

## **Classic Vernal Style Rock Art Style as a Costly Signal**

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It is great to be back in Vernal, my home for so long, and with URARA. I have many fond memories of conferences, field trips, and friendships with the people in this room.

At this stage of my career I am looking for that grand unifying theory. A concept that pulls as many disparate pieces of data, ideas, sites and a couple theories my crews and I have witnessed and discussed into one coherent explanation. Some of you may know that the answer to the question of life, the universe, and everything; is 42. We listened to the Hitchhikers' Guide to the Galaxy BBC broadcast in the evenings during field school in Montezuma Canyon in SE Utah. That was a long time ago and there has been tremendous amount of data collected and new technology introduced since then. I'm thinking today the answer should be more of a subtle shade of mauve or 42.163. But for our discussion today I thought I would start with some of the broad patterns or collections of data that I'm trying to shoehorn into my grand unification theory. The other thing to understand; I was raised, or had my formative grad school experience, at the height of the Lewis Binford mid-range theory approach. I learned that for archaeology to be considered a legitimate science, we had to have good theories. That bias will pop up a few times during my presentation. The professional paper I am preparing is rather boring. I've translated it into English for my discussion this morning. The theory I will propose I would like your feedback and critique.

This presentation will focus primarily on the Uinta Fremont. I assume that nearly everyone here knows the horticultural Fremont culture occupied most of Utah between about AD 1 and 1300. They grew maize, beans and pumpkins, while generally living in pithouses. I'd like to highlight some key aspects of the Uinta Fremont, and even differences from other Fremont centers.

Soaring to over 4100 meters (13,000 feet) in elevation the Uintas are the highest mountains in Utah (Johnson and Loosle 2002:1). The precious water flowing from this oasis was a valuable commodity to the Fremont farming communities which clustered along permanent streams exiting the Uintas south slope. The permanent villages are generally on private lands, which I believe has led to a bias of what is know about this group. More than any other Fremont group, a number of temporary shallow brush structures have been excavated in the mountains or other ecozones where the Fremont people sought resources. For some researchers this has confirmed the hypothesis that the Uinta were more mobile and relied on more wild resources than other Fremont groups. I don't have time to jump into this extensive discussion, but other evidence shows the Uinta were just as dependent on domesticated plants as other Fremont people.

Generally, it is felt the Uinta Fremont vanished before other Fremont groups. Various dates are given, 1050, 1100, a couple hundred years before the traditional AD 1300 date. I feel some farmers persisted to about AD 1200 in their villages in the core area along the Green River tributaries. Although we don't have data from the core area after this, I think it is there and further excavation will find it. However, what is sometimes forgotten is there abundant horticultural evidence outside the core area. A mixed economic strategy of farming combined with seasonal foraging in the Uintas allow pockets of Fremont to persist in peripheral areas (Red Canyon, Browns Park, Texas Creek - northwestern Colorado) until nearly AD 1600 (Creasman

and Scott 1987; Reed and Metcalf 1999:119; Johnson and Loosle 2002:295; Nash 2012). This occupation is perhaps two or three hundred years after farming ended in other areas of the state.

The original method for differentiating the five regional Fremont variants was pottery temper. Early on it was noted the Uinta Fremont had less non-local pottery and that continues to be the case. The Uinta strongly preferred some variation of calcium carbonate as temper in their grayware pottery including limestone, calcite, volcanic tuff and perhaps shell. The obsession with the temper material is interesting because calcium carbonate is not widespread in the local environment. Limestone and tuff deposits are very limited, yet the locals identified several different sources that contained calcium carbonate for their temper. It causes me to wonder if there was a religious or spiritual aspect to the temper selection.

The people were accomplished stone tool makers using trough metates, elegant projectile points, and stone balls. They imported toolstone, including obsidian from across the West (Johnson and Loosle 2002:274-275). There is no evidence of elite burials. However, some exotic turquoise, Pacific Ocean shell, and some ceramics from other Fremont areas and Southwestern Ancestral Puebloan styles have been recovered from Uinta Basin sites. In many ways, we feel there is still a rather incomplete and biased picture of the Uinta Fremont. There is limited excavation and study of the large village sites and structures, generally on private lands, along the principal drainages.

Now some of the theories and data points I'm interested in pulling together. I'm a lithics guy, so I start there. In the Uinta Basin, particularly at Fremont age sites, there are significant amounts of Tiger chert and Sheep Creek quartzite toolstone. This is unusual because the quarries for these materials are 70 or more kilometers away from these sites. The Uinta Basin has abundant toolstone sources which were used during the Archaic and early Fremont periods. What makes this even more puzzling, is to access these quarries the ancient people had to cross the Uinta Mountains. I refer to them as north slope quarries because of their locations north of the Uintas. Why did these folks go to so much work? A bit of a side note. The gorgeous banding we see on Tiger chert is a result of a long period of exposure. When the stone is freshly knapped, it is just a dull brown color. No one has really experimented to determine how long it takes for the banding to appear. In other words, I don't believe the stone was selected for its beauty.

My dissertation (Loosle 1991) was on the Little River focus of the Great Bend aspect (Sorry for the torturous formal nomenclature of the Plains archaeologist). These late prehistoric farmers of central Kansas practiced what Binford called an embedded strategy. Annually they would leave their farms along the Arkansas River in central Kansas to hunt bison in NW Kansas and SW Nebraska. This allowed them to gather an important toolstone called Smoky Hill Silicified Chalk. Unlike most places out West, high quality toolstone is not always abundant on the Plains. Talequah Chert in Oklahoma, Alibates chert in Texas, and even the Flint Hills chert in central Kansas were all closer sources, but these materials were controlled by other people. Not all of these people were on friendly terms. The Great Bend people could pick up Smoky Hill Silicified Chalk without going through a middleman. The amount of cortex (outside rind of rock), size of flakes, and quantity of debitage compared to finished tools showed the Little River folk "directly acquired" Smoky Hill Silicified Chalk.

Using the same comparison (cortex, size of flakes, and % of finished tools) it was clear occupants of the hunting camps in the Uintas were directly accessing Tiger chert and Sheep Creek quartzite (Loosle 2000). We found hunting blinds, abundant sheep bone, and other evidence of big game hunting at these camps. Initially we interpreted the evidence to indicate Uinta Basin farmers were headed to the Uintas practicing a similar embedded strategy. They

hunted big horn sheep and gathered toolstone in the same trips. I felt that's why we see so many big horn sheep depictions in the local rock art.

However, as my seasonals, especially Michelle Knoll (2003), did further work on these upper elevation camps they found that carrying meat back to farming villages was not efficient. It was too far and the terrain too difficult to gain benefit from the caloric return the meat provided. It was barely worthwhile to carry the meat from the alpine areas, back to mid-elevation camps like Summit Springs. This perspective was based on Optimal Foraging Theory models. These models argue that people will choose the most productive or efficient resources for consumption. For instance, they will hunt deer rather than rabbits or process cattails rather than cheno-ams. If people fail to pursue the most productive resource we should explore reasons why. Typically, an overabundance of rabbits in the diet is interpreted as meaning the deer or mountain sheep had been depleted near the villages through hunting or climatic change. These models are only one way of approaching prehistoric peoples' use of the landscape.

Robert Nash (2014) revised our understanding of high country use when he argued that development of maize horticulture allowed people spend more time and travel further in the high country, in what he called a tethered strategy. Maize allowed the prehistoric farmers to unlock the unique resources of the high country – meat, medicine, sacred places? This could explain why we saw a dramatic increase in occupation in the mountains during the farming period at places like Summit Springs. It also helped explain the numerous granaries and caches we found at mid-elevation in the Uintas. This further emphasized that farmers weren't merely hunting in the Uintas for all the meat they obtained. The calories from meat or the practical aspect of hunting wasn't a good explanation for why the Fremont were in the Uintas. Our theories didn't explain what people were doing.

We began to look at other explanations. One that immediately came to mind because of the evolutionary ecological perspective, which is where optimal foraging theory is derived, and several staff members studied was prestige hunting (Kent 1989, Knoll 2003). There are several ethnographic examples of hunters going great distances in dangerous waters to hunt turtles or large/dangerous game. In its crudest sense, this is an evolutionary approach, whomever shows they are most "fit," is most successful at reproduction and having more off spring. Sometimes it is called "showing off" or "conspicuous consumption." Hunters that go on these dangerous trips are viewed as better partners and are able to pick better mates. The data seemed to suggest that something similar was happening in the Uintas. In a broader perspective this theory is called Costly Signaling Theory, CST.

One final puzzle piece I want to bring in is Talbot's (2000:286) hypothesis that the end of the Fremont period saw the rise of Big Men. One sign of big men was their control of exotic (non-local) resources. I believe this theory helped explain the patterns I (Loosle 2000) saw in toolstone and non-local bifaces. Around AD 880 at Spike Hill on Dry Fork, the large village near McConkie Ranch, 34% of the material was Tiger chert. However, by AD 1180 at Merkley Butte, nearby on Ashley Creek, essentially all (95%) of the material was Tiger chert and Sheep Creek quartzite. At these sites and other sites in Sheep Creek Canyon on the north slope we also see a rise in specialization through time. More of the Tiger chert is heat treated and we see standardized biface sizes and shapes. We see an unusual number of large, well-made bifaces. The cache of incredible bifaces from Greendale at the Vernal Heritage Museum is amazing. I suspect some of these magnificent blades were symbols of authority as depicted in the rock art. I remember taking some bags of debitage from Merkley Butte to lithic specialists. One Paleoindian expert asserted that the huge thin flakes came from a Paleoindian site where expert

flint knappers were making “ultra thin” bifaces. He asserted the Fremont never had this skill. I disagree, the Uinta Fremont had individuals of amazing skill in flint knapping. This undoubtedly gave those craftsmen significant social power, prestige and influence. They could probably also trade for food, prestige goods, and other items they needed. The location of Merkley Butte is also unusual, located on an elevated mesa above Ashley Creek. It is a long walk from the farms and water necessary for survival. It feels like an administrative or ceremonial location, like Monte Alban.

Let’s pause and describe what Rich and I are thinking with the term Big Men. This is usually not an ascribed or inherited status. It is not an officially sanctioned position in an institution within the political or religious hierarchy of a society. It is based on a person’s age, skill, knowledge, strength or stamina. It is a relatively informal status earned by the individual, a kind of deference shown by the community. Perhaps it is easiest to illustrate by considering Old Western movies. A Big Man wouldn’t be the sheriff or mayor, official positions in a large government. The Big Man would be the cattle baron, a person with wealth, access to resources (land, water, beef) and patronage (hired hands). It could be the town doctor, someone with special knowledge or skills. The general store owner, who had access to exotic, non-local goods, desired commodities, connections and relationships outside the community. The blacksmith, another person with special skills or abilities dealing with a critical resource. The pastor or priest is an imperfect comparison because in western culture they tend to be authorized by a larger institution. In non-western society a person’s spiritual abilities or connections to the unseen world is less formal but acknowledged by the community. A classic example is the Lakota leader Crazy Horse. Although I speak of Big Men, in this informal arrangement, the position may not be gender based. Think of the boarding house owner or school marm in examples from our western film epics. Of course, this status can trend toward an inherited situation. Now that I live in Reno, near Virginia City, I see a lot of Bonanza paraphernalia, from the old television show. The Cartwright family would be a Big Man in this sense. A well-known medicine woman or expert pottery maker could teach her daughters healing techniques or vessel making practices that give the younger generation customers, knowledge, or prestige they haven’t necessarily earned on their own. But these are still informal positions of influence and power – the Big Men.

Besides the toolstone, there should be other evidence of status if it existed. I examined other possible evidence for elite or big men among the Uinta Fremont. Graves are usually where archaeologists find the best evidence of elevated status in prehistoric cultures. People are often buried with exotic or luxury goods. Unfortunately, the Uinta Basin Fremont are noted for the paucity of burial items, generally. In the Great Bend, we saw the rise of elite residences, called Council Circles, around AD 1700 (Loosle 1991). They appear with the increase in European trade goods arriving in the central Plains. Exotic goods were concentrated in these residential units. However, the few large excavated structures in Fremont sites are generally considered communal structures, not residential structures occupied by a single family. The structures at Five Finger Ridge near Richfield, Baker Village in Nevada and Wolf Village in Utah Valley have faunal remains and unusual items that don’t appear to support a residential purpose. So, although I have seen a few unexcavated large structures in the Basin (on Brush Creek, in Arcadia and I suspect at Spike Hill), we don’t know what they contain. Where else could I find evidence of Big Men among the Uinta?

It took me several years, but then I realized the data I needed had literally been staring at me in the face. This especially became obvious when I worked in Nine Mile Canyon for several years for the West Tavaputs Project and we listed all the sites on the National Register of

Historic Places. Although the canyon is just outside the Uinta Basin, the rock art is vastly different. Classic Vernal Style rock art appears to depict important individuals, while the San Rafael style is small anthropomorphs, many dots, lines, and snakes. The panels are very busy with numerous small elements. Classic Vernal Style rock art appears to be the evidence I was looking for.

### **Costly Signaling Theory**

Agriculture in northeastern Utah was probably always a tenuous endeavor. Located at the extreme northern end of maize production, the Uinta Basin is in a precarious location. A favorable climatic regime during the initial introduction of agriculture gave way to generations of challenges from periodic droughts and earlier arriving frosts, until the region was eventually abandoned (Johnson and Loosle 2002). Although drought is often referred to, I suspect length of the growing season was actually more critical to survival of maize. In all the Uinta Mountain Fremont age sites we find oak pollen. Those of you familiar with the Uintas know today there is no oak in the eastern Uintas. Sherel Goodrich, the incredible ecologist I worked with on the Ashley, suggested that late spring freezes killed off the oak. Shortened growing seasons would also have been catastrophic for maize farmers. I believe that through decades of struggles, the Uinta Fremont people adopted a number of risk reduction strategies to survive the local climatic vagaries. Hunting, charismatic leaders (Big Men), almanacs or calendars (Johnson 1993), long distance exchange (Loosle 2000), community irrigation projects (Talbot and Richens 1996) and unique strains of maize (Johnson and Loosle 2002:213) are just a few of the strategies employed by the resourceful individuals of this period.

Costly Signaling Theory (CST) provides a framework to unify several risk reduction practices into a single theoretical approach to understand this culture's response to the difficult world they occupied. For example, hunting, toolstone exchange, almanacs and rock art production may have all been aspects of individuals signaling their fitness to potential mates. However, today I want to emphasize the social or community fitness aspect of CST. That is an activity's use to deter rivals or attract allies. I believe incipient evidence of self-aggrandizement and other aspects that manifest late in the Fremont occupation of the Uinta Basin can more thoroughly be understood through CST. I don't believe self-aggrandizement occurred universally within the Fremont adaptation but may have been a response to the particular local conditions, or one of many possible risk reduction strategies employed.

Costly Signaling Theory is an evolutionary ecological perspective on human behavior. Evolutionary ecology typically explains human activities as endeavors to ensure reproductive success by optimizing resource exploitation. In some studies proponents notice a discordance between expected outcomes from resource optimization and the available data. People often engage in risky, inefficient or seemingly unwise activities (Smith et al 2003, McGuire and Hildebrandt 2005). Through their success in these dangerous activities individuals show their fitness to prospective mates, allies or even competitors. Within the context of society's cultural practices the individuals signal their physical abilities (strength, stamina), cognitive skills or knowledge, leadership ability, and generosity or willingness to invest in collective goods (Smith et al 2003:122, McGuire and Hildebrandt 2005:698). Although participation in risky economic activities may not yield a large caloric return, it does elevate the individual's status in society. High status males, "are often central participants in decision regarding security /protection, alliance networks, resource distribution, and other aspects of socio-political authority" (McGuire and Hildebrandt 2005:707). Women and subordinate males who ally themselves with these

males enhance their reproductive success. It is through these public displays and symbols that high status individuals manage cooperate efforts to encourage the participation of allies in their activities, while also discouraging competitors by signaling the cost or risk of conflict. This is not an advertisement by a famous athlete – like LeBron James or Patrick Mahomes - making a pitch for us to buy beer, home insurance or toothpaste. Rather it is someone showing us their Olympic gold medal. We may not know anything about their sport, their name, or how they got to the Olympics, but that medal means they are the best in the world at something. We know the average person would never be able to obtain something like that and that medal is special.

While prestige hunting is applicable to the Fremont of northeastern Utah, I feel CST provides a framework to understand other aspects of Fremont material culture. Particularly the social aspects of alliance formation, knowledge or skill, protection or strength, resource procurement, and cooperation. Bird and Smith (2005:221) lament that “the more ritualized and communal aspects of social behavior, those that appear to be driven by cultural meaning and collective interest more than by individual gain, have proven difficult to explain.” Cultural meaning is such a fundamental aspect of understanding rock art and a frustration for nearly anyone examining a panel. Our tours of Vernal rock art sites often started with the display of a baseball cap with a blue star on the front. The audiences immediately recognized the emblem as representing the Dallas Cowboys football team. Individuals in the tour also inevitably had strong opinions or emotions about this particular athletic team. Like the star on the cap, we cannot know all the cultural information that may be encoded in the various rock art images. Is it a symbol for a particular myth or cosmic belief? Does it detail an adventure or legendary story. Could it have been part of a sympathetic magic or ritual ceremony, or a territory marker? Without a cultural context we are left with many unanswered questions. However, CST provides an avenue to address rock art’s role in a particular society.

### **Costly Signaling in Horticultural Societies**

Showing-off behavior, or conspicuous consumption is not just manifest in hunting or feasting contexts. I am intrigued by its possible application to the crafts or arts. “In essence, signaling theory suggests that stylistic traditions in the arts exist in part to highlight individual variation and skill” (McGuire and Hildebrandt 2005:706). Think of the rich families, like the Medici, who supported great art during the Renaissance. An interesting aspect of signaling theory is it allows consideration of strategies that are not directly tied to providing sustenance, “but rather a strategy involving a display of skill and command of esoteric knowledge” (Bird and Smith 2005:229). Prehistoric rock art, especially around Vernal, appears to be a classic example of the display of skill and esoteric knowledge. “Rock art works to communicate, whether with other members of the authoring group, with outsiders, or with the supernatural” (Schaafsma 1992:131). Debates about the meaning and content of rock art panels will continue after our review (Castleton 1984:7), however, we feel signaling theory may help understand the rock art’s role in Uinta Fremont society. Bird and Smith (2005:231) note that “more skilled potters (artists) make more attractive marriage partners and thus have increased opportunity to belong to stronger political faction and have better alliance partners than less skilled potters.” We argue skilled rock art creators accumulated similar benefits. We are particularly interested in how powerful individuals may have used accomplished artisans to strengthen personal or corporate identity to foster alliances or deter rivals.

As mentioned previously, the Uinta Fremont had a unique style of rock art, markedly different from other regional variants. A paradox of the individual desire to show skill while

maintaining a style that indicates group membership is an increase in conformity (Bird and Smith 2005:231). In this case a regional style would develop as individuals attempt to highlight their skill and ability. It would be encouraged by individuals supporting costly display to demonstrate their power and enhance their status. The Uinta Fremont culture is an ideal group to study for signs of artistic signaling. The premier artistic achievement of the Uinta Fremont is their unparalleled mastery of rock art. Their life-sized masterpieces from McKee Springs, McConkie Ranch, and Ashley Creek grace the covers of countless books (e.g. Cole 1990) and periodicals.

One interesting aspect of the model Bird and Smith (2005:233) propose is that “signaling that primarily concerns competition for political influence should similarly covary with the opportunity for mobility within the local or regional sociopolitical system (greater mobility leading to more intensive signaling).” Models of Fremont adaptive diversity argue for varying levels of Fremont mobility ranging from full time sedentary farmers to full time foragers interacting with farmers (Simms 1986; Madsen and Simms 1998). The Uinta Fremont are typically viewed as the least sedentary, or most mobile, of the Fremont subgroups (Marwitt 1986:169). I believe there is abundant evidence (Loosle and Hadden 2001) that large villages, similar to other Fremont regions, of full-time farmers occupied the drainages like Ashley Creek/Dry Fork where the most prominent rock art occurs. However, the people in the Uinta Basin periphery was much more mobile, which led to a more resilient and persistent community. Fremont style rock art panels in Wyoming and northwest Colorado are part of this mobile tradition. However, the highest quality rock art is in the core area of sedentary farmers (e.g. Dry Fork, Ashley Creek, Cub Creek). We suspect lower status individuals in these communities were mobile (Talbot and Richens 1999:110) in the southwestern sense and could move their household between drainages. Corporate entities or powerful leaders engaged in competition to encourage individuals to join their community, while discouraging them from moving or joining another group in a neighboring drainage. Recruitment and retention of group members provided a competitive advantage in this time of stress. Individuals could provide labor for community projects such as irrigation canals or large storage facilities, which would have improved group success. In a blunter, hostile way they could also have provided assistance in raiding or warfare excursions, or as a deterrent to groups seeking easy theft opportunities. Alliances may have shifted or altered frequently during this unsettled period.

Because of the Uinta Fremont’s location, they experienced the effects of deteriorating climate before other Fremont groups. A shortened growing season may not have affected other Fremont groups as severely. As environmental conditions worsened, individuals had choices to make within their local environment and social milieus. Cattails, pine nut, and other resources are locally scarce and were not exploited in the Uinta Basin as they were in other Fremont areas. Instead, the Uinta choose CST or public display as a key coping mechanism. Although, all regions eventually adopted population movement as a strategy, abandonment was undertaken at differing times depending on local situations.

### **Rock Art as a Costly Signal**

Based on the CST literature, I expect Vernal Style Rock Art to exhibit certain traits. These include: A) A recognizable style; B) Impossible to fake; C) Public Display; D) Depict individual activities or achievement. Bird and Smith (2005:223) emphasis the role that honest or truthful communication is necessary between the participants in signaling theory. We know rock art was created in many different periods and probably for a variety of reasons (see Cole 1990:36-41). I do not expect every panel to contain these four elements. Many panels contain

different styles and a variety of elements. However, major panels from the late Fremont period that functioned as a signal should exhibit these four aspects.

#### A. A unified or recognizable regional style

Because of the paradox of demonstrating skill by conforming to group identity, we expect easily diagnostic regional styles in those locations where costly signaling is a predominate influence. Due to the wide temporal range of rock art we cannot expect every panel to be diagnostic and there is the potential for circular argument. Ultimately, certain elements, motifs, or traditions should be localized (Castleton 1984:5).

*To state that a single figure, motif, or even a panel is the product of a specific culture is often impossible for several reasons. In the first place, there appears to be great variation in styles and motifs within a single culture, indeed within a variant or division of a culture. Second, many figures such as mountain sheep, circles, zigzag lines, and spirals may be found in panels assigned to any one of several cultures, and there may be little to distinguish among the techniques and styles of these common figures. Nonetheless, there are certain characteristics that may be found exclusively in one culture or one subdivision and in no others, and on the basis of such characteristics various styles of rock art have been named and described (Castleton 1984:5).*

There are several recognized styles of rock art in Utah. Some of them like the Great Basin curvilinear or abstract, Dinwoody or Interior Line Style, Glen Canyon Style 5 and Barrier Canyon are widespread, covering several regions and may correspond to earlier time periods. Several styles overlap the Uinta region (Cole 1990), perhaps because of the Green River corridor. Multiple styles can occur on the same panel, while a single culture might create more than one style. In spite of the complexities, “it is generally agreed that, taken as a whole, styles are specific to time and space and are related to functions and meanings established by the culture and societies using them” (Cole 1990:35). There is a generally recognized statewide Fremont style (Schaafsma 1971; Cole 1990:172-198). Several regional Fremont styles have also been defined. Some enthusiasts even argue there are notable drainage level styles (Clay Johnson, personal communication, 2007). The Uinta Basin contains one of the more dramatic and distinctive Fremont styles. “Characteristics of Uinta Fremont style art are markedly similar to San Juan River Basketmaker style art” (Cole 1990:174 see Plates 40, 41, 42 and Figure 42). The Uinta Basin style is called Classic Vernal Style with the type site at McConkie Ranch in Dry Fork Canyon northwest of Vernal, Utah. The Classic Vernal Style as defined by Schaafsma (1971:8-25) “is characterized by a large trapezoidal body and a simple, large round, rectangular or bucket-shaped head.” Arms and legs are diminished, but feet are sometimes exaggerated. Figures often have head decoration, necklaces, and earrings or ear bobs and facial designs occur (Castleton 1984: Figures 2.9, 2.48; Cole 1990:Plate 80, 81, 84). Castleton (1984:6) argues the Fremont rock art in the rest of the state lacks the “stylistic unity,” of the Uinta Basin. This unity amplifies the notion that Uinta Basin artists were attempting to mimic or attain a perceived “ideal” as would be the case if they were signaling.

#### B. They are impossible to fake

Bird and Smith (2005:223) list some factors that may ensure honest communication, however, I believe a considerable investment of time is most applicable to this study. Especially in light of commentary that derides prehistoric rock art as doodles, scratches, or child’s play. An



aspect of the time investment is that while artistic interpretation may be culturally dependent, the skill and ability of the creator should be evident. A certain “flourish” or “symmetry and finesse” (Bird and Smith 2005:231) should exist. This might include use of unusual colors, a great amount of detail, coverage of a large area, incorporation of a variety of techniques, a difficult to access location, or innovative designs. All of which apply to Classic Vernal Style panels.

Leanna Flahtery’s 2012 thesis at Chico explored the CST hard to fake question. Her study determined that creating rock art wasn’t much more strenuous than walking and a simple figure could be done in a few hours. Thus, she determined rock art was easy to fake. While that may be true for a simple, small figure. Her results suggest that a typical McConkie Ranch figure took 250 to 800 hours of labor. Although some dear friends gathered some very detailed measurements before this paper, I haven’t done a careful calculation of the length of the lines, this is merely an estimate. This also doesn’t include any time for painting or preparation. Flahtery, I believe is also too dismissive of the additional effort that would be required to create these panels from a ladder or ledge, as most would have been. Classic Vernal style panels possibly required months to create, which meant the artists were not doing many other subsistence or other tasks. Because of the precision and effort involved in some of these panels I posit that there were rock art specialists among the Uinta. In other words, they were expensive and hard to create. (*I received some skepticism at the symposium over the time estimates listed above. I agree that an extremely skilled artist could have created a figure much more quickly than a novice as cited in the study mentioned. However, this still supports my argument that the creators were exceptional artists or crafts people.*)

Schaafsma (1971:8-25) uses a variety of descriptions to highlight the quality of Classic Vernal rock art. This style, “embraces the most advanced expression of Fremont petroglyphic art” (Schaafsma 1971:8). The artists “took considerable interest in the depiction of precise ornamental detail, as well as in the overall effects created by the juxtaposition of angular and circular forms which heighten the compelling nature of these panels” (Schaafsma 1971:8). “They are often highly elaborated with decorative detail executed with precision and considerable finesse” (Schaafsma 1971:15). In describing the Poole Canyon site in Dinosaur National Monument she says, “the elegance of form seen in these anthropomorphs and the fine textural effects created by the drilled holes and the beautifully carved necklaces manifest the high artistry of this style” (Schaafsma 1971:20). Castleton (1984:xxi) considered the Uinta Basin the “capital” of the Fremont. “The finest examples of Fremont rock art are seen here, especially in the Dry Fork-Ashley Creek area and near Capitol Reef.” All of these panels would have required hundreds of hours, by skilled and talented hands to create.

Cole (1990:185) notes “examples of Fremont rock art occur high on cliff walls and in locations that have difficult access and often precarious footing for modern viewers and presumably for artists of the past. Falling from cliff ledges would have been a very real possibility.” Long hours spent in difficult or even dangerous locations further added to the cost of creating these displays.

Another evidence of the significant investment of knowledge requiring generations of observation is the solar alignments noted on many panels (Johnson 1993). It is not uncommon for southwest rock art and even pueblo sites to have celestial alignments. Plog (1997:100-101) note solar alignment for other southwestern groups. This includes architectural features to observe key events and even alignment of buildings or terraces. Almost the entire Baker Village, a southeastern Nevada Fremont village, buildings were celestially aligned (Wilde 1994). There is evidence Uinta Basin rock art functioned as almanacs that predicted “certain seasonal activities

or events” such as game movement, warmer days, monsoonal rains, or plant emergence (Johnson 1993:85). Solar almanacs would have had an important practical aspect for farmers living in a marginal environment like the Uinta Basin. Maize harvests, in particular, would have depended on the successful timing of planting. A short and variable growing season undoubtedly would have necessitated some sort of record keeping. Accurate identification of key solar dates (cross quarters, equinoxes, solstice) would have required years of observation and tracking. Translating the key dates to marks on rock art panels would have required more than one individual and possibly multiple years, even generations, to accomplish. Simple lines, dots, and curves could have provided adequate timelines to mark time. Yet panels with solar interactions are often a complex arrangement of figures, which often involve sun or shadow arrows, cups, and dots touching or corresponding to multiple elements as they move across the panel during the course of the day (Johnson 1993:76). Elaborate panels, like the central panel at McKee Spring, not only signal advanced skill, but also demonstrate command of important esoteric knowledge, another key aspect of CST not fully elaborated in this paper.

### C. Public display

The rock art should be displayed in a prominent location to act as a signal. One of my first interns from Scotland brought this idea to my attention. Michelle was amazed the Vernal rock art was so visible or out in the open. In her native land rock art tended to be in burrows, hidden from public view. For CST to be present images function as a billboard to advertise the ability, power or skill of the people who created them. Panels may be in or adjacent to settlements or major thoroughfares where they will be seen by others. Hiding them in difficult to see location, like a cave or niche is not expected for a costly display. A duality in pueblo rock art is frequently noted. “The latter, by their very accessibility and unrestricted character, appear to be more public” (Schaafsma 1992:135). In contrast, she argues that rock art with different themes, emphasis on elaborately painted images, specific subject matter and secluded locations like caves and inside rooms suggest a more sacred nature to pueblo authors. One reason images of Uinta Basin rock art occur so frequently in publications is because of their accessibility. They are typically adjacent to major sites or along key travel routes. Two large, yet very simple, figures facing each other in a narrow crevice along Cub Creek near Dinosaur National Monument are notable for their uniqueness in being a restricted viewing environment.

Another aspect of the solar interactions of rock art mentioned above is the ability it has to evoke emotion and share knowledge. It is a visceral experience to watch a sun arrow arrive the morning of the summer solstice and perfectly align with the elaborate headdress of a large figure as we have observed at Steinaker Gap (Castleton 1984:33 Figure 2.37). The ritual aspect of rock art is typically overlooked. There is ample room for a group of observers or worshipers to gather below nearly all of these panels. The knowledge and power of the ruling elite, individual or priest, would be on display when people gathered to watch a sun arrow impregnate the pregnant sheep at the Cockleburr site (Castleton 1984:40 Figure 2.49) during the May spring birthing season, or watch a sun cup surround the east side of the large shield held by the central figure at McKee Spring on spring cross quarter. Schaafsma (1992:135) notes the pueblo belief that figures can be positioned for their protective power or to demonstrate community strength and social cohesiveness.

#### D. Depict individual activities

Although the symbols might serve a corporate or community purpose, I expect the figures to focus on individual activities or exploits rather than community or group events if they are CST. The panels should depict a powerful individual, perhaps with enough decoration, detail, or information to identify that individual. This means panels will be distinctive and unique, even if created by the same individual or artistic tradition.

Small human figures, quadrupeds, abstract designs and other elements frequently appear together in rock art panels. However, the Vernal area rock art is unusual in its emphasis on large human figures. Classic Vernal Style panels depict an unusually high percentage of anthropomorphs (Schaafsma 1971:14 Figure 7) (about 50%) compared to other regional or temporal styles. Castleton (1984:6) notes the “Classic Vernal Style, of which the distinguishing characteristic is a particular type of dominate and usually carefully executed anthropomorph. Many of them are 5 to 6 feet tall.” The difference in stylistic elements is even more marked contrasted to a different time period. The Archaic era Curvilinear Style from western Utah only averages about 5% anthropomorphs, with nearly 75% abstract design elements. “Facial features themselves are present on a relatively high proportion of the anthropomorphs from both locales” (Ashley-Dry Fork and Dinosaur) (Schaafsma 1971:15). The level of detail and variability in facial features, head ornamentation, and necklace depictions (Schaafsma 1971:15-16 Figure 8; Castleton 1984:Figure 2.9)) gives the viewer the clear impression the artist intended to depict a specific individual. The emphasis on individuality is further amplified because “in 38 out of 83 (46%) Ashley-Dry Fork sites the large human figures occur alone” Schaafsma (1971:8). Cole (1990) calls the figures heroic, mythological personages, or supernatural. She even suggests that “elaborate Fremont headdresses” appear ceremonial and resemble a remarkable flicker feather headdress found at Mantle’s Cave on Dinosaur National Monument (Cole 1990:176, Plate 73)

The emphasis on large dominate individuals in the Vernal region is even more pronounced when compared to neighboring regions. Of particular note is nearby Nine Mile Canyon marking the southern end of the Uinta Basin. Nine Mile Canyon is often called the world’s longest art gallery because of its extensive panels of Fremont era rock art. The style in Nine Mile is generally considered Northern San Rafael Style. “Lacking in the Northern San Rafael are the panels composed of large, precisely executed trapezoidal men and shield bearers with their detailed ornamentation. . . Large and small panels are crowded and busy, with a wealth of small solidly pecked figures which may be carelessly executed and ill-defined” (Schaafsma 1971:29). Cole (1990:185) said, “San Rafael Fremont rock art styles show a greater number of more active, realistic figures in association with a variety of animals and geometric abstract images. Castleton noted for the San Rafael style, “anthropomorphs do not dominate the panel either in size or number as they do the Classic Vernal.” Although horticulture was probably just as tenuous in the San Rafael or Tavaputs Plateau region, it appears the local Fremont populations may have adopted different risk reduction strategies including focusing on other activities in the uplands such as harvesting pine nuts and broad spectrum hunting (Loosle et al 2007). These issues cannot be addressed in this paper.

A further argument of the personal nature of Uinta Fremont rock art is in the themes depicted by the rock art. The Uinta Fremont were a horticultural group relying extensively on maize production, even from an early period (Coltrain 1996:121; 2000:119-120). Yet, there are almost no agrarian motifs in the rock art, nor obvious clan markings common in modern pueblo areas. Individuals, animals, hunting and warfare are the dominate motifs. There is clearly a bias toward depicting individual actions. Of special interest are the many individuals depicted holding

weapons, shields, or even severed heads (e.g. Castleton 1984 : Front Cover. As evidence of warfare Howard and Janetski (1992) reported two human scalps from a Uinta Basin collection. These were reported to have been recovered from Rasmussen Cave in Nine Mile Canyon. Several rock art panels, like the central figure at McKee Springs (Castleton 1984:47 Figure 2.60), hold objects that might depict something like this trophy scalp (Cole 1990:182, Plates 80, 81, 84). However, Novak (1999) notes the limited skeletal remains from the Basin appear to show more evidence of domestic violence than of warfare. Although, the panels could depict or celebrate a particular victory or raid, this limited data makes the warfare and violence themes in the rock art feel more like a warning to potential rivals, than a commemoration of a successful encounter. Whatever the case, the public nature of the panels appears to be propaganda to encourage community members about the strength of their leaders or threaten rivals. I am reminded of English kings or American presidents who brought Native Americans to their capitals to show the might of their empire.

The panels may have even been more visible and vivid when created. We suspect much of the original paint on the panels weathered away. For example, oddly placed pecked elements, faint paint traces, patina shadows and other clues suggest the panels once contained significantly more paint than is currently visible. Schaafsma (1971:15) estimates 23 percent of the figures on Ashley-Dry Fork and 15 percent in Dinosaur “were once completed by painting.” (See Castleton 1984:27 Figure 2.24 for an example of a panel missing many elements that were probably originally painted.) Additional paint would have highlighted aspects of the panels and heightened their intended message.

## **Discussion**

I argue northern Fremont sheep hunters signaled their social and physical abilities through prestige hunting in the High Uintas. Only individuals physically strong enough could make the arduous trip across the Uintas and return carrying a heavy payload of meat and toolstone. Perhaps even more important were the other signals from a successful hunt like ecological knowledge, experience, and social alliances. Uinta alpine areas provided predictable sheep hunting fields (Madsen et al 2000). From the north slope these hunting grounds are accessible following a series of interconnected meadows with numerous outcrops providing ideal locations for sheltered base camps. The bald mountains are constantly in view along this route serving as landmarks to guide progress. The approach is different and more than twice as far ascent from the south with no visible guideposts. Travelers must cross a disorienting plateau of lodgepole pine forest to access the alpine areas. Many modern Vernal inhabitants and Forest Service personnel have stories of being lost in these woods. They usually end with the person arriving back where they started after hours of travel or ending up miles from where they were headed. A Fremont hunter with the trail experience to navigate through the forest to the alpine areas would be more successful and recognized. A degree of ecological knowledge was also required to be a successful hunter. Individuals had to understand sheep behavior, when they would be in the alpine areas and what techniques would work. Hunting blinds in talus slopes show the hunts were at least a small group effort. If approached or threatened in their grazing areas, sheep would flee toward the nearby steep talus slopes where hunters hidden in hunting blinds awaited. An experienced, successful, hunter would more likely recruit capable participants for future hunts. The more skilled and experienced groups would be safer and have a more successful hunts than less experienced hunters.

Another important social aspect is people lived on the Uinta's north slope. These Fremont people may have been related to Uinta Basin farmers. To access Sheep Creek quartzite quarries at Jessen Butte southern hunters required social alliances through either kinship or other means to avoid risky confrontations with local hunting parties. The more distant Tiger chert quarries were even more important based on its abundance at southern residential sites. Access to these sources may have required additional alliances, including perhaps with nomadic hunter-gatherers in southwestern Wyoming. Individuals who could develop and maintain these alliances signaled their fitness to potential partners and competitors with a visible object, the chert. It is easy to comprehend how holding a large biface of the dramatically banded Tiger chert signaled an individual's social influence or power.

### Big Men

I lightly touched on the accumulated knowledge, representing generations of observation and experience individuals may have possessed. Feinman et al (2000:454) note that "pueblo religious leaders controlled esoteric knowledge and ceremonial property, including sacred objects, songs, and chants, as well as the calendar, specific information about resource distributions, and aspects of irrigation technology." "By controlling and manipulating access to ritual knowledge and the ownership of important ceremonies, they are able to control access to clan lands and the essential economic resources that flow from them: food and water" (Feinman et al 2000:455). I argue Classic Vernal Style Rock Art was monopolized. There was a limited group that had the skill and knowledge to produce these panels. They were created in a way to maximize public viewing and emphasized individual achievement or status. This implies the leaders also maintained ritual and ceremonial control in the society.

An important aspect of the socio-political power of high status individuals is their control over important resources. "Prestige good models' emphasize the acquisition of valuables that are needed for repaying social debts or for use in social transactions that enhance an individual's status." (Kantner 2010:236). Talbot (2000:286) argued Fremont big men attempted to manipulate the distribution of exotic materials to enhance their status. Pacific marine shells (*Dentalium* and *Olivella*) and turquoise are examples of common exotic materials in the Fremont region (Talbot 2000:284). "The presence of resources that are maximizable, monopolizable, or both can significantly influence sociopolitical changes since they alter the structure of socioeconomic interactions" (Kantner 2010:237). Tiger chert biface caches and debitage are found in Uinta Mountain and Uinta Basin sites beginning in the Archaic period, but significantly increase throughout the Fremont era. The abundant Tiger chert and Sheep Creek quartzite at Uinta Basin Fremont sites are an example of material that could function this way. Examples of Tiger chert as far away as Arizona and central Utah show it entered into an extensive trade network.

The shift in Tiger chert as traded material to being directly accessed coincides with the argument of the rise of big men. Additional evidence of the increase in Tiger chert with technological improvements is seen at a logistical site (42Da1312) in Sheep Creek Canyon. At this site a brush structure and reoccupied work area were occupied between AD 250 to 1030. The dates, a Rose Springs projectile point, maize, cheno-ams and a Uinta grayware vessel appear to be a firm Fremont cultural affiliation. At this logistical site with thousands of flakes the Fremont reduced Tiger chert into bifaces they could transport or trade to other locations. Over 90% of the debitage at the site is Tiger chert, however the Sheep Creek quartzite quarry area is closer to the site and large boulders of the quartzite material are located in the drainage immediately below the site. Obviously, the occupants had come to this area specifically for the Tiger chert, which undoubtedly had a higher value than Sheep Creek quartzite and was traded widely prehistorically

(Loosle 2000). Not only does the percentage of Tiger chert increase through time, but so does the amount of heat treating of the material. Heating treating Tiger chert helps separate it from its matrix and improves its overall quality. The increase in heat treatment indicates a desire to increase the quality and quantity of the material, which is expected for someone attempting to maximize their return. Another indication of incipient specialization is the near standardized size of bifaces at Summit Springs and routine D shaped biface found at Uinta Mountain sites.

In fact, biface production was a central feature of the Fremont toolstone network and process (Loosle 2000:289-291). The majority of bifaces may have been created for transport or even used as medium of exchange. Several caches of bifaces have been recovered from the region. A number of exquisitely produced large thin bifaces of Tiger chert are known (Loosle 2000:290 Figure 5 b). The unusual quality and size of these blades required considerable skill to produce. Rock art panels at Steinaker Reservoir, McConkie Ranch, McKee Spring and other locations appear to depict individuals holding or prominently displaying bifaces. Cole (1990:183) notes “knife like images are large and may represent ‘Fremont blades’ or large shouldered blades,” but does not define a Fremont blade (see Cole 1990: Plates 75, 81, 83; Castleton 1984: Figure 2.38 for examples). We argue a large biface, probably of Tiger chert, may have been a status symbol, or even a sign of authority among the Uinta Fremont. Evidence that individuals once controlled key resources is apparent during the Uinta Fremont period. Unfortunately, it is not clear that any of the large bifaces or biface caches have been found in ritual or ceremonial contexts (Loosle 2000:289-291). Some were intentionally placed in natural niches of rock outcrops or rockshelters, but nothing unmistakably ritual about the placement.

Although many classic examples of hierarchy are missing, like burial goods, there are a few tantalizing possibilities for the incipient rise of Big Men, besides rock art images and toolstone. A necklace with 164 olivella shell beads was recovered from a structure at Caldwell Village (Janetski 2002:349). This unusual concentration of saltwater shell represents nearly the entire count of this exotic material found in the Uinta Basin. The concentration of wealth appears out of place when one or two exotic beads per site is the norm. In another case, abundant bone and shell ornamentation was found in limited testing at Spike Hill, a major village site at McConkie Ranch (Loosle and Horton 2000) on Dry Fork Creek. This included considerable evidence of bead and ornament production, which stands out from the limited evidence of ornamentation found at other Uinta Basin excavated sites. Yet, appears to mimic rock art depictions of bejeweled individuals.

Merkley Butte along Ashley Creek (Loosle and Koerner 1998) is another interesting site with a later date. Situated on an isolated butte nearly 200 meters (600 feet) above the creek the site occupied a unique and commanding view of the area. Most Uinta Basin residential sites are on terraces near the flood plain. Unfortunately, the site was heavily vandalized and limited testing mostly confirmed the extent of disturbance, uncovering limited intact deposits. The abundance of north slope toolstone and unique location of Merkley Butte warrant further investigation to determine if the site was an administrative center or contained an elite residential compound.

### Unsustainable Feedback Loop

One of the more dire aspects of CST is the potential for societies to descend into a death spiral. As a resource is depleted and becomes rarer, it becomes more valuable and potentially more sought after. Additional effort is necessary to obtain these objects and energy diverted from practical or life sustaining activities. “The lifeway may have become increasingly unstable and

burdened by potentially run-away investments in social display” (McGuire and Hildebrandt 2005:708). Initially, rock art creation and other signaling activities may have helped reduce risk during an uncertain period. However, a desire to create more elaborate displays could have required even more effort involving individuals whose knowledge or skills may have been more efficiently used in food production. In this vein, the Three Kings (Castleton 1984:18 Figure 2.6), Freestone Ranch (Castleton 1984:39 Figure 2.48), Poole Canyon or McKee Springs (Castleton 1984:47 Figure 2.60) panels might not represent the height of the Fremont culture, but products of a collapsing society. Failure of a crop planting or hunting trip could also weaken lineages or the status of individuals. How many failed harvests, lost battles, or disease epidemics before individuals sought leadership with lineages who had more powerful armies, better knowledge, successful food production, stronger magic or more compelling ritual practices? What if a leader became more tyrannical or hostile to his own followers? In many societies people vote with their feet, by moving to more favorable locations. I believe the failure of the big man approach led to the abandonment of the Uinta Basin. The absence of elaborate burials and other signs of status suggest the strategy was relatively new and not fully incorporated into society over multiple generations.

## **Conclusion**

Big men, or high status individuals appear to have been a strategy adopted by the late Fremont residents of the Uinta Basin. A distinctive personalized rock art, personal ornamentation, violence, prestige hunting in the High Uintas, and procurement of north slope toolstone are examples of resources possibly controlled by these high-status individuals. These objects helped the individuals signal their suitability, skill or fitness to potential partners or rivals. Communities along Ashley and Dry Fork Creeks adopted this strategy as they attempted to persist through difficult environmental conditions. The strategy was ultimately unsuccessful, and people abandoned farming and left the Uinta Basin.

It is interesting the last horticulturalists in the region occupied marginal environments in northwestern Colorado and in Red Canyon on the Uinta Mountains north slope. These resilient parties practiced a mixed economic strategy of maize horticulture with seasonal hunting in the Uinta Mountains (Nash 2012; Johnson and Loosle 2002). Nash (2012:253) argues prestige hunting probably never existed on the north slope. Although, they probably participated in toolstone acquisition network and profited from it. It is probably too bold to suggest they saw the social practices of the Uinta Basin and rejected cultural elements of the Uinta Fremont core area. The manufacture of elaborate rock art and other symbols of status never appear and there is limited exotic goods. The north slope individuals appear to create their own identify. Are they trying to show they aren't those villagers down south? All five burden baskets found in Red Canyon have unique stair step or lightning designs woven into the matrix (Johnson and Loosle 2000). An interesting red cross-hatch pattern was painted on some Fremont vessels in the Dutch John area. They may also have attempted to show their linkages to the elite in the Uinta Basin. The largest bifaces of Tiger chert (over 80 cm) were found in Greendale during excavation of an irrigation ditch. And the nicest large biface Forest Service crews ever found (Loosle 2000) was on the surface of an overhang on Dowd Mountain. Ultimately, these farmers were also forced from the area, possibly as a result of the conditions created by the Little Ice Age. It appears that a century or more later Ute and then European explorers entered the area, but those are stories for another day. I worry that we may be in a similar trajectory. Caught up in conspicuous

consumption, watching influences on our phones, chasing the next big thing until the Earth can no longer sustain us.



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