

# Sounds and Symbolism from the Netherworld: Acoustic Archaeology at the Animal Master's Portal

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## Abstract

In the traditional worldview of the Kawaiisu, *Yahwera*, or the Master of the Animals, is a bird-human who lives and reigns over the Animal Underworld. The entrance to his subterranean abode is a natural feature on the landscape, a named, limestone rock portal upon which a rock painting depicts *Yahwera*. Kawaiisu oral narratives emphasize sound qualities attaching to this supernatural figure. Narratives also associate the “sound of the deer in the rock” with this sacred place. Indeed, the limestone monolith can be induced to exhibit acoustical attributes, specifically, multiple echoes that would seem to offer an impression of hoofbeats. Drawing on varied data, this study seeks insights into the meaning of the *Yahwera* narratives and the relationships of sound to elements of Kawaiisu cosmology.

## Introduction

This paper explores the relationship that the Kawaiisu (Figure 1) had with sound. Specifically, we explore the role and influence of sound in their indigenous worldview. We consider the linkages between acoustic elements of an oral tradition and the sound qualities and associations for the principal supernatural figures described in certain narratives. We also report on the character of a rock art site located at the entrance to the home of an important supernatural being. Further, we perform an analysis of the sound reflections off the rock itself. Our study closes with thoughts on the nature of these relationships and the implications for the study of Native American religion.

## What Is Acoustic Archaeology?

“Acoustic archaeology,” or “archaeoacoustics,” is a relatively new specialty in prehistoric studies. This field of inquiry into the sounds of the past was met initially with skepticism but ultimately gained credibility and respect with the publication of *Archaeoacoustics* (Scarre and Lawson 2006), an anthology that covered a wide range of topics from prehistoric rock art acoustics of natural spaces (Waller 2006) to architectural acoustics of Greco-Roman theatres and medieval buildings. Consequently, many investigators now realize that ancient peoples recognized various acoustic effects in the natural environment as mysterious. The dimension of sound affected salient elements of religious ideas and oral traditions for aboriginal people. Evidence grows that these sound qualities influenced ancient people's selection of appropriate locations for rock art (Reznikoff and Dauvois 1988; Waller 1993), including *Yahwera's* House (see Waller 2002a).

Further, some rock art sites are considered by Native peoples to be entrances to the supernatural world (Kelly and Fowler 1986; Liljeblad 1986:652-653). In fact, some indigenous peoples believed that spirits actually lived inside the rocks and cliff faces, and these beliefs sometimes appear to have influenced the location

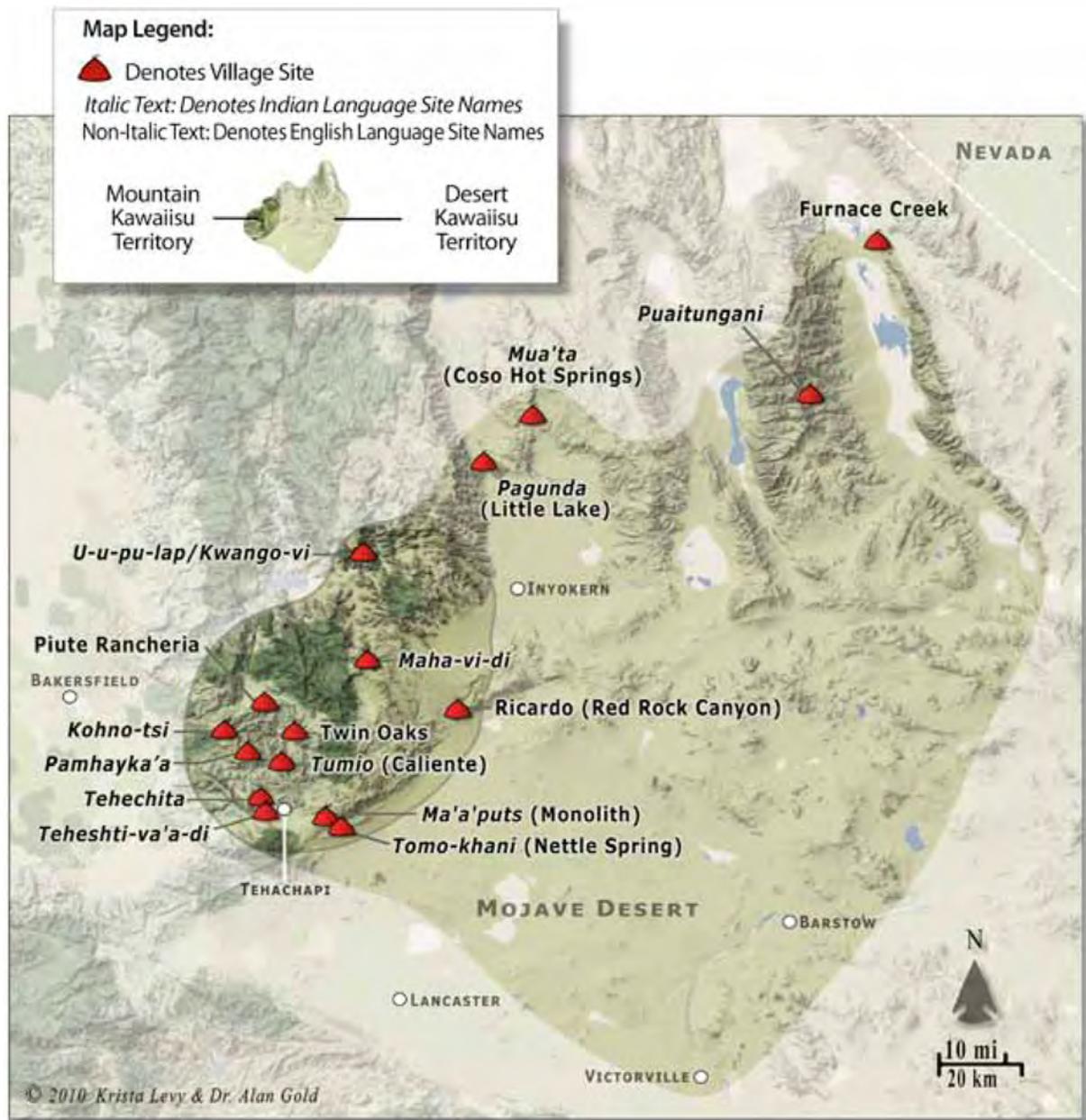


Figure 1. Kawaiisu homeland. Map showing territorial boundaries of the Mountain and Desert Kawaiisu (Nüwa), general locations of many village sites, and some notable features of the landscape. When known, village names are presented in the Kawaiisu language or, where appropriate, in the languages of adjacent Native groups (including Tübatulabal, Panamint Shoshone and Yokuts). The orthography for the village names is derived from the most recently revised Kawaiisu Dictionary (Zigmond et. al. 1990). The territorial boundaries and village identifications represent a synthesis of research by Kroeber (1925), Steward (1938), Voegelin (1938), Zigmond (1938, 1980), Grosscup (1977), and Earle (2004, 2005). The village sites illustrated here were not necessarily occupied simultaneously, but most information depicted on the map dates to approximately AD 1850.

for rock art sites (Waller 1993, 2002b). An echoing rock art site in Canada is considered to be a portal wherein dwells a spirit being called *Memegwashio*, who is held responsible for making both echoes and rock art (Waller and Arsenault 2008). Kawaiisu rock paintings at their cave of creation in Sand Canyon in the Tehachapi Mountains were believed to lead to a subterranean world inhabited by supernatural animals (Harrington 1986:Vol. III:Reel 98:151).

### Physical Description

A 13 m tall limestone rock dome (see Figures 2, 3, 4, and 5) is known by the Kawaiisu as *Yahwe'era Kahniina* (*Yahwera's House*). This place is also known as *tsugwa-mituwa-di* and also as *cugwamihava?adi*. *Tsugwa-vi* is a Kawaiisu term meaning limestone. *Yahwera's* home is located in Back Canyon, Walker Basin, eastern Kern County. The Back Canyon area contains significant reserves of high-grade, coarsely crystalline, white and blue-gray limestone (Perazzo 2012).

This small Back Canyon island of limestone is an unusual lithological feature located near Caliente (see Figure 1) between the small rural community of Loraine and the Kelso Valley region in the Tehachapi Mountains. Back Canyon itself has been given the Kawaiisu placename, *Pavisiki-pi*, a term connected with the Kawaiisu word for “lake” or “pond” (*pa-vinu-nu-pi*). This may refer to springs in the Back Canyon area, as there are no ponds or lakes in this location.

The Back Canyon limestone monolith is known to the Kawaiisu as one of the portals to the Animal Underworld. A spring is located at the entrance to *Yahwera's* Cave (Zigmond 1977:75). A number of Native stories consistently identify this Back Canyon location as a place associated with the tales of *Yahwera*—the Master of the Game Animals (Zigmond 1977, 1980; Barras 1984; Whitley 2000:78-79; Girado 2006; Garfinkel et al. 2009). A prominent rock painting adorns the limestone dome (see Figure 5).

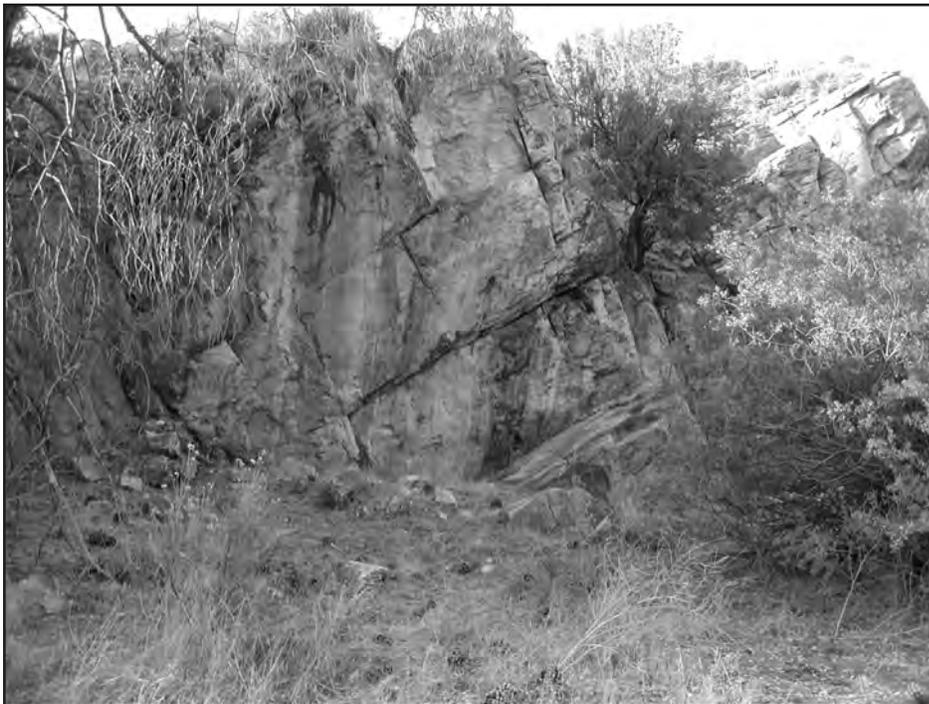


Figure 2. Overview of the limestone outcrop containing the CA-KER-2412 pictograph panel (near center) at Back Canyon. Photograph by P. J. Mercado.



Figure 3. The CA-KER-2412 pictograph panel at Back Canyon known as *Yahwera's House*. Photograph by P. J. Mercado.



Figure 4. Detail of the CA-KER-2412 pictograph panel at Back Canyon showing *Yahwera* and snake figure. Photograph by P. J. Mercado.



Figure 5. D-Stretch enhancement of the CA-KER-2412 pictograph panel with line drawing overlay to define the large animal-human figure and associated rock art elements. Photo enhancement rendered by Don Austin, Sand Carved Designs and Rock Art 101, Las Vegas, Nevada.

### The *Yahwera Kahnina* Painting

The Back Canyon pictograph site was first mentioned by C. E. Smith in 1948 and was known both as the Caliente Creek site and the Caliente Cave site (Knight and Williams 2006). In a synthesis and index of California rock art localities, Sonin (1995) listed a total of seven bibliographical citations for this site. Jack Cawley (1963) was the first researcher to thoroughly describe and more fully document the Back Canyon rock art site (Knight 1997:111-115), which was formally recorded in 1989 (Foster et al. 1989). Daniel G. Foster (California State Department of Parks and Recreation) and Jack Ringer (Kern County Fire Department) were granted access to many rock art sites on private land. Their studies (Foster et al. 1989) provided an updated site recording and formal designation, CA-KER-2412. Finally, Albert Knight, working with Harold Williams, placed *Yahwera's* home on the register of Sacred Sites developed by the California Native American Heritage Commission (Knight and Williams 2006).

*Yahwera* is a prominent supernatural being featured in the oral traditions of the Kawaiisu (Garfinkel et al. 2009). The single pictograph panel (see Figures 3, 4, and 5) at the Back Canyon site (KER-2412) includes a central 1.1 m tall animal-human figure facing forward (see Whitley 2000:78). This large red animal-human conflation is rendered with six other associated pictograph elements. These include two smaller anthropomorphs, a concentric circle, a spiral motif, a series of eight rows of slashes, each row having 27 "tick" marks or slashes (Figure 6) and a large, vertical, snake-like figure to the left of the central site element.

The most prominent and central depiction on the panel is the face-forward figure (see Figures 4 and 5), which most probably represents *Yahwera* since the form fits Native descriptions and the site is known as *Yahwera's* House. This element is a large

animal-human having a concentric circle head, dual protruding head adornments, and a possibly patterned body with clawed or taloned hands and feet (Whitley 2000:78). The appendages on this main figure are prominently and clearly displayed, although they are faded and somewhat incomplete. The entire image has what some rock art scholars have called a distinctively "immobile" appearance or "static display." This is especially evident in the over-sized hands and feet with their "drooping" attitudes and vertical display. These features make the figure appear to float and peer out from the other side of the rock surface. Recent research suggests that such "iconic" symbolism of static anthropomorphs is a stylistic convention for the visual display of supernaturals whose aid is being sought (cf. Kitchell 2010). It is further argued that these stylistic devices provide a visual vocabulary for "supramundane beings" based on and deriving meaning from oral narratives (Kitchell 2010:822).

Associated with the large main figure is a 90 cm long meandering design. This motif perhaps represents the giant rattlesnake guardian and/or a large gopher snake (kogo) that is identified as "stretched across the tunnel entrance" in the narratives presented below. Since "this snake was the 'door' to *Yahwera's* house" (Zigmond 1977), the symbol could stand for the portal. This view is supported by a description of a Yokuts visionary experience recorded by Alfred Kroeber (1925:514) in which to gain entry into the supernatural world, an initiate had to pass through two doors, "one formed of a snake" (also see Whitley 2000:79).

The notes from J. J. Cawley's visit to the site in October 1963 state that both a stone pipe and a portable stone mortar were discovered in association with the pictograph panel. No further data are provided about artifact size, form, or material type. It is unclear whether these items were collected or remain somewhere in the vicinity.

The painted panel is oriented to the southeast and measures roughly 9 m by 12 m. There appear to be at least two different episodes of painting, one expression superimposed over the other. The early records by Cawley and also by the California Department of Forestry (Foster et al. 1989) identify both black and red elements. Various observers also identified a large number and series of slash marks, but the site recorders disagreed as to the exact count. All agree that there are either eight or nine rows of some 24 to 27 marks per row. These slash marks are perhaps best described as a series of short, consecutive, vertical lines (Figure 6).<sup>1</sup>

The site is near a natural spring, and rainwater or perhaps natural seepage has caused damage to the images. Deposits from limestone in solution are prominent on the panel. The site was originally

described as having several colors, but recent review only identified elements remaining in red.

Maurice Zigmond retells “A Visit to the Underworld” (Zigmond 1980:75-177; Whitley 2000:78-79) about an event that took place at the Back Canyon location, and there are a number of versions of the *Yahwera* tale that take place there. Entrances to *Yahwera*'s underworld home can also be found in a cave (possibly known as Bat Cave) above Horse Canyon and at *ti-gahni*, also known as Rock House or Creation Cave, in Sand Canyon in Tomo-Kahni State Historic Park. Curiously, it seems that Maurice Zigmond, principal ethnographer to the Kawaiisu, may have been unaware of the existence of the Back Canyon rock art site, the entrance of *Yahwera*'s underworld home, as he never mentioned the rock painting in any of his discussions of the *Yahwera* stories. Several



Figure 6. D-Stretch enhancement of the detail of the pictograph panel at Back Canyon showing the tick marks. Photograph has been converted to grayscale. Photograph by P. J. Mercado.

other pictograph sites are known in the vicinity of KER-2412.

### Oral Traditions

Ethnographic information obtained over the course of half a century by Maurice Zigmond, Steven Cappannari, Judy Barras, and Julie Turner (Zigmond 1977, 1980; Barras 1984:30) consistently portrays *Yahwera*, Master of the Animals, as the underworld supernatural responsible for the replenishment of game to the upper human world. *Yahwera* is described as a small hawk or yellow bird and was somehow associated with quail. In fact, the immortal *Yahwera* is described as wearing a quail feather blanket or robe. When he is visited, he provides songs (medicine) for those in need of curing. He also provides good luck as an aid in hunting. *Yahwera* fathers a profusion of quail children when he took for himself a Kawaiisu or Tübatulabal bride. His human bride sometimes wears a quail feather skirt (Voegelin 1935:207; Zigmond 1977, 1980), and *Yahwera* feeds his bride by hunting for quail and cooking them under his armpits (Zigmond 1980:181).

Discussions with contemporary Kawaiisu Native Americans (Harold Williams and Luther Girado, personal communications 2006, 2007) implicate *Yahwera* as central to nine Kawaiisu myths and reflect his prominence in Kawaiisu contemporary discussions (Harold Williams, Luther Girado, and various Kawaiisu elders, personal communications 2008).

*Yahwera* could be a particularly troublesome supernatural creature. Stories shared by several native consultants confirm that hearing *Yahwera* was not a good sign and that one might work to rid themselves of this potentially evil spirit. However, *Yahwera* is not associated with the spirits of deceased humans nor is this immortal always malevolent.

The following composite storyline is a synthesis extracted from nine Kawaiisu oral narratives

(Zigmond 1977, 1980; Barras 1984; Girado 2006) considered to be the “most complete description of a vision quest” (Whitley 2000:78). The numerous words and phrases related to sound have emphasis added by underlining (compare with the other rock art<sup>2</sup> and echo<sup>3</sup> myths in End Notes 2 and 3).

This is a true story. Long ago there was a man. The grandmother of Emma Williams had in fact seen this man and told Emma this story. The man was sick or perhaps he just wanted luck in hunting. So to cure himself or to get that luck he took jimsonweed (or alternatively employing any or all of these techniques) fasted, swallowed tobacco, walked naked through stinging nettles, or ingested ants wrapped in eagle down. Nothing seemed to work so he then went to a place in Back Canyon (or another cave) and found the opening to the animal underworld, *Yahwera's* home. At that hole, that goes down into the mountain, was a rock that opened and closed. Sometimes you can see the opening but sometimes you cannot.

The man waited and slipped through quickly. He saw many different animals—deer, bear, etc. These were animal-people who spoke just like the Kawaiisu. Near the mouth of the tunnel the man saw bows and arrows. These were the weapons by which deer were killed. The deer leave them when they go inside *Yahwera's* house. He could hear rocks making the noise of deer. The man also saw the antlers of all the deer that have been killed. *Yahwera said* that the deer were not really dead. The deer that the man had heard all along the tunnel were the deer that had been “killed”.

There were many different kinds of luck on the cave walls. The man saw a bow and arrow of a good hunter in a prominent place

and those of inferior hunters in a more lowly location. The man took something for his luck. The man began to walk through the tunnel. He stumbled and climbed over a large gopher snake (*kogo*) that stretched across the tunnel serving as a door to *Yahwera's* house. Farther along he came to a rattlesnake, as big as a log (*tugu-baziiti-bi*) and he climbed over it. Then there was a roaring brown bear (*mo'orii-zhi*) that he passed by and then he came to a grizzly bear (*pogwiti*) that growled at him and went past it. Then he didn't see any other animals. He heard a noise that sounded like a train.

He kept walking and he saw *Yahwera*. *Yahwera* wore a mountain quail feather blanket. He looked like a hawk. *Yahwera* asked the man, 'What do you want?' The man said he was sick and wanted to get well. *Yahwera* knew all about his illness without being told. *Yahwera* gave him some acorn mush (alternatively pinyon or deer meat). Every time he ate some the same amount reappeared. He couldn't eat it all. He gave it back to *Yahwera*.

*Yahwera* told him to come into a room where he kept the medicine. *Yahwera* asked him which of the songs he wanted and *Yahwera* named all the songs. The man took a song. The man was then ready to return home, so he kept going to the other end of the tunnel. He saw water that was like a window but it wasn't water, he passed through and didn't get wet. He came out and found he was far away from the entrance and wasn't sick anymore. He had been gone for a long time and his relatives didn't know where he had been. [Whitley 2000:78]

Additional oral history (not Kawaiisu, yet Numic) also seems to point to this type of Animal Master, but

it is associated with another type of bird, perhaps a raven or a crow. Additionally, in the Kawaiisu narratives *Yahwera* has a special relationship with the quail, and in three versions he fathers a profusion of quail progeny by his human spouse. *Yahwera* is also an androgynous creature recognized in human dreams in either the form of a male or female. It is said that you hear him or her coming to you like quail, but it can also come with different animal voices.

Andy Greene (b. 1916–d. 1999), prominent Kawaiisu elder, referred to *Yahwera's* home as a place where the yellow bird (*Yahwera*) lives and a supernatural giant rattlesnake (*Tugu-baziitu-bu*) resides (Krupp 1998:3). Andy Greene related that:

A sick man came to the entrance and that portal closed him in. When the man came out he was cured and he emerged far away in the Mojave Desert. Sometimes the outlet was identified as Little Lake (*in the southern Owens Valley or Rose Valley*) or even Red Rock Canyon (*in the southwestern portion of the El Paso Mountains in Red Rock Canyon State Park*). That yellow bird (*Yahwera*) warned the man to not talk about his experience but because people kept asking him he did. When he talked about it he died. [Krupp 1998:3; Garfinkel et al. 2009]

*Yahwera* tales also closely parallel the text of a story told by northern neighbors of the Kawaiisu, the Tübatulabal, where they call this immortal, *Yahigal* (Voegelin 1935:207).

### Sound and Story

The *Yahwera* narratives emphasize sound qualities experienced by visitors in *Yahwera's* underworld home, and specific sound associations are identified for the personage of *Yahwera*. *Yahwera* is said to most

frequently be heard but not seen (Zigmond 1980:175) and can imitate the sounds of a man talking or even a dog barking. The specific purpose and the result of a visit to *Yahwera's* home is the acquisition of a song. There are many songs to choose from, and *Yahwera* is the holder of many songs. Narratives emphasize that these are songs that affect either the acquisition of luck in hunting or the healing of an illness. Thus, they are magic songs.

As a person enters the tunnel to visit *Yahwera*, he passes a roaring Brown Bear (*mooriizi*) (Zigmond 1980:175). When the visitor makes his way to the home of *Yahwera* and the Animal Spirits, he passes a large tree and then hears rocks that make the noise of deer (Zigmond 1980:175) and not the spirit deer themselves. The visitor is instructed to select a song when visiting *Yahwera* in its subterranean rock abode and to sing that song after exiting the Animal Spirit Netherworld (Zigmond 1980:178).

*Yahwera's* visitors hear all the deer killed along the tunnel (Zigmond 1980:176). *Yahwera's* guest also hears “noises that sound like a train” and shares these sounds with others after returning from his journey (Zigmond 1980:177, 178). Emma Williams told Zigmond that the grizzly bear growled at the man who visited *Yahwera*.

### **Etymology of the Name, *Yahwera***

The Kawaiisu term *Yahwera* (*yaahwe?era*) is derived from the root word *yaa*, meaning to carry (Zigmond et al. 1990). The name is related to the Kawaiisu word *yagi* that means to cry or sing like a bird or to crow (like a rooster), and the similar Kawaiisu term *?arare* also means to cry. Further, the root of the word and its stem derives from words relating to death and dying. The word “to die” in Kawaiisu is *yuwe?e-kwee-*. From these related terms it is reasonably argued that there are several concepts intermingled in the name, *Yahwera*. These terms and concepts relate to an animal,

specifically a bird that cries, sings, and crows, may be carrying something, and is associated with death and dying.

### **Quail Ethology**

Zigmond tells us that *Yahwera* appears in various forms but most often as a bird. He is able to imitate the sounds made by other birds and certain animals. Thirteen references to quail, a quail blanket, and a quail robe were noted in the analysis of the Kawaiisu oral narratives of *Yahwera* (Garfinkel et al. 2009). Kawaiisu and Tübatulabal stories associate *Yahwera* with quail and tell us *Yahwera's* children are baby quail.

The apparent association is to the California quail (*Callipepla californica*) and the Mountain quail (*Oreortyx pictus*). Logical questions thus revolve on the qualities of the quail and its associated habits and habitat that might have provided some basis for such a referent.

Great Basin Numic Native peoples typically ordered the world into three distinct strata—an upper, middle, and lower realm, each seeded with different categories of Animal People. Native Numic taxonomy classifies these animals according to their habits and habitats (cf. Goss 1972; Hultkrantz 1987:291; Nissen 1993:72; Myers 1997:44; Vander 1997:155).

This tiered cosmos attributes guardianships of the entrances to the Animal Underworld to terrestrial fauna dwelling on or in the earth, inhabiting cracks in the rocks, or finding their homes in hidden and concealed ground venues. These animals include snakes (rattlesnake, gopher snake), turtles, and amphibians. Therefore, the quail is a likely candidate for such stewardship due to its ground dwelling and near flightless nature. Its hidden home and secretive habits, as well as the explosive quality of its manifestation when startled, would seem to provide a measure of distinctiveness and drama for the bird.

Another attribute that would presuppose an association with the role of Animal Master is the connection of quail with water sources. Water is the most powerful element in the Numinous world (Vander 1997:274). Water sources are typically seen as entry points to the lower supernatural realm, and water is perceived as an element that serves to revitalize those who have died.

One sees the importance and power of water reflected in myth. The belief in water as a source of power is widely held...water [is] the keystone of Basin religion because power, with its affinity for life, was strongly attracted to water...Water is the key ingredient in the portrayal of death and resurrection in myth, a common occurrence in the Great Basin. [Vander 1997:113-114]

Another odd quail behavior is shamming injury or even death when being preyed upon. When in a defensive posture, the mother quail pretends to be hurt, and her chicks promptly play dead. Chicks look for cover and remain hidden, camouflaged under leaves, or flattened out to appear comatose with stiffened legs. This unusual behavior may have presupposed an association of death and rebirth for the quail, thus providing a platform for its regenerative role. It is *Yahwera's* responsibility to bring dead animal spirits back to life and recharge the world with renewed animals each spring.

On a possibly related note to the quail habit of feigning death, Zigmond (1977) reported the Native belief that if *Yahwera* approaches closely, one should become still and helpless. However, if *Yahwera* is at some distance, one can get rid of him by putting tobacco on a rock and throwing the rock in the direction of the sounds. *Yahwera* yells as he swallows it and is not heard again for several minutes. Then one hears him far away. Note the prominence of sound in this legend.

California quail are remarkable for their high reproductive rates. Females generally lay between 12 and 16 spotted, cream-colored eggs and incubate them for 20 to 23 days, and they will on occasion lay a second clutch (Johnsgard 1988). Chicks will feed independently shortly after hatching. Chicks are even able to make short flights by the time they are two weeks old. Quail are able to breed at ten months (Leopold 1977). Given the quail's exceptional fertility and remarkable reproductive success, these attributes might have engendered symbolism communicating the desire for continued game animal fecundity, increase, and abundance.

For many Native Californians, quail were an esteemed food source and a tasty game bird. Their distinctive top knot was used for decoration on clothing and basketry. For the neighbors of the Kawaiisu, the Southern Paiute Chemehuevi, a "mountain hat" was the emblem of dress for a successful hunter or chief. This hat was typically fashioned of animal hide (usually bighorn sheep) and exhibited a central adornment composed of a tuft of quail feather crests in a single clustered profusion. The Kawaiisu themselves adorned necked jars or treasure baskets with quail plumes. Quail plumes were used exclusively on containers that held psychotropic concoctions of jimsonweed (*Datura wrightii*) (Zigmond 1978). The small baskets of these forms were known as *taragabadi*. *Tara* is the onomatopoeic Kawaiisu word for quail, a word that mimics the call of the bird.

Perhaps most significantly, quail are famously known for being "elusive and are usually heard rather than seen" (Gains 2012), just as *Yahwera* was often heard but not seen (Zigmond 1980:175). A Kawaiisu consultant told of an old man who heard *Yahwera* coming "like quail," but he could not move (Zigmond 1977). The reader is encouraged to visit <http://www.jungle-walk.com/sound/quail-sounds.htm> to listen to some examples of quail calls, including the familiar and distinctive bobwhite cry. The California quail has 14 different calls.

### **Northern Uto-Aztecan Religious Ideology: The Animal Underworld**

Northern Uto-Aztecan Takic, Numic, Tübatulabalic, and related groups had varied religious beliefs and practices. However, while considerable diversity existed, some Numic groups shared an emphasis on underworld supernatural beings and the importance of caves, caverns, and other underground places. Specifically, corridors of supernatural power and an array of valued resources were located in sacred underworld settings.

Laird (1976:38–39, 46) mentioned the importance of caves as places of supernatural power for the Chemehuevi. They were associated with inherited sacred songs, power in curing, a class of cave spirits, and the supernatural powers of the cave itself. Kelly and Fowler (1986) mentioned supernatural underground travel among the Southern Paiute. Liljebblad (1986:652–653) discussed the supernatural underworld among Numic groups and its association with Animal Master supernaturals:

The fabulous idea of an otherworld or a secluded place from which game animals emerge...or are finally released by the culture hero...was commonly held in most parts of native North America, and can be assigned to the same category of mythological tales as other cosmogonic mythology (Thompson 1929:348). Independently of mythology, the belief in accidental visits to the mysterious world below was found throughout the Great Basin..., reflected in a particular class of testimonial legends describing subterranean existence.

The prototype of these legends, with local variants, relating visits to the lower world..., occurs throughout a common cultural area comprising the western Great Basin...Caves and other named localities, which remain sacred sites for the shamanistic power

quest... are believed to have served formerly as entrances to the legendary underground pathway. The recurrent theme in these stories is the adventures of a hunter following a wounded animal to the lower world and his return after a time spent with the dwellers below. [Liljebblad 1986:652]

This tradition is relevant to Numic ideas about the supernatural world experienced by human beings and expressed in rock art, but it is also relevant to the association of rock art to caves and portals to the underworld. John Peabody Harrington connected Kawaiisu rock art with a portal through a rock face leading to an underground domain inhabited by supernatural animals (Harrington 1986:Vol. III:Reel 98:151).

### **Acoustic Qualities of *Yahwera's* House at Back Canyon**

There are many similarities between the *Yahwera* Animal Master story and typical echo myths worldwide in which spirits live in the rocks. Rock art acoustics research has been directed toward measuring the acoustics of rock art soundscapes to test the hypothesis that some portion of rock art was motivated by sound reflection (Waller 2006).

One account of the *Yahwera* story includes that the visitor to *Yahwera's* home “heard the sounds of deer in the rocks” (Zigmond 1980:175). Upon reading this account (as paraphrased in Whitley 2000:78), one of us (SJW) hypothesized that the “sounds of deer in the rocks” may refer to echoes of percussive noises from the rocks that could have been interpreted as hoofbeats. Acoustic field testing at the Back Canyon site (KER-2412) was conducted in 2002 by one of us (SJW), and recordings were made for objective acoustic analysis. Figure 7 displays graphically the multiple sound reflections from a percussion noise recorded at Back Canyon. These reflections were experienced subjectively as a hoofbeat-like double echo emanating

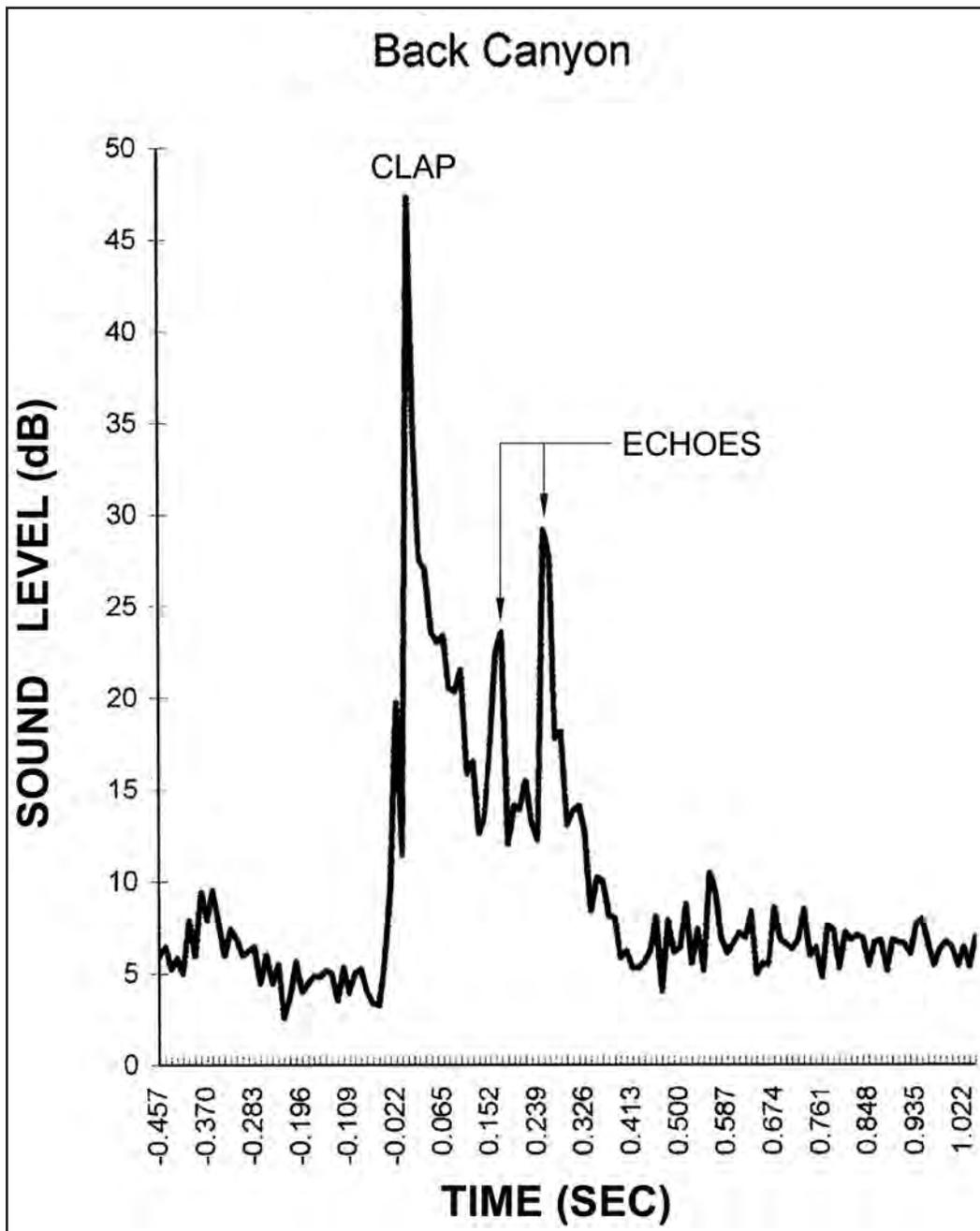


Figure 7. Echogram of a handclap made while standing before the Back Canyon pictograph at *Yahwera Kahnina* (CA-KER-2412) recorded from the stepped slope across the creek. The echogram plots relative sound intensity in decibels (dB) on the vertical axis against time (sec) on the horizontal axis. The initial handclap occurs at time  $t = 0$ . Two audible echoes arrive about 0.16 sec and 0.28 sec later, as indicated by the arrows. The echoes stand out clearly, about 6 and 17 dB above the background clutter. Acoustic recording and analysis was done by SJW, who perceived that the double echoes can be heard as deer hoofbeats coming out of the rock—an interpretation supported by the ethnography discussed in the text: “He heard the sounds of deer in the rocks.”

from the pictograph location when the listener was standing approximately 100 m away on the other side of Caliente Creek wash at the stepped rocky hillside across from the panel with the paintings in plain view. Furthermore, a systematic acoustic study along the length of the limestone outcrop showed that the maximum echo sound level occurs precisely at the location on the limestone cliff where the pictographs are concentrated (Waller 2012).

### Acoustic Qualities of Other Rock Art Sites and Related Legends with Sound Content

In addition to the Back Canyon rock art site, there are over 500 rock art sites worldwide with notable acoustic connections (Waller 2002b). A few will be noted here. In nearby Tomo-Kahni State Historic Park, Creation Cave (CA-KER-508) contains anthropomorphic and zoomorphic pictographs described by Kawaiisu consultants as “rock babies” (see Figure 8). These painted figures were believed to be the self-portraits painted by the rock baby spirits themselves, who could be heard crying from the rocks.<sup>4</sup> The Kawaiisu name for a rock baby spirit is ‘*uwani’azi*, explained as being deriving from the sound of a cry, ‘*uwa’uwa*. This type of supernatural being is usually described as heard rather than seen. Hearing the cry of a rock baby was considered a sign of impending doom (Zigmond 1977).

The Chemehuevi (neighbors who lived just east of the Kawaiisu and spoke a closely related language) have a word for echo (*aano’ovi*), which has a literal translation of “white clay fetus” (Elzinga 2005); this is almost an exact synonym for “rock baby,” whose cries emanate from rock just like an echo. Field testing revealed that Creation Cave gives strong echoes (Waller 2006).

Similar belief systems relating to echoes and rock art locations are widespread and found far from California. The EiGf2 rock art site in Quebec has notable acoustics and is considered to be a portal that is the

dwelling of a type of spirit called *Memegwashio*. These supernatural beings are held responsible for making both echoes and rock art, as revealed in the following details. An Ojibwa/Cree narrative describes an echoing rock art site that is home to *Memegwashio* who paints rocks. Pictograph handprints on painted Quebec rock art sites are explained as the bloody handprints left where the *Memegwashio* close the door as they disappear into the rock. The noise of a door which opens and is closed again in the cliff confirms the residence of *Memegwashio* in the interior of the rock. Parents take their children to rocky places and have them call out; when a voice returns, it is proof of the existence of *Memegwashio* (Waller and Arsenaault 2008).

At Rooster Rock in Lake Huron, people would

...hear sounds coming out of the painted cliff. Sounds like a rooster or chicken crowing. And clicking sounds. We call that place *Ba-Kah-He-Kwen Ganda*, the Place of the Chicken. Maymaygwashiuk [same as *Memegwashio*] used to come out of their cave at Rooster Rock in little canoes to go fishing...and they spoke the Indian language. [Conway 1993:98-100]

Mirroring these beliefs is the California Yokuts concept of equating rock art sites with “shaman’s caches,” or magic repositories of wealth in the interior of the rock, where a shaman talked to the rock. Animals then opened the site, telling the shaman to enter. The animals would tell him what to do, giving him songs and dancing with him all night (Whitley 2000:82-83).

Similar to the Kawaiisu *Yahwera* narratives are an Ojibwa story, “A Night at Dreaming Rock,”<sup>2</sup> and a Tsimshian story, “The Visit to Chief Echo.”<sup>3</sup> They include the following elements in common with Kawaiisu and Yokuts beliefs: 1) hunters or other Native peoples visit the interior of a rock house where spirits reside; 2) the rock abode is identified from the



Figure 8. Creation Cave (CA-KER-508) pictographs described by Kawaiisu consultants as "rock babies," who could be heard crying from the rocks. Photograph by one of us (SJW).

sounds of supernatural beings that can be heard but cannot be seen; 3) when the hunters enter and meet with the beings inside, they are treated to a magical meal of inexhaustible food; 4) hoofed animals are principally mentioned, and songs and singing play a prominent role; and 5) magical entrances, exits, portals, and doors are characteristic, and they can only be accessed briefly and with great difficulty.

### Summary and Conclusions

This study demonstrates, by pointing out rock art to be more than just a visual phenomenon, that innovative,

cognitive investigations are worth doing as these may open up new vistas, especially on Native American religion and cosmology. Past mentalistic domains might seem esoteric when compared with material evidence revealed through scientific archaeology. Even so, archaeologists attempting to learn more about Native peoples and to reconstruct indigenous lifeways are encouraged to broaden their perspectives and consider intangible elements of ancient cognitive constructs.

The Animal Master's House located at Back Canyon, known as *Yahwera's* House, is a rock art site that possesses unusual acoustic properties (Waller 2002a).

These include echoes that rebound, sounding akin to the hoofbeats of the “deer in the rocks” of the *Yahwera* legends, and the sound reflection is strongest at the location on the limestone outcrop that the artist(s) selected for painting pictographic panels. One of us (SJW) realized that the echoes of percussive noises could be perceived as sounds of hoofbeats coming out of the rocks. Example sound files of the percussive echoes recorded at Back Canyon are available online for the reader to experience this effect (Waller 2002a). The ability to evoke hoofbeat sounds by percussion using simple instruments, such as a woodblock, is a standard music lesson taught even to small children (e.g., Rosengren 2012) and is a technique commonly employed in music from *Jingle Bells* to John Philip Sousa’s *Black Horse Troop*.

Acoustical physics describes the process by which sound waves reflected by the boundary between air and a denser material such as rock can result in an auditory illusion. The echoed sound appears to emerge from within the rock, as if coming through the rock surface (analogous to light images reflected in a mirror appearing to exist on the other side of the glass that seems transparent). These sound effects at rock art sites are consistent with, and may indeed have been the foundation of, worldwide beliefs that behind the rock surface there is a spirit world resonant with sound. Belief in spirit worlds within rock has been posited as relevant to interpretation of rock art images decorating rock surfaces (Lewis-Williams and Dowson 1990).

The illusion of depth due to sound reflection (Waller 2002b), together with the phenomenon of echoes being experienced as hoofbeats and voices calling out from within the rock, could have been a likely inspiration for the widespread belief in a spirit world within the rock. Based on what is known globally of cultures that explained natural phenomena in terms of animism, this belief in a spirit world behind the veil of the rock surface would be an understandable response

to sound reflection. An opening and closing cave entrance is a common feature of many echo traditions and often is the very reason that supernatural beings are reported as trapped within, thus providing an explanation for the answering voices of echoes that seem to emanate from the behind the rock surface.

It is not a matter of intelligence or lack thereof to conceive of an incorporeal sound source behind the reflecting plane. In fact, the modern technique of ray tracing (Elorza 2005) shows that sound reflections from a surface are mathematically identical to sound waves emanating from a virtual acoustic source behind the reflecting plane. This conceptualization has led to some sophisticated modern audio techniques such as holophony (Oellers 2011). Thus, the illusion of a magic cave filled with animals due to the perception of depth from sound wave reflection is not much different from scientific models of virtual sound sources, and such could have given rise to legends of a supernatural Animal Master that lived deep within the cave and could be heard but not seen.

It would also be a natural response to decorate this sound reflecting rock surface with images of the beings that could be heard to reside behind the surface, as described in the narratives that detail these sounds. The following observation captures perfectly the perception of depth that can occur as the result of an auditory illusion: “I first noticed the acoustics of rock art when I heard a car ‘drive’ out of the Buckhorn panel” (William Bieseke, personal communication 1997). This quote vividly illustrates how echoes seem to originate from behind sound-reflecting rock surfaces in a manner analogous to images reflected in a mirror (Waller 2002b).

*Yahwera*’s House, the KER-2412 site, is an extraordinary echoing rock art location that can be investigated through detailed narratives and ethnography relating to sound and the precise location of the images. Comparative ethnographic material from across North

America reveals that although Back Canyon is not unique, it does serve as a particularly rich example of this class of sound-producing rock art sites with associated legends of doorways opening to a supernatural underworld filled with sound.

### End Notes

1. Discussions with Edwin Krupp of the Griffith Observatory have led one of us (APG) to posit that the series of tick marks exhibited on the same rock face as the *Yahwera* imagery may be related to a tally system of lunar calendrics. Numic peoples followed a lunar calendar, and the months recognized by the Kawaiisu are related to lunar themes. In the Kawaiisu dictionary (Zigmond et al. 1990) words for moon, moon crescent, moon slanting, and moon waning are identified. Vander (1997) identified the moon as a source of power for some Numic shamans. She also noted that Powell identified the sun and moon as one class of deities for the Ute and Southern Paiute (Powell 1971:73).

Lunation tallies are typically in counts in the realm of 28 or 27. Harrington (1934:47) noted that Father Boscana recognized a resurrection theme (perhaps akin to the resurrection of the animal dead for *Yahwera's* role?) with respect to the Juaneño religious identifications with the moon.

Boscana stated that:

...they also had the custom at the time of the new moon, the first day that the new moon appeared, some old men began to shout, saying: boys start your moon running! And immediately the youths began to run like crazy men without order or arrangement, and the old men to dance as a sign of joy, saying in their song that even as the moon died and lived again, even so, though they also were to die, and also they were to live again...  
[Harrington 1934:47]

The Chumash also followed a lunar calendar with months of 30 days. These months correlated closely with the lunar cycle, and each has its own descriptive elements and associated symbolism (Hudson and Underhay 1978:126).

One of us (SJW) supposes that the tick marks (which appear to be paired) could represent animal tracks, specifically deer hoof prints, that serve as a symbol of the hoofbeats in the narratives and the acoustics of the site. The depiction of hoofbeat-like echoes may even relate to the lunar concepts alluded to above. Ethnographic data from other indigenous people in varied geographical contexts shows a relationship between these two rather dissimilar concepts: 1) a Pacific Northwest oral tradition describes how the moon transformed a mocking man to become the echo (Ballard 1929); 2) many tribes, including Hopi, Kwakiutl and Lakota, considered Echo to be a supernatural Sky Element along with the Moon; and 3) Echo was brought down to earth "from above" (McIlwraith 1948).

2. "A Night Inside a Dreaming Rock" (Conway 1993:155-157) is excerpted from a story told by an Ojibwa named Shannon Cryer. Emphasis added in the form of underlining for sound related words. Note also the plentiful nonhuman speech.

Indian people used to see those *Maymayg-washiuk* fishing with their little nets in front of that rock with the markings on *Matagam-ing Sagagen*. As soon as the elves saw you, they would paddle their tiny canoes as fast as they could and disappear into that cliff.

One windy day, an Indian fellow spotted the little people fishing. So he paddled up close to see them. They were hairy all over. But he could hear them speaking the Indian language. All of a sudden, the fairies turned in their canoes and saw the Indian man. The fairies raced toward the cliff with the

paintings. But the Indian man paddled hard and kept close behind them.

Suddenly, the wall of paintings opened up in front of the fairies. The little men sped into a deep cave inside the cliff as they often had before. This time, the Indian dug his cedar paddle into the deep lake waters as furiously as he could. He reached the dark opening just as the rock began to close. In an instant, he was inside the fairies' cave. "You caught us!" the *Maymaywashuik* yelled...

"You speak my language," the Indian man said excitedly. "I waited many years to catch you. I want to know how you live. And why do fairies avoid my people?" he asked.

The rock elves laughed. "You tricked us today," they told him. "You caught us and now you can have anything you want." The Indian was so surprised to be talking to this mysterious tribe that he had not taken time to look around their home... These fairies are a very powerful tribe. They converse with the Thunder people. That is why the *Maymaywashuik* live in caves where there are markings on rock.

Inside, the cave was filled with fine bush food—smoked lake trout, strips of moose meat, woodland caribou stews... And one side of the cave was covered with painted skin drums... "So this is where everything that gets lost ends up," the visitor thought. "I knew that the fairies steal from us, but never dreamed that they lived so well," he said to himself.

"Of course, we do," one of the little wild men answered. "And we hear your thoughts just as we listen to your prayers at this spirit rock. Although we hunt and fish like you, we

are influenced by the spirits. We take your messages to Thunder and the other forces that cannot be seen."

The Indian sensed that he was present in a living vision—a place and source of great spiritual power. He accepted the fairy's offer to stay as their guest for one night. It was an evening of good food. He felt as full as the times he sat at a feast to honor bear. The little wild men drummed until dawn and sang medicine songs so old that the Indian could barely understand the words. When he asked why the song-prayers used such ancient words, the fairy told the Indian that these were the songs he learned in his youth. Then the Indian noticed that all of the fairies looked youthful and very old at the same time. With the small fires casting dancing shadows on the smooth walls and ceiling of their home, heartbeat drumming pulsing through the night, and the high-pitched songs echoing across the lake, the Indian received many visions while sitting with the little wild men.

At dawn, the leader of the fairies told the Indian man that it was time for him to rejoin his own nation. As the sunlight spread across the eastern hills, the cave filled with a yellow glow. And the cliff, still transparent from inside, shimmered in the light. The Indian could not believe what he saw. The entire rock wall that he had viewed many times from the outside was clear. Each rock painting hung in the air...

Low sounds, like a crowd of voices, could be heard around the groups of paintings. As the Indian man walked closer to the magical wall, he understood the sounds. They were the voices of his people! He heard his

grandmother praying 30 years ago as she left tobacco at the cliff. And he heard his father and uncles sing the songs of *Dijski-Inniniik* while they painted images fresh from their vision quests. These hunters too had passed to the land beyond the stars long before.

The Indian man stepped into his bark canoe inside the cave near the wall of pictures and prayers. He thanked the little wild men for his visit. No one had ever lived such a full, single evening. The *Maymaygwashiuk* stood by their tiny canoes as he paddled into the clear wall of paintings. With a few deep strokes, the Indian glided out of the cave. As soon as he turned around to look again at his hosts, he saw only a wall of rock covered with the same paintings, now silent. He thought he heard the sound of one tiny drum inside the cliff, but the waves were lapping the sides of his canoe with such force that he could not be sure... He knew that the opening to the cave had closed behind him...

3. "The Visit to Chief Echo" (Tsimshian) is excerpted from Boas (1916:148-149). Emphasis is added in the form of underlining for sound-related words; note also the plentiful nonhuman speech.

*Txä'msem* beheld a large house, and inside the large house with carved front he heard many people singing. He saw sparks flying up from the smoke hole, and he knew that it must be the house of a great chief. When he came near the house, he heard something saying with a loud voice, "A stranger is coming, a chief is coming!" and he knew that they meant him. So he went in, but he saw nobody. Still he heard the voices. He saw a great fire in the center, and a good new mat was spread out for him alongside the fire. Then he heard a voice which called

to him, "Sit down on the mat! This way, great chief! This way, great chief! This way!" He walked proudly toward the mat. Then *Txä'msem* sat down on it. This was the house of Chief Echo. Then *Txä'msem* heard the chief speak to his slaves and tell them to roast a dried salmon; and he saw a carved box open itself and dried salmon come out of it. Then he saw a nice dish walk toward the fire all by itself.

...*Txä'msem* took the handle and ate all he could. Before he emptied his dish, he looked around, and, behold! mountain-goat fat was hanging on one side of the house. He thought, "I will take down one of these large pieces of fat." Thus *Txä'msem* thought while he was eating.

Then he heard many women laughing in one corner of the house, "Ha, ha! *Txä'msem* thinks he will take down one of those large pieces of mountain-goat fat!" Then *Txä'msem* was ashamed on account of what the women were saying. He ate all the crabapples, and another dish came forward filled with cranberries mixed with grease and with water. *Txä'msem* ate again, and, behold! he saw dried mountain-sheep fat hanging in one corner of the large house. He thought again, "I will take down one of these pieces of mountain-sheep fat, and I will run out with it." Again he heard many women laughing, "Ha, ha! *Txä'msem* is thinking he will take down a piece of the mountain-sheep fat and will run out with it." *Txä'msem* was much troubled on account of what he heard the women saying, and when he heard them laughing in the corner of the house. He arose, ran out, and snatched one of the pieces of mountain-goat meat and of mountain-sheep fat; but when he came to the door, a large

stone hammer beat him on the ankle, and he fell to the ground badly hurt. He lost the meat and fat, and someone dragged him along and cast him out...

4. These paintings in Creation Cave are also described in Kawaiisu oral tradition as pictures of the Animal People who painted their own portraits during a fiesta when Grizzly Bear called the animals together. Here the animals decided what they wanted to be, and each painted his own picture (Zigmond 1977:76, 1980:41). Grizzly Bear lives in the rock coming and going through the fissure and is the guardian of the cave. The rocks at the cave curiously have remarkable similarities to animals, including a turtle, rabbit, and bird.

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