, buttons, safety pins, lamp glass and painted plaster and part of an eyeglass lens. Some of the more interesting materials from this context were calico buttons. These porcelain buttons were embellished with bright and busy designs to match calico fabrics that were popular in the mid-late nineteenth century. Production of these buttons began in 1840. In this level, however, we also discovered foil (1910+) and a paint can with some pigment remaining. The subsequent two layers, which extended an additional 12 cm, also contained animal bone but few artifacts. Plaster in these levels and near the packed dirt floor indicates that the floor may have been periodically plastered.



Figure 1. Excavation on the Floor of the Structure

While the bottom 29 cm of this trench seem promising as an occupation level, it appears that the material from different periods of occupation are not chronologically distinct. It is likely that the cellar was in use for a long period of time and that materials in this sheltered area accumulated and mixed over time. Further, it is also very possible that the structure stood open and abandoned for some time before its demolition allowing non-occupation related material to be deposited here as well.

The trench excavated on the exterior of the structure was not very productive. We excavated this trench to a depth of 60 cm below surface. Material culture from this trench included over 100 nails (both wire and cut) and a variety of clear and cobalt blue bottle glass. No construction trench was revealed.

Immediately north of the cellar depression was a slightly mounded very rubble strewn area. Large stands of poison ivy were growing in this area. After closer inspection, it became apparent that the foundation line, which defined the cellar, was continued to the north. The building was much larger than we originally thought. The west wall of the building thus extended an additional five meters to the north. The total length of the building extended 10 m north-south.

We excavated trenches on the interior and exterior of this wall as well. The exterior trench

revealed rubble wall fall sloping away from the foundations to a depth of 1.2 m below surface of the unit (surface of wall) (90 cm below datum). A single piece of annular pearlware (1790-1820) was deposited near the base of the wall. Although we also discovered a medicine bottle with a marked base reading “Bagar...cor. Of America, San Ju... P.R.” at the base level of the foundation wall we have not been able to conduct research on this artifact yet. Hopefully, it will allow us to solidly date the exposed ground surface before rubble began to accumulate here.

The interior trench on this section of the foundation yielded abundant building material including nails (cut and wire), tin roofing material, and several bullet casings. In addition, several temporally sensitive ceramic types, including edged pearlware (1780-1820) and black transfer print whiteware (1830-1850), were excavated from the lower levels of this trench.

While complete analysis of the material excavated from the site still needs to be completed, the early dates of the ceramics from this area of the site suggest that this portion of the structure may be the earliest building on the site. The more extensive cellar was probably added to the original building at a later date.

Brick Cistern

A gaping black hole and an open ring of brick belied the presence of an extensive cistern immediately northwest of the structure. We focused our efforts on exposing the top of the cistern so that we could determine its size and potentially determine a construction date (Figure 2). A substantial layer of clean yellow clay surrounds the cistern. It is not clear if this clay was packed around the cistern or if the builder excavated a dome into this dense soil to provide a form for the hollow brick structure. One sherd of red transfer print whiteware (1829-1850) was excavated from the level just above the yellow clay.

We also discovered an additional clue about this feature that reveals important information about its construction date. The remains of a crumbled water pipe and an associated trench run just above the yellow clay cap and in areas cut into



Figure 2. Excavation of the Cistern

the yellow clay. The trench appears to bisect the unit on an angle, thus it is unlikely that the pipe is directly associated with the cistern feature itself. It is perhaps more likely that the pipe was used when some modern conveniences were added to the structure, probably in the first two decades of the twentieth century. Makers' marks on the pipe read "Kansas City Sewer Pipe Company." This company is present in Kansas City Directories from 1887-1908. While it is possible that sections of this pipe were curated or stockpiled it is more likely that this pipe was installed sometime in this period or soon thereafter. This means that the cistern was probably in use until the early twentieth century. It may have continued to function in some fashion after this time as well. Because time was limited, we did not excavate in the cistern, but future investigations of this feature will be interesting indeed.

Stone Lined Well

Like the foundation and cellar, the well was constructed from shaped local limestone. The feature measured 1.2 m in diameter. We described and mapped the feature, but did not conduct any testing in this area.

Controlled Surface Collection

In addition to test excavations we also completed a controlled surface collection based on 5-meter squares, to determine if it is possible to discern specific use areas of the site. Because cataloguing of the material culture is still underway, this phase of research is not yet complete.

Preliminary Interpretations

Based on preliminary analysis, it seems very possible that the site was occupied in the Territorial Period. Ceramics dating to this early period are present, but not abundant on the site. The concentration of these earlier types such as edged pearlware, annular pearlware, and gray/black transfer print whiteware near the northern structure/

foundation suggest that this perhaps was the earliest structure on the site, with the extensive cellar being added at a later date. In addition, masonry techniques used in both the cellar and foundation are consistent with Territorial Period methods. The abundance of cut nails found in the wooden boards that were packed among the rock rubble in the cellar strongly suggest that this building was constructed before 1900.

The site clearly functioned as a domestic space. The size of the domestic structure was rather large and the depth of the cellar feature is somewhat surprising. The types of artifacts found at the site, however strongly support the association of these features with domestic activities. These artifact types include food service and preparation vessels, soda bottles, medicine bottles, stove legs, buttons, padlocks and other assorted personal items.

The presence of a piece of red transfer print whiteware (1829-1850, median 1840) immediately overlying the yellow clay cap that covers the cistern vault suggests an early construction date for this feature. I say this with some hesitation, however, as the general abundance and chronological diversity of artifact scatter across the surface of the site suggest that the area has been disturbed either by plowing or by heavy equipment used to demolish the structure. Excavation of test units in the yard area revealed undifferentiated soils transitioning to dense gray clay. Items such as plastic bags, however, were found intruding up to 40 centimeters below the present surface.

We probably will never be able to say with any certitude that any of the features on this site are associated with the Doy occupation, although the presence of early ceramics hint at an early Territorial occupation date. At this point, it seems unlikely that the extensive and deep cellar structure is associated with Doy. The volume of rubble contained in the subterranean cellar suggests substantial stone walls that extended at least a single story. Several primary documents related to a disputed property claim and dating as late as 1859 describe Doy's home as a structure constructed from logs and boards. The superstructure above this feature clearly was constructed of stone. This fact, however, does not eliminate the possibility that the related foundation (adjacent and immediately north of the cellar), may have served as the base of a wood superstructure. Further investigations will be needed to determine exactly how this foundation was used and how it is related to the cellar.

Future Research

Although we will not be returning to the Douglas County site in 2006, we hope to be able to continue work here some day soon. Several interesting features, including the cistern and the north foundation, need to be investigated more fully. In addition, we would like to see if it is possible to utilize the boards that were contained in the cellar refuse to obtain a construction date using dendrochronology. None of the boards appeared to have exterior bark, so we are not certain

if this would be a useful endeavor. The possibilities however are interesting. In addition, we are very interested in discovering any privies, which most likely are located south of the main structure.

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A Small Survey on the Walnut River

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In March, 2005, Wichita State University surveyed an area of about 120 acres for the City of El Dorado, Kansas. Five previously recorded sites were relocated and three new sites identified. Preliminary assessment confirmed surface expressions of Archaic components previously described (Padgett and Blakeslee 1982). Subsurface investigations indicate that sites 14BU1532, 14BU1531, and 14BU519 have buried components at depths from 35 cm to a little over 1 meter below ground surface. These components can yield data supplementary to the previous evaluations. The sites illustrate settlement along or near a now abandoned meander of the Walnut River from Archaic through Greenwood Phase times.

Investigations

The investigation involved walking parallel traverses across the area at a spacing of about 15 to 20 meters between passes. Detailed notes of all observations were made in the field using ArcPad™ software (version 6.03) and several iPaq handheld computers with attached GPS receivers. All cultural materials were flagged. Specific location of each artifact was recorded with a Global Positioning System (GPS) or an ArcPad™ unit. Each artifact was given a location number, was collected and bagged by location, and the flags retrieved. Flagging artifact locations yielded several distinct artifact concentrations. The field observations were then transferred to a more comprehensive GIS model of the project area and later correlated with detailed descriptions from laboratory analysis of the collections. Personnel involved in one or more pedestrian surveys were David T. Hughes, Alicia Hughes-Jones, Wade Parsons, Colleen Nicholas, Errol Merkel, Marcia Meier, Camien Eisenzimmer, Dale Coffman, and Kurt Bookout and his son Kutter.

Following the pedestrian survey the City

of El Dorado provided a backhoe for deep-soil testing to determine whether or not buried archaeological sites are present within the project area. Rolfe Mandel of the Kansas Geological Survey provided on-site evaluation and consultation on the placement of deep soil tests and the interpretation of the results. On March 28 and April 4, 2005, a total of 8 backhoe trenches were completed. Subsurface investigations were conducted on March 28, 2005, by Rolfe Mandel, David T. Hughes, and Alicia Hughes-Jones and completed April 4 by Hughes and Hughes-Jones. A week of rain delayed the subsurface investigations for almost 2 weeks. Kurt Bookout, Director of Public Utilities for the City of El Dorado, arranged for and coordinated backhoe operations. Throughout the investigation the weather ranged from overcast to sunny, with wind speeds of breezy to gusting.

Upon completion of the fieldwork all collections were returned to the laboratories at Wichita State University for analysis and preparation for storage. The ArcPad databases were compiled into a single database and the collection number identifiers were compiled into a single catalog. Collection preparation and cataloging was done by Errol Merkel, Alicia Hughes-Jones, and David T. Hughes during May, 2005. Use of the ArcPad software for field recording of collections allowed us to provide distributional analysis of collections in a way that is normally beyond the scope of this kind of survey. For each item a Universal Transverse Mercator (UTM) grid coordinate was recorded to an accuracy of about ± 3 meters. Plots of the locations thus recorded could be easily transferred to the project GIS models and serve to preserve a relatively accurate location for each item collected during this investigation.

Findings

Three new archaeological sites were

located: 14BU1531, 14BU1532, and 14BU1533. Previously recorded sites 14BU519 and 14BU520 produced more information including evidence of a previously unsuspected Ceramic period occupation on and near the surface and Archaic period occupations preserved at a depth of about 1.25 to 1.75 meters below the present ground surface. Previously recorded sites 14BU515, 14BU516, 14BU517, 14BU518, and 14BU532 are in an area substantially impacted in the past.

The area of interest for this report is 53 acres on the east bank of the Walnut River inside a large horseshoe bend of the river (Figure 1). This area contains archeological sites 14BU519, 14BU520, 14BU1531, 14BU1532, and 14BU1533. Sites 14BU519, 14BU1531 and 14BU1532 are multi-component sites containing Archaic through Middle Ceramic components in a vertically stratified setting. Site 14BU520 is a dense surface scatter of lithics and ceramics that may extend below the plowzone of the site. Site 14BU1533 is

a small surface scatter of lithics of unknown age and cultural affiliation.

Site 14BU519

Site 14BU519 is a large site with a substantial surface accumulation of lithic debris, limestone pebbles, and artifacts. Chipped stone artifacts included three bifaces (Figure 2 A, B, and C) and a large number of flakes, flake fragments, and blocky debris. The four pottery sherds (Figure 2 D, E, F, and G) in this collection derive from four separate vessels. One is exotic, while the other three were probably made in the Flint Hills region during the Early Ceramic period. The exotic sherd (Figure 2G) is light brown in color with finely ground grog temper and highly burnished on both the external and internal surfaces. The core is light gray in color, and the sherd appears to be the product of a relatively high temperature firing (for prehistoric pottery). The other sherds are probably Early Ceramic (Figure 2D, 2E), and Late Woodland (2F). The last of these is grog tempered and quite thick (9.6 mm) with smoothed-over cord impressions on the outer surface.

A total of 101 pieces of lithic debris massing 2.8 kilograms was found during the surface collection of 14BU519 (Table 1). The most common material is the locally available Permian age chert, common to the Flint Hills and the streams that drain from the Flint Hills. Heat treated or thermally altered Permian cherts made up about 12% of the total lithic debris collection, or about 18% of the total Permian chert recovered. Two material types of interest include an oolitic chert of unknown provenance and two flakes of Florence B chert. Florence B chert is found in formations west of the City of Wichita, Kansas and may represent an import to the project area. In addition to the lithics

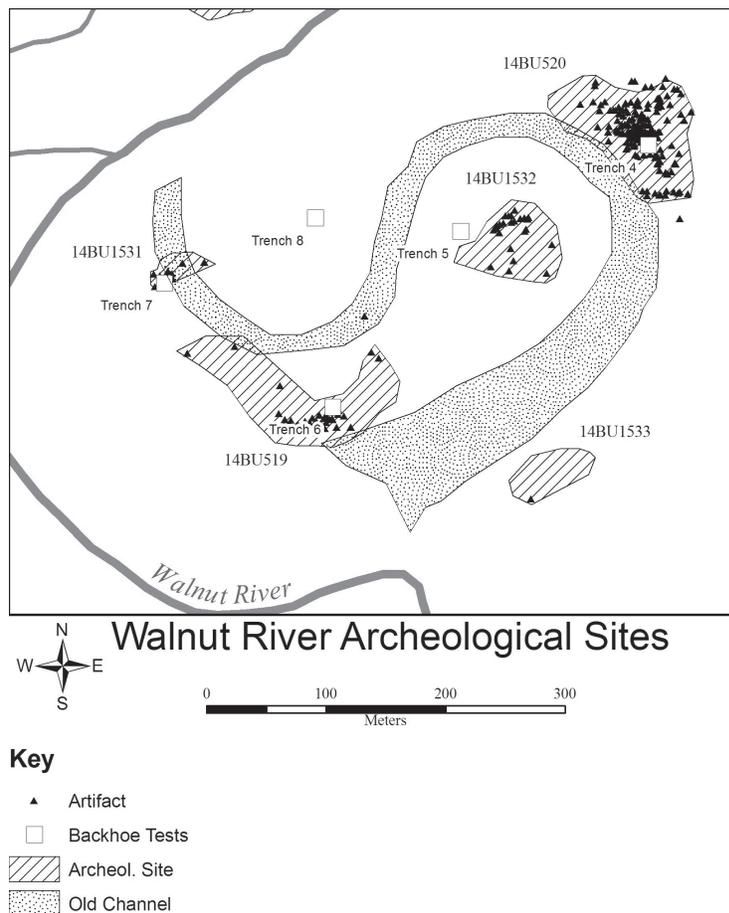


Figure 1. Walnut River Archaeological Sites

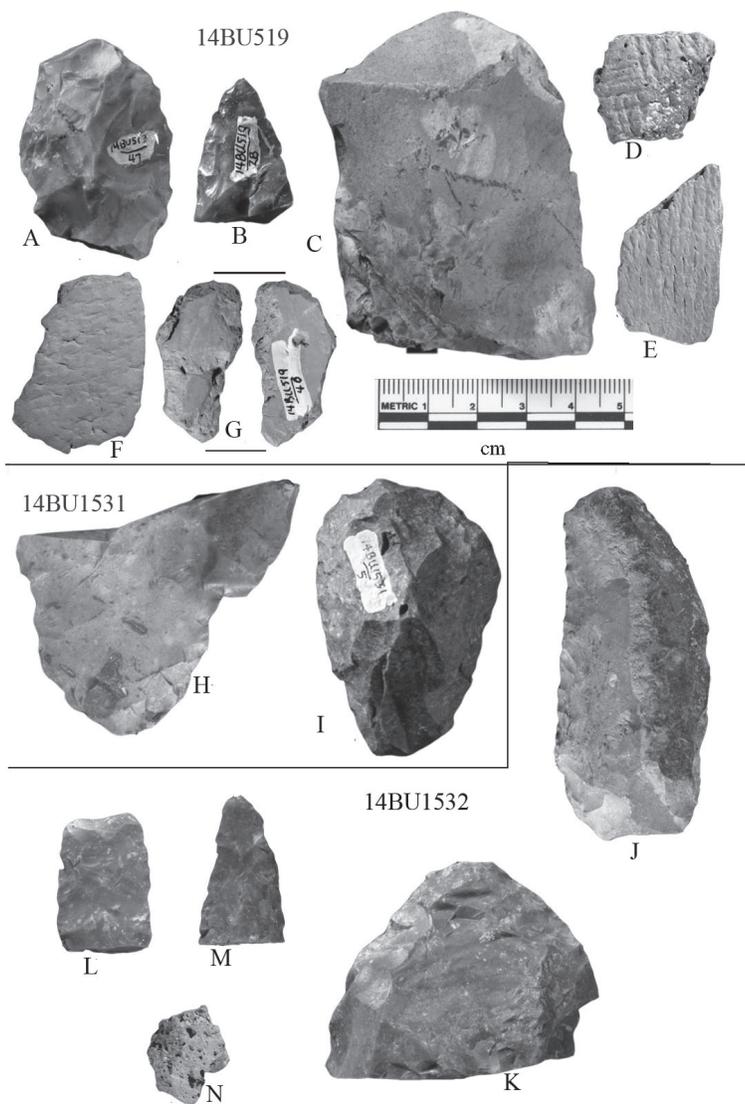


Figure 2. Selected Artifacts from 14BU519, 14BU1511, and 14BU1512

and ceramics, two small pieces of mammal bone and three small pieces of freshwater mussel shell were recovered from the site surface. The mammal bone was too small to identify the species or element but is consistent with medium-sized mammals like deer or antelope. The mussel shell was small fragments 1–1.5 cm in diameter with a chalky, eroded surface consistent with substantial age in the soil.

The materials from 14BU519 are distributed in a long arc with the concave area

opening to the north. This arc follows the southern margin of an abandoned meander of the Walnut River and is on the north bank of the modern Walnut River. It appears to be on a slight but recognizable elevation, possibly from accumulation of ancient overbank stream deposits or levy developments. Most of the material is near the lower apex of the arc (Figure 1) and the remainder may reflect outlying areas or dispersal of the materials by plow disturbance. Site boundaries are drawn to encompass all materials present in the area. The westernmost tip of the site may represent another occupational deposit in that there is a substantial distance between clusters of material here.

One backhoe test was excavated into 14BU519 and it showed an extension of the upper component into the B/C soil horizon at a depth of about 40 to 50 cm below ground surface and some concentration of artifacts and debris at this level. A small pocket of some charcoal and burned animal bone about 20cm long and 15cm thick in the upper left of this profile (Figure 3 and 4) may represent a hearth from one of the ceramic period components of the site. At a depth of about 1.4 meters and beneath a distinct

buried A soil horizon a firepit from a probable Archaic period occupation was discovered, suggesting a deeply buried component to this site. The likely hearth or firepit is about 20 cm across and 18–20 cm thick, and tapers toward both ends. It is labeled “Hearth” in the lower center of the photo in Figure 3.

Site 14BU519 represents a large multi-component site that includes at least Early Ceramic and Middle Ceramic periods, possibly related to the Greenwood phase of Butler County prehistory. Beneath those surface and shallow deposits is another component that is indicated by the buried hearth in Trench 6. No artifacts were found in association with that hearth or within the soil profile, but there may be an Archaic component to

Table 1
Lithic Material Types on 14BU519

<u>Material</u>	<u>Count</u>	<u>Percent</u>	<u>Mass</u>	<u>Percent</u>
Permian chert	56	55.45	1891.4	67.64
Permian chert - HT	12	11.88	156.0	5.58
Florence A - HT	8	7.92	215.3	7.70
Cortex	6	5.94	29.6	1.06
Unid chert	6	5.94	17.5	0.63
Florence A	5	4.95	64.9	2.32
Oolitic chert	3	2.97	51.8	1.85
Florence B	2	1.98	6.8	0.24
Cobble	1	0.99	313.6	11.21
Limestone	1	0.99	45.4	1.62
Pebble chert	1	0.99	4.1	0.15
Total	101	100.00	2796.4	100.00



Figure 3. Backhoe Test Profile Showing Possible Hearths - 14BU519

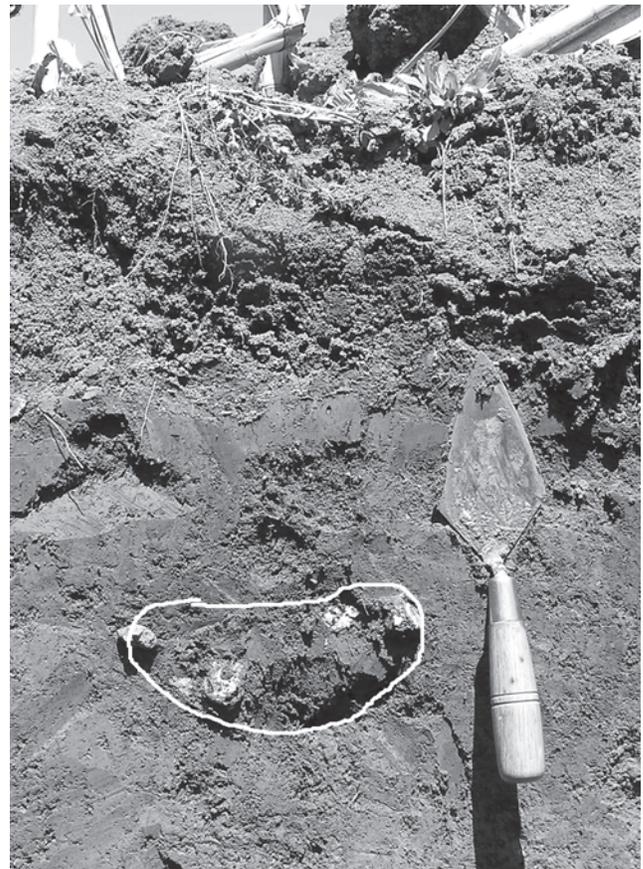


Figure 4. Detail of Hearth in Backhoe Trench - 14BU519

the site. The lower elements of the upper components include some undisturbed materials as shown by the upper hearth in Trench 6.

Site 14BU520

Site 14BU520 is adjacent to and north of an abandoned meander bend of the Walnut River in an area of levy and overbank deposits. Chipped and battered stone from 14BU520 (Figure 5A through I) includes eight biface fragments or tools and one hammerstone (Figure 5H) made from a clear quartzite cobble. Four of the bifaces are large and chopper-like (Figure 5A, F, G, and I). Three are possible projectile points or projectile point fragments (Figure 5C, D, and E). All are consistent with a probably late prehistoric or Ceramic period occupation. A total of five pottery sherds were found at 14BU520 during the survey. One of them (not illustrated) is a rim sherd, but unfortunately the exterior surface has split away, leaving only a portion of the lip and the interior surface. Not enough of the lip is present to determine lip shape or rim orientation, but the interior surface is convex, suggesting that the original rim was outcurving. The lip and interior surface are oxidized to a buff color, but the core is dark gray throughout. The vessel was tempered with finely crushed shell, which has leached from the inner 3 mm of the sherd but is still present on and near the split surface. A Late Ceramic (Great Bend) affiliation for this sherd is likely. Two body sherds (Figure 5K and L) are tempered with a combination of fine angular sand and a material that has been leached away, leaving a combination of rounded and angular cells. The first of these contains a fair amount of grog or clay temper as well, whereas the other exhibits only a few particles of this temper. The sherds differ enough in other ways to suggest that they are from different vessels, although deriving from

the same archaeological complex. These two sherds could be either Middle Ceramic or Late Ceramic in age. The remaining two sherds (Figure 5M and N) are Early Ceramic in age. Both are tempered plentifully with sand temper and both the exterior and interior surfaces are smooth. One final sherd is too small to determine vessel shape other than that the sherd derives from the neck region of a vessel that had a slightly constricted orifice. A final small sherd was tempered with crushed limestone that has leached out. It is probably Early Ceramic in age.

Lithic debris of gray to dark-gray Permian chert from the Flint Hills dominates this collection of 306 flakes, fragments of flakes, and pieces of blocky debris (Table 2). Total mass of the collection is slightly over 9.8 kilograms. Permian chert

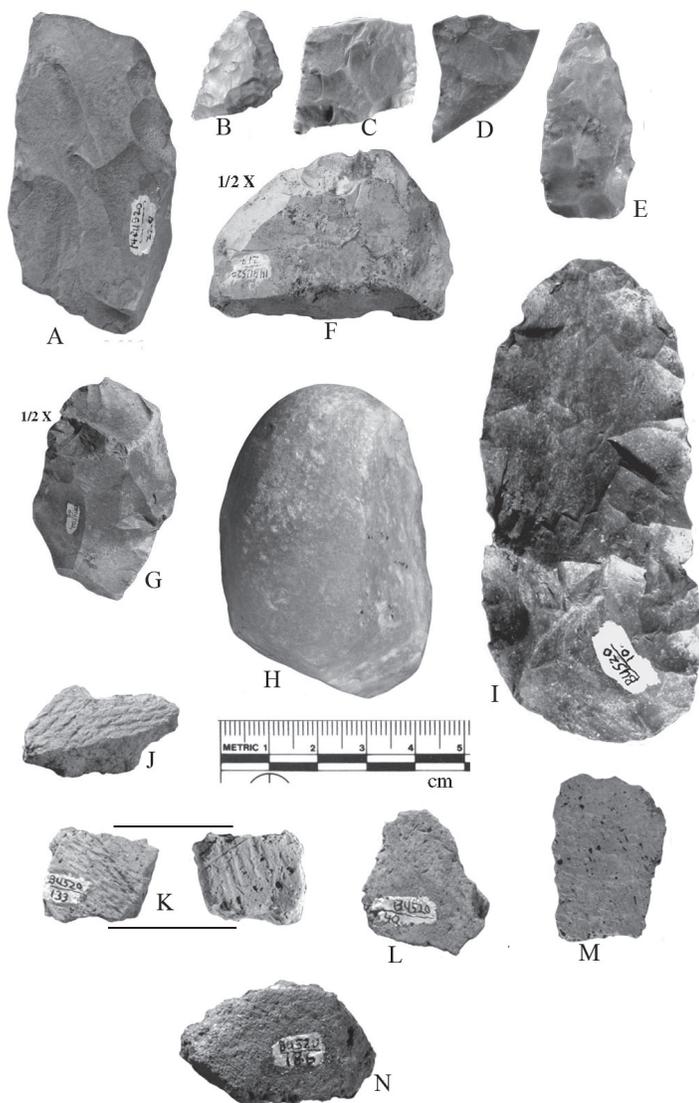


Figure 5. Selected Artifacts from 14BU520

Table 2
Lithic Material Types on 14BU520

<u>Material</u>	<u>Count</u>	<u>Percent</u>	<u>Mass</u>	<u>Percent</u>
Permian chert	147	48.04	4805.6	48.84
Florence A	79	25.82	3888.6	39.52
Cortex	28	9.15	174.0	1.77
Oolitic chert	12	3.92	27.6	0.28
Florence A - HT	10	3.27	42.4	0.43
Florence B	9	2.94	33.8	0.34
Cobble jasper	4	1.31	75.4	0.77
Permian chert - HT	4	1.31	72.9	0.74
Florence cortex	4	1.31	37.8	0.38
Cortex - HT	2	0.65	24.3	0.25
Chert	2	0.65	10.3	0.10
Florence limestone	1	0.33	604.2	6.14
Jasper pebble	1	0.33	22.0	0.22
Grainy chalcedony	1	0.33	19.0	0.19
Cobble source	1	0.33	1.7	0.02
Novaculite?	1	0.33	0.7	0.01
Total	306	100.00	9840.3	100.00

comprises 48% of the collection by count and about the same by mass. Florence A chert is the second most common material with 79 pieces counting for 25.8% of the collection by count and 39.5% by mass, implying that large or blocky pieces of Florence A chert are more common than are those for other Permian cherts. Heat treated cherts, including Permian chert, Florence A chert, and others account for only about 5% of the total lithic debris collection. As we saw for 14BU519, there is some Florence B chert from west of Wichita, Kansas, but most of the lithic material can be considered local or near-local in origin. A small amount of brown jasper is present in the collection, but all of it has evidence of cobble cortex so was probably secured from gravels in the Walnut River. The one possible exotic lithic material in the collection is a small tertiary flake of a white, translucent material with a sugary surface that looks quite like Novaculite from Arkansas.

In addition to lithics and ceramics, 14BU520 produced one small piece of mammal

bone that is too small to identify to species or element but is consistent with deer, and 10 utilized or retouched flakes. The retouched flakes show various levels of incidental unifacial retouch and blunting, suggesting that they were used to cut or scrape some relatively hard material like bone or hard wood.

Lithic debris, tools, and ceramics are distributed throughout the area of the site, but are definitely concentrated in the center (Figure 1) with a distinct cluster of lithic debris and artifacts within about 30 meters of each other on the highest part of the low bluff the site rests upon. In addition, there is a secondary cluster of lithic debris on the extreme southern end of the site that may represent another occupation or use area adjacent to an abandoned drainage alignment.

Backhoe Trench #4 produced a thin A and AB soil horizon that had been fully disturbed by modern plowing. There was no evidence of more than a small amount of material extending into the undisturbed B-C soil horizon and no evidence of

paleosols or other buried deposits that could contain significant archaeological deposits.

Site 14BU520 is a multi-component shallow site that contains evidence of both Early Ceramic and Middle Ceramic occupations. The surface collection contains a wide variety of tools, tool manufacturing debris, and other artifacts. This variety would be expected on a base camp or village site. There is no evidence of deeply buried deposits here, but it is possible that some features of the site's occupation could extend below the plow zone.

Site 14BU1531

Although there is little material evidence to evaluate, site 14BU1531 may be an Early Ceramic or Middle Ceramic age site near the surface with a component of unknown age about 1.5 m below ground surface. It is adjacent to and south and west of an abandoned meander bend of the Walnut River in an area of levy and overbank deposits. It is a light distribution of lithic artifacts and debris in a relatively small area. A total of 14 artifacts and pieces of lithic debris were recovered from the surface of 14BU1531. Among these are a large, thin, triangular fragment of a chopper or preform (Figure 2H). The flat end is not flaked and appears to be a shock fracture from thinning or other manufacturing flaw. The other tool is a large, well-manufactured Plains-style endscraper made of Permian chert (Figure 2I). It does not appear to have been used, since there is no blunting or other edge damage. The twelve pieces of lithic debris from this site include four pieces of blocky debris or tested cores and eight flakes. The materials represented include one piece of Florence B chert, one fragment of silicified limestone cortex characteristic of the Permian cherts, and 10 pieces of gray Permian Chert.

The very limited amount of material found on this site limits the utility of the distribution map for anything more than justifying the site margins defined here (see Figure 1). The site is on the same terrace system as 14BU519 and may represent an outlier or extension of that site.

A single backhoe test, Trench 7, was dug on 14BU1531 very near where the uniface tool was

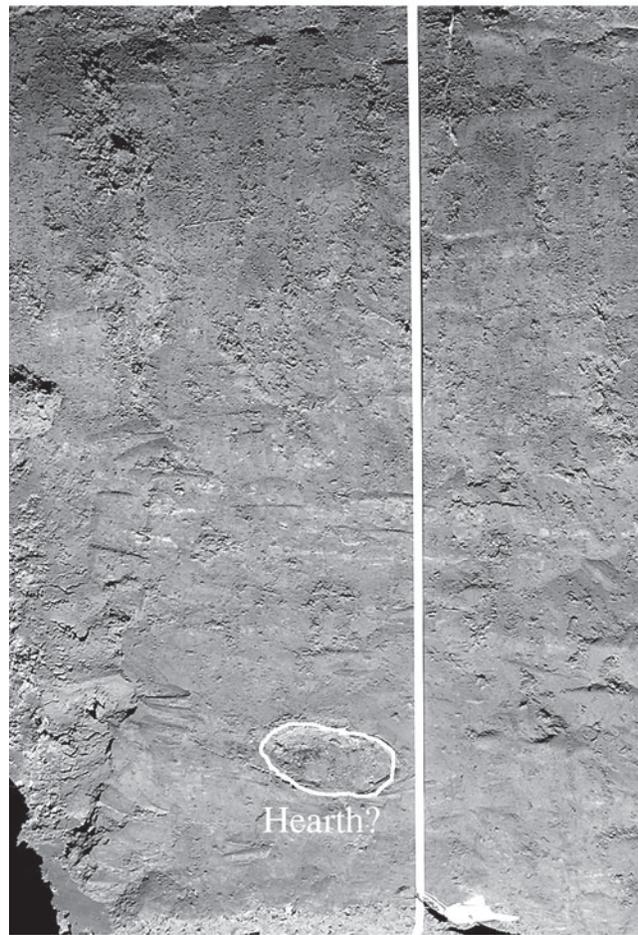


Figure 6. Profile of Backhoe Test Showing Hearth - 14BU1531

found. The soil profile of Trench 7 illustrates the same distinctive B/C horizon. There is a slight darkening of the C horizon at a depth of about 1.25 meters that may be a poorly developed buried A horizon as seen at 14BU519 (Figure 6). An oval concentration of partially baked clay and some charcoal was found at a depth of 1.50 meters in Trench 7 (Figure 6 and 7) that may represent a buried hearth or a concentration of clay daubing. The concentration is about 20 to 25 cm long and 10 cm thick.

Site 14BU1531 produced little temporally or culturally diagnostic material, but does appear to be consistent with the age of other sites in the vicinity, representing probably an Early Ceramic or Middle Ceramic occupation. The clay concentration found 1.5 meters below ground surface here may indicate a buried component of an earlier, possibly Archaic, age.

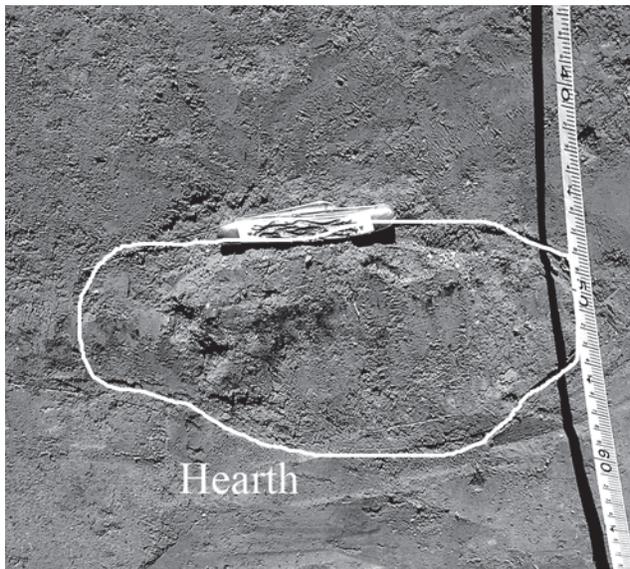


Figure 7. Detail of Hearth in Backhoe Trench - 14BU1531

Site 14BU1532

Site 14BU1532 is a multi-component Early and Middle ceramic site adjacent to and south of an abandoned meander bend of the Walnut River in an area of levy and overbank deposits. It lies between sites 14BU519 and 14BU520. There are four pieces of flaked stone tools or preforms from 14BU1532: one large preform (Figure 2K), two small biface fragments (Figure 2L and 2M), and one unifacial knife (Figure 2J). These are made of gray, Permian chert. No pottery was found on the surface of 14BU1532. A single small sherd was found in the profile wall of Trench 5 at a depth of about 35cm (Figure 2N). This small body sherd is limestone tempered. Most of the limestone has eroded out leaving irregular voids, except

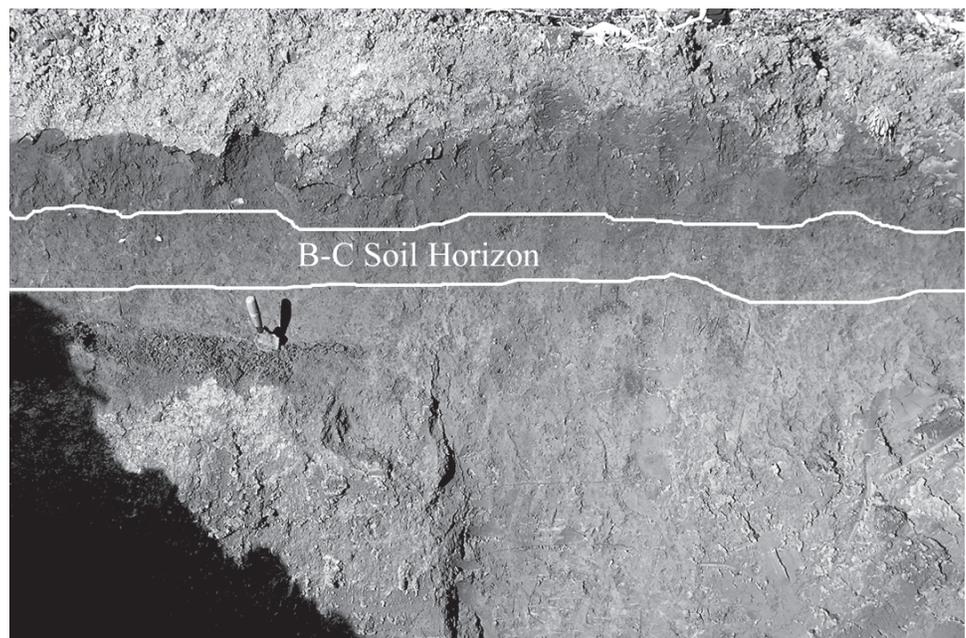


Figure 8. Profile of Backhoe Trench - 14BU1532

near the center of the sherd. Both the exterior and interior are smooth surfaced. The exterior surface is a light buff color, while the core and interior surface are medium gray. The sherd is probably Early Ceramic in age.

Only a small amount of lithic debris was recovered from the surface of this site. That debris was primarily blocky shatter debris and flakes. The raw materials used were predominantly Permian chert (40 pieces), one piece of oolitic chert, two pieces of limestone, and one piece of jasper with river-cobble cortex. Additionally two cortex flakes were found. Among the pieces of Permian chert, two were thermally altered.

The distribution of materials plotted for 14BU1532 (see Figure 1) is too sparse to provide much information about the possible activity areas on the site, but it does show a distinct cluster of lithic debris in the vicinity of the mapped uniface and biface. The setting here is on the same terrace system that site 14BU519 occupies.

Backhoe test Trench 5 on BU1532 showed some undisturbed deposits in the B-C soil horizon (Figure 8). Near the base of the B-C horizon at a depth of about 35 cm is where the single pottery sherd from the site was recovered. There is no evidence of a buried paleosol or of deeply buried earlier deposits here. There is a possibility that any cultural features from the upper deposit that extended into the B-C soil horizon could have

survived plowing.

In spite of the paucity of diagnostic artifacts from 14BU1532, this site does appear to be of an age similar to the others reported here, containing ceramic period occupations, possibly Early Ceramic based on the single sherd recovered. There is a possibility of some buried deposits in the upper 50 cm of the site and any habitation features which extend to a depth of more than 25 cm (the base of the plow-zone) may be preserved.

Site 14BU1533

Site 14BU1533 is a small site of undetermined prehistoric age that is adjacent to and south of an abandoned meander bend of the Walnut River in an area of levy and overbank deposits southeast of 14BU519. Site 14BU1533 is a widely dispersed thin lithic scatter within the apparent channel of the abandoned Walnut River meander bend. A total of 6 items were logged in the field but were not collected. These include one piece of blocky debris of Permian chert, 4 flakes (primary and secondary decortication) of Permian chert, and one large piece of unaltered limestone. Because this site is outside the direct impact area of the proposed project and because of its very limited surface content, it was not tested for deeper deposits at the same time the others were.

Discussion

Early and Middle Ceramic period sites are not unheard of along the middle reaches of the Walnut River nor are sites with buried components unknown next to river terraces. The findings of this survey illustrate, in part, the density of archaeological resources in certain very small areas and provide some information on the utility of piece-plotting a surface collection. To address the latter first, by identifying specific surface collected materials with a relatively specific point on the ground, more reliable site boundaries (at least as shown by surface distribution) can be determined and relative densities of materials, possibly reflecting more intense prehistoric activities, can be determined.

The density of prehistoric utilization is another issue entirely. To have eight backhoe

soundings (only 4 are discussed here, the remainder are well to the east of the area discussed in this report) produce features in two of the soundings is either good fortune of the highest order or a reflection that there truly are substantial buried resources. Examining the map in Figure 1 again briefly, the three backhoe soundings that produced cultural evidence at depth are all on the south side of the abandoned meander bend of the Walnut River. Soundings on the north side of that meander produced no evidenced either of buried A soil horizons or of buried archeological materials. It may be that the depositional dynamics on the downstream edge of the channel served to preserve the deposits and provide for a positionally positive, that is aggrading, setting which was preserved when the Walnut River cut to its new channel. Had the river continued bank cutting through the slow migration of the channel, these sites might have been lost to natural forces. Therefore, it might be interesting to find similar settings along the Walnut River and other rivers in this part of Kansas and evaluate them for preservation of deeply stratified sites.

At this writing, the sites are preserved on City of El Dorado land and may be available for further study in the future. A more comprehensive subsurface evaluation would be helpful in clarifying the culture history of this part of South-Central Kansas.

Acknowledgments

Thanks are due to the many people who contributed time and effort to this study. I would most especially like to thank Don Blakeslee for his advice and comment on the ceramic descriptions and analyses, Wade Parsons, Colleen Nicholas, and Marcia Meier for their able assistance in directing the field crew, and to Kurt Bookout of the City of El Dorado who worked with us throughout to insure an acceptable outcome to all concerned.

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Archaeological Survey in Stranger Creek Basin-2005 A Progress Report

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As a result of investigations in the Evans locality of Stranger Creek valley from 2001 to 2004, four sites (Scott [14LV1082], Evans ([14LV1079], Caenen [14LV1083], and Paul [14LV1043]) were evaluated and listed on the National Register of Historic Places (Logan 2004, 2005; Figure 1). These sites have evidence of occupation at the confluence of Stranger and Little Stranger Creeks from ca. 5300 to 700 B.P. buried in stratified contexts through aggradation. Of particular interest to me were components of ceramic age (i.e., Middle Woodland through Late Prehistoric) exposed at depths of 20-50cm by flood scouring. I had recorded sites of that age upstream from the Evans locality along both Stranger and Little Stranger Creeks during earlier surveys (Logan 1981, 1983) and was certain that additional surveys would reveal more. Documentation and evaluation of a greater number of sites will expand our understanding of cultural variation through a time of increasing sedentism, subsistence change, and regional interaction. Moreover, we can apply greater understanding of geoarchaeological processes of site burial and exposure that were only beginning to be appreciated 20 years ago (Logan 1985, 1988) and more effectively target areas with greater probability for site discovery. To those ends, a survey project was initiated last summer with support from a grant-in-aid awarded to Kansas State University by the Historic Preservation Office, Kansas State Historical Society. The project will continue through spring 2006. Here I present results of the project thus far.

Much of the project during the summer and autumn of 2005 was devoted to establishing contact with local landowners, tenants, and artifact collectors (e.g., through a story in the Tonganoxie *Mirror* June 22, 2005) and obtaining permission to survey promising tracts and test potentially significant sites. At the start of the project, I took a

windshield reconnaissance with the guidance of the Rev. Fred Leimkuhler, a local historian, collector and resident of the project area who was a key informant during the initial Stranger Creek surveys (e.g., see Logan 1981). On that trip I was struck by extensive housing developments where years ago there had been cropland. This is part of a broader expanse of residential and commercial development throughout the region that reflects the rapidly growing communities of Leavenworth, Lansing, Basehor, and Tonganoxie.

In recent years Tonganoxie, a bedroom community of 3,600 people located in Stranger Creek basin between Lawrence and Kansas City, has been the state's third-fastest growing city. U.S. Census Bureau data show that from 2000 to 2002 the city's population increased by 16.2%. This growth has been spurred in part by the recent opening of such enterprises as Cabela's, Nebraska Furniture Mart, the Kansas Speedway, and the T-Bone minor league franchise, all 15 to 20 minutes drive from Tonganoxie and Leavenworth. The dramatic growth is straining Tonganoxie's infrastructure and demanding more construction (*Manhattan Mercury*, August 12, 2003). In the past five years its population "has increased by nearly 32%, placing it among Kansas's fastest growing cities" and this dramatic growth will continue at a faster pace "once the city builds a new water tower..., a new Kansas turnpike interchange is constructed south of town, and ...a new waterline is built between Tonganoxie and Kansas City, Kansas" (Tonganoxie *Mirror*, July 6, 2005). Last year the city issued a record number of building permits (128), reflecting the attraction of cheaper lot prices to people of Lawrence, Olathe, and Wyandotte County (*Mirror* January 4, 2006). Construction of major residential properties in the Leavenworth County countryside exemplifies this growth and endangers cultural resources there.

Current Archaeology in Kansas

Prehistoric sites in Stranger Creek basin, now subject of a Multiple Property Listing of the National Register of Historic Places (Logan 2004, 2005; *Kansas Preservation* 26(5):2-3), are impacted by this development, much of it privately funded and outside the reach of Section 106 compliance. In such cases the on-going Stranger Creek Archaeological Project plays a critical role in recording and acquiring information from vulnerable sites.

Survey

Six days in July and October 2005 were devoted to survey of agricultural tracts in corn or soybeans that presented fair to good surface visibility. I was joined on all but two of these days by Toby Blake and Dan Keating, veterans of the Kansas Archaeological Field School-2004 excavation of the Caenen site (Logan 2005). On another I was joined by Will Banks and Teresa Kiss of the SHPO for an hour-long survey of New-McGraw. The KSU team began by surveying three

previously recorded sites that are each from 200m to 250m apart and in the Evans locality just upstream from Caenen. When they were discovered in 1982, none yielded more than a few pieces of debitage and undiagnostic chipped stone tools (Logan 1983). That was again the case during our recent survey. No artifacts were seen at 14LV1034, which was somewhat obscured by corn. Twenty pieces of debitage and a drill tip were recovered at 14LV1036. Only a half dozen pieces of chipped stone debris were found at 14LV1037. Scott DeMaranville, an informant whose contributions to Stranger Creek archaeology I have noted in other *CAK* articles (Logan 2001, 2002), has found projectile points at this last site but at this writing I have not reviewed them.

Four sites were recorded as a result of the survey. Two of these, New-McGraw (14LV601; Figure 1) and 14LV602, are located in Stranger Creek valley; 14LV603 and 14LV604 are in Little Stranger Creek valley.

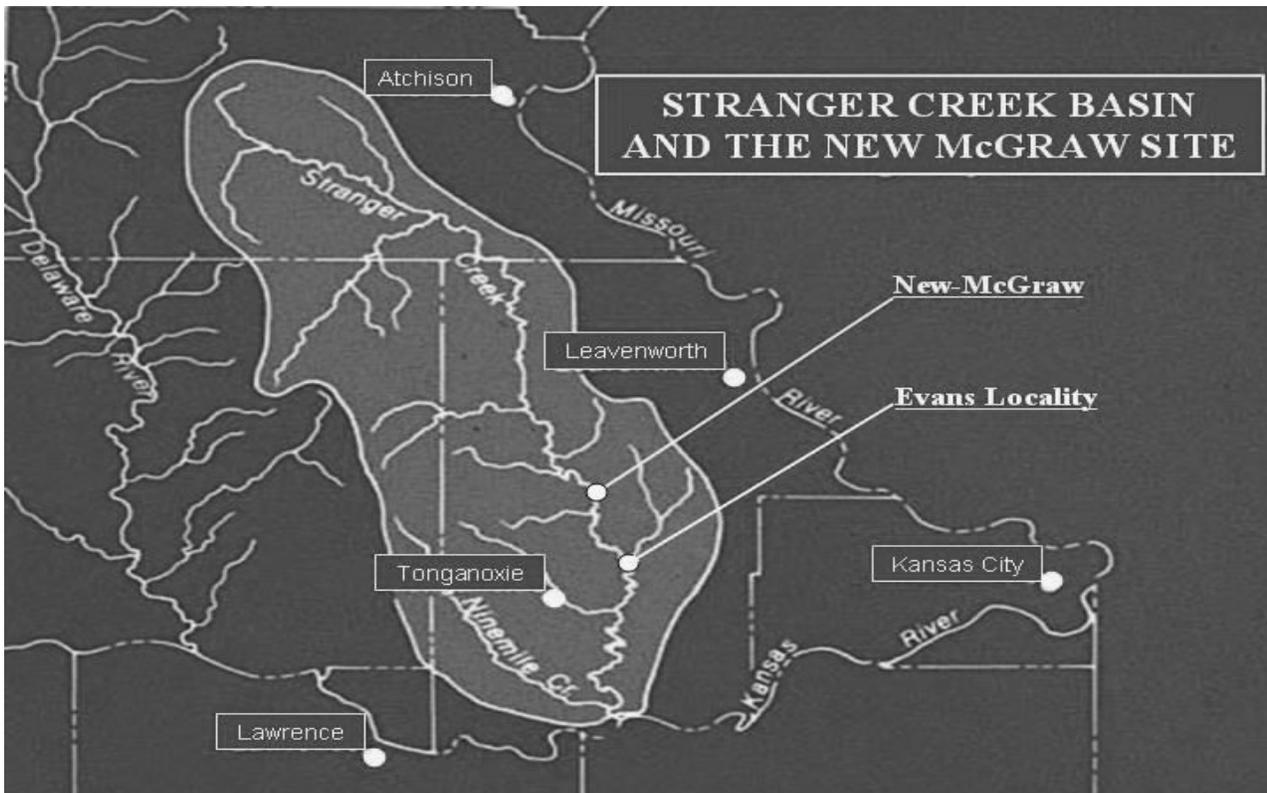


Figure 1. Stranger Creek basin showing the Evans locality and New-McGraw site. Little Stranger Creek is bracketed by their reference lines

New-McGraw. Mike and Travis McGraw, father and son, discovered this site following its exposure by severe flooding in June 2005. Scouring exposed a dense lag of dozens of pieces of pottery, chipped stone tools, debitage, and fire-cracked rock over an area of about 1,000m². Their collection from the site includes three body sherds and six Scallorn arrow points. The site was surveyed thrice in July and October by the

KSU team. On each occasion we noted numerous artifacts in low-lying, scoured areas and very few items on intervening, higher ground. This suggests intact deposits may be preserved in the latter areas. Named for its owners, Damon and Brandon New, and its discoverers, New-McGraw is now known to cover an estimated area of 18,000 m² on the floodplain east of Stranger Creek. Channeling of the stream below the bridge just northwest of the site may have promoted erosion of the site during times of flood (Mike McGraw, personal communication).

A grab sample of artifacts from the KSU surveys, most collected during the first visit, includes 71 pottery sherds of relatively thick, cordmarked, densely grit-tempered ware of which three are rims (two straight and undecorated; one punctate-decorated; Figure 2) and one a thick (1.9cm) basal fragment (Figure 3). These are comparable to ware defined by Reynolds (1979) as diagnostic of the Grasshopper Falls phase. Chipped stone tools include three projectile point-knives that reflect some variation in form (Figure 4). They are a corner-notched specimen of Plattsmouth chert, a square-stemmed biface of Winterset chert with an alternately-beveled blade, and a basal-notched, broad bladed tool of Toronto chert. Other chipped stone tools include a complete preform, Scallorn arrow point fragment (serrate-bladed), and seven biface fragments. A small sample of lithic debris collected to reflect the variety of raw materials consists of 17 flakes and shatter of Toronto, Plattsmouth, Winterset, and



Figure 2. Rim sherds from the New-McGraw site

Permian-age cherts and three fire-cracked pieces of Sioux quartzite.

That the site may contain an earlier component is suggested by the variety of arrow points and projectile-point/knives recovered. The Scallorn points and corner-notched PPK are attributable to the Woodland component. The presence of both arrow points and “dart points” is common at Late Woodland sites in northeastern Kansas. It may reflect a period of transition from the use of the atlatl-and-dart to the bow-and-arrow fostered by increasing population pressure on game (Logan 2006:85-87). The square-stemmed, alternately beveled (Langtry?) and broad-bladed, basal notched bifaces may be part of an earlier (Late Archaic?) occupation. That this component may be buried is suggested by recovery of the last item from the base of a meander scar at the southern edge of the site.

Projectile points and dozens of potsherds recovered from New-McGraw attest to its occupation during Late (Plains) Woodland time (ca. AD 500-1000). Prior to its documentation, 43 components of this period had been recorded in Stranger Creek basin (Logan 1981, 1983, 1985:222); none is on the National Register of Historic Places. Sites of this period may contain house remains. Outlines of oval structures of wattle-and-daub construction and characterized by considerable variation in size have been found at



Figure 3. Basal sherd from New-McGraw showing exterior surface and cross-section.

sites assigned to the Grasshopper Falls phase along tributaries of the lower Kansas River, primarily the Delaware (Baugh 1991; Logan and Fosha 1991; Reynolds 1979). Though Grasshopper Falls phase house form appears to be well known, this information derives from less than a dozen structures at a small number of sites. We know very little about Late Woodland house sites east of Delaware River. For that reason, as noted in the MPL documentation form “the National Register



Figure 4. Projectile point-knives from the New-McGraw site

of Historic Places should include house sites of this age that are in Stranger Creek” (cf. Logan 2004:28).

Because scouring has only affected some of New-McGraw and portions of it could retain stratigraphic integrity and research potential, permission to evaluate the site was obtained from the landowners. Limited excavations

will be done in order to determine the vertical extent of the site, the nature of activities that occurred, and its NRHP eligibility. The fieldwork phase of that project will be carried out by the Kansas Archaeological Field School, a KSU program, in June 2006.

14LV602. This site is located 220m south of New-McGraw and was exposed by flood scouring of the terrace scarp. The few items recovered from that ground suggest the site may be buried and more extensive than is suggested by their paltry number. The site was walked for about half an hour in late October. At that time it was in soybeans that had been severely damaged by the June flood and visibility was fair to good. Artifacts recovered are four pieces of debitage (two of Toronto chert, one of Plattsmouth, and one of unidentified material) and a palm-sized piece of fire-cracked Sioux quartzite.

14LV603. This site, more of a find spot, is on the eastern edge of a long tract of land on the west side of Little Stranger Creek 800m upstream from 14LV1036. The tract is divided by a drainage way that runs along the old Union Pacific railway bed and the

site is about 70m south of its trace, a dense

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in the east-central part of the tract. Also seen about 20-40m west of the flakes in the same erosion feature were a half dozen pieces of Sioux quartzite, likely manuports given their conspicuous context.

This small site likely indicates a component buried below the surface adjacent to the gully. Sites throughout the lower reach of Little Stranger Creek valley and Evans locality generally lie below a 0.2-3m mantle of alluvium and are often exposed in erosion features (rills, gullies, chutes, etc.) that incise this fill.

14LV604. The site is in a large field on the eastern side of Little Stranger Creek near the central part of its reach. Nearly all artifacts seen were recovered from the terrace scarp, which suggests they eroded from fill below that surface. The site is small and its perimeter was marked by a few pieces of debitage and quartzite. It was discovered by the author on the last day of September in a large field of soybeans with good surface visibility. It was walked again on the final day of October by a team of three persons for a bit more than an hour under similar conditions but only a few artifacts were seen and collected. The old bed of the Union Pacific railroad, marked by a broad gravel strip, is about 50m northwest of the site.

Artifacts collected during the two visits include a complete, corner-notched dart point-knife and marginally retouched flake of Plattsmouth chert (Figure 5), one edge-modified flake of Toronto chert and three other pieces of debitage of that material, a small flake of gray chert, and two pieces of fire-cracked Sioux quartzite.

where survey was not attempted but permission to do so was obtained will be explored. An insight gained through survey of lowland tracts with fair to good surface visibility yet where artifacts were not seen is that the process of site burial documented in the Evans locality pervaded much of Stranger Creek valley and that of its tributary. With the exception of that portion of 14LV1036 on a toe slope, it appears that much of the components we encountered are below the reach of modern agricultural disturbance. At sites described here exposure of prehistoric cultural material was due to penetration of their alluvial mantle by some form of erosion. Valley aggradation reduces the chances for site discovery through the traditional method of surface-limited survey, yet it bodrs well for the preservation of prehistoric components, including those of relatively recent age.

References Cited

Figure 5. Projectile point-knife and flake tool from 14LV604