

Archaeoastronomical Implications of a Northern Chumash Arboglyph

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The first known Chumash tree carving from south-central California was recently discovered in the Santa Lucia Range of San Luis Obispo County. We present Saint-Onge's hypothesis that the principal symbolic element of this arboglyph represents Ursa Major, known as 'ilhiiy, and Polaris (the North Star), known as Shnilemun or the Coyote of the Sky, in Chumash oral literature. Some of the most famous rock art sites in south-central California contain a similar motif. Furthermore, the position of this image at many of these sites appears to be one that affords unobstructed views of the North Star. This research builds upon previous studies of archaeoastronomical links between Chumash ritual and rock art. We present further evidence that periodic celebrations were held in conjunction with certain predictable celestial events throughout the year, and that the symbolism of the counterclockwise rotation of Ursa Major around the North Star was embodied in Chumash ceremonial behavior.

Remember that there is a star that looks over the world, and he looks for all... [Pastor Shoy'ama, Purisimeño Chumash, as told to Fernando Librado Kitsepawit about 1857, in Hudson et al. 1977:19].

ARCHAEOSTRONOMICAL INTERPRETATIONS of Chumash rock art emerged in the late 1970s, largely championed by Travis Hudson, late curator of anthropology at the Santa Barbara Museum of Natural History. Hudson's seminal study of the relationship between Chumash religious practices, mythology, and the night sky was coauthored with the museum's planetarium director, Ernest Underhay (Hudson and Underhay 1978). Much of their interpretation was based upon the emerging understanding of Chumash ritual knowledge and world view derived from the early twentieth century ethnographic research of John P. Harrington and a growing corpus of data on pictograph sites in the Santa Barbara Channel region (see especially Blackburn 1975; Grant 1965; Hudson et al. 1977). In his exploration of Chumash ideology, Hudson emphasized

the importance of celestial knowledge in folklore and religious practices (Hudson 1984; Hudson and Blackburn 1978; Hudson and Conti 1984; Hudson and Lee 1984; Hudson and Underhay 1978; Hudson et al. 1979). Central to Hudson's theorizing regarding astronomy and Chumash ceremonial activities was the role played by ritual practitioners associated with the 'antap cult, an esoteric society composed of political and religious leaders. According to this interpretation, 'antap priests had the responsibility to use their supernatural powers and esoteric knowledge to divine the course of future events and take the necessary ritual steps to keep cosmic forces in balance. As part of these rituals, the individuals involved artistically expressed their knowledge of astronomical events in pictographs (Hudson 1982:20; Hudson and Underhay 1978:32-38).

Hudson's writings provided a new and fresh approach to the study of Native American rock art and inspired many follow-up studies, not only in the Chumash region, but in many other parts of California (and elsewhere) as well (e.g., Benson and Hoskinson 1985; Krupp 1983, 1991, 2005; Krupp and Wubben 1990; Lee 1997; Pye 2006; Schiffman 1988; Schupp-Wessel 1982; Sehgal 1989, 2003; Sprague and Grasse 2001; and many others). While most would agree with Hudson that rock art in south-central California was often produced by shamans or other traditional religious specialists, some have felt that the evidence offered in support of archaeoastronomical connections has been less than compelling (e.g., Hyder 1989:17; Whitley 1989, 1996:31–32). Whitley, in particular, has concluded that an alternative explanation is in order and has argued that rock art images often pertain to shamanic journeys into the supernatural realm (Whitley 1992; 1994, 1996, 2000). While Harrington's notes have continued to yield interesting clues as to the possible meaning of the Chumash symbolism embodied in rock art (Lee and Horne 1978; Steinberg 1994), there have been no significant breakthroughs that bring the meaning behind particular symbols into focus. In this paper, we present a new interpretation of a particular motif that appears to validate one of Hudson's predictions in *Crystals in the Sky*.

THE NORTHERN CHUMASH ARBORGlyph

In November 2006, Saint-Onge was conducting a paleontological survey in the Santa Lucia Mountains of San Luis Obispo County. While interviewing one of the owners of a local ranch, he was told about a "Scorpion Tree" that was believed to have been carved by a cowboy more than a hundred years ago. This tree turned out to be a large coast live oak, located in woodlands overlooking a large spring that is situated among grassy potreros near the summit of the range. Chaparral covers the surrounding slopes. Part of the tree has broken or rotted away, and only two major limbs remain. At the base of the tree, the trunk of the oak is 149 cm. in diameter. Approximately 130 cm. above ground level, it is 340 cm. in circumference. We estimate the oak to be approximately 400 years old, based on a comparison of its diameter with that of another coast live oak of known age. The arborglyph has been carved on the north side of the tree's trunk, and it is heavily overgrown with lichen (Saint-Onge et al. Pl. 1). It

is apparent from the style of the carving that this was not the product of nineteenth-century cowboys, but instead was created by a Native Californian artist. Indeed, as will be shown, the motif resembles many similar designs found in the rock art of the Chumash and neighboring groups in south-central California.

The arborglyph is quite large. The top of the carvings is 245 cm. above ground level, and it is 96 cm. wide at its widest point between the outstretched feet of the zoomorphic (or anthropomorphic) figure. The base of the arborglyph begins 27 cm. above the existing ground surface. The lower part of the arborglyph consists of a vertical, six-legged zoomorphic figure, while the upper portion is composed of at least two overlapping circles, each divided into four sections (Fig. 1). The uppermost circle above the zoomorph is barely detectable, having been filled in by the growth of new tree bark and by lichen. It is possible that as the tree bark healed and the older circle became obscured, a new one was carved, so that both circles were not necessarily created at the same time.

What may be the head or lower part of the head of the zoomorphic figure (42 cm. wide by 13 cm. high) is flattened with a slightly concave "chin," and it has pointed ends to either side that are bifurcated (Saint-Onge et al. Pl. 2). It is topped by a rectangle with two handles (22 cm. wide by 13 cm. high) that may either sit atop the "head" or be a part of it. This crown-like rectangle is divided by a vertical projection that extends upward into the lowermost circle. The "handles" that emanate from the upper corners of the rectangle each bend up and then down, like antennae. The vertical body of the zoomorphic figure is parallel-sided (16 cm. wide), except for a projection on its right shoulder (left side, from the viewer's perspective). The body is 54 cm. in length. The uppermost arms on either side of the body point diagonally upward and terminate in three fingers. The lowermost arms extend diagonally downward to either side and likewise end in three long digits. The middle arms are shorter and are bifurcated at the ends. A tail, or perhaps a male reproductive organ, extends straight down between the legs and is 34 cm. in length.

A previous owner of the ranch where the arborglyph is located told the current owner about a Native American family that had once lived in a cabin near the tree. However, he did not imply that members of the family were responsible for the "scorpion" arborglyph, which



Figure 1. Position of the Northern Chumash arboglyph on the ancient Coast Live Oak.

he attributed to a nineteenth-century cowboy. The native family that had lived in the cabin was reported to have died tragically from influenza during the 1918 pandemic that took so many lives in California and elsewhere. According to local tradition, the cabin with the bodies of the victims was burned to the ground to prevent the further spread of disease. Today, only a scatter of historical artifacts and Pismo clam fragments mark the location where the cabin once stood on a flat northwest of the tree. A number of ceramic and glass fragments, as well as several pieces of shell, were collected from the site's surface. Among the ceramic pieces were several molded white vessel sherds and a base fragment of a bowl with a blue interior transfer-printed central design. These artifacts were examined by historical archaeologist Julia Costello, who describes them as follows:

All of the ceramics are made of white improved earthenware (WIE), a sturdy table ware that came on the market after 1845 (also commonly referred to as "white graniteware," "hotel ware," and "ironstone").... Molded decorations...became more popular as the [nineteenth] century approached its end (Miller 1993:6; Sussman 1985:7). Transfer-printed designs predominantly in blue were popular by the 1820s and appeared on WIE bodies once these were developed. Although transfer-printed wares fell out of fashion by the 1870s, some production has continued to the present (Boger 1971:348; Miller 1991:8).

The olive-colored glass likely comes from a Bourdeaux-style wine bottle, popular between 1850–1890 (Rock 1990:22). The clear fragment from a bottle or jar contains a mold seam, which could date anywhere between 1870 and the present (Rock 1990:7) (although the appearance of the artifact suggests a pre-WWII date).

Deriving a site occupation date from artifacts must consider the time lag between manufacture of the item and its discard. For ceramic table wares, this has been demonstrated to be about 20 years (Adams and Gaw 1977). Therefore, while the ceramic and glass artifacts suggest a manufacture date between ca. 1845 and 1890, the ceramics could have been deposited closer to 1910. The absence, however, of ceramic forms popular after 1890—particularly decal-decorated vessel—suggests either that this site had been abandoned by ca. 1900 or the occupants were no longer purchasing new table wares.

The ceramic collection indicates a family household including women. Studies have shown that all-male households generally lack refinements in table settings such as serving vessels and tea wares, items present in this collection. The presence of such wares also indicates that some effort was made to

approximate the Victorian ideals of the larger society. The absence of porcelains suggests a modest family income [Costello 2007].

Costello's conclusion that the cabin was occupied by a modest-income family that included women is consistent with local oral traditions that a Native American household once resided near the arboglyph in the late nineteenth and early twentieth century.¹ Because the arboglyph is stylistically reminiscent of pictographs found throughout the Chumash region which contain similar zoomorphic designs and circular motifs, we do not suggest that it was carved by members of this particular Native American family at such a late date, but conclude that it likely stems from a period prior to the resettlement of native peoples at the missions in the late eighteenth or early nineteenth centuries.

On a clear day, from the south side of the arboglyph tree, one may see Morro Rock directly to the south in the distance. This prominent landmark, which guards the entrance to Morro Bay, is the westernmost of nine visible volcanic peaks that extend from San Luis Obispo to the coast (Dibblee 2006; Dickerson 1990). Morro Rock is well documented as having been a significant Northern Chumash shrine called *Lisamu'* (Harrington 1986:R1.9, Fr.489; Klar 1977:53). María Solares related the following information about the spiritual importance of Morro Rock to J. P. Harrington:

Lisamu' [Morro Rock] is well-known, just like the mountain *'iwhinmu* [Mt. Pinos]; [people consider] them the same.... The ones who climbed *lisamu'* were going to make offerings; not just anybody climbed it. Those who climbed it were the wise ones. The ancient people saw it. [They considered] *'iwhinmu* and *'owotoponush* [shrine peak near Figueroa Mountain] as equal [to *lisamu'*]; they have the same power [Harrington 1986: R1.9, Fr.489, translation courtesy of Richard Applegate].

Morro Rock furthermore is featured prominently in the known corpus of Salinan myths (Harrington 1985:R1.84, Fr.249; 1986:R1.86, Fr.500; Mason 1912:193, 1918:112–114; Milliken and Johnson 2005:133–134). The position of the arboglyph (on the north side of the ancient coast live oak), as well as the position of the tree itself (aligned due north of a well-documented place of ceremonial and mythological importance), prompted Saint-Onge to reexamine the existing ethnographic and archaeoastronomical literature on Chumash cosmology and rock art.

A SUGGESTED INTERPRETATION OF THE ARBORGlyph

The surviving record of Chumash astronomical knowledge, although incomplete, provides compelling evidence that the North Star (Polaris) and the Big Dipper (Ursa Major) were important in native culture. For example, Fernando Librado *Kitsepawit* made the following statement to John P. Harrington:

The constellation of the Big Bear was called *ilihiy* in the language of the *siliyik*,² the name means “guardian stars,” for they guard the north star, called *minimol* [Hudson et al. 1977:35].³

The word *minimol* used by Librado is cognate to the word *milimol* ‘north’ in other Central Chumash languages (Applegate 2007:222; Beeler and Klar n.d.; Whistler 1980:17). The Northern Chumash word for ‘north’ was *sima* or *tisima*, which is quite possibly related etymologically to the word *t'simu* or *tsqsimu*, meaning ‘star’ (Heizer 1955; Klar n.d.). The importance of the North Star is highlighted further by the following information provided by Librado regarding the most important object used in the winter solstice ceremony, the so-called “sun staff” or “sunstick” (Hudson and Blackburn 1986:235):

[The Ventureño Chumash] called this stick *'oqshposhishash*, or *miwalaqsh*, meaning “to divide” or “separate in the middle.” The North Star was also called this. At midday the sun is opposite the North Star [Hudson et al. 1977:56].

Librado’s statement implies that the North Star served “to divide the sacred east-west path of the sun in the middle” (Hudson and Underhay 1978:101). Although Harrington, apparently quoting Librado, called this ceremonial object the “sunstick,” it would be more accurate to call it the “North Star staff,” because of the terminological equation between the stick and Polaris (Saint-Onge et al. Pl. 3).

Clearly Chumash peoples regarded the North Star as a pivotal point in the organization of the universe. In his contribution to the Cultural Element Distributions series, Harrington reported that his principal Salinan, Chumash, Kitanemuk, and Gabrielino consultants were aware of Polaris as the “star that never moves” throughout the seasons (Harrington 1942:29, item 1133). Among the Luiseño, ceremonial dancers consciously imitated the movement of the constellations around

the North Star as they danced around the fire in their sacred enclosure (DuBois 1908:163). We surmise that this is the reason why María Solares emphasized to Harrington that Ineseño Chumash women would dance counterclockwise during their mourning ceremony and “never [in a] clockwise [direction],” because—like the Luiseño—they were imitating the motion of the stars (Hudson and Underhay 1978:46). Whitley (1996:32) notes that for native peoples in the Far West, “one of their most important and most elaborate religious rituals—the Mourning Ceremony—was conducted during the solstice.” In our discussion of Chumash calendrics, we shall return to the notion that the winter solstice ceremony coincided not only with the perceived “rebirth of the sun,” but also with the initiation of a new cycle of the counterclockwise movement of constellations around the North Star. The mourning ceremony conducted at this time commemorated the souls of those who had died during the preceding year and marked a new beginning for those who continued on.

In Chumash oral literature the great Coyote of the Sky, called *Shnilemun*, is a prominent figure, equal in his abilities to Sun. María Solares, Harrington’s principal source for Ineseño Chumash lore, described *Shnilemun* as being one “who champions man’s well being and looks out for the welfare of all in the world below him” (Blackburn 1975:37, 92). Furthermore, she reported that the Ineseño called him “father” and prayed to him, saying that “*Shnilemun* works for us giving us seeds, sparing our lives...” (Harrington 1986:R1.7, Fr.199). The Coyote of the Sky was present at the creation of mankind, along with Sun, Moon, Morning Star, and the Great Sky Eagle (*Slo'w*) (Blackburn 1975:95). Because of *Shnilemun*’s prominence among the Sky People, Travis Hudson suggested that this name referred to the North Star (Hudson and Underhay 1978:100; Krupp 1991:280). He further noted that the Luiseño characterization of Polaris as “*Tukmi*, the Heart of the Wolves,” may have been related conceptually to the great Sky Coyote of Chumash tradition (DuBois 1908:162–164; Harrington 1933:200; Krupp 2005:80). Indeed, many California Indian oral traditions identified Old Man Coyote as being a major figure involved in the creation of the world, and terminologically distinguished him from the ordinary coyote (Johnson 2006:197–198; Kroeber 1932:304–305; Latta 1936:35–36; Loeb 1933:233).

According to Chumash oral tradition, Sun and Sky Coyote would play the gambling game of *peón* all night throughout the year. Sky Eagle was on Sun's side and Morning Star was on *Shnilemun*'s team, while Moon served as referee. Thus Day and Night were on opposite teams, a fact that appears to parallel Librado's statement that Sun and North Star were opposite each other at midday. On the night of the Winter Solstice, the two teams made the final tally to determine who had won for that year. According to María Solares, if *Shnilemun*'s side won, it was a time of bounty and the world rejoiced

because there was plenty of game, seeds, and acorns; however, if Sun's team won, payment was taken in human lives (Blackburn 1975:91–92). If *Shnilemun* was the North Star, as Hudson argues, then clearly Polaris was an object/being to which all Chumash people owed their gratitude, indeed their very lives.

As we have previously mentioned, the arborglyph discussed here is carved on the north side of the oak. Saint-Onge noticed the true north alignment of the tree from Morro Rock while he was calculating the distance from the former cabin location to the sea (in order to

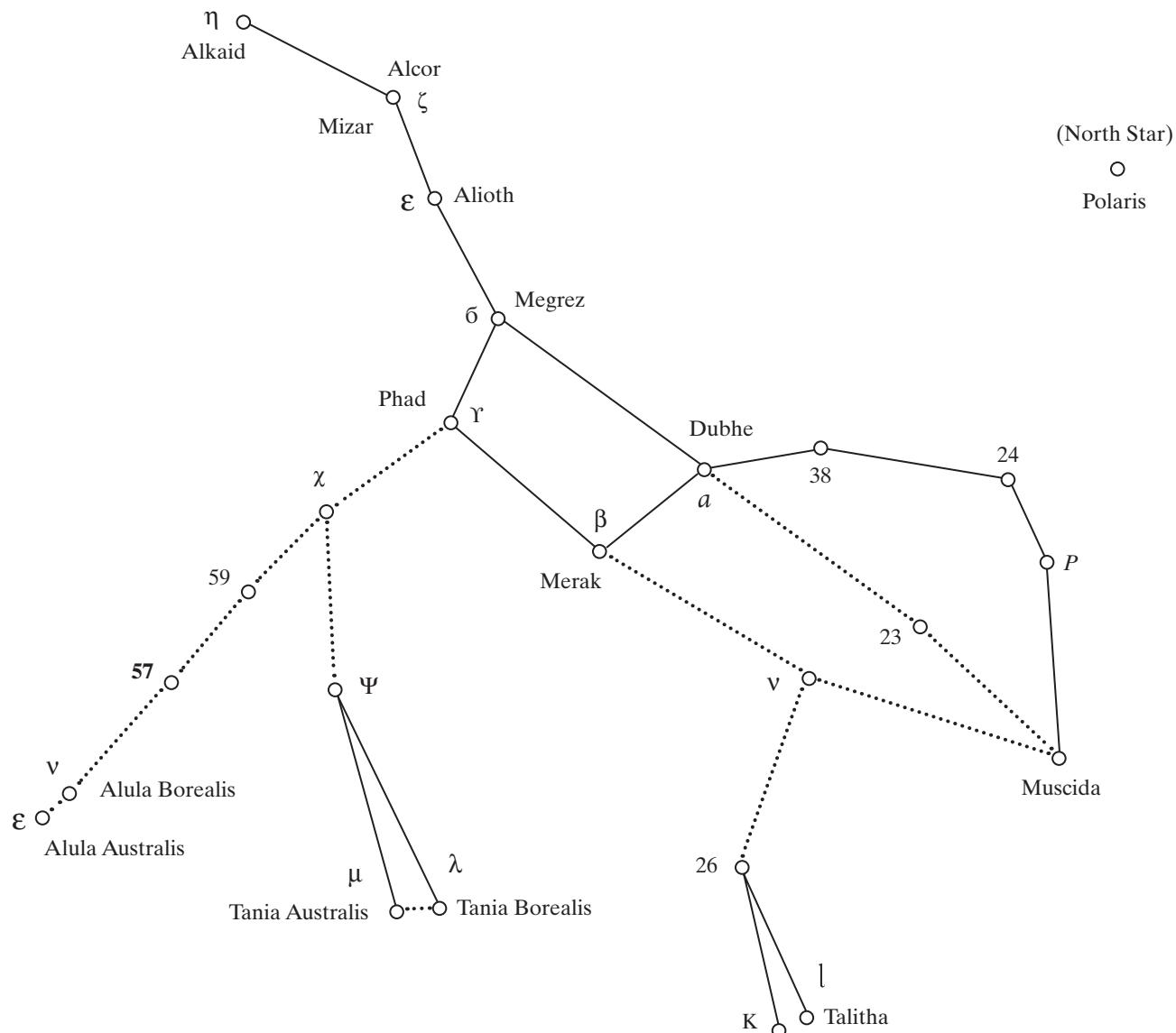


Figure 2. Stars in the Ursa Major constellation (Mellinger and Hoffman 2005:30–31; Ridpath and Tirion 2007:250–251). The solid lines outlining the upper portion of Ursa Major, including the Big Dipper and the curved line of stars to its right, resemble the crown of the arborglyph.

determine how far the residents would have had to travel to collect the Pismo clams whose fragments were scattered over the site). The apparently significant due north placement of the tree and its carved figure led to the logical conclusion that Polaris must have been involved in determining this alignment. In examining a star chart of the northern hemisphere, Saint-Onge noticed a resemblance between the crown of the arboglyph with its “antennae” to either side, and the outline of the portion of the Ursa Major constellation closest to Polaris (Fig. 2). He also noticed that the circular elements were above and to the right of the crown of the zoomorphic figure. Did one of these represent Polaris? Moreover, did the zoomorphic figure represent *'ilihiy*, the guardian of the North Star?

For millennia, people living in the northern hemisphere have noticed the brightest stars that comprise the Ursa Major constellation and have developed myths regarding their meaning and origins (Krupp 1983:138–140, 211–213; 1991:226–240). Chumash artisans frequently depicted supernatural beings with ‘antennae’ in their rock paintings, so it would be natural for them to envision antennae associated with the guardian *'ilihiy*, outlined by some of the brightest stars in the Ursa Major constellation. These would include the handle to the left of the cup of the Big Dipper and a curved line of stars to its right terminating with Muscida.

In summary, our hypothesis about the interpretation of the arboglyph rests on the following argument. There is ethnographic information that suggests that the North Star was important in Chumash mythology and ritual behavior and in that of other native groups in Southern California, and that Ursa Major was known to some Chumash people as the guardian of the North Star. The uppermost part of the zoomorphic figure in the arboglyph bears a resemblance in outline to a conspicuous configuration of stars in Ursa Major. This observation has led us to suggest that the “starlike” design to the upper right of the crown of the zoomorphic figure may represent the North Star. As further support for this hypothesis, we point out that the arboglyph appears to be associated with the direction of north. It is situated on the north side of the old oak, and this tree is located due north of *Lisamu'* (Morro Rock), an ethnographically documented shrine of importance to the Chumash and their neighbors.

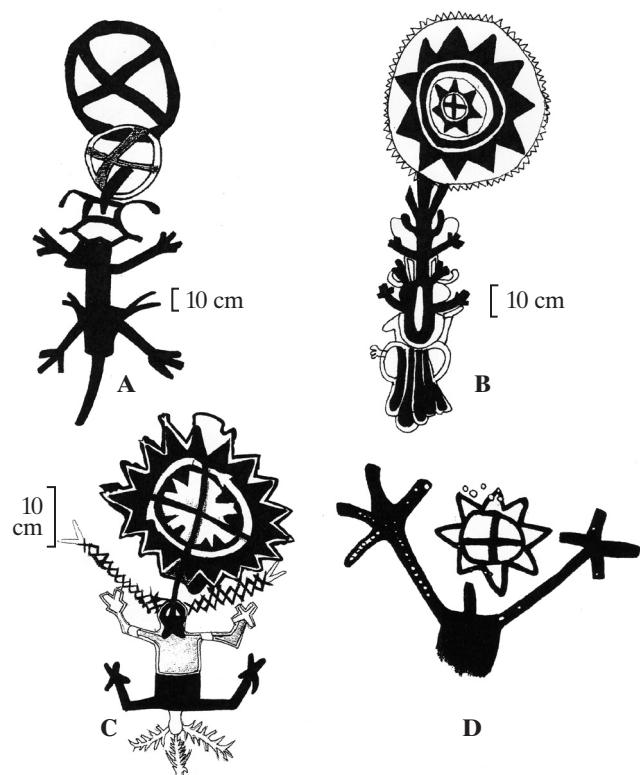


Figure 3. Comparison of similar motifs.

- A = Northern Chumash arboglyph**
- B = Pleito Creek, CA-KER-77, Panel A**
- C = Painted Cave, CA-SBA-506**
- D = Condor Cave, CA-SBA-1663, Panel 3, Motif E**

ROCK ART SITES WITH SIMILAR MOTIFS

A search of the literature on rock paintings in south-central California reveals that a number of major pictograph sites have panels with designs similar to that present in the Northern Chumash arboglyph. In many cases, a prominently-situated zoomorphic figure is present, with a circular symbol, sometimes quite elaborate, located above it and just off-center to the right. Those images that exhibit the greatest similarity to the arboglyph are depicted in Figures 3B–3C; however, the pictographs depicted in Figures 4–8 also bear some resemblance to those in Figure 3. The circular element is usually connected by a vertical projection extending upward from the head of the zoomorphic image. In most cases, we have been able to visit these sites and personally observe the orientation of the painted motifs depicted in Figures 3–8. If the hypothesis that the arboglyph is associated with Ursa Major and Polaris has merit, we

should expect other sites with similar motifs to exhibit a similar alignment of elements vis-à-vis the North Star.

Pleito Creek Site, CA-KER-77

One of the most spectacular pictograph sites in North America is located in the San Emigdio Mountains near the southern end of the San Joaquin Valley (Bury et al. 2003; Grant 1965:Pl. 27, 28, Fig. 94; Lee 1979; Robinson 2006:218–222). It is situated in territory once occupied by the Emigdiano or Castac Chumash. A deep midden lies adjacent to the site, recently tested by Gayle Grasse Sprague (Grasse 2005). The site appears to have been inhabited, perhaps seasonally, throughout the Late Period and into the historic era. The most elaborate paintings occur in a main shelter high on a prominent outcrop just north-northeast of the principal habitation area. Although Lee (1979:303) speculated that the presence of blue and green pigments in this cave suggested the use of paints obtained from the missions, more recent research by Bury et al. (2003) has demonstrated that local malachite and azurite sources were used (see also Reeves, Bury, and Robinson, this issue).

The opening of the main shelter looks to the east. Although the ceiling of the cave contains a series of noteworthy polychrome zoomorphic and other images, we will focus our discussion on the prominent motif (Panel A) on the north side of the cave, which has long drawn the attention of rock art researchers. A six-limbed zoomorphic figure is positioned just beneath and slightly offset to the left of a large, unusually intricate, mandala-like design. The center of this circle has a cross in it, like those in the circles above the zoomorph in the arboglyph. Hudson and Underhay hypothesized that the complex circular design and a similar disc motif on the ceiling of the same rock shelter were schematic representations of the universe, with the sun in the middle surrounded by the Milky Way and other stars during all seasons of the year (Hudson and Underhay 1978:118–119). Whitley, on the other hand, perceives this image as one of an “exploding human,” representing the shaman’s transformation into a state of cosmic consciousness (Whitley 2000:120–121). Whitley thus continues the tradition of interpreting much of Chumash art as being associated with religious experiences induced by the ingestion of *toloache* or Jimsonweed (see also Lee 1997:25–30).

Although we find Whitley’s interpretation seductive, we suggest that another hypothesis should be considered. To us, the resemblance of this particular motif to the Northern Chumash Arboglyph is striking (see Figs. 3A and 3B). Our alternative explanation proposes that similar elements within Chumash rock and tree art are related to commonly shared cultural beliefs, which in turn are connected to observations of the predictable movements of constellations and other celestial objects. We know that the Chumash, as well as other California Indians, were keenly aware of these nightly and seasonal phenomena, phenomena which were reflected in their cosmology and were used to mark significant ceremonial events. Our expectation is that we can test our hypothesis that this particular motif is a symbolic depiction of Ursa Major and North Star by observing its regular orientation with respect to the northern sky. The fact that one can observe the rotation of the stars counterclockwise around Polaris from within the Pleito Creek cave (Saint-Onge et al. Pl. 4), and that the zoomorphic figure is prominently placed beneath the elaborate circular design just inside the cave entrance, is consistent with our hypothesis that it represents the guardian *’ilihiy* and the North Star.

Chumash Painted Cave, CA-SBA-506

Located in the upper reaches of María Ygnacia Creek east of San Marcos Pass in the Santa Ynez Mountains, Chumash Painted Cave is one of the most famous pictograph sites in North America (Hudson 1982; Whitley 1996:170–174). It was known in the Barbareño Chumash language as *’alaxulux’en* (De Soto 2008). The best preserved and most spectacular scene is located on the west side of the cave, and the fundamental motif in this panel is a polychrome anthropomorphic figure with arms and legs upraised towards an elaborate rayed, circular design (Fig. 3C). The circular element consists of alternating red and white concentric zones, and it has a multi-rayed white star at its center that is over-painted with a red cross that divides it into four quarters. Hudson interpreted the pictographs in Painted Cave and elsewhere as being produced by shaman-astrologers belonging to the *’antap* secret society (Hudson 1982:20; see also Hudson and Lee 1984:32–33). From inside Painted Cave, one looks towards the northern sky.

Although Harrington did not record a meaning for *'alaxulux'en*, the Barbareño placename for Painted Cave, it may be etymologized to a certain extent. Linguists who have specialized in the Chumashan languages were queried as to its possible meaning. Although a complete translation is not currently achievable, parts of the name can be explained:

The *'al-* part is very likely the agentive prefix ("one that, that which") but the verb root doesn't ring a bell (probably *aqlu-/axulu-* + *x'en*) [Richard Applegate, personal communication 2008].

The *'al-* is just a nominalizing prefix (Ventureño makes a difference between the nominalizer "*al-*" and the agentive "*'alal-*").... In Ventureño there is a verb root "*xulu*" that means "to be/go round." Mostly you see it in a reduplicated form "*xululu*," "to roll." I think it's the same in Barbareño [Timothy Henry, personal communication 2008].

According to Henry, a reasonable reconstruction of this placename is 'that which goes around.' One meaning that can be inferred from this is that the placename referred to observations of the night sky, with the constellations moving around the North Star. We admit that this suggested meaning is quite speculative, but it is consistent with the archaeoastronomical interpretation that pictograph sites like Painted Cave served as observatories where the seasons were monitored using the stars.

*Condor Cave, CA-SBA-1663*⁴

Condor Cave is located in the Hurricane Deck region of the San Rafael Mountains between Manzana Creek and the Sisquoc River. It achieved fame as the first proposed Chumash winter solstice observatory. At dawn on the morning of December 21, a beam of light enters the cave through a hole in the wall as the sun rises over a nearby rock outcrop, which is postulated to have served as a 'heelstone' (Hudson and Underhay 1978:53–56). Pictograph panels are located in several different parts of the cave. One is located on the right side of the shelter, about a meter from the hole, and includes an anthropomorphic figure with raised, outstretched arms, painted in black with red and white dots (Fig. 3D). Above this figure is a rayed circle divided in quarters, which Hudson and Underhay (1978:71) described as "a possible solar symbol." Other interpretations are certainly possible, and the similarity of this motif to the others in Figure 3 is certainly striking.

House of Two Suns, CA-SBA-1318

First described by back country naturalist and historian Dick Smith, the rock art site recently christened "House of Two Suns" contains a series of shelters located one above the other in a prominent rock outcrop (Hammond 2003; Lee 1984:Fig. 45; Smith 1973). It is located in territory formerly inhabited by the Cuyama Chumash. The pictographs include a red and black mandala-like figure in a lower cavity; however, the site's name derives not from this or other sun-like designs, but rather from some observations made by Hammond (2003) at the winter and summer solstices, when he noticed an interplay of "sun daggers" and shadow lines upon three cupules located in the floor of the center shelter. In the uppermost cave, several zoomorphic elements have been painted. One of two red figures painted on the west wall has five-fingered spiral hands and a meandering line of dots leading up to a pinwheel symbol with five rays. Both the pinwheel symbol and the spiral hands of the zoomorphic figure suggest a counter-clockwise motion (Figure 4A).

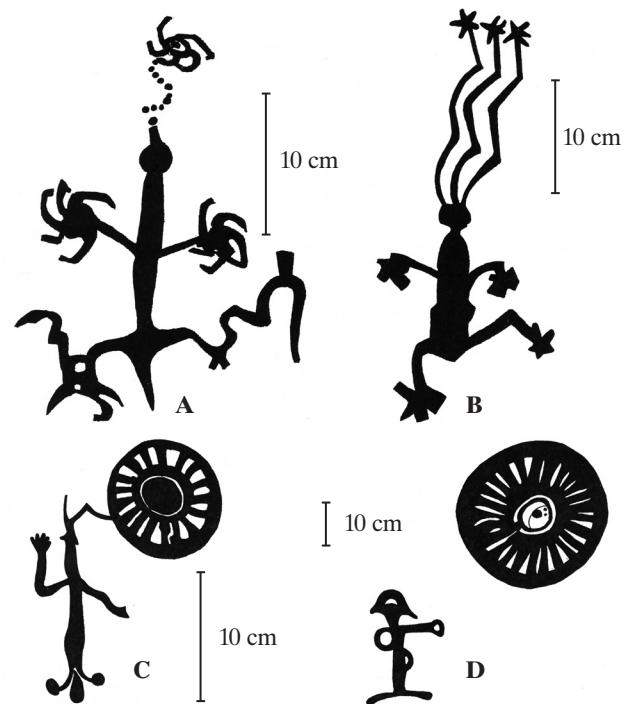


Figure 4. Motifs resembling those in Figure 6 from sites in the Cuyama region.

A = House of Two Suns, CA-SBA-1318

B = rock outcrop beneath main shelter at House of the Sun, CA-SBA-502

C = House of the Sun east wall, CA-SBA-526

D = House of the Sun ceiling, CA-SBA-536

House of the Sun, CA-SBA-526 and CA-SBA-502

Originally called “Painted Rock” on old maps of the Sierra Madre Ridge, this site was renamed “House of the Sun” because of its suggested identification with the ethnographically recorded placename *S'apaqsi*, meaning ‘Sun’s house’ (Applegate 1975:39; Bury 1997; Lee and Horne 1978). A large red disc, most often interpreted as a sun motif, is easily visible in the upper shelter, CA-SBA-536. Pictograph panels beneath this cave, as well as an associated midden deposit, have been assigned a separate designation, CA-SBA-502. Repeated attempts to correlate pictographs and a five-cornered, manmade hole in the bottom of the upper shelter with solstice and equinox events have not produced satisfactory results (Hoskinson 1985; Hoskinson and Cooper 1988).

Although Lee and Horne’s proposed identification of this site with *S'apaqsi* seems plausible, the description originally recorded by J. P. Harrington from María Solares is actually at variance with the location of CA-SBA-526. Based on information provided by her father, she reported the location as being “way down Cuyama Canyon toward the San Joaquin Valley,” rather than up on the Sierra Madre Ridge, and stated that she had been told that the cave was so large that a horse could enter to drink from a spring inside (Lee and Horne 1978:219-220). Because neither of these two descriptive details matches this site, we cannot presume that CA-SBA-526 has been firmly established as *S'apaqsi*; thus it is far from certain that the prominent red disc in the upper shelter was intended to represent the sun.

Lee’s drawing of the pictographs on the ceiling of the cave shows that there is a red zoomorphic figure, 25 cm. in length, located just to the lower left of the large red circular motif (Lee 1984:Fig. 15).⁵ On the east wall of the same shelter is a smaller zoomorphic figure in black that is also located slightly to the left and beneath a circular design (Lee 1984:Fig. 17). At CA-SBA-502, located on an outcrop beneath CA-SBA-526, another zoomorph is depicted, with three zigzag lines emanating upward from its head that end in three adjacent stars (Lee 1984:Fig. 8). Saint-Onge’s representations of these images are depicted in figures 4B–4D.

Tule River Painted Cave, CA-TUL-19

Located on the Tule River Indian Reservation is a large, rectangular granite boulder with a cavity running

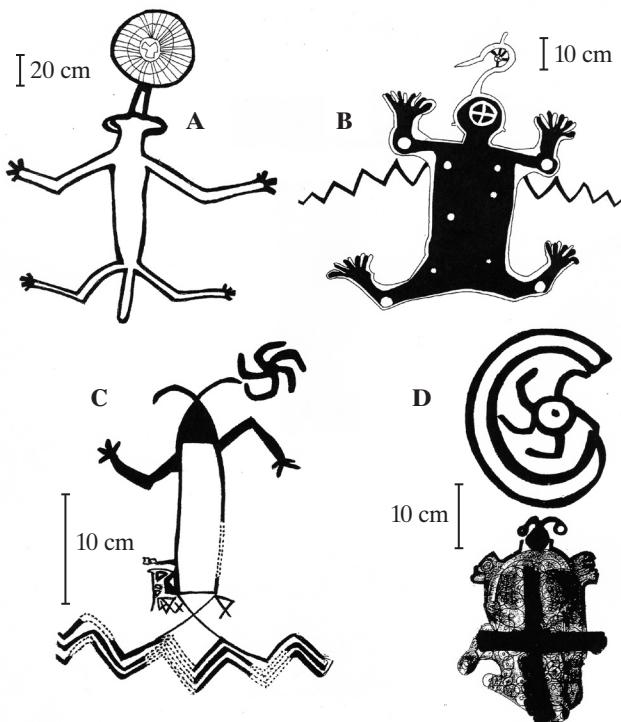


Figure 5. Motifs from Yokuts territory and the Carrizo Plain, showing some resemblance to those in Figure 3 in that a circular element is depicted above and slightly to the right of the zoomorphic figure. Motifs A and B are central figures at their respective sites. Note the counterclockwise pinwheel as the circular element in C and D.

A = Tule River, CA-TUL-19

B = Carrizo Foothills, CA-SLO-104

C = Painted Rock, CA-SLO-79, Locus 2a

D = Agua Caliente, CA-SLO-100

east to west that contains many pictographs. The most prominent of these, placed on the ceiling of the shelter, is a zoomorphic figure connected to a large disc consisting of three concentric rings with numerous lines radiating from the outside of the central ring (Fig. 5A).⁶ Various researchers have described the zoomorphic figure as a “bear,” “mountain lion,” or “coyote” (Grant 1979; Mallory 1893:52–56). According to a statement in the first edition of Latta’s *Handbook of Yokuts Indians* (1949:24), a Yokuts consultant reported that this figure was an evil supernatural being called *Sok-so’-uh* holding the sun in his mouth. However, in the expanded second edition, published nearly thirty years later, Latta removed this assertion without explanation, and instead expressed the following viewpoint:

I am skeptical about interpretations of Indian paintings, at least those bordering the San Joaquin Valley. In my

opinion, the only person who could interpret them would be the one who painted them [Latta 1977:600].

Why did Latta remove the information obtained from his unnamed source regarding the figure on the ceiling of the Tule River Painted Rock? Could it be that he suspected that the explanation offered was a personal opinion and not traditional lore? Only a search of Latta's original field notes might shed light on the reason behind the omission of this information from his later volume.

The principal motif at the Tule River Painted Rock bears some similarity to the arboglyph and the images at the other sites that we have discussed so far (see Figs. 3–4, Saint-Onge Pl. 4). However, we acknowledge that there certainly were differences between Chumash and Yokuts cosmologies and oral literature. So we cannot be sure that this pictograph was intended to depict the same celestial phenomenon that we propose was being represented in Chumash art. During a visit to the site on December 16, 2008, in company with tribal representatives, Saint-Onge noticed two additional figures on the west side of the north wall that bore a resemblance to the zoomorphic portion of the Northern Chumash arboglyph. As was the case with the arboglyph, antenna-like projections rising to either side of the heads of these lowermost figures conform to the outline of the Ursa Major constellation (see Fig. 2). Although they resemble the arboglyph in this respect, these adjacent motifs differ from others discussed here in that above each one there were two additional zoomorphic figures (Fig. 6). The two lowermost zoomorphic elements are very similar to each other, except that a long tail (or penis) extends downward in the left figure (6A) and is absent from the right (6B).⁷ A lone, star-like disk is located above and slightly to the left of the four elements in this panel.

Carrizo Foothills, CA-SLO-104

We next turn our attention to some of the magnificent rock paintings found in the Carrizo Plain, which is situated in the Chumash-Yokuts interface region (Hyder et al. 1986; Lee and Hyder 1991; Whitley et al. 2006). CA-SLO-104 is one among a series of sites situated in sandstone rock outcrops found along the hilly flanks of the Caliente Range on the west side of the Carrizo Plain. One of the principal images found at this site

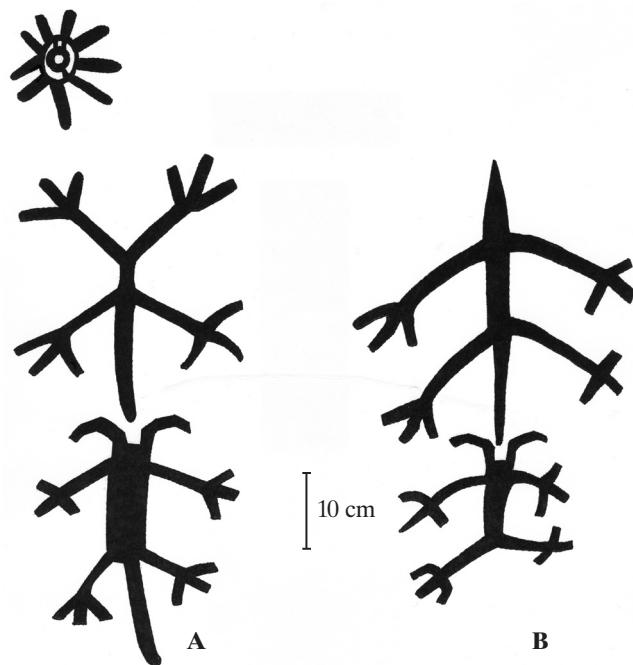


Figure 6. Adjacent motifs on west side of north wall at Tule River Painted Cave, CA-TUL-19. The two lowermost figures have 'antennae' that resemble those of the Northern Chumash arboglyph, possibly representing the Ursa Major constellation.

has been depicted by Grant (1965:Pl. 8). Saint-Onge's reconstruction of this pictograph (Fig. 5B) is based on a photograph made available to the authors; it differs somewhat from Grant's, and is closer to a drawing previously published by Steward (1929:Fig. 34a). This motif is found in a rock shelter that faces south. Here again we find an anthropomorphic figure with a projection leading from the top of its head to a star-like design, located slightly to the upper right. The figure is painted in black and is outlined in red, with red spots painted on its body, elbows, and legs. A red circle divided into four quadrants is painted where the face would be (this differs from Grant's depiction). Like many zoomorphic figures at other Chumash sites, this individual has raised arms and legs. Two zigzag lines extend laterally from beneath the armpits to either side, trending slightly downward. Grant depicted the star-like image above the head as a spiraling circle. On the basis of the photograph available to us, this is not as clear, but we do agree that there appears to be some kind of star-like design formed from a red hook-like projection extending from the top of the zoomorphic figure's head.

Painted Rock, CA-SLO-79

Arguably among the most famous rock art sites in California, the 44 panels at Painted Rock have long drawn the attention of both archaeologists and the general public (Grant 1965:97, 100–102, Pl. 4, Pl. 5, 1978:532; Hyder et al. 1986; Johnson 1985; Kroeber 1925:937, Pl. 85; Krupp 1997:102–103; Lee 1985; Steward 1929:100–104; Yates 1896). The site is located in a massive sandstone formation that is shaped like a giant horseshoe with an opening oriented true north. The top of the outcrop slopes upward from north to south, allowing easy access to its apex. Both outside and inside of this natural amphitheater are numerous natural shelters, cavities, and rock overhangs where prehistoric artisans recorded their art. The most spectacular polychrome panel, now heavily vandalized, is more than 30 m. in length along the inner east side. In addition to the abundant pictographs, there are nine areas where cupules have been pecked into the rock, and twenty-one bedrock mortars at eight locations (Johnson 1985:Table 3).

On the east wall of the saddle at the top of the south end of the outcrop is a small pictograph panel, painted in the classic Chumash style in red (Grant 1965:Pl. 5; Lee 1985:91; Lee and Hyder 1991:23). Mixed in among a group of other designs is a figure that resembles the motif that we have discussed above (Fig. 5C). There is a zoomorphic character with one arm bent upwards and one arm bent downwards, each ending in a four-fingered hand. Two antennae sprout from the figure's head, with the antenna to the right reaching towards a spiral with five rays that have the appearance of moving in a counterclockwise direction. This panel and one adjacent to it in a nearby cavity are the uppermost series of pictographs on Painted Rock. From this location, looking north, one has an unobstructed view of the constellations as they rotate counterclockwise around Polaris (Saint-Onge Pl. 5).

Agua Caliente, CA-SLO-100

First brought to the attention of archaeologists by Lathrap (1950), the site he termed "Agua Caliente" is one of the most elaborate and best preserved of the painted sites in the Carrizo Plain region:

The Agua Caliente pictographs...were applied to an inner wall of an inconspicuous cleft in an outcropping of the yellow bluff, friable sandstone (Vaqueros

formation), the most common surface for pictographs in this area. The cavity, which is only about 2 feet wide and 6 feet high, has a length (east to west) of 20 feet, with its opening to the east. The north and south sidewalls of the cave are not perpendicular; the north wall, which overhangs markedly, being about 35° off the perpendicular; the north wall approximates a plane. The south wall is roughly parallel to it. The paintings at one time covered the entire north wall, an area of 20 feet by 6 feet, but unfortunately, nearly a third of the wall has since fallen forward in one large piece, carrying with it some of the pictographs. There remains now a decorated area measuring roughly 6 feet by 12 feet toward the west end of the cave, and a fragment about 2 feet wide at the entrance [Lathrop 1950:20].

A nearby midden site, CA-SLO-1732, has been suggested as the location of the ethnohistoric Chumash ranchería of *K'o'owshup* (Johnson 1985:11–14).

Campbell Grant's colorful interpretation of the images at this site rearranged some of the figures and missed some of the finer details that become apparent when the pictographs are carefully examined (Grant 1965:Pl. 7). Lee (1994) reviewed all of the published illustrations of pictographs at this site and pointed out that different researchers selectively recorded particular designs. Hers is the only publication to date to produce a finished drawing of all of the pictographs within the main shelter at this site in their original relationship to each other (Lee 1994:Fig. 7). Whitley and his colleagues have interpreted some of the mandala-like motifs at this site and elsewhere in the Carrizo Plain as depicting pond turtles, which they believe suggests that the paintings were created during the Middle Period when the climate was wetter than in later times (Whitley et al. 2006:203). Although one might question this explanation, there is another figure at the Agua Caliente rock shelter that does resemble a turtle, albeit with antennae (Fig. 5D). Our reexamination of this particular zoomorphic figure and the design immediately above it differs considerably from the way it was depicted by Grant. Instead of a G-shaped object with "tonsils," it is in fact a five-rayed spiral, spinning counterclockwise, surrounded by a C-shaped arc. Thus, it bears some similarity to the image previously described at Painted Rock (Fig. 5C).

Indian Caves, CA-SBA-509

Located in a summit valley at the headwaters of San José Creek, west of San Marcos Pass, is a site long known to

rock art enthusiasts. It is sometimes referred to as the Knapp Cave, because the area was part of a lease held by philanthropist George Owen Knapp, who built a cabin nearby and carved a series of steps into the rock near the cave. The pictographs were first described by John V. Frederick in a communication with Julian H. Steward, who included the site in his *Petroglyphs of California and Adjoining States* (Steward 1929:98, Figs. 69–70; see also Heizer and Clelow 1973:Fig. 265a). In 1981, Seaver published a brief analysis of the rock art at Indian Caves, following up on a 1977 survey conducted by Johnson when he was employed as an archaeologist for Los Padres National Forest Service. Later, a more thorough recording of the pictographs was undertaken by Dan Reeves of the Forest Service cultural resources staff in order to enhance the previous study (Johnson et al. 1992).

Situated at the southeast end of the main rock shelter at CA-SBA-509 is a remarkable zoomorphic figure, painted in red, with raised elbows and arms bending downwards with outstretched four-fingered hands (Fig. 7A). The middle limbs are asymmetrical, with the left arm bifurcated at the end and the right arm with three fingers at right angles to each other. The lowermost limbs are long, with the top of the crotch between the two uppermost arms. The legs sweep down and to the right, without any feet depicted. To the upper right, above this unusual figure, is a small circle intersected by a large cross. A row of seventeen connected circles, originally red with black centers, runs horizontally from right to left above the zoomorphic figure's head. Although not depicted by previous investigators, high resolution photography and computer enhancement reveal what appears to be another chain of smaller circles rising up from the zoomorphic figure's head beneath the right end of the chain of larger circles. A diagonal red line extends steeply upward to the right from the left side of the lower chain to the last circle in the chain of larger circles.

From in front of the zoomorphic figure, one looks due north towards a prominent tower-like outcrop in the center of a large amphitheater that nature has carved out of the sandstone bedrock at the headwaters of San José Creek. This rock tower has a rock shelter near its top with natural openings to the east and west. No pictographs occur within this upper chamber, but several cupules appear to be present. Furthermore, if one continues beyond the rock tower due north, one arrives

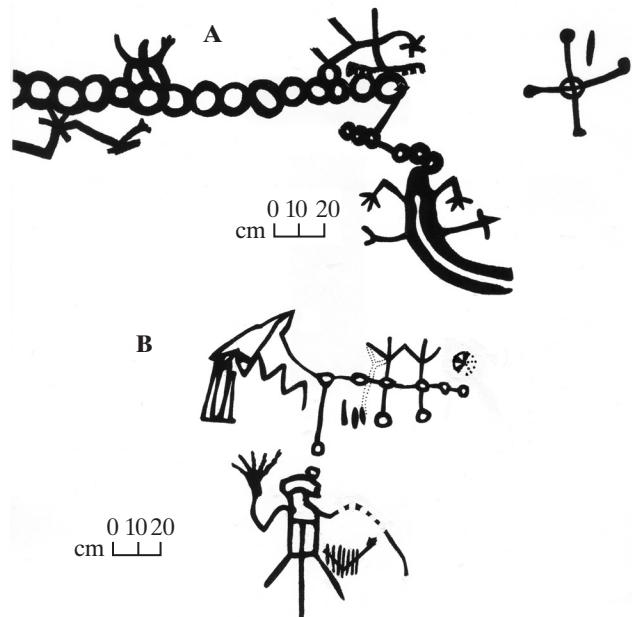


Figure 7. Pictograph panels with the zoomorphic figures and star-like elements to their upper right, with the addition of chains of circles to the left of the star-like element. The upper panel (A) is from Central Chumash territory. The lower panel (B) is in Salinan territory

A = Indian Caves, Panel A at CA-SBA-509, a site possibly equated with the placename Xoy west of San Marcos Pass.

B = Cueva Pintada, Panel D at CA-MNT-256, said by Pye (2006) to have winter solstice sunset illumination.

at a smaller cave, designated Shelter 3 by Johnson et al. (1992), that also contains pictographs. On the ceiling, near the entrance, is “Panel B,” a red circle divided in four quadrants by a red cross. The longest arm of the cross extends due south towards the rock tower and the main rock shelter of the Indian Caves site. Although one might argue that these alignments could be the result of chance, our hypothesis is that the Chumash religious practitioners who used this locality recognized that the north-south axis passed through these notable features.

During at least one of J. P. Harrington’s interviews with María Solares, he was accompanied by Juan de Jesús Justo, a native speaker of Barbareño Chumash:

Juan [de] Jesús Justo says that *Xuntimes* is the site of Pat Kinevan’s house on San Marcos grade.⁸ *Xoy* is a place higher up—at the summit. María and Juan do not know *xoy* with any other meaning [Applegate 2008; Harrington 1986:R1.7, Fr.125].

Pat Kinevan established a stage station near the top of San Marcos Pass in 1870 where San José Creek bends

southward from its eastern descent from its source near Brush Peak at the summit of the Santa Ynez Range (Tompkins 1982:65–68). Thus, the placename *Xoy* appears to be associated with the headwaters of San José Creek above Kinevan's house where CA-SBA-509 is located.

In Chumash mythology, *Xoy* was a mythical flying creature who lived in the uppermost of the five worlds (Applegate 1975:29; Blackburn 1975:344). According to Luisa Ygnacio, another of Harrington's Barbareño Chumash consultants, *Xoy*'s house in the upper world was even higher than that where Sun and his daughters resided (Blackburn 1975:199). It is interesting that a Salinan myth associates a supernatural being with a nearly identical name (variously recorded as *Hoy* or *Xui*) with a prominent rock formation not far from La Cueva Pintada, the next pictograph site to be discussed below (Jones et al. 2000:9; Mason 1918:92–93). As Figure 7 illustrates, there are some intriguing similarities between certain scenes depicted at Indian Caves at the summit of San Marcos Pass and La Cueva Pintada in Salinan territory.

The late Marion Grewal (personal communication to J. Johnson, ca. 1980) reported that many years earlier she had been among a group of people who were guided to the Indian Caves vicinity by Tom Kinevan, son of the man whose home was cited by Juan Justo with regard to the placename *Xoy*. Tom Kinevan related a local tradition that the Indian Caves locality had once been a ceremonial amphitheater for Chumash Indians. Whether this statement was based upon Tom Kinevan's own conjecture or upon original Chumash lore transmitted to his father cannot now be determined; however, such a ritual use of the site is consistent with our interpretation of its features and with the site's association with a placename invoking a supernatural being living in the uppermost world.

La Cueva Pintada, CA-MNT-256

Originally described by Mason, La Cueva Pintada is the best known and most spectacular pictograph site located within the territory inhabited by Salinan peoples (Mason 1912: 154–155, 224–227, 241). The site is situated in the upper watershed of the San Antonio River and consists of one main cave with numerous painted images and a series of other loci in rock shelters nearby. The polychrome pictographs at La Cueva Pintada have been the subject of thorough documentation by Breschini and



Figure 8. Zoomorph or anthropomorph holding circular element divided into four quadrants, Panel Q at Cueva Pintada, CA-MNT-256.

Haversat (1980, 2008a, 2008b), who additionally noted certain similarities with both Esselen and Chumash art. Most recently, McCarthy (2009) has applied digital enhancement techniques to delineate features of the pictographs less obvious to the naked eye. Mason speculated that the paintings might have been associated with puberty rituals, which are known to have been part of Salinan culture, but admitted that “no explanation for them [was] offered by the living Indians” whom he had interviewed (Mason 1912:155).

A great variety of pictographs are represented at La Cueva Pintada in the main cave (Locus I), including a large red symbol, sometimes described as a “cross” (Panel J), a red tree-like design that has certain anthropomorphic characteristics (Panel L, Element 1), and a white figure that appears to be shooting an arrow (Panel L, Element 3) (Breschini and Haversat 2008b:33–34, 37–43). Two panels at this site are of possible relevance for our study (panels D and Q). Each is located just outside of the main shelter to either side of the entrance. Panel D (our Fig. 7B) is on the north wall, and Panel Q is situated facing it on the south wall (Fig. 8). The zoomorph/star motif combinations in these two panels are less obvious

here than at the other sites that we have investigated, but we have included them because it can be argued that they bear a certain resemblance to the arboglyph.

Panel D (Fig. 7B) is dominated by an anthropomorphic/zoomorphic figure painted in red with a large, upraised hand (Breschini and Haversat's Element 1). His arm to the right appears oddly curved downward, lacking any hand; however, some pigment is eroded away in this section, making precise interpretation difficult. A long tail (or penis) extends downward between the shorter legs. A small circle, now faded, balances on top of the left side of this figure's head, and immediately above this circle is another that connects via a vertical line to a horizontal chain of six circles. To the upper right of the anthropomorphic figure are two other small circles also connecting vertically to similar circles in the horizontal chain. Above the third and fourth circles in this horizontal chain, in vertical alignment with the two last-mentioned "hanging" circles, are two short lines with trifurcated ends. To the left of the last circle in the horizontal chain, and connected to it, is a confusing wing-like design incorporating zigzag and rectilinear elements. To the right, and just above the last small circle, there appears to be a larger circle that is obscured by weathering and smearing of the pigments. Breschini and Haversat refer to this series of circles linked to rectilinear components as Element 2 (Breschini and Haversat 1980:1, 2008b:19).

Panel D has been the subject of a previous investigation by Pye (2006), who observed that at the winter solstice a beam of light exposed this particular panel during the afternoon. Her series of illustrations demonstrates that the light moved in a counter-clockwise direction as it illuminated in succession the anthropomorphic figure and the series of painted circles located above it. There is a certain resemblance between the connecting series of circles above the anthropomorphic figure at La Cueva Pintada and the panel previously described at Indian Caves (CA-SBA-509).

Panel Q (Fig. 8), located opposite Panel D, consists of many painted elements, including some mandala-like circles. Some elements have been over-painted, and many are now difficult to see because of weathering and fading. Centrally located within Panel Q is Breschini and Haversat's Element 18, a red anthropomorphic figure whose arm extends to a black circle that is outlined in

red and divided into quarters. A white-outlined black X has been painted over this circle. The anthropomorphic figure, unlike most of those we have discussed above, is holding this circular element, rather than being situated below and to its left. If one stands in front of Panel D, outside of the main shelter at La Cueva Pintada, and looks towards Panel D, a large U-shaped notch in the rock is visible above it. Although we have not visited the site to make observations during the winter solstice, our compass measurements lead us to believe that one would have a clear view of Ursa Major beneath the North Star soon after dusk on or about December 21.

SITE COMPARISONS

Our survey of sites with images similar to that in the Northern Chumash arboglyph has been undertaken to see if there are predictable attributes of the sites and motifs that might reflect the purpose of the paintings. Our expectation was that if the arboglyph was indeed a representation of the North Star and its Ursa Major "guardian," and these figures were deliberately positioned on the north side of the tree due north of the *Lisamu'* shrine on Morro Rock, then comparable pictographs at other sites might similarly be placed in directionally significant locations. Table 1 presents the elevation of each investigated site, the orientation of the shelter or panel, and the position of the motif as one faces the shelter. Table 2 presents design attributes. We will consider each variable in turn.

In terms of elevation, all of the sites are over 1,600 feet above sea level. If these sites were used for observations of the night sky, then it was clearly necessary for them to be located above the fog that is found along the coast and in inland valleys. DuBois noted that in order to see the sixth-magnitude stars surrounding the North Star, the Luiseño needed "an atmosphere entirely free from moisture as well as from clouds" (DuBois 1908:163–164). All of the sites considered here meet this criterion.

In terms of orientation, there is great variety among the fifteen motifs in the twelve rock art sites that we studied. In five of the ten Chumash sites, the shelters open to the north, and in five they face to the south or southwest. The Tule River Painted Cave is entered from the east, but also has a western opening. The Cueva Pintada in Salinan territory faces west. We wondered if

Table 1

ELEVATION, ORIENTATION, POSITION, AND REFERENCE DATA FOR THE ARBORGLYPH
AND COMPARABLE ZOOMORPH/STAR MOTIFS AT PICTOGRAPH SITES IN SOUTH CENTRAL CALIFORNIA

Site No.	Site	Elevation	Orientation	Motif Position within Shelter	References with Drawings or Photographs
	Arbroglyph	1833'	Motif faces North	N/A	This article
CA-KER-77	Pleito Creek	3109'	Shelter faces East	Right side, north wall	Alioto 1984:Fig. 6; Lee 1979:298
CA-SBA-506	Painted Cave	2531'	Shelter faces North	Left side of west wall	Hyder 1989:cover photo
CA-SBA-1663	Condor Cave	2600'	Motif faces West	Right side	Hudson and Underhay 1978:71, Fig. 4, 5, 10; Reeves 1991; Timbrook 1981
CA-SBA-1318	House of Two Suns	3040'	Shelter faces North	Right side, top shelter	Hammond 2003; Lee 1984:Fig. 45
CA-SBA-502	House of the Sun, beneath CA-SBA-526	4600'	Panel faces Southwest	Northeast wall	Lee 1984:Fig. 8
CA-SBA-526	House of the Sun East Wall	4600'	Shelter opens Southwest	East wall	Lee 1984:Fig. 17
CA-SBA-526	House of the Sun Ceiling	4600'	Shelter opens Southwest	Ceiling	Alioto 1984:Fig 3; Hoskinson and Cooper 1988; Lee and Horne 1978; Lee 1984:Fig. 15
CA-TUL-19	Tule River Painted Cave	1607'	Head of figure on ceiling faces East	Ceiling	Freeman 1992: 55; Grant 1979:22; Heizer and Clewlow 1973:Fig. 309; Van Tilburg 1983:29
CA-SLO-104	Carrizo Foothills	2600'	Shelter faces South	Left side of east wall	Grant 1965:Pl. 8
CA-SLO-79	Painted Rock	2242'	Shelter faces North	Left side of panel in saddle on top of rock	Grant 1965:Pl. 5; Lee 1997:30
CA-SLO-100	Agua Caliente	2695'	Motif faces Southwest	Left side	Hyder et al.; Lee 1994: Fig. 7
CA-TUL-19	Tule River, North Wall, A	1607'	Motif on North wall, faces South	Left side	This article
CA-TUL-19	Tule River, North Wall, B	1607'	Motif on North wall, faces South	Left side	This article
CA-SBA-509	Indian Caves	2800'	Motif faces North	Left side	Seaver 1981; Johnson et al. 1992
CA-MNT-256	Cueva Pintada, Panel D	2267'	Motif on North wall, faces South	Left side	Breschini and Haversat 2008b:16-20
CA-MNT-256	Cueva Pintada, Panel Q	2267'	Motif on South wall, faces North	Right side	Breschini and Haversat 2008b:81, 83

the position of the motif within each rock shelter would be significant. However, there is no consistency in the direction that the motifs face. Only two sites have figures that face north like the arbroglyph does—Indian Caves and Cueva Pintada Panel Q (Figs. 7A and 8). In two sites, one sees the images as one looks to the north from within the shelter—Pleito Creek and Cueva Pintada Panel D (Figs. 3B, 7B, and Saint-Onge Pl. 4). In two sites the motifs face south—Agua Caliente and the north wall figures at Tule River Painted Cave (Figs. 5D and 6A–B). At four sites, the images face west—Condor Cave, House of the Sun, Carrizo Foothills, and Painted Rock (Figs. 3D, 4C, 5B, and 5C). At three sites, they face east—Painted Cave, House of Two Suns, and the lower outcrop at House of the Sun (Figs. 3C, 4A, and 4B). Finally, two sites have the figures painted on the ceiling—House of the Sun and Tule River Painted Cave (Figs. 4D and 5A).

Any comparison of the design elements themselves must begin with the caveat that not all of the motifs described here may represent the same thing. The strongest case can be made for the four images depicted in Figure 3. Each of the zoomorphic figures has upraised hands beneath a large wheel with a cross in the center that is offset to the right. The images at Pleito Creek and Painted Cave, two of the most spectacular sites in the territory inhabited by Chumash peoples, are each prominently featured within the context of other art within their respective shelters. The images included in Figures 5 and 6 are not as consistently similar to the arbroglyph. While all but one (Fig. 4B) includes a zoomorphic figure beneath a disk or spiral, there is extensive variation in the way the zoomorphs are depicted, and the wheel (or spiral) is sometimes positioned directly above rather than off to the right. The two adjacent double figures on the west side of the north wall at Tule

Table 2
DESIGN ATTRIBUTES OF THE NORTHERN CHUMASH ARBORGLYPH AND SIMILAR PICTOGRAPHS

Site	Figure	Colors	Zoomorph Height	"Antennae" or Projections from Head	Limb Direction	No. of Limbs	No. of Fingers or Toes	Tail or Male Appendage	Head			
									Connected to Circle or Star(s)	Cross in Circle	Pinwheel	Rays around Circle
Arboglyph	3A	N/A	114 cm	+	arms & middle limbs upward, legs downward	6	3	+	+	+	-	-
Pleito Creek	3B	red, yellow, blue, white, black	91 cm	+	all limbs upward	6	4,5,6	+	+	+	-	+
Painted Cave	3C	red, white, black	35 cm	+	all limbs upward	4	4	-	+	+	-	+
Condor Cave	3D	red, white, black	unrecorded	-	all limbs upward	4	3,4	-	-	+	-	+
House of Two Suns	4A	red	20 cm	-	arms upward, legs downward	4	5	+	+	-	+	-
House of the Sun, outside main shelter	4B	red	20 cm	+	all limbs bent downward	4	3,4,5	-	+	-	-	-
House of the Sun East Wall	4C	red, black	20 cm	-	arms upward, legs slightly upward	4	5 on one hand	+	+	-	-	-
House of the Sun Ceiling	4D	red	25 cm	-	arms upward, legs downward	4	0	-	-	-	-	-
Tule River Painted Cave	5A	red, yellow, white	140 cm	-	limbs angled upward	4	5	+	+	-	-	-
Carrizo Foothills	5B	red, black	68 cm	-	all limbs upward	4	5	-	+	+	-	-
Painted Rock	5C	red	19 cm	+	one arm up, one down	2	4	-	-	-	+	-
Agua Caliente	5D	red, black, white	34 cm	+	arms tend upward, "middle" limbs horizontal	4?	4	-	-	-	+	-
Tule River, North Wall, A	6A	yellow	32.5 cm (lower figure)	+	limbs angled downward	4	3	+	-	-	-	+
Tule River, North Wall, B	6B	yellow	22 cm (lower figure)	+	limbs angled downward	4	3	-	-	-	-	+
Indian Caves	7A	red	52.5 cm	-	upper arms & legs downward	6	4, 3 & 2	-	-	+	-	-
Cueva Pintada, Panel D	7B	red, black	85 cm	-	arms upward, legs downward	4	5 (one hand only)	+	-	-	-	-
Cueva Pintada, Panel Q	8	red, white, black	40 cm	-	arms horizontal, legs downward	4	3 toes	-	+	+	-	-

River Painted Cave have a star-like disk to their upper left (instead of to the upper right) and are perhaps the most divergent from the other images discussed in this paper (Fig. 6). We have included them in this analysis because the lower left zoomorph (Fig. 6A), of all the figures reviewed here, most resembles the arboglyph.

The prominently situated panels at Indian Caves and Cueva Pintada are similar to each other in that they both are accompanied by chains of circles above the

zoomorphic figures and have star-like designs to their upper right (Fig. 7). If one stands in front of this panel in the main shelter at Indian Caves, one looks due north to a prominent rock tower, and at Cueva Pintada, one looks directly at the panel as one faces north. The remaining motif of interest at Cueva Pintada is directly opposite the other, facing north, and appears to hold a disk divided in quarters with an over-painted X. The disk is adjacent to the figure on its right side rather than above it to the right.

Although the design elements and specific placements vary considerably among the images described in this paper, it can be argued that those that most closely resemble the arboglyph appear to be positioned in locations that would provide a clear view of Polaris by someone situated next to them. Prominently placed pictographs at Pleito Creek, Painted Cave, House of Two Suns, Carrizo Foothills, Painted Rock, Indian Caves, and Cueva Pintada all meet this criterion. It is often argued in the archaeoastronomical literature pertaining to rock art sites that sunset or sunrise illuminations on the Winter Solstice may be significant. The only two sites discussed here where such illuminations have been observed are those located outside of the Chumash region. Pye's observations at Cueva Pintada in Salinan territory have already been mentioned (Pye 2006). Saint-Onge's visit to Tule River Painted Cave occurred four days prior to the winter solstice. He observed that the last figures to be illuminated by the setting sun were those depicted in Figure 6. Chumash solstice observances and other calendrical events are considered next.

CHUMASH CALENDARICS

The Chumash calendar and ceremonial cycle were connected to celestial observations. Harrington noted that the stars served as month markers for all native societies along the central California Coast, conforming to what has been called the "astronomical type" of calendar found throughout the southern half of California and the adjacent American Southwest (Cope 1919:141–142; Harrington 1942:29). The two most important festivals among Chumash groups were an end-of-summer harvest ceremony, called *Xutash*, and a winter solstice observance, called *Kakunupmawa* by the Ventureño (Harrington 1942:29; Hudson et al. 1977). According to Fernando Librado, the *Xutash* festival was marked by the appearance of Venus and was held near the end of September; however, Hudson and Underhay pointed out that it originally may have been celebrated in August prior to the Mission Period (Hudson and Underhay 1978:45–46). The *Xutash* festival was moved to coincide with San Miguel Day on September 29 during mission times (Hudson et al. 1977:43). The name for August was *An smalxa'tam*, the "month of fiesta," suggesting that this month was originally when the *Xutash* festival was held (Blackburn 1975:102; Hudson et al. 1977:104 nt.51).

The Winter Solstice ceremony was held on December 21, the shortest day of the year. María Solares stated that:

For us the new year was at night. At night those who play peon in the upper world add up the score—the old man Sun, the morning star and Shnilemun [Sky Coyote], and the moon as scorekeeper—to see who won, the old man or Shnilemun. If Shnilemun is the one who won it is good; if the old man Sun won we died. We will be well off if Shnilemun wins, there will be lots of food.

It was our religion; it was true. The ancient people believed it with all their hearts. The year has ended; we are already entering into a new year. Who knows if we will make it through the new year? [María Solares, in Applegate 2008].

María Solares called the winter solstice *sq'ot'ini hasup*, referring to it as "Christmas or New Years, as we call it now" (quoted in Hudson and Underhay 1978:67). At this time, "sun poles" were erected and shrines renewed, shrines that were often located on prominent peaks or in elevated, isolated places (Hudson and Blackburn 1986:84–90; Hudson and Underhay 1978:68). Fernando Librado stated that December was known as the "Month when the sun's brilliance begins" (Hudson and Underhay 1978:128). He gave *kakunupmawa* as the name of the winter solstice ceremony among the Ventureño. His description of one of the *spon kakunupmawa* or "sun pole" locations near Ventura suggests that three poles were erected together in a north-south alignment. Each was topped by two condor and/or vulture primary feathers, one of which pointed to the east and the other to the west (Hudson et al. 1977:62–63, 106 nt.71).

When interviewed early in the twentieth century, Candelaria Valenzuela related the following story to George Henley and Dr. Bizzel, two early Anglo-American residents of the Sespe region of Ventura County:

Close to Saticoy there lived an old Indian named Tomás Cora, who was deaf. From his cabin in the last days of December he would watch the rising sun, seated in front of his door, on the ground. Three peaks can be seen to the south of east from his position. The sun would pass the middle peak on the way south, pause in the valley, remain two days, and on the third day would come up again over the middle peak on its way north. He would then notify the other Indians of the new year. He followed this practice for years [Blackburn 1963:141].

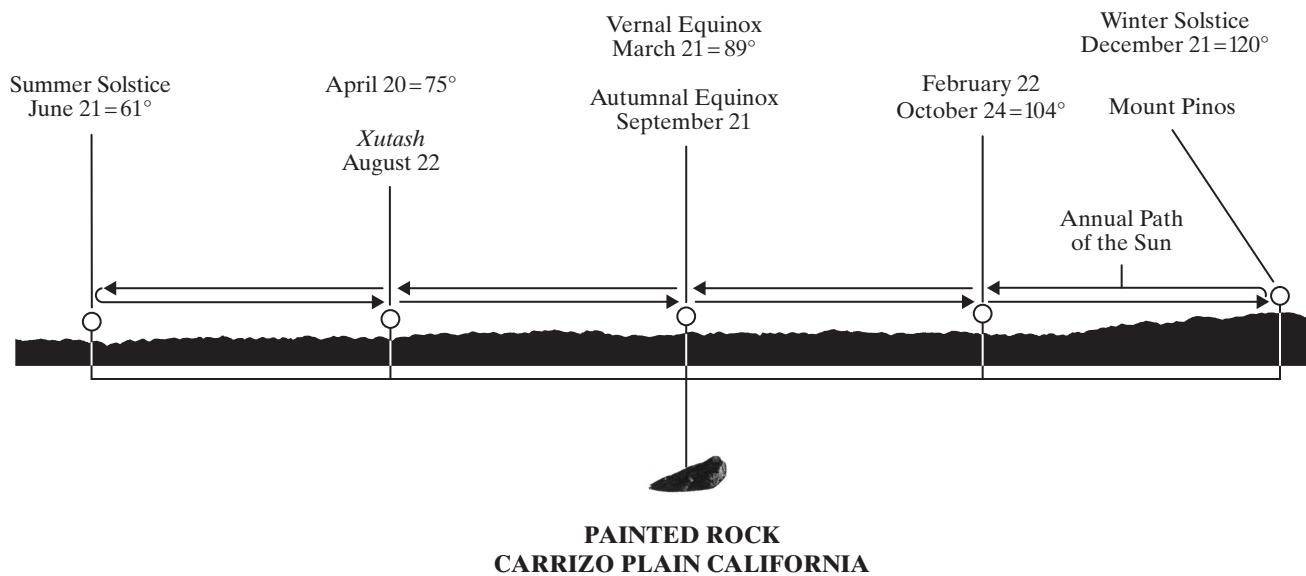


Figure 9. Sunrise positions at five equally-spaced locations throughout the year demonstrate how Chumash astronomers could determine dates for important ceremonies. This diagram represents an actual skyline and observations made from an elevated location southwest of Painted Rock in the Carrizo Plain. From this location the sun appears to rise directly over Mt. Pinos on the morning of the winter solstice. The timing of the *Xutash* ceremony may have been determined by when the sunrise reached the midpoint in its movement on the horizon southward towards the vernal equinox position from the summer solstice position.

Candelaria Valenzuela proceeded to describe the erection of the sun pole on the day after the winter solstice on a peak near Saticoy. Her account shows that one of the means used by Chumash sky watchers to determine the date of the winter solstice was to watch the sun's rising over various peaks that served as horizon markers (Hudson and Underhay 1978:53).

A Kitanemuk woman who remembered the ancient calendar told Harrington that the name of the New Year was *ama'nik tameat*, meaning 'the sun retraces its path,' indicating that indigenous peoples were referring to its position on the horizon.⁹ The Kitanemuk knew the summer solstice by the same term as the winter solstice, *ama'nik tameat*, 'the sun retraces its path;' i.e., returned towards the position where it rose at the time of the winter solstice (Hudson and Underhay 1978:129). Although ethnographic data indicate that the summer solstice was not as important a ceremonial event for most groups, it was definitely observed by the Ventureño Chumash. Librado mentioned that "in midsummer [they] had a big 'basket' and all put valuables in it as offerings to the Sun for crop increase" (Hudson and Underhay 1978:66).

Hudson and his colleagues have proposed that certain rock art sites served as solstice observatories

for the Chumash and other California Indian groups (Hudson and Underhay 1978; Hudson et al. 1979). By way of example, we have included an illustration based upon observations of sunrise positions over the Temblor Range made by Saint-Onge from an elevated location southwest of Painted Rock in the Carrizo Plain (Fig. 9). This illustrates how an *'alaxlapsh* (Chumash astronomer¹⁰) would have been able to determine the time of the year for important ceremonies and festivals on the basis of where the sun rose over the Temblor Range. It is interesting to note that on the winter solstice, as viewed from Painted Rock, the sun rises over *'Iwihinmu* (Mt. Pinos), which is known to have been considered a mysterious and most sacred location to Central Chumash and Kitanemuk peoples (Applegate 1974:198–199, 2007:160; Blackburn 1975:299–300; Hudson and Underhay 1978:29, 41).

In addition to observations of the position of the sunrise on the horizon, the changing locations of certain constellations at sunset also served as a seasonal clock (Harrington 1942:29; Hudson et al. 1977:102 nt.43; Krupp 1991:238). Fernando Librado told Harrington about an elderly Purisimeño Chumash man named Albino who possessed a star chart in the form of a stone tablet with

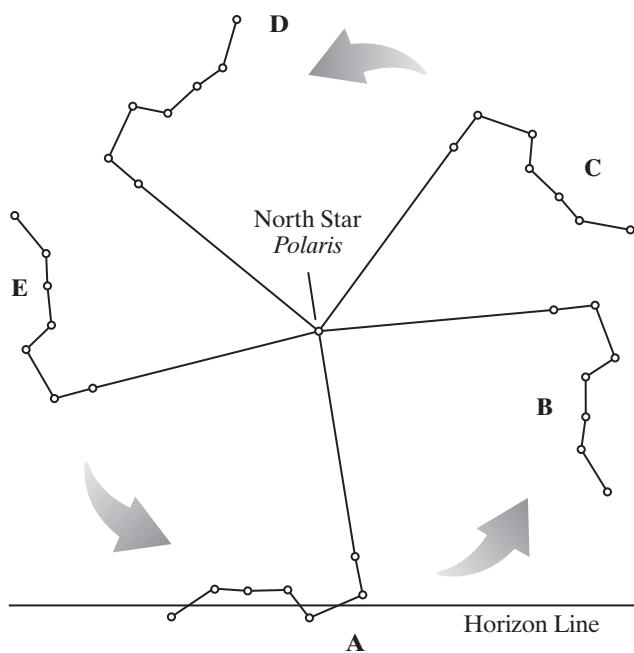


Figure 10. How aboriginal star-gazers could determine the time of the year by the position of the Big Dipper at sunset.

A = December 21, winter solstice

B = March 21, vernal equinox

C = April 20, which is the midpoint of the sun's position on the eastern horizon between the vernal equinox and the summer solstice

D = June 21, summer solstice

E = August 22, suggested as the original date of the pre-mission *Xutash* ceremony, corresponding to the sun's midpoint on the horizon between the summer solstice and autumnal equinox.

beads affixed in the form of a constellation. Albino used this (in a way that was unclear to Librado) to determine certain seasons (Hudson and Blackburn 1986:225–226; Hudson et al. 1977:36). Because of its proximity to the ever-visible North Star, the constellation of Ursa Major provides an excellent means of determining the seasons (Hewitt-White 2006:12; Krupp 1991:238; Rey 1980:124–125). Its circumpolar location guarantees that it is always visible above the horizon, and its brightness and size make it easy to track. Figure 10 demonstrates how Chumash astronomers could determine the time of year, as well as the dates of their most important festivals, by observing the position of the Big Dipper at sunset.

At the time of the winter solstice, native peoples would have observed a concordance of solar and stellar

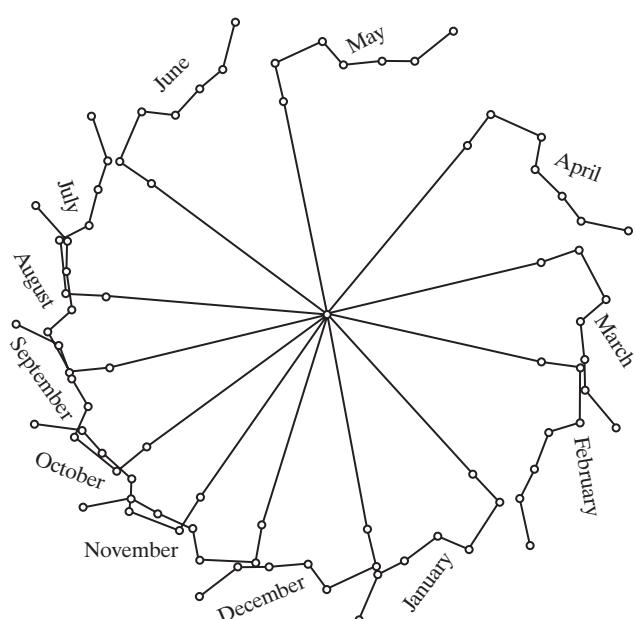


Figure 11. Positions of the Big Dipper around Polaris on the 21st of each month one hour after sunset. Notice that the change in position is less as the Big Dipper approaches the winter solstice position at the bottom of the wheel, because the days are shorter and sunset is earlier.

phenomena that did not take place at any other time of year. First, the position of the sun's rising point on the horizon does not change visibly for at least ten days before it begins to retrace its path northward. Second, changes in the position of Ursa Major after sunset appear to slow down as December 21 approaches, because of the shorter period of daylight. Ursa Major then seems to move more quickly around Polaris as the days grow longer (Fig. 11). This combination of events—the apparent pause in the sun's movement at sunrise and the slowing down of the constellation's movement at sunset—culminated in the reversal of the sun's path towards the north. The most important Chumash ceremony of the year marked this period of transition.

DISCUSSION

Our study has posited a long-distance relationship between a known Chumash shrine and an aged oak tree that is uniquely marked with an arbroglyph. Although some might argue that the placement is coincidental, we have suggested that the location of the tree due north of the shrine at *Lisamu'* is no accident, and that

symbolism related to the North Star and Ursa Major may be embodied in the images carved in the tree. Although the ethnographic literature reveals that the Chumash *'alaxlapsh* was known to observe the positions of constellations and to track changes in the sun's appearance on the eastern horizon at dawn, we know little about the actual specifics of such calendrical knowledge. A great deal of speculation has occurred involving suggested links between rock art and both solstice observances and seasonal ceremonies; we felt it would be worthwhile to revisit this topic and suggest in a more detailed way how these might have been accomplished.

Previous investigators of California rock art have noted stylistic similarities shared between the Chumash, Salinan, and Yokuts peoples (Grant 1965:110–111; Heizer and Clewlow 1973:35–46; Steward 1929). Certain basic design elements are repeated throughout this region. We have already called attention to the fact that the arboglyph, like many rock paintings, uses a circular motif divided into four quarters. Steinberg's study of twenty-two non-solid disk designs at Painted Cave in San Marcos Pass revealed that sixteen were divided into quarters and three into eighths, leaving only three that did not conform to a number divisible by four (Steinberg 1994:76). The symbolism underlying disks divided into quarters, or the appearance of a large cross overlying particular motifs, may be related to the importance of the cardinal directions for many Native American groups (e.g., Hultkrantz 1979:50). It is also possible that the number four was particularly significant for Chumash peoples, since they employed a base-four counting system (Beeler 1964, 1986; Klar 1980). A fair number of interesting pictographs have been documented that incorporate a quartet of images arrayed around a central axis (Fig. 12).

Prior researchers have called attention to symbols repeatedly found in widespread use in Chumash sites, such as the “aquatic motif” and depictions of bird-like figures (Grant 1965:80, Fig. 77; Hudson and Conti 1981; Hudson and Underhay 1978:Fig. 12). These symbols must have conveyed meanings that were commonly understood to Chumash observers, but that are subject only to guesswork today. The emic understanding of what these depictions represented has been lost because of the devastating impact of European colonization.

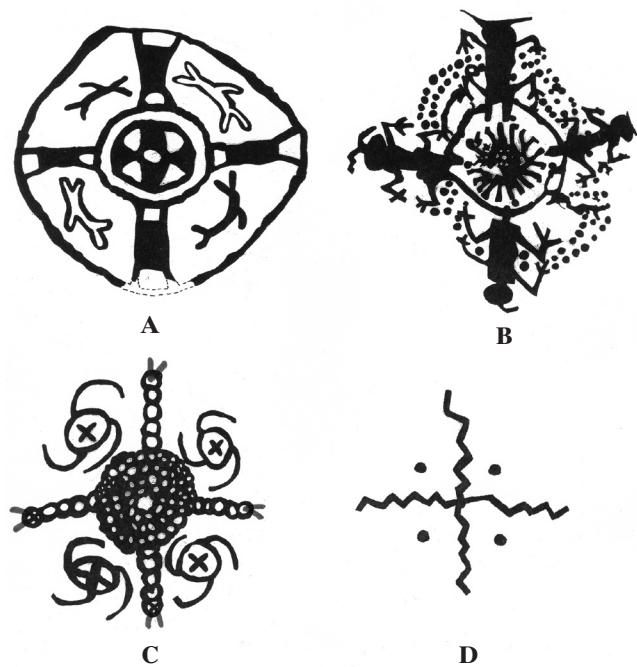


Figure 12. Recurring four-direction motifs found throughout the region occupied by Chumash peoples.

A = Obispeño, CA-SLO-211

B = Barbareño, CA-SBA-509

C = Ventureño, CA-VEN-900

D = Ineseño, CA-SBA-1780.

The precipitous demographic decline that occurred following the introduction of foreign diseases, combined with missionary efforts to supplant aboriginal systems of belief with Catholicism, led to a loss of Chumash sacred knowledge. We have attempted to make the case that the arboglyph's design and similar representations at a large number of other sites may have been related to the importance of Polaris in the sacred geometry of heaven and earth. The hypothesized North Star symbolism is probably not the only depiction of stars or other celestial bodies represented in Chumash art, as Hudson and others have noted (e.g., Hudson and Underhay 1978:Fig. 14).

To our knowledge, the Northern Chumash arboglyph is unique among archaeological sites hitherto reported for Native California.¹¹ That being said, this surviving example may be representative of a type of ritual site that once was more widespread than is currently recognized. In 1815, Fr. José Señán, a missionary stationed at Mission San Buenaventura, observed that

“on barks and on tree trunks do [Chumash Indians] sometimes draw the figures of certain animals” (Geiger and Meighan 1976:35). Although details are sketchy, we know of several other examples of shrine trees that have been reported in the territory once inhabited by Chumash groups. One of these is the “Wind Sycamore,” located along the Ventura River, whose previous existence was documented by J. P. Harrington in the early twentieth century. An effigy was suspended in a hollow near the base of the tree at this location, and offerings were made to it (Hudson 1978). Another shrine site, no longer extant, consisted of a painted cottonwood tree located at a place known to the Ineseño Chumash as *'alaliwayan* ‘one that’s hanging’ (Applegate 1975:25, 2007:38; Hudson 1978:10). This former shrine tree is memorialized in the name of Alamo Pintado Creek, which joins the Santa Ynez River within view of Mission Santa Inés. Fernando Librado told Harrington that “it was a place where a good many Indians would gather *at night* in the exercise of their mysteries” (Hudson 1979:35, emphasis ours).

Two examples of pine trees serving as shrines are reported for the Emigdiano Chumash region near Mt. Pinos. One of these was photographed by Harrington in 1917 “below Cuddy’s” (near present-day Frazier Park) during a placename trip with an elder from the Tejón Indian community (Fig. 13).¹² A second shrine pine was reported to have once existed at Mill Potrero at the head of San Emigdio Canyon. Arrows were said to have been shot into this tree for good luck during piñon-gathering. Harrington, in the company of two elderly consultants from Tule River Reservation who had once lived at Tejón, attempted to relocate this tree in 1933; however, he was unsuccessful. Catarino Montes, who grew up in the Tejón Indian ranchería, and who accompanied Harrington on this trip, recalled that Harrington had hoped to discover beads or other artifacts that had been left at this shrine location (C. Montes, personal communication 1997).

CONCLUSIONS

What conclusions can we draw from our research pertaining to the Northern Chumash arboglyph and its possible meaning? We believe that a renewed consideration of archaeoastronomical connections in Chumash rock art is warranted. Thirty years ago, Travis Hudson led the way in pointing to possible associations between Chumash rock

art and rituals that were conducted at the time of the winter solstice. His suggestions excited a generation of rock art enthusiasts to attempt to discover alignments of light and shadow at pictograph sites during solstice and equinox events. For the most part, those observations did not result in correlations that could be widely replicated, which cast doubt on the idea that these phenomena represented significant associations. In addition, many of Hudson’s writings about Chumash beliefs were frankly speculative. His insights led him to embark on an “intellectual odyssey,” as he admitted in his principal work on the subject (Hudson and Underhay 1978). The withering critiques of Whitley (1989) and others regarding the excesses of some of those who followed Hudson’s lead caused archaeoastronomy to fall out of fashion as an explanatory tool for interpreting Chumash rock art. Whitley (1992, 1994, 2000) has emphasized shamanic experiences in his interpretations instead.

The Northern Chumash arboglyph has directed our attention back to the heavens. Its placement on the north side of the tree and the tree’s alignment with the ethnographically documented shrine at *Lisamu’* (Morro Rock) struck us as being more than coincidental. The design element on the head of the zoomorphic figure, resembling Ursa Major, further piqued our curiosity, and suggested that particular motifs in Chumash art were what Eliade (1969) has termed *hierophanies*; i.e., they embodied representations of sacred and/or mythic characteristics of certain constellations. We have noticed that some consistently repeated elements occur at major rock art sites in the Chumash region and neighboring areas. We therefore suggest that regional similarities between rock art motifs does not necessarily reflect symbolism stemming from common hallucinogenic experiences, but rather reflects astronomical knowledge and associated cultural beliefs that were generally understood and repeatedly illustrated in pictographs, petroglyphs, and the arboglyph. We further suggest that Polaris played a significantly greater role in local iconography than has hitherto been recognized. Whether these hypotheses will stand up to critical scrutiny remains to be seen, but there is little doubt that Chumash peoples—as well as other California Indians—were cognizant of the natural movements of celestial bodies, and related those movements cosmologically to their place in the universe.

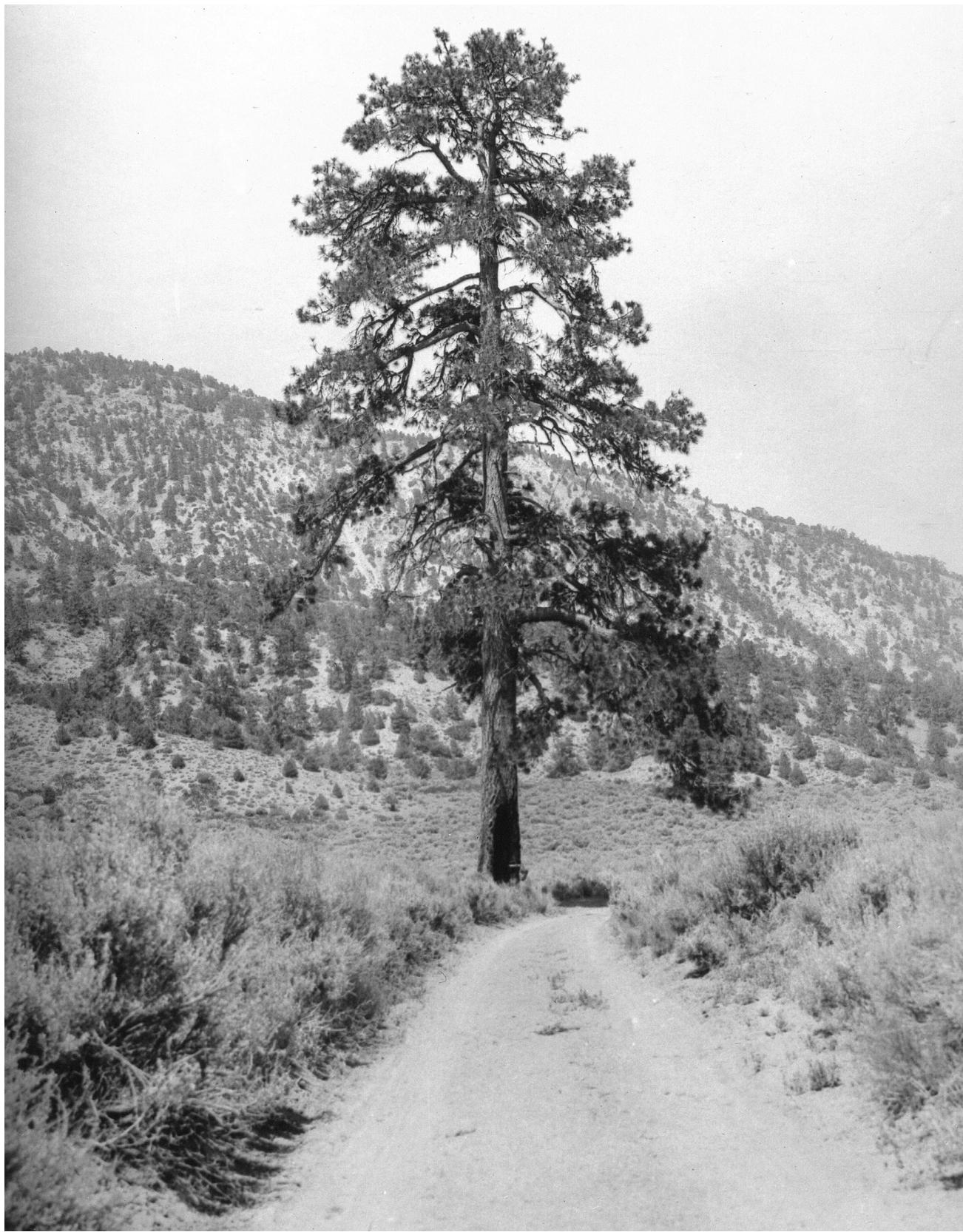


Figure 13. Shrine pine below Cuddy's (J. P. Harrington photo, ca. 1917, National Anthropological Archives, 91-31440).

NOTES

¹As a further check on the date of occupation, a fragment of Pismo clam (*Tivela stultorum*) from the cabin site was submitted for radiocarbon-dating. This shell yielded a conventional C-14 age of 660 ± 40 B.P. Applying global and local Morro Bay marine reservoir corrections yielded a calibrated age range of A.D. 1710 to 1910 with 95 percent probability.

²The *siliyik* is the Ventureño Chumash name for the council that used the sacred enclosure by the same name that was erected during religious ceremonies. Only initiated members of the '*antap*' society, which was composed of religious specialists and political leaders, were allowed entrance into this enclosure (Hudson et al. 1977:17–19; Hudson and Blackburn 1986:56–60; Hudson and Underhay 1978:29).

³Although Librado specifically identified Ursa Major as the constellation '*ilithiy*', the guardian stars of Polaris, Hudson and Underhay speculated that he may have meant Ursa Minor instead. They suggested that the seven principal stars of Ursa Major were known by a different Chumash constellation name, *Manoxonox awawaw*, and were associated with a myth related by María Solares of seven boys who turned to geese and flew to the north, where they may still be seen in the night sky (Blackburn 1975:245–248; Hudson and Underhay 1978:104–105). We see no necessary conflict between an association of the stars in Ursa Major with the legend of the boys who turned to geese, and Librado's explicit statement that these same stars were considered to be the guardians of the North Star.

⁴Condor Cave was formerly recorded as CA-SBA-565.

⁵Saint-Onge's interpretation of the zoomorph presented in Figure 4D differs markedly from Lee's depiction, demonstrating that the records of two observers can vary, depending upon the techniques used.

⁶The principal figure at CA-TUL-19 was damaged, probably over one hundred years ago, by being heavily chalked. Unfortunately, the white chalk did not accurately trace the original indigenous Yokuts artwork. Saint-Onge took close-up photographs of this figure and others at the site in order to distinguish between the original artist's rendition and the later chalking.

⁷The only anatomical difference between Figures 5A and 5B is that the former has a long appendage between its legs. Rather than representing a tail in the case of the left figure, the difference may mean that male and female genders are being depicted side by side.

⁸Applegate (1975:29) stated that the placename *xuntimes* meant 'to sew together.'

⁹The Hopi also watched the sun's position on the horizon. At the time of the Winter Solstice, members of the Hopi *Soyal* society would dance "to make the sun turn back." Like the Chumash, the Hopi believed that a solstice ceremony was symbolic of rebirth and that it was necessary to bring a return of "warmth

and life to crops and animals and to human beings" (O'Kane 1950:169, 182–183).

¹⁰We follow King (1990:57) in identifying '*alaxlapsh*' as the Chumash name for the specialist who had knowledge of astronomy and calendrics (cf. Blackburn 1975:344). In Ineseño the term meant 'diviner,' but it can be etymologized as 'one who enchant's' (Applegate, personal communication 2009).

¹¹Several other arboglyphs are known elsewhere in south-central California, but they date to the historic period. Two of these are crosses, apparently carved during mission times; one was on an oak tree near Paso Robles, and is currently exhibited at Mission San Miguel; the other is carved into the bark of a pine tree on top of Cerro Noroeste (Mt. Abel) in Emigdiano Chumash territory. Recently, our attention was drawn to an additional arboglyph carved into the trunk of a large oak in the upper Santa Ynez watershed (de L'Arbe 2009). The published photograph of the latter arboglyph, taken in the 1960s, shows it to be stylistically similar to some historic Basque tree carvings reported from elsewhere in California and Nevada (Mallea-Olaetxe 2000). In the latter part of the nineteenth century, Basque sheepherders were known to have been active in the mountains behind Santa Barbara and Ventura (Brown 1945; Outland 1986).

¹²This tree is a Jeffrey pine. Johnson identified the former site of this tree in 1994 by locating the ridge seen in the background of Harrington's original photograph. The tree no longer exists, and the dirt road visible in Figure 13 is now paved and has become Frazier Mountain Park Road in the present-day community of Lake of the Woods.

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Saint-Onge and Johnson especially thank Joseph Talaugon, Chumash elder, for his ideas, support, and encouragement. We also extend our gratitude to the ranch owners for permission to study the arboglyph located on their property; their request for anonymity has been respected. Duane Christian assisted us with access to sites in the Carrizo Plain National Monument. Manuel ("Mico") Segobia (Salinan), Larry More, and Corinne Schulga arranged for us to visit La Cueva Pintada on Fort Hunter Liggett Army Base. John Franco, Connie Franco, and Lalo Franco accompanied Saint-Onge and Talaugon to the Tule River Painted Cave. Northern Chumash representatives Lei Lynn Olivas Odom and Peggy Odom were kept apprised of our progress from start to finish.

We are indebted to Ed Krupp and William Hyder, who read our paper in draft form and made suggestions that have helped us to improve our argument. We would like to thank Rick Bury, Norm Hammond, and Daniel McCarthy for their discussions and for allowing us to study their unpublished photographs of some of the sites. Conversations with Ethan Bertrando, Ralph Bishop, and Karl Kempton also stimulated our thinking. Julia Costello assisted with identifying the ceramics from the house site near the arboglyph, and linguists Richard Applegate,

Marianne Mithun, and Tim Henry responded to our questions about the translations of Chumash texts and the placename for Painted Cave.

All but one of the drawings included in this paper were created by Rex Saint-Onge from field observations and/or photographs; the only exception is the image from Condor Cave, which was copied from a site record by Daniel Reeves (Fig. 3D). As a result of backlighting on a large light table, and the use of magnification and computer-enhanced color, Saint-Onge's final representations sometimes differ to a certain extent from previously published renderings.

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