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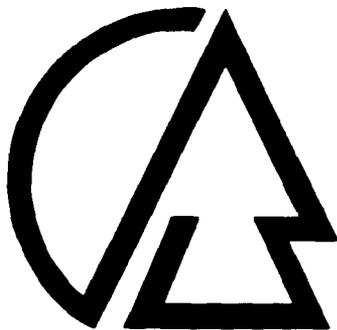
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Bakersfield, CA 93389

Robin Tidmore
Jill Gardner
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ANTELOPE AS A RESOURCE IN ABORIGINAL ANTELOPE VALLEY

Mark Q. Sutton

This paper attempts to examine the absence of identified antelope remains (*Antilocapra Americana*) in the excavated sites in the Antelope Valley. Several hypotheses are discussed that may account for this absence.

Antelope Valley, for the purposes of this paper, is bounded on the south by the San Gabriel Mountains, to the north by the Tehachapi Mountains, to the west by the Santa Ynez Mountains, and is somewhat arbitrarily limited on the east by a series of ridges and buttes. I will further confine the area of the study to the ethnographic range of the Kitanemuk and the Kawaiisu, the inhabitants of the Antelope Valley, at least in the proto-historic period.

Presumably Antelope Valley got its name due to the presence of antelope. Of the early explorers, only Fremont (1848, 256) reports that he saw antelope in the valley. Most of the references of antelope date from the late 1800's.

In 1885, 30,000 antelope were reported in the valley (Seattle 1959, 15). When the antelope reportedly would not cross the railroad tracks after a heavy snow, half were supposedly killed by coyotes, wildcats, and hunters. The fate of the remaining 15,000 is unclear.

The logistics involved in the support of 30,000 animals in the valley are suspect. If there were in fact that many animals, why weren't they noted by the early explorers?

Biological information does not necessitate automatic dismissal of this estimate. Estimates of animals by lay persons tend to be low, antelope can increase their numbers rapidly and the Antelope Valley could have supported an antelope population on the magnitude of 30,000 animals (William Mayhew, personal communication). Even so, I consider the estimate of 30,000 animals to be too high. While there are many general references to animals in the valley, few specifically mention antelope and none are reliable.

Ethnographic data on subsistence and animal utilization in Antelope Valley is limited. Strong (1929) notes that the Kitanemuk existed, but says little about them. Zigmond (1938) discusses the hunting of the Kawaiisu, the northern neighbors of the Kitanemuk, but is general and only briefly mentions their use of deer and antelope. Voegelin (1938) also discusses the hunting practices of the Kawaiisu but adds no new information. Both are specific, however, in noting the presence of antelope in areas just north of the Antelope Valley. In fact, according to Kroeber (1925), Kawaiisu territory

includes the northern Antelope Valley. It would therefore seem most likely that antelope would be present in Kitanemuk territory as well. It should be noted, however, that the ethnographic data was gathered in the late 1800's or the early 1900's at the close of the aboriginal period.

Steward (1938), while not referring specifically to Kitanemuk (the closest he gets geographically is Death Valley), discusses hunting and subsistence patterns in the Great Basin in general. He makes reference to the aboriginal utilization of deer, antelope, mountain sheep, mountain goat, blacktail jackrabbit, cottontail rabbit, marmot, badger, and various rodents (1938:33-40).

Many of these animals, with the notable exception of antelope, are (and presumably were) available for exploitation and most have been identified in Antelope Valley sites.

Antelope Valley is a little known area archaeologically. Few sites have been excavated in the valley and only one is reported on in published form (Glennan 1971). This one publication, however, makes no reference to faunal materials as, apparently, none were associated with the sample collected from the site.

The mammal* remains associated with the other excavated sites have yet to be formally analyzed, but a number of remains have been identified by a zoologist. While the sample identified seems to be fairly representative of the total inventory, the possibility of unidentified species being present in the sample must still be considered. The identified species present in the excavated sites in Antelope Valley are summarized in Table One.

Large animals (deer) appear to be of primary importance in the proto-historic Kitanemuk economy while rodents and rabbits assume a lesser role (Sutton 1976). It is interesting to note that *Lepus*, best hunted communally, was more important than *Sylvilagus*, best hunted by single hunters or small groups of hunters.

*I am limiting myself mainly to mammals as no other remains have been identified. There is reference to wild fowl (Settle 1959:53) and ethnographic evidence for the use of reptiles (Coville 1892:352) but few such remains have been identified in the archaeological record. Tortoises have been identified in the record and were of primary importance at at least one site.

DISCUSSION

As noted earlier, identified remains of antelope are missing from the faunal assemblages of any of the excavated sites in Antelope Valley. Bear (*Ursus* spp.) remains are also absent from any of the sites. The absence of bear is not very surprising as it is not a common animal nor is it an easy animal to take. It was commonly the subject of religious reverence and/or taboo. The absence of antelope, however, seems most unusual.

There are several possible hypotheses that might explain the absence of antelope remains at the various sites in the valley.

1. Antelope were hunted, but were killed and butchered at yet unidentified special sites. Hence none of the bones found its way back to the habitation site. This is the so-called "schlepp effect" (Daly 1969).

2. Antelope were present in the valley but were not utilized by the aboriginal population.

3. The sites tested to date were occupied before antelope entered the valley.

The idea that separate kill sites were utilized seems at first to be a reasonable explanation. The evidence, however, does not support this hypothesis. Antelope phalanges are not found (i.e., have not been identified) in the excavated sites in the valley. This type of bone should be present if the skins of the animals were being utilized as they were in other parts of the Great Basin (Steward 1938).

It should also be noted that there are no recorded kill sites in the valley, and the one excavated special purpose food processing site contained no identified antelope remains.

The schlepp effect states that of the bones of animals killed at special purpose kill sites, few will find their way back to the habitation site. As the size of the animal increases, the number of bones of that animal in the habitation site will decrease (Daley 1969). This interpretation is unacceptable to explain the lack of antelope bones in Antelope Valley sites.

In several other Great Basin sites, sites whose inhabitants presumably used similar hunting techniques, antelope bone is common. Why were those sites not "schlepped"? Antelope have even been identified at a site on the Santa Barbara coast (Harrison and Harrison 1966). Antelope are small enough that there might be preliminary butchering in the field or the entire animal could be taken back to the habitation site to be butchered. Much deer bone is found in the sites and deer are larger than antelope.

The second hypothesis suggests that antelope, although present in the valley, were neither utilized nor hunted by the aboriginal population. One possibility is that a cultural limitation on the hunting of antelope (e.g., a totemic taboo) existed. Another possibility might be that the Antelope Shaman (assuming that the Kitanemuk had one) died without passing on the knowledge necessary to hunt antelope. Both of these possibilities seem somewhat unlikely.

Based on ethnographic and archaeological evidence from other areas in the Great Basin, it would seem most unlikely that antelope would not have

been exploited if they were present. Antelope were a very important resource to other Great Basin groups, too important to be ignored.

This brings us to the third, and in my opinion, the most plausible hypothesis, that antelope entered Antelope Valley late in time, were not present in the aboriginal period, and therefore did not constitute a resource.

An examination of the types of animals that have been identified in the archaeological record provides some evidence in support of this hypothesis. Deer, mountain sheep, and cottontail rabbit are species that can not profitably be hunted in communal drives (Thomas 1969). Antelope and jackrabbit, on the other hand, can only be profitably taken on communal drives or hunts (Steward 1938).

Because of these tendencies, it has been suggested by Flannery (1966, 1968) that antelope and jackrabbit remains will tend to co-occur, if both species are indigenous to the area. Both are best hunted by communal methods. Similarly, since both deer and cottontail rabbit are best hunted by single hunters or small groups of hunters (Steward 1938), they would also tend to co-occur in the record. Mountain sheep, best hunted singly or by small groups of hunters, would probably co-occur with deer and cottontail in the record if all three species were indigenous to the same area.

The mountain sheep, deer, cottontail co-occurrence is well documented in the various Antelope Valley sites while the antelope-jackrabbit co-occurrence is not, even though jackrabbit remains are abundant in the various sites. The conclusion that follows from this argument is that antelope were not present in the valley in the aboriginal period.

This conclusion seems to be the most plausible and conforms to the available evidence. Antelope bone is absent from any of the sites in the valley. Early explorers note the presence of very few antelope in the valley. Also, all of the ethnographic data that makes reference to antelope date from the end of the aboriginal period. These plus the intuitive argument that, if present, antelope would have been too important to have been ignored, support the hypothesis that antelope were not present in the valley during the aboriginal period.

CONCLUSION

The major problem discussed in this paper is the absence of identified antelope remains from the archaeological inventory of excavated sites in the Antelope Valley. The conclusion derived from the available evidence is that antelope did not enter the valley until after the aboriginal period had or was near ending, and was not available for exploitation by the aboriginal inhabitants of the valley. The factors behind this late entrance are unknown at this time.

This paper is based on a cursory examination of the available faunal data with little formal analysis. Hopefully, further formal analysis will allow a more definitive statement on this subject.

TABLE I

Mammalian Remains Identified in Antelope Valley Sites

Common Name	Scientific Name	Relative frequency
Woodrat	<i>Netoma spp.</i>	abundant
Packet Gopher	<i>Thomomys bottae</i>	abundant
Ground Squirrel	<i>Citellus Sp.</i>	abundant
Desert Cottontail	<i>Sylvilagus audubonii</i>	abundant
Black-tailed Jackrabbit	<i>Lepus californicus</i>	abundant
Grey Fox	<i>Urocyon cinereoargenteus</i>	rare
Coyote	<i>Canis latrans</i>	uncommon
Bobcat	<i>Lynx rufus</i>	rare
Deer	<i>Odocoileus hemionus</i>	common
Mountain Sheep	<i>Ovis canadensis</i>	rare
Cow	<i>Bos sp.</i>	rare

Important reptile remains identified in Antelope Valley sites.

Desert Tortoise	<i>Gopherus agassizi</i>	rare (except at one site)
Pond Tortoise	<i>Clemmys marmorata</i>	rare

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USING A NEW CLASSIFICATION SYSTEM ON KERN COUNTY INDIAN BEADS

Stephen T. Bass
Stephen B. Andrews

PREFACE

Throughout the past 100 years, several major historic and pre-historic aboriginal sites in the vicinity of Buena Vista Lake, Kern County, have been vandalized by relic hunters, destroyed by property owners or excavated by institutions from other areas of California or the United States. In each case, information about the uses and distributions of artifacts in general and beads in particular has been lost; some to personal collections, some to permanent destruction and some to institutional holdings. In the last few years, as the interest in Indian artifacts has increased, so has the vandalism and destruction of these sites and others in Kern County. In an effort to retrieve some archaeological evidence for local research and preservation, excavations have been conducted by Robert Schiffman, Archaeologist at Bakersfield College and Cal State Bakersfield. With the aid and assistance of his field classes and the Kern County ARchaeological Society, Schiffman has salvaged data from these vandalized areas, begun excavations at new and undamaged sites, and, in the process, has uncovered new information leading to increased knowledge of the people who inhabited the southern San Joaquin Valley.

In an effort to assist in the study of local native culture, we began a systematic investigation of the beads from several representative sites. The sites included in this research are Ker-450 (Buena Vista Village), Ker-39 (Tulamniu 1), Ker-60 (Tulamniu 2), Ker-479 (Raljon), Ker-478 (McCarthy Ranch), and Ker-272 (Sand Canyon).

INTRODUCTION

Initially, our interest in beads was stimulated by the large numbers of beads being unearched in these excavations and their interesting variations. In a preliminary attempt to classify these beads we counted them, recorded the level at which they were found and grouped them according to the material from which they were made.

In interpreting them, we knew that it had been accepted for many years that beads played major roles as objects of personal adornment, were used in certain ceremonies and were bartered as a form of money in trade exchanges. In other words, we knew they had economic as well as aesthetic and

supernatural value. During these early stages of investigation, information became available that indicated beads could also be reliable indicators of time periods in pre-historic and historic California. This information showed that beads have been used to construct Central California time sequences (C.D. King, 1974). In addition, within the last ten years, researchers including Chester King and Robert Gibson have begun examining beads from other than a seriation standpoint. These investigations have shown beads to be more than personal ornaments and simple items of trade. They've shown beads to be objects closely connected to social and economic changes of the societies that made, used, and traded them.

This paper represents the first attempt at classification, seriation, comparison and analysis of beads from six major sites in Kern County. It is intended to provide our readers with a basic understanding of beads while, at the same time, resulting in feedback from other researchers interested in bead typologies and related studies.

KERN COUNTY BEADS

The most common types of beads found in Kern County are made of three different materials. These materials are shell, stone, and glass. Shell and stone beads are of aboriginal manufacture, while glass beads are of European origin. Shell beads dominate the total inventory, followed by small percentages of stone beads and then by even fewer glass beads. In our discussion of materials and manufacturing techniques, shell beads will be held for last because of their importance.

STONE BEADS

Three different stone types have been identified from the sites represented in this paper. Beads made from steatite, serpentine, and talc schist account for two to twelve percent of the total bead inventory, depending on the site. Steatite and serpentine beads at first appeared very much alike in the larger styles. Steatite (sometimes called soapstone) is characterized by its micaceous habit, cleavage, softness and greasy feel (Dana, 1949). Its color is usually dark gray or green. We noted other combinations of colors, including shades of orange and salmon.

Serpentine also has a greasy, waxlike luster

much like steatite. Serpentine, after closer analysis, usually shows variegated color and mottling in lighter and darker shades of green. In addition, serpentine is usually not as soft and smooth to the touch as steatite. Neither are as hard as the shell beads and can usually be slightly abraded or crumbled if not handled carefully. They can also be drilled more easily than shell but are subject to terminal fractures in the same process. Perhaps, for this reason they usually show drilling from both sides.

The third stone type is closely related to serpentine and has been identified by us as talc schist. Talc schist beads are black and usually lustrous, although some are so dull as to appear gray. They are also harder with more pronounced edges than steatite or serpentine beads.

These three minerals are very common to California with prehistoric quarries located in the San Joaquin Valley (Latta, 1949). The Yokuts were quite familiar with steatite, shaping bowls, jars, and other utilitarian objects from the mineral. Archaeological investigation has failed, thus far, to determine if stone bead manufacturing was of any consequence at local sites. Ethnographic data supplied by Latta, however, indicates that local Yokuts manufactured at least some of their stone beads. The stone beads found to date have been mostly flat discs while a few have been cylindrical. A few of the steatite beads show diagonal grinding on at least one face.

Manufacturing techniques used in the production of stone beads probably did not vary to any great degree from mineral to mineral. According to Latta, large chunks of the material were quarried and then split into slabs. These slabs were then scraped and sanded smooth using sandstone platforms. The smoothed slabs were then cut into strips by using a chipped stone saw. These strips could then be cut into squares and drilled. The bead "blanks" had to be secured in some manner for proper drilling. Some bead makers would cut a square hold into a piece of wood. Into this they would place the square blank. This held it in place and freed the craftsman's hands so that he could make the perforation. This was done by placing a stone drill on the end of a small shaft and spinning it between the palms to drill the holes. After a number of blanks had been drilled, they were strung on a hardened chamise root or wood rod and rolled between the hand and the sandstone platform to achieve roundness. (This method is still used today by some North American Indian groups.) In addition to rolling the beads between the hands and a sandstone surface, Latta also reports that some Yokuts milled the beads at an angle with the flat sides to achieve roundness.

Information as to the relative worth of stone beads shows steatite beads, known as "Kadis" to the Yokuts, to be three times as valuable as the most valuable Olivella shell bead. One good Kadis was worth three shell beads or one good, tanned deerskin (Latta, 1949). It is also maintained by Latta's informant that the foothill and mountain Yokuts used steatite beads more extensively than did their valley counterparts. Archaeological investigation by Robert Schiffman confirms this as more stone beads (both in number and percentage) have been

uncovered at excavated foothill sites than valley sites. Fewer stone than shell beads might also indicate the relative value of stone beads to be greater.

GLASS BEADS

The glass beads generally associated with Indians and early explorers and settlers were usually Venetian in origin. These beads are also called "trade beads" and were used by miners, Indian agents, merchants, soldiers and missionaries, among others, in dealing with local Indians. Indians also used glass beads in trade with each other. Glass beads are found in a variety of styles just as stone and shell beads are. So far only two varieties, cane and wire wound, have been found during excavations by Bakersfield College. Earlier excavations by the Smithsonian Institute and the Southwest Museum have identified many additional glass types and it is hoped that when investigations of these sites resume, a more complete assortment will be uncovered. The full impact of these beads is hard to assess but it is known that they gained instant favor with many natives because of their many sizes, shapes, and color variations. It also appears that the level of craftsmanship declined in some shell bead styles (while it increased in others) as glass beads became more readily available. In the Chumash areas of the California coast, the source of money changed from the aboriginal shell bead to the Spanish Mission glass bead. This change occurred in a relatively short period of time (around the turn of the 19th Century) and resulted in many other ramifications in Chumash cultural systems (Gibson, 1975).

These European beads eventually found their way into the Kern County area. Buena Vista Lake was first visited by the Ruiz expedition in July of 1806 (Walker, 1947). Other parties visited the southern San Joaquin Valley in 1815, 1819 and 1824. Most of the older glass beads uncovered in local excavations by the Smithsonian and the Southwest Museum would probably date from 1806 to 1824. Some of these older beads might have also been obtained in trade prior to 1806 and others might have been gained in the annual or semi-annual trade excursions to deal with the coastal Indian groups. Fages and Garces visited what is now Kern County in 1772 and 1776 respectfully. We know for certain that Garces made contact with local Indians. The later beads (1850-1860) may have been distributed by Indian Commissioners McKee, Wozencraft and Barbour in non-ratified treaties of 1851 or by gold traders of that decade (Walker, 1947).

Our preliminary estimates as to the age of these glass beads show that the wire wound samples are comparable in size and color to those listed by Woodward in Walker's *Excavation of a Yokuts/Indian Cemetery* as being of the type occurring in large numbers in graves of the San Joaquin tribes. These beads were usually obtained from white miners and gold traders during 1850 to 1860. The cane beads appear older, perhaps dating from pre-1800.

The cane style bead was the most numerous of the glass beads found. These were made by heating glass until it was molten. After it was removed from the furnace, a bubble was formed by blowing into

the hot glass with a tube or by folding it so that a bubble of air was trapped inside. By running with the hot glass or otherwise moving it through the air, it was drawn into a long tube. After it cooled, it could be cut into beads which were then tumbled for smoothness and refinement of shape. Our samples of cane beads were oblate spheroid in shape. (Oblate spheroid is a generally round shape with flattening at the perforations.)

The majority of wire wound beads classified were also oblate spheroid in shape with a small percentage that were oval. The wire wound beads were larger than the cane beads and were distinguished from the cane samples by deformities on one end near the central perforation where the bead had been separated from the glass rod when it was made. Instead of forming an initial bubble in the molten glass, wire wound beads were made by drawing the hot glass into a solid rod. This rod was then melted at one end where the glass was wrapped around an iron or copper wire. After the wrapping was completed, this section of the rod was separated from the rest. While the glass was still hot on the wire, it was further heated and turned for uniformity of shape. At this stage of manufacture, a swirling pattern was sometimes added to the bead. It was usually obliquely perpendicular to the perforation. The beads were removed from the wire after the glass had cooled and the metal had contracted (van der Sleen, 1973; Hammesfahr & Strong, 1968).

A third style of glass bead, *faceted*, was also found at one of the Indian sites and at a historic mass burial recently salvaged by the Kern County Archaeological Society (Blackwell, 1976). The faceted bead is simply a variation of the cane, wire wound, or blown bead. After the glass had cooled, the unfaceted bead was hand or machine ground into any of several different shapes (Singer, 1958).

Color was generally added to the glass beads while the glass was still a molten mass. Copper was used to produce turquoise blue and cobalt was added to form a darker shade of blue. Yellow-brown was created by adding charcoal, while violet was made by adding manganese dioxide (Hammesfahr & Strong, 1968). Red was made by adding gold (van der Sleen, 1973).

We determined the color of each bead by wetting it and holding it up to direct sunlight. A notation was also made for each glass bead as to whether it was opaque (not allowing light to pass through), translucent (perforation can be seen from side of bead, but not objects on the other side of the bead), or transparent (clear enough to distinguish objects on the other side of the bead). Many of the cane beads were patinated and this was also noted as each was classified.

SHELL BEADS

The overwhelming majority of beads found during our research were made of shell. Most, if not all, shell beads were traded to the local Indian groups (Latta, 1949). Archaeological investigations by Bakersfield College and the Kern County Archaeological Society seem to substantiate this fact in that excavation has failed to expose drills,

unmodified shells or detritus. In most instances, the shell beads were manufactured at coastal sites, usually by the Chumash, and traded into the interior of California for such articles as acorns, obsidian, baskets and pinon nuts (Latta, 1949).

We have identified five species of sea shells used in the manufacture of beads found locally. Other species may be represented but, at this point, have yet to be classified. The identifiable species are: *Haliotis cracherodii* (abalone), *Mytilus californicus* (California mussel), *Tivela stultorum* (clam), *Pusula Californiana* (Coffee bean shell), and *Olivella biplicata* (purple olive shell). One key hole limpet shell was found but Latta reports that these were generally used as hair ornaments. Beads made from the olivella shell were, by far, the most numerous.

Two forms of *Haliotis* shell beads were encountered. One was the *Haliotis nacreous* form. These beads were all flat discs having thin cross-sections. They were classified as being white even though they would glisten when exposed to light exhibiting the various colors found in the "mother of pearl" layers of the abalone shell. These beads were the easiest to disfigure or crumble through mishandling of any of the beads in the inventory. The second form of abalone shell bead was the *Haliotis rufescens epidermis*. These beads were made after the nacreous or mother-of-pearl layers were removed from the epidermis (periostracum). The colors ranged from orange to white with many shades in between. It is thought that this is the bead the Spaniards were calling coral (Gibson, 1975). Most of the beads of this type were flat discs with a few being cylindrical. There were also a few rectangular and irregular discs identified.

Mytilus beads were found in a variety of colors including gray, orange, purple, and maroon. Banding or streaks of lighter colors occurred in these beads. Flat discs, tubes and cylinders were included in the *Mytilus* inventory.

Tivela stultorum beads may have been confused during classification with *Tresus* or other species of clam. Based on earlier identification of random samplings taken of our total clam shell bead inventory, we continued to classify all clam beads as *Tivela*. All clam beads were identified as white even though some were almost a flesh color. Our examples came in a variety of shapes including flat discs, cylinders, and tubes. Most were of a hard consistency with a few being "chalky," both in hardness and color.

Olivella shells, beside being the most numerous, exhibited the greatest variety of styles. We have identified eight different beads made from the *Olivella* shell with most varieties appearing in several sizes. The majority of these beads were shaped as saucers, discs or cups. The material from which they are made accounts for the difference in shape between these beads and other shell or stone beads. Most *Olivella* beads are white with our collection showing some dark or black beads as well. Some of these dark beads were obviously burnt while others were not. We have finally assumed that those not obviously burnt are black due to natural coloring.

F. F. Latta reports on the value of shell beads in his "Handbook of the Yokuts." His informant was a member of the Wukchumne Tribe of Yokuts and lived in the vicinity of the Kaweah River and the foothills of Tulare County. According to Latta, the spire-topped, whole Olivella was the Yokuts' least valuable money and was known as "Chawik." The half shell, split-punched Olivella was worth three Chawik. Another bead made from the lip of the Olivella shell was called a "Mochowkuh" and was also worth three Chawik. (Mochowkuh were probably saucer-discs.) Latta mentions another bead made from the whorl of the Olivella. These curved beads supposedly looked like the chains made by modern jewelers. They were called "Huchin" and were worth either two large half-shells or two Mochowkuh, or six Chawik. (From Latta's description, these curved beads are probably the cupped beads made from the callus of the Olivella.)

Voeglin reports bead value in her *Tubatulabal Ethnography*. Her informants gave her information on bead money and its equivalent in U.S. dollars when such exchange was occurring. Clam shell discs were used as currency and were known as "tugumba-i." They were strung on native twine. The smallest unit of measure in clam shell was the "ya-nzil" which was about eight inches long, or twice the length of the index finger. The ya-nzil was worth one cent in U.S. money. The next length was a standard unit among Southern California Indian groups known as "ki-la-hil" or "histih" in Tubatulabal, "hista" in Yokuts and "stu" in Chumash. The histih was measured twice around the circumference of the palm and fingers and was about 45 inches long. (In checking Voeglin's calculations we found 35 inches a more accurate measurement.) This was worth about ten cents. The largest unit was the "pu-wil" which consisted of about 16 histih strands and was about 45 feet long. This was worth about two dollars. Clam shell cylinders 3 inches long were worth one histih. Those 5 inches long were worth 2 histih. This information on clam shell tubes and cylinders coincides with Latta's findings that these beads were the most valuable. (As an added note, Latta reports that the Cuyama Valley was the route shell beads followed into the southern San Joaquin. He states that the word "Cuyama" is the Canalino word for Pismo Clam shell.)

Techniques used in the manufacture of shell beads were, in several ways, similar to those described for stone beads. *Haliotis*, *Mitilus* and *Tivela* discs (disc beads are those which are ground flat on both the ventral and dorsal sides and the diameter is greater than the thickness) were made by chipping the shell into a rough circle, drilling the central perforation and then grinding the rough bead into a smooth disc.

The *Pusula* shells classified as beads were small and whole with the perforation on one end. In some instances the perforation was a round hole while a few examples were pierced with a simple slit. The round holes could have been drilled or pecked and, in at least one instance, the slit appeared to be formed by filing.

The Olivella shell provided the bead maker with several choices as to the style of bead to be

manufactured. Some of the earlier beads were made by simply grinding off the spire end of the shell and then stringing them. Others were ground at both ends and strung, while still other shells were simply split in half and had a large hole punched through the center. In the Olivella disc beads some have finely ground peripheries while others show no grinding at all but are merely chipped into shape. Perforations were made in much the same manner as other beads (using stone drills) until after the arrival of the Spanish at which time Chumash craftsmen used needles obtained at the missions for drilling (Martinez, 1792). When an Olivella shell was intentionally fractured by the bead craftsman to obtain sections of the shell for further refinement into beads, the most beads that could usually be made from these fragments was three (Latta, 1949).

As mentioned earlier, Voeglin and Latta report that clam shell tubes or cylinders were the most valuable of all shell bead money for Kern County Indian groups. An interesting and ingenious method was used for drilling the long holes through the clam cylinders. Rather than attempting to drill all the way through the shell with a stone or other drill, a small hole was started with a drill. Into this small depression was placed a fine, sharp sand. Either a hardened chamise root or a sea lion whisker would then be pounded on the end to form a small brush. By placing this brush on top of the grinding material and rotating it between the palms in a drilling motion, the craftsman could make perforations as long as several inches without splitting the tubes. Some of these holes were drilled from both sides (Latta, 1949 & Henshaw, 1885).

Clam shell cylinders were also used as noseplugs, earrings and bracelets by the Tubatulabal (Voeglin, 1938). Olivella discs were sometimes used as inlay work in asphaltum and as decoration on baskets by the Yokuts (Wedel, 1941 & Latta, 1949). Beads were used in celebrations such as visitations by other chiefs and, in at least one instance, a European explorer. Father Francisco Garces reported in his *Record of Travels in Arizona and California, 1775-1776*, that the Serrano Indians, in what is now the Victorville area, showered him with acorns and white shells. He also mentioned the scattering of their "treasures," which he said, ". . . are their shells." Beads also served basic religious functions as gifts for the dead.

In addition to the fact that local Indians used different beads in different manners, there is also evidence that Valley Indians in Kern County were part of a primary trade route that was responsible for the movement of beads from the California coast to Nevada (Bennyhoff, 1958). This trade route extended from the coastal groups (Chumash, Gabrielino, and Salinan) through the southern San Joaquin Valley and Sierran passes (Yokuts and Western Mono) to the Owens Valley (Paiute) and on into Nevada (Sample, 1950). Further evidence of this Kern County connection is indicated by the fact that several of the Great Basin Indian groups measured the amount of shell disc beads by the length of a strand wrapped around the hand (Steward, 1933). This measure, described earlier as the *histih*, originated in California and indicates the sizable

quantities of beads imported into the Great Basin (Bennyhoff, 1958).

CLASSIFICATION SYSTEM

Initially, our research was mainly exploratory, requiring a survey of literature about beads and leading us to an understanding of current research being conducted on beads in California. Local literature revealed general and ethnographic information about beads and their uses. Literature on classification systems was unavailable. Through the Society for California Archaeology, we were able to gain information on who was doing current research in the field and what publications contained current information about bead studies. Some of these studies were solicited and purchased. We were then at the descriptive stage of our research but were having a hard time doing the "describing."

Lacking access to other classification systems, but knowing they existed, we began to study the individual beads, noting the obvious differences. With the differences that we noticed in "our" beads and the differences mentioned in some of the other research, we created our own classification system and began to categorize the beads. It was difficult, however, to match our beads with the descriptions given by others. At this point, a number of different beads were sent to Chester King and Bob Gibson who returned them to us with notes identifying peculiar characteristics. The identification of the beads by these two was of tremendous assistance to us in our endeavors to identify the beads. Thereafter, we developed our own classification system to account for as many of the characteristics as we felt worth recording. Our typology isn't meant to replace previous classification systems, nor has it necessarily completed its own evolution. It is a typology that we have found very useful and, in spite of its complicated appearance, easy to work with. For our research and in research dealing with the types of beads found in the southern San Joaquin Valley, this system has proved quite adequate. By using the system and becoming familiar with it, a researcher will not only be able to instantly recognize what type and style a bead is but also its size. We are aware of no other system that accomplishes all of this.

In our typology, each bead is classified and identified in six major categories. These categories include the general material the bead is made from (stone, shell, glass, etc.), the specific stone or shell the bead is made from (steatite, olivella, etc.), or, in the case of glass beads, the type of manufacturing process used (cane, wire wound, etc.). These attributes are followed by size measurements, color and unique characteristics (color quality, markings, etc.). The identification marks for our system follow the same sequence as an outline. The outline would appear as such:

- I. General Material
 - A. Subclass material
 1. Shape
 - a. Diameter of bead
 - b. Diameter of perforation
 - c. Thickness of bead

- (1) Color
 - (a) Color qualities and markings

In classifying a bead, after the general and subclass materials are determined, the size (shape) of the bead is measured in three categories. As shown in the outline, each measurement is represented by a lower case letter. The three measurements always fall in the same order as illustrated in the outline. First the diameter of the bead is measured followed by the diameter of the perforation. The thickness of the bead is then calibrated. In the case of whole shells, such as the Olivella, the thickness measured reflects the length of the shell. This measurement is consistent with the measurement of thickness in other beads as all would be strung on strings, exposing the measured surface in a like manner. In cases where the diameter of the bead varies, the longest measurement is recorded.

Colors are marked using numbers in parenthesis while the qualities of colors, special markings, etc., are noted by placing lower case letters in parenthesis. In this last category there are instances where letters may be used together with or in conjunction to numbers for colors to indicate peculiarities. These last two categories apply to all types of beads.

ANDREWS-BASS TYPOLOGY FOR BEADS

GENERAL MATERIAL

- | | |
|-----|-------|
| I | Stone |
| II | Shell |
| III | Glass |
| IV | Clay |
| V | Wood |
| VI | Seed |

SUBCLASS MATERIAL, MANUFACTURING

- | | | |
|-----|-------|---------------------------------------|
| I | Stone | |
| | S | — Steatite |
| | R | — Serpentine |
| | T | — Talc schist |
| II | Shell | |
| | H | — <i>Haliotis nacreus</i> |
| | Hre | — <i>Haliotis rufescens epidermis</i> |
| | O | — <i>Olivella biplicata</i> |
| | T | — <i>Tivela stultorum</i> |
| | M | — <i>Mytilus californicus</i> |
| | P | — <i>Pusula californiana</i> |
| | L | — Limpet |
| III | Glass | |
| | C | — Cane |
| | W | — Wire wound |
| | B | — Blown |
| | F | — Faceted |
| | P | — Pressed |

SHAPE

All Beads

- 1 Flat, disc (greater diameter than thickness)
- 2 Cylindrical (flat at ends, large hole, grain with diameter)
- 3 Tubular (rounded at ends, longer than cylinders, grain with length)

- 4 Ring (rounded with large hole)
- 5 Rectangular; also includes square
- 6 Barrel (bulges in center)

Shell

- 7 Saucer, disc
- 8 Rough, irregular saucer disc
- 9 Cupped (hole less than 2mm) (bab, bbb)
Thin cupped (baa, bba)
- 10 Thin lipped round (like cupped - hole is greater than 2mm)
- 11 Full lipped (like saucer, with callus lip)
- 12 Whole spire lopped (Olivella)
- 13 Whole spire lopped diagonally (Olivella)
- 14 Whole spire lopped, end ground
- 15 Half (includes split-punched, split drilled)

Glass

- 7 Oblate spheroid
- 8 Spheroid
- 9 Ovoid
- 10 Hexagonal tubular (6 facets) (rectangular)
- 11 Hexagonal tubular w/end facets (diamonds)
- 12 Heptagonal tubular (7 facets)
- 13 Octagonal w/3 rows of facets

SIZE (determined at longest point - measured in millimeters)*

Diameter

- a 2mm and less
- b 2mm to 4mm
- c 4mm to 7mm
- d 7mm to 9mm
- e 9mm to 11mm
- f 11mm to 15mm
- g 15mm to 19mm
- h 19mm to 22mm
- i 22mm

Diameter of Hole

- a 1mm and less
- b 1mm to 2mm
- c 2mm

Thickness

- a 1½mm
- b 1½mm to 2mm
- c 2mm to 4mm
- d 4mm to 7mm
- e 7mm to 10mm
- f 10mm to 13mm
- g 13mm to 16mm
- h 16mm to 19mm
- i 19mm to 22mm
- j 22mm to 25mm
- k 25mm

*These measurements were selected after sorting beads into natural groupings which revealed these categories.

COLORS

- (1) White (cream in shells)
- (2) Black (dark in shells)
- (3) Orange (amber)
- (4) Cobalt blue
- (5) Copper blue (turquoise)
- (6) Red

- (7) Green
- (8) Yellow
- (9) Brown
- (10) Purple
- (11) Violet
- (12) Gray
- (13) Maroon
- (14) Salmon
- (15) Pink
- (16) Clear
- (17) Rose
- (18) Pale blue

COLOR QUALITIES, MARKINGS, ETC.

- (a) transparent, crystal
- (b) translucent
- (c) opaque
- (d) burnt
- (e) bi-colored
- (f) bi-colored core
- (g) painted
- (h) striped
- (i) light
- (j) dark
- (k) patinated
- (l) incised xxx
- (m) incised ///
- (n) incised --
- (o) incised other, intricate
- (p) punched hole, not drilled
- (q) diagonally drilled hole
- (r) diagonally ground
- (s) slit hole
- (t) irregular shaping

As an example of how the system works, a bead sample might have the label IIO7bba(2)(d). This would indicate that the bead is: shell (II), Olivella(O), disc shaped(7), 2-4mm in diameter(b), the perforation is 1-2mm in diameter(b), it is less than 1½mm in thickness(a), it is dark colored(2), and it is burnt(d).

All beads excavated by Bakersfield College, Cal State Bakersfield and the Kern County Archaeological Society have been classified using the Andrews-Bass typology. In addition, all newly excavated beads are being classified using this system by the lab assistants of the Bakersfield College Archaeological Research Unit.

TIME SEQUENCE

After the bead has been described, an effort is made to identify its age and thus identify the ages of different strata at the site where the bead was excavated. This dating procedure has not been fully developed for our area as of yet but to better understand some of the time periods, an outline form will be used to show changes and time placement of beads. This time chart is based on the research of Chester King, Bob Gibson, William Olsen and Louis Payan, with additions of our own.

MIDDLE HORIZON 2200 BC to 450 BC (Olsen & Payen)

- Barrel -- both ends of Olivella ground (Gibson)
- Oblique ground spire -- whole Olivella, 1500 BC to 500 BC (Gibson)
- Split-drilled and Olivella saucer (Bennyhoff)
- Callus portion of Olivella not used before 700 AD to 1000 AD (King)

LATE HORIZON Phase I 800 AD (+ 100) to 1500 AD (King)

- Olivella thin rectangle -- early stages of Phase I (Bennyhoff)
- Calm disc -- 1000 AD to 1816 AD (Gibson)
- Olivella cup -- 1000 AD to 1785 AD (Gibson)
- Split-punched Olivella reaches high frequency (Bennyhoff)
- Cupped Olivella -- late half of Phase I (Bennyhoff)
- Mytilus
- Rough, irregular disc originates in Central California during terminal Phase I (Bennyhoff)

LATE HORIZON Phase II 1500 to 1785

- a. 1500 to 1675 (King)
 - Some split-punched Olivella (Bennyhoff)
 - Thin-lipped round Olivella, 1500 to 1600 (Gibson)
 - Olivella rough disc in Central California, 1500 (Bennyhoff)
 - Thin-lipped Olivella followed by phasing-out of cupped Olivella in 1785 (Bennyhoff, King, Gibson)
 - Mytilus cylinder, 1500 to 1830 (Gibson)
 - Mytilus disc, *Haliotis rufescens* epidermis discs
- b. 1675 to 1785 (King)
 - Full-lipped Olivella 1700 to 1780 (Gibson)
 - Olivella saucer with oblique edge incising, 1700 to 1810 (King)
 - Commander Fages is first European to enter future Kern County, 1772
 - Father Garces visits future Kern County and makes contact with local Indians, 1776
 - Glass beads, cobalt blue and copper blue cane (Gibson)
 - Mission Period, 1780 to 1836
 - Terminal Medea Creek (Gibson)

HISTORIC Phase III 1785 to 1834 (King)

- No money beads, lipped or cupped (King, Gibson)
- Change to Venetian glass beads (King, Gibson)
- Early Humaliwu 1785 (King)
 - Influx of cane and wire wound glass beads (Gibson)
 - Use of mission needles by Indians recorded by Martinez
 - Olivellas are refined -- large diameters and small perforations
 - Humaliwu missionized, 1805
 - Captain Ruiz at Buena Vista Lake, 1806
 - End of stone disc use, 1810 (Gibson)
 - Use of red, bi-colored green core cane beads (Gibson)

Bi-colored core beads, 1800 to 1821 (Walker)

- Terminal Humaliwu 1816 (King)
- End of clam disc use (Gibson)
- Olivella saucers are semi-ground, seldom completely ground (Gibson)
- More new glass bead types (Gibson)
- Clam and *Mytilus* cylinders present
- Use of red, bi-colored white core cane beads (Gibson)
- Late Mission 1816 to 1834
 - End of *Mytilus* (Gibson)
 - Estudilla visits Buena Vista Lake, 1819
 - Portilla in Kern County, 1824
 - Phoenix Buttons enter Kern County, 1820 to 1830 (Walker)
 - Irregular faceted glass beads, hand ground
 - Haliotis rufescens* epidermis, irregular outlines (Gibson)
- Ethnographic 1834 to 1900+ (King)
 - Machine-milled faceted, glass. Machine facets more regular shaped than hand faceted, 1850 (Gibson)

ANALYSIS OF KERN COUNTY SITES

Finally, after developing a typology, counting and identifying over 4000 beads and using the time and sequence outline just described, we were able to begin making preliminary statements regarding beads, their uses and their relative ages at the investigated sites.

Ker-450, Buena Vista Village

Valley Yokuts

Stone Beads

Talc Schist: This is the only site at which beads made from this material have been found. They have been mentioned by King and may have come in trade from coastal sites or from valley sites to the north. They are more showy and smaller than the other stone beads, serpentine and steatite. While King offers a date ca. 1750 for talc cylinders and a date ca. 1810 for talc discs at Malibu Cemetery, the cylinders at Ker-450 were found in only the upper layer while the discs were found in both upper and lower levels.

Steatite and Serpentine: The perforations in these beads showed every evidence of being made by traditional Indian methods, rather than with tools of European origin. This gives us a preliminary clue as to their age. The perforations were larger than in other beads of similar size. Most stone beads were of the "bba" size.

Shell Beads

Haliotis nacreous: These beads were quite fragile and would easily disintegrate if mishandled. Most were paper thin in thickness. Some "mother-of-pearl" sections of the abalone shell exfoliated into thin layers during our classification in spite of careful handling resulting in thin bead remnants. This indicated to us that this may have also occurred prior to our contact and caused the paper-thin thickness.

Haliotis rufescens epidermis: Again, the most numerous single type was the "bba" size. Although more white beads than orange-tinged were found at both levels, there was an increase in the percentage of orange beads at the lower level. These beads are

typical of the Late Horizon, Phase IIa era (1500-1675 AD).

Mytilus californicus: These beads are also typical of the Phase IIa era and conformed in numbers to the "bba" size.

Olivella biplicata

Saucer, disc (07): These varied in size from the other beads thus far mentioned. The most numerous were the "baa" followed by the "caa." Indicated is a shift in these beads to a smaller perforation and a larger diameter. This seems to fit the Historic Phase III, Early Humaliwu era beginning in 1785.

Irregular, rough Olivella discs (08): These beads followed basically the same dimensional pattern as the 07's. The smaller perforation size (1mm) was more dominant and there was an increase in diameter in higher levels. This seems to correlate with the coastal patterns suggested by King and Gibson. This would support the idea of occupation through 1785 and 1816.

Cupped (09): The most numerous single type was the "bba" size, similar to the sizes found in the stone, *Haliotis rufescens*, and *Mytilus* beads. These "bba" are probably called thin cupped in other reports. The second most numerous type was the "bbb" size, perhaps more the traditional cup. While the percentage of cupped beads at the higher level is smaller in proportion to the total, the number of cupped beads at both levels is greater than any other style. This suggests that the phasing out of these beads did not occur as early at this site as at coastal sites. It probably could be said that the cupped bead did not phase out at this site.

Glass

Cane: All except one glass bead appeared to be cane manufactured. The one wire wound bead was further elaborated with painted white stripes. Most of the beads were oblate spheroid in shape with

colors ranging in order of most numerous: cobalt blue, copper blue, white, green, yellow, pale blue, and red. One cane bead was opaque red with a translucent green core. This and most of the other beads were available before 1816.

Diameters

While the greatest number of beads ranged in diameter between 2-4mm, the *Olivella* discs and irregular discs tended more toward the 4-7mm range. Glass beads tended more toward the 2-4mm range in both levels while the stone beads showed an increase in the number at that size in higher levels.

Perforations

Most beads had perforations ranging between 1-2mm. The exceptions were the 07's and 08's which had holes less than 1mm. Most glass beads had holes between 1-2mm.

Conclusions

Additional European artifacts such as shot, percussion caps, and Phoenix buttons tend to push the terminal date for Ker-450 to at least 1840 and, perhaps, to 1860. The depth of the site (18 inches in most places) indicates it may have begun during the Late Horizon IIb era. What is puzzling is that the beads indicate termination of new styles in about 1816. Larger wire wound beads, faceted beads and other bi-colored styles are not found, yet there would have been time for them to have been traded into the area. One possible explanation, when one considers that beads with small diameters were most popular, is that social order and economic stability were maintained through continued use of small beads. This might also explain why cupped beads did not phase out. In this situation, wire wound beads which were larger would not have been of value and thus, not used. Another explanation is that the site was inhabited by non-Indians after 1830 or the late 1820's.

BEADS RECOVERED FROM SITES RESEARCHED

	Type	Stone	<i>Haliotis Nacreous</i>	<i>Haliotis Rufescens</i>	<i>Olivella</i>	<i>Tivella</i>	<i>Mytilus</i>	<i>Pusula</i>	Glass	
Ker-450	61	25	146	1,950	23	33	3	81	2,321	
Ker-39	0	1	39	303	9	32	0	1	385	
Ker-60	0	0	4	44	2	4	0	7	61	
Ker-479	57	100	5	785	3	14	7	3	974	
Ker-478	8	0	0	15	0	0	0	0	23	
Ker-272	5	0	24	244	0	5	0	90	368	
Totals	131	125	218	3,341	37	89	9	182	4,132	

Tulamni 1, Ker-39
Buena Vista Lake
Valley Yokuts
Stone Beads

No stone beads were excavated.

Shell Beads

Haliotis rufescens epidermis: More of these beads were tinged orange than white. This may suggest a preference in earlier times for orange. Most were "cbb" in size. No *Haliotis nacreous* beads were excavated.

Mytilus californicus: Most of these were also "cbb" in size. The presence of these less refined *Mytilus* and the *Haliotis rufescens* suggest a Phase IIa era (1500 - 1675 AD).

Olivella biplicata (saucer 07 and irregular 08): The "cba" followed by the "dba" were most numerous. In both cases, few had perforations less than 1mm. This suggests that the terminal date for the site would be during the Phase IIb era or early Phase III.

Cupped (09): In this case there were more 07's in the higher levels than 09's. This may be an indication of some phasing out of the 09, perhaps before the arrival of many glass beads.

Tivela: Most clam shell beads were found in the upper levels which seems to indicate that they were increasing in use and, perhaps, importance during later time periods.

Diameters

The diameters of beads at this site tended to be generally smaller than those at Raljon (Ker-479) but not as small as those at Buena Vista Village.

Perforations

In contrast to those beads at Buena Vista Village, few of these beads had holes less than 1mm.

Conclusions

Conspicuous is the absence of stone and glass beads. Only one glass bead was found along with the *Haliotis nacreous*. We believe this site to be terminal prior to or soon after the initiation of the Buena Vista Village site. It may have begun during Phase IIa and ended during Phase IIb.

Tulamni 2, Ker-60
Buena Vista Lake
Valley Yokuts
Shell Beads

Since only a small number of beads were recovered, little can be inferred about the site. None of the 07's nor the one 08 had hole diameters less than 1mm.

Glass Beads

All glass beads were wire wound. None were cane. When Wedel excavated this site in the 1930's only one glass bead was found. However, seven glass beads were found recently in only two test pits by Bakersfield College.

Conclusions

The sample excavated was much too small to draw any conclusions from except for the fact that additional exploration is needed to determine the role of wire wound glass beads at this site.

Raljon, Ker-479
Sierra Foothills
Foothill Yokuts, Bankalachi
Stone Beads

No talc beads were found. This may indicate that the talc beads found at Buena Vista Village did not originate with Foothill Yokuts or that the talc bead was being circulated after this site was no longer operational. Of the steatite and serpentine beads that were found, most were steatite. Only a few stone beads were found below 36 inches, indicating that these beads were probably not associated with the burials or burial customs. Most diameters were greater than 7mm or in the 4-7mm group. More of the stone beads had perforations greater than 2mm. These dimensions make these beads generally larger than those found at McCarthy Ranch or Buena Vista Village. It appears that stone beads were in use during later time periods at this site or were intentionally omitted from burials.

Shell Beads

Pusula californiana: More were found at this site than at any of the others. None were found with burials and all were whole. We have not seen this particular shell mentioned in previous research. One explanation for this could be that it has been included in other data as a Cowry shell.

Haliotis nacreous: There were 100, more than 10% of the entire bead inventory from the site. This was also the highest number of *Haliotis nacreous* beads at any of the sites. Eighty percent of these beads were found below the 12 inch level with 40% being found in levels with burials. The diameters were generally greater than 7mm and the perforations greater than 2mm. These were larger and of a style distinct to this site. According to Latta, abalone were used in burials. Abalone ornaments were also found with the burials but were not included in our tally. This indicates a special demand for abalone by these Indians.

Haliotis rufescens epidermis: Only 5 were found and these were in the upper layers. As is usually the case with these beads, the perforations were small. This probably indicates that the site was operational during the latter part of Late Horizon Phase IIa or into the Phase IIb era.

Mytilus californicus: Like the *Haliotis rufescens*, these were present in the higher levels and indicate the same time period.

Olivella biplicata

Saucer (07): This group comprised over 75% of all beads. Most of these were associated with burials and were found at the lower levels. The majority had large diameters and large perforations (dca and cca). In many cases, the convex surface of these beads had deformities bordering the central perforation. They appeared chipped or ground. Perhaps this happened during the manufacturing of the bead or perhaps it was done purposely to "kill" the bead (as was done to other artifacts) thus discouraging grave robbing. Their association with burials might indicate that they were not used as money. This bead, more than any other, is typical of the site.

Irregular rough discs, saucer (08): The few that were found were as large as the 07's although the

perforations were smaller. Some may be irregular due to rough handling by Indians rather than poor manufacture.

Cupped (09): Few were found with burials and may have found their way into the lower levels when the upper layers were dug through for later burials. Their increase in the higher levels indicate an increase in their use at the site during later time periods, perhaps in the latter part of the Phase I era. These beads increased as the 07's at the site decreased.

Whole Olivella (012 and 013): More of these were found at this site than at the others and they were spread throughout all levels. These may have been the *Chawik* spoken of by Latta.

Glass Beads

Cane and Wire wound: Only 2 cane and 1 wire wound were found, all in the highest level. These, too, are probably indications that the site was partially used until Phase IIb or around 1785.

Diameters

The diameters of beads at this site were greater than those at other sites. This was true at all levels and may be partially attributed to the high number of 07's. However, the stone beads and *Haliotis nacreous* also followed the same pattern.

Perforations

Most beads at the lower levels had perforations that were greater than 2mm in diameter. The tendency in higher levels is toward an increase in the number of small holes, stimulated by the influx of new styles. It is our belief that the large holes were necessary to accommodate the material on which they were strung or to which they were attached (native twine, baskets, sinew). Perhaps the material on which later beads were strung did not necessitate large perforations.

Conclusions

The association of abalone beads and ornaments with the burials suggest that the area was used by Yokuts. The early, non-use of cupped beads suggest a beginning use during the early part of Late Horizon, Phase I, perhaps before 1000 AD. As mentioned, the use of the site would extend to the end of Phase IIb and the beginning of the Historic era. This is probably the oldest of the sites that are included in our research. Beads were probably used for exchange purposes by the people who used the site. They were undoubtedly used for religious purposes.

McCarthy Ranch, Ker-478

Sierra Foothills

Foothill Kawaiisu

Only a few beads were found at this site but it is worthy noting that a high percentage of these were stone beads, steatite and serpentine. The Kawaiisu who lived at the Sand Canyon site apparently had little use for steatite while the Kawaiisu who inhabited this site seemed to have had more use for the stone beads, possibly because this site is closer to Yokuts' territory (assuming that is where the beads originated). Other implications seem to place the time period for this site in the Late Horizon, Phase IIa era or perhaps earlier in the latter stages of Phase I. Ethnographic data, however, indicates the site was used as a winter campground by the Indians in historic times. If the beads are of

an earlier era, the relative importance of stone beads at that earlier date would be increased. Further excavation in different sections of the site may provide additional information. The absence of *Haliotis nacreous*, *Mytilus*, *Olivella saucer* discs, and *Olivella* rough irregulars indicates the site was terminal by Phase IIb, although this conflicts with the ethnographic data.

Sand Canyon, Ker-272

Southern Sierra Terminus

Desert or Sierran Kawaiisu

Stone Beads

There were only five in the collection, one serpentine and four steatite. It should be noted that there were also no talc beads at this site. Apparently there was little use for stone beads in this area. They may have been used only for trade with groups who favored them.

Shell Beads

Olivella saucer (07): The percentage of 07's decreased at the higher levels.

Rough irregular Olivella (08): There were twice as many 08's as 07's and twice as many 08's as 09's. The increase of 08's in the higher levels and the decrease in the percentages of 07's and 09's at those levels indicates occupation as late as Phase III, 1816.

Cupped (09): There may have been more of these at the site than indicated by those recovered. Workers at the site indicate that the smallest screen mesh used was ¼ inch. Thus, some may have fallen through the screens in the process of excavation. However, the pattern does seem to coincide with King's and Gibson's statements.

Glass Beads

This was the only site with *faceted* beads. These appear hand ground and would date between 1816 and 1834. Among the *cane* beads there were more with bi-colored cores (red outside, white on the inside) than other cane types. These may have been introduced before 1816. There were a few faceted beads which may have been machine milled. These probably would have been introduced after 1834. The absence of bi-colored and faceted beads at Buena Vista Village indicates that such beads did not come in trade from Buena Vista Village and, perhaps, not from the San Joaquin Valley at all.

Diameters

The diameters of the glass beads tended to get smaller at higher levels. The diameter of the shell beads remained consistent throughout all levels. Two of the earliest 07's were similar in diameter and style to the dominant bead type at the Rajon site.

Perforation

In the higher levels there was an increase in the percentage of holes 1mm or less even though the number of those greater than 1mm still dominated. This situation most notably occurred with the increase in 08's (rough discs).

Conclusions

According to the bead styles observed, this site was probably the latest of those studied. The lack of similarities of types with those at Buena Vista Village (which was inhabited concurrently with this site) would indicate that the Sand Canyon site was not on the same trade route. The distribution of

beads may indicate a rapid growth in habitation at later periods, perhaps due to this site's new importance in trade routes. Most beads tend to indicate that the site was inhabited in the Historic Phase III era (1785 - 1834). The depth of the site offers evidence that it may have begun, perhaps intermittently or seasonally, during the Late Horizon, Phase IIb era (1675 - 1785).

CONCLUSION AND REMARKS

Much of our research has been based on groundwork laid by Chester King and Bob Gibson. These men are responsible for much of the work dealing with central and southern California bead types and bead usage. In King's hypotheses he maintains that different kinds of beads were used in the maintenance of different exchange circuits. These circuits are further identified as being political and secular. Both circuits dealt with the control of food and energy stores. In times when political control needed to be concentrated in order to maintain social order, more refined beads were used. Seasonal fluctuations which might cause the rationing of stored food or energy would be an example of a need for political control. At other times, such stores would be used in ceremonies or other dealings with visiting chiefs.

Less refined beads were used when there was occasion to disperse control of food or energy stores. King also suggests that the dimensions of beads are related to the organization of interaction systems and that an increase in the decorative value of beads indicates politicization of the economy.

The material of the bead had value relative to the difficulty of working the material (hardness), difficulty in obtaining the material (extraction cost), and the high or low display value of the color. Peripheral shaping and perforation are also related to the cost of production and degree of elaboration. The refinement of diameter size or displaying surface also contributed to the value of the bead.

King also provides specific ideas about certain bead types. The cupped bead was used in market exchanges. While not showy, they were difficult to produce. These were known as money beads to many groups. Cylinders and cupped beads with xxx incising were more showy and were used by those who had attained wealth in market exchanges. Olivella wall, medium discs, talc schist discs and cylinder, *Mytilus* discs, *Haliotis rufescens* epidermis discs and Tivela beads were more showy. Their ownership demonstrated rights to community stores given as gifts to other chiefs. Olivella small discs and Olivella incised discs were more refined and were exchanged between managers of stores and were marks of chieftainship. Olivella cupped and lipped beads were used in areas typified by large villages or towns. In central California, King maintains that the use of cupped beads was phased-out following the use of lipped beads and clam disc beads.

During the historic periods there were other changes which occurred. After the arrival of Spanish missionaries and the development of the missions, the production of beads shifted from the Channel Islands to the mainland. The Indians began using mission needles and other European tools in the production

of beads. Because of the reduction in population, new technology, and new political hierarchies with the Spanish, there were new opportunities for those of low birth to attain wealth and power. The glass trade bead was an influence of this new hierarchy. Beads which were made from or included the callus of the Olivella shell became rare early in the historic period (1769 - 1785) as glass trade beads began to be used more frequently. Olivella wall discs were used with increasing frequency during the historic time period. The diameters of these beads became greater while, at the same time, the perforation diameter decreased. The edges were less finely ground and evolved to rough, irregular discs. King contends that the reduction of competitive pressures and the increased potential to gain wealth and power correlated with a decrease in refinement of these beads while their use increased. These rough, irregular discs were used late in the Mission Period. Later, as the Indians were incorporated into the Spanish missions and local estates and ranchos, the use of glass beads decreased in relation to native-made beads.

In our local research, the sites at Tulamniu 1 and Sand Canyon seem to follow the patterns set by King and Gibson. Not enough artifacts were recovered from Tulamniu 2 and McCarthy Ranch to enable us to make very conclusive remarks. The Raljon site as well as the Buena Vista Village site suggest distinct patterns for the Yokuts, which differed from the coastal uses of money.

At Raljon, the abalone beads were used for religious purposes, placing a different type of control on beads than politicization. At Buena Vista Village, a different pattern or use of beads may have developed as an indirect result of the missionization of coastal Indians. Indians in the central valley were initially not under the same direct influences as those on the coast. The phasing out of certain beads on the coast due to changing conditions may not have been matched everywhere in the central valley and such pressures might not have been immediately felt. Thus, beads which lost value on the coast may have retained their value inland, increasing their use at particular sites.

Latta and Voegelin provide information on monetary exchange systems geared more to individual market use of beads. Accounts were given by both authors of the religious use of money. Such use may have helped control economic flows helping to maintain social order. Our idea here is that when an individual died and his relatives' beads were buried with him this removed an amount of money from the group.

When a bead was used in a religious fashion (in funerary traditions) it was still of economic importance because of either the time and energy expended to personally produce the bead or the time and energy expended to gather resources or manufacture something of equal value to trade for the bead. Therefore, even though the use of the beads in the burial was primarily religious, it also had direct economic impact on the Indian family and group by removing those beads from caches or circulation. It is possible that this religious use of beads could have also had a socially equalizing effect in that no one could acquire too much wealth.

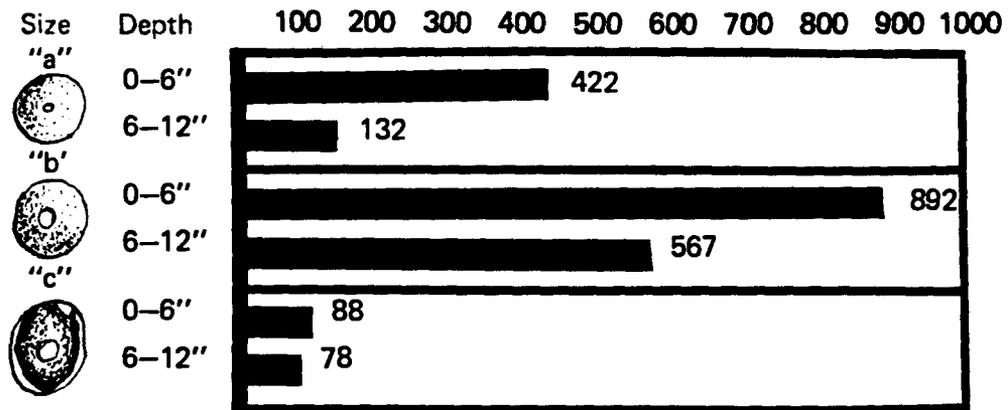
Regarding the local production of stone beads as in the case of the Foothill Yokuts, their manufacture could have served as a standard to guard against influxes of "foreign," easily-produced shell money. (Protection from inflation or outside competition?)

Time phases for Kern County sites may yet be more accurately established after projected Carbon-14 dating is completed and other artifacts are analyzed in more detail. As such time sequences are developed, they should contribute to an understanding of the social and economic organization which was present among local Indian groups.

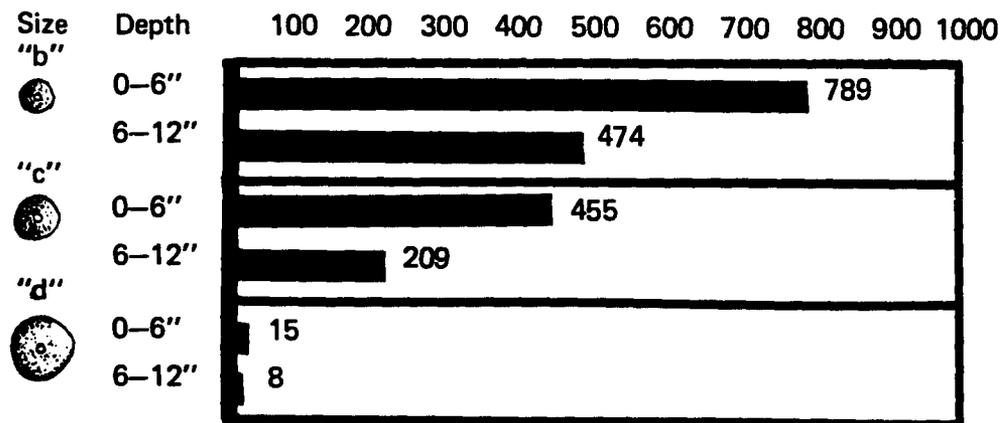
Our bead typology also needs further refinement so that differentiation can be made between beads which have the same "type name" but are from separate time periods and have observable variations not yet accounted for by our system

While our research is just beginning and much more information has yet to be uncovered we think it is obvious, even for the person whose first contact with beads is in the reading of this paper, that beads are not just occasional artifacts lightly sprinkled across the county and state. Beads, in their sheer number, design, and location are becoming valuable aids to California archaeologists and ethnographers in their reconstruction of the past.

BUENA VISTA SHELL BEADS PERFORATION DIAMETERS

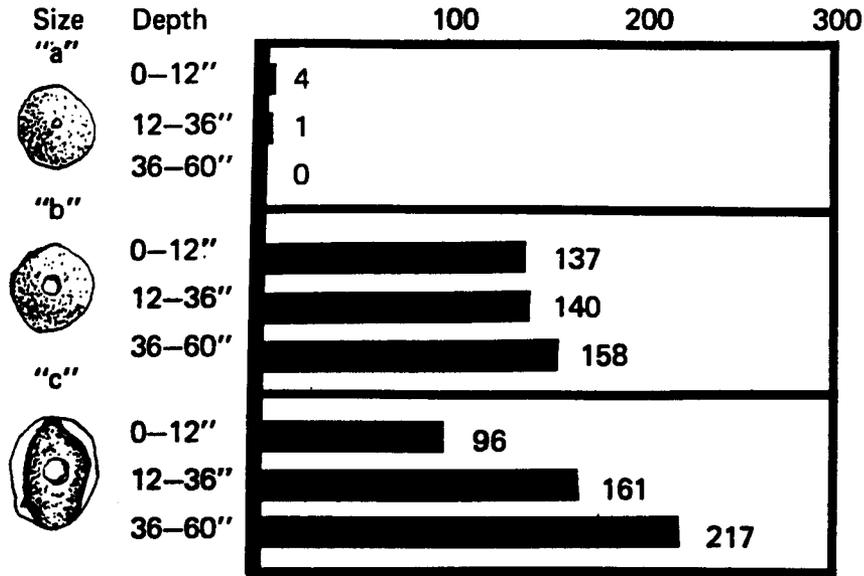


BEAD DIAMETERS

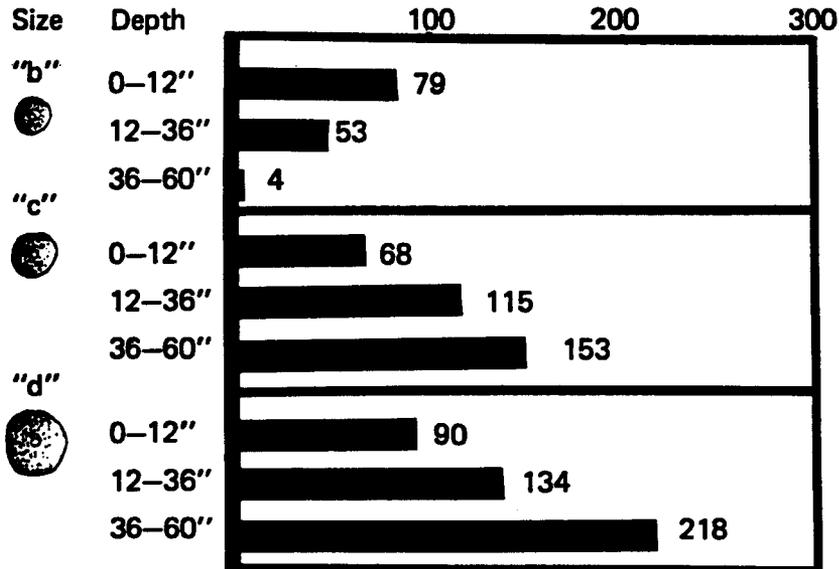


At BVV the diameter of the beads tended to decrease in upper levels. This may have been intentional to coincide with the small diameters of glass and stone beads or may have been the result of the use of more refined beads during that time period. Perforation size tended to be size "b" in both levels. While sizes of diameters and perforations may have been influenced by technology, they may also have been influenced by a need to prevent counterfeiting, thus maintaining the value intended at the point of origin.

**RALJON BEADS
PERFORATION DIAMETERS**



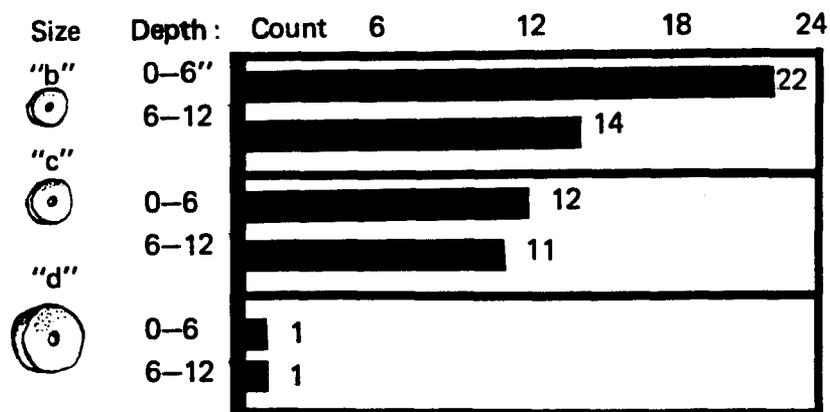
BEAD DIAMETERS



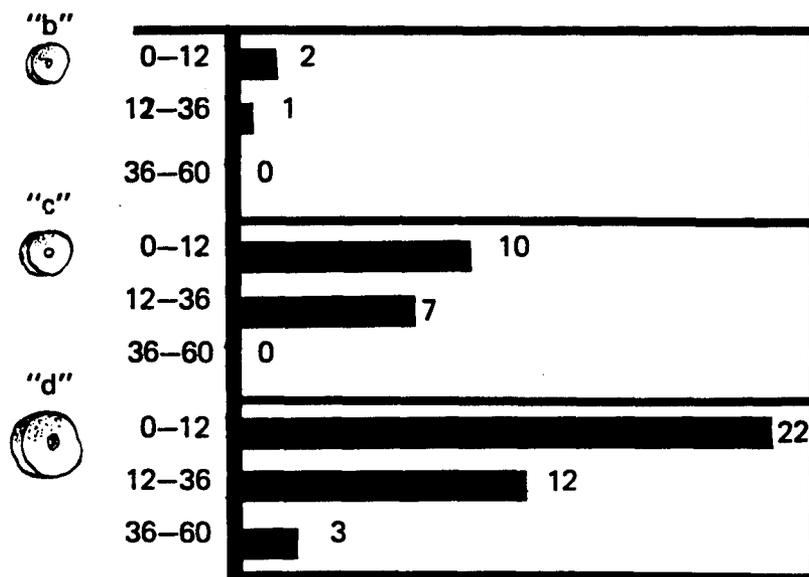
At Raljon the larger perforations seem to be associated with lower levels and burials, while in upper levels there is a drift toward smaller perforations. The diameters of the beads tended to get smaller in the highest level, but were larger in lower levels. This probably reflects the use of more refined beads at later times in accordance with more specialized use or value of beads.

STONE BEAD DIAMETERS

Buena Vista Village



Raljon



No "a" diameters (2mm & less) were found at any site. No stone beads were excavated at either of the Tulamniu sites. At BVV the diameters tended to be smaller in the upper level (later years), being influenced by talc beads which were generally smaller. At Raljon the stone beads were concentrated in upper levels and tended to have a larger diameter. They were not associated with burials, suggesting that those in lower levels may have shifted to that strata in disturbances caused by later internment of bodies.

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A POSSIBLE TUBATULABAL CALENDAR

Robert A. Schiffman

This paper deals with the investigation and analysis of a possible Tubatulabal pictograph calendar. The Tubatulabal Indians are located in Kern and Tulare counties with the highest population densities in Kern County along the forks of the Kern River.

It has been accepted for many years that aboriginal Americans had the capability of producing cultural elements that were both sophisticated and technologically advanced. Among those concepts dealt with by the early New World cultures, as well as man throughout the ages, were those relating to the heavens. Man has always been mystified and captivated by galactic phenomena. The results of this curiosity were the myths, tales, and legends attempting to explain their observations. One system of explanations, however, went beyond the religious and supernatural - Astronomy.

Among the epics of prehistory are man's ability to understand and predict events of the stars: the Mayan Calendar, the observatory at Chichenitza, the Hopi Soyal Ceremony and the observatory at Casa Grande are only a few examples of the achievements of New World cultures in astronomy. And, as we continue to research the technologies and world perspectives of past cultures in terms of their ability to cope with the complex problems and events of nature, it appears likely that new insights will be developed in archaeo-astronomy.

TUBATULABAL PICTOGRAPHS

The Tubatulabal, like many California cultures, painted pictographs. Found throughout their territory, design motifs consist of 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 sites comprise a single symbol, while others have numerous representations.

The pictograph in question is located within an early Tubatulabal hamlet site along the northern shore of the South Fork of the Kern River in the South Fork Valley. This region comprised the major occupation zone for these Indians for over 1000 years prior to European contact. Centrally located, this pictograph is found in the center of their territory, making it accessible to frequent public view.

On a single large granite boulder, the design elements appear like no other known Tubatulabal

pictograph. At other locations having numerous design elements are found a blend of zoomorphic, anthropomorphic, naturalistic and abstract forms. At these other sites, a multitude of interpretations involving hunting magic, religious beliefs and the documentation of cultural events are all found in close association of a single rock surfaces. Also at other large sites, no order is apparent, as with the pictograph under examination.

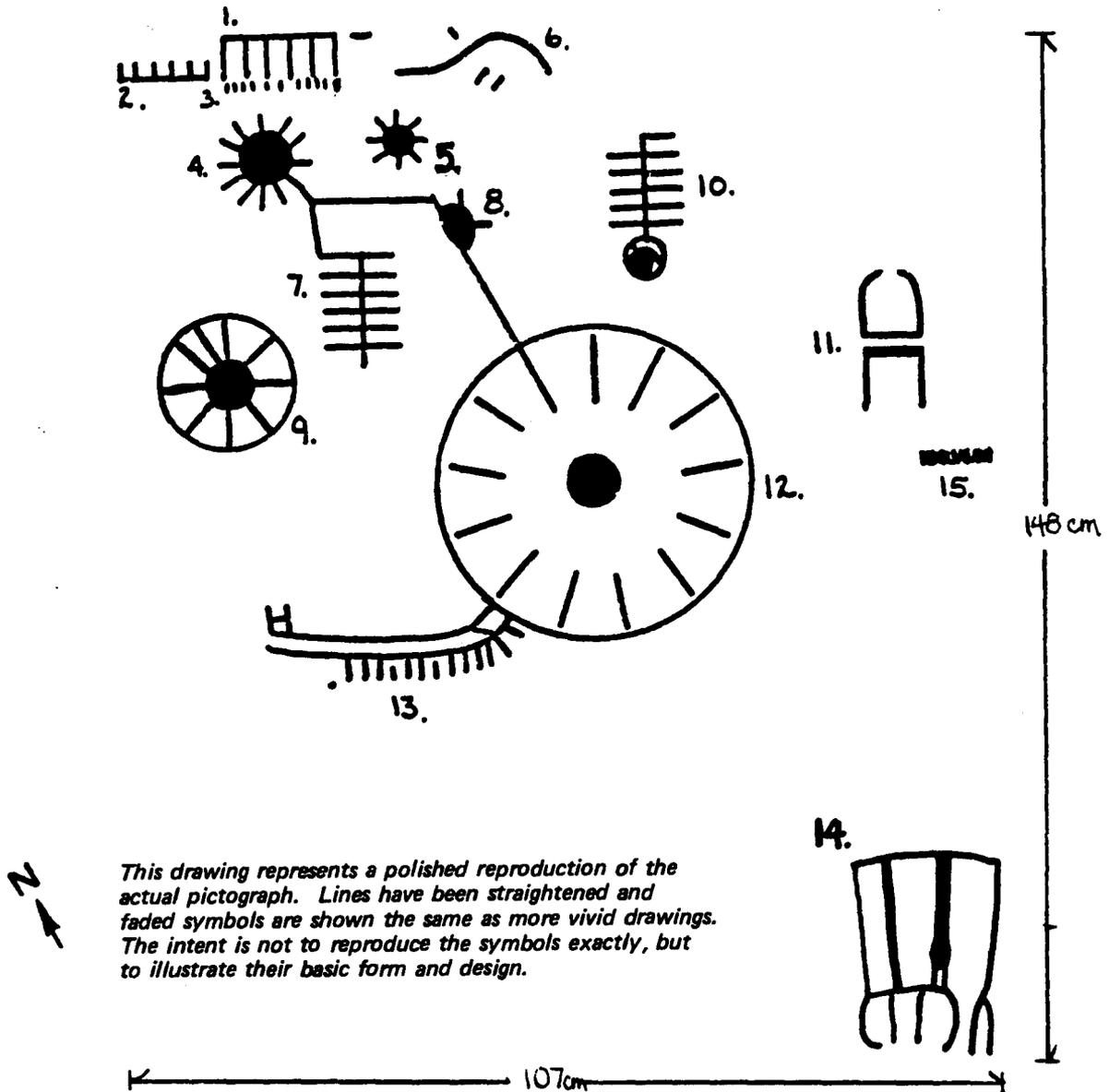
For this pictograph the designs are exclusively naturalistic and abstract. And while some figures are discernible, that is naturalistic (sun and rain), the total assemblage has significance beyond any single drawing; and it is significant that at no other site is found such an emphasis with counting.

After analyzing the elements individually and as a whole, the pictograph is interpreted as a Tubatulabal Calendar. The justification for this conclusion is based on the correlation between design elements and known aspects of Tubatulabal culture. Here are found sun and rain symbols, counting devices and directional signs. The drawings are precise, balanced and can be tied into association with lunar, solar, and stellar phenomena. It appears that the Tubatulabal were recording numerical (seasonal) events and calendrical observations. The colors of the drawings are shades of red-orange and vary from distinct to badly faded and exfoliated.

DESCRIPTION AND INTERPRETATION OF SYMBOLS

A brief description and interpretation of each individual design element is as follows: (see figure 1).

1. *Rain Symbol* - Signifies rain and/or winter. The six lines could represent a six-month rain season which approximates the number of months rain normally falls during the year.
2. *Dry Period* - Opposite or inverted rain symbol. Could indicate a dry period and summer season. Also has six lines for the six dry months.
3. *Counting System* - Eleven lines between rain and sun symbol (4). Could be counting 11 days or some other cycle involving 11 parts. Eleven days is also the number of days needed to bring lunar year in line with a solar year.
4. *Sun Symbol* - Sun, summer, or dry season. Eleven lines radiating from sun could indicate the lunar cycles or some other recurring event. It is also possible the first cycle was counted twice, once at the beginning of the year, and again at the end, giving a total of 12 cycles.



This drawing represents a polished reproduction of the actual pictograph. Lines have been straightened and faded symbols are shown the same as more vivid drawings. The intent is not to reproduce the symbols exactly, but to illustrate their basic form and design.

5. *Star Symbol* - Basically the same as a sun symbol and not easily distinguishable. In this case the star is the North Star. Eight lines radiate out from the center which coincides with the 8 hunting/gathering seasons identified by the Tubatulabal.

6. *Unknown Design* - Badly faded and not totally visible, could possibly be a body rising over the mountains.

7. *Counting System* - Twelve lines painted on one at a time as they do not line up horizontally. Represents the twelve lunar cycles in a year. Connected by a line to symbol four indicating a close association and numerical significance. Twelve lunar months equal 354 days in a year, plus recurring No. 11 equals 365.

8. *Direction Symbol* - This design is important in that it ties together many of the symbols. It is attached to figure 4, 5, and 12 and it points to figures 6 and 10. It is possible that the partially filled-in circle represents the moon, as the Tubatulabal

counted crescent moons.

9. *Unknown Symbol* - Could be a sun or star symbol. Appearing as a wheel, it is conceivable that the lines radiating with the circle around them represent a completed cycle. It may also symbolize an enclosed sun (cool), suggesting winter as the starting point for their year (see Analysis).

10. *Counting System with Direction Sign or Celestial Figure* - Similar to figure 7. This design has only 11 lines, though it is possible that a 12th line would have been added when a cycle or event was completed. The figure at the bottom has two pointers; one directed at figure 11 and the other towards figure 5 or 6. Enclosed in a circle could reflect a finished cycle, or perhaps a celestial event like an eclipse.

11. *Unknown* - Faded. Symbol is unique to area.

12. *Astronomical Clock* - Thirteen lines evenly spaced. A probable counting device with lines almost

equally spaced apart. The thirteen lines refer to 12 lunar cycles and an additional shorter cycle (13th) (see Analysis).

13. *Counting System* - Possibly a pointing symbol as well. Two lines point toward symbol 14 with one line toward each part of figure 14. Eleven remaining lines could correspond to the 11 days necessary to bring the lunar cycle into a solar one. The total meaning of this configuration is not known, but the placements are exact and the alignments tie several symbols together.

14. *Unknown* - Unique for area. Could have a yearly significance in that the four bottom lines may add up to one major element. Probably counts something. The alignment and placement of the figure is of interest, as it is found along the N/S alignment and does much to bring the pictograph into balance.

15. *Smear or Cross Out* - Lines have been obscured by smears of paint.

Viewed as a whole, the pictograph assemblage has an emphasis on counting and plotting observations and events (galactical). As part of their plan, there are recurring numbers: six (twice), which divides the year into two equal portions - wet and dry; eleven (three or four times), the number of days needed to bring a lunar year into synchronization with a solar year. It is also possible a non-completed cycle of 12 or 13 parts is represented by one or more of the 11 line drawings. Twelve (once), the number of complete lunar cycles in a year; and thirteen (once or twice), which represents thirteen phases or periods in a year. These thirteen periods could consist of twelve 29½ day lunar cycles and a shorter 11-day period. Part of the reasoning behind this is that symbols 12 and 13 are attached, representing that one is needed to complete or at least complement the other. In addition, there are four counting figures: 3, 7, 10, and 13; and six more with numerically significant patterns: 1, 2, 5, 9, 12, and 14.

The most imposing symbol is figure twelve. Of interest is the degree of accuracy is the spacing, obviously indicating the importance of dividing something (the year) into equal segments. A probable relationship to repetitive and equal periods is suggested, probably lunar cycles. The thirteen segments could coincide to a thirteen month year as other California cultures used both a twelve and thirteen month year.

The most important finding, however, is the North-South alignment of the design, which is how the pictograph would appear if placed on the ground. Along this line are found the corner of the rain symbol or winter, the North Star, determined by the North-South direction; a pointing design; the calendar time piece and undeciphered symbol fourteen. This arrangement also suggests that winter was used as the yearly reference point by the Tubatulabal, most likely the winter solstice.

It should also be pointed out that while the total picture appears lopsided when viewed face on (the clock figure being the center), this is not the case. When looked at along the North-South line, the pictography is well balanced.

ANALYSIS

The previous commentary represents the evidence and basic interpretation but does not review the questions and hypotheses posed during the investigation of the pictograph. It was necessary to evaluate the proposed calendar according to an organized testing system and attempt to answer the question, could this be a calendar? If it is:

1. Alignment of the pictograph should have correlations to a combination of stellar, solar, or lunar phenomena.

2. The majority of the symbols should be capable of interpretation in terms of calendrical events or objects.

3. The number of calendrical associations should be beyond that of chance.

4. The need for a calendar or year counting system should have cultural significance. Known elements of Tubatulabal culture should be reflected in the calendar.

5. Celestial phenomena should be found at other Tubatulabal sites.

6. The use of a calendar should be found in other areas of California.

In reference to the above hypotheses, it has been determined that the pictograph does align itself in a North-South direction, in line with the symbol believed to be the North Star. Second (2), 11 of the 15 symbols can be interpreted as having either numerical significance to astronomical events or are directional devices that link celestial figures. Third (3), 73 per cent of the designs capable of placement in a calendrical system appears well beyond chance. Fourth (4), a cultural need can be established by looking at their yearly cycles as reported in Voegelin (1938). The need to manage stored resources and the desire to plan out events seasonally is common to most peoples. Religious, social, political, and economic events that occur at regular intervals could establish a need for a system of programming. Fifth (5), sun, rain, star, and counting designs are common design motifs for the Tubatulabal.

One through three are simple and straightforward. However, four, five and six deserve additional attention.

Statement four, the idea that a cultural need for counting the passage of time existed and that cultural practices and beliefs should reflect the calendric interpretation of the pictograph are easily supported. Any culture that lives by hunting and gathering must follow the rhythms of nature in order to survive. The knowledge necessary to manage one's resources from one season to the next is important for any culture of this type. Knowing when to start seasonal migrations, when the pinons, acorns, or buckeyes are to be harvested and when religious or other events should be held suggests the need of some form of time reckoning system.

An examination of Tubatulabal culture also further supports the present interpretation. Figure five, interpreted as the North Star, has several implications. One, the North Star was important in determining the beginning of their year at the time of the winter solstice. Unfortunately in her ethnography, Voegelin states that the Tubatulabal did

not use solstice. I disagree with this and suggest that in the 1930's her informants were no longer aware of many aspects of their earlier culture and could not themselves interpret much of the rock art of their ancestors. Proof of the use of solstices (and possibly equinoxes) comes from a pictograph some 35 miles away, which is currently undergoing investigation.

Second, the North Star has 8 pokes radiating from the center. According to the Tubatulabal, the year was divided into eight hunting, gathering, and migration seasons. The year was said to begin in their permanent villages where food was stored and preparations had been made to cope with the environment. The time of year was winter. The coming of the winter solstice indicated that winter was here and that last minute preparations should be made.

Statement five is also easily supported as numerous Tubatulabal pictograph sites display celestial figures and events. The sun or star symbol is the most common, but other designs are also found. Symbols depicting the world, similar to figure twelve, are found at several known sites as are rain symbols. More unique is a pictograph of a comet and an interesting assemblage that appears to calculate the rising of the winter and summer solstice and both equinoxes. This assemblage supports my contention of the Tubatulabal using solstices to mark their years, hence the importance of the North Star. It is also known from the ethnography on the Tubatulabal that they observed Venus, the Milky Way, and they counted lunations.

In reference to statement six that calendars should be common to other areas of California, ethnographic literature on early cultures provides numerous examples of such systems. Kroeber (1925) discusses briefly a dozen or so cultures that counted lunations, observed solstices and used stars for guidance. The Yurok and Karok both began their year with the winter solstice (Kroeber, 105) while the Yurok and Pomo organized their year around hunting and gathering cycles (Kroeber, 209). The use of twelve and/or thirteen month calendars, the observation of the Pleiades, as well as counting lunations also reflect parallels with concepts and observation of the Tubatulabal.

It is not surprising to find the Tubatulabal using a calendar. According to Kroeber (1925) most California Indians had ways of reckoning calendrical events. Among the concepts he mentions are the twelve and thirteen month calendars and solstices. Some cultures, like the Yurok, used both a twelve and thirteen month calendar year from time to time. Parallels are interpreted between the pictograph calendar of the Tubatulabal and the calendrical notions of other California Indians. Also of interest is Kroeber's comment that Indian calendars lack a correctional device bringing lunar and solar years into alignment. The Tubatulabal, however, may have had a correctional system as they apparently observed lunations and solstices and perhaps used the latter to reestablish order to the lunar year. This idea is now under investigation at this and other pictograph sites.

SUMMARY

From the above descriptions and interpretations, it is suggested that the pictograph shown in figure one corresponds to a yearly system - a calendar. Drawn on a single rock surface are symbols representing climatic conditions and changes; a North-South alignment with the North Star; sun and rain symbols; and, several counting systems and directional pointers. The assemblage of designs is well balanced and their precision is more than a matter of chance. There are still many questions to be answered with the possibility that other interpretations can be made. While the existence of a calendar is not unique to California Indians, it is not a concept frequently dealt with. It should be added that if the Tubatulabal were to have such a device, it would probably be in this form. In this case, there were no references to Tubatulabal astronomy and most ideas occurred to me prior to any research into other California cultures. While many frown on attempts such as this to explain aboriginal phenomena, many cultural insights have been gained through speculation. The existence of a pictograph calendar is significant, as it could provide additional insights into California prehistory and the field of archaeo-astronomy.

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ANALYZING PICTOGRAPHS-- COMMUNICATION AND TERMINOLOGY

Stephen Blair Andrews

The purpose of this examination of pictographs is to discuss their role as a form of communication and to review the terminology presently being used to describe them. Such an examination will help facilitate an understanding of possible ways in which to analyze the purpose or function of pictographs as well as their individual elements.

A FORM OF COMMUNICATION

The evolution of pictographs as a form of communication was influenced by the use and development of two other forms of communication. These other two forms were speech and gesture. All were influenced by similar conditions and were used extensively by Indians of North America.

The use of speech was localized, with each cultural group developing its own dialect. Local dialects were influenced by environmental peculiarities and geographic isolation which produced linguistic differences between groups with common linguistic heritages. On the other hand, common environmental situations, geographic proximity and, of course, contact between groups with uncommon linguistic backgrounds produced a regional standardization of some words and phrases. Similarly, elements within pictographs may have developed locally, regionally or through cultural heritage.

The use of gestures, however, appears to have been developed as a way of standardizing communication between groups whose spoken languages were mutually unintelligible. The standardization and diffusion of gesture language was facilitated by the vast amount of trade activity which took place between various cultural groups. Some pictograph elements may have been developed, as were gestures, for communication between different linguistic groups.

The development of speech, gesturing and pictography is comparable to some degree. Just as many words or gestures can be reduced to one word or a simple gesture to express an idea, so too, can many pictures be reduced to one or a few pictures to express an idea. One picture may eventually express a complexity of thought. In contrast, speech is an oral form of communication, while both gesturing and picturing are visual forms. Because of this similarity in form, further consideration should

be given to the possible interrelations in the uses of gestures and pictures.

Whereas most activities of people involve the use of their bodies, so then can their bodies be used to express these activities through gesturing (hand signals and facial expressions). However, as more abstract ideas are expressed, less use of simple hand and facial gestures can be relied upon. By using pictures, objects from the environment can be included to extend communication. Since tracing in the air looks backwards to one sitting opposite you, it is more convenient to use the palm of a hand or a stick in soft earth to communicate symbols which relate to the environment and cannot easily be expressed via gesturing. This would be especially helpful in explaining geographic features to be traversed or observed in following trade routes.

It is not meant to imply that the use of pictures exclusively evolves from a use of gestures. It is likely, though, that in some instances the pictograph elements may be representations of once-used gestures. It is also possible that some pictograph elements may represent sounds, especially natural sounds such as wind or thunder, which may also have been represented in the language by words. It is not meant to suggest that there was any connection between words and pictures. In addition to the possible influences of other forms of communication on pictographs another factor which should be considered is the presence or site of the pictograph itself.

Both speech and gesturing are transient forms of expression, good at the time they are used. By affixing pictures to permanent objects such as rocks, skins or paper, a permanence of expression or communication is achieved. This indicates a need for permanence, not a need to satisfy a transient situation. In the case of affixing pictures to skins or paper, the permanence can be transported over great distances. Pictographs, which in this case refers to paint which has been affixed to rocks, should not be confused with petroglyphs, which refers to carvings or engravings on rocks. In both cases, however, permanence is gained for the immediate site or natural surroundings by the affixation of a picture to a rock or boulder which is usually immovable. The occupation of space by permanent pictures (on rocks)

suggests that in some cases the purpose or function of the pictograph may relate to the natural surroundings. The affixation of paint to rock may also indicate, through permanence, that the purpose or function of the pictograph was intended to exist through future generations or for as long as people were using the area. However, before considering purposes and functions of pictograph sites, attention must be given to the possible development of pictograph elements and their use as a form of communication.

Initially, pictograph elements were probably representations of natural or material objects: the "stick figure" is a man. The style or form of the element may be modified, thus changing the meaning to designate a particular object or person: the "stick figure" is not any man, rather a chief, or a particular person. Gradually an element or picture might be used for a metaphorical purpose or in an abstract sense: the "feathers" are not just feathers, or even quail feathers, but they symbolize fair play; or this is not a "snake" or even a rattlesnake, but death. Ideas may also be represented by elements which are not at all naturalistic in origin. Such abstract elements may have been well known for their representation to Indians but are now unknown in meaning to us. While more will be mentioned about abstract elements in the section on terminology, some consideration should be given to the place of pictographs in the development of a written language.

It takes some time before pictures are standardized and conventionalized to the point where they can be used together to express connected ideas. As they are conventionalized and used frequently they may be reduced in form. Such abbreviation may show no likeness at all to the original picture. In addition to reducing space and effort, the simplification of symbols helps to connect and more clearly define ideas. Eventually the pictures or elements are conventionalized to a hieroglyphic use. The next step appears to be a syllabic modification of the ideograms, or the connecting of symbols to sounds. Abstract pictograph elements may exist in varying degrees of conventionalization, but they have not reached a hieroglyphic form or use.

One is still more likely to find pictograph elements in a naturalistic or abstract, but representational, form. In most cases no need for reduction of space or effort will be apparent, as the information to be communicated is not likely to be so great as to require abbreviated forms. In fact, the size of some elements in comparison to others may have been purposely intended to communicate importance or significance. When looking at a pictograph it is probably better to view it as a whole picture rather than trying to "read" it from left to right or top to bottom. The purpose or function of the site may have much to do with the prominence accorded various elements. An understanding of possible purposes and functions of sites should give further insights into the development of the use of pictographs.

Whenever considering possibilities for the purpose or function of a particular pictograph site, such consideration should be made as much as

possible in the context of world view concepts of the culture group to which the pictographs might be attributed. As possibilities are suggested they should be related whenever possible to archaeological data of nearby areas. It may be suggested that sites exist for a variety of purposes. Some pictographs may include elements which are historically recognizable from a post-European contact era, such as horses, cows or sheep. Sites might serve as historical records or commemorations of mythological tales, astronomical events or other significant activities.

Still others are believed to have been produced for ritualistic or religious purposes during rites of passage, mourning ceremonies or world renewal ceremonies, or to impart hunting magic before a hunt. Pictographs may function as markers for the purpose of indicating burial grounds, shrines, homes of mythological beings or supernatural spirits or animal helpers. They may mark a shaman's cache or act as totem markers indicating the territory of a particular clan. Undoubtedly some may serve as markers along trails, indicating trading or animal migration routes, marking boundaries or functioning as warnings against environmental hazards such as snakes, quicksand or slippery terrain.

Along more mathematical lines it is believed that some pictographs may have served as a lunar or solar calendar, noted food cycles or seasons, or been used for tallying or otherwise counting items. Permanent pictographs could have been modified from time to time with nonpermanent erasable material. Many other possibilities exist and should be considered in the context of world view concepts of the people who might have made them.

In analyzing the possible purposes or functions of pictographs, as much ethnographic data as is available should be reviewed. Any interpretation of pictographs is at best a very speculative venture. However, some information may be obtained through comparison of sites which have been analyzed. Sites should also be analyzed according to the terminology currently being used to describe pictograph elements.

TERMINOLOGY

The reason for discussing various terms currently being used to describe pictographs is to encourage a familiarization with terms I shall be using to describe pictographs represented in this journal and hopefully, others to come. Currently, pictographs are being described by references to style, form color and other elemental names assigned to designate reappearing configurations. These descriptions as data should be related to features including nearby habitation or otherwise used areas and to conditions under which the pictographs exist such as proximity to water, exposure to weathering and the type of surface to which they have been affixed. The purpose here, however, is to discuss those terms relating to the elements within the pictographs themselves.

STYLES

Styles may exist singularly or in combinations with each other. They include naturalistic (or realistic), stylistic, and abstract styles.

Naturalistic. The representations are those of identifiable objects. The exclusive use of this style may limit the amount of information to be communicated or otherwise cause objects pictured to serve as reminders of a story or ideas that also rely on an oral tradition. The more identifiable an element is, the more naturalistic it is.



Anthropomorph



Zoomorph - a cat is indicated by rings on tail and protruding shoulders.

Stylistic. The realistic objects or subjects are modified or given special design to attach further meaning to the element. Others may be conventionalized or simplified to conserve paint or space. Some may show movement, activity or designate importance. Most of these stylistic changes still leave the element quite recognizable. Some may be the result of individualization at a particular site.



Anthropomorph with circular head with line.



"Suns" or abstract figures with slight stylistic difference.

Abstract. Abstract elements are those which usually involve the use of designs or subject-matter which are incomprehensible to us but were recognizable to the authors and may even have represented real objects as well as ideas. This category should be further classified into abstract elements which recur at various sites, perhaps with variations, and elements which are not likely to recur, or have not been found except at one site.

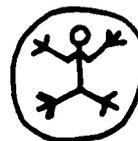


Non-recurring element



Recurring "spoked" element

Combinations. These may be found in one element or at one site where different styles are used together as separate elements in the same pictograph.



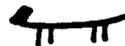
Anthropomorph is Naturalistic. Circular head, and fingers and toes make it stylistic. Circle adds abstract meaning.

FORMS

Form refers to the manner in which an element is shaped. When certain forms are used consistently, that consistency is then sometimes referred to as a style of a particular site or of many sites. It is likely to find more than one form used at a site.



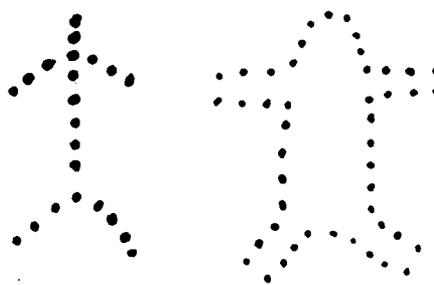
Outline. The outside form of an object is revealed. Sometimes an object already made is outlined.



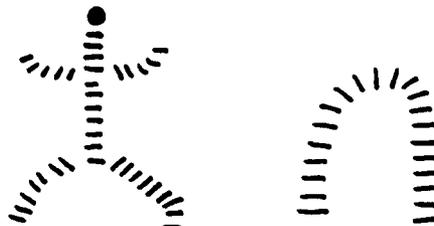
Linear. Lines are used to indicate an object.



Solid. These elements are filled, or are thicker or larger than an otherwise linear form.



Dotted. These forms are those in which dots are used to show lines, outlines, or to fill an object. They should not be confused with the use of dots to represent an object such as an ant or rain.



Hatched. In these forms lines are used in a parallel or crossed form. They may indicate linear or outline forms or be used to fill objects. Other forms may also be imitated.



Patterned. Designs are used to make an object stylistic.



Curvilinear. Curved lines are used.



Rectilinear. Straight lines are used to give an object a rectangular shape, rather than a more natural, curved or rounded shape.



Angular. Lines are used to form zigzags or angle to form representations.



Geometric. Diamonds, triangles or other geometric forms are used to form objects or patterns.

COLORS

Of the colors which are found, shades of red are most common. According to Latta (1949) colors were obtained from natural coloring in earth. After the raw material was obtained, a binder was added to make the paint. Latta notes that oil was extracted from the seeds of chilicothe (wild cucumber) or that sap was extracted from the milkweed plant. These binders, used together or separately, were added to the earth and then formed into balls. Latta also mentions that to make black, crude graphite was extracted from decomposing granite, and then placed in a hole in oak and covered with hot coals. After the graphite was changed into a fine, sooty, black powder it could be added to a binder. The brushes which Latta mentions were made of frayed yucca or the outer husks of soap plant. A list of colors and sources follows.

Red, red-orange, orange – iron oxide, hematite (Mallery 1893), red earth or cinnabar (Latta 1949)

White – Diatomaceous earth which is chalky in color (Mallery 1893)

Black – crude graphite from decomposed granite (Latta 1949)

Yellow – iron oxide, limonite (Mallery 1893) or yellow ochre (Latta 1949)

Green – copper ore in rocks (Mallery 1893) or serpentine (Grant 1965)

Blue – serpentine (Mallery 1893) or fuchite (Boyar 1975)

Other shades, especially of red may also be found. There are also other terms which are important in describing the use of colors.

Polychrome. This is the use of more than one color at a site. It should be noted whether the colors are used together or separately.

Superimposition. This refers to the placement of one color over another. While forms may be superimposed for communicative reasons, the use of different colors may provide information on which colors were used first, or whether the pictograph was completed at one time, or over a period of time.

ELEMENT CLASSIFICATIONS

Many of the recurring abstract representations as well as those which are naturalistic are given classificatory names which are useful in analyzing the distribution of the elements. While a few examples will be given now, others will be noted as they are represented in pictographs in this and future journals.

Anthropomorph – human figures.

Zoomorph – animals other than humans.

Spoked – figures with lines protruding or radiating.

Circular – use of circles.

Connecting lines – use of lines to connect elements.

CONCLUSION

Pictographs should be analyzed by interrelating suggestions about their purposes and functions with the descriptions of the individual elements and with information about the physical site of the pictograph. Comparisons should be made between pictographs of neighboring groups in order to gauge the distribution and diffusion of elements, styles, forms and color and purpose or function. From such information we may gain further insights into the distribution patterns of native American populations, as well as insights into the world view concepts of those cultures. Such knowledge of other cultures may be useful in understanding our own culture.

PICTOGRAPHS OF THE TUBATULABAL

Stephen Blair Andrews

INTRODUCTION

The pictographs represented can be found near Lake Isabella on the Kern River in what was once the western territory of the Tubatulabal. Other pictographs from the eastern section have not been included in this report. The Tubatulabal may be divided into two groups for the area being considered. The Tubatulabal proper lived along the lower reaches of the South Fork of the Kern River, while the Palegeawan (a subdivision of the Tubatulabal) lived along portions of the augmented and unaugmented Kern River. It may be difficult to know for certain whether some pictographs are in the territory designated in each case. Both groups were linguistically mutually intelligible, with slight dialect differences, and stemmed from a Shoshonean linguistic branch. The cultural information to which references are made was taken from Vogelin's "Tubatulabal Ethnography" and refers to the Tubatulabal in general.

TUBATULABAL PICTOGRAPHS

In order to gain insights into understanding pictographs an attempt must be made to understand the culture, as many pictographs may represent places, events or concepts important to the group. In addition, the cultural and environmental influences of neighboring groups must be taken into consideration. In the case of the Tubatulabal, they traded with the Koso and the Kawaiisu in the east and south (both Shoshonean speaking), the Chumash who lived southwest on the coast (Hokan speaking) and the Yokuts who lived southwest, west, and northwest (Penutian speaking). They also had contact with the Mono and Owens Valley Paiute, Vanyume, Kitanemuk, Alliklik and at least once with the Hopi. Elements found in Tubatulabal pictographs are also found in some pictographs in neighboring territories. Therefore, the elements represented should not be labeled as exclusively Tubatulabal, but should be considered as pictographs found in their territory, probably made by them. The trading of paint among the above mentioned groups may also have encouraged similar uses of the paint.

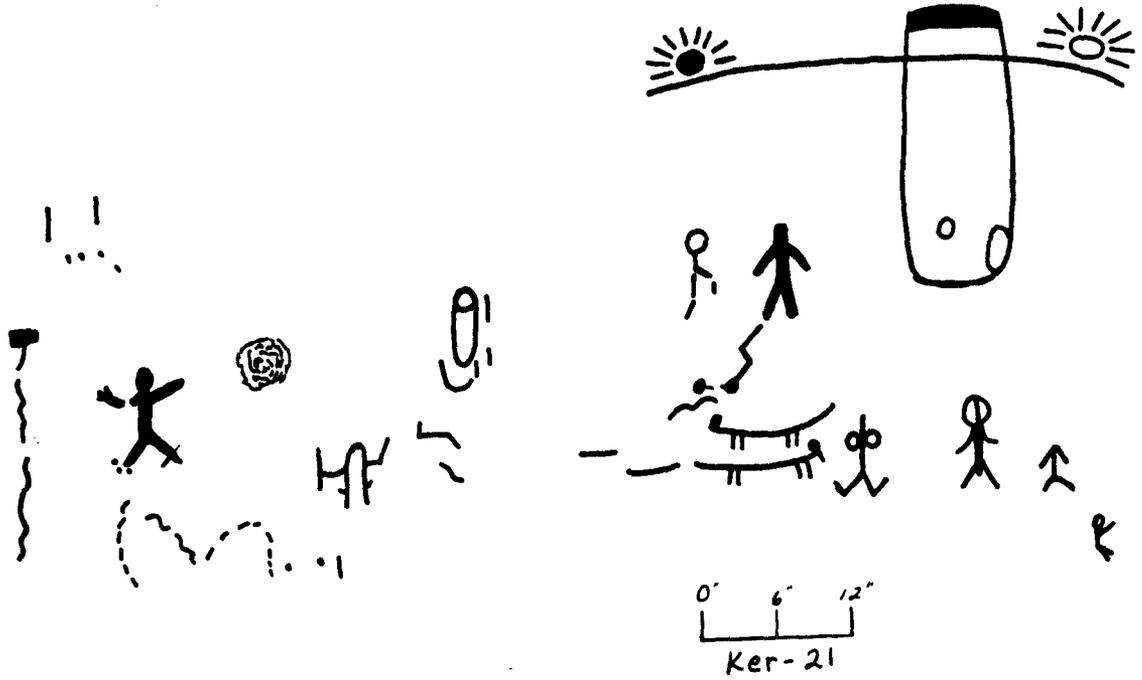
The Tubatulabal attributed the production of pictographs to the brownies or dwarfs known as Ya'hi iwal. Some sites may reflect superstitions or beliefs about these spirits and others such as water spirits or

animal helpers. Animal spirits or guardians were gained through a vision after using jimsonweed. While there is no direct evidence connecting jimsonweed and pictographs, there may be instances of indirect connections. Jimsonweed may not have been taken as part of the production of pictographs, but images created by the hallucinogenic effects may have been incorporated into pictographs.

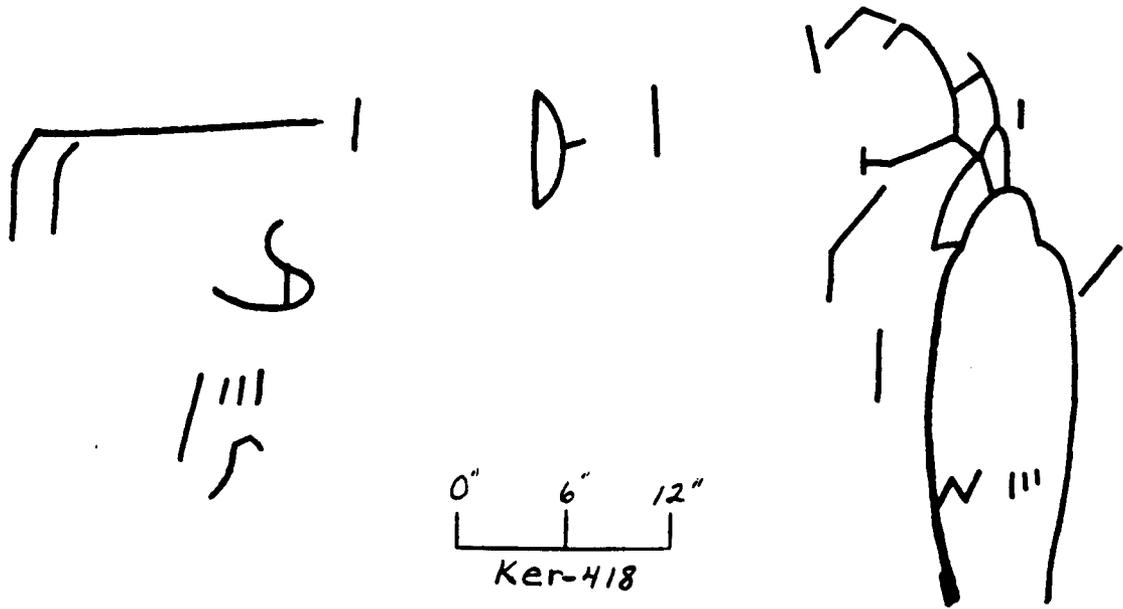
PURPOSE

The main purpose of this presentation is to provide a record through representation of the pictographs as they now exist and to encourage a familiarization with terms currently being used to describe pictographs. Considerations of the purposes and functions of sites will be given in terms of the world view concepts of the Tubatulabal. Such cultural references would include mythology, rain making, curing, mourning, hunting magic, trail markers, maps, mathematics, astronomical observations and time, among others. In the culture of the Tubatulabal, communication by means of speaking or gesturing was transient. Communication by means of affixing paint to boulders added permanence. The purpose of the pictographs, therefore, should be considered as intended for a duration of time, and not unlikely for future generations in some cases. Permanence also means that the pictographs should be considered in terms of the immediate environment in which they are located.

Ker-21 The coloring of the pictographs was a faded red-orange. They were located on a large boulder, subject to sunlight and weathering. Some of the pictographs have deteriorated making some elements incomplete. A small intermittent stream borders the site. Bedrock mortars and a few hand tools were noted at this Palegeawan site. The forms are basically linear with some solid and outline figures. The style is generally naturalistic as most elements are recognizable as being anthropomorphic, zoomorphic or natural in the case of the "suns," if that is what they are. There is a stylistic difference in the two suns indicating perhaps that one is a rising and the other a setting sun on a horizon. The rectilinear object in the upper right corner may appear to be a house with door, window and roof, though such thinking is a



	Linear	Curvilinear	Angular	Solid	Outline	Circular	Spoked Figure	Zoomorphic	Anthropomorphic	Small Site	Large Site	Open View	Hidden View
Tubatulabal Proper													
Ker 418	X	X	X		X			X		X			X
Ker 14	X		X	X				X		X			X
Ker 16	X	X	X			X	?			X			X
Ker 15a	X		X			X	X				X	X	
Ker 15b	X	X	X	X	X	X		X		X			X
Ker 2	X		X	X				?	?	X			X
Ker 421	X	X	X				X			X		X	
Ker 1	X			X		X				X		X	
Palegewan													
Ker 21	X			X	X	X	X	X	X		X	X	
C	X		X							X		X	
D	X									X			X
E	X			X					X	X			X
F				X				X		X			X
Ker 19				X				X	X	X			X
Ker 17	X	X	X	X	X	X	X	X	X		X	X	



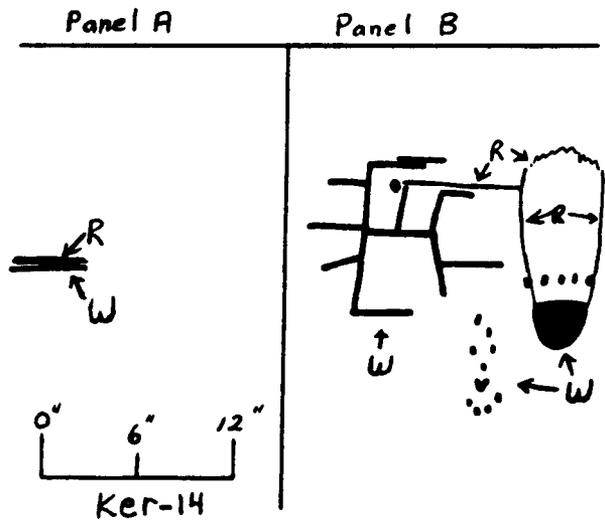
reflection on our culture and it may well be that the element represents something quite different in another culture. The two obvious zoomorphs had different heads and could represent a coyote or mountain lion. Coyote and mountain lion both were involved in a Tubatulabal myth about an arrow shooting contest which decided the division of labor between men and women. The anthropomorphs have stylistic difference which may indicate a male, female, a headless person, and perhaps one running. Each one has a different character, which may indicate special roles. The site may function as a record of a real or mythical event.

Ker-418 These pictographs are in a faded red-orange color on a random granite boulder with evidence of exfoliation having taken place. It offers some protection from sun and weathering, yet the pictograph is difficult to view. It is about a mile from Ker-14. Any nearby habitation site could have been destroyed in construction of the dam and lake. It is in the Tubatulabal proper territory but is near the Palegewan areas. Most of the formation is curvilinear or angular. It is abstract with the possible exception of the one element on the right which on paper may look like the outline of a bird. In Tubatulabal mythology accounts are given of chicken hawks, sparrow hawks, and eagles. The site may have served as the home of an animal guardian or other spirit, for it is not easily seen until one is quite close.

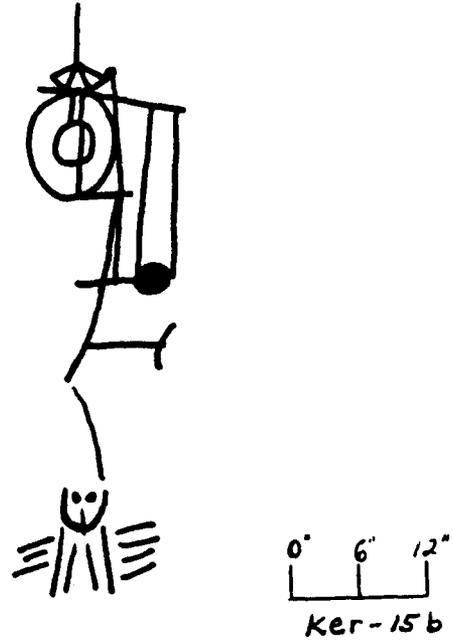
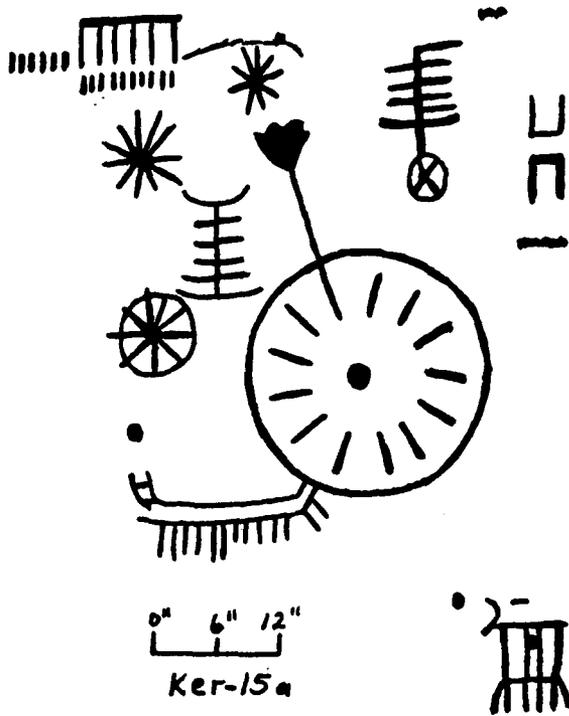
Ker-14 Most of the lines in panel B were white. The red lines were thin and barely visible. Both panel A and B are on large boulders which form a rock shelter and protection from the sun and weathering. The Ker-14 habitation area, which is in the Tubatulabal proper territory, is on the other side of a small intermittent stream which cuts through the area. Some of the habitation area has been inundated by the lake. Most of the lines are angular and abstract. The one naturalistic element may be a bear

paw. Bear shaman were known in the area for their curing powers. If the white dots were meant to be ants this would tie in with curing, as ants were shallowed in eagle down and then vomited to help determine the disposition of the illness. In other cases, after taking jimsonweed and learning a bear song through a vision one could gain the bear as an animal helper or guardian.

Further away toward the lake, and usually inundated, two red circles were observed on one boulder and another on a different boulder nearby. Their possible use was undetermined yet both could be easily seen by anyone passing through. Other elements may still be inundated in the area.

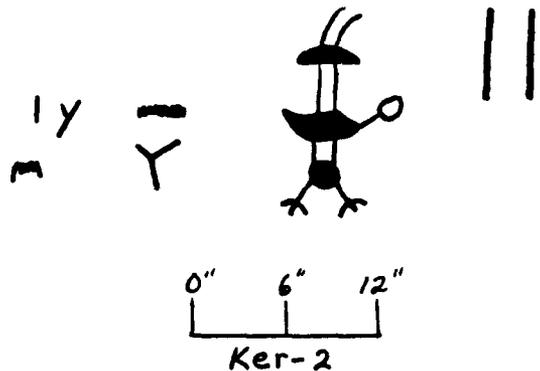


Ker-15a These pictographs are all red and in relatively good condition. A few were faded and may cause confusion with the coloring of the surface of the large boulder on which they were painted. They are exposed to sun and some weathering and are within view of the habitation site nearby. They are in the Tubatulabal proper territory. The forms are linear and angular with the use of circular and spoked elements. While the site is basically abstract, the abstract elements are individualistic and were probably representational of ideas or concepts which are likely to recur. The many lines gives it a mathematical tone suggesting the counting of something. Some of the figures are connected by lines. A calendrical or astronomical function has been suggested for the site. Conspicuously absent are zoomorphic or anthropomorphic figures, suggesting a practical use rather than historical or mythical.

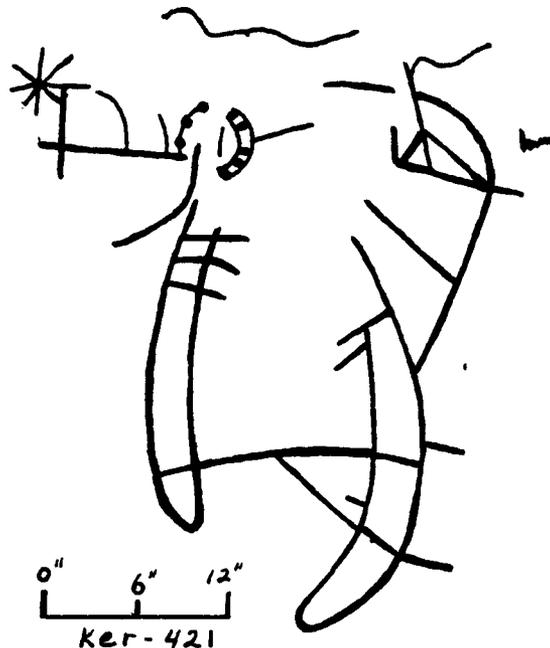


Ker-2 Exfoliation and decomposition of the granite have caused these red pictographs to appear in poor condition, even though they are protected inside a rock shelter. The site is about 200 yds. from a large milling site, Ker-1, and about the same distance from another habitation site, I-23. The forms are linear, angular, and solid. I could not determine whether the main figure was zoomorphic (a bird?) or anthropomorphic or supposed to represent a spirit or mythological being that may have been thought to have lived there. I have also considered the possibility that this shelter in Tubatulabal proper territory may have served as a shaman's cache.

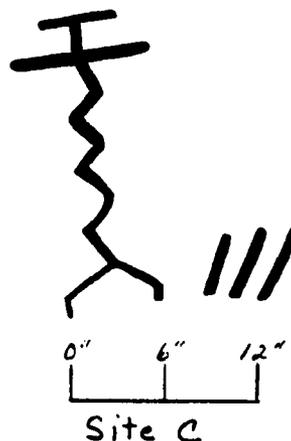
Ker-15b This pictograph is on a small smooth corner of a boulder in Tubatulabal proper territory but is not readily visible from a habitation area. It is exposed, however, and quite visible to anyone walking by. It is all red and at one time was probably completely connected. The forms are basically angular and curvilinear. There are circular elements and one is solid. The one possible naturalistic figure in the otherwise abstract configuration may be the outline form of an owl, though it did not stand out as such at the site. While it reminds me of ropes, wheels, pulleys, and levers, it probably meant something quite different to another culture. It would be interesting to know if the abstract lines indicate an activity for the naturalistic looking object.



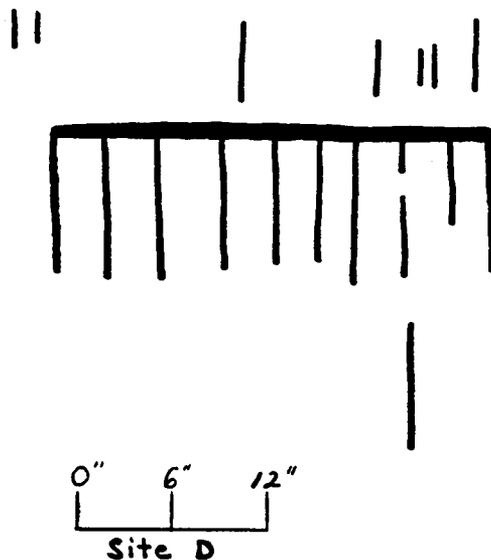
Ker-421 These red lines were well exposed on a medium-sized boulder quite near a habitation site in Tubatulabal proper territory. Nearby were two halves of one boulder which had been split. In each half was part of one bedrock mortar. This may have occurred during an earthquake or at the time the road was built through the habitation site. The forms are curvilinear and angular. The only element which is perhaps a representational abstract figure is the spoked figure in the upper left corner. Being well exposed it may have functioned to give directions along a trail passing through the site or may have been used as a map.



Ker-1 Instead of being red or orange these pictographs were more of a magenta shade of red. They are well exposed on a medium sized boulder within short distance of the milling area nearby, and are in Tubatulabal proper territory. Most of the elements had a solid form. While the circles are likely to recur at other sites, the main figure which may be a naturalistic representation of a comet has not been seen elsewhere. Generally the style is abstract. It has been suggested as being a record of an astronomical event. It could also have something to do with bedrock mortars and milling as there are over a hundred mortars nearby.

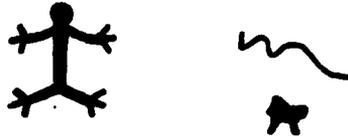


C This small site contains dark red paint in very good condition, even though it is not well protected. There was much more room on the large boulder, but these were the only figures present. No evidence of habitation was noted, though such may have been destroyed by the road and housing nearby. It is in Palegeawan territory and may be near the fishing site known as Holo 'odap. The forms are angular and linear and the style is abstract. Although the Tubatulabal ritual number was three, I would suggest, because it is easily viewed, that it serves as a trail marker, perhaps indicating a route.

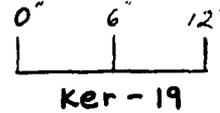
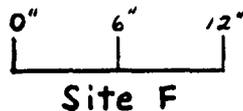


D These lines were also red, but now appear thin and faint. They are on a pillar inside a cave not far from an intermittent stream. The lines basically conform to the configuration of the pillar and may have been used for decoration more than anything. It is in Palegeawan territory in the foothills above the Kern River. It is not clearly observable whether the linear and abstract lines were intended to communicate anything.

E The red-orange elements were found in a small rock shelter in Palegeawan territory. While they are not associated with any immediate habitation site, they are about one quarter of a mile from a site along the Kern River. The shelter is on a hillside among other boulders. The pictograph is not easily seen, requiring one to be quite close for observation. The one figure appeared to be a solid anthropomorph giving the site a naturalistic tone. The other traces were incomplete, and may have been partially weathered. The pictograph may have functioned as a marker or claim on the site by a shaman or other individual.



F This singular element in red was found on a large boulder in the vicinity of a habitation site marked by house rings. The boulder is across an intermittent stream and away from the living areas, though quite visible to anyone walking by. The form is solid and is of a naturalistic style, probably indicating a snake. The Tubatulabal had rattlesnake shaman who were involved with curing, but the rattlesnake was also associated with witches. The pictograph may have marked the presence of rattlesnakes, thus acting as a warning. The site is in the Palegeawan territory.



Ker-19 The paint is purplish in color and can be found on two walls of a well protected rock shelter in Palegeawan territory. A bedrock mortar was observed inside the shelter. The surface of the boulder is exfoliating and only two of the original eleven men on horses are still clearly visible. The figures are solid and naturalistic. The fact that here are men on horses helps to date the pictograph to a time when soldiers may have been in the area. It could serve as a reminder of a day when soldiers came into the area, perhaps to kill Indians. The one figure on the wall opposite the horsemen was unrecognizable.

Ker-17 A variety of colors are to be found at this rather large site. They include dark red, red-orange, faded orange, white and possibly some black though those areas may have been darkened by smoke. The dark red paint is superimposed on the lighter red-orange paint, supporting the idea that the red-orange paint may be older. The white was probably put on last, being superimposed on the red in places. The surface of the rock walls are smooth and have not deteriorated. The surface area of the pictographs is partially protected by an overhang, but is still exposed to some sunlight and weathering. Most of the elements are quite distinct. The lighter red-orange is less distinct in some areas. The elements are across the river from an habitation site in Palegeawan territory. The area was known as Palakuc and was noted for good fishing.

The more abstract elements are curvilinear, angular and linear in form while the naturalistic elements are outline or solid in form. The area to the right of the place marked "crack" seems more abstract than the area to the left of the crack or separation of boulders. The parallel and cross hatching was used to indicate different solid coloring. Some of the elements may be classified as anthropomorphic, zoomorphic, including snakes and animals in pelt form, and possibly some leaves. There are circles, circles with spokes, concentric circles and

lines connecting objects. While there are no truly dotted forms, dots have been used in a couple of places. The seven large dots to the left of the "crack" may relate to the Pleides. The Tubatulabal told of a story in which seven women left their husbands to go into the sky. The element that looks like a leaf may relate to tobacco or jimsonweed which the women cared for and watered. The zoomorphic figure which has been "measured" to twenty units may be a cat, identified by rings on the tail and protruding shoulders. The area to the right of the crack seems more complex and may function for religious, ritualistic reasons or may mark rules of the culture concerning the life cycle. The area to the left of the crack seems more oriented toward animals and their preparation as pelts, for hunting magic or perhaps a record of mythological spirits or animal helpers.

CONCLUSIONS AND OBSERVATIONS

While some sites have similar or even the same elements, it does not appear that any site has needlessly duplicated information intended for communication at other sites. It does appear, however, that there are some differences in styles and content in the two areas.

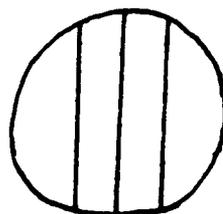
Most of the anthropomorphic and zoomorphic figures were found in Palegeawan territory. Only one site in Tubatulabal proper territory had an anthropomorphic figure and that was questionable. The zoomorphic elements in Tubatulabal territory were less identifiable than those in Palegeawan territory. A higher percentage of forms in the Tubatulabal proper territory were curvilinear, angular and circular in nature and were abstract. Elements in Palegeawan territory were more naturalistic. In both

areas the use of solid or outline forms tended to be associated with naturalistic objects.

Some observations were also made about the nature of various sites. The larger sites were usually exposed on a large boulder and were easily viewed from nearby habitation sites or working areas. The smaller sites which I would consider to serve a function for the general public at that time were also well exposed. Those sites which I would consider of a personal nature, perhaps not available for everyone were either in a shelter or were further away from the habitation site and less obvious. Sites which I perceived as being related to spirits, shaman, or curing were found further away from the habitation sites and usually consisted of a few elements, perhaps enough to claim the spot. All sites involving spoked figures were in open view, suggesting that the use of spoked figures is related to more public information.

The larger sites necessitated greater amounts of paint and were therefore more costly to produce, perhaps at the expense of the entire group. Smaller, more personal sites could be produced at a more personal expense. Such practice would depend of course on the expense and availability of paint of which I have no present knowledge.

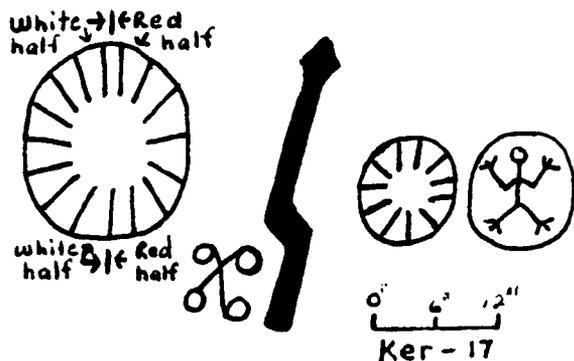
Pictographs in the eastern territory of the Tubatulabal were not considered. Some of these sites have been viewed and were noted to have quite a few anthropomorphic figures. The reason for omitting them at this time is that a more complete survey of the area needs to be made. Since the Koso were allowed to occupy some of these areas in later time and may have influenced or produced the pictographs themselves, it is believed that further investigation is warranted.



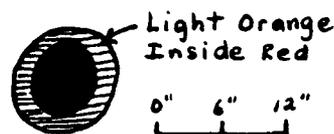
Ker-17



On separate boulder below and north of north section.



Below, left of South Section



Ker-17 Below, right of North Section



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THE PRE HISTORY OF ANTELOPE VALLEY, CALIFORNIA: AN OVERVIEW

Roger W. Robinson

It has long been recognized by anthropologists that California possesses an extremely rich and varied cultural history. This pattern of aboriginal cultural development is often viewed as a tightly woven mosaic of semiautonomous yet highly interrelated cultural units. Ethnologists have, perhaps, maintained over the long run a more accurate or realistic view of this pattern. Traditionally, archaeologists in California have primarily focused on the individual and discrete nature of archaeological resources (specific sites and areas), and only in recent years have regional studies focusing on the complexities of cultural interrelationships received the emphasis they are probably due.

Antelope Valley, in the westernmost part of the Mojave Desert, is an area that has long been ignored by archaeologists. The relative paucity of large and productive archaeological sites and the lack of extensive ethnographic references are in part accountable for this seeming lack of interest. In view of recent trends in archaeology toward larger regional studies, however, Antelope Valley has taken on some greater significance. That significance is based essentially on two characteristics. First, Antelope Valley makes up the westernmost tip of the Mojave Desert roughly tangent to both the San Joaquin Valley on the north and the inland coastal valleys to the west. This provides Antelope Valley with a relatively central location with respect to interactions between several major cultural areas in central and southern California. Secondly, Antelope Valley represents a buffer or interface between cultural and/or linguistic units commonly thought of as true or "Classic" Californian (Yokuts, Chumash, etc.) and that general pattern of desert adaptation common to the eastern California deserts and the Great Basin. Antelope Valley would seem, then, to provide an important source of data for interregional studies involving trade and other features of cultural contact and interaction.

The first coordinated program of archaeological research in Antelope Valley was begun in 1968 by Antelope Valley College in Lancaster, California. Since at this time Antelope Valley was relatively unknown archaeologically, most of the research effort was aimed at establishing a general picture of the position of Antelope Valley in California

archaeology and developing a general framework for the prehistory of the area into which subsequent research could be fitted in meaningful ways. The present paper is based essentially on this initial effort. While it is not intended to provide an exhaustive summary of data gathered thus far, it should provide a useful overview of Antelope Valley prehistory.

The earliest historical accounts of Antelope Valley are found in the journals and diaries of a variety of travelers and explorers who entered Antelope Valley in the late 18th and early 19th centuries. The first such contact was apparently that of Captain Pedro Fages in 1772. Captain Fages entered the valley through Cajon Pass and traveled west along the San Andreas fault in search of deserters from the Spanish army. In 1776, Fray Francisco Garces followed a very similar route through Antelope Valley while journeying from the Colorado River to the mission of San Gabriel. The first non-Spanish contact with Antelope Valley took place in 1826 with the arrival of a party of trappers led by Jedediah S. Smith at Willow Springs. Smith's party traveled through the southern and western portions of the valley. Smith repeated the trip the next year, and in 1829, Ewing Young and Kit Carson led another band of trappers into the valley. Several additional groups of trappers and explorers passed through Antelope Valley in the next two decades, the most notable being John C. Fremont's expedition in 1844.

All of the individuals and groups making contact with Antelope Valley prior to 1846 were purely transitory. They made no attempt to settle or develop the valley in any way. They simply passed through the valley and engaged in business centered elsewhere. Consequently, most contact was of very short duration, and journal accounts are brief and incomplete. In most cases the exact times and routes are questionable and when mention is made of encounters with aboriginals few meaningful details are provided. It is impossible at this point to properly assess the impact of this early contact upon the aboriginal culture of the area. The major impact of the Spanish missions upon the coastal cultures is well known but it is difficult to estimate the effect this had on the peoples of Antelope Valley. It is certain that some effect must have been felt in Antelope

Valley, but it is probably safe to say at this point that impacts prior to the second half of the 19th century were considerably less severe than they were in later times.

Actual settlement of Antelope Valley began in 1846 with the establishment of Jose Flore's Rancho La Liebre in the western part of the valley. This land grant changed hands several times in the next few years, however, and actually resulted in little real settlement. Fort Tejon was established in 1854 as a military installation, but its significance to settlement in Antelope Valley was minor. Its primary concerns were in the San Joaquin Valley and its significance to Antelope Valley was in providing a major trading and cultural center for several aboriginal groups in southern California, Antelope Valley peoples included.

Effective settlement in Antelope Valley began in the 1860's. The first settlers concentrated around the many springs located along the foothills bounding the valley to the north, west, and south. Later, with the completion of the Southern Pacific railroad in 1876, settlement spread into the valley floor and the communities of Mojave, Rosamond, Lancaster, and Palmdale were established.

The forty year period between 1860 and 1900 represents a major cultural transition for Antelope Valley. The few historical records which exist would seem to indicate that in 1860 the aboriginal cultures of Antelope Valley were essentially intact, while in 1900 they were all but extinct. Unfortunately there is little in the historical record which adequately documents this transition. The few letters, diaries, and newspapers that have survived this period shed little light on the changes taking place in aboriginal society and reflect an attitude of little concern for the welfare of the Indian people. Antelope Valley Indians were apparently viewed by most early settlers as either obstacles or curiosities, and little effort was made to record their way of life.

One of the first conscientious attempts to record the native cultures of Antelope Valley was that of anthropologist A. L. Kroeber who passed through the valley in the early part of the 10th century in preparation for his classic work on the Indians of California. Unfortunately, by this time the original cultures had ceased to function in any meaningful form. The earlier historic period had greatly reduced the native populations, and those who had survived had largely adapted to the dominant white culture. However, Kroeber was able to locate and interview some surviving Indians old enough to remember something about their original cultures. Unfortunately, he spent only a short time in the valley and his information is necessarily brief and incomplete. A few others such as J. P. Harrington and W. D. Strong have left similar accounts of the native cultures of Antelope Valley. These accounts were recorded at approximately the same time. Incomplete as these accounts may be, they constitute the only real ethnographic information available on these people.

The work of John P. Harrington is of particular interest. Harrington spent a considerable length of time at Fort Tejon interviewing native Californians

from Antelope Valley and elsewhere. He gathered information on several California Indian groups during his research but the group which received his greatest interest was the Kitanemuk of the northern and western Antelope Valley. Unfortunately, Harrington did not publish the results of his research with the Kitanemuk, and for many years his notes and materials went completely unnoticed and forgotten in the collections of the Smithsonian Institute. Recent and renewed interest in California ethnology has led to the recognition of the Harrington notes as a massive and valuable source of data and efforts are currently under way to translate and interpret the material. It is hoped that the extensive ethnographic work of J. P. Harrington will provide valuable additions to our knowledge of aboriginal culture in California.

It must be kept in mind, however, that the work of all of these early ethnographers was done at a time when aboriginal culture in Antelope Valley was, for all practical purposes, extinct. The successes of Kroeber, Harrington and others depended upon their ability to locate and interview native Californians who were old enough to remember what their original cultures had been like. Depending upon memory in this manner necessarily produced incomplete and often inaccurate information. Data collected by these early investigations, incomplete as they may be, should be viewed as a rather remarkable accomplishment.

Based upon the archaeological research done in Antelope Valley since 1868, and upon the extant historic and ethnographic information concerning Antelope Valley we are now in a position to make some general statements concerning aboriginal culture and prehistory. The Indian peoples encountered by Kroeber, Harrington, and others in Antelope Valley in the late 19th and early 20th centuries were members of the Shoshonean language family, a large and diversified language family in North America. These people have been described as traveling in small bands, living off the land and leading relatively simple lives. Recent efforts in both archaeology and ethnology have produced a much broader and more accurate picture of these people.

It would now appear that Shoshonean speakers in Southern California and in Antelope Valley particularly were characterized by far more complex cultural systems than originally thought. The people and cultures recorded by ethnographers in the early 20th century in Antelope Valley had apparently been present for well over 2,000 years. They were the product of a long and complex cultural evolution which was well adapted to the semiarid environment and exhibited a variety of characteristics in many ways unique in Southern California.

Although ethnography is of course limited to the last century and archaeological research in Antelope Valley has concentrated on this "Shoshonean" development there is some evidence that the prehistory of Antelope Valley may have begun much earlier. Throughout the Great Basin, including most of the California deserts as far west as the eastern margin of Antelope Valley, earlier cultures are well documented. While the antiquity of

many of these early developments is not firmly established most prehistorians would probably agree that a beginning date of 10,000 years ago would represent a rather conservative estimate.

The prehistory of most of the California desert area began at the end of the Wisconsin glacial period, the last major "ice age" in North America. As the Wisconsin period drew to a close, an increase in available water based on glacial melt and altered patterns of precipitation combined with temperatures relatively lower than those of today to produce a favorable water balance. This allowed for the formation of a series of large lakes and connecting channels. The now dry and salty basins formed by these lakes are a common and well known feature of the California desert today. In a particularly wet year they will often fill and remain full for several months. The most westerly of this system of post-pleistocene lakes are the Rosamond and Rogers Dry Lakes in the center of Antelope Valley.

At the end of the Wisconsin glacial period, this system of lakes and channels provided a rich environment for both plants and animals. Many now extinct animals such as mammoth, bison, camel, and horse moved along the shores of the lakes within an environment well suited to early man. Humans entered the area along with the animals, and the remains of their living activities are well known.

Sequential fluctuation in temperature and precipitation over these many millennium frequently altered the patterns of distribution of water and other resources. These fluctuations certainly caused many changes in the distribution and nature of cultural developments throughout the area as well. The specific details of these varied developments are not fully known but general temporal and spatial models dealing with cultural sequences have been worked out.

The earliest well-documented developments in the southwest United States are those represented by fluted projectile points of Folsom and Clovis type. While these developments are well known in the southwest in general, they are poorly represented in California. Fluted projectile points do occur in some desert sites, but at best they would seem to represent only a marginal extension of a tradition centered further east. By about 10,000 years ago this fluted point, or "big game hunting tradition," was being replaced in much of the Great Basin by developments which Jesse Jennings has termed "Desert Culture" (Jennings, 1957). Desert Culture is seen as an adaptation to environmental conditions more similar to the Great Basin of today. As the cool wet conditions of post glacial times became warmer and dryer as the Great Basin gradually took on its current environmental characteristics, human populations were forced to adapt to the changes. The basic pattern of adaptation seems to have been a shift in emphasis from animal to plant in the food quest. The earliest well-documented cultural developments in eastern California seem to share as much in common with this Desert Culture as with any of the hunting traditions.

The eastern Californian sequence begins with the "Lake Mojave" period some 8,000 to 10,000 years ago. This sequence, including the Pinto Basin,

Amargosa, Rose Spring, and other components familiar to most desert archaeologists, closely parallels Jennings's Desert Culture in time, and its earliest components seem to overlap with some of the fluted point traditions. Whether these Californian developments represent a series of derivatives of the "Big Game Hunting" tradition, a western extension of "Desert Culture," a combination of the two or something entirely separate is not fully understood at this time. What is known is that humans were present in, and well adapted to, the eastern California deserts at least 8,000 years ago.

The extent to which Antelope Valley enters into this picture is also not fully understood. Isolated finds of Pinto Basin and Lake Mojave "type" projectile points have been reported for Antelope Valley but no characteristic sites are known for the area. Aside from these few isolated finds, the only evidence for anything older than the late "Shoshonean" pattern consists of a few indications of late "Amargosa" found in the bottoms of some Antelope Valley sites. Dr. W. S. Glennan suggested the possibility of an earlier cultural component in Antelope Valley characterized by crude rhyolite biface knives and choppers (Glennan, 1971). Recent investigations into this question, however, have interpreted these materials and, at least, one associated site, as representing quarrying and workshop activity associated with the later Shoshonean development (Robinson, Sutton and Eggers, 1976). For the present it must be admitted that good evidence for a cultural antiquity in excess of 3,000 years has not yet been found in Antelope Valley.

Prior to 3,000 years ago, Antelope Valley would have provided a rich resource base for cultural development. Rosamond and Rogers Lakes should have supported the same basic resources as the lakes further east and the Tehachapi and San Gabriel mountain ranges would have provided many valuable resources not readily available elsewhere. It would seem unlikely that such an environment would have remained unused over so many thousands of years. Whatever the solution to this problem may be, at least for the present, the prehistory of Antelope Valley must begin at some time between 2,000 - 3,000 years ago with the beginning of what is generally called the "Shoshonean" period in southern California.

In the beginning of the 20th century ethnographers visiting southern California found that most of the native inhabitants were members of the Shoshonean language family. Since that time, archaeology has demonstrated that this general cultural pattern has existed in most parts of southern California in essentially unbroken form for at least 2,000 years. This period of time, then, beginning somewhere between 2,000 - 3,000 years ago and continuing into historic times is generally referred to as the "Shoshonean" period. Because the Shoshonean speaking people of Antelope Valley in early historic times were called "Kitanemuk," this label will be used from time to time in this paper to distinguish the people of the Antelope Valley Shoshonean period from the people of this period in other parts of California.

The people of the Shoshonean period can be placed in the general socio-economic category called "hunting and gathering." This means that they practiced no agriculture or animal husbandry but rather achieved subsistence through the direct exploitation of the natural resources of their environment. They seem to exhibit many of the same general characteristics as the Desert Culture mentioned above and can, in part, be thought of as one of its many manifestations. Their initial entry into Antelope Valley between 2,000 - 3,000 years ago can best be viewed at this point as a western expansion of Desert Culture into southern and eastern California. Between the time of their first arrival in Antelope Valley and the beginning of the historic period, their culture underwent many changes as it adapted to a different and generally more productive environment which ultimately produced a complex and unique cultural expression.

Regardless of the many differences that existed between the various Indian groups in the southern Californian deserts, they were essentially alike in many basic features. They entered California with a well-developed pattern of desert adaptation. They faced many of the same basic problems and often sought the same kinds of solutions. Sharing a generally similar background and adapting to environments basically consistent over most of the desert country, the peoples and cultures making up the Shoshonean period in southern California prehistory produced an archaeological record easily identifiable over a large area.

The basic problem faced by any desert people involves the distribution and availability of resources. The importance of water as a basic resource is obvious but equally important is the nature of the food supply. The people of the Shoshonean period were "hunters and gathers" depending entirely upon the natural productivity of the land. The greatest emphasis in the food quest was upon the vegetable products of the environment, and, although animal foods were important, the distribution and availability of plants did more than anything else to shape the culture of these people.

Desert plants are characterized by the two important qualities of variety and scarcity. First, there were literally hundreds of different species of vegetation growing in the deserts and surrounding mountains during the aboriginal period. Many of these species could be used for food. Secondly, all species were in short supply being thinly distributed over many thousands of square miles. It should also be pointed out that the seasonal growth cycles of most plants saw to it that any particular plant food would be available for exploitation only at a particular time of the year and then only for a few days or weeks.

In order to successfully combat this situation, local groups had to remain small and mobile. The relative scarcity of foods would not permit large populations to exist for any length of time and the seasonal cycles of both plants and animals required that the small groups move frequently from one resource to another. Throughout much of the California Desert the resulting pattern involved the

use of small, semiautonomous social groups probably numbering between 20 and 60 persons organized on the basis of patrilineal descent. Such a group would move about in the environment in keeping with the cycles of plants and animals it considered useful. It would follow essentially the same cycle year after year, and the total number of stops and the relative time and energy employed in the food quest would be determined by local environmental peculiarities. This small group was the single most important unit in the social organization of these people. While much larger groups would occasionally get together for various special activities, major authority in social, political, and economic affairs throughout the year was centered at this level.

The nature of this cyclical pattern of exploitation made a variety of demands on the technology of the aboriginal cultures as well. Frequent moving about demanded a light and portable tool kit. Any item which is not easily portable loses much of its value to a people who must themselves move frequently. It was necessary, then, to develop a technology which maximized efficiency and minimized size and bulk. A light, efficient, and easily portable tool kit was ideally suited to the pattern of cyclical mobility necessary for survival over most of the desert country.

The above discussion provides a rather simplified model of some of the more general features of aboriginal culture in the California deserts. The degree to which any given group fits this general picture will depend on the specific conditions present in the particular environment. While the general conditions described above remain essentially true, throughout the desert country a variety of factors both environmental and cultural often caused interesting variations. The introduction of agriculture in late prehistoric times, for example, had a profound effect on cultural development in the southern part of the area. In Antelope Valley other factors led to an interesting and major modification of this general desert picture.

For the people settling in Antelope Valley the area offered two qualities destined to greatly modify a culture adapted to a purely desert environment. The first was an environment containing a far greater variety and quantity of useful resources than could be found in the deserts to the east. The second was a valuable and unique location with respect to trade and contact with non-Shoshonean Californian cultures. By the time of the first European contact in the late 18th century, both of these factors had worked together to produce an interesting and unusual combination of cultural attributes for the Kitanemuk.

At the beginning of the Shoshonean period the people entering Antelope Valley brought with them a way of life geared to survival in a relatively sparse desert environment. As mentioned above, this basic pattern of adaptation involved a seasonal migratory cycle of exploitation based essentially upon the seasonal growth cycles of several natural desert plants. This way of life required frequent movement over a relatively large total land area with several stops of short duration. In Antelope Valley water was

much more readily available and vegetable resources occurred in greater quantity concentrated within a smaller area. Such an environment allowed for significant changes in patterns of environmental exploitation and resulting settlement pattern.

Generally speaking, this environment would have allowed a simplification of the annual migratory cycle. Movement would have been less frequent and would have involved shorter distances. The total number of stops in the cycle would have been reduced and their duration increased. Such a change would have reduced the total time and effort devoted to the food quest, produced greater leisure time, and increased the overall security of food getting activity. This is not intended to imply that the Kitanemuk would have abandoned viable food resources for a more simplified system, but rather that no particular resource would become too critical. Certain foods, such as the pinon nut, would certainly have been heavily depended upon, but failures in such foods would have been more easily overcome.

In addition to the environment, Antelope Valley provided a second important stimulus to culture change which is geographical location. Antelope Valley occupies a central location and point of contact between four major centers of cultural development in central and southern California. To the east of Antelope Valley were the Shoshonean peoples of the desert proper. To the north were the Yokuts, a Penutian speaking people representing an entirely different cultural development. To the west were the Chumask, Hokan speakers and yet another separate cultural entity. To the south were the Gaireileno and other groups. Shoshonean speakers adapted to coastal and other non-desert environments. Any movement of goods or ideas between these four areas would likely have touched the Kitanemuk in one way or another. It would appear from the data currently available that the role played by the Kitanemuk of Antelope Valley in facilitating economic and cultural exchange between these various areas will prove to be one of the most intriguing aspects of their cultural system.

The archaeological resources of Antelope Valley adequately reflect the patterns described. The locations of various kinds of sites within the valley reflect a settlement pattern quite unlike that encountered further east. The migratory pattern common to the deserts to the east seems to disappear altogether. Certainly, small seasonal sites associated with particular resources and/or activities still occur

in Antelope Valley, but among them are found large permanent or semipermanent habitation sites capable of supporting up to 100 people or more. These large sites contain dark rich middens often greater than one meter in depth. Artifact assemblages from these sites reflect a wide range of living activities and most contain a cemetery. These large habitation sites apparently represent permanent or semipermanent base camps occupied the year round. At particular times during the year some or all of the people living at such a site might move to a seasonal and/or special function site but the base camp probably continued to function as "home" throughout the year.

Data bearing on the question of cultural contact and trade are also present in these larger, more permanent sites. While purely utilitarian artifacts, such as projectile points, scrapers, milling stones, etc., almost always represent types commonly associated with desert adaptations in other parts of southern California, the majority of the non-utilitarian artifacts are most closely associated with coastal or San Joaquin Valley peoples. Objects of carved stone (steatite), and ornaments of haliotis and megathura shell are often found in Antelope Valley sites, and small beads made of olivella, mytilus, and tivella shell are a very common occurrence. Not only the source areas for the artifactual material but also the quantities are significant. Many human burials have been found in Antelope Valley sites associated with hundreds and even thousands of shell beads. Such rich and elaborate grave complements would be considered extremely rare in most of the desert. In Antelope Valley they are quite common.

Clearly, the Kitanemuk of Antelope Valley were a wealthy and status conscious people. The combination of a relatively productive natural environment and a highly favorable location with respect to trade produced a complex and in many ways unique cultural system which was very efficient in subsistence matters and deeply involved in inter-cultural trade and diplomacy.

Most of the details of this cultural system are currently unknown as are the details on the evolution that produced it. Much work needs to be done with the specifics of settlement pattern, environmental exploitation and the precise nature of inter-cultural relationships. The total puzzle is far from complete at this time. It is hoped that subsequent work in Antelope Valley will provide the missing pieces in a useful and meaningful way.

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BUENA VISTA VILLAGE: TULAMNIU?

John J. Dieckman

ABSTRACT

Chronicles of the early Spanish explorers in the Southern San Joaquin Valley recorded the existence of a Yokuts Indian village on the shores of Buena Vista Lake. The village is recorded in reports by Fages in 1772, Ruiz-Zalvidea in 1816, Estudillo (Moraga) in 1819, and Portilla in 1824. The village was given the name Buena Vista by the Spanish. A village site located on the north shore (Ker-450) fits the description of the early chronicles and archeological data indicates that the site was occupied during the period of Spanish contact until as late as 1860. The site is identified as Buena Vista Village at least during a major portion of the historic period.

The archeological remains suggest that the impact on the material culture as a result of the Spanish intrusion was not substantial and indicates that items of non-native origin were utilized on an as-available basis with native material. An example of this premise is the coexistence of the bow and arrow with firearms.

INTRODUCTION

Early in 1969 the author viewed several private collections of material from a village site on the north side of Buena Vista Lake. These collections contained abundant historical material and prompted a visit to the site. It was apparent that an effort should be made to test the site in order to preserve some information, since pot-hole activity had destroyed roughly 30% of the site. In 1976, it is now estimated that 90% has been destroyed by local relic collectors. This report is the result of field work performed from November 9, 1969 to January 24, 1970. The writer is indebted to Tenneco West, Incorporated for granting permission for the excavation. All excavated material is in the custody of the Kern County Museum, Bakersfield, California. Assistance in the excavation was furnished at various times by John G., Jana and Dana Dieckman, Gardiner and Frank Pittman, Bob Haley, Marcee Endicott, and Margaret McClurg.

HISTORIC DATA

Recorded history of Kern County began in the year 1772 with the written description of the area recorded by Don Pedro Fages, commander of the Spanish garrison at the Presidio of Monterey. Fages explored a vast area of California on an expedition

originating in San Diego and entering the San Joaquin Valley from the south. He traversed the valley in a northwest direction as he traveled across the Coast Ranges toward San Luis Obispo.

In addition to the description of the geography he recorded the first place name within the San Joaquin Valley in naming the Buena Vista Rancheria (an Indian village known as Tulamniu). According to Stockton, Rodgers, and Boyd (1957), Fages reported as follows:

From the Camp of the Return or of Bad Water (a great valley) extends to a village called Buena Vista. This village, because it is on a fair-sized elevation, overlooks a great plain along the course of the River San Francisco, which will exceed one hundred and twenty leagues in length and in parts is twenty, fifteen, and even less in width. It is all a labyrinth of lakes and tulares, and the River San Francisco, divided into several branches, winding into the middle of the plain, now enters and now flows out of the lakes until very near to the place where it empties into the estuary of the river. In the midst of the winding of the river and on the sides there are large rises of land of good soil where with ease irrigating ditches could be made.

From the village of Buena Vista the plain continues toward the south for seven leagues more, over good lands with some water. And at the end of these seven leagues one goes toward the south through a pass, partly of valleys and arroyos, very thickly grown with groves of live oaks, as are also all the hills and sierras which form these valleys. Going now three leagues more in the same direction, one comes to a very large plain, which keeps getting wider and wider, both toward the east and toward the south, leaving to the north and northwest many sierras.

The Plain of San Francisco extends from the mouth of the river to a village called Buena Vista near the Pass of Cortes, where there are many grape vines. It is about 160 leagues. There are in it many reedpatches and lakes, and the soil is fertile. The natives, who live there in their spherical houses in order to escape the discomfort which the rain causes them when it is

very abundant, are accustomed to move to a drier region during the rainy season and when it is over they return to their houses.

The village, inhabited by Yokuts Indians, continued to be mentioned in Spanish documents during the ensuing 52 years, thus testifying to its importance as a major Yokuts center. It also signifies its importance to the Spanish missionary effort. The Buena Vista Village was visited by the Ruiz-Zalvidea expedition on July 25, 1806. Wedel (1941) reports the visit as follows:

The perennial search for fugitives from the missions on the coast led Zalvidea in the summer of 1806 from Santa Barbara northward through the Cuyama Valley and across the south end of the San Joaquin. Entering the west or southwest he gives among others the following details for July 25: This day after Mass we marched northward; after eight leagues we came upon the rancheria of Buenavista, which consists of thirty-six men, one hundred and forty-four women, and thirty-eight children, according to the assertion of the Indians. The rancheria is on the margin of a lake eight leagues long and five wide. The Indians cross it on rafts (balsas) . . . (Zalvidea, n. d.) Next day, after traveling eastward along the south side of the lake, Zalvidea turned north to reach a second village called Sisupistoi. Here he found 50 to 60 men and counted 28 huts, leaving us like his superior to "infer the number of souls approximately." At Sisupistoi trouble developed between its inhabitants and several Buenavista Indians in the party, and the former after shooting several darts at the "captain of Buenavista" finally took to the tules for cover.

The village was mentioned in the report of the Martinez party of 1816. According to Stockton, Rodgers, and Boyd (1957) Louis Martinez reported; This great river (Kern River) really ends at Buena Vista as it changes into lakes and marshes. Along the border of this plain there is a large grove about a league long of poplar (cotton wood) trees, very dense and closed in. The land over which it extends is pure sand without grass for feed and entirely useless for growing a thing.

A Lt. Moraga of the Estudillo expedition visited in 1819. Wedel (1941) in reference to this party says: Appears not to have visited but he mentions that Lieutenant Moraga had gone to Buenavista a few days previously, but the Indians had scattered to the lake upon his arrival. Estudillo mentions the village several times since many of the Indians he had hoped to contact had gone there for a fiesta.

The narrative of the Portilla expedition of 1824 mentions the village, but a visit may not have been involved. According to Wedel (1941) Portilla visited the San Joaquin Valley in pursuit of runaways from Santa Barbara and made mention of the rancheria of Tulali (Buena Vista?) on or near the lake. He

furnished no additional information. Spanish accounts end at this point.

G. W. Barbour, United States Indian Agent, in June of 1851, mentions contact with a group living near Buena Vista Lake, but fails to furnish further identification. A treaty was negotiated with various groups and signed June 10, 1851. Included in the treaty was a tribe known as Buena Vista.

In F. F. Latta's "Handbook of the Yokuts Indians" (pages 228-276) Yoimut, a female Chunut-Yokut Indian informant, related several short statements pertaining to Tulamni (Buena Vista). She states that her father and mother stayed on Buena Vista Lake at the old village of Tulamni, before she was born (1855). Gifford and Shenck (1926) identified the Spanish named Buena Vista Village as the Indian Tulamni Village (place of the Tulamni). While there, they witnessed the killing of an Indian doctor, evidently for malpractice. Later while living at Fort Tejon they returned to Tulamni and found it abandoned. The informant relates some confirmation of the medicine man killing as heard from other sources. Walker (1947) reported excavation of a burial having characteristics of a deliberately killed medicine man. Her account suggests that Tulamni was inhabited during the time of the founding of Fort Tejon in 1854 and was at least temporarily abandoned in 1855. This suggested terminal date coincides with the establishment of the reservations in the San Joaquin Valley and the Indian occupation of the reservations enforced by the military. Of further interest is another statement of the informant concerning three individuals residing at the Tule River Reservation. This account gives the names of individuals that were formerly residents of Tulamni. These Indians bore the names of Ko-Ko, Sahkehel, and He-aw'-mut (wife of Sahkehel). These named individuals related stories of fighting with the Spanish at the village that resulted in numerous deaths.

In "Tejon Indian Reservation Report of Superintendent," No. 67, dated August 30, 1862, John P. H. Wentworth, Superintendent of Southern District reports that Indians at other locations within the bounds of his district had returned to their original villages, since many of the Indians preferred hunting and fishing to engaging in the pursuits of agriculture.

At this point the Buena Vista Village disappears from the contemporary records.

LOCATION OF BUENA VISTA VILLAGE

Both ethnologists and archeologists, working in the San Joaquin Valley have speculated on the location of the village. All are in agreement that the location is on the shores of the Buena Vista Lake and opinion is about equally divided between a finite location on the southwestern shore, at the base of the Buena Vista Hills and the northwest shore at the base of the Elk Hills. Favoring the southwest shore location is H. E. Bolton (1931), E. W. Gifford and W. E. Schenck (1926) and F. F. Latta (1949). Those placing the village on the northwest shore are A. L. Kroeber (1925), H. I. Priestly (N.D.), W. R. Wedel (1941) and E. F. Walker (1947).

At a point 9 miles northeast of Taft and at the foot of Buena Vista Hills, a stone marker informs the visitor that this point is the position of the Tulamni Indian Village visited by Fages in 1772 and that the site was excavated by the Smithsonian Institution in 1933-34. These excavations are reported in Bulletin 130 of the Bureau of American Ethnology, by W. R. Wedel, dated 1941 and identified as his site number 1. Wedel stated on page 151:

Specifically, we had hoped that site 1 at any rate would prove to be identifiable with the village of Buenavista recorded by Fages (1772), Zalvidea (1806), Martinez (1816), and Estudillo (1819). In this, I think, we failed. Even if there were no doubts concerning the authenticity of the contact materials recovered, they were too few in numbers to be considered proof of trade relations between Europeans and a community of 200 or more Indians during the period given.

On page 16 he ventures an interesting opinion, as follows:

It is entirely conceivable, even quite probable, that the natives shifted their centers of abode from time to time, particularly in the period of unrest and turmoil initiated by the Spanish invaders. So far as the Yokuts of Buena Vista Lake were concerned, the southwest and northwest sides were equally suited to occupancy. Both were utilized, as proved by large shell heaps at the foot of Buena Vista Hills and also at the base of Elk Hills. Possibly between the time of Fages and that of Martinez, the main settlement was transferred from a point in the former locale to another in the latter. That this instability necessarily foredooms any attempt at precise identification of a given townsite is improbable, though it may well entail a critical re-examination of all relevant evidence. . . . In the present instance, since the historical data are open to two interpretations, archeology may have the final word as to where the native villages stood at the dawn of the contact period.

In the past the commonly used method for identifying a historical site has been to determine the approximate location from the various documentary sources and then seek an archeological site that best fit the documentary evidence, neglecting detailed archeological study. It is essential, in addition to an appropriate location, that the site also be of the proper age.

Prior authors have established the location of Buena Vista Village on the shore of Buena Vista Lake, obviating the necessity of restating geography and natural environment. One Spanish visitor (Fages, 1772) places the village site on "a fair size elevation, overlooking a great plain." The village site is therefore situated on a hill top or hillside rather than a shore line or beach location. Evidently it commanded an excellent view. The remaining criteria to be satisfied is that the cultural remains be of the proper age. The village site will necessarily contain native cultural remains with contact trade material from the period 1770 to 1860.

Topography at site Ker-450 fits the Spanish descriptions and no other occupational areas around Buena Vista Lake command a view of the area as described by Fages. In addition excavated occupational material demonstrates occupation during the contact period. On this basis the site is identified as Buena Vista Village (Tulamni).

SITE DESCRIPTION

The site is located on a hillside plunging southeastward at the foot of the Elk Hills at a position where the hills border the Buena Vista Lake on the west side of the Kern River inlet. The site is at an elevation between 300 and 325 feet.

The midden covers an oval area some 700 feet by 1000 feet, slightly over 8 acres. The depth of the deposit averaged about eighteen inches varying between twelve and twenty-four inches maximum. The central highly disturbed area was approximately twenty-four inches thick. Nine five-foot-square units were excavated. There was no discernable stratigraphy visible in the excavated units.

ORNAMENTAL ASSEMBLAGE

A total of 1169 beads were recovered in the excavations, consisting of 1004 shell beads, 44 stone beads, 91 bone beads and 30 glass beads. Existing classifications were used as presented in Olsen and Payen (1968).

The bead sequence or typology here is essentially a parallel to that existing at the site 4-Fre-128 located on the east side of Fresno County as reported by Olsen and Payen (1968). A comparison with the sites on the south shore of the lake is difficult without detailed information on the beads, but the available data (Wedel, 1941) suggests that the site on the north shore is a continuation of the south shore bead sequence. It is further evident that beads encountered here are identical with those found in the nearby burial site Ker-44. Two other neighboring sites are now effectively destroyed, but exhibited the same shell beads in association with glass beads.

Several collections from the site were examined, described and photographed. One collection contains a large style 1 Phoenix Button, regimental number 7, identical to the one illustrated in Walker (1947). The styles of these buttons are illustrated in Strong (1960). The button was found with a metal detector at a depth of less than 6 inches. Another collection contains a small disk, style 1 Phoenix Button, regimental number 30. These collections also contain a number of milk glass buttons and baked clay beads. The Phoenix Buttons evidently made their appearance on the West coast during 1820-1830, and are a rather precise time marker.

HUNTING AND WAR ASSEMBLAGE

Four intact projectile points and ten fragments were recovered. This is similar to south shore points. A total of 198 specimens of lead shot and buck shot were recovered, ranging in sizes from No. 5 shot to No. 3 buckshot. The shot are an early style drop shot manufactured after 1809 according to Russel (1957). Eleven copper percussion caps were excavated. One has a six pointed star embossed on the upper surface

indicating Belgian manufacture. Percussion caps were used in the period 1840 to 1880. Two pewter powder can tops stamped Hazards Powder are in a collection from the site. Stovall (1964) states that the Hazard Powder Company existed from 1836 to 1876.

ECONOMIC ASSEMBLAGE

Excavated material included 19 steatite bowl fragments, 10 stone knives, 6 unifacial scrapers (5 chert and 1 obsidian), 1 chert drill, 14 bone pins and awls, one bone incised with an X pattern, 11 fragments of native made pottery, 2 fragments of bowl mortars and one mano. Historical material included 2 screws, 3 fragments of iron wire, 15 fragments of glass bottles, 4 fragments of white glazed china with blue ornamentation, and 1 specimen of earthenware. A total of 222 specimens of iron nails and fragments were excavated. Dating according to Fontana and Greenleaf (1960) is 1830 to 1870. Three specimens of brass, tin plated straight pins were encountered. One is bent to a fish hook shape. These pins were introduced in the early 1800's according to the 11th edition of the Encyclopedia Britannica. One deep olive amber colored glass bifacial glass scraper was also present. A collection from the site contained 3 pottery pipe fragments, brick red, with a part of a face on the bowl fragment.

SUMMARY AND CONCLUSIONS

R. K. Beardsley in Heizer (1962) reports a summary of cultural equivalents for Ker-116 on the south lake shore, excavated and reported by Wedel (1941). He indicates a scant representation of a Central California Early Period, the Buena Vista Lake Intermediate is partially Middle Period overlapping the Central California Late Horizon Phase 1, with the

Buena Vista Late Period comprised of some bead types related in part to Late Horizon Phase 2. Olsen and Payne (1969) in a chart preceding page 42 presented the following indicated ages:

Middle Period – 2200 BC to 450 BC

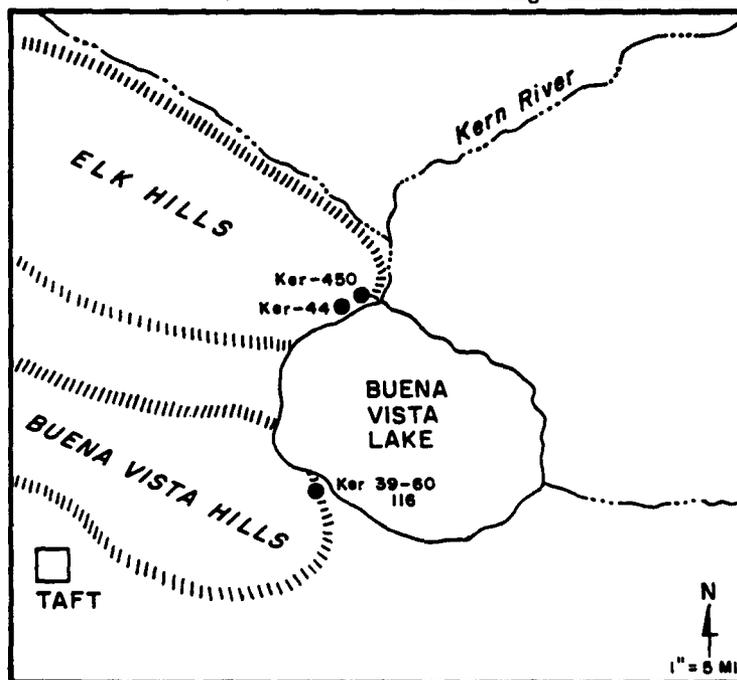
Late Horizon Phase 1 – 450 BC to 1500 AD

Late Horizon Phase 2 – 1500 AD to Historic

Private collections from the south shore sites indicate that the very upper portion of the Buena Vista Late Period may be in fact protohistoric.* It may be further postulated that the inhabitants at Ker-60 abandoned that site at approximately the time equivalent of the beginning of historic time and moved to the north shore establishing the village called Buena Vista. The cemetery complex at nearby Ker-44 appears to be associated with this village site.

The artifactual assemblage suggests that European contact made little changes in the material cultural pattern in this area. Articles of European manufacture were used contemporaneously with native materials. An example is the use of the bow and arrow, as witnessed by the small flint and obsidian projectiles, at the same time equivalent as the percussion shotgun found some favor, as indicated by the presence of shot and percussion caps. Latta (1949) records this contemporary use from an informant who stated that sometimes the Indians were punished by arrest for the use of shotguns in hunting.

The data presented herein supports occupation of this site during an undefined prehistoric period and from approximately 1770 to 1860. Ethnographic and artifactual data indicate that almost certainly this site, Ker-450, can be identified with the historic Yokuts village named Buena Vista.



BUENA VISTA LAKE AREA
KERN COUNTY, CALIFORNIA

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