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Prehistoric Rock Art as an Indicator of Cultural Interaction and Tribal Boundaries in South-central California

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IN this paper we explore the use of rock art as an indicator of cultural interaction between neighboring tribal groups in south-central California. The area is of particular interest because of numerous shared cultural traits, including a spectacular geometric polychrome painting tradition (Steward 1929; Fenenga 1949; Grant 1965). Although there can be no doubt that people of this region formed linguistically distinct ethnic groups, the interaction between them involved much more than shared elements of material culture; they also shared some religious beliefs (Hudson and Blackburn 1978). Thus, rock art, as one indicator of ideological systems, provides an important piece of evidence for the investigation of cultural interaction in south-central California (cf. Garfinkel 1982).

The little ethnographic information that deals specifically with rock art indicates that in this region rock art typically is attributed to shamanistic practices (Heizer and Clewlow 1973:Map 14). Much of it likely was sacred and religious, created by shamans in the course of working magic or performing other acts for the psychic benefit of their tribes. In south-central California it probably was connected with *Datura* ingestion and resulting hallucinogenic experiences (cf. Kroeber 1925:622-624; Applegate 1978:34-36). The ingestion of hallucinogenic substances produces both hallucinations and a variety of phosphenic images (Blackburn 1977) that are mirrored in the geometric designs of rock art, basketry, and other decorative elements (Latta 1977:589). Among the typical images seen under the influence of *Datura* are mandala forms (i.e., elaborate circular designs) and tiny dots that surround objects. These forms are ubiquitous in Chumash rock paintings and possibly were inspired by drug-induced phenomena.

While much more can be written about rock art, we do not attempt in this paper to answer questions concerning the meaning of the art, its myriad functions in society, or problems of dating. Our focus lies instead in exploring the ways and means to use rock painting styles to identify cultural interaction and tribal boundaries.

In reference to artistic styles, geometric figures not only are found throughout the area, they are typical of all North American Indian art and of traditional art the world over; in themselves they are not sufficiently distinctive to constitute a major style (Grant 1981:24). Thus, ubiquitous elements such as zigzags, cross-hatching, circles, concentric circles, sunbursts, diamonds, and lozenges cannot be diagnostic of any one area. It is in the details of how these forms are arranged and the ways in which specific elements are delineated that we can determine stylistic congruity and thus cultural interaction. That is, geometric motifs are not considered evidence by themselves. Rather, it is the ways in which they are presented and embellished that constitutes "style."

Style is more than a particular way of doing something. It is an active form of communication. In hunter-gatherer societies, style helped

establish ethnic identification and promote territorial defense (cf. Wiessner 1983). Wobst (1977) argued that style does not function in a vacuum. Its message cannot be communicated if the recipient is too distant from the sender, and it is redundant if the recipient is too close. For rock art studies, this implies that there may be more than one level of stylistic communication. Schaafsma (1980:8), for example, recognized that styles may represent two or more groups with shared cultural traits and ideology, local ethnic groups, or different functions within a group. Distinguishing between these different levels of stylistic function depends on our level of analysis. For the problem at hand, we assume that similarities and differences in styles of rock art found at prominent points on the landscape are indicative of cultural interaction.

Steward (1970:119-120) stated that mobile hunter-gatherers have little need to defend territory until they become tied to fixed places on the landscape. In practice, boundary maintenance in hunter-gatherer communities varies from an emphasis on stylistic differences to deter trespass by others to the reinforcement of intergroup ties and reciprocal access to adjacent territories through stylistic similarities. The level of corporate development and sedentism determines, in part, the intensity of the interaction and defensive behavior (Peterson 1978:24-25). Among Australian Aborigines, for example, a clan's "sacred sites" may be located at prominent places within the territory of adjacent bands (Layton 1986). This overlap in sacred and economic territories ensures reciprocal access to resources when they are needed.

In the region of interest here, the diversity of linguistic groups alone indicates that we are concerned with a complex set of interactions. The tribes with common borders include the Penutian Yokuts; the Uto-Aztecan Tübatulabal, Kawaiisu, Kitanemuk, and Tataviam; and the Hokan Chumash. It is well documented that these contiguous tribes had considerable social interaction, at least in ethnographic times. According to Kroeber (1925:604), the Kawaiisu and Tübatulabal had friendly relations, and both intermarried with the Yokuts. In fact, the Southern Yokuts were joined with those tribes to such an extent that it was "impossible to assign an exact habitat to any of them" (Kroeber 1925:606).

Kroeber (1925:613) stated that the Kitanemuk fought with the Tataviam (Alliklik) and were unfriendly toward the Yokuts. The Tataviam were integrated with the Chumash along their borders (Hudson 1982), and the Chumash also were closely allied to, and intermarried with and traded with, the Yokuts. The Tübatulabal traded with the Koso and Kawaiisu to the east and south, and with the Chumash and Yokuts; they had contact with Mono and Owens Valley Paiute, Vanyume, Kitanemuk, Tataviam, and at least once with the Hopi (Voegelin 1938:49; Andrews 1977:33). King (1981:48) suggested that the Tataviam, who occupied the site of Vasquez Rocks, could have had affiliations with the Chumash as well as with the Takic groups to the southeast.

THE ROCK ART

In the selection of rock art sites to illustrate our thesis (Fig. 1), we chose prominent ones from which we have the most information; thus our examples are not to be taken as necessarily the most representative of the total of all rock art sites in each area. Regrettably, we lack first-hand data on rock art from the Kitanemuk area, so that tribe is covered only briefly in this discussion, relying on Sutton's (1982a) overview of Western Mojave Desert rock art. It should be noted that all the areas under consideration here also have cupule petroglyphs, but our focus here is only on paintings.

A survey of rock art sites in these areas reveals a significant amount of concordance. All have similar kinds of geometric elements but

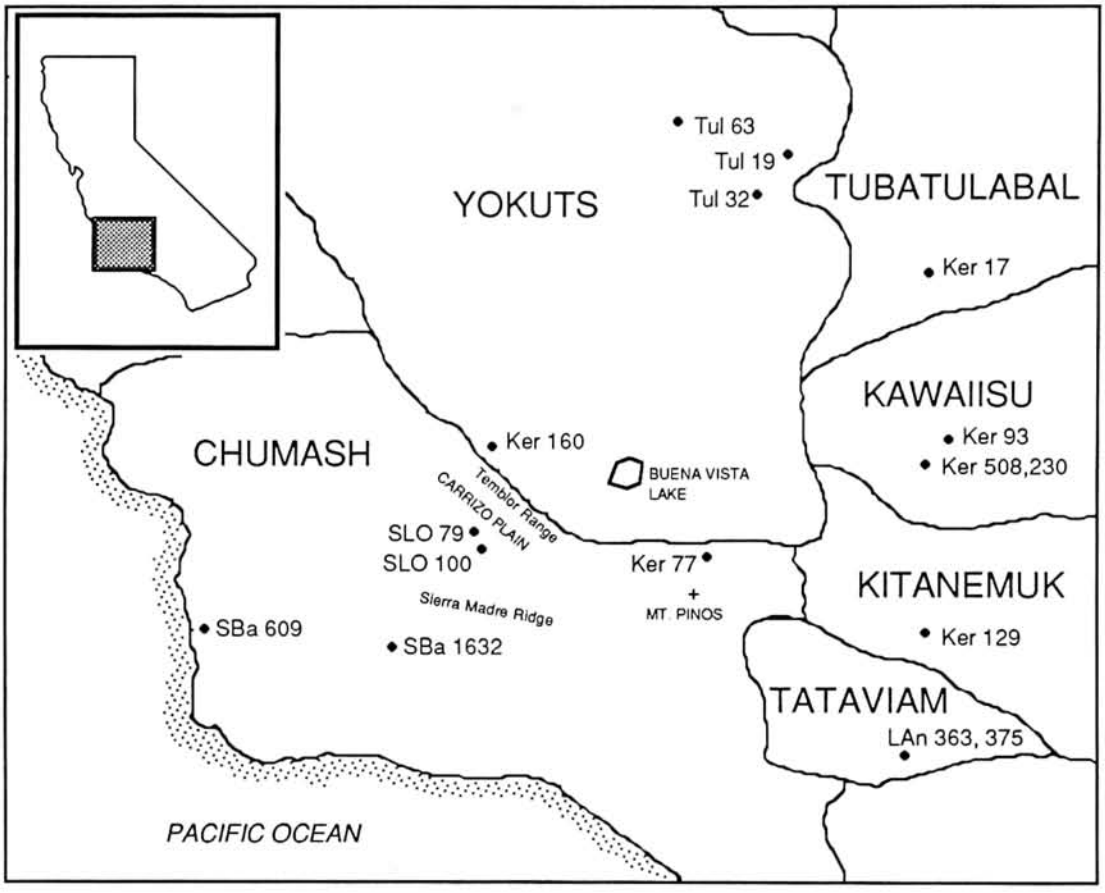

Fig. 1. Map showing locations of sites mentioned in text (after Kroeber 1925).

these are typical of traditional art everywhere and thus are not specific to any one tribe. The art of all the groups under consideration includes circles, sunbursts, and zigzags. However, in the elaboration and arrangement of these simple elements we see individuality. The intricate mandala forms that often are outlined with tiny white dots in the Chumash area have already been noted; "hash marks" seen in many of the other tribal areas were elaborated upon in Yokuts rock art to cover entire panels with what appear to be psychedelic dashes of color.

All these groups used red, white, and black pigments. Some added a bit of yellow to their palette, but this color was extensively used only among the Yokuts. One site in Kawaiisu territory has a unique shade of earth-green pigment not found in any of the other sites; a Chumash site near Mount Piños has a different light-green color plus blue-green. It is possible that the latter derives from the Missions (Lee 1979), but it has not been scientifically analyzed. We have culled from the literature and from our own research efforts the salient features of these tribal groups (Table 1).

Tataviam

Two distinct styles of rock art are present at Vasquez Rocks (CA-LAn-363 and CA-LAn-375): one is incised into a red-ochred surface; the other is painted (Fig. 2). Although the incised petroglyphs at Vasquez Rocks might

Table 1
ARTISTIC CONVENTIONS AND PIGMENTS USED AMONG THE TRIBAL GROUPS DISCUSSED HERE

	Tribal Group				
	Tataviam	**Kawaiisu**	**Tübatulabal**	**Yokuts**	**Chumash**
Colors					
Red	X	X	X	X	X
Black	X	X	---	X	X
White	X	X	X	X	X
Yellow	---	X	---	X	X
Green	---	X	---	---	---
Blue-green	---	---	---	---	X
Methods	Use of cavities. Dot technique. Color outlining. Bilateral symmetry. Small scale.	Use of cavities. Dot or dash technique for color outlining. Bilateral symmetry.	Color outlining. Bilateral symmetry. Large scale.	Dot or dash technique. Color outlining. Bilateral symmetry. Large scale.	Use of cavities. Dot technique. Color outlining. Bilateral symmetry. Small scale.
Geometric Forms:	Circles, sunbursts, zigzags, vertical dashes, cross-hatching, paired half-circles.	Circles, sunbursts, concentric circles, zigzags, vertical dashes, double triangle, linked circles.	Circles, sunbursts, dashes, paired half-circles.	Circles, sunbursts, zigzags, linked circles, hatching, grids, pinwheels, chevrons, checkerboard.	Circles, sunbursts, zigzags, cross-hatching, chevrons, checkerboard, diamond chains, dentates.
Zoomorphic Forms:	Snake or snake-like.	Snake, mountain sheep, bear paws(?).	Snake, bear paw(?), ring-tailed cat(?).	Snake, lizard, coyote, beaver.	Snake, lizard, coyote, bear.
Anthropomorphic Forms:	Round-headed figures with "headdress," forked-stick figures.	Stick figures, split heads, lunate-pectoral-like design.	Round-headed figures, split-head stick figures, lunate-pectoral-like design.	Stick figures, split heads, lunate-pectoral-like design, "big foot."	Round-headed figures with "headdress," stick figures, bodies with horizontal projecting lines.
Other Forms:	Bug-like, centipede-like.	Bug-like, pelt figures.	Pelt figures.	Bug-like, centipede-like, pelt figures.	Bug-like, centipede-like, pelt figures.
Unique Forms:	Plant-like form (*Datura* blossom?).	Mountain sheep, green pigment.	Ring-tailed cat(?).	Abstract multiple-line form with split head, beaver with paddle(?).	Aquatic motif, "I-beam," blue-green pigment.
Closest Correlates:	Chumash "style" and scale, Kawaiisu.	Yokuts, Chumash, Tübatulabal.	Yokuts, Kawaiisu.	Chumash, Kawaiisu, Tübatulabal.	Yokuts, Tataviam.

appear unique, this is not the case; there are other examples in Kawaiisu (CA-Ker-230) and Chumash (CA-SBa-609) territory (Fig. 1). Moreover, the tradition of incising is seen throughout the area on portable stones (Lee 1981). We restrict our discussion to the Tataviam paintings, some of which, if seen out of their geographical context, could be mistaken for Chumash. This concordance was also noted by King (1981:41).

Many of the paintings are located in small cavities or pockets in the sandstone. Designs are bilaterally symmetrical, outlined with another color, and are small in size. Many examples have tiny dots. The "bug-like" motifs are very similar to those seen in Chumash territory. The Vasquez Rocks sites have sun disks, centipedes, and other designs similar to those of the Chumash.

Paintings include elements found among the Kawaiisu, including a snake made with red dots, sun disks, and rainbow-like curved lines. Fewer similarities are seen with the rock art of the Tübatulabal. As for the Yokuts, similarities

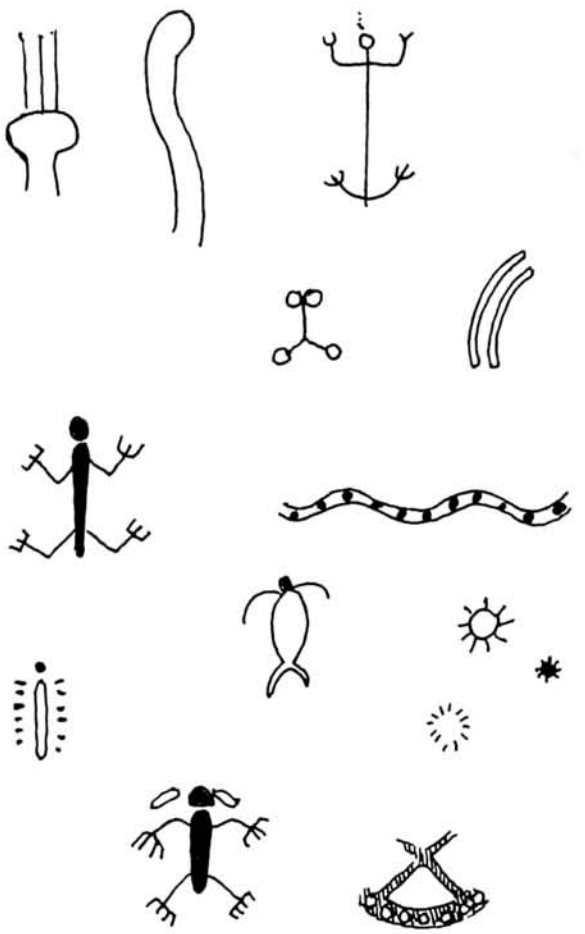

Fig. 2. Tataviam, Vasquez Rocks. Figures are in red, black and white and include bug-like forms and sunbursts. Many have dots. The snake motif in white with red dots is similar to the Kawaiisu example, only in reverse colors. Curved half-circles (rainbows?) are found also at Kawaiisu and Tübatulabal sites. (Figures not to scale.)

include outlining one color with another, and bilateral symmetry—the latter sufficiently common as to not be particularly diagnostic.

Kawaiisu

The two Kawaiisu sites included in this study (CA-Ker-93 and CA-Ker-508) are geographically close to each other, but the paintings are quite different (Fig. 3). Most Kawaiisu designs are fairly small in scale, and many elements are outlined with another color. The most outstanding single design is at CA-Ker-508 where a long red snake figure occurs on the ceiling of a small shelter (see Sutton 1982b for a discussion of this site). At both of the Kawaiisu sites, paintings are on very rough surfaces, which may be the reason for their small size. Site CA-Ker-93 has several paintings in a unique shade of green.

Kawaiisu rock art shares many attributes with that of the Chumash. A Kawaiisu design at CA-Ker-93, formed by red dashes, resembles Chumash paintings at Hurricane Deck (CA-SBa-1632) and at CA-Ker-77. Bug-like figures are typical forms in the Chumash area. Other similar features are small scale, outlining one color with another, and bilateral symmetry. Kawaiisu designs have similarities to Yokuts motifs. These are linked circles, split-head anthropomorphic figures, and a curved lunate form (CA-Tul-19). A curved lunate form (pectoral or breastplate?) is similar to one at CA-Ker-17 in Tübatulabal territory, as are bear paws and paired curved rainbow-like designs.

Tübatulabal

According to Moratto (1984:333), the rock art of the Tübatulabal is mostly abstract with few representational forms; rock art sites more than 5 km. west of the crest of the Sierra Nevada conform to the Tübatulabal pattern (Moratto 1984:334). Designs of mountain sheep are found on the eastern side of the crest in the territory of Numic peoples.

Schiffman (1977:25) claimed that the Tübatulabal paintings include

> . . . zoomorphic, anthropomorphic, linear, geometric, and curvilinear patterns. Hunting scenes, animal and human representations, springs[?], and directional arrows are common. In addition are symbols representing rain, the sun, and a variety of line drawing counting systems as well as circular, linear, and geometric symbols of unknown meaning.

Some motifs at CA-Ker-17 may indicate use of the site in solstice ceremonies (Harper-Slab-

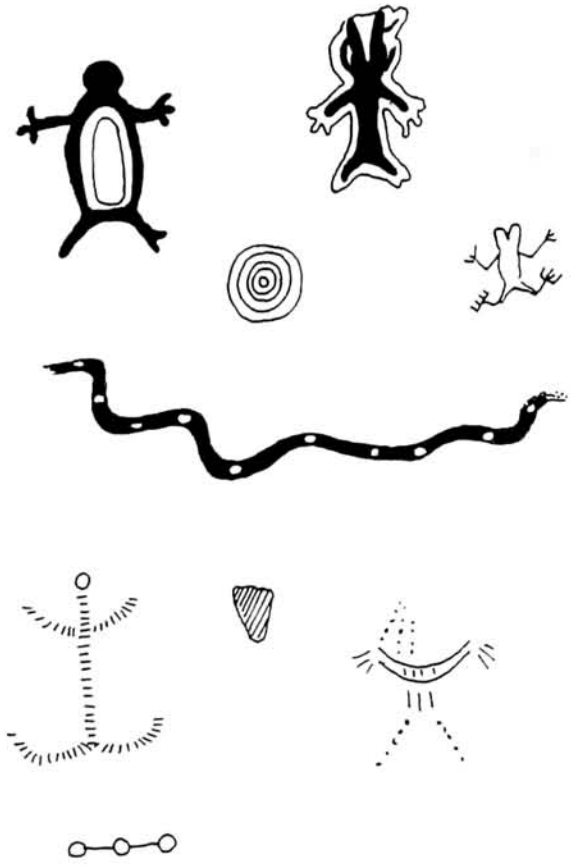

Fig. 3. Kawaiisu, near Monolith. Paintings are in red, black, white, and yellow, plus green at one site. Designs feature outlining of one color with another, split-headed figures, pelts, a snake with dots, bear(?) paw, and a figure made with dashes. One motif may represent a pectoral. (Figures not to scale.)

oszewicz and Cooper 1988).

The scale of the paintings at CA-Ker-17 approaches the larger size of Yokuts rock art (Fig. 4). The most unusual motif here is what appears to be a ring-tailed cat shown in profile (see Fig. 5). Although beyond our study area, there are interesting correlations between the Tübatulabal and Western Mono paintings.

The Tübatulabal have fork-headed figures, snake or snake-like figures, and pelts in common with the Chumash. They share fork-headed figures, large scale, and pelts with the Yokuts. With the Tataviam, they share the snake motif and outlined anthropomorphic heads.

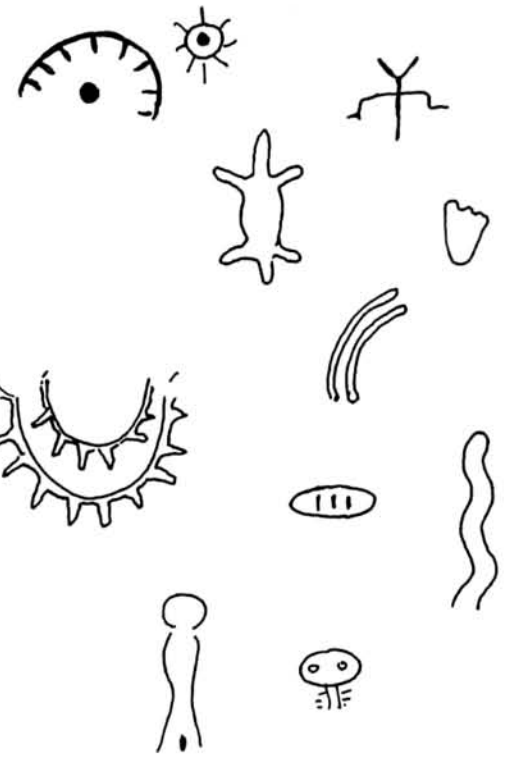

Fig. 4. Tübatulabal, Lake Isabella. Red and white colors and large scale are features at this site. Similar elements include pelts, sun disk, split-headed figures, bear(?) paw, and a vertical snake(?) reminiscent of one at Vasquez Rocks. Curved lines (rainbow?) are like those at the Kawaiisu sites and Vasquez Rocks. (Figures not to scale.)

Fig. 5. Tübatulabal painting, possibly of a ring-tailed cat, CA-Ker-17. (Figure not to scale.)

Yokuts

One of the most outstanding, distinctive features of Yokuts paintings is scale. Some are enormous. There is nothing comparable in other

tribal areas, although a few Tübatulabal designs and some paintings in the Carrizo Plain that are attributed to the Chumash approach their size (Hyder et al. 1986). Grant (1981:22) noted that Yokuts paintings show affinity with those of the Tübatulabal, which he described as featureless pelt forms, abstracts similar to Great Basin styles, centipedes, concentric circles, and grids (Fig. 6). At the Tule River Reservation (CA-Tul-19) and the Rocky Hill site (CA-Tul-63) are pelt-like figures, a large anthropomorphic figure locally known as "big foot," centipedes, lizards, concentric circles, parallel lines, multi-legged creatures, grids, and split-headed humans. The Tule River site (CA-Tul-93) is notable for yellow and red dashes of color that nearly cover one panel. Other Yokuts sites (CA-Tul-32 and CA-Tul-172) have large snake forms that cross entire panels, ghost-like figures, and a curious abstract form that may be anthropomorphic.

Grant (1967:111) stated that Yokuts and Chumash design motifs (especially the abstractions) ". . . are different but the technique is very much the same." A "borderline" site in the Temblor Range (CA-Ker-160) has been declared Chumash by Grant (1965) and Yokuts by Sanger (1987), illustrating the problem of placing a disputed site into one area or another on the basis of rock art alone. Although some of the art more closely resembles that of the Chumash, the site is within Yokuts territory. It is likely that this site was used by both groups, as were other sites in the neighboring Carrizo Plain region. Yokuts rock art shares certain features with the Chumash, including pinwheels, sunbursts with forked rays, horizontal dashes on the bodies of figures, double-outlined zoomorphic figures, outlining one color with another, and, in the Carrizo Plain, some large-scale elements.

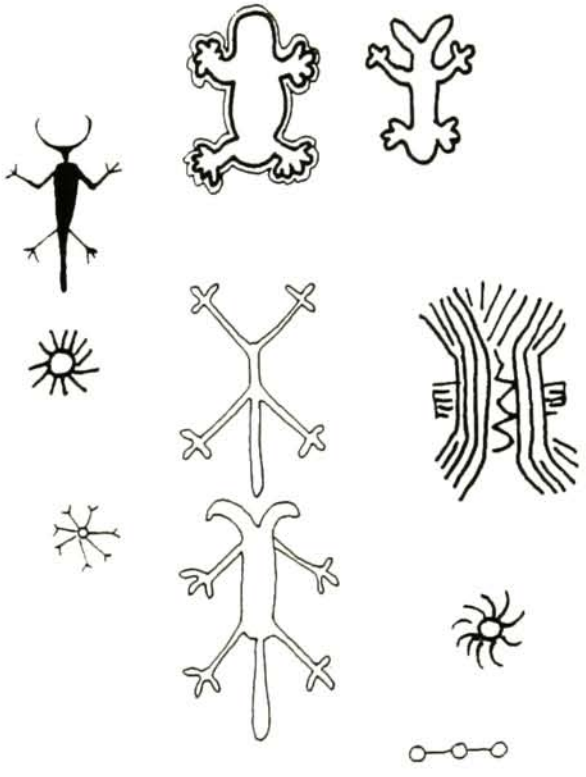

Fig. 6. Yokuts, foothill area. Red, black, white, and yellow are used, as is the practice of outlining one color with another. Some figures are of enormous size. Designs include pelts, split-headed figures, sun disks, and lizards. Linked circles are similar to those in Kawaiisu sites. (Figures not to scale.)

Chumash

The rock paintings of the Chumash (CA-SLO-79, CA-SLO-100, and CA-Ker-77) are justifiably famous. There is a sophistication about them, perhaps due to the delicacy and small scale of many of the motifs. Steward (1929:219-222) noted similarities between Yokuts and Chumash and lumped the two areas together. However, Chumash "style" is very distinctive and when compared to that of pictographs in other tribal areas it stands out with clarity (Fig. 7). Chumash rock art is characterized by bilateral symmetry, meticulous detail, delicate rendering, and fine-line precision. Motifs may be formed by, or embellished with, tiny dots. Outlining of one color with another is a common feature. In the corpus of Chumash painting, we find a wide range from single color to elaborate polychrome, both angular and curvilinear designs, and depictions of human,

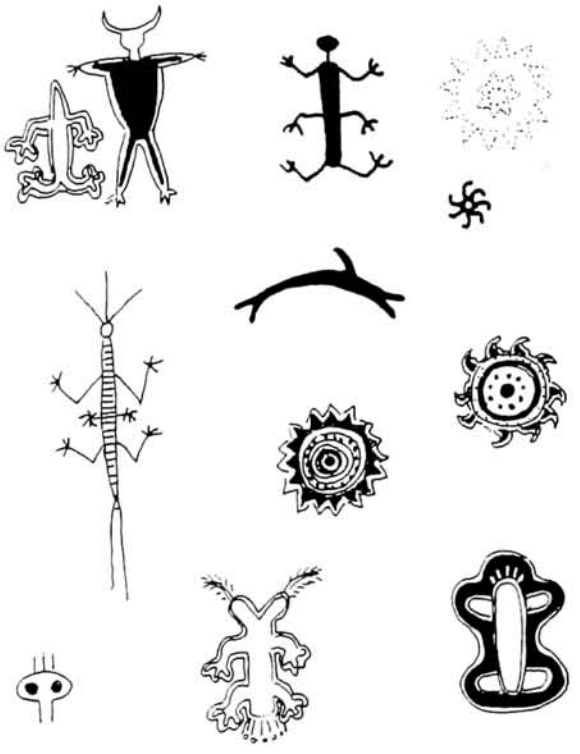

Fig. 7. Chumash. Red, black, and white colors plus outlining of one color with another are typical. Yellow is rare; one site (CA-Ker-77) has a blue-green color. Figures include sun disks, pelts, bug-like forms, use of dots, lizards, and split-headed figures. Mandalas are ubiquitous. The aquatic motif is unique to this area. (Figures not to scale.)

animal, plant, and celestial motifs. Mandalas are prominent, as is the so-called aquatic motif (Grant 1965; Hudson and Conti 1981). Fantastic bug-like forms are painted with amazing detail and include antennae and fancy tails. The use of tiny dots is a hallmark of the art. Designs are often "free-floating" without reference to each other and frequently they are placed in small cavities in the rock (Hyder et al. 1986:47).

Kitanemuk

Except for Sutton's (1982a) brief survey, Kitanemuk rock art has not been well documented in the literature. The only site that may fit our requirement of prominence on the landscape is CA-Ker-129, possibly a major Kitanemuk village (Sutton 1982a:29). The rock art was described as consisting of only four elements, two of which possibly are anthropomorphic. The site thus appears much smaller than others included in this study. On the basis of his survey, Sutton (1982a:31) assigned the Kitanemuk sites to an extension of Hedges' (1973) Southern California Rectilinear Abstract style. Kitanemuk social organization also seems to have been similar to that of their southern neighbors, but their mythology is more closely identified with that of their neighbors to the north and west (Blackburn and Bean 1978). We will return to this point in our discussion.

THE CARRIZO PLAIN: A BORDERLINE AREA

An examination of the rock art in the Carrizo Plain of eastern San Luis Obispo County graphically shows how the study of style can be used to suggest contact and interaction. The Temblor Range along the border of Chumash and Yokuts territory was the ethnographically stated division between these tribes (Kroeber 1925). It seems to have been open territory. Interacting to a significant degree, people traded, intermarried, and probably shared group ceremonials and hunts. But even without such ethnographic evidence, it is clear from the rock paintings at the sites in or near the Carrizo Plain that both tribal groups used or shared this area. Some of the motifs at Painted Rock are virtually identical to paintings in Yokuts territory; others are of sufficient size to indicate Yokuts influence if not actual Yokuts artistry. In some cases, panels clearly in Chumash style are adjacent to panels with Yokuts-style motifs. For example, one Chumash painting high in a notch near the top of Painted Rock is small in scale and formed by fine lines and tiny dots (Fig. 8). The motifs include the bifurcated form so familiar in Chumash rock art and an elaborate mandala. Nearby, Yokuts figures are painted with broad lines and are larger; the shapes of the figures are typical of those from the Tulare area (Fig. 9).

Fig. 8. Chumash-style painting from the upper notch at Painted Rock, CA-SLO-79.

Several of the very large figures at Painted Rock would be at home in Yokuts territory; they are outlined with wide lines of color and bear little resemblance to what we have come to recognize as Chumash art (Fig. 10).

That the strong artistic influence of the Yokuts spread as far as the Carrizo Plain is clear, but we do not see it further to the west. The closest concentration of Chumash rock painting sites is at the Sierra Madre Ridge in the mountains to the south of the Carrizo Plain. Intensive documentation (Lee 1984) of the rock art revealed no intrusive elements. The paintings, which range from simple to complex, and from plain red or black to polychrome, fall clearly within the Santa Barbara style. This includes tiny figures with dot embellishments, mandalas, and the bifurcated element so typical of Chumash rock art. The designs are, in the main, free-floating with very little superposition.

As the result of our comparative study, we reject the idea that the tradition of rock painting originated among the Yokuts and then was diffused to the Chumash, as Grant (1978:532) proposed. The two strong painting styles came together and overlapped in the Carrizo Plain, but each maintained its own identity. Thus the rock art in the Carrizo Plain reflects the aesthetics and style of both tribal areas, not just shared design elements.

DISCUSSION

Six major ethnic groups inhabited south-central California at the time of Spanish contact. The sites discussed here were chosen because they are highly visible and well known within the former territories of these groups. We assume that they were equally well known in aboriginal times. For the most part, they are situated adjacent to major villages and along well-travelled trails. If we are correct in arguing that the larger sites across the region are stylistically similar, then they may be evidence of cultural interaction in south-central California.

Chumash rock art encompasses the most complex body of art of any group discussed here. Hyder (1989) suggested that this complexity may reflect a long-term evolution of the art style coeval with the evolution of cultural complexity in the region. Its closest correlates occur among the Yokuts, the only other group to exhibit a similar level of cultural complexity. Yokuts political units, however, were much smaller and may not have had a regional political structure like that of the Chumash. Their art may exhibit a long-term evolution as well, but this question has not yet been addressed in Yokuts studies. Tataviam rock art also exhibits a close affinity to a narrow range of art within the Chumash style, especially that of the Ventureño Chumash. The similarities are strongest in areas of shared borders. Within Chumash territory, the Chumash style is distinctive and seems to indicate a stronger

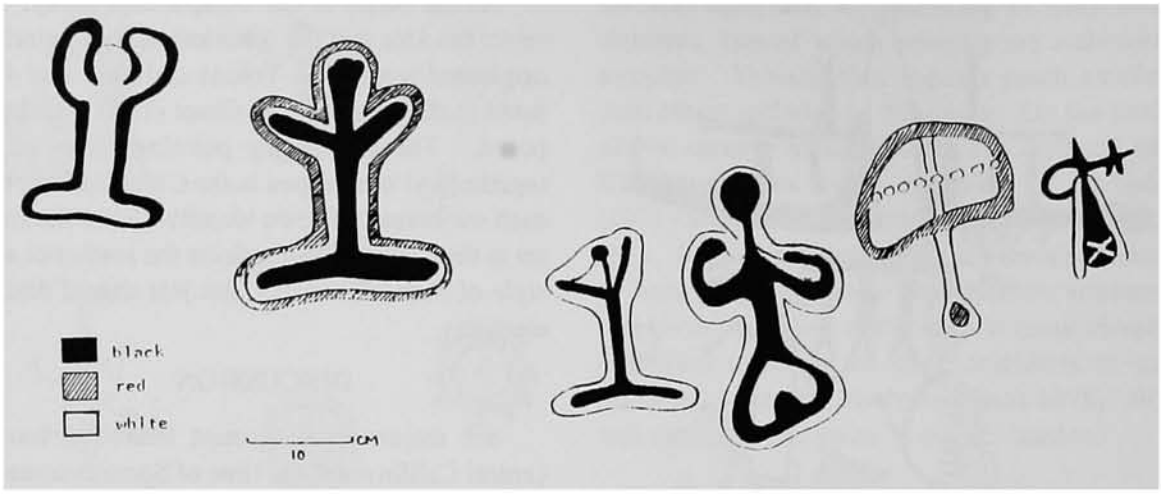

Fig. 9. Yokuts-style painting from the upper notch at Painted Rock, CA-SLO-79.

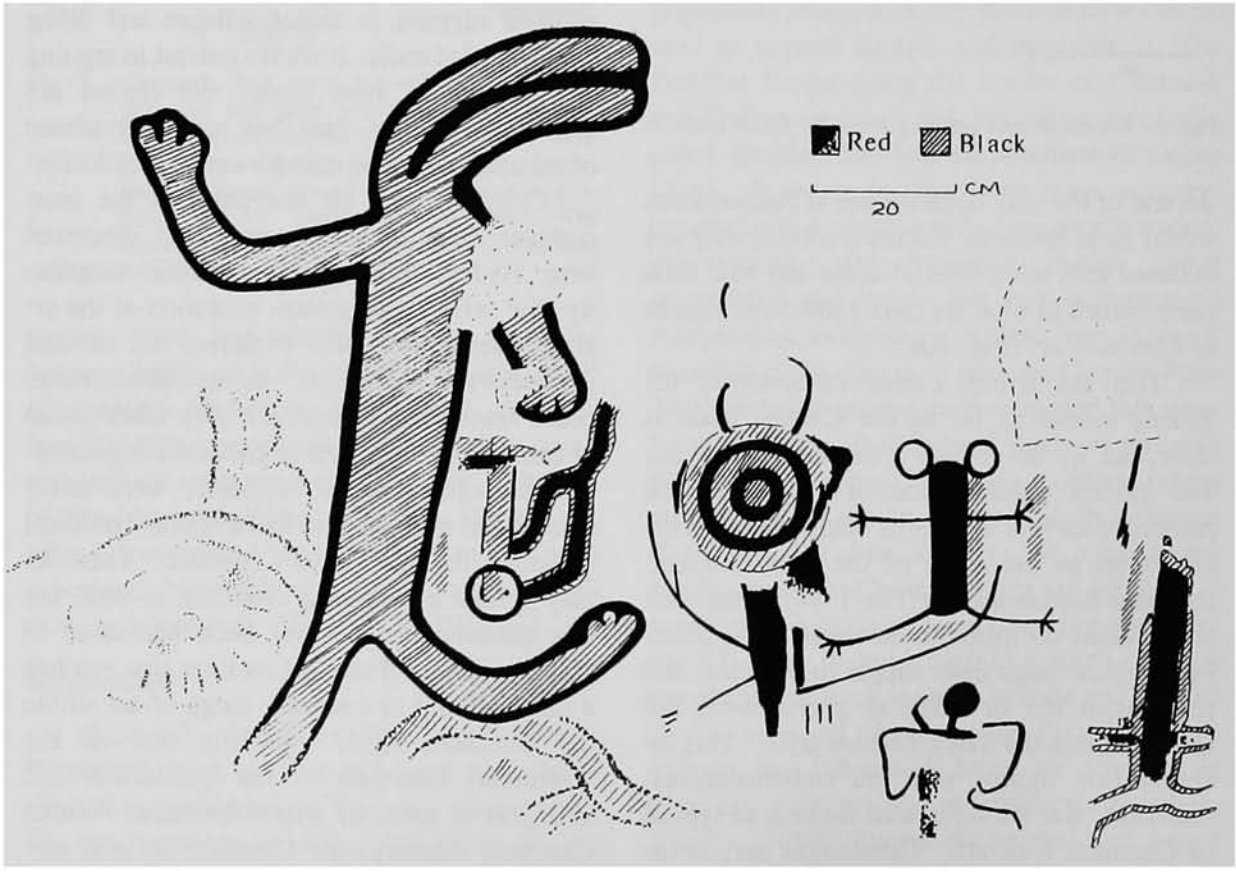

Fig. 10. Large coyote figure and adjacent motifs reminiscent of Yokuts-style paintings at Painted Rock, CA-SLO-79.

territorial identity. Similarities along borders seem to reflect ethnographically identified areas of cultural interaction.

A second logical cluster can be formed among the Yokuts, Kawaiisu, Tübatulabal, and Chumash. It is characterized by large-scale paintings with color outlining and less fine detail than is often found in Chumash art. These four groups reportedly engaged annually in intertribal game drives (Zigmond 1986:399). With the exception of the Chumash, they were organized around small, mobile, social groups with a communal sense of territorial ownership (Smith 1978:439; Wallace 1978:454; Zigmond 1986: 398). Perhaps the similarities noted here helped facilitate the free movement of people across loosely defined borders.

The Kitanemuk do not fit comfortably within the other five styles discussed here, although we must rely on Sutton's (1982a) judgment in reaching this conclusion. If he is correct, Kitanemuk art is an extension of the rock art styles found to the south, as might be expected given their anomalous relations with the groups discussed here. Blackburn and Bean (1978:568), however, noted that Kitanemuk mythology mixes elements from the Chumash, Yokuts, and Gabrielino; this raises a question of how closely rock art necessarily mirrors ideology. Perhaps Kitanemuk occupation and interaction were more sporadic than the territorial assignment implies; perhaps the ethnographic data need further evaluation and Kitanemuk mythology and rock art reflect a more southern ideology; or perhaps the lack of similarity is a good indicator of the low level of interaction between the Kitanemuk and their southern neighbors.

What we have presented to this point is an argument based on subjective judgments of stylistic similarity. A variety of problems and assumptions implicit in this approach must be acknowledged. First, we assume that the sites discussed here and the paintings used in making judgments concerning stylistic similarity are contemporaneous. That is, they co-occur with other cultural attributes they are expected to represent, such as religious beliefs. Contemporanity may span several tens, hundreds, or thousands of years depending on the degree of cultural conservatism in a particular region and time. Stylistic similarity alone cannot be taken as evidence of cultural interaction between two groups unless it can be shown using independent evidence that the two groups interacted (Davis 1990:19). For example, Steward (1929:221) noted a stylistic affinity with the rock art of the Modoc and the Santa Barbara-Tulare area, yet no other archaeological data support that conclusion. No matter how similar the two styles may be, stylistic similarity alone cannot be used as evidence of cultural interaction.

A second question involves how best to measure stylistic similarity. We typically use stylistic differences to distinguish between the art of two different cultures. Here, we ignore the differences and take similarities as evidence of interaction. One might ask how similar two art styles must be to indicate interaction. For example, Kodack (1990) used the concept of element pools to distinguish the rock art of two different cultures, the Zuni and Hopi. Briefly, his analysis explored the assumption that, when producing rock art, two adjacent cultures drew on separate sets of elements as a way of expressing their cultural differences. The differences between the presumed Zuni and Hopi sites were not as clear as Kodack had hoped. His sample size was small and the sites studied were chosen only to make a point, but the similarities among all the sites were generally higher than expected (0.673 to 0.982 on a scale of 0 to 1). The least similarity was obtained between two geographically adjacent sites. In this paper, we have chosen to focus on the ways in which the elements are presented and embellished rather than on the choice of elements themselves. One might reach different conclusions by choosing to focus on other attributes of style.

Finally, we make the necessary assumption that the similarity noted here can only be explained by cultural interaction. Franklin (1989) argued that archaeological data, especially rock art, are best explained using a concept of stochastic or randomly changing passive style. The use of stochastic style avoids the question of cultural boundaries and acknowledges other complexities of cultural interaction represented in the archaeological record. While Franklin cited examples of the seemingly hopeless archaeological mix of different artifacts of different styles, we take issue with her thesis that rock art should be included in the assortment of artifacts. Unlike most other artifactual components of the archaeological record, rock art is located at fixed points on the landscape. It cannot be traded or otherwise moved beyond the range of its creators. While artifact styles often seem hopelessly intermixed across presumed ethnic boundaries, rock art is more likely to be limited to the territorial range of the artists. Stylistic variation within a geographically bounded range, on the other hand, may indicate chronological change, functional variation, or social variations within an ethnic group.

We agree, however, with Franklin's argument that strong similarities do not necessarily mean a high level of cultural interaction. Without independent evidence for that interaction, we have only a circular argument. In the region of interest here, a variety of different kinds of evidence can be used to demonstrate that interaction did occur, and we do not have to rely on rock art alone. Our purpose here is to explore the potential of rock art as an indicator of cultural interaction, not to demonstrate the degree of interaction on the basis of the rock art data alone.

The question of cultural interaction can be answered only by examining a wide range of archaeological data. Rock art is an important component of the necessary evidence. Distinctive, yet overlapping, styles may indicate that a reciprocal relationship existed between the various cultures of this region. Radically different styles, on the other hand, may indicate closed borders with little interaction across them. The difficulty is in defining what constitutes sufficient similarity to accept the existence of reciprocal relationships. That problem persists whether we are studying rock art, lithic artifacts, basketry, or any other medium that might carry a stylistic message.

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