Jeffers Petroglyphs: a Recording of 7000 Years of North American History Tom Sanders 4/24/14

Introduction

For thousands of years, indigenous people left a seemingly endless variety of symbols carved into Jeffers Petroglyphs' red stone outcroppings. Elders (Dakota, Cheyenne, Arapaho, Ojibwa and Iowa) have told us that this is a place where people sought communion with spirits and a place to retreat for ceremonies, fasting and guidance. They tell us that there were many reasons for carving the 5000 images at the site. These elders stressed that the carvings are more than art or mimicry of the natural environment. They tell us that the carvings are eloquent cultural symbols of the rich and complex American Indian societies. They say that elders taught philosophy through parables pictured on the rock and American Indian travelers left written directions for those that were to follow. These carvings of deer, buffalo, turtles, thunderbirds and humans illustrate the social life of the cultures that inhabited this area. Some of these images are drawings of spirits. Many of the carvings are the recordings of visions by holy people. Some of the images are healing alters or prayers to the Great Spirit or one of the helping spirits. Dakota elder Jerry Flute tells us that "Jeffers Petroglyphs is a special place, not just for visitors but also for Native Americans. It is a spiritual place where grandmother earth speaks of the past, present, and future. The descendants of those who carved these images consider this an outdoor church, where worship and ceremony still take place." Many elders believe that Jeffers Petroglyphs is an encyclopedia that records historic and cultural knowledge. They believe that petroglyphs are the only remaining evidence for the existence and lives of some peoples.

Archeologists have come to understand that petroglyphs are "lasting cultural images" and "expressions of spiritual and social life (Keyser and Klassen 2001: 3)." In the book *Plains Indian Rock Art,* James Keyser and Michael A. Klassen wrote that, "Rock art in fact chronicles the long histories, the hunting ceremonies, and the religions of the region's diverse Native peoples. They reveal their relationships with the spirit world... (Keyser and Klassen 2001: 4)." Keyser and Klassen have developed a taxonomy that organizes the styles and traditions of Northwest Plains Indian petroglyphs so that we can understand their geographical and chronological distribution. This paper illustrates how archaeology can help us understand the encyclopedia of American Indian history and culture recorded at Jeffers Petroglyphs.

Archaeologists use taxonomic systems to organize the things they study. In this way the relationships between petroglyphs found at a site and between other sites can be understood. The taxonomic system used in this paper was presented by archaeologists James D. Keyser and Michael A. Klassen in their 2001 book *Plains Indian Rock Art*. The result of a taxonomic system is a typology or the classification of things according to their characteristics resulting in an ordered system that indicates innate relationships. The typology is made of things categorized into traditions and styles which are

petroglyph styles and traditions they have investigated. When their taxonomic system is applied at Jeffers Petroglyphs, a considerable diversity of types is found. These diverse types are distributed throughout much of North American and were made during a seven thousand year time period. The Jeffers Petroglyphs site is situated along an ancient extensive cross continental intertribal trade network that shared raw materials, technology, spiritual beliefs and diverse life ways strategies between indigenous people across North America. This paper proposes that the petroglyphs at this site record a 7000 year history of much of North America.

Jeffers Petroglyphs Historic Site

The Jeffers Petroglyphs Historic Site preserves over two thousand American Indian images pecked into solid horizontal irregular shaped Sioux quartzite outcrops. These protrusions of bedrock were ground smooth and flat by glaciers 14,000 years ago. The carvings were created by direct percussion using a hammer stone of rock harder or of equal hardness such as a chert cobble. The largest outcropping would fit into a rectangle 50 yards wide and 300 yards long. This outcropping contains the majority of the carvings. The petroglyphs illustrate bison, salamanders, turtles, elk, human stick figures, thunderbirds and various weapons (atlatls, spear points, arrowheads, and lances). The site is embedded in a natural and ancient sacred landscape. The 160 acre site is owned and operated by the Minnesota Historical Society and is part of the society's statewide system of historic sites. The National Historic Registry site (21CO3) is located seven miles west of Comfrey, Minnesota (North Half of the Northwest Quarter [N1/2 NW1/2] Section 9, Township 107 north, Range 35 West).

Jeffers Petroglyphs is situated on the crest of a 23 mile long ridge formed on Sioux quartzite bedrock, known as Red Rock Ridge. It rises some 100 to 300 feet above the landscape in northeast Cottonwood County. The ridge is about 800 feet wide. It dominates the surrounding landscape. Its sloping terrain and the shifting depth of the bedrock provides an unequal distribution on soil depth and water retention that creates diverse micro environments with many distinct plant, insect and animal species.

Applying Keyser and Klassen's taxonomic system to Jeffers Petroglyphs

The following investigation will first discuss the methods used to date the petroglyph traditions used to develop their taxonomy. Then previous efforts to date Jeffers' petroglyphs will be discussed. It will be followed by a discussion of dating petroglyphs at the Pipestone National Monument. This is done to establish the reliability of Keyser and Klassen's taxonomy.

Finally the discussion will turn to the petroglyphs at Jeffers by first defining a particular type of petroglyph and its distribution through time and geography according to Keyser and Klassen's taxonomy. Then the petroglyphs at the Jeffers that fit that type will be illustrated.

Methods used to date Petroglyphs

The different petroglyph types are dated in Keyser and Klassen's taxonomy by

(1) association with dated archaeological deposits; (2) association with dated portable artifacts or art; (3) portrayal of datable subject matter; (4) superimposition of designs; (5) patination and weathering; and (6) chronometric methods. Most of these methods are relative dating techniques, in that they only show one image to be older or younger than another. On the other hand, chronometric methods such as radiocarbon dating are absolute dating techniques, which provide an approximate age in years before the present for a specific image (Keyser and Klassen 2001: 17).

Dating petroglyphs through their **association with archaeological deposits** works by the following logic: rock art is contemporaneous or older than the dated material found in the deposits they are buried in. For example, southwestern Saskatchewan boulders have petroglyphs and pictographs covered by deposits containing late prehistoric artifacts. At the Valley of The Shields petroglyph site, tools found in deposits near the carvings and have been linked to the making of the rock art provided a date of 1100 A.D. These situations imply minimum dates not an absolute date for their respective rock art (Keyser and Klassen 2001: 17).

Sometimes, people created the same designs on both immovable rock art and small movable objects. When the portable objects are found in a context that has been absolutely dated the related non-portable rock art can be assigned a relative date. An examples given by Keyser and Klassen of dating by **association with dated portable art** follows: "In the Black Hills of South Dakota, a few painted and incised sites show forked eye and bellowing bison motifs almost identical to images carved on Catlinite tablets and pottery from Oneota culture sites in Iowa and eastern South Dakota...These cultures participated in the Southern Cult ceremonial complexes between approximately A.D. 1300 and 1800 (Keyser and Klassen 2001: 18)".

The **portrayal of datable subject matter** by petroglyph images is another way to assign dates to rock art traditions. Depictions of bows and arrows are dependable time indicators. Since the bow and arrow roughly replaced atlatls around 500 A.D, atlatl images generally date before 500 A. D. and bows and arrows date after that date (Keyser and Klassen 2001: 20).

The **superimposition of designs** dating method is based on the law of superimposition. This law states that when a petroglyph is superimposed on another petroglyph, the underlying petroglyph is older than the superimposed petroglyph. However, it must be remembered that the superimposed image might have been made one hour or one hundred years after the older image was made. A reliable generalized chronology of superimposed designs or traditions can be developed when a pattern of superimposed designs appears over a large range of sites. Also, when specific styles or traditions have been dated by other techniques, these other method dated styles may be used to calibrate a more reliably generalized chronology (Keyser and Klassen 2001: 22).

The amount of the **patination and weathering** of a petroglyph may be used to determine a relative date. Petroglyphs are often formed by pecking and/or abrading through a dark patina or varnish on rock leaving an image that is lighter in color than the surrounding rock. Over time the image will repatinate and darken, eventually becoming as dark as the surrounding rock. Thus creating a rule that states that the greater the degree of repatination, the older the petroglyph. Of course this is a relative date. Experimental techniques for measuring patination are being developed (Keyser and Klassen 2001: 23). Again a generalized chronology can be developed "If certain motifs or traditions at many different sites consistently appear older on the basis of relative weathering and repatination (Keyser and Klassen 2001: 24)."

Two chronometric methods have been used to date petroglyphs: accelerator mass spectrometry (AMS) and cation ratio (CR). AMS is a form of radiocarbon dating. This method measures the rate of decay of the carbon 14 isotope found in all living things. When a plant or animal dies it quits absorbing carbon 14 and the isotope decays into the stable carbon 12. By measuring the amount of carbon 14 decay the date of the death of the animal or plant can be determined. In the past, large amounts of organic material were needed to perform this measure. AMS requires a relatively small amount of charcoal found in pigments or carbon found in lichen growing on petroglyphs to determine minimum dates. CR dating measures the slow leaching of potassium and calcium compared to non-leaching titanium in rock varnish. The rate in the decreasing of the ratio of potassium and calcium to titanium is constant through time. Both of these dating techniques are in the early stages of development. It has been noted that the possibility of contaminants in AMS samples raises the possibility of unreliable dates. Also, CR leaching rates are site specific and the leaching rate as been determined for just a few sites. Other methods of dating are needed to corroborate the reliability of these chronometric methods. Keyser and Klassen claim to have carefully assessed CR and AMS dates for their determination of dates for petroglyph traditions (Keyser and Klassen 2001: 24).

Testing the accuracy and applicability of Keyser and Klassen's taxonomy through the petroglyphs of the Pipestone National Monument.

Because of the difficulty of dating the Jeffers site and its large number of glyphs and complex petroglyph styles, this paper uses a less diverse set of petroglyphs from a nearby site with archaeologically established dates (Pipestone National Monument) to test the reliability of Keyser and Klassen's taxonomy for analyzing petroglyph sites. First we will look at the reasons for the dating difficulties at the Jeffers site and the previous archaeologically established dates for Jeffers Petroglyphs.

Researchers of Jeffers Petroglyphs have found dating the site and its images difficult because there are no diagnostic or datable artifacts associated with the site other than the carvings themselves. No occupation or other cultural activity sites associated with the site has been found or identified. Indeed, no tools used to make petroglyphs or any diagnostic artifact has been found near its petroglyph bearing outcroppings. According to Gordon Lothson, the petroglyphs have defied dating through superimposition or patination. He believed the variation in climate during the last 2500 years made measuring the variation in lichen growth, weathering or patination unreliable for dating.

The use of superimposed rock carvings as an aid in dating petroglyphs presents much the same problem as the use of physical changes in the rock surface. All the superimposed carvings at the Jeffers site were produced by pecking the rock surface in such a way as to make it difficult to determine where one glyph ends and another begins... Even attempts to separate carvings based on differences in carving style and size, as opposed to differences in subject matter have failed. The problem is compounded by a lack of superimposition where it would be the most useful. Those rock carvings that exhibit differences in subject matter, which those most likely to reflect temporal and cultural differences, are practically never found superimposed. Thus the separating of older carvings from the newer, superimposed ones is of little value at the Jeffers site (Lothson 1976: 29).

Lothson found that "Dating the Jeffers Petroglyphs using a technique based on subject matter has been more successful (Lothson 1976: 29)." He found approximately one hundred atlatls and one bow and arrow carving to be the time markers that would form the foundation for his dates for the Jeffers site. He first established that atlatls have been used as long ago as 15,000 B. P. However, he noted that archaeologists believed that "one of the major occupations of the northern Plains occurred during the Middle prehistoric period dating from 3000 B.C. to 400 A.D (Lothson 1976: 30). He believed that during this period most of the cultural activity occurred at the site. He supports the 400 A. D. terminal date for high activity with the fact that there is only one bow and arrow petroglyph recorded at the site. He establishes the date for the appearance of bow and arrows in the area with the arrival of small notched Avonlea points at around A.D. 460. In addition, he believed petroglyphs resembling large halved eared stone and tanged copper points suggested Late Archaic dates of 1500 B.C. to 500 B. C. for high activity at the site. However, Lothson recognized that other carvings suggested Woodland and Late Prehistoric and Historic activity at the site. "Numerous carvings at the Jeffers site are similar in form and subject to symbols depicted by historic Dakota, Oto, and Iowa Indians. They comprise a second major group of carvings that would date from the late prehistoric period, from 900 A.D. to

1750 A. D. (Lothson 1976: 31)." The terminal 1750 A. D. date is supported by the fact there are no horse petroglyphs at Jeffers. Horses appeared in the area around 1750 A. D. Lothson's dates for cultural activity for Jeffers are 3000 B.C. to 1750 A.D.

The cultural activity dates for the quarries and the ninety petroglyphs at the Pipestone National Monument have been reliably established through a multiplicity of corroborating evidence. Projectile point types from archaeological excavation sites at the monument have "indicated a human use of Pipestone extending from the Late Archaic period to the Late Prehistoric as well as contact and modern times...1000 B. C. to A.D. 1700 (Scott, et al 2006: 214) Three hundred and sixty Pipestone artifacts from the Monument have been found in archaeological context from as far away as Alabama, Oklahoma and northern Manitoba. These Pipestone artifacts have been sourced to the Monument through x-ray powder diffraction analysis. Their archaeological context suggests that pipestone was used to make things for the last 2500 years (Scott, et al 2006: 214). In An Archaeological Overview of Pipestone National Monument, Minnesota, the authors stated "although the age of rock art is difficult to establish, a gross estimation may sometimes be made on the basis of the subjects depicted as glyphs, or what is omitted (Scott, et al 2006: 281)." Following this logic, they note that the lack of horses and fire arms depicted in the sites petroglyphs suggested a terminal date of A. D.1750 for petroglyph activity. The authors (Scott, et al 2006) also note the lack of petroglyphs depicting archaic period atlatls and tanged copper projectile points like those found at nearby Jeffers Petroglyphs. They believe that the lack of these petroglyphs suggests beginning dates for petroglyph activity of 200 B.C. at the monument. The end date for archaic material culture in southwest Minnesota and thus the beginning date for petroglyphs at the monument were determined for the authors (Scott, et al 2006) by Scott Anfinson in Southwest Minnesota Archaeology (1997:42). Supporting these dates established through negative data is the following positive data. Triangular body anthropomorphs or human forms and thunderbirds are found at the Monument. Noted Rock Art researcher Jack Steinbring has suggested that these forms originated after A.D. 1 (1993: 24). Scott, et al turned to the taxonomy developed by Keyser and Klassen to date petroglyphs at the Monument. Their attention focused on the bird and human footprints found at the site (Scott, et al 2006: 281) (see figures 1 and 2)



Figure 1. Derby petroglyph panel at the Pipestone National Monument (after Clark 1996)



Figure 2. Pipestone Petroglyphs drawn in 1889 by Theodore Lewis (After Winchell 1911: Plate VIII)

Keyser and Klassen defined the Hoofprint tradition as follows:

Executed with careful attention to realistic details, these petroglyphs are instantly recognizable as the tracks of bison, deer, elk, and even horses and mules. [Figure 3] Although Hoof-print tradition petroglyphs are predominantly cloven-hoofed ungulate tracks, a few horse hoofprints, bird tracks, large animals, and human designs are also carved at some sites.... Varying in size from single tracks to concentrations of more than two hundred individual designs, sites sometimes include groups of hoofprints associated with carvings of bison, elk, humans, faces, and female genitalia [Figure 4.] Representing the westernmost extension of a widespread rock art tradition common throughout the Eastern Woodlands, ethnographic evidence shows that these Northwestern Plains petroglyphs are related to themes of fertility, fecundity, and the sacred relationship between women and bison (Keyser and Klassen 2001:177).



Figure 3. Hoofprint Tradition styles are shown above: a-c deer, d buffalo and f-h horse (Keyser and Klassen 2001: Figure 12.3).



Figure 4. Other animal footprint styles associated with the Hoof print tradition (after Keyser and Klassen 2001: Figure 12.10).

Scott, et al note that the hallmark image, buffalo hoofprints, are missing from the Monument site. They suggest this is because buffalo were more abundant west of the site. It should be noted that buffalo hoofprint petroglyphs are found at Jeffers Petroglyphs seventy miles east of the Monument. However this fact does not weaken their argument that the hoofprint tradition is present at the site. Keyser and Klassen date the traditions use from A.D. 500 to 1800 (Keyser and Klassen 2001:185). The presence of this tradition and its chronological distribution falls with the previous dates established for the site.

Scott, et al stop short when using Keyser and Klassen's taxonomy. There is more corroborative evidence for dating the Monument's petroglyphs to be found through the taxonomy. Keyser and Klassen defined two petroglyph traditions (Ceremonial and Biographical) common to the Northern Plains from A. D. 250 to the late 1800s (Keyser and Klassen 2001:190-253). They differ from earlier petroglyph traditions in that the images are based on outlined forms with humans and animals having square, round, oval or triangular forms, while earlier images are solidly pecked and the images are made in stick figures or more natural rounded forms. Keyser and Klassen describe the Ceremonial tradition as follows: "Ceremonial tradition rock art is among the most common and wide spread on the Northwest Plains., with sites scattered from southern Alberta to southern

Wyoming, and from the Rocky Mountains to the Black Hills...The most prevalent designs are shield bearing warriors, elaborate humans, conventionalized animals, ritual objects, and weapons...The detailed, static, and carefully executed designs of this tradition, generally found as isolated single images or in small juxtaposed groups, are presented in a manner suggesting ceremonial ritualistic purposes...religious iconography (Keyser and Klassen 2001:185)." See figure 5 for illustrations of the Ceremonial tradition.



Figure 5. Ceremonial tradition images (After Keyser and Klassen: Figure 13.1)

The Biographical tradition shares many of the forms of the Ceremonial tradition. However, the subject matter of the Ceremonial tradition is visions of the spirit world and the Biographical tradition's subject matter is narrative in structure and focuses on everyday occurrences and historic events. See Figure 6 for illustrations of the Biographical tradition.



Figure 6. Biographical tradition images (after Keyser and Klassen: Figure 14.2)

There many images shown in figures 1 and 2 from the Monument that in form resemble images found in the both the Ceremonial and Biographical traditions: humans and thunderbirds with triangular outlined bodies, humans with full or bottomless square bodies and outlined round bodied animals with heart lines. It appears that the petroglyphs of the Monument do not form a narrative. The Derby panel images do seem to fit the Hoofprint tradition with its hallmark seemingly random arrangement. It is possible they are arranged in a non-linear narrative we can not read. The Pipestone Monument petroglyphs recorded by Theodore Lewis were removed from their context before he traced them. There are two earlier recordings but the accuracy of their representation of the images or their arrangement is unclear (Scott, et al 2006: 232-235).

A few of the petroglyphs recorded by Lewis are stick figure forms that resemble Early Hunting tradition or En Toto traditions discussed later in this paper. These figures may represent ubiquitous stick figures from any age, holdovers from earlier times representing the end of their use in the Early Woodland period well within the parameters of dates established for the site. If we accept that the petroglyphs at Pipestone are connected with the Hoofprint, Ceremonial and Biographical traditions presented by Keyser and Klassen one can assume with some probability that the dates assigned to these traditions are the dates of use of the petroglyphs at the Monument. Since the dates for these traditions fit within the accepted dates for the site, one can with some certainty, accept the reliability of the taxonomy. It should be noted that the archaeological and historic evidence suggest that the site was dominated for the last 1000 years by Siouan speaking people (Zedeno, Maria Nieves and Robert Christopher Basaldu 2004: iv-vi) and Keyser and Klassen believe that the Hoofprint, Ceremonial and Biographical tradition were used by Siouan speaking people (2001: 186, 211 and 243).

Early Hunting Tradition







Extensive site complexes at Whoopup Canyon, Wyoming and Red Canyon, South Dakota (after Keyser and Klassen 2001: figure 6.1)

Left Figure 7. Early Hunting Tradition General Chronology (after Keyser and Klassen 2001: figure 6.10)

Early Hunting Tradition Type Description

The Early Hunting tradition is the oldest and longest-lived petroglyph tradition in the western half of North America (Figure 7 and 8). Images of this tradition are constructed around hunting scenes dominated by animal images that are occasionally accompanied by human figures and hunting equipment. "A great deal of formal variation exists in the Early Hunting tradition, and Tratebas (1993) has suggested that some of this variation may indicate the presence of several temporally or functionally separated styles... Between 70 and 80 percent of identifiable Early Hunting tradition petroglyphs show animal figures of at least ten different species: elk, deer, pronghorn antelope, mountain sheep, bison, rabbits, dogs, cougars, turtles, and snakes. (Keyser and Klassen 2001:78)."

Animal forms created in the Early Hunting Tradition are generally quite similar but demonstrate a broad spectrum in details. Hooved animals show a variety of forms that include: ball-shaped hooves and inverted, V-shaped cloven hooves. Cloven-hoofed animals were drawn with open mouths, dewclaws, and ears. Elk images use main beams with side tines to illustrate antlers. Animals of the Early Hunting tradition often use postures leaning at an angle upward from the horizon, leg positions (outstretched or bent) and open mouths to illustrate running or leaping animals Deer images use simple branching antlers. (Keyser and Klassen 2001:78-9).

Human figures are included in 20 % of the Early Hunting Tradition scenes. They are often drawn with round-body, oval-body, and stick figures without adornment and sometimes shown holding weapons, wearing masks or headdresses. Some humans are drawn in profile and others with a front-on view. Most often they are drawn with realistic proportions. Sometimes their torsos unnaturally stretched. Some images are phallic. A variety of hunting tools are illustrated: spiral whips or flails to drive herds, goads (herding sticks) atlatls (with single finger loops and oversized circular weights), thrusting spears, noise makers and loop lines (snares) (Keyser and Klassen 2001:79).



Figure 9. "Early Hunting Tradition site form Dinwoody area of Western Wyoming" (after Keyser and Klassen 2001: figure 6.2).

Most groups of Early Hunting tradition petroglyphs are arranged in "loosely structured herds that include males, females, and juveniles of the same species, or groups of several different species" (Figure 9) (Keyser and Klassen 2001:80. Sometimes a group is shown walking in single file. Single individuals are most rare. (Keyser and Klassen 2001:80).



Figure 10. "Ball feet' animals, like the elk (a) are an early style of the Early Hunting tradition at Whoopup Canyon in the Black Hills" (after Keyser and Klassen 2001:6.5).

Archaeologist Alice Tratebas has established the ball feet type as the oldest of Early Hunting tradition forms (Figure 10). "The oldest shows left facing straight-legged, , somewhat static elk with ball shaped hoofs, they are associated with stick figure humans whose upright arms have outsized hands" (Keyser and Klassen 2001:84) Keyser and Klassen seem to be most comfortable with the oldest dates of 7000 years before present. However, Tratebas has reported cation ratio and carbon 14 dates for the oldest ball feet petroglyphs of 9000 and 11,500 years before present (Keyser and Klassen 2001:77, 83-85, Tratebas 1997).

Tratebas (1993) began a comprehensive multiyear research program aimed at completely recording the rock art in Whoopup Canyon and dating it by means of the rock varnish found on many sites. As yet only partially reported, Tratebas's research has provided evidence of the earliest dates for Northwestern Plains rock art, and it also suggests that the Early Hunting tradition is one of the longest-lived rock art traditions in western North America. Her work also identified several related but distinctive "patterns" or styles within the Early Hunting tradition, and several of these stylistic indicators are also present at the Wind River basin sites. (Keyser and Klassen 2001: 77).

Early Hunting Tradition at Jeffers Petroglyphs

One of the most common petroglyph traditions found at Jeffers Petroglyphs is the Early Hunting Tradition. Below in Figure 5 you find a photo of elk petroglyph recently uncovered when lichen was removed from the rock face. By comparing this photo with an illustration of an Early Hunting Tradition elk identified by Keyser and Klassen in Figure 6, you will see that they share many diagnostic attributes of the Early Hunting Tradition.



Figure 11. Jeffers Petroglyphs elk/deer carving



Figure 12. Early Hunting Tradition Elk from Whoopup Canyon in the Black Hills (after Keyser and Klassen 2001:6.5)

Lets investigate a set of five buffalo found at what Lothson called Station 21. The five buffalo found in the lower right of the station are of a distinct style and they were made with unique methods. The pecks are small and the edges of the images are well-defined and finely made. The carvings surrounding the buffalo seem to be made differently and are stylistically different. The buffalo appear to have spears stuck in them. However, the spears were not made with the same small pecks and well-defined edges. It looks as if the spears were added at some later time, perhaps to kill the buffalo. Indeed, Keyser and Klassen note that many "groups of animals show evidence of more than one episode of petroglyph manufacture" (Keyser and Klassen 2001:81). Figure 14 shows the buffalo



group without the later surrounding and superimposed images found in Figure 13. Figure 15 shows a close up photo of one of the buffalo from this group of five.

Figure 13. Station 21 (after Lothson 1976: figure19)



Figure 14. Station 21 Buffalo only (after Lothson 1976: figure 19)

This group fits Keyser and Klassen's description of the earliest style of Early Hunting tradition petroglyph types. They have straight legs with ball feet. (Figure 8 and 9) They are arranged in a loose herd. The buffalo have different sized horns and therefore fit another criterion of showing different aged animals. Also, the stick figure human with outstretched arms fits the style. Keyser and Klassen's taxonomy suggest that these are the oldest petroglyphs at Jeffers and are at least 7000 years old. Keyser and Klassen support Archaeologist Linea Sundstrom's position that the purpose of these images was for use as teaching aids to teach hunting and spiritual concepts (Keyser and Klassen 2001:87; Sundstrom 1989, 1990, 1993). In Figure 14 you will note that the buffaloes are arraigned in a

spiral indicated by horn size beginning with the smallest horned buffalo on the bottom far left. The next largest horns are found on the buffalo on the bottom far right. On the top right is the next larger horned buffalo. Next to it on the top left is an even larger set of horns. In the center of the herd is the largest buffalo with the largest horns. Perhaps the five buffalo petroglyphs represent the life cycle of the buffalo. Dakota elders have suggested the images honor the gifts the buffalo give to the people (clothing, food, tools, etc.) by praying for their health, prosperity and fertility. This Dakota concept of reciprocity was followed when gifts were received from all relatives whether two legged or four legged.



Figure 15. Ball foot petroglyph (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection)

There are many more petroglyphs that fit the Early Hunting tradition at Jeffers Petroglyphs. Figure 16 illustrates an image of a elk or deer from Jeffers Petroglyphs that is similar to an Early Hunting tradition elk noted by Keyser and Klassen in Figure 17. This style of petroglyph dates any where from 7000 to 3000 years old. The Early Hunting tradition petroglyphs found at Jeffers suggest long distance travel or connections of people or ideas in what archaeologists call Early Archaic from 7000 years ago. Later discussion in this paper will suggest continued cultural and spiritual interaction with the Jeffers Petroglyphs site for at least 7000 years.



Figure 16. Early Hunting Elk found at Jeffers Petroglyphs but not listed on Lothson's stations (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection)



Figure 17. Early Hunting Tradition Elk (after Keyser and Klassen 2001: figure 6.13).

En Toto Pecked Tradition





Above Figure 18. En Toto Pecked Tradition Distribution

(after Keyser and Klassen 2001: figure 9.1)

Left Figure 19. En Toto Pecked Tradition General Chronology (after Keyser and Klassen 2001: figure 9.6)

En Toto Pecked Tradition description

This tradition is dated between 3000 BP and 1000BP (Figure 19.) Its distribution is centered in Bighorn Basin of western Wyoming and southern Montana (Figure 18). The Black Hills area has extensive examples of this tradition. It consists mostly of groups of humans (Figure 20.). Often they exhibit exaggerated sexuality. Action is often suggested by bent legs. Heads are formed by round knobs on short necks. The heads lack facial features. Hair styles and head dresses are often portrayed. Arms are spread upward. Males are most frequent. Animal forms are rare and the species is usually unidentifiable. It is most frequently found at sites with other petroglyph traditions. They were created by direct percussion using a hammer stone. En Toto tradition sites are mostly found on sandstone cliffs in grasslands or along river valleys in rolling prairie (Keyser and Klassen 2001:127, 130, 131 and 135). Since animals and weapons are rare in this tradition, hunting is not an important feature of this petroglyph style. Humans groups often portrayed as mixed sex and age individuals suggesting family or kinship related ceremonies (Keyser and Klassen 2001:137). Perhaps these scenes of communal ceremonies illustrate the tribalizeation of plains people during the "Woodland" period. Tribalism was needed because of the intensification of increasingly diversified subsistence strategies especially horticulture and trade economies that required longer distant and stronger social and political bonds to support semi-sedentary life styles, specialized skills and technological practices. The previous Early Hunting tradition might represent the quest for increased hunting skills reflected in the Paleo and Archaic periods. The archaeological record of this period suggests that buffalo hunting skills greatly improved as time went by. For example the number of buffalo remains found at individual kill sites increased over time. Indeed, Elders believe that the carvings at the site tell us of the human quest for stronger relational bonds with the spirit world, other humans, animals, plants, the environment and all that binds them together. They tell us that the site is about life and survival.



Figure 20. En Toto Pecked tradition family group (after Keyser and Klassen 2001: figure 9.1).

Figures 21 and 22 illustrate En Toto Pecked tradition forms and their location at Jeffers Petroglyphs



Figure 21. Station 18 at Jeffers Petroglyphs (after Lothson 1976: figure 16).



Figure 22. En Toto Pecked tradition group (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection)

Figure 23 shows En Toto unidentifiable species. Figures 24 and 25 illustrate En Toto Pecked tradition animal forms and their location at Jeffers Petroglyphs.



Figure 23. En Toto Pecked tradition unidentifiable species (after Keyser and Klassen 2001: figure 9.4).



Figure 24. Station 17 at Jeffers Petroglyphs (after Lothson: figure 15).



Figure 25. En Toto Pecked tradition animals (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection)

Pecked Abstract Tradition





Above Figure 26. Pecked Abstract Tradition Distribution

(Keyser and Klassen 2001: figure 10.1)

Left Figure 27. Pecked Abstract Tradition General Chronology (after Keyser and Klassen 2001: figure 10.8)

Pecked Abstract Tradition Description

The chronological and geographical distribution of this tradition is shown in figures 26 and 27. Its designs "are most often simple geometric forms, such as circles and starbursts, connected by undulating, curving, or grid-like lines [Figure 28]. Despite their variability, these images are linked together into a broadly defined tradition by similarities of form, structure, apparent function and location" (Keyser and Klassen 2001:139). These abstract designs are often associated with fully pecked out hand and footprints. They are constructed in long horizontal arrangements forming grids or mazes connected by curvilinear and rectangular lines. They appear "strung together to make chains of connected loops or circles, lines of dots, ladder like designs, or amorphous clusters of circles and dots (Keyser and Klassen 2001:143). The greatest concentration of these forms is found around the Black Hills (Keyser and Klassen 2001:146). Keyser and Klassen associate this tradition with vision quests (2001:149-50)



Figure 28. Pecked Abstract tradition forms (after Keyser and Klassen 2001: figure 10.2).

Figures 29, 30 and 31 illustrate Pecked Abstract tradition forms and their location at Jeffers Petroglyphs.



Figure 29. Station 7 showing abstract forms at Jeffers Petroglyphs (after Lothson 1976: figure 6).



Figure 30. Grid-like Pecked Abstract tradition form in station 7 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 31. Pecked Abstract tradition form in station 7 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).

Hoofprint Tradition





Above Figure 32. Hoofprint Tradition Distribution

(after Keyser and Klassen 2001: figure 12.1)

Left Figure 33. Hoofprint Tradition General Chronology (after Keyser and Klassen 2001: figure 12.9)

Hoofprint Tradition Description

Figures 32 and 33 outline the chronology and distribution of the Hoofprint Tradition. See Figures 3 and 4 for illustrations of the hallmark glyphs of this tradition. Keyser and Klassen's description of the tradition is found on page seven of this document.

Bison body and face figures are often associated with buffalo hoofprints. Bird, bear, feline, horse, mule, human hand and foot prints are found at sites utilizing this style. The petroglyphs of this tradition are usually found in clusters with no apparent pattern. (Keyser and Klassen 2001: 179-82). Northwestern Plains Hoofprint rock art is part of a much broader rock art macro-tradition found throughout the eastern and central United States (Keyser and Klassen 2001: 184). The distribution of Siouan speaking people very closely corresponds with the distribution of Hoofprint tradition forms. In the Northwestern plains Siouan speaking people include: Mandan, Hidatsa, Crow, Assiniboin, Dakota, Iowa, Otto and Ponca. Dakota traditions include an association of women with bison and reproduction and survival. This tradition perhaps represents ceremonies associated with communal hunts and thanksgiving for the gifts that buffalo provide for the people.

Figures 34-43 illustrate Hoofprint Tradition forms and their locations at Jeffers Petroglyphs.



Figure 34. Station 8 where buffalo hoofprint forms are found at Jeffers Petroglyphs. However, there not shown in this illustration (after Lothson 1976: figure 7).



Figure 35. Buffalo footprint found at station 8 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 36. Buffalo footprints at the Jeffers site not illustrated on Lothon's stations (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 37. Possible horse footprints (upper left) at the Jeffers site not illustrated on Lothon's stations (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure Buffalo 38. Hoof prints with bird footprints at the Jeffers site not illustrated on Lothon's stations (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 39. Station 28 where buffalo hoofprints tradition forms are found at Jeffers Petroglyphs. However, they are not shown in this illustration (after Lothson 1976:22).



Figure 40. Bear footprints associated with Hoofprints and bird footprints at the Jeffers site at station 28 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 40. Split hoofprint associated with a baby moose/elk/buffalo image at the Jeffers site at station 28 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 42. Hoofprint Tradition vulvaforms (after Keyser and Klassen 2001: figure 12.3).



Figure 43. Buffalo with vulvaform found at station 8 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).

Ceremonial Tradition





Left Figure 44.Ceremonial Tradition General Chronology (after Keyser and Klassen 2001: Figure 13.24)

Above Figure 45. Ceremonial Tradition Distribution

(after Keyser and Klassen 2001: Figure13.1)

Keyser and Klassen defined two petroglyph traditions common to the Northern Plains from A. D. 250 to the late 1800s: Ceremonial and Biographical traditions (Keyser and Klassen 2001:190-253). They differ from earlier petroglyph traditions in that the images are based on outlined forms with humans and animals having square, round, oval or triangular forms. Earlier images are solidly pecked and the images are made in stick figures or more natural rounded forms. Keyser and Klassen describe the Ceremonial tradition as follows: "Ceremonial tradition rock art is among the most common and wide spread on the Northwest Plains., with sites scattered from southern Alberta to southern Wyoming, and from the Rocky Mountains to the Black Hills...The most prevalent designs are shield bearing warriors, elaborate humans, conventionalized animals, ritual objects, and weapons...The detailed, static, and carefully executed designs of this tradition, generally found as isolated single images or in small juxtaposed groups, are presented in a manner suggesting ceremonial ritualistic purposes...religious iconography (Keyser and Klassen 2001:185)." See Figure 5 for illustrations of the Ceremonial tradition. The Jeffers site has many examples of the Ceremonial tradition. Four are shown in figures 46-49.



Figure 46. Ceremonial tradition square bodied human form from station 14 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 47. Ceremonial tradition round bodied horned turtle form from station 13 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 48. Ceremonial tradition triangular bodied horned human form from station 15 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 49. Ceremonial tradition triangular bodied thunderbird from station 15 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).

The Biographical tradition shares many of the atributes of the Ceremonial tradition. However, the subject matter of the Ceremonial tradition is visions of the spirit world and the subject matter of the Biographical tradition is narrative in structure and focuses on everyday occurrences and historic events. See Figure 6 for illustrations of the Biographical tradition. This tradition is found Alberta to Texas west of the Jeffers site. It dates from A. D. 1750 to 1850 Keyser and Klassen 2001: 241-43). There are no forms fitting this tradition arranged in an apparent narrative. The lack of petroglyphs of the Biographical traditions at Jeffers Petroglyphs supports the lack of firearm and horses images at the site as evidence for an 1750A.D. terminal date for the site.

Cultural affiliations of Jeffers Petroglyphs

The distribution of all the petroglyph styles described in this paper are found at the Jeffers site and as determined through Keyser and Klassen taxonomy is bounded by the contemporary state and provincial boundaries of Oregon, Washington, Alberta, Saskatchewan, Manitoba Minnesota, Wisconsin, Michigan Ohio, Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Tennessee, Missouri, Oklahoma, Texas, New Mexico, Arizona, Nevada and back to Oregon. Discrete stylistic traditions found at Jeffers date from 7000BP to 250BP. This distribution suggests possible connections of the carvings at Jeffers to much of North America and its indigenous cultures for the last 7000 years. However it is not known if the connections demonstrate actual physical presence at the site by people or the movement of ideas from one group to another.

Approximately 70 miles due west of the Jeffers site are the Pipestone quarries Three hundred and sixty Pipestone artifacts from these quarries have been found in archaeological context as far away as Alabama, Oklahoma and northern Manitoba. These Pipestone artifacts have been sourced to the Pipestone National Monument through x-ray powder diffraction analysis. Their archaeological context suggests Pipestone use for the last 2500 years (Scott, et al 2006: 214). Their distribution roughly matches the distribution of petroglyph traditions found at the Jeffers site. The roughly matching distribution of Pipestone and Jeffers' petroglyph traditions supports the notion that ideas and objects were moving to and from the Jeffers site from long distances.

We are indebted for the work done at the Pipestone National Monument on establishing cultural affiliations for that site (Zedeno and Basaldu 2004). Since both sites are sacred, have petroglyphs, and are geographically close, the Pipestone affiliations likely the same for the Jeffers site.

The earliest archaeological evidence found at the site for use of the Pipestone quarries dates to the Middle Woodland period (200 B.C. to A.D. 700). During this period the use of the site was sporadic and archaeological evidence suggest that people only camped briefly at the Monument. The small amount of confirmed Early Woodland findings of Catlinite (from sites other than the Monument) indicate that during this early period the quarries were only occasionally used by those passing through the area.

During the Late Woodland (A.D. 900-1150), quarrying activities picked up at the site. During this period people using Great Oasis tradition ceramics visited the site. People practicing Great Oasis traditions lived 30 miles east of the Monument at the Big Slough site south of Slayton, Minnesota. Thus indicating the quarries were used by people who were living close by.

Also artifacts from the Initial Variant of the Middle Missouri Tradition (A.D. 1100-1250) are found at the site. This archaeological tradition is associated with the ancestors of a "Plains Village" group known as the Suthern Mandan. This connection to a historic group is based on the following evidence:

The strongest support for this affiliation comes from origin and migration traditions...These traditions relate a northwestward migration up the Mississippi River and into the Missouri River drainage and mention specifically the existence of an ancestral Mandan village located in the immediate vicinity of the Pipestone, there is at least one known candidate site at the location mentioned in the stories. Likewise, these traditions explicitly mention the discovery and use of the red pipestone by Good Furred Robe, as well as the taboos instituted by Lone Man. Instances of ritual use of the Leaping Rock by the Mandan and authorship of nearby petroglyphs were recorded by George Catlin (Zedeno and Basaldu 2004:iv).

There is copious evidence for people practicing Oneota cultural traditions living near the Monument, quarrying and trading Catlinite from AD 1250 to 1700. Archaeological evidence for two variations of Oneota culture has been found at the Monument: Orr and Blue Earth-Correctionville. The Orr variation has been clearly found to be ancestral to the Ioway; and Blue Earth-Correctionville is roughly connected to the Oto or Ioway. The Oto, Iowa, Omaha, Ponca are related Siouan speakers.

Oneota variant grit tempered ceramics that have been associated archaeologically with the Omaha-Ponca communities have been found at the monument and at the Blood Run site in northwest Iowa. Early colonial French period (1650-1700) historic records (maps and travel accounts) "suggest that the Monument and its immediate vicinity were occupied by the Ioway, Oto, and Omaha-Ponca. At that time the Ponca were still a clan of the Omaha Nation (Zedeno and Basaldu 2004: v)."

Ioway, Omaha, and Ponca oral traditions tells us that their ancestors lived near the Monument at what now known as the Blood Run/Rock Island National Historic Landmark. "The Ponca also have a tradition that explains the making of the Monument's petroglyphs. The Ioway, Oto, Ponca, and Omaha have a strong tradition of ritual catlinite pipe use and curation, recorded since early colonial times (Zedeno and Basaldu 2004: v)."

Sometime between A.D. 1700 and 1750, Dakota speakers took control of the catlinite quarry and began to trade it to other groups, including the Ioway and the Mandan. All Dakota bands quarried at the site (Sisseton, Santee, Mdewankanton, and Wahpeton, and various Lakota bands. "Indian testimonies recorded by Catlin, Nicollet, Maximilian, and Long, among other writers of nineteenth-century America, mention various groups as claiming past access to the quarry or actually visiting the quarry. These include Ojibway, Sac, Fox, Cheyenne, and Arikara. All these instances seem to be of historic date, except for the Arikara, who left material evidence of their presence at the Blood Run/Rock Island National Historic Landmark and who may have acquired a relationship with the pipestone quarry from the Omaha-Ponca in protohistoric times (Zedeno and Basaldu 2004:v, vi)."

The Cheyenne lived in Minnesota before the year 1700 in an area bounded roughly by the Mississippi, Minnesota, and upper Red rivers. Explorer Jonathon Carver reported that he saw "Schians" in a great camp that he visited on the Minnesota River in 1766, and the "Schianese" lived farther west (Carver 1796: 56). Dakota oral traditions tell us that the Cheyenne had once later lived along the Minnesota River, but moved west (Grinnell 1962:16).

All the above mentioned groups have possibly interacted with the Jeffers Petroglyphs site in pre-contact and contact times. However, the only documented historic account of cultural activity at Jeffers follows: In 1998, Dakota people from Fort Peck, Montana visited Jeffers Petroglyphs for prayers and to leave offerings. They came in fulfillment of a promise made by Dakota leader Standing Buffalo during the US Dakota War of 1862. Standing Buffalo came to the site in the midst of the war to pray for guidance. Afterwards, he and his people fled to Canada. Standing Buffalo vowed that his descendants would someday return to the petroglyphs site for thanksgiving. After the 1862 war some of Standing Buffalo people returned to the US to live at the Fort Peck Reservation in Montana.

Conclusion

This paper seeks to illustrate that the diverse petroglyph traditions found at Jeffers Petroglyphs records a history of indigenous cultures throughout North America and for at least 7000 years. The stylistic relationships for Northwest Plains rock art is shown in Figure 45. Further investigation will clarify and deepen our understanding of Jeffers Petroglyphs' connection to this history. It is important to note the traditions described by Keyser and Klassen that are not found at Jeffers. Most noteworthy of these missing traditions is the Biographical traditions. Its predecessor the Ceremonial tradition introduced the concepts of action and narration in a horizontal arrangement to rock art in the late pre-contact period and culminated in the pictography of the contact period's Biographical tradition. Later, this tradition would spawn the pictography of winter counts and ledger art (Keyser and Klassen 2001:190-253). The absences of this tradition might represent the eastward focus of the expanding Siouan speakers during late pre-contact period and contact period. Before this time it appears the Jeffers exhibits a western focus.

The dates for the Jeffers site suggested by this paper mirrors the dates suggested by Gordon Lothson's seminal book on the site, except that it extends the date of the earliest activity at the site. Both this paper and Lothson's work correlate with each other. As discussed earlier in this paper, Lothson based his beginning date for activity at the Jeffers site on the advent of larger populations in the northern plains about 5000 years ago. This is sound reasoning but does not rule out the earlier date of 7000 years suggested by the presence of the ball feet Early Hunting tradition at the Jeffers site. People were at least hunting in the area 7000 years ago. At this time southwestern Minnesota became a part of an expanding prairie biome with buffalo as a keystone species. Folsom points have been found on the surface in counties surrounding the site including its home county, Cottonwood (Scott 1997: 29). However, pre-Folsom period Clovis points have not been found near the site. Nor do any of the carvings at Jeffers reflect the mega fauna or vegetation of the Clovis period. The carvings at Jeffers reflect a prairie environment in which Archaic technologies thrived beginning 7000 years ago. Early Archaic points have been found in archaeological context within forty miles of the site (Scott 1997: 38). The lack of mega fauna images at the site and presence of prairie species limits the maximum date to 7000 years ago. Since there were people in the area 7000 years ago, it is possible the carvings are that old. To summarize, the ball feet buffalo at Jeffers suggests a maximum age of 7000 BP and the minimum age for petroglyph manufacturing at the site is AD 1750. Also, it is possible when the Iowa moved out of southern Minnesota around 1700, the petroglyph making tradition left with them. However, the site's use as a spiritual site has continued to the present.

Further research should seek to answer the question: What other regional and local traditions have not been identified at Jeffers Petroglyphs? For example, there are some petroglyphs whose designs might be associated with eastern North America centered

Mississippian symbols such as the hand with eye (or hand over mouth), circle with a cross and bi-lobed arrow symbols found at Jeffers (Figures 47-48). A Mississippian



Figure 50. "Stylistic relationships for Northwest Plains rock art" (after Keyser and Klassen 2001: figure 18.1).



Figure 51. Hand and eye or hand over mouth petroglyph found at station 6 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 52. Bi-lobed arrows found at station 8 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).



Figure 53. circle with cross (southeastern Indigenous symbol representing the sun or Siouan four directions symbol) found at station 7 (Photograph by Gordon Lothson 1971 Minnesota Historical Society collection).

cultural influence at Jeffers is expected since, Mississippian culture influenced habitation sites are found near Jeffers at Cambria and Red Wing Minnesota.

It is important to note that there are styles of petroglyphs at Jeffers that do not fit any of Keyser and Klassen's taxonomy. These styles might fit other tradition in other regions. Also, further research should investigate how other petroglyph sites' traditions compare to Jeffers' traditions: Do they have as many traditions? Do their traditions cover as much geographic area or time?

Some other important questions to answer about Jeffers Petroglyphs are (1.) How did the traditions come to Jeffers Petroglyphs? (2.) Did people make pilgrimages to Jeffers? (3.) Why was Jeffers chosen as a place to make carvings? Long distance trade that brought individuals or ideas might explain their presence. Pipestone from the nearby Pipestone National Monument has been found from northern Manitoba, Oklahoma and Alabama. The Sioux quartzite bedrock surrounding Jeffers Petroglyphs does contain layers of red pipestone (Sanders 2011). Perhaps people came to this site to mine pipestone to form objects, to grind into paint pigment and/or to collect Sioux quartzite slabs to use as grindstones.

Joseph Nicollet, commissioned by the U.S. Government to survey the Upper Missouri and Mississippi River Basins in the 1830's placed a source of pipestone in Cottonwood

County. The area was called by the Dakota I-MNI-ZA KA-SDE-CA. He said of this place: "Roches-Rouges-Coupe-sur-les Bords-des-Deux-Riviers" (red rock cut between the edges of the two rivers). This has reference to the sources of the Little Cottonwood and Mound Creek, Cottonwood County, whose banks were cut into the pipestone strata (Durand 1994: 29-30)."

Another historic reference to the Little Cottonwood quarries near Jeffers Petroglyphs comes from the meaning of the Dakota name for the headwaters of the Little Cottonwood recorded by Durant: I-MNI-ZA KA-SDE-CA. He determined Dakota place names in Minnesota by studying "the field-notes and maps of Joseph Nicollet, commissioned in the 1830's by the U.S. Government to survey the Upper Missouri and Mississippi River Basins... Other early travelers such as Zebulon Pike, Giacomo Beltrami, Major Long and the Protestant missionaries all left these delightfully descriptive names in lesser number (Durant 1994:IV)." Durant translated I-MNI-ZA KA-SDE-CA to mean "rock to split" Several fluent Dakota elders (Carrie Schomer, Sandra Mckay, Magaret Roscelli, Gordon Wasteste, Joe Williams, and Aaron Mckay) translated the phrase differently. The consensus among the elders is that KA-SDE-CA does mean "to split." Stephen R. Riggs defines it to mean, "to split" (1992:267). Riggs defined I-MNI-ZA as "a rock, rocks" (1992: 197). A. W. Williams defined I-MNI-ZA to mean "ledge" (1885: 105). Since the common Dakota word for rock or stone is "inyan," the elders determined that I-MNI-ZA meant a specific kind of rock. Another Dakota place name I-MNI-ZA SKA (rock-white) refers to the white sandstone bluffs along the Mississippi at St Paul (Durant 1994:30, Williams 1885:105). Note that the white sandstone of St Paul and the Sioux quartzite are rough grainy minerals made from silica sand. Together the elders defined the phrase to mean, a rough rock layered like stone building. Sandra McKay remembered her mother used the word I-MNI-ZA to refer to bile or stomach acid coming into her throat when she had an upset stomach. Elders then decided that I-MNI-ZA KA-SDE-CA might refer to the water emerging from the layered red rock at the head waters of the Little Cottonwood River or Mound Creek.

By breaking I-MNI-ZA into its root words, we can gain further insight into its meaning. "I"- "Prefix to active verb, it sometimes forms of them nouns of the instrument : as ... ćap'á, to stab, a spear ićap'e (Riggs 1992:169)." MNI- a form of the active verb Yumni-"to turn around, to go in circle (Riggs 1992:632)" ZA- a form of the active verb yuźa – "to mash ; to stir up, to make mush (Riggs 1992:648)." Perhaps I-MNI-ZA refers to using sandstone and quartzite as grindstones for making flour or paint pigments. Since Dakota language is a descriptive language where context can determine the precise meaning of descriptive nouns, all the above mentioned meanings of I-MNI-ZA might refer to the rock ledges found along the headwaters of the Little Cottonwood as source of raw materials. Including referring to the quartzite used for grindstones and pipestone for pipes and red paint pigment. Figure 4. documents a Sioux quartzite grindstone found east of Jeffers Petroglyphs along the little Cottonwood River during an archaeological surface survey by Hamline University.



Figure 54. Sioux quartzite grindstone along the Little Cottonwood river in Section 9 Delton Township Cottonwood County.

The striking landscape of a high prairie ridge topped with red colored rock outcrops might explain why this place was chosen. The red color symbolizes life. Keyser and Klassen cite an example of long distance pilgrimages. They note the existence of perfect replicas of Anasazi Kokopelli petroglyphs carved in Grotto Canyon, Alberta Canada. These Kokopelli carvings are 1200 miles from their homeland. They cite evidence of pre-horse long distance pilgrimages for "adventures, war honors and medicine powers" (Keyser and Klassen 2001:105-6). Certainly the diversity of petroglyphs traditions and their use through time at Jeffers documents the extensive intertribal trade network that shared raw materials, technology, and diverse life ways strategies between indigenous people across North America. Most importantly, it suggests a relatively consistent spiritual interaction with the Jeffers Petroglyphs making it one of the oldest and most culturally diverse, continually used sacred sites in the world.

References Cited

Anfinson,	Scott
-----------	-------

1997 Southwestern *Minnesota Archaeology*. St Paul: Minnesota Prehistoric Archaeology Series No. 14 Minnesota Historical Society Press

Carver, Jonathon

1796 Travels *Through the Interior Parts of North America in The Years 1766, 1767, and. 1768* Philadelphia: Key and Simpson

Paul Durand

1994 Where the Waters Gather and the Rivers Meet: An Atlas of the Eastern Sioux – Self Published.

Grinnell, George Bird

1962 *The Cheyenne Indians: their History and Ways of Life*. New York: Cooper Square Publishers, Inc

Keyser, James D. and Michael Klassen

2001 *Plains Indian Rock Art,* Seattle and London: University of Washington Press Lothson, Gordon A.

1976 *The Jeffers Petroglyphs: A Survey and Analysis of the Carvings*. Saint Paul: Minnesota Historical Society

Riggs, Stephen R.

1992 A Dictionary of Dakota-English, Minnesota Historical Society Press. St Paul . Sanders, Tom

2011 History of the Red Rock Quarry in Delton Township, Cottonwood County. On file Jeffers Petroglyphs Historic Site

Scott, Douglas D., Thomas D. Thiessen, Jeffery J. Richner, and Scott Stadler

2006 An Archaeological Inventory and Overview of Pipestone National Monument, Minnesota. Lincoln, Nebraska: United States Department of the Interior National Park Service Midwest Archaeology Center

Steinbring, Jack H.

1993 Dating Rock art in the Northern Midcontinent. American Indian Rock Art 12:15-29 Sundstrom, Linea

1987 Vertical series rock art and its relation to Protohistoric Plains Indian symbolism. *Archaeology in Montana* 28(2):3-i7.

- 1990 *Rock Art of the Southern Black Hills: A Contextual Approach.* New York: Garland Publishing, Inc.
- 1993 *Fragile Heritage: Prehistoric Rock* Art of South Dakota. Vermillion: South Dakota Historical Preservation Center.

Tratebas, Alice M.

- 1993 Stylistic chronology versus absolute dates for Early Hunting style rock art on the North American Plains. In *Rock Art Studies: The Post-Stylistic Era or Where Do We go From Here ?ed*. Michael Lorblanchet Paul G. Bahn, pp.163-77.OxfoedUK:Oxbow Books.
- 1997 Early petroglyph traditions on the Northern Plains. Paper presented the 55 Annual Plains Anthropological Conference. Bolder CO.

Williamson, A. W.

.

1884 Minnesota Geographical names Derived from the Dakota Language, with some that are Obsolete. *Geological and Natural History Survey of Minnesota*. 13th Annual Report, St Paul, The Pioneer Press

Zedeno, Maria, and Robert Christopher Basaldu

2004 Pipestone National Monument, Minnesota: Native American Cultural Affiliation and Traditional Association Study. Prepared for the Midwest Region, National Park Service, by the Bureau of Applied Research in Anthropology, University of Arizona, Tucson