Revised and Updated:

Paradigm Shifts, Rock Art Studies, and the "*Coso Sheep Cult*" of Eastern California

By Alan P. Garfinkel, Ph.D.

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Alan P. Garfinkel, Ph.D.
Principal Archaeologist
UltraSystems Environmental
agarfinkel@ultrasystems.com
avram1952@yahoo.com

Founder and Director
California Rock Art Foundation
http://www.californiarockart.org

http://www.dralangarfinkel.com

ABSTRACT

One of the more spectacular expressions of prehistoric rock art in all of the Western Hemisphere is the petroglyph concentration in the Coso Range of eastern California. These glyphs have played a prominent role in attempts to understand forager religious iconography. Four decades ago, Heizer and Baumhoff (1962) concluded that Great Basin petroglyphs were associated with hunting large game and were intended to supernaturally increase success in the hunt. Similarly, in their seminal work Grant et al. (1968) concluded that the mountain sheep drawings of the Coso Region bolstered the "hunting magic" hypothesis.

However, this hunting magic hypothesis has become increasingly marginalized by a prevailing view that considers most rock art as an expression of individual shamanistic endeavor.[1] This paper explores comparative ethnologic and archaeological evidence supporting the hunting magic hypothesis.

I place this explanatory framework in a fuller context based on a contemporary understanding of comparative hunter gather religion and the complexity of forager symbolism. The paper argues that the preponderance of Coso images are conventionalized iconography associated with a sheep cult ceremonial complex. This model is not entirely inconsistent with models interpreting the Coso drawings as metaphoric images correlated with individual shamanic vision quests. A sythetic framework applying both models is suggested.

Introduction

Four decades ago, Heizer and Baumhoff [2] concluded that Great Basin petroglyphs were associated with the hunting of large game. This "hunting magic" hypothesis was based on the distribution of rock art sites found along game migration trails. The researchers posited that the primary animal being hunted was the bighorn sheep. In their work on the Coso Range drawings, Grant et al.[3] concluded that the realistic sheep drawings bolstered that hypothesis (Figure 1).

Yet over the years the hunting magic model has not fared well. At best this interpretation has lost "traction" and is currently classified as an "out-of-favor" theory[4]. The hypothesis has become increasingly marginalized by researchers worldwide[5] and has been replaced by a prevailing view that most rock art is an exclusive expression of shamanism[6].

Any concept that purports to account for all, or even most rock art of a given style or motif, I would argue, is inherently suspect. One would expect to find that different sets of environmental, cosmological, religious, artistic, and social factors influenced the creation of rock art at various times and places. Nevertheless, the manner in which hunting magic has been specifically framed does not provide a clear and full picture of the context and implications of that particularly important model. Such treatment minimizes the role that ritual and symbolism plays in animistic hunter-gatherer societies[7]. It also implies a rather monolithic notion of the eclectic manifestations of ritual behavior identifying them under a singular and somewhat ambiguous term of "shamanism" [8].

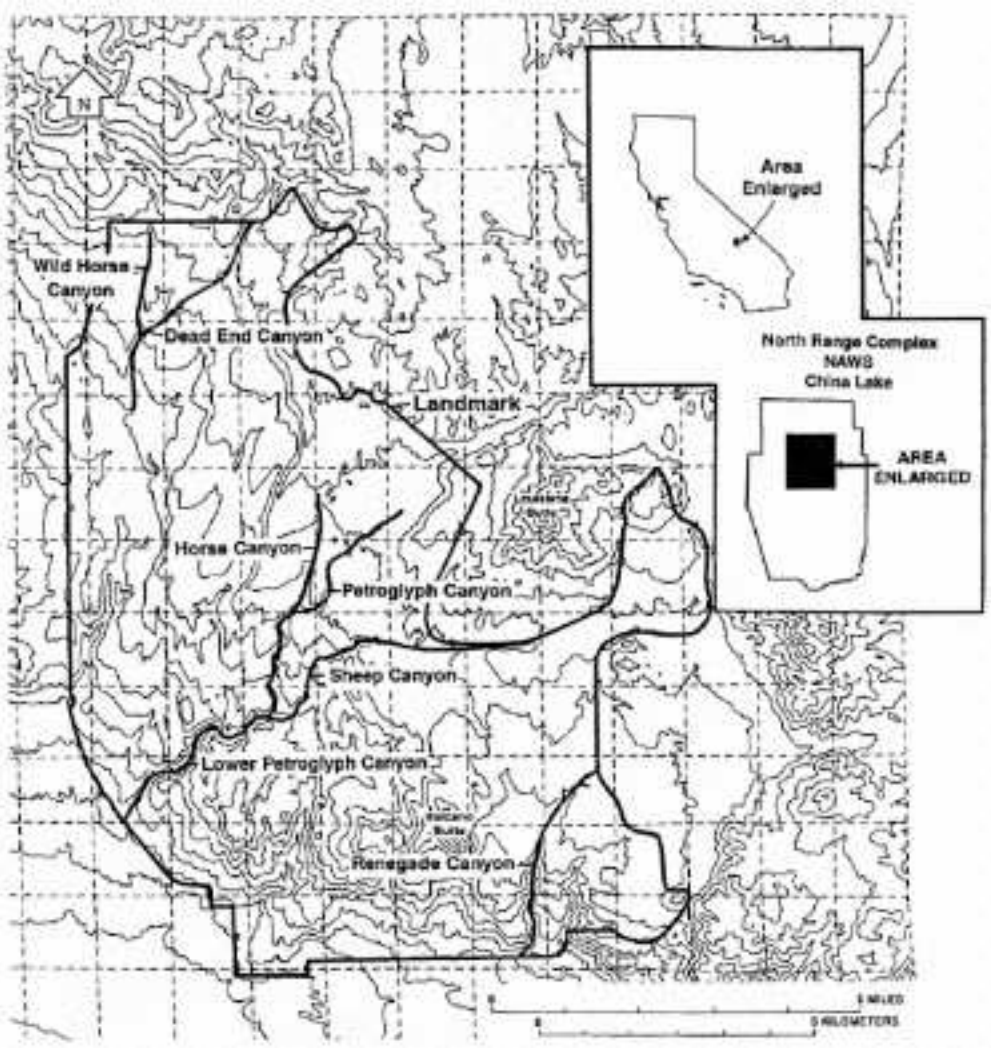


Figure 1. Location of Coso Range rock drawings. The largest petroglyph concentrations are located within the named canyons identified on the map. Boundary of the China Lake Naval Air Weapons Station and location of the station within the state of California is depicted on the inset map. The concentrations of Coso rock art are found excusively on the north base. The north and south base of China Lake makes up an installation of over 1 million acres.

The Meaning of Coso Rock Art

The Coso Range glyphs have played a prominent role in attempts to understand prehistoric forager iconography [9]. They are an excellent example of how these varying perspectives have been framed. This paper is a response to the standard critiques of "hunting magic" and provides empirical evidence supporting it (contra Keyser and Whitley 2006; Whitley 2005). Here I attempt to elaborate on the spiritual and cognitive dimensions of the hunting magic model[10].

Photo 1. The north–south trending Coso Range consists mainly of rhyolitic domes and outcrops of volcanic rock (basalt) cut by washes and canyons of various sizes. Photo by D. Austin

In this paper I compile and evaluate data relevant to interpreting Coso petroglyphs. I argue that Coso drawings are not best understood as the exclusive product of

“shamanism” (contra Whitley 1998a, 2005; Keyser and Whitley 2006; Younkin 1998). Rather, the preponderance of evidence indicates that, one critical element and explanatory platform for the Coso images was an expression of communal religious rituals associated with increase ceremonies of fall communal hunting of bighorn and a spring revival gathering. These rituals functioned to ensure ample game, bountiful plant resources, and perpetuation of the cosmic order of the universe. Fall sheep-kill rituals and spring renewal ceremonies are symbolically expressed in Native iconography.

I first briefly introduce the Coso drawings. Next, I present the two competing hypotheses and identify the nature of the critiques of the hunting magic model. I then turn to material relevant for an understanding of comparative religion and the characteristics of hunter-gatherer ritual, ceremonialism, and cosmology. Following that, I review pertinent archaeological data from the Coso region. Finally I evaluate the merits of the competing perspectives.

The Coso Rock Art Complex

The Coso Rock Art Complex is located in eastern California, within the China Lake, Naval Air Weapons Station (Figure 1). Extraordinary numbers of petroglyphs are pecked into the lava flows, canyons, and tablelands. The glyphs are often associated with rockshelters, caves, hunting blinds, rock stacks (dummy hunters), rock rings, grinding slicks, bedrock mortars (rare), open air midden temporary camps, and flake scatters. Due to the security of the Navy facility, the sites are well preserved.

Photo 2. Counting and documenting individual petroglyphs in rock art panels is time consuming and tedious work. Depending on your criteria for counting, the panel captured in Photo 2 has at a minimum 70 individual petroglyph elements. Photo by D. Austin.

The greatest number of drawings is found within a 90 square-mile area where 35,000 petroglyph elements have already been formally recorded. Systematic inventories provide a conservative projection and element tally in excess of 100,000[11]. Therefore, the Coso Range contains one of the greatest petroglyph concentrations in all of North America (Grant et al. 1968). About 25 per cent of these images are realistic portrayals of the quarry, technology, and ritual paraphernalia associated with bighorn sheep hunting. Bighorn drawings are found throughout Western North America, yet the number of sheep drawings in the Coso Range surpasses the total for all other regions combined[12].

Occupation of the Coso Range began ca. 12,500 calendar years B.P. [13]. Researchers agree that Coso rock art is of long standing. The area was used for thousands of years and into the historic era when Euroamericans disrupted the Native cultures. Yet, large numbers of highly stylized, realistic Coso images were made for only a short time.

Prehistorians disagree on whether that peak production period came prior to 1000 B.P. or within the past 1000 years [14].

COMPETING MODELS OF COSO ROCK ART

There are two prominent explanations of Coso rock art. Both agree that the drawings functioned in a magico-religious context. Grant et al.[14.1] argue that the depictions were associated with hunting magic and a sheep cult, while Whitley[14.2] suggests they were made by individual shamans when engaged in vision quests. By way of definition, Grant's use of the term cult was intended, in an anthropological context, to imply a particular system of religious worship, especially in reference to its external rites and ceremonies, one exhibiting an excessive devotion or dedication to a specific idea[14.3].

Grant, Baird, and Pringle's Model

Correlation of rock art sites with game trails, ambush locations, dummy hunters, hunting blinds, and the overwhelming depiction of sheep and hunting scenes led Grant et al. (1968) to pose sympathetic magic as the purpose of the drawings. The hunting magic model implies that the production of rock art helped to ensure a successful hunt of big game. Bighorn were depicted because they were some of the most difficult animals to hunt. Hunters who were successful gained great prestige[15.]

This "hunting magic" model is not as facile as one might think. A common misunderstanding is that the model only implies the use of magic and rituals intended to facilitate the procurement of game and to multiply the animal population. That is only partially correct. Significantly, in aboriginal societies, bighorn and other culturally important animals were believed to have supernatural powers and were immortals[16]. Slain animals could rise again, reincarnated and reborn, reentering the human world in regenerated bodies.

Bighorn came to be regarded as guardian spirits protecting the Coso folk both individually and as a group. Depiction of sheep demonstrated reverence and magically ensured an uninterrupted bounty in a broader sense than simply ensuring the adequate provisioning of meat[17]. A complex of communal rituals placated the animal's spirit, increased game and provisions in general, and facilitated continued success of the Coso way of life[18]. Rock art was a means of communicating with the resident Spirits and were concrete expressions on the landscape linking the areas with their intended activities for all eternity[19]. Enactment of associated rituals embodied transcendent realities and made them manifest in the everyday world[20].

Photo 3. Ken Pringle (left), Dr. Alan Garfinkel and Bill Wight (background) at Petroglyph Canyon. Photo by D. Austin.

Throughout the world various, culturally central, revered animal ancestors (e.g., bear, bison, caribou, deer, salmon, etc.) were the focus of ritual activity[21]. Shamans and cult priests acted as intermediaries between the world of the supernatural and the human world. Such hunting cults were analogous to the sacred societies that venerated different immortal animal people such as the buffalo on the Plains, the salmon in the Northwest Coast, the deer in northwest California, and large sea mammals (whale, seal, or walrus) from the Arctic and Alaska to northwestern California[22].

The associated religious activities were part of a ritual complex common to Native Americans, including those inhabiting the Great Basin, and shares elements of animal ceremonialism and the journey of ascent and descent typical of forager cosmology worldwide [23]. The first half of that cycle emphasized death and post-mortem rites (see discussion below). It began with a fall festival, communal feast, pantomime dance and sing, ancestor worship, and animal funeral.

Photo 4. This Parrish Gorge petroglyph panel is hypothesized to be a depiction of a post-mortem animal funeral and propitiation ceremony. See Figure 3, Animal Funerals and Post-mortem Propitiation Rites.

A second half of the ritual cycle was the spring revival rites or world renewal ceremonies. An annual ceremony of rejuvenation was timed to the new season of vegetation, normally in the spring, intended to bring humans back into harmony with the universe. As Hultkrantz identifies these ceremonies, “it is a reiteration of the cosmic drama through which the world was formed”[24]. This was the occasion to affirm the common origin of the tribe and emphasized rebirth, magnification of game animals, and a reassurance of success in the coming years. Those rites would complete the journey

of ascent with the re-emergence of animals into the human world[25]. The cosmic journey would finish as the game animals were led back into the world through emergence sites typically associated with underworld portals (springs, seeps, fumaroles, cracks in rocks, lakes, rivers, rockshelters, caves, etc.).

Whitley's Model

David Whitley is part of a small but dedicated band of scholars who are, at long last, bringing the exciting potential of rock art research to a world-wide audience. He has been very prolific publishing in many scholarly journals and authoring a number of books on the subject of rock art centering on method and theory and geographical syntheses. He and his colleagues of course recognize the fact that rock art was created for many purposes [26].

Nonetheless, Whitley has championed a hypothesis for the Coso Range based on neuropsychological principles developed by Lewis-Williams and Dowson (1988). He believes that both abstract and representational Coso images were made by individual shamans recording the visions they experienced during altered states of consciousness[27]. The geometric motifs are entoptic phenomena - the product of our optical system. The more naturalistic or traditional images are culturally determined symbols that were used in vision quests.
Whitley contends that most Coso drawings were produced after A.D. 1000 when a shift from mobile foraging to more sedentary seed gathering occurred. That change threatened social relationships when female gathering became more central than male hunting. A response was the growth of male weather- control shamanism. Accordingly, when a shaman depicted the killing of a desert bighorn he believed rain fell. Hence it was a Numic belief that killing a bighorn was a source of power and weather control.

Coso shamans acquired weather-control powers, particularly power over rain. The bighorn was the central motif identified as a rain shaman's spirit helper. Whitley argues that glyph production in the Coso Range began as much as 19,000 years ago[28]. However, he posits that most Coso rock art was made less then 1000 years ago and was the work of the historic Numic (Great Basin Paiute-Shoshone) and their ancestors.

"Hunting Magic" and Increase Rites

I would argue that increase rituals are, in anthropological parlance, roughly equivalent to what was intended and implied by the "hunting magic" metaphor (*sensu* Grant et al. 1968; contra Keyser and Whitley 2006; Whitley 2005). Such models were, and in some camps continue to be, a reasonable explanation for the animal scenes featured in rock art worldwide [29].

This model fell into disfavor [30] and was largely replaced by shamanism based on several purported weaknesses:

- The ethnographic record failed to support analogs for “hunting magic” among foraging cultures worldwide.
- The subject matter portrayed few animals as “wounded”. Animals were shown escaping hunters. Dance scenes, rituals, ceremonial artifacts, and patterned-bodied “shamans” had little to do with hunting success per se.
- Most locations did not provide evidence for communal kills of game. Rock art sites lacked associated hunting blinds, butchery sites, and other hunting features.
- The animals depicted played only a small part in the diet of the artisans.

Photo 5. Increase rites: Petroglyph panels containing large numbers of bighorn sheep, depicted in both organized and unorganized arrays, are thought to be the focus of ceremonial increase rites or increase rite activities. Photo by D. Austin.

The Ethnographic Record, Hunting Magic Analogs, and the Subject of Coso Art

Many anthropologists assume that the oldest religions center on individual shamanic rituals. Shamans are part-time religious practitioners who perform rituals on behalf of individual clients when called on to do so. These ritual adepts are accepted as specialists because of their personal charisma and established reputation as successful practitioners. They often enter trance states during their ritual performances and may alter established rituals, as they feel inspired; to accommodate the particular needs of specific clients.

Communal cults differ from individualistic ones since they are associated with more complex social organization. Such group religious observances are known from North America, Melanesia, Siberia, and Australia. The ethnographic record documents travels to ritual centers where group ceremonies are performed to preserve and enhance the fecundity of culturally important animals or plants. Such ceremonies are known for foraging cultures worldwide including the Arunta, Katish, and Unmatjera tribes of Australia [31], and many California and Northwest Coast tribes in North American [32], to identify just a few examples.

At the sacred community grounds, increase rituals include calling out the game animal name, chanting melodies related to the animal and dramatic presentations of the mythic history of the site and the animal's association with the area. Acts of magic are included and aimed at enhancing the prevalence of game animals in general. These visits sometimes facilitate group ceremonies including male initiation or coming-of-age rites.

Initiation rites, immediately preceding puberty age for men, were often required as expressions of North American religion. A young boy was required to seek the assistance of a guardian spirit to withstand the trials of existence and have luck in hunting and in life[33]. Those involved in these ceremonies were not necessarily ritual adepts ("shamans") but often commoners. As such, the depiction of visions garnered from dreams is sometimes a culturally prescribed method for coming of age [34].

Photo 6. The "master or mistress of the game animals" protects the animal and offers or withholds them from the hunters. Note the hunting tools being held by the large central figure. This is most likely a ritual atlatl (dart thrower) in the right hand and dart foreshafts in the left. The rightmost figure is adorned with a horned headdress. Photo by D. Austin.

Hunting Culture Cosmology, Animal Ceremonialism, and the Numic

The dominant religious figure or "immortal" of many hunting peoples is known as "the master or mistress of the game animals" [35]. The idea is that every culturally important animal has its own supernatural familiar. That guardian protects the animal and offers or withholds them from the hunters. This deity is an enigmatic animal spirit often larger than ordinary creatures. The animal master ensured success in the hunt.

Information on the animal master is represented among the Numic in Ute and Southern Paiute beliefs. Both groups believed that a being, living high in the mountains, was able to transform into a bird (Raven) and controlled all animals (including bears, mountain sheep, elk, and deer).This "high" god was also associated with lower divinities that provided men with game [36].

Numic mythology makes reference to a number of instances where game animals were reborn after their bones were properly treated and their supernatural power harnessed for increase of animals. Older Numic animal ceremonialism had been largely lost and replaced or reinterpreted to suit the dominant religious pattern of the shamanistic vision complex [37]. The more modern Plains ritual of the Sun Dance is not of Shoshone origin but became the central ritual for some Numic groups. That ritual features a bison head on a pole representing game animals and all types of food and nourishment. The Sun Dance ceremony originally was a ritual that safeguarded the progress of the coming year by recapitulating and dramatically presenting the creation story.

A recurrent Numic myth mentions the release of game animals by Coyote. Coyote opens the pen or cave where Wolf has kept the wild animals and they run away to his dismay. In some variations it was a deity with both bird and human qualities, Crow and his people, who had the animals secluded, and it was Weasel that let them go. The deed, in some variants, is specifically of benefit to the Numic. In other variants it is Coyote that reshapes the animals and adds mouths, ears, and eyes [38].

Coso drawings often (n = 700+ elements) depict pattern-bodied animal-people (Figure 2). These images are sometimes interpreted as shamans in costume. Given the nature of these symbols as compound metaphors, these highly decorated images could also represent central supernatural figures from Coso religious lore (contra Keyser and Whitley 2006) [39].

Francis and Loendorf have argued that somewhat similar interior-lined body form glyphs in the Dinwoody area of the Sheep-eaters of Wyoming and Montana are equivalent to key mythological figures in Numic cosmology. Specifically their interior design is thought to have referents to the skeletal system and the concepts of death and ancestor worship. As such a "Lord of the Dead" immortal could have been the being represented in the Dinwoody area and perhaps in some cases in the Cosos. Alternatively the Coso figures could symbolize the Animal Master or Mistress.

The thin avian legs and claw-like bird feet and talons, typical of nearly half the Coso figures (n=200+) are consistent with the Animal Master/Mistress analog (Figure 2). These avian figures often carry hunting equipment - an atlatl in one hand and dart foreshafts in the other [40]. Other similar Coso figures have dart points projecting from their heads or shoulders [41]. This association of hunting paraphernalia would further support the Animal Master/Mistress referent. Talons are consistent with a "avian god," who soars into and inhabits the Upper World [42]. Birds are bipedal singers, often messengers from the spirit world, and songs are linked with power [43]. Birds are also a metaphor for power (a central Numic religious concept known as *puha*) and supernatural birds conferred great power. Certain birds (the Eagle) were particularly important sources for success in hunting [44]. The Coso animal-people figures are rendered in hundreds of different yet grossly similar forms [45]. This variability was initially problematic. Yet these personifications may have been intentionally rendered in an indeterminate form. Laird [46] indicates that such deities "shimmer" between forms, possessing an iridescent quality "morphing" about, subject to their own whims.

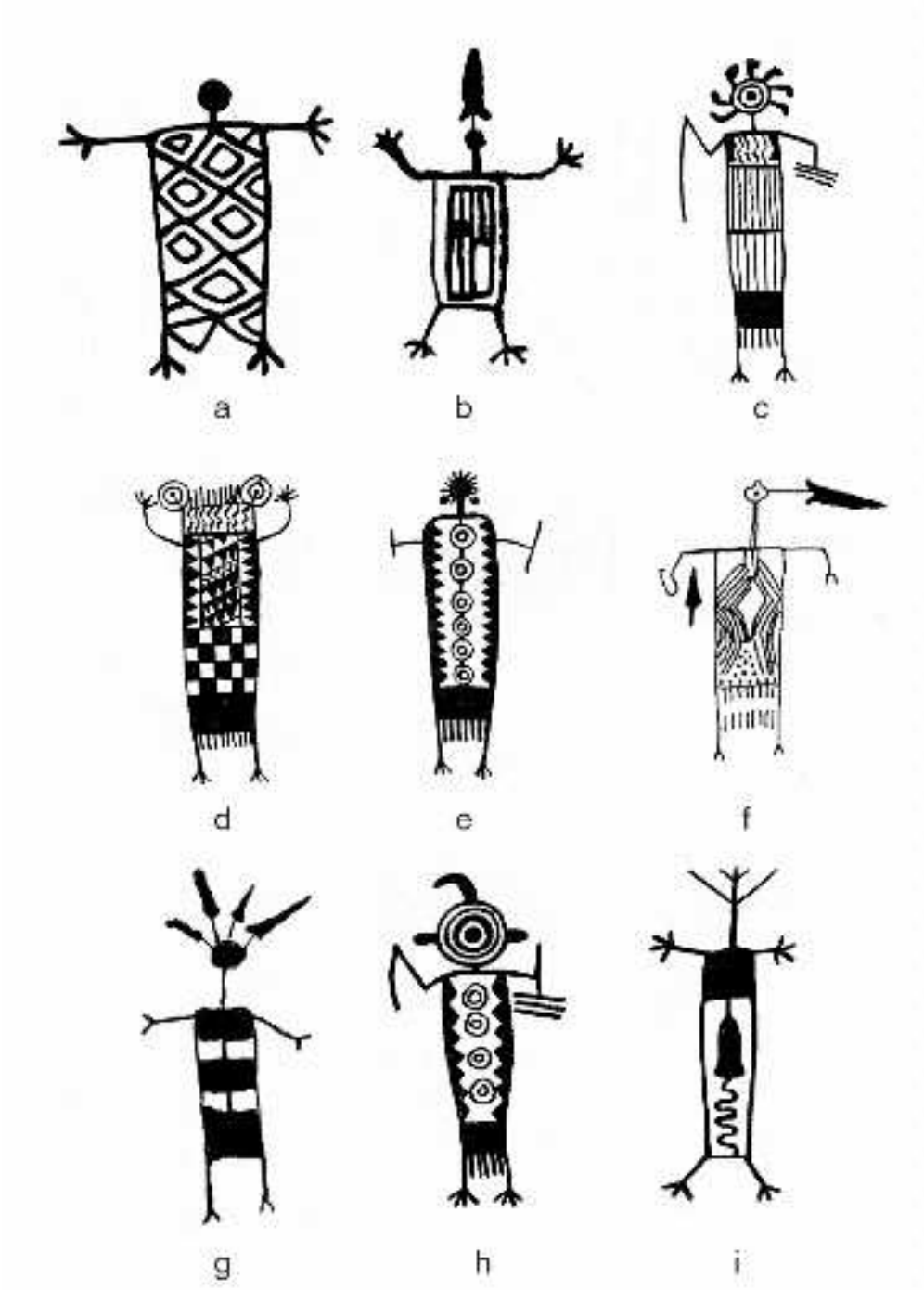


Figure 2. Patterned body anthropomorphic figures. These figures appear to represent human and animal conflations. Note the taloned feet, head adornments, and hunting weaponry associated with the figures. A, c, d, e, and h are from Renegade Canyon; b and f are from CA-Iny-5 (aka Junction Ranch 3 and Sunrise Cliffs); g and i are from Big Petroglyph Canyon.

Animal Funerals and Post-mortem Propitiation Rites

Two Coso petroglyph panels (CA-Iny-40 and –43) depict sheep skulls perched atop poles [46.1]. At Parrish Gorge (CA-Iny-43), a person reaches for a weighted atlatl (Figure 3). The man has a fringed basket or hide bag on his back and a wand at his feet. Dots lead from the base of the pole, holding the skull, and trace a path in spiral fashion back to the man's hands. The weighted atlatl is juxtaposed with a pierced, prostrate bighorn with a second weighted lance piercing the animal's side.

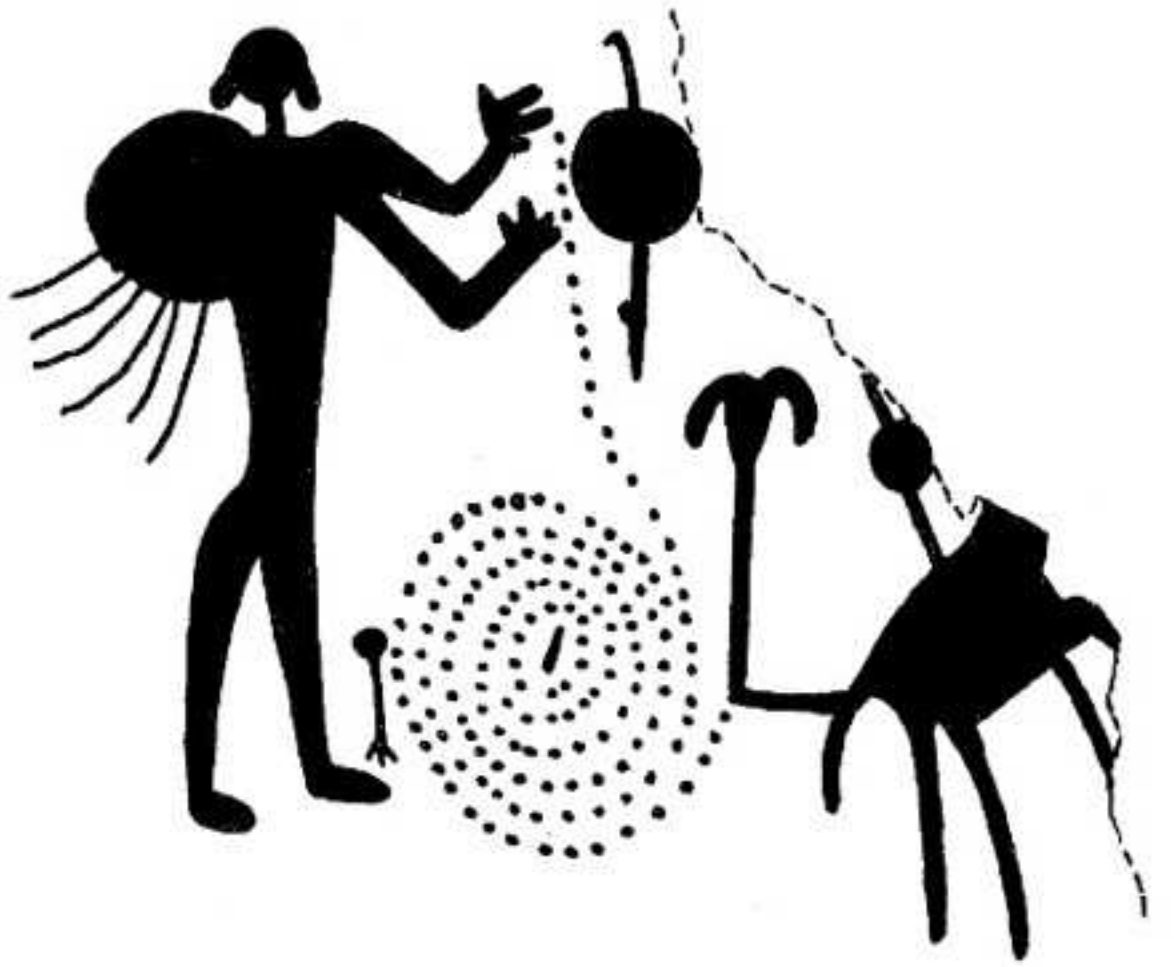


Figure 3. This panel is hypothesized to be a depiction of a post-mortem animal funeral and propitiation ceremony. The panel is located in Parrish Gorge and is identified as part of the collection of glyphs at CA-Iny-43. This graphic may be a visual representation of the mythic journey: hunt, death, ascent to the upper world via the sacred pole, and seasonal return/

regeneration back to the middle human world, upon being restored, traveling up from the lower world – arising from the land of the dead and ancestor spirits. The atlatl appears to be symbolic of the hunt. The pierced bighorn may represent death. The bighorn skull perched atop a pole may indicate the post-mortem bighorn funeral and propitiation ceremony. The spiral dot pattern perhaps shows the path of the animal's spirit back to the land of the living and into the hands of the Coso huntsmen.

This glyph seems to depict a post-mortem bighorn funeral and propitiation ceremony. I would argue that the panel clearly supports a hunting magic model. Similar animal rituals have been documented worldwide and have several characteristic elements. They begin with a ceremony for "seeing the animal off" by placing its skull on a sacred pole, orienting it eastward (a metaphor for ascent – toward the rising sun), and "feeding" it with ritual foods.

The atlatl is most likely symbolic of the hunt. The pierced bighorn appears to represent death. The spiral dot pattern might show the path of the animal's spirit back to the land of the living and into the hands of the Coso huntsmen [47]. Such an illustration would appear to communicate the central Native American religious theme of the necessity of death to sustain life and to be reborn (see discussion below under The World Pole). This image supports the notion that "hunters and hunt shamans performed propitiatory rituals both to ensure and commemorate hunting success" [48] identified just such animal ceremonialism, group religious ceremonies, and associated big game hunting rites for Numic groups in the Great Basin (contra Steward 1940, 1941).

The World Pole

The pole, in cross-cultural perspective, signifies the world pillar connecting three worlds (the human world, upperworld, and underworld). This "world pole" is a prominent element of reconstructed, ancient, Great Basin cosmology, hearkening back to an Archaic circumboreal ideology [49]. Ute (Numic) mythology and animal ceremonialism, although central to the bear, manifests remarkable parallels. The pole, originally a deciduous tree, is a metaphor representing death and rebirth as the tree goes through a process of "dying" (shedding its leaves and going into a relatively dormant state in the winter) and coming to life again in the spring. The pole is also a means of travel, a road for the Animal Master, helping to provide a safe return, means of reincarnation, and an aid for leading game animals back to the tribal hunting grounds in the spring [50].

Pantomime dances, mimicking animal behaviors, are conducted and associated with reviving the slain creature. The latter are an enactment of the mythic journey. That journey includes: the hunt, death, ascent to the upper world via the sacred pole, and seasonal return/regeneration back to the middle human world, upon being restored, traveling up from the lower world – arising from the land of the dead and ancestor spirits [51].

The animal is fed in hopes of sending messages to deceased ancestors. Finally, ritually drawn images of animals are created for the purpose of restoring game to life and returning the animal medicine back to the tribe [52].

Coso Rock Art Hunting Scenes

Coso rock art shows armed hunters chasing mountain sheep. Dogs are also illustrated driving the sheep (Figure 4). Complex scenes depict archers with dart throwers (atlatls), spears, bows and arrows, impaled game animals, and mountain lions (Figure 5). Mountain lions are a logical metaphor for success in the hunt since the large cats are known as keen hunters of bighorn. Mountain lions may also be illustrative of spirit helpers, invoking a desire by hunters to be as skilled as lions in their attempts at killing sheep.

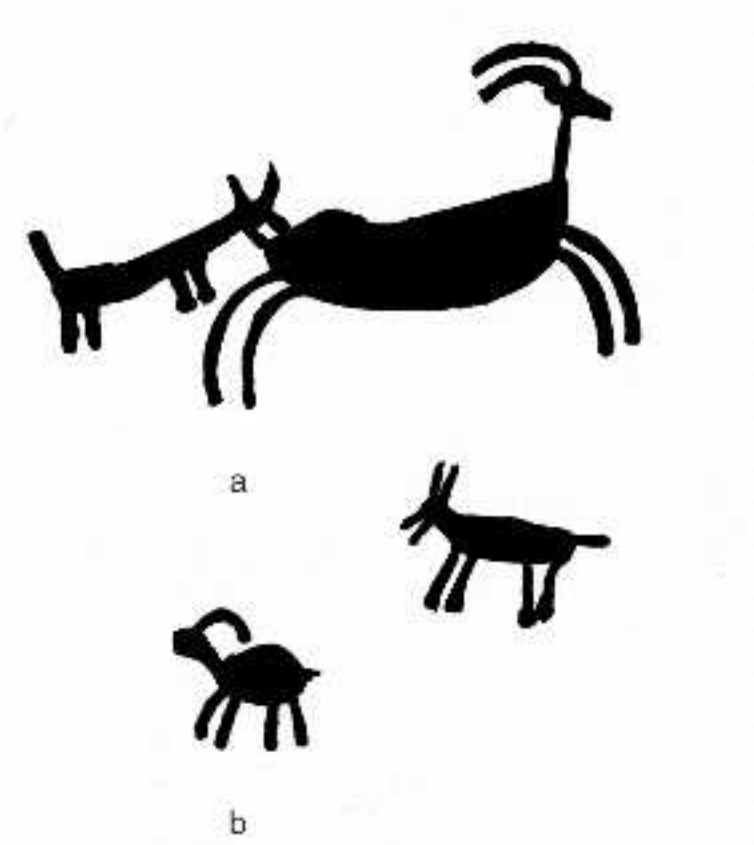


Figure 4. Dogs attacking sheep. Dogs are depicted in Coso petroglyphs with short tails and pointed ears. Glyph a is from Big Petroglyph Canyon and b is from Renegade Canyon.

Figure 5a and b. Bow and arrow armed hunters attacking sheep. A is from Sheep Canyon and B is found in Renegade Canyon. Archaeologists believe that the bow and arrow was introduced into the Coso region ca. AD 200. Photos 5a, b, d, e www.sandcarveddesigns.com stock photographs.

In *Flowers in the Wind* edited by Thomas Blackburn in the article by Zigmond on the Kawaiisu, it mentions that notes taken by Theodore McCown from Bob Rabbit in 1929 indicated that "dreams of fighting always mean good luck in hunting". see Figure 5e. If, as Whitley suggest the petroglyphs capture visions or dreams then the picture in Little Petroglyph Canyon (aka Renegade Canyon) of the two bow and arrow fighters might then be a metaphor for hunting success?

Figure 5e. A Numic ritual specialist shared that the depiction of fighting men was meant to be a metaphor for hunting success.

Figure 5d. Mountain lions attacking sheep. Mountain lions are often rendered with tails that are nearly as long as or longer than the animal's torso and that sometimes curves backwards over their backs. Also mountain lion images can be differenentiated from other zoomorphs by the rounded paws rendered by the artisans. Image from Renegade Canyon.

Spring Rebirth and Increase – Herds of Game Animals

Based on a review of Coso petroglyph panels (n = 359), there are many more healthy, prosperous, and lively sheep than those suffering attacks by Coso hunters or predators (Figure 6). Many petroglyphs show sheep running or leaping and engaged in notable movement. Such illustrations have been used as a criticism of the "hunting magic" hypothesis. Yet I would argue that these images were made based on a desire for an increase in game animals - to magically ensure a continuous food supply and a plethora of game. This expression is exactly what would be predicted as the intent of the Coso artisans in order to supernaturally increase game and ensure a continuous abundance of animals.

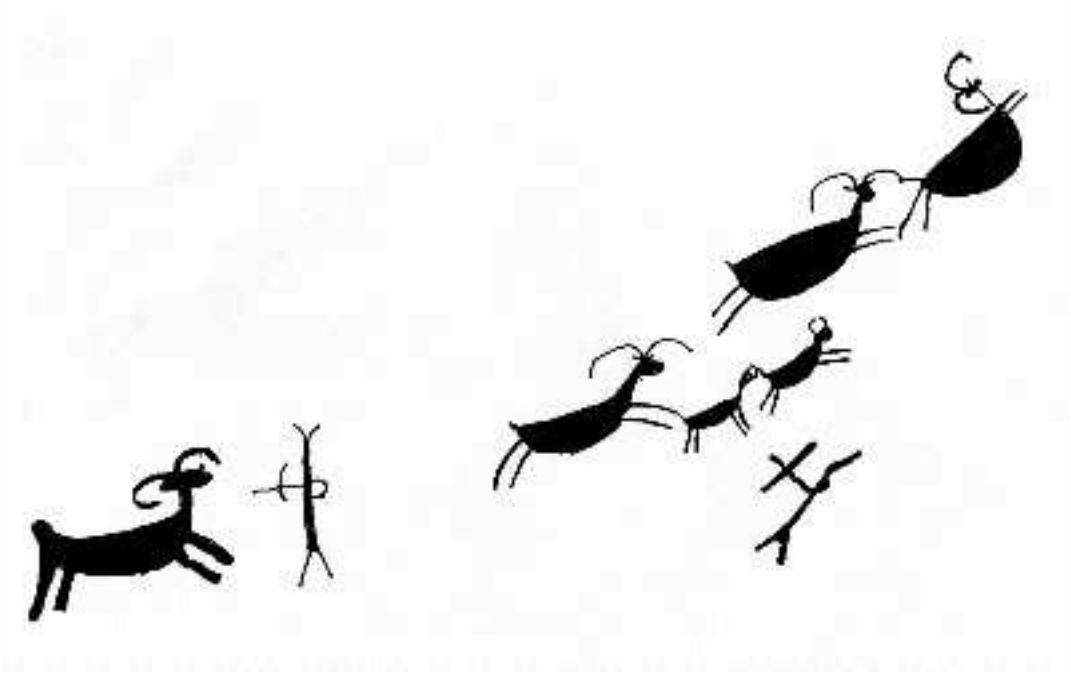


Figure 6. Animated and lively sheep from a panel found east of Carricut Lake. Bow and arrow hunters with rams, ewes and lambs. The sheep seem to be bounding away and in great motion.

The Coso panels are replete with many scenes showing long lines of sheep emanating from the rocks and crevices of the lava boulders and canyon walls. Numerous depictions show sheep in disjointed arrays, and collections, sometimes with other game animals (including deer or antelope) in eclectic concatenations. It seems reasonable that the narrative elements of these compositions correspond to specific mythology and restoration beliefs imploring the "Master of the Game Animals" to release the unborn souls of the deceased game animals and lead them back to the middle world of the Coso natives [53] (contra Keyser and Whitley 2006).

Western Great Basin cosmology and oral traditions emphasize the underworld as a secluded place, yet richly endowed and wonderfully adorned, populated by game animals, an idealized copy of life above, from which a culture hero leads the game animals back to middle world humans [54].

Therefore it seems plausible that the Coso believed (as did a number of other forager people) that the underworld was the source for replenishment of game animals. The animal images in the Coso Range attest to a practice of contagious magic acting on these sacred rocks, tanks, springs (hot and cold), cracks/holes/crevices in the rocks, and canyon walls. Hence the rock pictures may manifest the animistic belief that a revered sky god or animal spirit helper would regularly "recharge" the Coso hunting grounds afresh with a new supply of regenerated bighorns and other animals.

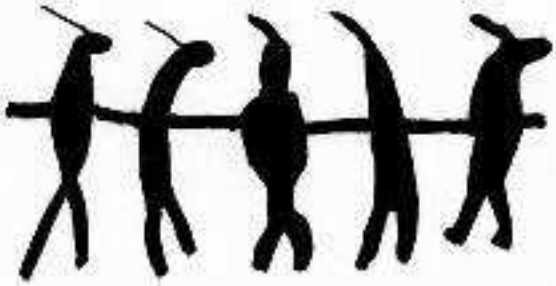
This would assure a never-ending cycle of rebirth that would begin anew each year. Jay Miller (personal communication 2007) in fact seems to imply such a notion by suggesting that in general Numic "rock drawings are a means to track and record power-energy interactions and to keep that channel open." Coso rock art is then a possible reinforcement for and a depiction of the mythic tradition of an animal or human/animal intermediary and its re-emergence into the middle human world leading game animals to rebirth, fecundity, and fertility [55].

Depiction of Dancers

A number of Coso petroglyph panels and elements (n = 10 panels; 190 individual elements) appear to portray many people dancing or traveling to or from a group ceremony (Figure 7). On one panel alone, in Renegade Canyon, there are over 80 individuals shown all in a row.

The Numic Round Dance and Father Dance are associated with world renewal circle dances and sings [56]. Those dances served as thanksgiving to a supreme deity for the largesse that had come during the prior season. Such a group ceremony included reverent communication to a central immortal and hope for continuing bounty in the future. For the Southern Paiute (Numic) songs were a central element of the ceremony. These songs originated in the dreams of the attendees at the round dance and were sung to enhance the killing of game [57]. Such large communal gatherings were associated with periodic abundance in resources facilitated in part by communal hunting of big game [58].

a



b

Photo 7. American Indians participating in a circle dance.

c

Figure 7. Dancers. These three panels seem to show strings of dancers clasping hands and in notable movement. They appear to be synchronized in their motions and are sometimes connected hand to hand. Most have feathered headdresses. All three panels are located in Petroglyph Canyon. Photo by D. Austin.

Animal Costumes

A recurrent Coso motif (n = 200+ elements) details a figure (animal-human conflation) adorned with sheep's horns (Figure 8). This suggests a ritual where a person would take on the spirit identity of the sheep. The idea of transformation from a human to animal is common to hunter art worldwide. Hunters are attuned to the qualities of animals and they become symbols for agility, survival, and power over one's enemies. Increase rites and world renewal ceremonies regularly feature dancers in animal costumes, masks, and headdresses. The Numic also used hunting disguises. These included headdresses and body suits employing the entire skin and also using the head and horns (contra Keyser and Whitley 2006; cf. Steward 1943a:294; Stewart 1942:242).

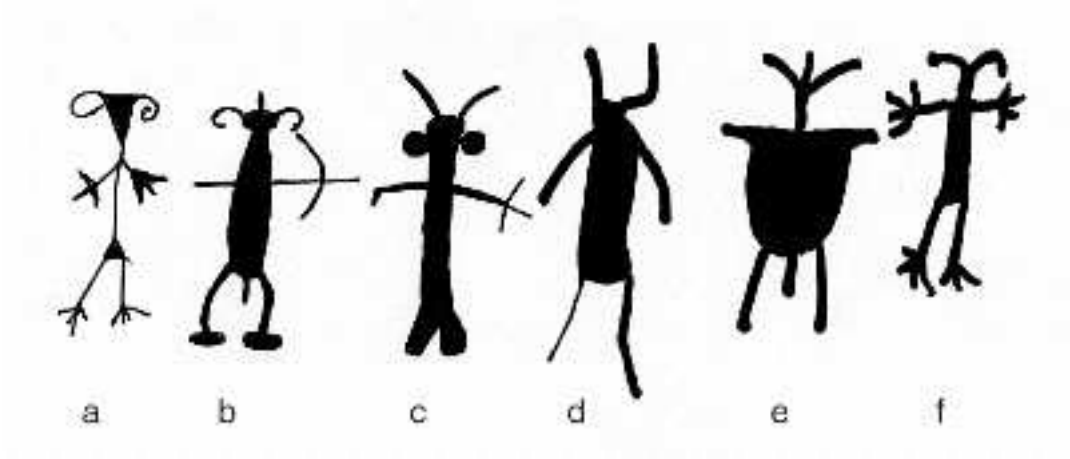


Figure 8. Sheep costumed figures. A variety of depictions of conflated human-animal figures. Full front facing bifurcated horns are a hallmark of the Coso style of bighorn depictions and are a feature common to all the figures. a and f have birdlike feet & hands. b, c, d and e are more human in form with more human hands & feet. a is from Little Lake just outside and west of the China Lake Naval Air Weapons Station boundary. b is from Sheep Canyon c is from Petroglyph Canyon d, e, and f are from Renegade Canyon.

If it were the Coso intention to magically control the habits of the sheep, ensuring success in the hunt, rendering such images would certainly be a sensible way of getting into the mindset of the bighorn. Miller, and Olofson [59] remark that it was the Numic practice to keep in contact with Spirit helpers through their minds, via telepathy, and that this process would routinely produce concrete expressions including personal health, success, and physical rewards. Hultkrantz [60] indicates that spirits, sometimes in animal disguise, were some of the supernatural beings that were recruited by Numic individuals to provide them with success in hunting.

Keyser and Whitley [61] seem to believe that a sheep horn headdress is impractical. They posit, because of the weight and configuration of sheep horns and crania, that

such a disguise would not have been possible. However, ethnographic references document the head and horns as hunting disguises for the Great Basin Numic [62]. Also, in contrast to Keyser and Whitley, aboriginal ingenuity seems to have won out, with just such a bighorn crania and horn headdress being discovered in Canyonlands National Park in Utah [63]. The horns were divided in half to minimize their weight and were then sewn to the skull to ensure permanent attachment. Olivella shell ornaments were attached to this headdress and the regalia may have been used with a hood. Such a headdress could have served either as a ceremonial accouterment or as a more utilitarian hunting disguise [64].

Photo 8a. Bighorn cranium & horns headdress with Olivella biplicata shells discovered in Canyonlands, Utah. The horns were cut in half (so they appeared intact from the front and side, but hollow from the rear) to reduce weight, then drilled around the edges and sewed to the cranium with unidentified cordage so that they would not become detached once the tissues dried. The cranium was drilled and olivella shells attached using sinew. It appears likely that there was another piece to the headdress, such as an attached hood or tie, because it would have been difficult to keep it on the shamans head in its current form. The bighorn headress has been radiocarbon dated to ca. AD 1000 which is consistent with the dates for the beads (Matheny et al 1997: Figure 2). Photo by Alexander Rogers.

Photo 8. Tesuque Buffalo Dancers, Tesuque Pueblo N.M., wearing large elaborate headdresses made of buffalo horn and long hair sections of buffalo hide. Such headdresses could also serve as hunting disguises. Although hot and heavy to wear, the stamina to perform in such a costume would be a credit to the individual.
Edward S. Curtis photo

Another analog to the sheep headdress was the bison (buffalo) headdresses of the Plains Indians. These were also heavy, awkward, and improbable but were nonetheless extensively employed and incorporated into animal pantomimes and ritual dances at seasonal increase ceremonies [65]. Murphey [66] also has identified petroglyph elements strikingly similar to the horned anthropomorphs noted in the Coso Range. These petroglyph figures were identified at the Kanaka-Briggs Creek locality in the northern Great Basin in Idaho and were interpreted as similar in age to the peak production period posited for the Cosos or ca. AD 1000. Murphey argues that the horned anthropomorphic images depicted are hunters wearing mountain sheep disguises and/or ceremonial headdress paraphernalia.

ARCHAEOLOGICAL EVIDENCE FOR COSO BIGHORN SHEEP HUNTING

Locations and Context

Coso petroglyphs occur at optimally suited ambush and trap locations that allow for communal big game hunting [67]. The art is prominent in open-air, amphitheater-like settings. In contrast, rock art in more secluded contexts, hidden from public view, has often been interpreted as vision quest sites [68]. The private sites are where shamans produced imagery associated with altered states of consciousness. The Coso sites differ from these, being situated along well-used game trails in direct association with watering holes (natural tanks) in the steep walled canyon bottoms. Some glyphs are at gorge entrances next to hunting blinds.

The largest groupings of rock drawings are in Petroglyph, Renegade, and Sheep Canyons (Figure 1). These are natural sheep “traps” (cul-de-sacs and hunting enclosures) where game could be driven past hidden hunters armed with atlatls and darts, spears, or bows and arrows. Glyphs are also found on stony promontories astride saddles between drainages. Smaller concentrations are located near springs.

ASSOCIATED ARCHAEOLOGICAL FEATURES

Hunting Blinds

Rock structures, interpreted as hunting blinds, are regular components of the Coso sheep trap complexes [69]. The blinds are just above the streambed so archers could fire weapons as sheep channeled past them (contra Keyser and Whitley 2006). Some glyphs are directly on boulders forming the blinds. Several blinds have been recorded within Renegade Canyon, Upper Centennial Spring, and south Sugarloaf Mountain. I noted blinds within Sheep Canyon, Junction Ranch, and Parrish Gorge. Many are also on Coso Peak and Silver Peak in the pinyon zone above 5,500 feet in elevation.

Dummy Hunters

Dummy hunters are found along the canyon rims of the largest Coso galleries. These are not isolated features but rather multiple collections of stacked rock sculptures serving as figurative hunters (Figure 9). Such decoys were used by Native hunters in many areas of North America. Such constructions are especially important among the Inuit caribou hunters in the Arctic. There they are known as inukshuk meaning something that substitutes and performs the function of a man. These stone constructions mark places of power and were used in a variety of ways including to drive herds of game to where they would be killed in numbers by Native hunters [70].

Photo 9. Dummy hunters, sometimes elaborated with arms made from sticks, were constructed by making vertical piles of stones along ridges and canyon walls to prevent game from escaping in that direction. The dummy hunter shown is from a Nevada site.

Similar stone features are also known in Nevada, associated with the Paharahnagat petroglyphs [71], where they are located just above the game trails and water sources [72]. Dummy hunters constructed of wood were used by the Cheyenne on the Plains to funnel buffalo into drive lanes [73]. These wooden sentinels were known as “dead men” since they directed the bison along a path to their death.

The hunters of stone are known from several areas in the Coso Range. In Sheep and Upper Renegade Canyons there are large numbers (n = 30+) of these piled rock figures. These rock stacks are sometimes weathered and tumbled from age but many still stand from two to four feet tall. They are always situated on the north-facing, shaded portion of the drainage so that they manifest in silhouette from below.

Figure 9. Dummy hunters. These stacked rock features are located atop the north-facing ridge on the volcanic tablelands above Renegade Canyon. Photo by Bill Wight.

Muir [74] describes the communal hunting of bighorn and the use of such features:

"Great numbers of Indians were …required. … (and) they were compelled…to build rows of dummy hunters out of stones, along the ridge-tops which they wished to prevent the sheep from crossing. And without discrediting the sagacity of the game, these dummies were found effective; for with a few live Indians moving about excitedly among them, they could hardly be distinguished at a little distance from men, by anyone not in on the secret. The whole ridgetop then seemed alive with archers."

The narrow defiles of the Coso Range were perfect for such communal drives. The many stone sentinels serve as contextual evidence for the intensive hunting exercises focused on communal sheep hunting.

Photo 10. To the Inuit of the arctic region, *inukshuk* are stone figures made by piling rocks on top of one another, and used as direction indicators, danger warnings, monuments and hunting helpers. *Inukshuks* can be small, only on or two rocks, or large, consisting of many rocks used in a larger than life form.

In their language *inukshuk* means "likeness of a person". *Inukshuk* in the form of humans are called *inunnguag*. One important type of *inukshuk* used in caribou hunting was embellished with arctic heather to simulate human hair. The *inukshuk*, or dummy hunters, where constructed in converging lines along migration routes and were intended to funnel the caribou towards places of ambush.

Timing and Character of the Hunt

Fall is the only season when rams, ewes, lambs, and yearlings commingle [75]. At other times ewes and rams are normally segregated. Aboriginal people were well aware of the highly predictable rutting season of the bighorn. During this season rams vie for top breeding rights. Headlong, thunderous clashes could be heard echoing in the canyons during dominance displays by competing males. This was when rams lose their “competitive edge” and are less wary. At this time human hunters and mountain lions would have preyed more successfully since rams were especially vulnerable. Many hunting forays must have occurred during this season given the concurrence of rams, ewes, and lambs depicted in some Coso drawings.

Bighorn hunts were conducted in a variety of ways [76]. The analog for the Coso pattern are communal hunts, surrounding sheep, driving them into enclosures or nets, guiding the sheep with fire and dogs, and running the sheep past hidden hunters [77]. Stewart notes that hunters would also occasionally make loud noises – pounding objects together to imitate the clash of rams in battle.

Tinajas

Rock basins (*tinajas*) are found throughout the Coso canyons where large concentrations of glyphs occur. These natural tanks, or literally "earthen jars", are found along the floor of the petroglyph walled canyons in rock crevices that are deep and shaded. The basins often contain sand and trap water, slowing evaporation and holding water for many months. Thundershowers refill the basins and provide watering holes for bighorn that use specific tinajas, generation after generation, tethering the bands to this particular geography during their annual pilgrimages from highlands to valley floor.

Dating Coso Representational Petroglyphs

Gilreath [78] developed a novel method to date the Coso petroglyphs. She examined 43 petroglyph sites correlating them with a restricted range of associated obsidian hydration measurements and used these chronological indicators as a temporal fix for the glyphs. Analysis suggested an abrupt decline and termination for the drawings no later than A.D. 1300 (with 94% of the 505 obsidian hydration measurements falling into earlier time spans). Research also indicated that Coso rock art is almost exclusively a pre-Marana Period (A.D. 1300-1850) expression (greater than 3.7 microns of Coso obsidian hydration measurement for lowland archaeological sites), with a distinctive Haiwee Period emphasis (A.D. 600-1300, or 3.7-4.9 microns).

Single-component Coso petroglyph sites (those with a restricted range of associated obsidian hydration measurements representing a single prehistoric period) appear initially in the Mojave Period (10,000 – 6500 B.C.), yet over half (n = 8 of 11) of these sites date to the Newberry and Haiwee intervals (2000 B.C – AD 1300). Based on a suite of nearly 100 obsidian hydration measurements for the rock art sites themselves, over half of the rim readings are grouped within the late Newberry and Haiwee periods (1000 BC – AD 1300) or 50 readings out of the sample of 96 measurements.

Photo 11. Projectile point anthropomorph. Analysis of projectile point types depicted in rock art panels helps date petroglyph manufacture to particular time periods. Archaeologists have argued that these points are types identified as rose Spring Corner Notched or Eastgate Expanding Stem arrow points dating to the period from ca. AD 200 to 1300. Photo by D. Austin

Recent independent testing of Gilreath's dating scheme supports its general validity [79]. Evaluation of the archaeological associations of stylistically similar drawings at the Terese site (CA-KER-6188), just outside the Coso Range, provided a temporally equivalent suite of obsidian hydration measurements. Further validation of the dating scheme comes from an analysis of the projectile points depicted in Coso petroglyphs. The drawings of realistically rendered arrow points were interpreted as analogs of either Rose Spring Corner-notched or Eastgate Expanding Stem forms [80]. Garfinkel and Pringle [81] argue that such depictions date the peak rock art production to the Haiwee interval (A.D. 600-1300) supporting Gilreath's position.

Systematic surveys, limited excavations, and experimental x-ray fluorescence dating of the glyphs also support the position that most occupation in the Coso Range occurred during the Newberry and Haiwee eras [82]. Hence chronometric and relative dating suggests that Coso petroglyphs were not made during the last 600 years (contra Keyser and Whitley 2006:18; Whitley 2005).

Assuming that these dates are relatively accurate, Coso style petroglyphs may have been authored by pre-Numic (aka non-Numic) rather than a Numic population [83]. Late prehistoric Coso hunters may have seen a reduction in the size of the local bighorn population. This bighorn depletion might have been caused by over hunting or alternatively the bighorn herds could have been seriously affected by a loss of quality forage and watering holes caused by a protracted series of intense droughts [84]. In any event, it appears that after A.D. 1300 large game hunting was de-emphasized with respect to the subsistence pursuits of the local Natives and the Coso rock art tradition abruptly ceased [85].

Diet of the Coso Artisans

Scholars debate whether animals depicted in rock art were the ones included most often in the diet or were rather informed with symbolic and religious significance as well as socioeconomic importance. Large artiodactyls, while central game animals, still tend for practical reasons not to be hunted very often. Therefore, plant foods and smaller game normally dominate the diet of hunter-gatherers.

The desert bighorn sheep is a big game animal par excellence and of striking appearance (Figure 10.1). It is massive in size (rams weigh from 119-127 kg), has dramatic qualities in terms of its agility, movement, strength, and in the shape of its horns [86]. The deep religious significance given the animal as a dominant symbol belies the animal's functionality as an exceptionally aesthetic and cognitive focus.

The presence of animal motifs in Coso art reflects a pervasive sense of sympathy, affinity, and kinship between animals and people [87]. Nevertheless, we know for certain that the Coso people hunted bighorn sheep and relied heavily on this big game for a significant part of their animal food.

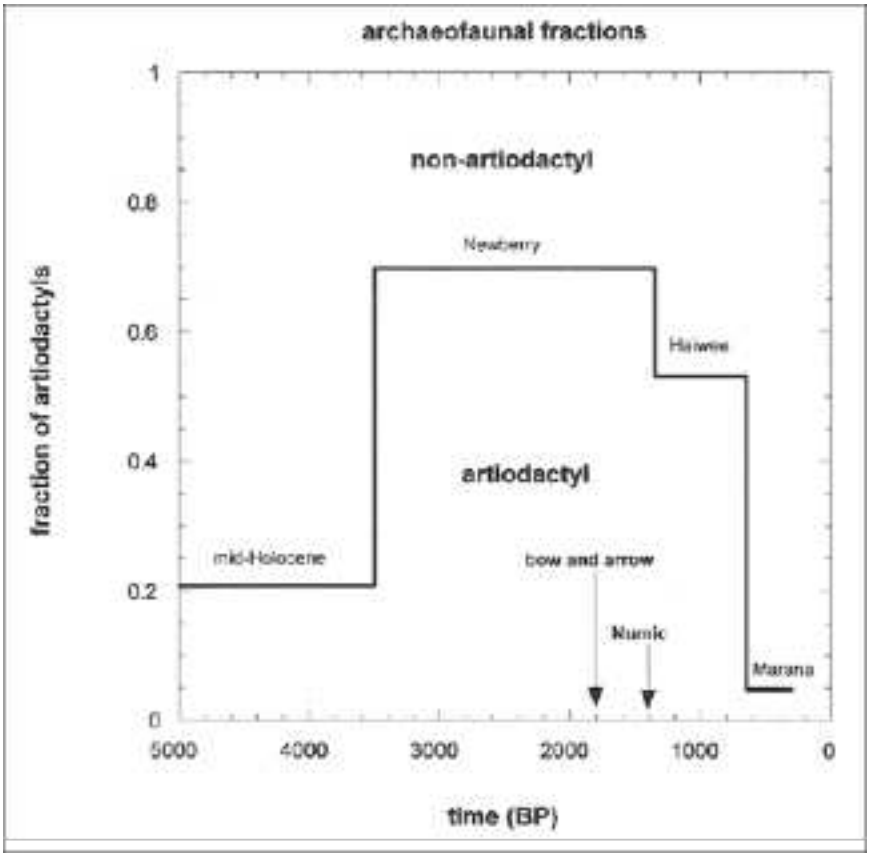
Figure 10.1. A desert bighorn sheep (*Ovis canadensis nelsoni*).

Photo 12. A group of bighorn ewes on a canyon ridge.

Holanda and Delacorte [88] produced a synthesis of archaeofaunal data from the general Coso region. Their data include a summary of archaeofaunal remains from Inyo, Mono, and San Bernardino counties and tally 150,000 faunal elements from more than 140 archaeological contexts. In the immediate vicinity of the Cosos are the data from Inyo and San Bernardino counties that include nearly 20,000 pieces of bone identifiable to the family level or better and tally materials from more than 75 prehistoric sites.

The highly fragmented artiodactyl bones recovered from eastern California archaeological sites are often difficult to differentiate as to species. Of the artiodactyl remains that were identified to species, bighorn sheep are dominant (510 of 523 or 97 %).
Therefore, the pro rata share of the entire faunal assemblage identified by class is most likely dominated by bighorn sheep bone dating to the Newberry era (2000 BC – AD 600). Furthermore 70% of the entire faunal assemblage for this temporal period is composed of ungulate remains with small mammals, lizards, and desert tortoise making up the remainder.

Table 1. Terrestrial Fauna from Southeastern California[a]



[a] Adapted from Hildebrandt and McGuire, 2002

Notes: Artiodactyl remains include those fragments of animal bone that could not be classified as to species but would include taxa identified as bighorn, deer, and pronghorn.

The bighorn sheep focus for hunting activity appears to have been almost as important during the following Haiwee interval (AD 600-1300) dropping to 53% of the total faunal inventory. Again bighorn sheep make up the lion's share of the taxa classified to species (28 of 35 or 80%). However, less than 5% of the total faunal assemblage during the Marana Period (AD 1300-1850) is artiodactyl remains. Ungulate bone (the bulk being bighorn sheep) is then over ten times more prevalent in the Newberry and Haiwee periods, when Coso rock art appears to have been at its height, than during the later prehistoric era. Bighorn hunting appears to have been a predominant focus during chronological periods synchronous with the hypothesized Coso rock art fluorescence (contra Keyser and Whitley 2006) [89]. Hildebrandt and McGuire [90] emphasize the

importance of this intensive big game hunting, during the Middle to Late Archaic, in the larger region of the Great Basin.

Imagery Standardization and Level of Effort Required

The Coso Representational Petroglyph Style [91] appears to be indicative of a shared belief system. Distinctive icons are regularly repeated from site to site and include: horned figures, realistic bighorns, “medecine bags,” pattern bodied anthropomorphs, etc. The form of the Coso bighorn is quite standardized - to a larger degree than any other representation. Bighorn were frequently depicted with a flat back, boat-shaped body, full front-facing, bifurcating horns, with ears and hooves sometimes added for a final flourish [92]. This level of detail and conventionalization implies some definite cultural conditioning as to how the motif is represented. The size of some of these sheep (some larger than seven feet in length) and the attention to detail reflect a great deal of investment in time and energy.

Photo 13. The larger of these two bighorn sheep in Petroglyph Canyon is greater than seven feet from tip of horn to tip of tail. Photo by D. Austin

Replicative experiments testify that at least one hour of time was needed to complete the manufacture of some of the simplest glyph elements [93]. Larger more complex compositions would take much more time (even days). Our most conservative estimates indicate that there are 100,000 individual glyphs arrayed in the Coso Complex area. Hence no less than 100,000 hours of labor are represented in a fantastic display of Coso artistry and ceremonial elaboration. This suggests a very localized and intensive occurrence. Such large scale and most likely communal effort would probably signify cult activity [94].

I must admit that with such an enormous number of Coso glyphs (n = >100,000 elements) it would seem rather silly to try and posit a singular purpose and an absolutist perspective covering all of these images. Various sets of glyphs might have been produced for a variety of reasons including shamanism, vision quests, sympathetic hunting magic, pilgrimages, initiation rights, and even bragging rights (keeping score). Also the reasons for creating the images must have changed from time to time.

The emphasis on magico-religious ritual activity associated with the hunting of bighorn can also be seen in the Desert West split-twig figurine complex. This cultural expression has been interpreted as part of totemic increase rites focusing on the manufacture of a series of magical and ceremonial objects representing bighorn [95]. These community symbols appear to have been used in rituals of imitative and contagious magic. At Newberry Cave in the central Mojave Desert, pictographs, a cache of largely complete Elko and Gypsum points, 11 whole and over 1,000 fragmentary split twig animal figurines, quartz crystals, painted stone palettes, and sheep dung pendants date from about 3000BP. These items have been argued to represent the hunting magic rituals of a men's hunting society that used the cave environs [96].

EVALUATION OF ALTERNATIVE MODELS AND CONCLUSIONS

Coso glyph makers appear then to have taught succeeding generations of new initiates the elements of Coso symbolism. The transmission of this specialized knowledge and the rules for the rendition of Coso images argues for an association of glyph production and a communal "sheep cult". It is the consistency and regularity of the imagery, its continuity over time, the specialized context, and spatially restricted nature that are most persuasive in positing a corporate, community-based, religious system [97]. Consistency in execution, continuity in context, and locational patterning appears to best be understood as an artifact of important ceremonial activities for propitiation, increase, renewal, and perhaps initiation.

Photo 14. In humans, entopic images are generated internally by the optic and neural systems.

In contrast, shamanic trance experiences produce entoptic imagery that is unstructured and conforms to the liminal (in-between) states of life-crisis rituals. The vision quest experience transforms the everyday world into the spirit world and new structures (essentially "antistructures") are created and used [98]. Abstract elements, fragmentation, superimposition, and replication characterize the neuropsychological model of shamanic art. If rock art sites exhibit wide diversity in site location, then this pattern would suggest that the images were made as individual ritual elements rather than through communal activities. The concentrated nature of most Coso art is largely inconsistent with such a pattern.

A critical archaeological test implication, proposed by Keyser and Whitley [99] as diagnostic of hunting magic rock art, is that hunting scenes and motifs would occur that were contemporaneous and would be produced in multiple arrays by a single artisan. Shamanistic visionary art, in contrast, would consist of individual scenes or motifs and not repeated acts of identical art produced at the same location. Of course a single

shaman could produce, multiple, similar images but these might normally be more varied in subject matter and not as reiterative.

I would argue that there are many Coso petroglyph panels that would support the predicted hunting magic art analog as espoused by Keyser and Whitley [100]. One especially representative panel is located east of Carricut Lake in the Coso Range and is replete with over two dozen (n = 25) sheep figures (Figure 11). The sheep panel includes examples of the same nearly identical element repeated again and again within the composition. Most of these figures appear to have been produced at the same time. There is no superimposition or overlap of the individual elements and all but three of the figures face the same direction and have strikingly similar forms. Also the entire panel is arrayed as a single narrative composition with similar levels of rock varnish and repatination.

Figure 11. Sheep drawings apparently created by a single artisan. A striking panel of Coso style sheep located east of Carricut Lake in the CosoRange that appears to have been rendered mostly by a single artisan as a unified composition. Note the distinctive, idiosyncratic style of the artisan in that most all the sheep face in a single direction with closely parallel characteristics in body, horn, leg, and head forms. The unusual curl to the ventral horn appears unique to this artist. Photo by Bill Wight.

Another powerfully persuasive characteristic of the panel is that most every sheep depicted in the panel is rendered in an unusual, idiosyncratic style. The similarities in the style of the sheep drawings are almost certainly indicative of repeated renderings by the same Coso artist. Each of the sheep has an especially fancy, "cork screw," or curly cue type horn. The sheep body forms are nearly identical with an unusual, roughly rectangular shape, with concave, upturned back, and slightly excurvate belly. Therefore, this panel appears to represent the intentional manufacture of multiple images by a single artist to foster hunting magic rather than shamanic visionary art or sorcery [101].

Photo 15. A Renegade Canyon hunting scene depicting an armed hunter, a bighorn sheep impaled by a dart/ arrow, and a second bighorn turning his head back towards the hunter. The ears on both sheep are clearly visible and all three figures are shown in motion. Photo by Don Austin.

Given the remarkable abundance and range of realistic bighorn sheep depictions (contra Whitley 2005: 196-199) and the plethora of hunting scenes, it seems incongruous to identify most of the Coso rock art images as the product of individual shamanic visions. The hunting scene rock art of the Cosos reveals a "sophisticated understanding of biological and cultural reality unencumbered by metaphor" [102]. If the rock art was merely metaphorical – as Whitley and others have suggested – we would predict that the images would be more isolated, more abstract, less detailed, less realistic, and certainly less intricate [103].

Some Coso rock art does contain abstract iconography and images placed in secluded contexts, hidden from public view, and these elements and panels could be reasonably accounted for as shamanic vision quest sites. However I do not believe that most of the Coso petroglyph rock art can be explained with such a model (contra Keyser and Whitley 2006) [104]. Later dating painted images (historic and protohistoric era) are commonly identified as Numic paintings (or Coso Style pictographs) and do occur in contexts most likely indicative of shamanistic associations [105]. These late prehistoric and historic paintings are always found in rock shelters, crevices, caves, and hidden defiles not readily apparent to the casual eye. Such differences in their environmental context and the characteristics of their subject matter argue for a more shamanistic and individualistic origin [106].

Aboriginal bighorn hunting was a precarious pursuit that would require strong religious rites and keen leadership [107]. Communal hunts are complex and treacherous activities necessitating coordination of men, women, and dogs. It is reasonable that ritual, magic, and the supernatural would be closely correlated with such pursuits. James Teit (1928) relates a story shared by an Okanagan consultant illustrating the difficulties and some of the religious elements involved in a communal bighorn hunt:

"A great many came… and proceeded to the hunting ground. Many women joined the part to act as drivers… The hunting chief took off his cap, made of the skin of a ewe's head and waving it toward the … sheep, prayed to them…. He then sent many men around to sit at the heads of the two gulches on top of the mountain and shot the sheep with arrows as they came up. The men picked were the best shots… A woman … with shamanistic powers… approached the sheep…gave a sharp call… and (her) dog rushed off and drove the sheep fiercely… The men in waiting killed a great number (Teit 1928 as cited in Keyser 1992:79)"

It is remarkable that a small, now arid, and relatively isolated area of desert (the Coso Range) should be the home for such an extraordinary array of images. That the rocks are still animated and alive with images, many hundreds and even thousands of years in age, commemorate the will, fortitude, and passions of untold generations of Coso natives. I would argue that the Coso Range can best be understood as the center of a distinctive sheep cult, and a natural area to have functioned with prevalent "hunting magic" ceremonies. These ritual activities would have been exhibited as propitiation ceremonies and increase rites. They would have been expressed as a ritual complex with a set of beliefs that sheep and other game animals would be replenished through supernatural means facilitated by the ubiquitous imagery that the Coso artisans adorned the rocks. Success in hunting would have been derived, in part, from recurrent visits to the same sites by succeeding generations [108]. The Coso Range, through the success of prior ritual gatherings, became known as a powerful and sacred place, a shrine and ceremonial center, where people could come to carry out more successful religious rituals [109].

References Cited

(1) cf. Lewis-Williams and Dowson 1988; Whitley 1994; Whitley and Loendorf 1994
(2) Heizer and Baumhoff (1962:238)
(3) Grant et al. (1968:291)
(4) (cf. Quinlan 2000a, 2000b)
(5) (cf. Francis and Loendorf 2002:23; Ucko and Rosenfeld 1967)
(6) (cf. Clottes and Lewis-Williams 1998; Keyser and Klassen 2001; Lewis-Williams and Dowson 1988; Pearson 2002; Turpin 1994; Whitley 1992, 1994a, 1994b, 1998a, 1998b, 2005; Younkin 1998)
(7) (Durkheim 1915; Eliade 1964; Frazer 1933; Tylor 1913)
(8) (cf. Kehoe 2002:384)
(9) (Hildebrandt and McGuire 2002; Keyser and Whitley 2006; Lewis-Williams and Dowson 1988; McGuire and Hildebrandt 2005; Pearson 2002; Whitley 1994a, 1994b, 2005)
(10) (cf. Hildebrandt and McGuire 2002:256)
(11) (Gilreath 1999, 2003; Hildebrandt and McGuire 2002; Keyser and Whitley 2006; Russell Kaldenberg personal communication 2006)
(12) (Grant et al. 1968:34)
(13) (Gilreath and Hildebrandt 1997)
(14) (cf. Gold 2005; Garfinkel 2006; Gilreath 2000; Gilreath and Hildebrandt 2001, and Hildebrandt and McGuire 2002 for the former perspective, and Keyser and Whitley 2006; and Whitley 1994a, 1994b for the latter).
(14.1) Grant et al. (1968)
(14.2) Whitley (1994a, 1994b)
(14.3) (cf. Bean and Vane 1978)
(15) (Grant et al. 1968; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005)
(16) (Grant et al. 1968:34)
(17) (Grant et al. 1968:40-41)
(18) (Grant et al. 1968:34; cf. Miller 1983:77-78)
(19) (cf. Miller 1983:78)
(20) (sensu Harrod 2000)
(21) (Grant et al. 1968:34)
(22) (Marriott and Rachlin 1968)
(23) (Hultkrantz 1987a, 1987b; Lee and Daly 1999; McNeil 2001, 2005; Rockwell 1991; Sharp 1988)
(24) (Hultkrantz 1987b:137)

(25) (Sharp 1988)
(26) (cf. Keyser and Whitley 2006:4-22)
(27) (Keyser and Whitley 2006; Whitley 1982, 1987, 1994a, 1994b, 1997, 1998a, 1998b, 1998c, 2000, 2005; Whitley et al. 1993, 1999)
(28) (Whitley 2005)
(29) (cf. Gilreath 2003; Grant et al. 1968; Guenther 1988:194; Heizer and Baumhoff 1962; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005; Schaafsma 1986)
(30) (cf. Bahn 1991; Pearson 2002; Rector 1985)
(31) (Elkin 1964; Layton 1992)
(32) (Bean and Vane 1978; Gifford 1926; Kroeber and Gifford 1949)
(33) (cf. Guenther 1988:195)
(34) (cf. Hultkrantz 1987a:32)
(35) (Harrod 2000:47-60; Hultkrantz 1961, 1987b; Lee and Daly 1999; Miller 1983:69)
(36) (Harris 1940:56; Hultkrantz 1986; Steward 1941:230)
(37) (Hultkrantz 1987a:63, 1987b)
(38) (Lowie 1924:62-64; Steward 1936: 372-373; Thompson 1929:292-293)
(39) (cf. Francis and Loendorf 2002:120-122; contra Keyser and Whitley 2006)
(40) (cf. Grant et al. 1968:37, middle figures)
(41) (Garfinkel and Pringle 2004, Figure 4)
(42) (cf. Francis and Loendorf 2002:121, Figure 6.36)
(43) (Laird 1980)
(44) (Miller 1983:73)
(45) (Maddock n.d.)
(46) Laird (1980:82)
(46.1) (Grant et al. 1968:39-40)
(47) (cf. Patterson 1997, 2001)
(48) (cf. Keyser and Whitley 2006). Malouf (1966:4)
(49) (Hultkrantz 1981)
(50) (Hultkrantz 1987a, 1987b; McNeil 2002, 2005)
(51) (Hallowell 1926; Hultkrantz 1981, 1986, 1987a; McNeil 2002; Rockwell 1991)
(52) (Hallowell 1926; Hultkrantz 1981; McNeil 2001, 2005; Rockwell 1991)
(53) (cf. Matheny et al. 1997; Schaafsma 1986)
(54) (cf. Liljeblad 1986:652; Zigmond 1980:175-178)
(55) (cf. Grant et. al 1968:40-41; Hultkrantz 1986:633; Keyser and Klassen 2001:87)
(56) (Spier 1935; Steward 1941:267)

(57) (Kelly and Fowler 1986:383; McNeil 2001; Patterson 2001)
(58) (Miller 1983:77)
(59) Miller (1983:79) and Olofson (1979:17)
(60) Hultkrantz (1986:633)
(61) Keyser and Whitley (2006:19, Figure 9a)
(62) (Matheny et al. 1997:72; Steward 1943a:294; Stewart 1942:242)
(63) (Matheny et al. 1997)
(64) (Matheny et al. 1997:73, Figure 2)
(65) (Harrod 2000)
(66) Murphey (1986:86)
(67) (cf. Grant et al. 1968; Murphey 1987; Thomas 1976)
(68) (cf. Greer 1995 sensu "private ceremonial sites" versus "public ceremonial sites")
(69) (Brook 1980: Table 2; Grant et al. 1968)
(70) (Canadian Museum of Civilization 1996)
(71) (Heizer and Hester 1974)
(72) (NevadaPlaces.com 2006)
(73) (Coleman 1996)
(74) (1898:321-322)
(75) (Geist and Petocz 1977)
(76) (Anell 1969; McGuire and Hatoff 1991; Stewart 1941:367)
(77) (Stewart 1942:242)
(78) Gilreath (1999)
(79) (Garfinkel 2003, 2007)
(80) (Garfinkel and Pringle 2004; cf. Murphey 1987:86, Table 2, Area A)
(81) (Garfinkel and Pringle (2004)
(82) (Gilreath and Hildebrandt 1997; Garfinkel 2007; Gold 2005; Hildebrandt and Ruby 1999, 2006: 27; Lytle et al. 2006)
(83) (cf. Garfinkel 2007; Gold 2005)
(84) (cf. Garfinkel et al. 2004; Grant et al. 1986; Hildebrandt and McGuire 2002)
(85) (Holanda and Delacorte 1999)
(86) (Meloy 2005)
(87) (sensu Harrod 2000)
(88) Holanda and Delacorte (1999)
(89) (cf. Yohe 1991; Yohe and Sutton 1999, 2000; contra Keyser and Whitley 2006)
(90) Hildebrandt and McGuire (2002)
(91) (Schaafsma 1986)
(92) (Grant et al. 1968)

(93) (Bard and Busby 1974)
(94) (cf. Hildebrandt and McGuire 2002:245-246)
(95) (Coulam and Schroedl 2004)
(96) (Coulam and Schroedl 2004; Davis and Smith 1981; Smith et al. 1957; Warren and Crabtree 1986)
(97) (cf. Coulam and Schroedl 2004:43)
(98) (cf. Sundstrom 1990)
(99) Keyser and Whitley (2006:16)
(100) Keyser and Whitley (2006)
(101) (cf. Keyser and Whitley 2006:16)
(102) (sensu Hildebrandt and McGuire 2002; cf. Matheny et al. 1997)
(103) (cf. Keyser and Klassen 2001:91)
(104) (cf. Hildebrandt and McGuire 2002; Matheny et al. 1997; contra Keyser and Whitley 2006)
(105) (Garfinkel et al. 2007; Gold 2005; Greer 1995)
(106) (cf. Garfinkel 1978, 1982; Garfinkel et al. 2007; Gold 2005; Schiffman and Andrews 1982)
(107) (cf. Keyser 1992)
(108) (cf. Miller 1985:60)
(109) (cf. Stoffle 2001)

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