

# **Overview of Hosford Archaeological Site**

By  
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This report attempts to give a detailed picture of the history, landscape and Native American artifacts and earthworks found on a farm owned by my brother, Gregory, my wife Lori, and myself. The farm is located in Boone County along the banks of the Beaver Creek.

Of central interest to this land is the existence of at least three low-relief, geometrical earthen mounds, one of which shows an astronomical alignment to the star we know as Rigel. I am not a professional archaeologist nor anthropologist, but have done my best to present an accurate overview of this site with particular emphasis on these mounds. I have included some of my personal conjecture at the end in the hope of inspiring whoever may read it to consider that this site may have once been an important meeting point between Upper Republican and proto-Cheyenne cultures.

This report was first prepared in the summer of 2000 on the eve of a visit to this farm by Nebraska NRCS Cultural Resource Expert, Jerome Lucas, then of Broken Bow. It was intended to summarize what I knew of the site for him. I am updating this report in June of 2007 to include relevant information, both from my notes on Mr. Lucas's comments and information from other sources. These updates are inserted in the original text bracketed and in italics, with further comments included at the end.

## **Background:**

My family has owned a farm containing numerous indications of Native American habitation, located along the Beaver Creek southeast of Albion, Boone County, Nebraska, since 1885. This land was originally homesteaded a few years earlier by a man who sold it to my great grandfather, Frank Mansfield, as soon as he had "proved up" on it. As a result, a good deal of the history of the farm and the surrounding area is preserved in my family.

The farm in question is located along the north and east banks of the Beaver, all bottom ground, over 90 acres of which has been under continuous cultivation for many years. The remaining 46 acres are devoted to the (now abandoned) building site, and a large lowland pasture, a small portion of which was farmed for a time decades ago.

This pasture surrounds the confluence of the O'Neil Valley Creek, a small dry creek with the Beaver. This creek is remembered as having been a flowing creek in the early years of my family's occupation of the site; it is conjectured that since several other dry creeks in the area were also flowing in the early days of settlement that the ground water level

may be lower now -- there are springs that do occasionally flow in the banks of this creek, generally in the spring after a large snowmelt. *[Mr. Lucas concurred -- he said archaeologists find sites miles up what are now dry creeks, indicating they were flowing at the time of Native habitation.]* (In many instances springs feeding these creeks were dynamited to allow the surrounding land to be farmed. A friend to the north farms a lowland near the head of the Shell Creek (containing the remains of a mound with small bits of charcoal scattered across its surface), in which as many as 8 springs are believed to have existed, all of which were destroyed in the 1920's and '30's.) Across the Beaver from this pasture there once existed a large, shallow, spring-fed lake. This too was drained during the early years of the 20<sup>th</sup> Century; only one spring and a small area of ponds remain today.

The land next to both the Beaver and the dry creek has changed dramatically in the years since European settlement. Naturalist and amateur archaeologist Wayne Mollhoff, in an unpublished paper devoted to the surface geography and geology of an area approximately 12 miles upstream on the Beaver from our farm, describes the changes of the area flood plains:

“At the present time the flood plain beside the Beaver is rapidly (in geologic terms) being filled with sediment. Old timers in the area tell of sitting on the creek bank as children and dangling their feet in the water, back in the early years of the 20th century. Now, in most places, the water level is 5 - 10 feet below the top of the bank. Evidence that this change is caused by the banks ‘rising’ (being built up), rather than by downcutting of the streambed, is demonstrated in many places by buried fences along the creek. At several sites around Albion, my notes record fenceposts that were 30 to 40 inches tall in the mid-1970's, but completely covered by sediments by the early 1990's. This valley filling, alternating with downcutting and scouring out of the valley fill, is the current part of a cycle that has been recurring throughout the Pleistocene, the ‘Ice Ages’ of the past 1.5 million years. The valley is filling with sediments that are washing down from the hills that form the northeast margin of the valley. This is largely due to greatly increased erosion in the past century as the stable protective cover of prairie sod was removed as farming by European settlers began. It is filling layer by layer as the sediments are washed down to collect of the valley floor. It is filling because it is washing down faster than the creek can carry it away. A side trip 8 miles upstream will show what the creek banks here probably looked like in pre-European settlement days.”

The hills Mr. Mollhoff mentions as comprising the north and east margin of the Beaver valley are approximately 1/8 to 1 mile from the creek as it passes through our property.

Evidence of Native American occupation has been found, according to both neighbors and local “pot hunters” all around the drained lake site mentioned above. One individual had considerable success locating arrowheads made from hammered-out .45-70 shell casings with a metal detector near the western shore of this lake. Others have reported

finding numerous stone scrapers, points, and flakings, as well as potsherds and fireplaces, along the area that once comprised the southern shore of the lake. One of these individuals, an experienced pot-hunter, reported in a personal conversation that he had found a burial hill farther to the south of the lake; it is now marked by an irrigation well. Most of the area surrounding the original lake's expanse has by now been bulldozed extensively to facilitate farming.

Stone and bone tools, flakings, potsherds and fireplaces have also been found in great quantity on our farm and a small portion of the field joining it to the south. An especially deep plowing in 1995 revealed a great number of artifacts, drawings of some of these found by Mr. Mollhoff are included at the end of this document. Mr. Mollhoff is the namesake of the "Mollhoff site" located north of Loretto, Nebraska, about seven miles above Albion. This site was revealed by road construction and studied by archaeologists from the Nebraska State Historical Society at Mr. Mollhoff's request. The site was radiocarbon dated to about 1100 A.D. by the Historical Society and attributed to Upper Republican people, the probable ancestors of the modern Pawnee. Much of what I have learned about the artifacts on my property has come from Mr. Mollhoff. He believes that the items revealed by plowing are contemporaneous to those found at the site above Loretto. He in fact reported our site as well, and artifacts he collected are in the keeping of the Historical Society. Mr. Mollhoff succeeded in locating at least one cache pit in the fresh plowing and retrieved a sample of charcoal. I have yet to hear what date was assigned to it. *[It is my understanding that this sample has been returned to Mr. Mollhoff untested.]*

Approximately 10 to 15 acres of this plowed field, the area adjacent to the pasture, contained a sizable quantity of flakings and potsherds, as well as numerous small stone scrapers. Mr. Mollhoff stated that the variety of stone present was greater than that utilized by the historic Pawnee who used mostly chert, and came in many cases from quarries farther away than the sources of the Pawnee stones. He felt this was one of the factors pointing to Upper Republican occupation. Due to the concentration of artifacts in this area, it appears that either a sizable village existed there approximately 900 to 1000 years ago, or that the area was repeatedly revisited over a considerable span of years. *[I discussed this with Mr. Lucas. He said the fact that artifacts are found at a considerable distance from the Beaver Creek indicates that this was a single, large settlement. He said that people then were "as lazy as we are today" and would not have built any farther from the water source, the creek, than necessary. He added that the social structure of the village would have been reflected in the placement of earthlodges -- the higher one's social status, the nearer one lived to the creek.]*

There are also partial remains of three earthlodges, shallow depressions in the surface of the ground. One, the largest, is cut off on its east side by the fence separating the pasture from the field. *[This lodge has recently been destroyed by a bulldozer contracted to remove dead trees from the fence row.]* The other two are located on a high bank above the

Beaver, not far from the first. These are quite close together and considerably smaller. Due to the constant erosion of the bank, I once dug into the center of one of these two lodges. [*The other has subsequently been lost to the caving of the bank during a heavy rain.*] At a depth of about a foot I encountered a layer of soil that was harder and also had a distinctly “greasy” feel to it; I surmised this to have been the lodge floor. I found a few flakings and potsherds similar to those found in the field, suggesting that this lodge may have dated to the same period as the village. I also found three tiny kernels of yellow corn; they were about the size of kernels on a present-day “nubbin”. They unfortunately disintegrated when touched.

Mr. Mollhoff and I inserted his home-made soil probe into the approximate center of the large lodge [*the damaged lodge*] and it returned to the surface with a quantity of burnt earth. Whether we had accidentally penetrated into the fireplace, or if the lodge had been burned, I cannot say. (Once, while plowing a small area of the pasture adjacent to the building site in preparation for planting a wind break, we uncovered a very large area of similarly burnt ground. To the best of our knowledge this was not from our family’s doing, but it is difficult to assert this with certainty.)

I believe that the hilltops nearest to this village site, to the north, contain a fairly large number of burials. I was employed in the early to mid 1980’s by the Emitron Oil Company of Woodson, Kansas, as a dowser. As an adjunct to the pursuit of oil, we would occasionally be hired to search older cemeteries for unmarked graves. It is as the result of dowsing that I believe that graves are present on this hilltop. I have had similar results dowsing at the Pawnee Hill site near Clarks, Nebraska, and another hill top near the “Mollhoff site”, but I have never dug to determine positively if human remains are present. It appears to me, however, that two distinct types of grave are present, one small, indicating perhaps that the legs and arms were drawn close to the chest of the deceased, and the other larger than a typical white internment. I suspect these large graves may be communal “ossuaries” where the bones of many individuals were buried together, perhaps either after a period of exposure or partial cremation. These may possibly date from different periods of occupation. [*Mr. Lucas confirmed that these two differing types of burials are both found.*]

A human skeleton was found in the pasture when my grandmother was a very young girl, sometime in the first decade of the 20th century. A heavy rain revealed a skeletal hand sticking out of the side of a bank, near a “lone” cottonwood tree. A group of men dug out a complete skeleton which I believe is still in the keeping of the Boone County Historical Society. Because of its proximity to the tree, it was surmised at the time that it was probably a white person buried by his companions near the only visible feature in the area. However, there was nothing found with the body to either support or refute this assumption.

Our farm was visited regularly by Native Americans for many years after my family took up residence there (and, oddly, gypsies - they struck a bargain with my great grandfather that if he would allow them to camp in his pasture whenever they traveled through this area, they would leave his family and possessions strictly alone - they continued camping there for decades). Indians of unknown tribal affiliation camped on the eastern bank of the (now) dry creek every year for many years. They fished in the creeks and lake, presumably hunting and trapping as well, and harvested wild honey from a hollow tree, the location of which was shown to me as a child. They would regularly come to the house (a few hundred yards to the east) and ask for items such as eggs, milk, and butter. My genteel great grandmother was terrified, but always gave them what they asked for. Her husband, my great grandfather, was either one-half or one-quarter Iroquois, and this may have contributed to the cordial atmosphere. (To the best of my ability to ascertain, the last visit occurred in about 1915 when two elderly men traveled to Albion by train and then walked to the farm.) As to their identity, clues may lie in both their apparent proximity (the Pawnee were far away in Oklahoma, the Otoe in Kansas), and especially in their polite behavior. While the Santee Sioux were close, in the book Frontier Nebraska, compiled by Stephen K. Hutchenson from letters, diary entries, and memoirs written by the earliest settlers in Boone County, mention is made that the Omaha Indians were the only ones who were polite, the Pawnee and Sioux simply taking whatever they desired, including horses. Or the visitors may have been Ponca; perhaps those who returned with Chief Standing Bear after his successful historic court battle. In The Ponca Tribe James H. Howard mentions in passing that 36 Ponca obtained refuge with Omaha kinsmen prior to the main body of the tribe's removal to the south; they too would be a possibility. Another possibility is suggested in The Ponca Chiefs by Thomas H. Tibbles. In an account of Chief Standing Bear's first trek back to Nebraska on foot, vagabond Indians, "who travel round to beg and won't work" are mentioned. It appears that these Indians may have been located farther to the south however.

(A few miles upstream from Albion there lived a solitary Native American in a small earthlodge for many years, the 20 acres of land on which his lodge was located being protected by pioneer Elias Atwood into the early years of the era of the tractor. When an in-law of Mr. Atwood attempted to plow near this lodge, an elderly Elias walked to the field, climbed on to the tractor, and struck the driver, saying that he had promised that the land would remain uncultivated for the duration of the Indian's life. This was recounted to me by a descendent of Mr. Atwood who farms the ground himself. I gathered that, as was the case at our farm, Indians visited this man yearly for a number of years (the same Indians as visited our pasture?). Mr. Atwood surmised that they may have had something resembling a migration route, visiting various areas when certain edible plants were in season; he also conjectured that they may have used mules, having found rusted mule shoes in the area. He said his family had never used mules to his knowledge. No other information about this unusual situation was available.)

*[I have since found a self-published memoir entitled Nebraska Pioneer by Cass G. Barnes which identifies the Native Americans visiting this area in the early days of white settlement. Mr. Barnes was one of the earliest settlers to this area, purchasing 120 acres of railroad land approximately a mile to the southwest of our farm in 1879 (on 11-19-6). He writes that during the 1880s "the Omaha Indians occasionally got permission to leave their agency and came to Beaver Creek about a mile from us to trap beavers." He mentions that during a hog cholera epidemic, these Indians would gather and eat dead hogs. Barnes says of these people "While the Omaha Indians who made nomadic visits to our neighborhood had the traditional filthy and unsanitary habits of Indians they were really partially civilized and altogether harmless. They were inveterate beggars..."]*

### **Earthworks:**

There still exist several interesting earthworks in the pasture; more were known to exist in the past but have been gradually obliterated by agricultural practices. My grandmother vividly recalled her mother's admonitions to avoid a mound south of the farmhouse; her mother thought it was a burial mound and was afraid that its occupants had died of smallpox and that the germs might still be virulent (even though my grandmother had been vaccinated). Late in his life, my grandfather recalled that there had also been "something" across the fence north of the farm house that everyone believed to also have been of Native American origin. Unfortunately, he could not recall what it was.

In late May of this year (2000), Kyle Wyatt, a student from Albion High School [*now renamed Boone Central*] brought the school's GPS receiver to the farm and helped me map the remaining mounds (see attachment). The actual shapes of some of the mounds are not accurately represented due to overhanging tree limbs, but their relationship to one another is made clear. All of the remaining earthworks seem to be in a general east/west alignment to one another, straddling the dry creek. On the bank immediately east of this creek there is a low rectangular mound surrounded by a shallow trench or trough on all but the western side. The mound rises approximately 8 inches above this trench, which is only a few inches deep. The rectangle is nearly symmetrical; while the exact boundaries are somewhat difficult to define precisely due the gradual slope of the sides, it appears to measure 35'11" on the west and 36'1" on the east. The south measured 21'71/4" while the north was 21'7". (To my surprise, this comes very close to being what is referred to as a "golden rectangle", a figure prominent in the floor plans of many ancient Old World temples, and which is also associated with the Fibonacci series, a geometric growth pattern found throughout Nature, most notably in the spiral shell of the chambered nautilus but also in the arrangement of seeds in the sunflower. This refers to the ratio of the length to the width of the sides of a rectangle; it is an irrational number, like pi, and is referred to as "phi". It equals approximately 1.618... . The average ratio of the sides of this rectangle is 1.666, remarkably close to 1.618. I cannot say of course if this was by accident or design on the part of the builders and I do not mean to imply an



Old World connection.) The trough surrounding the rectangle is approximately 30 inches wide on the south and east sides, but is much wider, approximately 10 feet, on the north side, with a slightly greater depression in its center. To the west there is no clear indication of an outside edge to this trench. Mr. Mollhoff and I inserted his soil probe into both the mound and the trench. It brought up nothing unusual, but could barely be inserted into the trench, the ground being very packed (it was easily inserted on either side).

Just to the east of this rectangle, commencing a short distance from the southeast corner, is a low narrow ridge. It runs at an angle to the east-southeast (see GPS map) and then turns to run straight east, disappearing in the farmyard. Were it near a boundary of some sort, and if it ran straight, I'd tend to view it as an old fence row; but, due to its odd location and its abrupt change of direction, I am reserving judgment. (Farmers are traditionally adverse to building fence rows that bend for no obvious reason.) Both of these features, the mound and the ridge, were only discovered as the result of my walking over them and noticing the slight difference in ground level. I have mowed the grass covering the rectangle but not the ridge. This pasture has not contained cattle in over a decade; there may well be additional low earthworks concealed beneath the thick grass. There is also a low mound on the exact east/west axis of the rectangle and a mound farther to the west (see below), but, being located in the farmyard, it is difficult to ascertain if it is of Native American origin or not. *[A number of shallow depressions, reminding one of old post holes, surround the rectangular mound. They do not seem to be in any particular arrangement, and have yet to be mapped or studied.]*

444 feet (center to center) west of the rectangle, in the flood plain of the dry creek, is a large mound, shaped somewhat like an oval flattened on one end (the southern). It measures approximately 105' along its north - south axis by approximately 84' at its widest east - west point, and rises nearly 10 feet above the present valley floor (not quite enough to appear on a topographic map), although it seems reasonable to conclude based upon Mr. Mollhoff's observations regarding recent sedimentation that this mound may have once appeared taller. One might reasonably assume the adjacent village to have been associated with these mounds; if this is indeed the case, the mounds might also date to approximately 900 to 1000 years ago. This was during a time known as the Neo-Atlantic Climatic Episode during which temperatures were slightly lower and rainfall amounts higher, resulting in a higher water table. With the valley floor lower, this mound may have been at that time an island in a shallow wetland. *[All the larger mounds I am aware of in this area, including the one on Shell Creek mentioned at the beginning of this report, are located in wetland areas. I have wondered if this wasn't intentional. Many Plains tribes believed that the Earth was created when various diving animals brought mud from the bottom of the primordial ocean, depositing it in one place. While purely conjecture, this might be the intended symbolism of mounds surrounded by shallow lakes.]*

On the south end of the surface of this mound are two low elliptical mounds (see attachment), forming a sort of figure 8 or infinity sign (a lemniscate). They appear similar to the rectangle in both height (6" to 8") and in being surrounded by a shallow trough, again approximately 30" in width and consisting of soil much more densely packed than the soil on either side. (It is somewhat difficult to attribute a precise geometrical shape to these mounds, no doubt in part due to years of erosion, but they are clearly closer to being ellipses than anything else. I will proceed to treat them as such.) The ellipse to the northeast in the arrangement measures 29' 7" along its major (long) axis and 15' 11 1/2" along its minor axis. It appears that the major axis of this mound aligns with two somewhat notable horizon points; the highest point on a ridge constituting the valley's eastern rim and a narrow cut in the western horizon. It is difficult to see these horizon points clearly due to the many trees that now grow in the vicinity of this mound (I have made my observations in winter when the leaves were off the trees), but assuming that the prairie was indeed nearly treeless in pre-European times, visible alignments to the horizons seem feasible. The southwestern ellipse is almost the same size, 28' 4" x 18' 1". It has a nearly straight east - west alignment, and I have not been able to determine any specific alignment to the horizons, although the eastern horizon is completely obscured and could possibly contain a relevant (though subtle) feature. In drawing these mounds on paper, I have noticed that they bear a peculiar relationship to one another. If the long and short axes of these ellipses are extended beyond the boundaries of the mounds to the points where they intersect one another, and arcs (orange and blue on the attachment) are drawn with these points of intersections as their centers, the two respective arcs will intersect both ends of the major axis of one mound and both ends of the minor axis of the other, strongly suggesting that there was an underlying plan for this design. It also seems to account for the slight difference in the size of the two ellipses. Furthermore, assuming that the obvious alignment of the major axis of the northeastern ellipse to the horizons was the determining factor in this layout, if the second ellipse was derived from the properties of the first, this fact could explain the apparent lack of alignments to the horizon of the southeastern ellipse. (This is not to say, however, that the axis of the southwestern ellipse does or does not align with a celestial rising or setting point of significance to the builders; only that there is no corresponding feature of the horizon to mark this alignment.) That the builders of these earthworks possessed a knowledge of geometry well beyond that imparted to me as I slept through high school geometry is clearly evident. There may well be other geometrical relationships present, perhaps even relating the ellipses to the rest of the surface of the mound.

### **Astronomy:**

In considering that possibly one or both of these ellipses are oriented towards points on either horizon corresponding to some significant celestial rising or setting point, it is perhaps useful at this point to consider other evidence of such design. It has been well documented that people in various parts of the world have utilized points along the



horizon as a sort of calendar; the complex Hopi and Zuni ceremonial cycles are said to be determined by just this sort of calendar. A priest observes the rising and/or setting point of the sun along the horizons. When the sun rises or sets behind a specific prominent feature, the priest knows that it is time to begin a specific ceremony. Here on the plains of course, it is more difficult to find suitable horizon points. Archaeologist Waldo R. Wedel has suggested that the alignment of council circles in Central Kansas may have functioned to record solstitial sunrise and sunset points; he has discovered that several sites miles apart align with one another, defining sunrise and sunset points in the absence of prominent points on the horizons. He describes these circles as consisting “essentially of a low central mounded area averaging 60-90 feet in diameter, around which there is a shallow ditch or a series of oblong depressions placed more or less end to end to form a roughly circular, subcircular, or elliptical pattern.” He states that “...the Hayes circle appears as actually an ellipse whose long axis coincides with the 30 degree angle line of the winter solstice sunrise. The ellipse formed by the six surface depressions at Tobias is otherwise oriented, with its long axis east-northeast by west-southwest, and at an angle of 30 degrees from an east - west line. Continued to the eastern horizon, such an axis would coincide with the sunrise position at the summer solstice or, projected to the western horizon, with the sunset point of the winter solstice.” He goes on to add that “the alignment of the Tobias, Thompson, and Hayes circles, together with the evident orientation of the Tobias and Hayes circles along lines that coincide with solstitial phenomena all seem to point toward purposeful, not accidental, placement.” He adds, “that celestial phenomena figured in the mythology and ceremonialism of the Native Americans is well known....”

Also believed to contain alignments to celestial rising and setting points are the 50 or so “Medicine Wheels” that dot the landscape from Arizona into Canada. John A. Eddy, in Astronomical Alignment of the Big Horn Medicine Wheel, asserted that this “wheel”, 82 feet in diameter, constructed of small boulders and consisting of both a rim and spokes, as well as small cairns or piles of stones at certain locations, atop a mountain in Wyoming, was a sort of “American Stonehenge”; the spokes of the wheel pointing to solstitial alignments and the rising points of three bright stars. Thomas F. and Alice B. Kehoe studied 11 boulder configurations in Saskatchewan and concluded that they contained not only solstice alignments but also alignments to the heliacal rising points of such bright stars as Sirius, Rigel, and Alderbaran, stating “Eddy was correct: summer solstice can be marked by means of the rock alignments in (some of these) prehistoric configuration(s).” The appellation “American Stonehenge” seems more justly, however, to belong to the great Mississippian city of Cahokia, located near the confluence of the Missouri and Mississippi rivers in Illinois, where, Wedel states, “a great circle of 48 post holes, dated ca. A.D. 1000, is believed to have served as a device for observations of the solstices and equinoxes.” This site has been termed “Woodhenge” since it consisted of wooden posts rather than standing stones. Further to the east, many of the Adena and Hopewell mounds display astronomical alignments and/or an underlying geometrical interrelationship. The Great Serpent Mound in Ohio is believed to represent the stars of

the Little Dipper, while certain arrangements of effigy mounds in Iowa may possibly symbolize the Big Dipper. Even a brochure from the Blue Mounds State Park in southeastern Minnesota states: "At the Blue Mound's southern end is a 1,250 foot long line of rocks aligned in a east - west direction. Who built it and why is unknown. It is known that on the first day of spring and fall, the sunrise and sunset are lined up on this stone alignment." In light of this albeit brief consideration of other astronomically aligned earthworks, I feel it is reasonable to at least consider that such concerns went into the design of these mounds.

It appears at first to be a fairly straight forward matter to determine what astronomical bodies would rise or set in specific locations along the horizon. There is a simple formula that will convert azimuth, the direction in degrees going clockwise from north, into declination, the position relative to the celestial equator at which an object is located (for the stars declinations change only very gradually but the sun, moon, and planets change position throughout the year, the sun visiting each declination between its extreme positions (solstitial points) twice every year, once moving south and again moving north). This formula takes into account the latitude of the observer (estimated in this case from a topographic map) since rising and setting positions appear to change the farther from the terrestrial equator one moves. However, several difficulties present themselves in this situation. First, it is difficult to determine a precise azimuth from the major axis of an eroded ellipse that is only about 30' long. In the case of the northeast ellipse, however, the presence of a point of interest on both horizons simplifies finding this azimuth. The sight line to the eastern horizon is just under a mile in length, (approximately 4,886') while the distance to the western horizon is over 3 miles. A fairly precise angle can be computed by estimating both the locations of the ellipses and the horizon points on the topographic map. Calculating the distance straight east from the mound to a point directly north of the high point, for example, and then computing the distance from this point south to the high point, provides the distances necessary to calculate an azimuth angle based on the inverse tangent function of trigonometry. In this case the angle is close to 103.92 degrees azimuth, or 13.92 degrees south of east. (It is more difficult to determine the notch to the west on this same alignment; on the topographic map a ravine is indicated, but calculating the precise lowest point as seen from miles away is difficult. I have however, observed sunset on April 18, a date calculated to align with the ellipse. Despite the tree cover, the brightness of the sun made it possible to see it set. A definite narrow notch was evident. This azimuth is 283.92 degrees.) Once these azimuths were determined, it was possible to determine the azimuths of either end of the second ellipse using trigonometry again to calculate angles based on measured distances between the ends of the axes of one ellipse to the other. This resulted in values of 85.43 degrees and 265.43 degrees.

Next it was necessary to determine the height of the respective horizons. The path that a celestial body follows across the sky appears to slant towards the south for the first half of its journey and back to the north during the second, or setting, half, in northern

latitudes. An elevated horizon will both delay an object's appearance and also cause it to appear slightly south of where it would have appeared on a level horizon. I used the technique described above to calculate the elevation of the eastern horizon from the topographic map; this time using the hypotenuse of the above triangle (4,886') and the difference in elevation shown on the map (120' - allowing 5.5' for observer's height?). This yielded an elevation of 1.41 degrees. However, a sighting taken from the mound itself gave a value of approximately 1.75 degrees. This is a small but not inconsiderable discrepancy. I consulted a former surveyor regarding this and he said that the accuracy of topographic maps is not absolute; he suggested I use the direct measurement. (Further analysis of the GPS data may resolve this issue; a preliminary analysis favors the map.) This cast some slight doubt on the accuracy of the other three horizon positions I had also calculated from the topographic map, the alignment to the west - northwest of the northeast ellipse and both the east and the west points for the southwest ellipse. As mentioned above, I was able to observe the sunset on April 18, 1999 and also on March 17, 1999, a date calculated to be close to aligning with the long axis of the southwestern ellipse (on this date the sun appeared a little too far north to be aligned well). Since temperature and barometric pressure also effect the apparent location of rising and settings due to atmospheric refraction or bending of the light rays, I took to the mound a thermometer, a barometer, and a radio-controlled clock that was synchronized to the National Bureau of Standards short-wave time signal. The clock gave me the precise time that the sun appeared to set. By comparing this to the time that the sun should have set on a level horizon with no atmospheric refraction (obtained from a computer program set for the estimated longitude and latitude of the mound, 97.9385 degrees west and 41.6581 degrees north), by taking into account the temperature and barometric pressure, I was able to establish that the west-southwest horizon is close to .49 degrees in elevation (.92 degrees from the map, 12,353 feet - a discrepancy I attribute to graze; see below - I have averaged these two values and used .71 degrees in my calculations) and the west-northwest horizon is close to .39 degrees in elevation at the bottom of the notch (.52 degrees, 19,110 feet to the ridge behind the notch on map, but .38 degrees, 16,707 foot sightline to the center of the notch - very close to what I calculated from direct observation). Unfortunately, I have been prevented by overcast skies from repeating the same observations with the sunrise positions. The topographic map indicates it should be 1.34, with a sightline distance of 6,620 feet for the remaining position. (There are other factors that enter into these matters as well, including a slight adjustment necessary for elevation above sea level, and additional bending of the light due to graze, the light rays' passing very near to the ground. Graze increases the farther along the ground the light passes; in the west-southwest instance the topographic map indicates the light would pass along a long, high ridge while the other points are more crested. In Skywatchers of Ancient Mexico Anthony Aveni suggests reducing declinations by "1 or 2 minutes of arc" to account for normal amounts of graze.)

Thus for the northeast ellipse azimuths of 103.92 degrees and 283.92 degrees with horizon elevations of 1.41 degrees and .39 degrees respectively and azimuths of 85.43

degrees and 265.43 degrees with horizon elevations of .71 degrees and 1.34 degrees respectively for the southwest ellipse seem reasonable.

When near the horizon the light from celestial bodies must pass through more of the Earth's atmosphere; this can either bend the light rays or obscure them, depending upon the brightness of the star and the conditions in the atmosphere. Only the brightest stars can be seen actually rising from and setting into the horizon, and not in all conditions. This phenomenon of disappearance when near the horizon is referred to as extinction. As was discussed earlier, the bending of the light is known as refraction, which is affected by temperature and barometric pressure, and graze, which is determined by the land itself. (While the effects of both refraction and graze are relatively small, they can prove dramatic. I observed the rising of Orion just after sunset on the winter solstice a few years ago. I was particularly interested in the bright star Rigel in Orion's leg. It appeared first as a bright red light so close to the horizon that I wondered if it could be a car's tail light. It disappeared after a few moments only to reappear several minutes later in the same position. It then proceeded to "dance" from side to side until it had risen a fair distance above the horizon. This strange behavior was the result of changing conditions in the atmosphere.) To best calculate declinations from these azimuths and elevations, I have endeavored to estimate local weather conditions. I contacted the state climatologist, Mr. Al Dutcher, who supplied me with 30 year averages or "norms" from several locations in the state where full records of the climate are kept. I then interpolated values for the pasture, taking into account distances and differences in elevation (all pressure readings were reduced to sea level amounts, then recalculated for this location's elevation). This gave me reasonable figures for daily high and low temperatures, wind speed and direction, humidity, barometric pressure, rainfall, etc. I then utilized a computer program that took all of these figures into account to predict short term weather patterns. I found that I could run this program over a period of 36 hours or so and it would generate the predicted high and low temperatures accurately. It then was a simple matter to find reasonable estimates of temperature and pressure at any hour. I confined my calculations to sunrise and sunset temperatures however. For a general value of refraction to incorporate in determining declinations, I have selected the lowest and highest values and made calculations for both. While actually only accurate for a few days out of the year, they seem the most reasonable figures to proceed from.

In A Critical Evaluation of Medicine Wheel Astronomy, a criticism of Eddy's and Kehoe's medicine wheel conclusions, Steven C. Haack brings up two relevant points concerning the estimating of azimuths and the criteria for claiming an alignment to a rising point. He points out the need for lengthy sight lines to measure azimuths correctly and he also suggests that a range "of 2 degrees" to these azimuths as being an acceptable 'window' within which a rising or setting can be considered to be in alignment. This 2 degree window means that risings or settings that appear within one degree either side of the calculated azimuth are sufficiently close to be considered a "hit", as Haack puts it. With that in mind, I have added and subtracted one degree from all of the above azimuths

and made calculations accordingly. Using equations from the U.S. Naval Observatory's Nautical Almanac, the declinations in question appear to be as follows: for azimuth 85.43 degrees, declinations 4.874 to 3.345 degrees; for azimuth 103.92 degrees, declinations -8.84 to -10.347 degrees; for azimuth 265.43 degrees, declinations -2.423 to -3.957 degrees; and for azimuth 283.92 degrees, declinations 9.572 to 11.095 degrees. These are based both on the extremes of azimuth and of refraction within the ranges selected above and represent the maximum declinations of celestial objects that could reasonably appear within this range of azimuths.

Given these declinations, I estimated the dates that the sun would rise or set in alignment to one of the long axes of either ellipse. I then utilized "norms" of temperature and pressure for the respective sunrise or sunset on those dates and recalculated the range of declinations. (Even at the extreme values of temperature and pressure used in these calculations, the declinations varied by only about 1 minute of arc; too little to really be a factor.) I then checked solar rising and setting declinations over the period of 4 years, from 1996 through 1999, since declinations change slightly from year to year (hence leap year to bring the sun's position back into agreement with our calendar). It appeared that the sun would rise or set for 4 days each year within plus or minus one degree of the azimuths indicated by the ellipses. However, there is a one day shift in these dates due to leap year. I have included all dates on which the sun rises or sets in alignment with the ellipses in at least one year in the 4 year cycle. They are as follows: Sunrises: azimuth 85.43 degrees, 3/29 - 4/2, 9/10 - 9/14; azimuth 103.92 degrees, 2/21 - 2/26, 10/15 - 10/20. Sunsets: azimuth 265.43 degrees, 3/9 - 3/14, 9/28 - 10/2; azimuth 285.43 degrees, 4/13 - 4/18, 8/23 - 8/28. There are of course two sets of dates for each azimuth since the sun passes each twice every year. (I am presently unaware, what, if any, significance these dates may have possessed to earlier peoples. It is somewhat interesting that both my daughter's and my birthday is 2/23 while my brother's is 10/19, both signified by the 103.92 degree alignment.) Although there are patterns to the positions of the rising and setting points of the moon and planets, they vary within their own time frame and do not relate easily to the solar year. For a given year, it would be possible to compute the days that any planet or the moon would line up with one of the alignment points, but these would have to be done on a year to year basis. For this reason, I have not included any dates for the moon or planets.

I have also checked the declinations of the 20 brightest stars for alignments. Stars do slowly change declination over a period of many years due to the slight wobble of the earth on its axis. This is referred to as the Precession of the Equinoxes (there is also a lesser factor known as the rise and fall of obliquity). Precession occurs in a cycle of approximately 26,000 years. Over a period of centuries, this shift in the position of stars becomes apparent and is occasionally helpful in dating sites where a clear alignment to a star's rising or setting point exists. It is so gradual, however, that it does not give anything close to precise dates, especially when a range of 2 degrees is allowed in azimuths. Currently, the star Spica is near the azimuth 103.92 degree rising point, while



Altair is near the 283,92 degree setting point. I then checked dates near 1100 A.D., the approximate time of the Mollhoff site to the north. The reader will recall that Mr. Mollhoff concluded that the artifacts from our pasture appeared contemporaneous with the artifacts found above Loretto: therefore I feel justified in assigning a similar date to the pasture site. (It should be noted that no definitive identification or dating has yet been done.) *[Mr. Lucas said, based on the artifacts I showed him, that the large village site at our farm appeared to be Upper Republican, similar to the Mollhoff site.]* At any rate, only one bright star aligns with any of the calculated azimuths at this date; Rigel, in the constellation Orion. In the year 1162, Rigel would have risen precisely in line with the long axis of the northeast ellipse in our pasture. Rigel would, however, have risen within the 2 degree window from approximately 795 A.D. to 1530 A.D.

### **Anthropology:**

North America is dotted with mounds of many shapes and sizes, some, such as the earthworks at Poverty Point in Louisiana, are thousands of years old, while others, such as the gigantic earthworks at Cahokia in Illinois, a Mississippian site, and the Effigy mounds in Iowa, are dated to 1000 years ago or less. Many more, such as those built by so-called Adena and Hopewell peoples, fall between these times. Mound building may still have been practiced around the time of European contact when the remnants of Mississippian culture still existed in the Southeastern United States. The Natchez Indians, for example, maintained their culture (thought to have been the last flowering of the Mississippian culture) into the early 1700's. They maintained a sacred fire atop a temple mound for example. Relatively few mounds have survived the land clearing practices of the Europeans; in one area in Iowa (the Harpers Ferry Great Group), 900 mounds were obliterated in only 40 years. But many mounds have been studied, either those which still exist or others before their destruction, and there is evidence connecting various mounds to various peoples. One example is to be found in the so-called "Dakota Mounds." Many earthen mounds were encountered during the early settlement of the Dakotas, many of which have been destroyed. Larry J. Zimmerman in Peoples of Prehistoric South Dakota mentions the "so-called Dakota Mound complex", stating that "The mounds of this complex vary widely in size and shape and date from 500 B.C. to A.D. 1000." These mounds were built by Woodland peoples, people contemporary to the Adena and Hopewell mound builders of the eastern United States, but differing in many ways due to both environmental and cultural reasons as well as geographical distance. In The Wolves of Heaven: Cheyenne Shamanism, Ceremonies, and Prehistoric Origins, Karl H. Schlesier connects the ancestors of the modern Cheyenne to at least some of the Dakota Mounds, as well as to the ubiquitous Medicine Wheels.

Schlesier's book focuses on an integral aspect of Cheyenne spiritual expression, the Massaum ceremony, in which "the creation of the world and its order was reenacted." In Cheyenne myth, their people long ago entered the Great Plains. Being unfamiliar with the land and its plants and animals, the people did not fair well. Ultimately two brothers,



the elder a shaman, were sent out as ceremonial scouts “to find something for the whole tribe, and bring back some good news.” They traveled until, near death, they encountered a blue mountain (Bear Butte). Here the younger brother was attacked by a serpent only to be rescued by an old man wearing a red wolf skin. Together with his wife who wore a white wolf skin, the old man cured the injured brother. When they learned of the brothers’ task, they took pity on them, giving their young daughter to the younger brother to marry. “Then the Wolf Man let them see animals in the four directions, and said, ‘Now you shall go to your home. Take our daughter with you to your camp. She is to be a great helping power to your people. She will take everything I have shown you to your people. Everything will follow her.’” Once they arrived at camp, the animals of the Plains followed them, the buffalo coming up to her lodge and allowing themselves to be killed. The Wolf Man and the Old Woman of the story are game keepers, “keepers of the animal spirits of the Plains.” Their daughter, “is a buffalo spirit turned into a human to assist the Tsistsistas (the name the Cheyene have for themselves): Her parents placed her in the position of master spirit of animals and therefore gave her the power to bring game. ...The giving of Ehyophstah (the daughter) established a kin relationship between the maiyun (supernaturals) and the Tsistsistas and a kin relationship between the Tsistsistas and the animals under the tutelage of the maiyun and Epyophstah.” In the Massaum ceremony actors portray these mythical beings, and re-enact the bringing of the game. The red Wolf Man is associated with the bright star Aldebaran; the white Old Woman with the star Sirius; the daughter, with the star Rigel. The Massaum was performed according to the heliacal rising of these three stars.

The heliacal rising of a star is its first appearance in the sky after a lengthy period of being obscured from view by the sun. In other words, it is the first time that a star is seen in the early morning twilight after having been above the horizon during the daytime. For a bright star it is an easily observed event if one knows when and where to look. In the case of the three stars associated with the mythical personages of the Tsistsistas, Aldebaran flashes red on or near June 22. 56 days later, the length of the Massaum ceremonial cycle, the star Sirius undergoes its heliacal rising, flashing white before sunrise. In the exact middle of this period, 28 days after the heliacal rising of Aldebaran and 28 days before the heliacal rising of Sirius, Rigel undergoes its heliacal rising, flashing blue in the dawn sky. “Bound between the brilliant beacons of Aldebaran and Sirius, the Massaum focused on Rigel. When the five main persons of the Ephyophstah account stepped outside the maheonox of Bear Butte, they stood facing south[east], observing the blue flash of Rigel in the early dawn. When the five main performers of the Massaum stepped from the wolf lodge in the dawn of the fifth day of the ceremony, they waited for Rigel’s signal before they walked to the corral to start the sacred hunt. In the Massaum, the blue star design in the traditional form of the German iron cross was painted on the buffalo skull placed on the deep earth on the west side of the wolf lodge....” Schlesier goes on to suggest that the alignment of both the Big Horn Medicine Wheel and the Moose Mountain Medicine Wheel to the rising points of Aldebaran, Rigel,

and Sirius, reflect both the widespread and ancient occurrence of this myth (Haack's criticism notwithstanding). But he also connects this deeply ingrained mythos and the central importance of Rigel with numerous mounds found in both the Dakotas and adjacent areas (attributed to Besant people). He notes a number of elliptical burial pits found beneath burial mounds, whose long axes align roughly to the rising point of Rigel. (One pit in his examples, for instance, measures 12' by 6'.) He explains the elliptical shape as having been derived from the traditional shape of the Tsistsistas sweat lodge. Unlike the more familiar circular sweat lodge of most tribes, the Tsistsistas saw theirs as forming the body of the buffalo. Its long axis represented the bison's spine, with smaller supports along its length representing the ribcage. The mound itself he interprets as representing a sacred mountain, rising from the depths, with the burial pit an artificial sacred cave. He believes, based on Tsistsistas beliefs, that the bones of important people, which had first been exposed and apparently cleaned, were interred (with the bones of buffaloes) to ceremonially free the spirits for possible rebirth. Since both the continuation of the buffalo and the human tribal populations was desirable, they were accorded equal treatment. Once the burial was complete, "everything under the sod had become part of the deep earth and could never be opened again...."

Both the shape and alignment of the northeast elliptical mound would seem to fit with proto-Tsistsistas practice and belief. By extension, the other mounds might be attributable to the proto-Tsistsistas as well.

### **Conjecture:**

Were proto-Tsistsistas the builders of the mound in our pasture? The evidence, such as it is, seems to point to the local Upper Republican people, but the elliptical mound aligned with the rising point of the star Rigel seems to indicate a definite link to the Tsistsistas (it should be noted neither culture is known to have constructed rectangular mounds -- this is a trait of people in places such as Cahokia). The Upper Republicans, presumably ancestral to the Pawnee, may have possessed some beliefs in common with their descendants. This is the subject of an interesting paper entitled Prehistoric Evidence for Pawnee Cosmology, written by Patricia J. O'Brien. Ms. O'Brien suggests that elements preserved in Skiri Pawnee belief can be recognized in the contents of an excavated earthlodge located near Grandview Plaza, Kansas. The remains of numerous birds that had little food value but considerable ceremonial value to the later Skiri were found. She also finds evidence of an astronomical alignment of this lodge, which appears to date to around 1300 A.D. The Skiri were a branch of the Caddoan family which stretched from Texas to the Dakotas (and included the Wichita, the builders of the aligned council circles mentioned above.) While all the members of this family appear to have had some knowledge of the stars, the Skiri are acknowledged as having the most unique and refined system of star knowledge and lore. (The Skiri were centered just to the south of our family farm, in Nance county, in historic times.) Von Del Chamberlain has done extensive research into Skiri star knowledge, publishing the main body of his

findings in a book entitled, When Stars Came Down To Earth: Cosmology of the Skidi Pawnee Indians of North America, “Skidi” and “Skiri” denoting the same people. The Skiri timed their complex ceremonial cycle according to the appearance of specific stars, even carrying out human sacrifice when astronomical conditions dictated. The Skiri possessed numerous sacred bundles, bundles that contained the paraphernalia necessary to the successful enactment of their rituals. One such bundle, now in the possession of the Field Museum of Natural History, contains a star chart painted on an oval buckskin. Chamberlain mentions that the Skiri conceived of the world as being oval; elliptical - perhaps this accounts for the shape of the star chart.

What then could be the significance of two ovals on a mound located in the heart of the traditional Skiri homeland? The most obvious conclusion might well be that the two ovals or ellipses symbolize two worlds. In Skiri belief, the heavens were divided into two halves, the eastern being the male, visible (manifest) world and the western the female, dark (potential) world. These were separated by the Milky Way, the Road of the Dead from the North Star to the South Star. It is perhaps conceivable that the two geometrically interrelated mounds in some way symbolize this concept. The trough of packed earth which surrounds these earthworks is in all probability the remains of a foot path, an area walked or, more likely, danced on so many times that it became both compressed and depressed. *[In April of 2007, approximately 30 local second graders visited the elliptical mounds and danced around them. They completely filled the pathway, with the last dancer joining the procession immediately in front of the leader who was coming back around.]* What symbolism would dancing around the representations of two worlds serve? Could it symbolize a journey from one world to another and back again, such as the mythical journey of the Morning Star across the Milky Way and into the dark world of the feminine to mate with the Evening Star and produce the people in the central Skiri creation myth? Could it represent the continual cycling of the life force between the manifest and the unmanifest realms? Or perhaps the two worlds in question symbolize two peoples becoming joined together. Skiri mythology is rife with creation tales that involve the marriage of one star to another, or else the marriage of the sun and moon to one another, suggesting that the Skiri as a people were the result of the “marriage” of different groups who paid reverence to specific celestial bodies. (The Skiri were the most unique of any of the Caddoan peoples, indicating perhaps an external influence on their development.) If this hypothesis has any merit, then one of the marriage partners could perhaps be related to the proto-Tsistsistas, symbolized in the northeastern ellipse that aligns to the rising point of Rigel. The second partner would most likely be the Upper Republicans to whom the site is tentatively attributed. It suggests the possibility that contact with people from the Dakotas by the locals occurred, leading to their two respective cosmologies being united, as symbolized by the two ellipses, perhaps occurring sometime around 1100 A.D. That the local influence was stronger would be reflected by the fact that the descendants of this union retained a strong Caddoan character. (It should also be noted that there is little evidence of excursions by peoples of the Dakotas into this area, although the cousins of

the Skiri, the Arikara, inhabited both this area and areas well into the Dakotas in early historical times.) Zimmerman describes this approximately 900 year old time period as one of major cultural change, which he attributes to the introduction of religious ideas from the east and south. He assigns the major influence in South Dakota to Cahokia, while attributing the strongest influence on the Upper Republicans to Spiro, in modern Oklahoma. He traces these ideas ultimately to Central America. He suggests that missionaries may well have arrived in this area from the large Mississippian centers around 1000 - 1100 A.D. Could the influx of religious ideas into this area have in some way contributed to the development of a hybrid cosmology, and, if so, could this in any way be reflected in the two connected ellipses? (Two worlds bound together, forming something new?) The world represented by the Rigel-aligned ellipse might well symbolize the nomadic, hunting lifeway of the proto-Tsistsistas. Could the other mound symbolize the relatively new practice of agriculture, the planting and tending of corn, beans, and squash in sedentary villages?

The Skiri themselves took their name from the Wolf Star, Sirius. The Loup river is in fact named for these people, "Loup" being "wolf" in French, the language of the first whites to trade with the Skiri. Chamberlain endeavors to identify other stars known to the Skiri. He examines the star chart at some length as well as analyzing the ethnographic record. He observes: "...I wonder if the identification of the Wolf Star [as Sirius] might have changed after the origin of the ideas that the star was based upon. Several factors suggest that a red star would have been a better choice for the Wolf Star. First, its rising was said to have made the wolves think that Morning Star had risen, and one of the distinguishing characteristics of Morning Star was its red color. Second, the association of the Wolf Star with the Snake Star (Antares in Scorpius, as will be discussed later), one of the reddest stars in the sky, suggests that the Wolf Star might also be a red star. Finally, the association of the red semicardinal direction star with the wolf suggests a red color for the Wolf Star. Either Betelgeuse or Aldebaran would qualify as possibilities; both are red, they rise in the early morning in summer, and they are approximately opposite the Snake Star. Perhaps one of these was the original Wolf Star. Since the Wolf was one of the powers overcome by Morning Star as he courted Evening Star, Aldebaran is a particularly attractive possibility. It lies near the ecliptic where the planets, including Mars, wander. It would not only frequently be in conjunction with Mars; it would also often precede Mars in rising, thus 'fooling' the wolves. If Aldebaran were the Wolf Star, its close connection with the Southwest Star (Antares, in my view), another red star opposite in the sky, would make more sense. Furthermore, Aldebaran is 'early visible in the eastern horizon' in summer, whereas Sirius does not rise heliacally until mid-August. For now, the best evidence supports the conclusion that Sirius was the star known by the Skidi as Fools the Wolf."

Chamberlain presents evidence for both Sirius, the accepted Skiri Wolf Star, but also Aldebaran, the red wolf star of the Tistsistsas as being "stellar" candidates for the Wolf designation. Is it possible that this confusion in some way reflects the influence of

proto-Tsistsistas cosmology on the proto-Skiri, presumably the Upper Republicans, since both of these stars are associated with the wolf in Tsistsistas thought? What then, of Rigel? There is no conclusive evidence of what the Skiri named or believed about Rigel. One possibility is suggested by the Black Star. Chamberlain refers to this star as presiding over the animal powers, and was associated with an elaborate ceremony for shamans. He adds that Fletcher's notes indicate a southeast direction for this star, but that others associate it with the northeast. In Ceremonies of the Pawnee by James Murie, the Black Star is said to "...also control the animals and through them the people would learn the secrets of animal power. This being was daubed with blue mud...". While this is only a very tenuous connection to the Tsistsistas conception of Rigel, it does show some similarities. The Tsistsistas conceived of Rigel as being associated with the power that governed the animals, a power that a shaman utilized to call the buffalo herds to the people, rather than the people going out in search of the buffalo (this was in pre-horse times). Also, there is the association of Rigel with the color blue. In Skiri belief the being associated with the star is daubed in blue, but the star itself is black. And there are the conflicting reports regarding whether this star was found in the northeast or the southeast, the direction of Rigel's rising. There is also the Big Black Meteoric Star which controlled the animals, especially the buffalo. This star is clearly conceived of as male and has not been positively identified. Or there is a third possibility, the Doctor's Star, a star associated with the southeast and also shamanic power. I have found no additional information about this star. If a positive identification between a star associated with animal power and Rigel could be made, the possibility of a link between proto-Skidi and proto-Tsistsistas cosmology would seem more likely.

There is also a parallel between these two peoples in the ceremonial use of the buffalo skull. Recall that the Tsistsistas placed a buffalo skull in the west in their ceremonial lodge, painting a blue cross to symbolize the star Rigel. It was also common for the Skiri earthlodge to contain a buffalo skull altar in the west of the lodge, often painted in red with symbols of the Evening Star and her Garden from which all life flowed. The Evening Star was mother of the plants, the buffalo, and the people themselves in Skiri thought while of course the star Rigel was mother of the animals, especially the buffalo, in Tsistsistas thought. Also, the symbol of a star in Skiri art was most often that of a cross, although not the traditional German iron cross.

While conjectures such as these are fascinating, much more evidence is needed to explain the symbolism and purpose of the ellipses. Several things seem certain however: the area preserved in my family's pasture contains highly planned, executed, purposeful and geometric earthworks; probably more existed in the pre-white days. There was a nearby village site that would appear to date to a time consistent with the astronomical alignment of the star Rigel with at least one earthwork, an ellipse which shows a geometrical relationship to a sister ellipse, as well as being on a larger mound aligned exactly east/west with a golden rectangle of similar construction. *[Mr. Lucas cautioned that proto-Tsistsistas and Upper Republican people may have occupied the area at nearly but*

*not exactly the same time.]* And this ellipse alignment has clear parallels to the beliefs and practices of proto-Cheyenne peoples. Likewise, the construction of low mounded earthworks surrounded by a trench and possessing astronomical alignment (though on a larger scale), was exhibited in early historical times by the related Wichita tribe to the south. This site may well have been part of a larger ceremonial area now destroyed by agricultural practices (recall the existence of another mound straight north of our farm near the head of the south branch of the Shell Creek, a mound again located in a lowland area; there also appears to be a large man-made mound to the west of our farm, where the one remaining spring is located). Perhaps the presence of a nearby lake and fertile soil provided an environment that allowed sufficient time for ceremonial activities; perhaps the area as a whole had significance beyond the merely material.

If this site was of spiritual significance, perhaps even an exchange point with tribes farther to the north and west, could this importance have echoed down into modern times? By this I am asking is it possible that the Native Americans who persisted in visiting the location of these mounds have done so because they too saw them as significant? Again, no answer to this question appears likely, yet it does not seem to be entirely unreasonable. And if this should indeed be the case, then a third culture appears to be present, for even if the Skiri were the historical inheritors of whatever this site stood for, they were surely not the same Indians who frequented the site in my great-grandparents' day. Whether Omaha, Ponca, Sioux or vagabond, these later people would have been most likely of non-Caddoan stock. While this is purely conjectural, it does raise the possibility of a pan-tribal significance for the site or even for the area.

*[Mr. Lucas was largely, though not completely certain that the village site was Upper Republican. He noted, though, that such large sites are very unusual. He said that most Upper Republican sites consist of much smaller earthlodge settlements, located every few miles along flowing streams. The period 900 years ago appears to have been free of warfare. In later times, as climate change and European weapons impacted people's lives, warfare became more prevalent and villages became larger for defensive reasons.]*

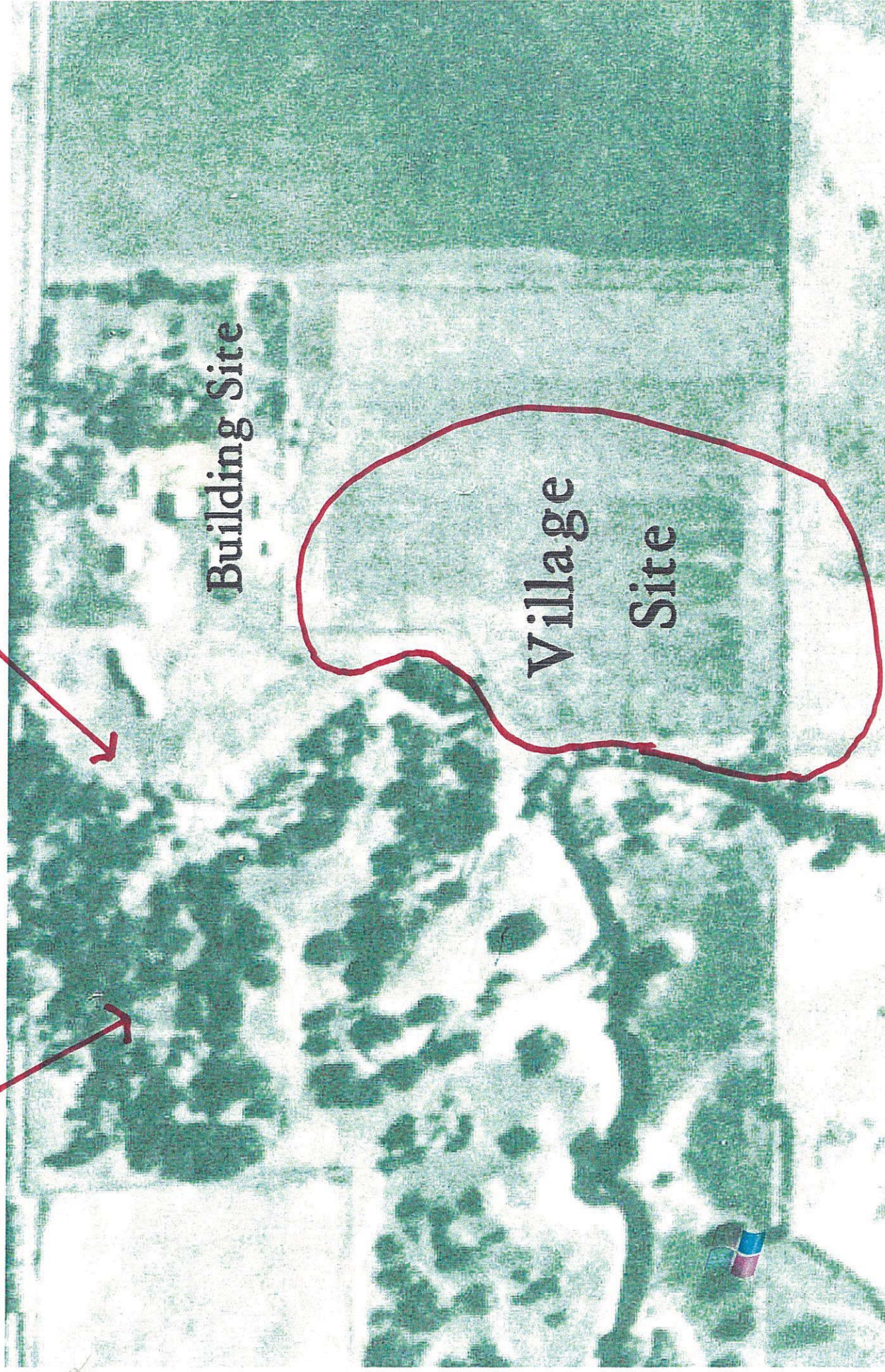
*Mr. Lucas was very intrigued by the rectangular and elliptical mounds, stating that in his entire career as an archaeologist (and he was on the verge of retirement) he had never come across anything like them in Nebraska. Although clearly desiring to excavate, he agreed with me that their primary value lay in their physical shapes and positioning and they should remain untouched. Mr. Lucas stated that the unique Native American remains should qualify the farm for inclusion in the National Register of Historic Places.]*



Large mound with  
oval mounds on top

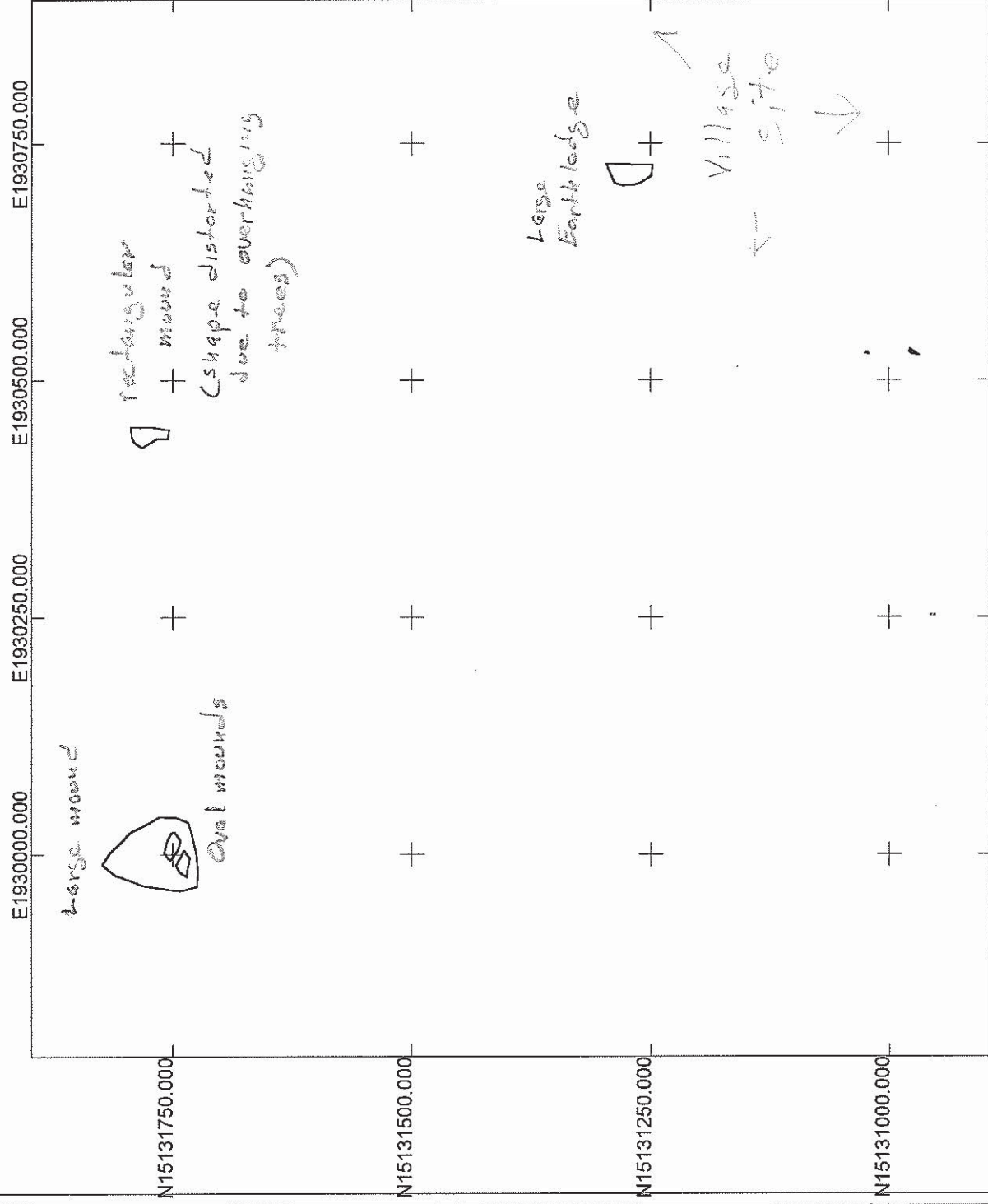
Rectangular  
mound

1938 Aerial photo





# Mounds



Scale 1:2000

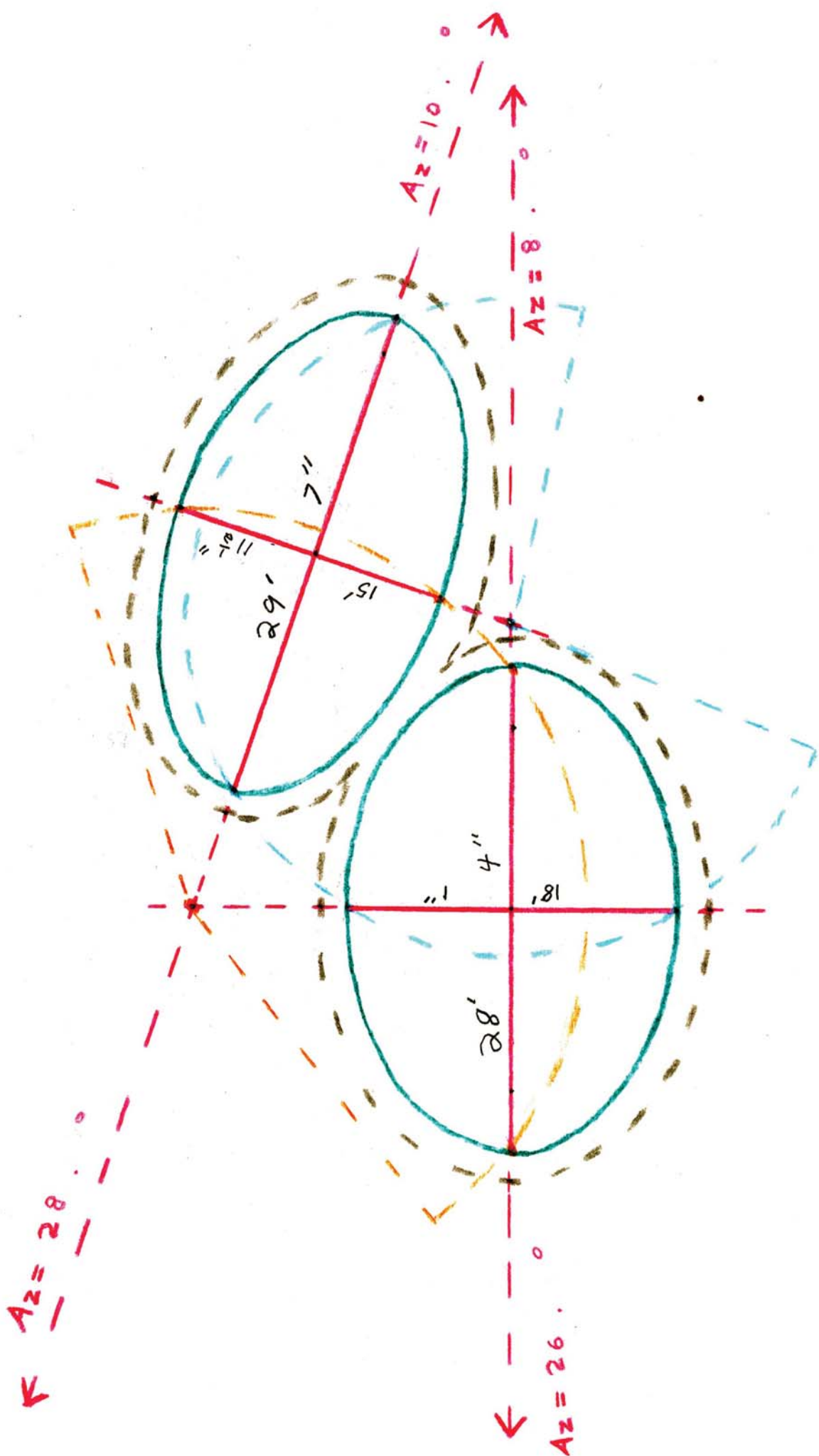


Miles

Universal Transverse Mercator  
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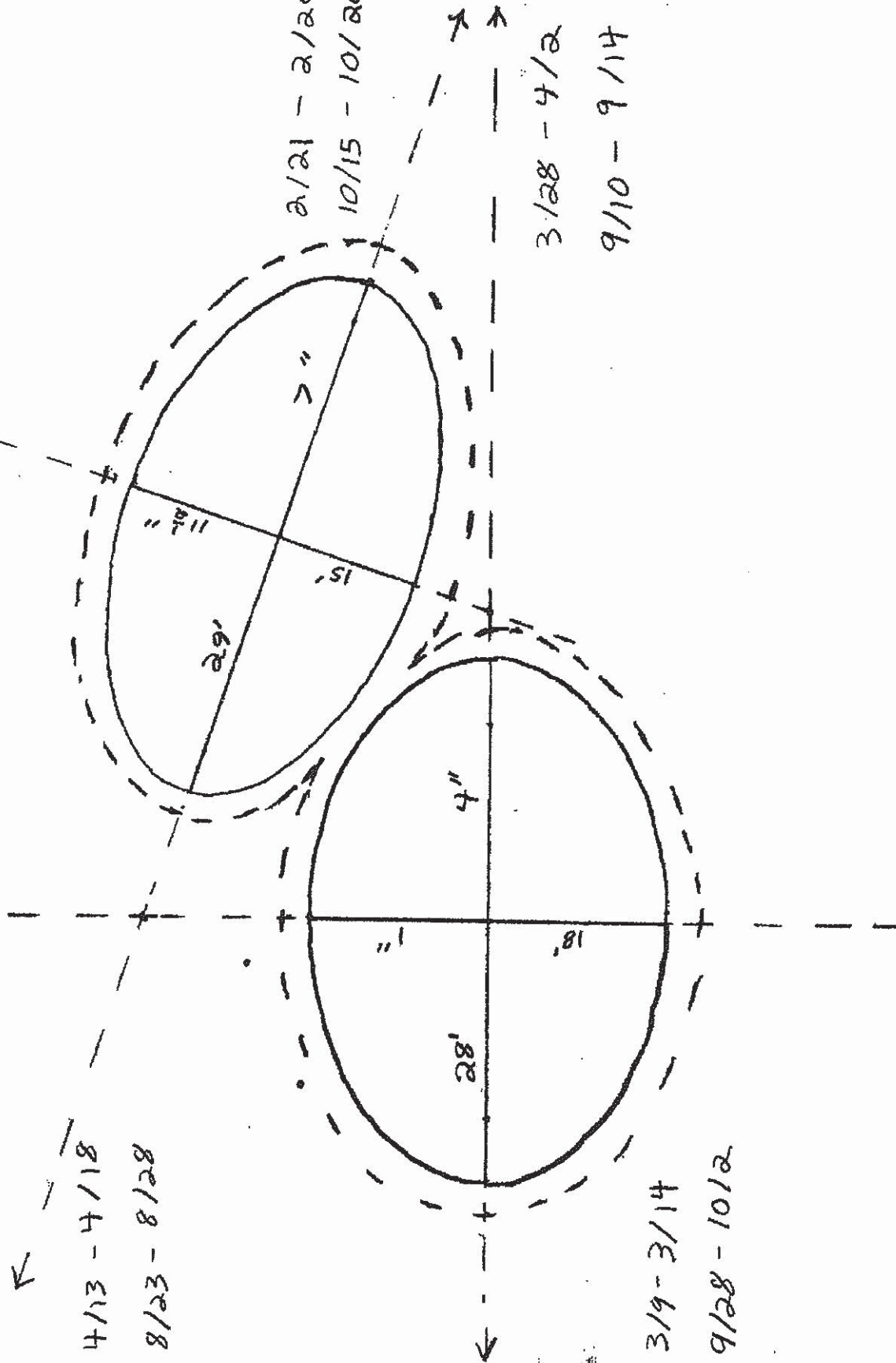
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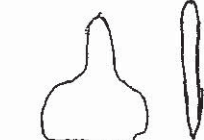
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8/23 - 8/28

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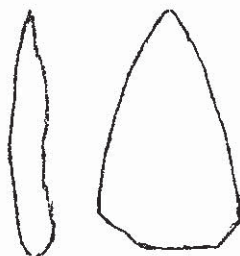
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10/15 - 10/20  
3/28 - 4/2  
9/10 - 9/14

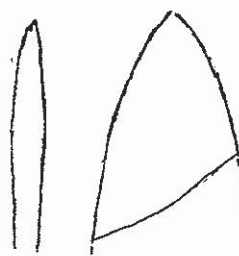




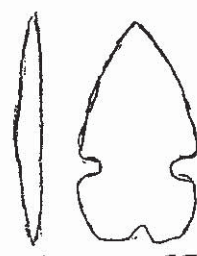
DRILL  
GRAY CHERT  
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? REPUBLICAN RIVER ?  
JASPER, BROWN



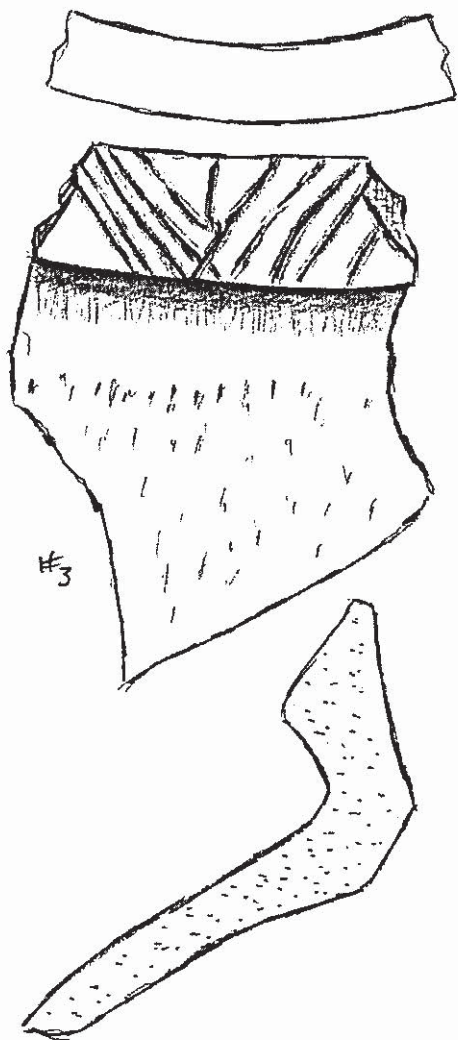
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CHERT



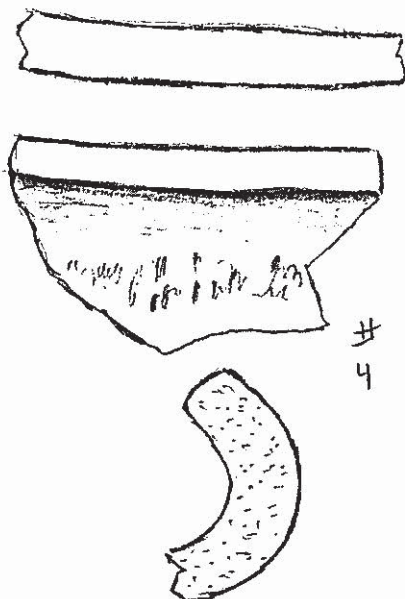
PINK-VIOLET  
CHALCYDONY



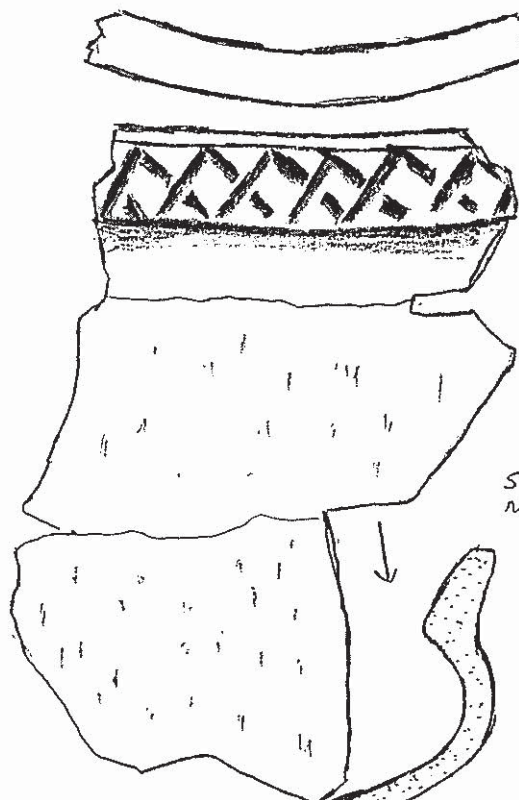
? DRILL ?  
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CHALCYDONY  
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#3

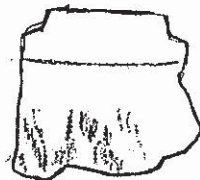


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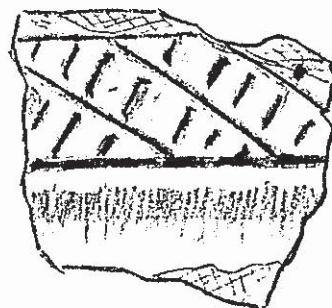
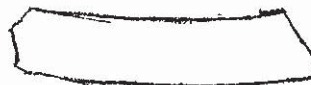
SURFACE  
NEAR  
FEATURE  
95-R



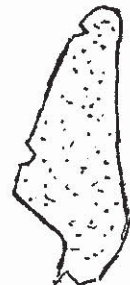
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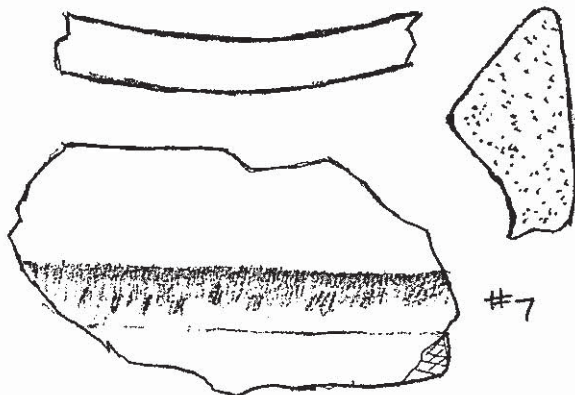
NEAR  
3810



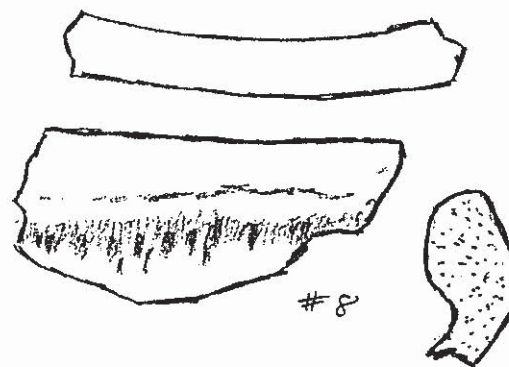
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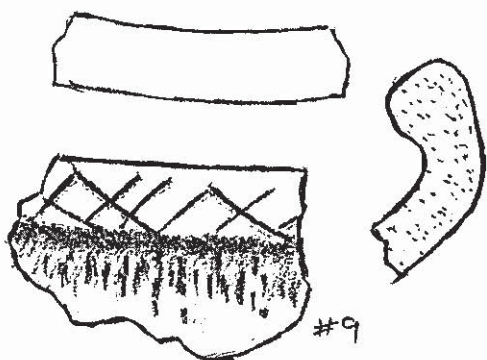




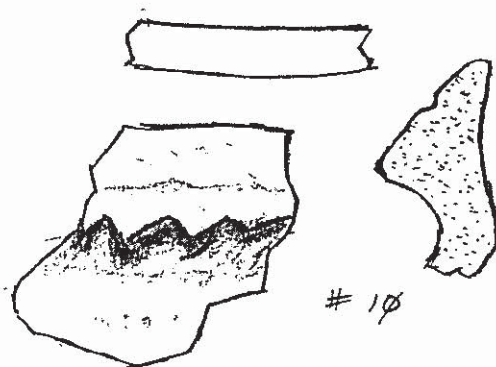
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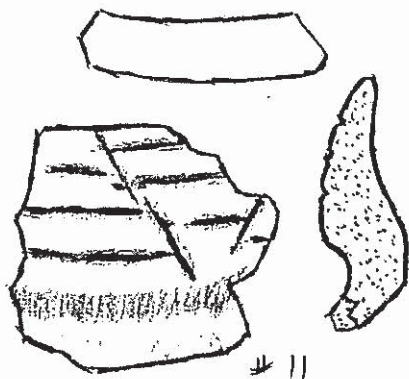
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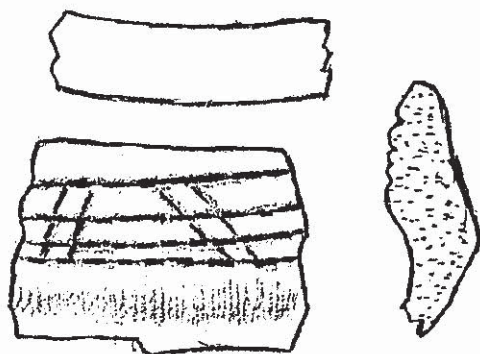
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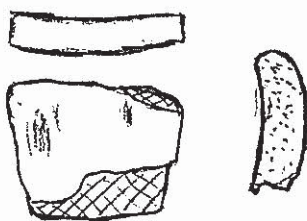
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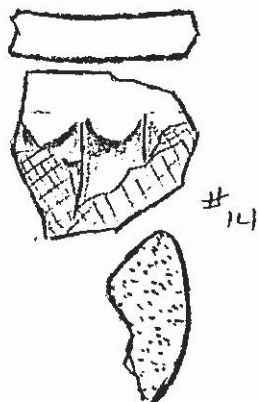
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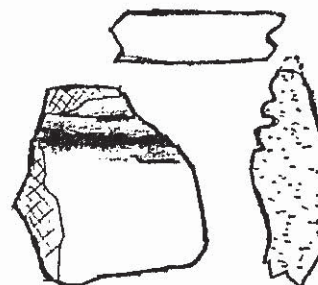
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#13

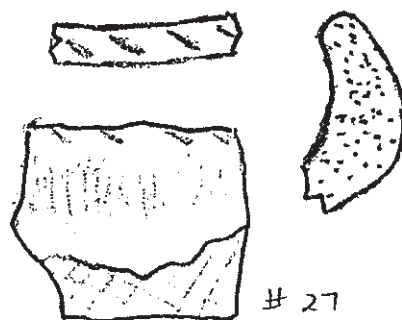
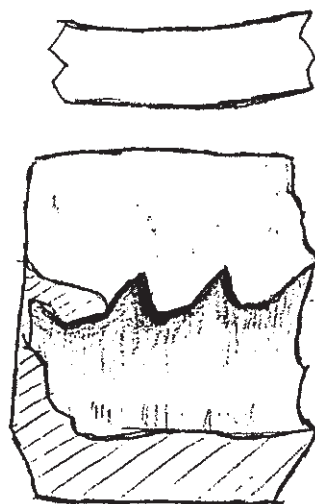
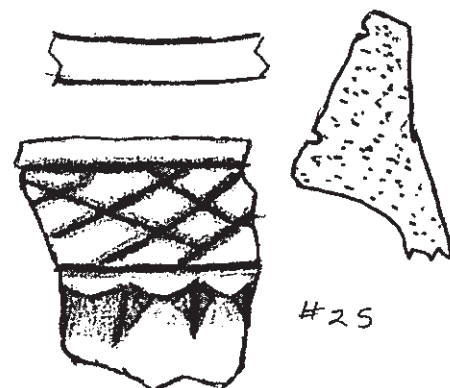
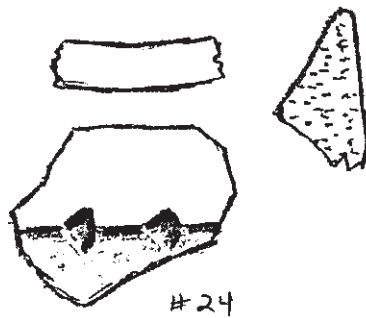
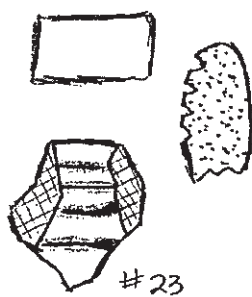
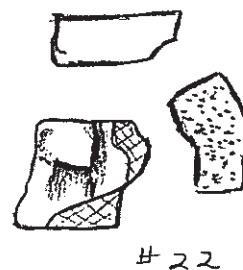
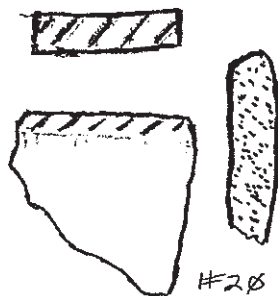
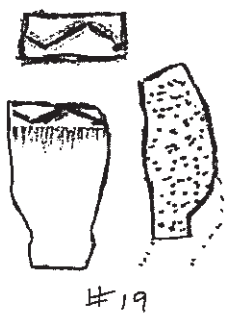
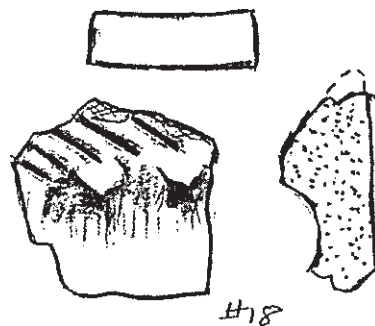
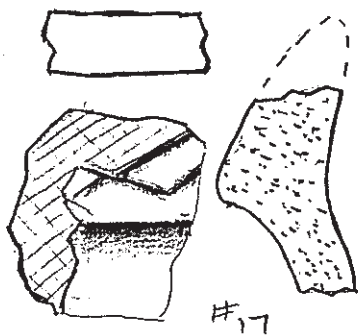
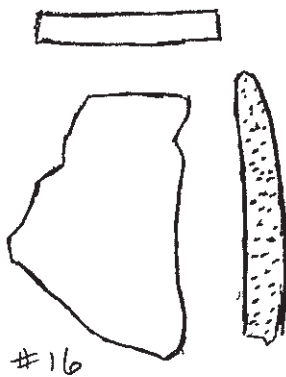


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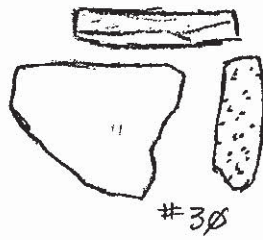
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NEBR  
3B10

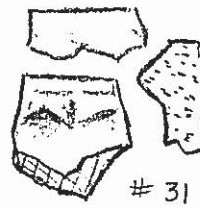




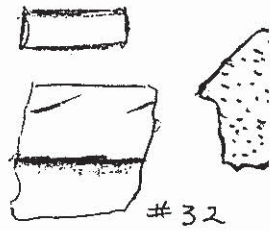
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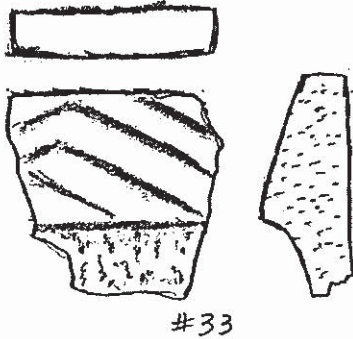
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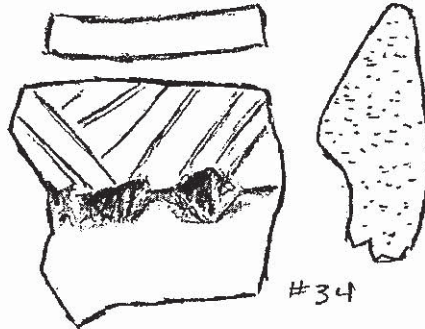
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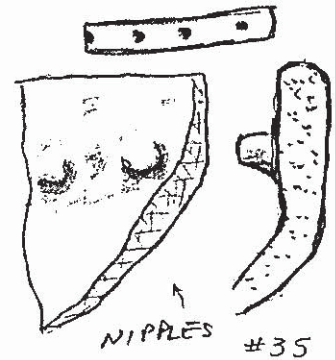
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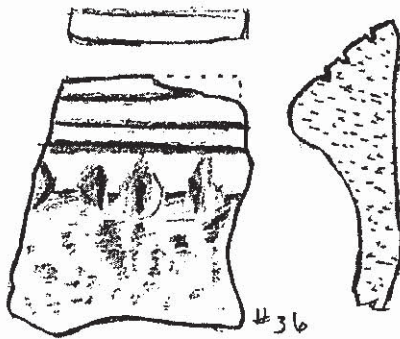
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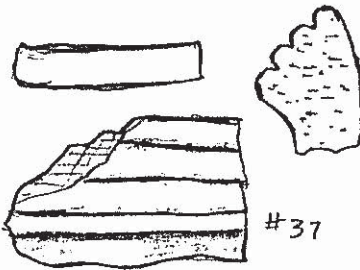
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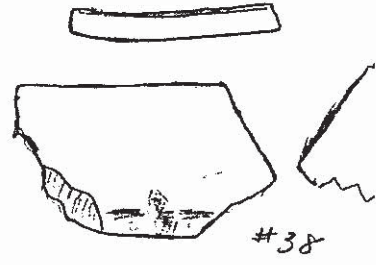
NIPPLES #35



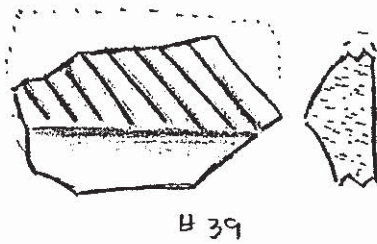
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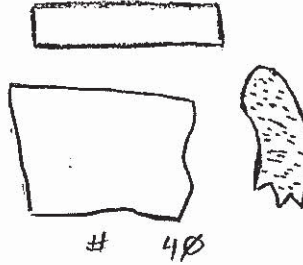
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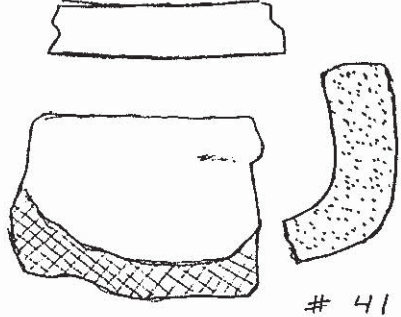
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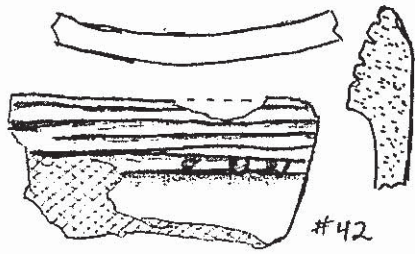
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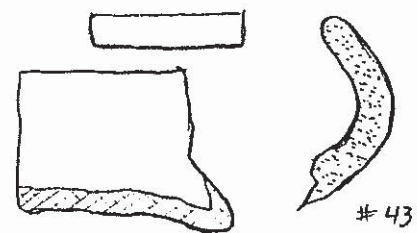
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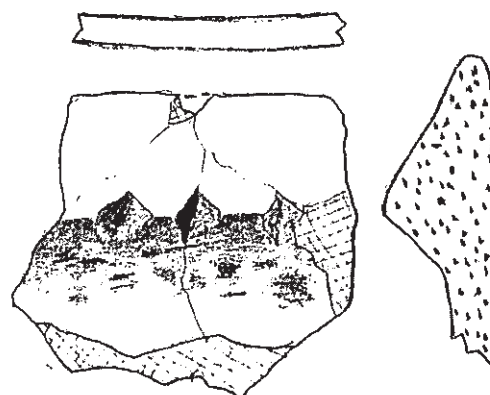
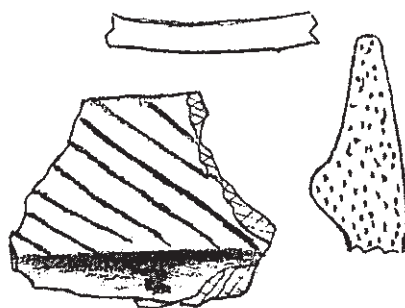
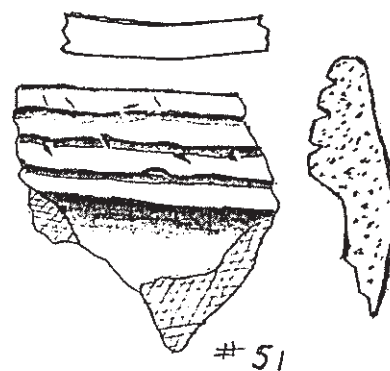
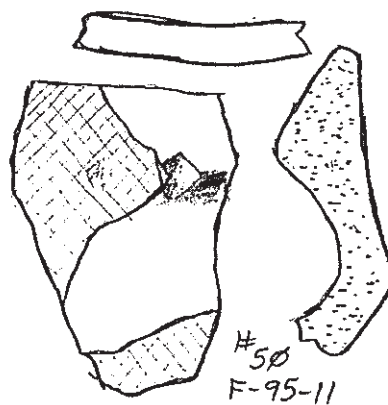
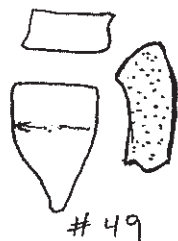
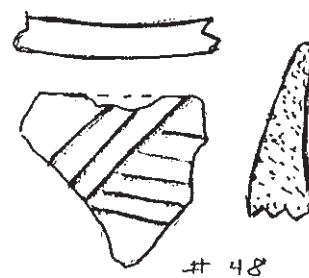
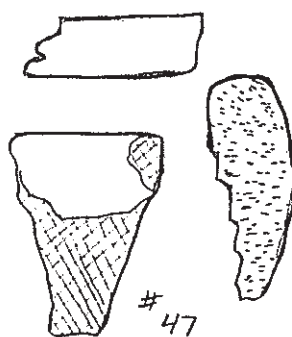
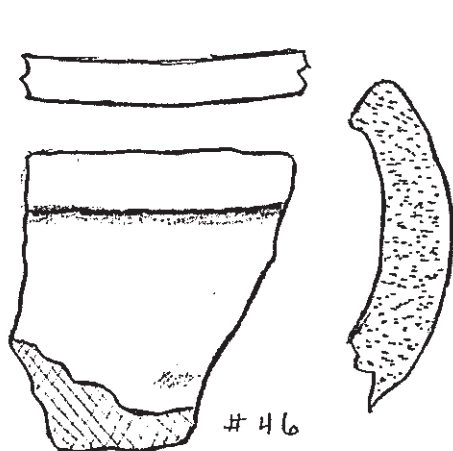
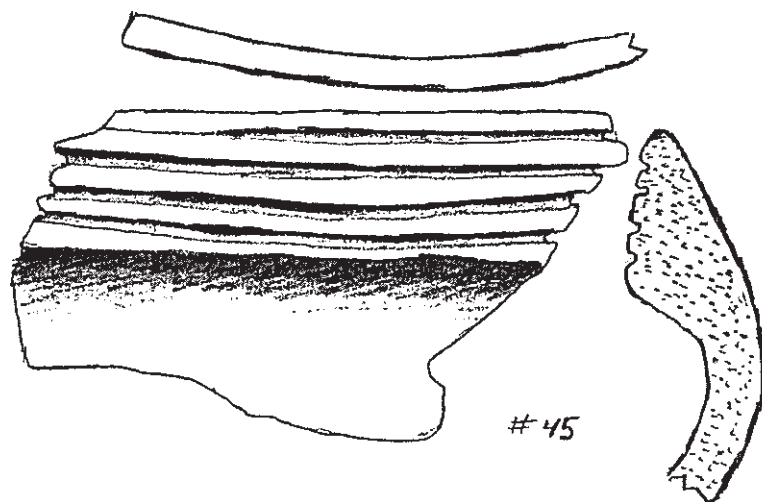
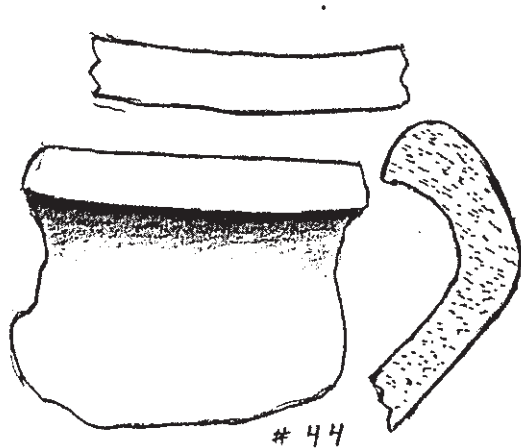
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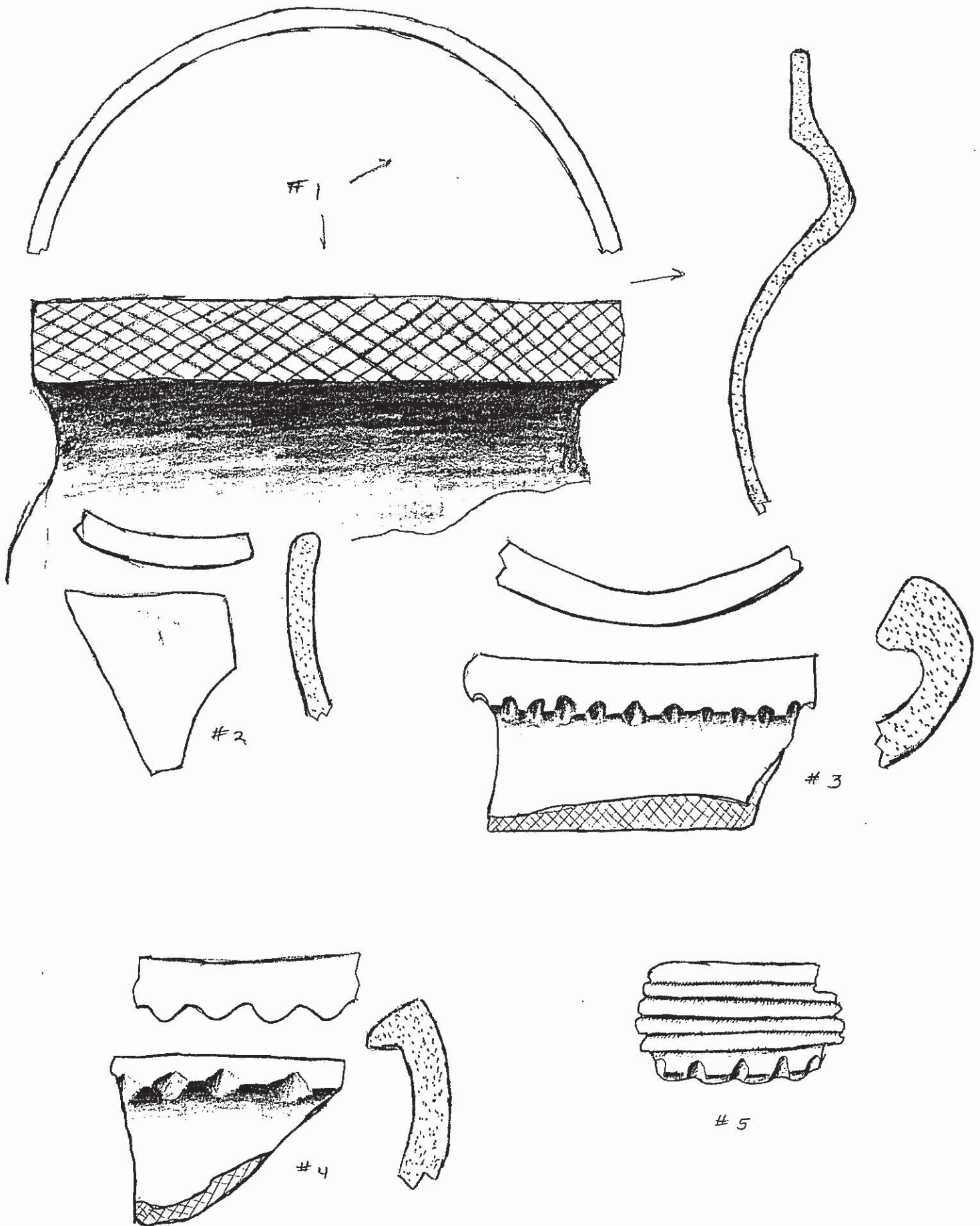
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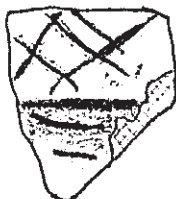
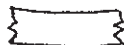
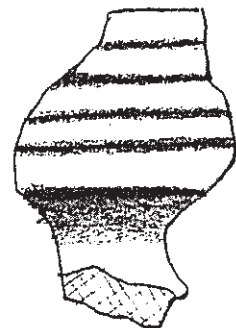
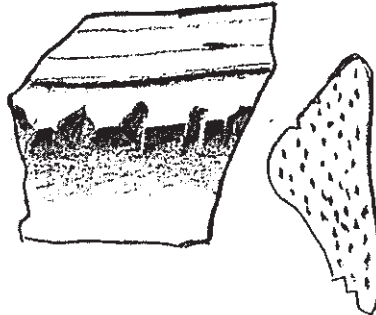
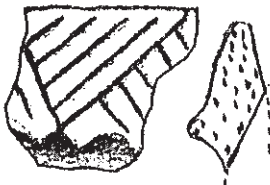
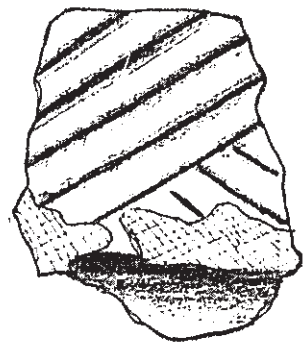
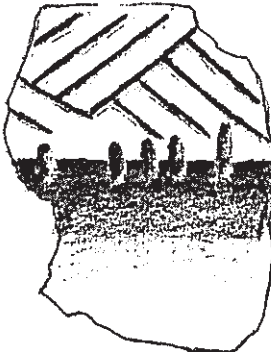
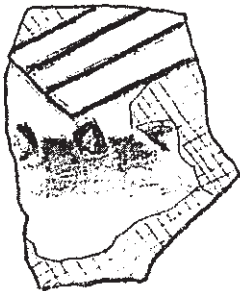
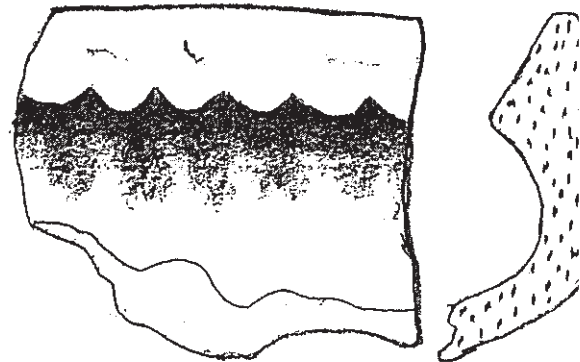
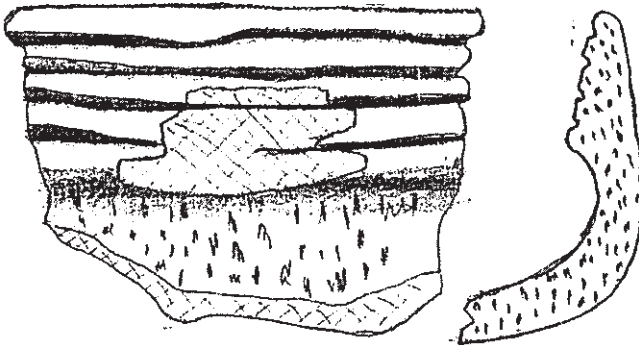
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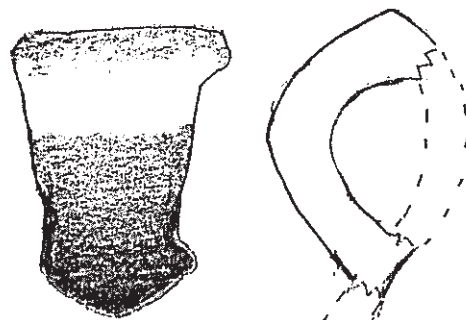
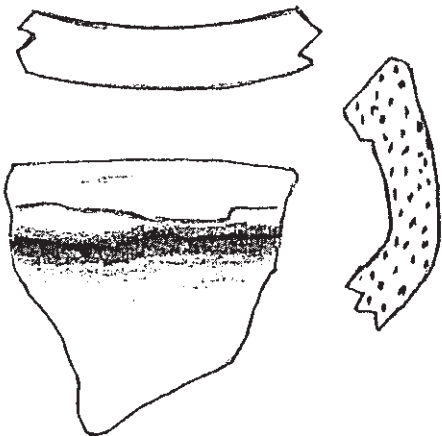
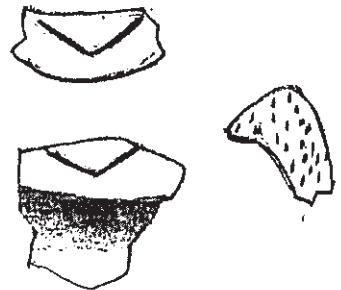
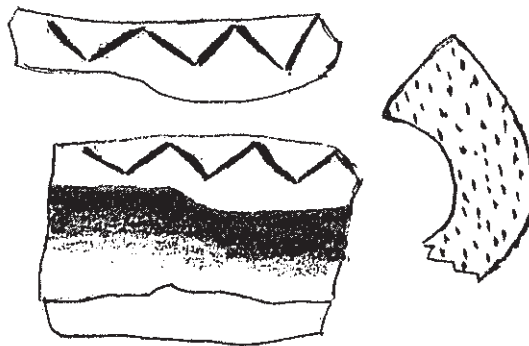
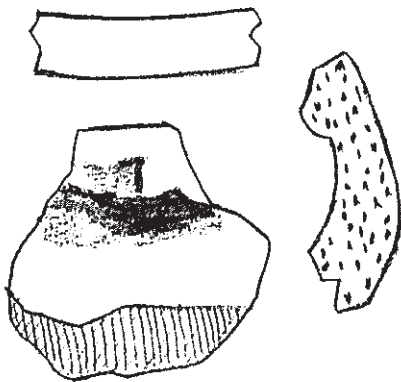
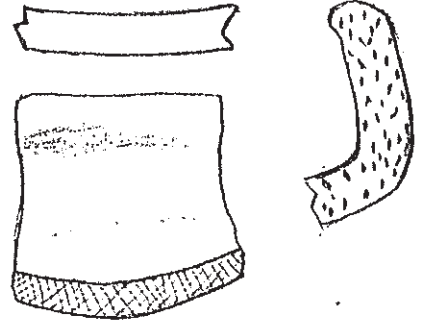
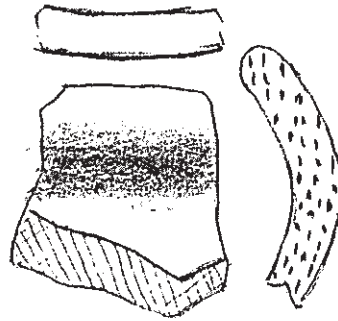
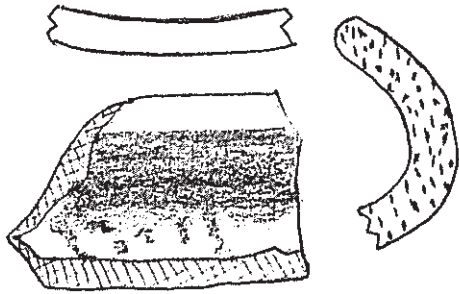




NEAR 3810  
 FEATURE 95-01







HANDLE  
SHERD