Sunrise Corridor: A Region's Prehistoric Human Past

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SUNRISE CORRIDOR:
A REGION'S PREHISTORIC HUMAN PAST

Don Laylander
ASM Affiliates, Inc.

TABLE OF CONTENTS

TABLE OF CONTENTS i

INTRODUCTION 1

WHO ARE THE PREHISTORIC PEOPLE'S DESCENDANTS, AND WHERE ARE THEY NOW? 3

HOW LONG HAVE PEOPLE LIVED HERE? 7

WHO WERE THE PREHISTORIC PEOPLE? 11

WHAT WAS THEIR WORLD LIKE? 15

WHAT NATURAL RESOURCES DID THEY USE? 19

WHAT TECHNOLOGIES DID THEY POSSESS? 23

HOW DID THEY ORGANIZE THEMSELVES? 31

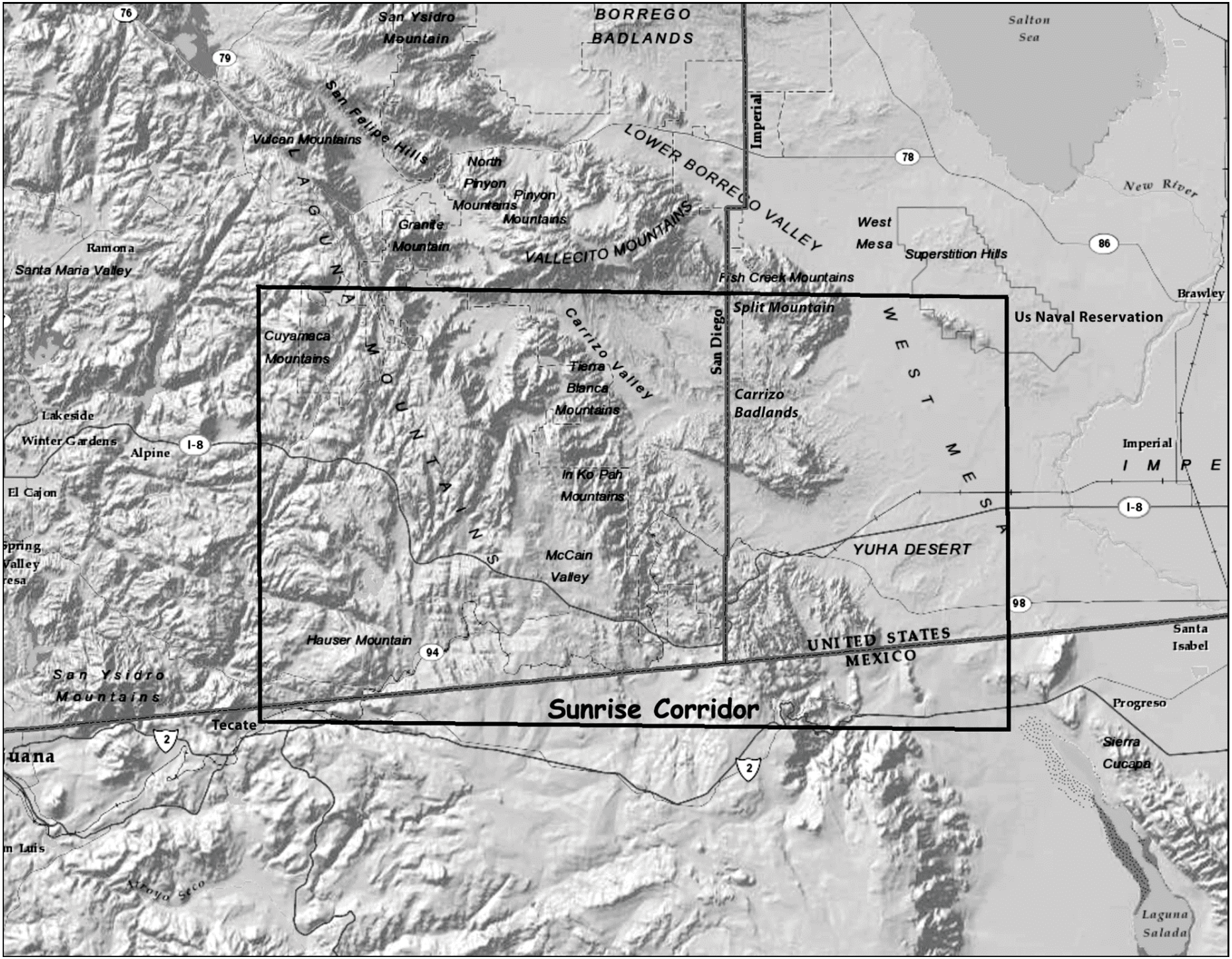
WHAT WERE THEIR WIDER CONNECTIONS? 37

HOW DID THEY EXPERIENCE THEIR WORLD? 41

SUMMING UP 47

FOR FURTHER READING 48

CREDITS 49


Sunrise Corridor
San Ysidro Mountain
BORREGO BADLANDS
Salton Sea
San Felipe Hills
Vulcan Mountains
LAGUNA MOUNTAINS
LOWER BORREGO VALLEY
Imperial
North Pinyon Mountains
Pinyon Mountains
Granite Mountain
VALLECITO MOUNTAINS
New River
West Mesa
Superstition Hills
Fish Creek Mountains
Ramona
Santa Maria Valley
Split Mountain
Us Naval Reservation
Brawley
Cuyamaca Mountains
Carrizo Valley
Tierra Blanca Mountains
San Diego
WEST MESA
Carrizo Badlands
Lakeside
Winter Gardens
Alpine
I-8
Imperial
IMPE
El Cajon
In Ko Pah Mountains
YUHA DESERT
McCain Valley
Hauser Mountain
UNITED STATES
MEXICO
Santa Isabel
San Ysidro Mountains
Tecate
Progreso
Sierra Cucapa
Laguna Salada
76
79
78
86
98
94
2

INTRODUCTION

The Sunrise Powerlink is a 117-mile transmission line built between the western Imperial Valley and the city of San Diego. The construction of this project resulted in the completion of many cultural resources studies. These studies contribute to the emergence of a picture of the prehistoric life of the Native American inhabitants of this region. The following pages present a summary of our current understanding of aspects of the lives of these people in one important area of the overall project, termed the Sunrise Corridor.

The Sunrise Corridor embraces a swath of territory that extends across southeastern San Diego County, southwestern Imperial County, and the northernmost fringe of Baja California. It stretches for about 65 miles east-to-west, from west of El Centro on the western edge of Imperial Valley, to west of the community of Alpine in the foothills of San Diego County. It crosses rugged and varied terrain, from chaparral-covered hillsides and grassy valleys in the west to the granitic peaks of the Laguna Mountains that rise above 6,000 feet, and then drops precipitously to the bare, low-lying expanses of the Yuha Desert.

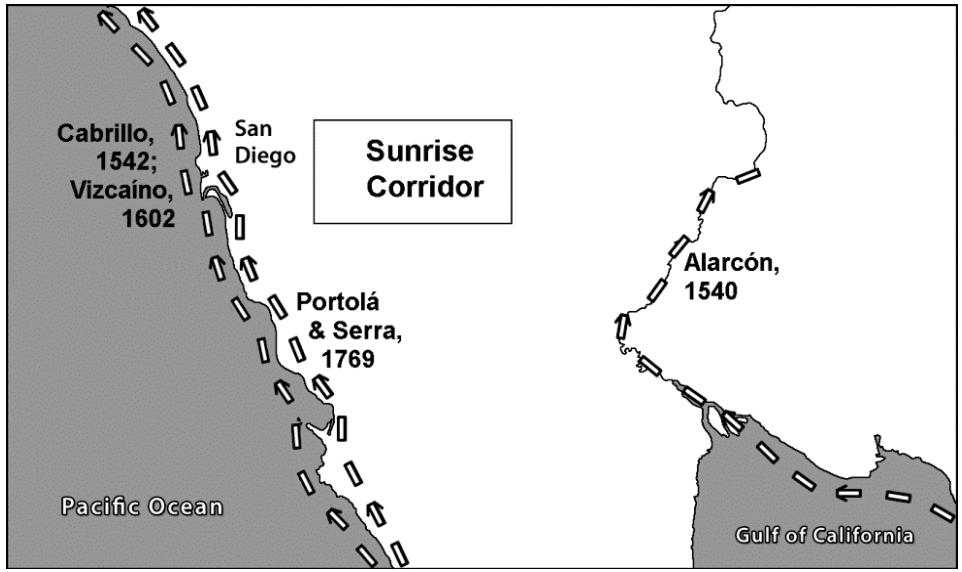
Just beneath the thin modern veneer of this unique cultural landscape lie many thousands of years of prehistoric occupation by native peoples. We are able to piece together a picture of prehistoric lifeways – often only a dimly lit picture, in truth, but one that is steadily gaining increasing amounts of detail. This picture is being reconstructed both through analyzing the traditions and practices that are remembered by the descendants of the prehistoric inhabitants and through unearthing the physical evidence at archaeological sites. Like any such picture, this one is necessarily unfinished and drawn from a particular point of view.

WHO ARE THE PREHISTORIC PEOPLE'S DESCENDANTS AND WHERE ARE THEY NOW?

The prehistoric people and lifeways of the Corridor did not simply disappear when other groups from alien Old World civilizations began to arrive in their lands. Instead, their descendants have survived, and they continue elements of their traditions, albeit changed in form and under altered circumstances, to the present. It is true that the last 240 years have brought with them a demographic catastrophe and a cultural shock for native groups, but nonetheless, this period has marked a new beginning as well as an end.

Spanish explorers probed both the upper reaches of the Gulf of California and the west coast at San Diego as early as the 1530s and 1540s. Visits to these areas continued intermittently for nearly two and a half centuries, without the establishment of any permanent presence in these areas or any forays into the Corridor itself. Despite this, it is possible that these coastal visitors, as well as the more permanent Spanish settlements that were eventually established in nearby Sonora and central Baja California, may have unwittingly helped to pass forward Old World diseases. These diseases may have arrived here well in advance of the outsiders' own arrival in the Corridor.

More substantial impacts to native lifeways were felt at the end of the 1760s and in the 1770s, when the Spanish Empire finally implemented a program of mission settlement in Alta California. The first of the California missions, San Diego de Alcalá, lay to the west of the Corridor, and at least initially recruited its neophytes primarily from native communities living in settlements near the coast. This was soon followed by exploration of the surrounding region, including efforts to blaze an overland connection between coastal California and Sonora.



Early Historic Exploration Routes

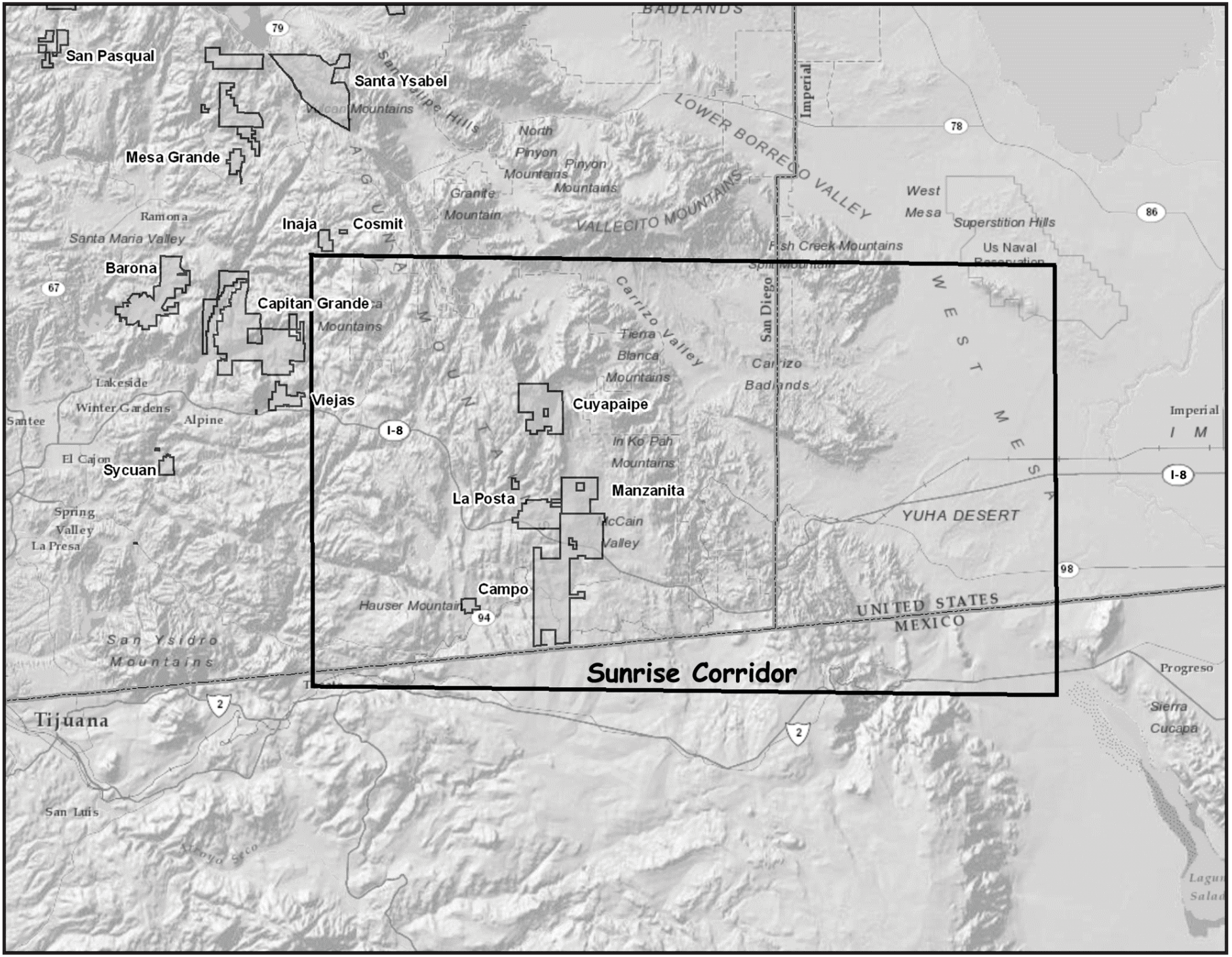
The people who lived in the Corridor were the Kumeyaay. This population is also known as the Diegueño (taking their name from the Franciscan mission at San Diego) or the Tipai, or, for groups living in the desert to the east, the Kamia. Spanish colonial probes affected the inland Kumeyaay, who were also coming under increased pressure to come into the mission. The inland Kumeyaay must have received into their ranks some native refugees who fled from the mission.

Mexico winning independence from Spain in 1821 was followed by the final dismantling of the California mission system by 1834. Favored Hispanic individuals received grants of large expanses of land, which they used primarily for grazing herds of cattle and horses. Indians were often recruited to provide the necessary labor on those ranchos. Most of the ranchos in San

Diego County were on or near the coastal plain; a few of them, most notably Rancho Cuyamaca, were situated farther inland.

The Mexican-American War (1846-1848) and the upsurge in immigration from the eastern and midwestern United States that followed it put increasing pressure on the once-isolated native peoples of the Corridor. Constraints on traditional Indian patterns of movement and subsistence led to cattle raiding and occasionally violent conflicts between ranchers and Indians. One attempt to deal with the resulting interethnic tensions was the emergence of the local Indian reservation system. Sycuan, Capitan Grande, Cosmit, and Inaja reservations were all established in 1875, followed by Campo, La Posta, Manzanita, and Cuyapaipe in 1893 and by Barona and Viejas in the 1930s. The reservations' inhabitants struggled with depressed economic conditions for decades but maintained many traditional cultural values. In recent years, casinos have played a prominent role in generating income for some of the Kumeyaay reservations.

Although the Corridor is marginal to southern California's major areas of urbanization or intensive agriculture, its development has still proceeded apace during the last century. San Diego failed to secure a successful railway link directly to the east through the Corridor, despite the abortive creation in 1906 of the San Diego & Arizona Eastern Railroad. Interstate 8 and the network of other state and county highways wove strong connections both within and beyond the Corridor. Utility lines crossing the Corridor link the west coast with areas to the east, and there are many solar and wind energy projects proposed for construction in the eastern portions of the Corridor. Small-scale ranching continues to be an important local activity. Extensive public lands are managed and protected under the auspices of Cuyamaca Rancho and Anza-Borrego Desert state parks, Cleveland National Forest, and U.S. Bureau of Land Management. In all of this, the lives of descendants of the region's prehistoric population and its historic-period newcomers are increasingly intertwined.

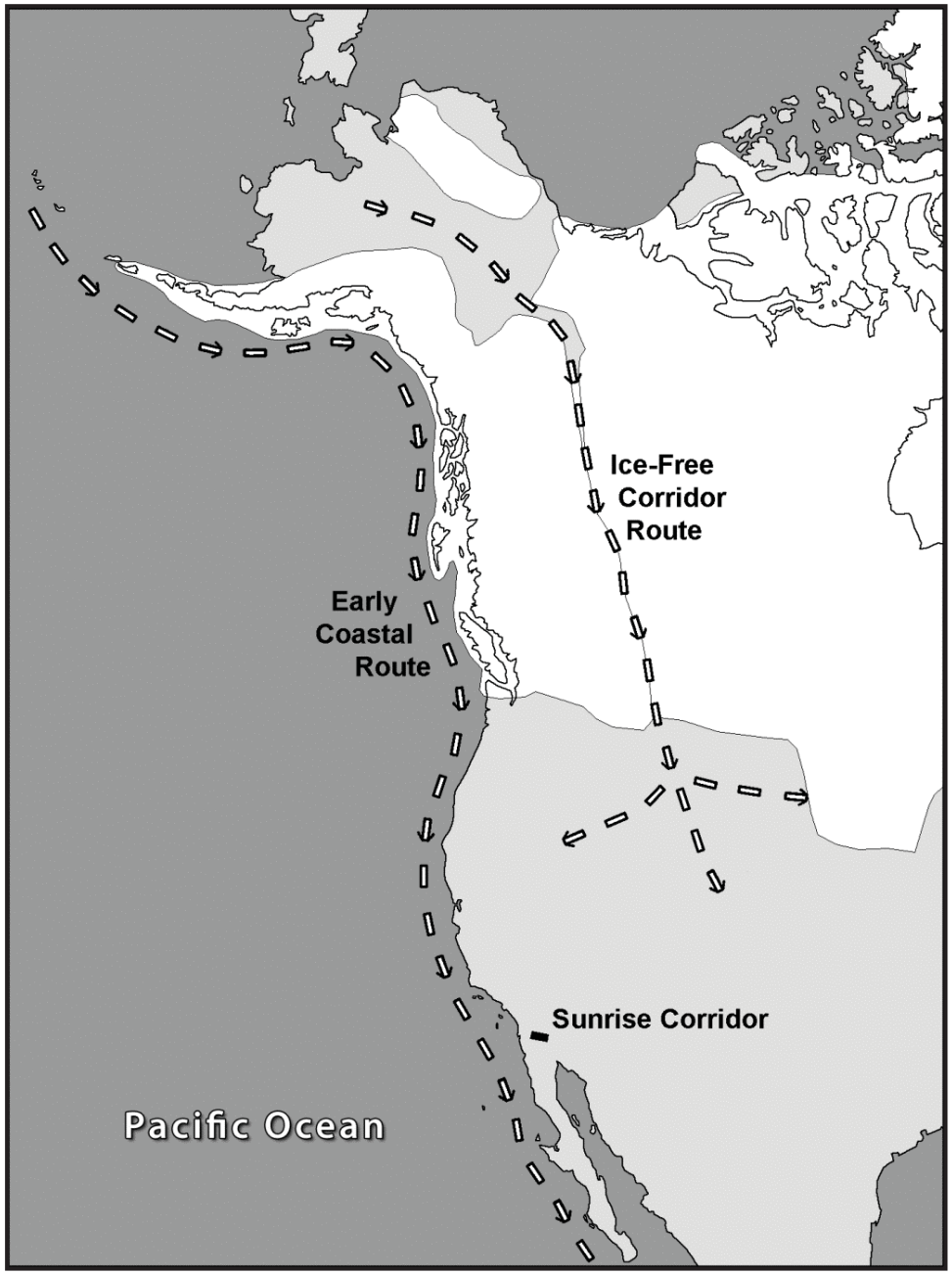

San Pasqual
Santa Ysabel
Mesa Grande
Inaja
Cosmit
Barona
Capitan Grande
Viejas
Cuyapaipe
Sycuan
La Posta
Manzanita
Campo
Sunrise Corridor
BADLANDS
LOWER BORREGO VALLEY
VALLECITO MOUNTAINS
Imperial
San Diego
Carrizo Valley
Tierra Blanca Mountains
Carrizo Badlands
In Ko Pah Mountains
McCain Valley
Hauser Mountain
Ramona
Santa Maria Valley
Lakeside
Winter Gardens
Santee
Alpine
El Cajon
Spring Valley
La Presa
San Ysidro Mountains
Tijuana
San Luis
Progreso
Sierra Cucapa
West Mesa
Superstition Hills
Us Naval Reservation
Fish Creek Mountains
YUHA DESERT
UNITED STATES
MEXICO
I-8
79
78
86
67
94
98
2

HOW LONG HAVE PEOPLE LIVED HERE?

Archaeologists agree that people have been living for at least 13,000 years in the parts of North America that lie to the south of the U.S.-Canada border. Many investigators date the first human presence a few millennia before that; a few investigators have even suggested that the initial human occupation happened tens of thousands of years earlier. Some modern Native Americans have expressed a view that their ancestors have lived here "since the beginning of time." How long people have been present specifically within the Corridor remains an uncertainty, but it is a subject of active scientific interest.

Two main scenarios exist for settling the North American continent. One is called the "Clovis First" model. This model focuses on the opening of a gap between the eastern and western lobes of a vast ice sheet that extended across Canada and the northern U.S. at the end of the last Ice Age or the terminal Pleistocene period. The model calls attention to a distinctive type of projectile point with a basal flute ("Clovis") that has been found at archaeological sites scattered throughout most of North America. These finds have been dated to within a comparatively narrow window of time, approximately 11,500-11,000 B.C. It has been suggested that the distribution of these distinctive artifacts represents evidence of a short-lived culture whose creators spread out rapidly and who focused on hunting big game animals from the Pleistocene that are now extinct (for example, mammoths, mastodons, large bison, and New World horses and camels).

The second scenario invokes a coastal settlement model. This suggests that the first Americans actually came at least a little earlier than the Clovis hunters, prior to the opening of the



Fluted Projectile Point from San Diego County

ice-free corridor in the mid-continent. According to this scenario, people who were adapted to maritime lifeways, travelling in small boats, were able to bypass the glaciers of western Canada and to expand rapidly down the western coast of the Americas. It is possible that both scenarios are substantially correct and that two independent waves of early settlement occurred, one along the coast and the other from the continental interior. If that should turn out to be true, then areas such as the Corridor may have been among the places where the inheritors of the two traditions eventually encountered one another, and perhaps clashed or merged.

The Corridor itself is not able to offer any specific support for the coastal model. It lies well away from the initial maritime route and outside of the areas that would have been attractive to coastally oriented settlers. The associated evidence for the Clovis scenario is slightly better. So far, a very small number of fluted points, the tell-tale markers of the Clovis culture, have been discovered within or near the Corridor. One point was found in the Yuha Desert, another was found at Ocotillo Wells near Borrego Valley, and a third came from Pine Hills, near Julian. By analogy with better-dated archaeological finds of Clovis points elsewhere in North America, these points may suggest that people were already moving within or through the Corridor by at least 11,000 B.C.

This still leaves the question of whether or not there were any substantially earlier human occupations in this region. In many parts of the Americas, proposals have been put forward for the existence of very early archaeological sites (in excess of 50,000 years before the present). The deserts and coast of southern California have been implicated in a fair number of such proposals. To date, none of the claims have received general acceptance when they have been subjected to the critical scrutiny

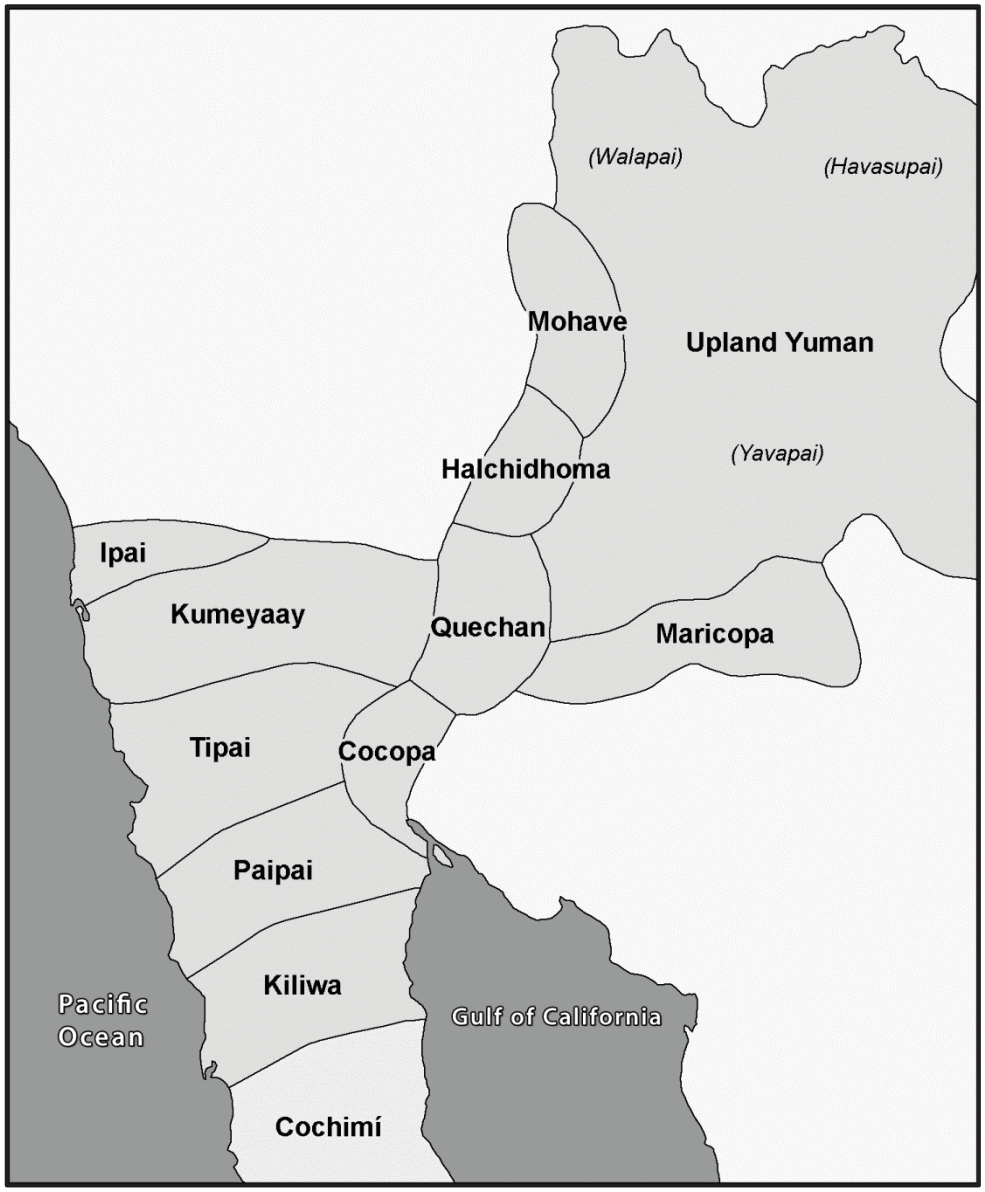
of skeptical experts. Within the Corridor, one find consisting of human remains under a cairn of rocks, known as the Yuha burial, was originally estimated in the 1970s to be nearly 22,000 years old. However, it was subsequently evaluated using a new radiocarbon measurement, and determined to be only 5,000 years old. For now, the prevailing view on very early occupations in this region is that they are unproven.

WHO WERE THE PREHISTORIC PEOPLE?

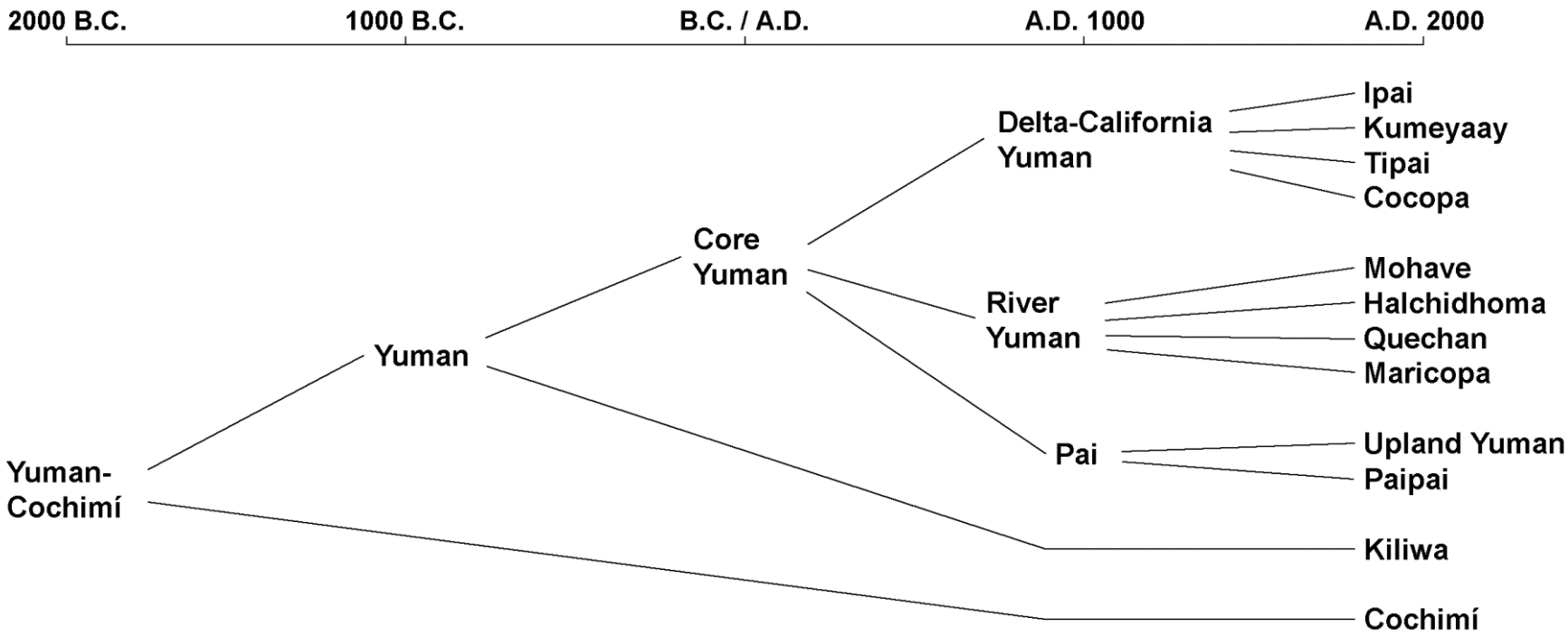
Key questions concern how long the Kumeyaay have been living here, and where they came from. One hypothesis is that the present-day Kumeyaay are the descendants of the region's first permanent settlers and that their ancestors have lived here for more than 10,000 years. An alternative hypothesis is that the Kumeyaay descend from comparatively recent arrivals – recent, at least as viewed within the long span of prehistory – and that they perhaps moved west from the lower valley of the Colorado River sometime during the last 1,000 years, or at most the last 2,000 years. A third possibility is that both views are correct and the early historic Kumeyaay carried with them genes and cultural elements that were passed along both from the earliest human inhabitants and from relative newcomers.

For studying societies without written records, spoken language is the most distinctive marker of identity and cultural inheritance. In spite of the word borrowing that habitually takes place across linguistic boundaries, we can envision the relationships among languages schematically as genealogical trees that branch forward in time. Thus modern English is derived from Anglo-Saxon, which was descended from a proto-Germanic language, which in turn was descended from the proto-Indo-European language more than 5,000 years ago.

Similarly, moving backward in time, the modern Kumeyaay language is descended from a proto-Delta-California Yuman language (spoken, perhaps, around A.D. 1000) and before that from proto-Yuman (spoken sometime around 1000 B.C.-A.D. 1) which was ancestral to a family of eight or more distinct languages that were spoken in southern California, western Arizona, and northern Baja California. Back another 1,000-2,000



Distribution of Yuman Languages

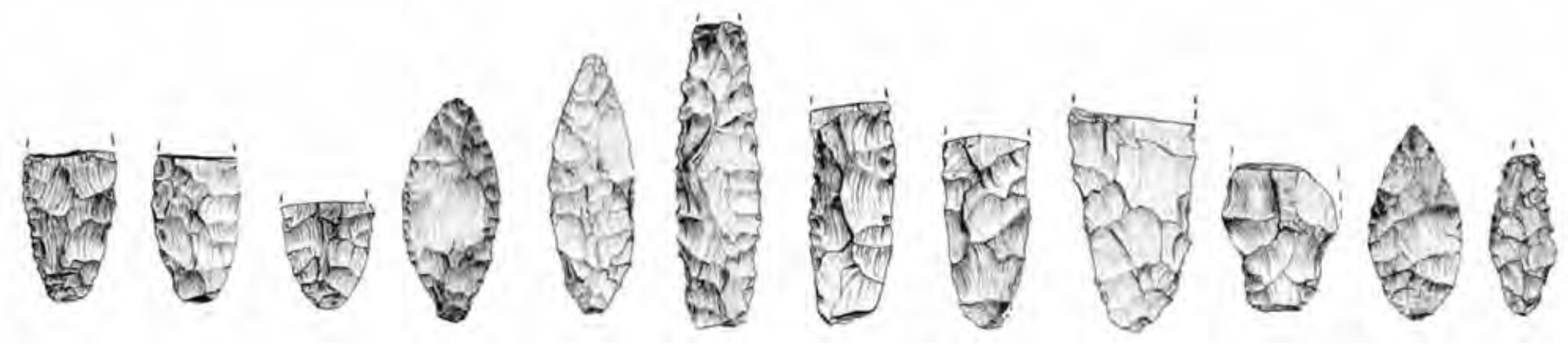


Family Tree of Yuman Languages

years before proto-Yuman was proto-Yuman-Cochimí, a grouping that also encompassed the aboriginal language or languages of central Baja California. Much farther back than that, and now only very dimly and uncertainly recognizable for linguists, may have been a proto-Hokan language. The Hokan linguistic phylum is sometimes thought to have joined the Yuman family together with other native language families that historically were scattered around the margins of northern California and in western Mexico. Hokan, if indeed it proves to be a real ancestral unit, must date back in excess of 6,000 years.

The homelands for these various linguistic groups can also be inferred only hesitantly on the basis of linguistic evidence – for instance, based on their modern distributions and shared terminology of environmentally significant entities such as particular species of plants and animals. One early scholarly suggestion was that the proto-Yuman homeland lay in the lower valley of the Colorado River. An alternative proposal favored northern Baja California, perhaps including parts of the Corridor, as the more likely homeland. Still a third argument, based on the scarcity of words for fish or fishing gear that were shared by the various modern Yuman languages, was that proto-Yuman must have been spoken at some undefined location in the dry interior of western North America, where it was well-removed from marine or freshwater aquatic resources.

Physical anthropology can offer another perspective on the identities of the region's prehistoric inhabitants. Comparisons



have been made in measurable physical traits, such as stature and skull shape, between the remains of prehistoric people who were buried near the west coast of San Diego County and northwestern Baja California and the characteristics of the historic-period native inhabitants of the same region. Contrasts between these two populations seem to suggest that some sort of discontinuity happened during the prehistoric past. But it is also true that these traits are influenced by factors other than inheritance (for instance, diet and social practices) as well as by the natural drift in a group's genetic inheritance through time. DNA studies hold out the possibility of a more precise way to trace inheritance, particularly by studying the mitochondrial DNA that is passed exclusively through the female line. However, the late prehistoric practice of cremating the dead rather than directly burying them, as well as modern cultural sensitivities about studying human remains, pose obstacles to making advances in this direction.

Changes in material culture (artifacts), as recognized in archaeological remains, provide another way to get at questions of population continuity or discontinuity across long periods of prehistory. Archaeologists have attempted to sort out the prehistoric evidence chronologically in a variety of ways. The most common approach has been to recognize three major phases: a "Paleoindian" phase during the Terminal Pleistocene period and the subsequent Early Holocene period; a very long "Archaic" phase, stretching through the Middle Holocene and into the early part of the Late Holocene; and a "Late Prehistoric" phase, between the end of the Archaic phase and the beginning of local recorded history.

The Paleoindian phase includes the Clovis culture and a subsequent pattern that is dated between 8000 and 6000 B.C. and is known locally as the "San Dieguito" culture. The San Dieguito culture is essentially synonymous with the Lake Mojave culture of the Mojave Desert. Significant differences have been discerned between Clovis sites and San Dieguito/Lake Mojave sites, not only in their projectile point styles but also in the technologies that were used for making other flaked stone tools. Together with a possible chronological gap between the two cultures, this may suggest that there was a discontinuity between the two cultures, and therefore, perhaps, a change in the ethnic identities of the people who participated in those cultures.

The circumstances that may have caused the shift from the Paleoindian phase to the Archaic phase of prehistory have been hotly debated among archaeologists in recent years. One view

holds that the shift marked the arrival of new people who replaced their San Dieguito predecessors. A contrary opinion is that the shift merely indicates that the same people gradually altered their technology or their strategies for making a living. Some archaeologists have even suggested that the contrast itself is largely an illusion. According to this view, rather than representing change through time, San Dieguito and Archaic sites merely served different functions, for example places to quarry and work stone into tools on the one hand and places to process seeds and shellfish for food on the other. Both activities could have been occurring contemporaneously and within the same basic culture, according to this view.

The long-lasting Archaic phase extended from about 6000 B.C. to A.D. 700. Geographically, it is manifested by several different archaeological patterns; these may represent different groups living in different parts of the general region. On the coast, Archaic sites are typically termed the "La Jolla Complex" or the "Encinitas Tradition." In the northern interior of San Diego County, around Valley Center and on the middle course of the San Luis Rey River, a slightly different "Pauma Complex" is distinguished. In the deserts to the east, Archaic cultures are given labels such as the "Amargosa Complex." These cultures – La Jolla, Pauma, and Amargosa – may represent different peoples.

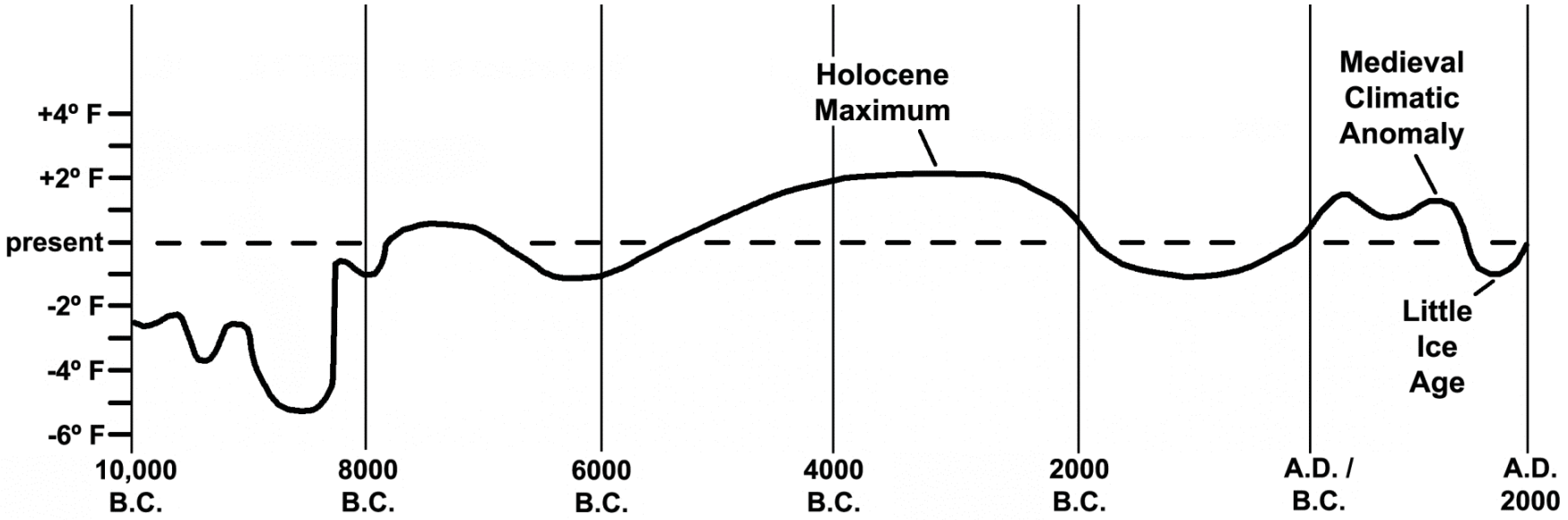
The local Late Prehistoric phase began sometime around A.D. 700. In the archaeological record, the presence of a substantial change in material remains between the Archaic and the Late Prehistoric phase is undeniable. Hallmarks of the Late Prehistoric phase include such innovations as the introduction of the bow and arrow, pottery making, and cremation. Much less certain is whether those changes all happened more or less simultaneously, and therefore marked a major cultural discontinuity. On present evidence, they might spread across several centuries. It is possible that the changes coincided with the local arrival of Yuman-speaking people, but equally there could have been both linguistic continuity and considerable cultural continuity with earlier millennia, despite the material changes. Many modern Kumeyaay feel a close connection with the region's prehistoric inhabitants. Further investigations will be needed before these issues can be definitively sorted out.

WHAT WAS THEIR WORLD LIKE?

If you travel east along Interstate 8 (the "Kumeyaay Highway") from San Diego to El Centro, you can get a good feel for what the Corridor and its environs may have been like during at least the latest period of its prehistory. In the west, there are hillsides covered with chaparral, while the better-watered valleys can boast grasslands and oak-lined creeks. East of this area, the land rises gradually to the crest of the Peninsular Range, locally represented by the Laguna Mountains in San Diego County and by the Sierra Juárez mountains in Baja California. The mountains have elevations above 5,000 feet, forests of pine and oak, and an intermittent mantle of snow in the winter. East of the crest's rain shadow is a high-desert plateau in the case of Jacumba Valley, but, for the most part, the land drops precipitously, descending the mountains' steep canyons or rocky escarpment through pinyon-juniper woodlands to reach the low-lying Yuha Desert. This sparsely vegetated desert continues to descend to the east, now much more gradually, down to and below sea level at the edge of the Imperial Valley.

The mountain escarpment created a barrier that challenged historic-period transportation engineers, and its existence helped to slow the development of San Diego as a major port by isolating the city, at least to some degree, from potential eastern customers and suppliers. The historic-period challenge was ultimately overcome by highway builders. Similarly, the prehistoric challenge of crossing the barrier of the Peninsular Range was real, but it was met by men and women laboriously making their ways up and down routes such as Carrizo Canyon or Inkopah Gorge, where Interstate 8 now winds its way.

Across the very long span of geologic time, the physical landforms of the region have been radically altered. However, they have remained essentially static during the millennia since people first came here. In contrast to this physiographic stability, the patterns of climate, hydrology, vegetation, and wildlife have been more volatile. In turn, these changes in the natural environment demanded changing adaptations on the part of the prehistoric people who lived here.



Even during the Ice Ages, mountain glaciers never formed as far south as the Corridor. It is not yet certain whether or not the earliest human inhabitants of the Corridor actually confronted the large Pleistocene animals such as mastodons, saber-toothed cats, and camels that were finally becoming extinct elsewhere on the continent. So far, no evidence has been found that they did. Nonetheless, at the end of the Pleistocene around 10,000 years ago, local conditions differed significantly from those of the present. To the west, on the Pacific Coast, and to the southeast, in the Gulf of California, sea level lay much lower, (about 180 feet below its modern level). This lowering of the oceans pushed the coastlines farther out than at present by several miles to several tens of miles. Within the Corridor, temperatures would have been, on the average, several degrees cooler than they are at present. More rain and snow would have fallen. In parts of the low desert, thanks to studies of the dated plant contents that are found in ancient packrat nests, we know that plant communities were in the process of shifting their ranges some 3,000 feet upward from their Pleistocene elevations. The edges of Imperial Valley probably looked more like the Mojave Desert during this time.

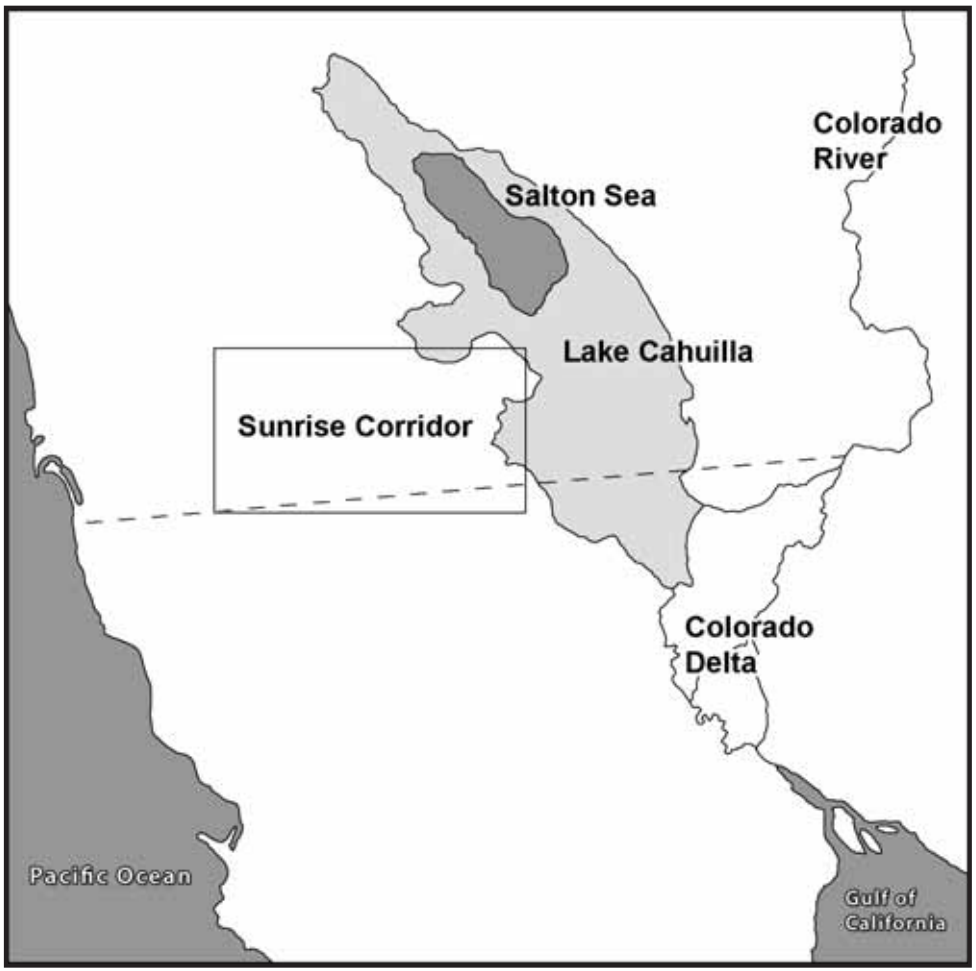
As the climate warmed, moving into the Holocene after about 8000 B.C., the environmental fluctuations generally became less drastic. By about 3000 B.C., plant communities had reached essentially their modern locations. However, conditions were still far from static. On the very short end of the time scale there were El Niño and La Niña episodes, droughts, floods, earthquakes, and wildfires. Fires were probably more frequent but also less severe than they are at present, thanks to the absence of human fire suppression and to native people's practices of setting small brush fires to drive game or to optimize natural plant growth, thereby lowering the fuel load.

On a more extended time scale, there were long-term shifts towards either hotter or cooler conditions, and towards either wetter or drier ones. A peak in pre-modern temperatures seems to have occurred during a period known as the "Holocene

Maximum," which was reached around 3000 B.C. Another warm period, known as the "Medieval Climatic Anomaly," occurred between about A.D. 800 and 1250. That episode was followed by a "Little Ice Age" that lasted to historic times. The elevated temperatures of the Holocene Maximum and the Medieval Climatic Anomaly would have severely challenged the ability of prehistoric people to live in the Yuha Desert, in the eastern portion of the Corridor.

A more dramatic set of environmental changes was also taking place. These changes were intermediate in duration between the short-lived natural events and the longer climatic cycles. The dramatic events in question were the cycles of prehistoric Lake Cahuilla. Through geologic time, long before people were present, the Salton Basin, with its lowest elevation at about 278 feet below sea level, was cut off from the Gulf of California by the westward expansion of the Colorado River's delta. In 1905, an engineering accident temporarily diverted the river's waters to the northwest, and in the process the Salton Sea was created. Somewhat similarly, on several occasions in the prehistoric past, the Colorado River shifted its course away from its route directly south into the lower delta and the head of the Gulf of California, and instead it directed its entire flow into the Salton Basin. There, the rising waters created a great freshwater lake. Lake Cahuilla was several times larger than the Salton Sea, and it flooded the Imperial and Coachella valleys, drowning the later locations of such cities as Indio, El Centro, and Mexicali. The eastern edge of the Corridor extends to the shoreline of this ancient lake, located at an elevation of 40 feet above sea level. When the lake was present, it offered an abundance of drinking water in the dry desert, as well as several species of freshwater fish, mollusks, a range of aquatic birds, and marsh plants, all of these resources within what was otherwise a forbidding environment.

Higher former lake shorelines, at elevations of 100-170 feet above sea level, have been dated in the Pleistocene, to 24,000 B.C. or so, but no evidence of human occupation has been identified in association with them. In contrast, the traces left by the Late Prehistoric people who lived along the +40-foot shoreline are abundant. Archaeological and geological evidence



Prehistoric Lake Cahuilla

has documented that the lake filled up and then evaporated away again at least three times just during the last 1,000 years, most recently in the A.D. 1600s. More scattered archaeological evidence exists for lake stands before A.D. 1000 as well.

When the lake was present, it offered men and women some exceptional opportunities. When it disappeared, the loss, although gradual must have posed exceptional challenges to people who likely grew dependent upon its resources. How did people respond to those opportunities and challenges? Were they able to evolve increasingly sophisticated responses based on their collective past experiences with the lake, or did they have to face each cycle afresh? As the philosopher George Santayana put it, "Those who cannot remember the past are condemned to repeat it." Ethnographic evidence suggests that the Kumeyaay, like most but not all nonliterate cultures around the world, maintained a relatively short collective memory about the factual past, and they would therefore likely have had to improvise new responses during each cycle.

WHAT NATURAL RESOURCES DID THEY USE?

Through time, the prehistoric inhabitants of the Corridor were impelled to acquire an extensive practical understanding of the animal, vegetable, and mineral resources that were available in their world. This understanding is manifested both in the archaeological remains that they left behind and in the ethnographically recorded practices of their descendants.

Scores of native plants were valued for various uses. Contributions to the native diet came from seeds (such as chia sage, pigweed, buckwheat, and saltbush), fruit (such as wild plums, cherries, and various cacti), berries (such as manzanita, elderberry, and juniper), greens (such as watercress and miner's lettuce), blossoms and buds (such as clover and yucca), pollen (from tule and cattail), and stalks and roots (such as yucca). Many additional plants provided medicines, firewood, paints, poisons, and the raw materials used in construction and for making tools, basketry, ornamentation, and clothing.

In some cases, archaeology can confirm ethnographic accounts concerning the use of specific plants, as well as adding to their numbers, evaluating their importance, and extending the record of their use farther back in time. This is done in a variety of ways. Site middens, where household wastes were deposited, may yield macroscopic plant remains, such as seeds, but also microscopic ones such as pollen and phytoliths, the microscopic silica particles that are diagnostic of particular kinds of plants. Other methods of gathering information about the prehistoric uses of plants include identifying diagnostic chemical residues that remain on the surfaces of tools, recognizing types of artifacts or features that are known to have been dedicated to specific harvesting or processing tasks, and discovering significant associations between the locations of archaeological sites and the distributions of particular plant communities.

Among the multitude of plant resources that were used, a few stand out as having been staples, or resources that were particularly important in native lifeways. These include acorns and pine nuts in the valleys and highlands of the western portion of the Corridor, agave along the eastern slope of the Peninsular Range, and mesquite and screwbean pods in the eastern desert.

Acorns ripened in the fall, and they seem to have been particularly valued; the Kumeyaay have sometimes been referred to as the "Indians of the oaks." The most highly prized species was the black oak, found at high elevations in the Peninsular Ranges, but several additional species were available in other

Elevation	Climate	Biotic Zone	Typical Plants
1,000 – 5,500 ft.	Warm Mediterranean	Chaparral	Scrub Oak, Chamise, Ceanothus, Manzanita
3,500 – 6,500 ft.	Cool Mediterranean	Oak / Pine Woodland	Black Oak, Pine, Live Oak
5,000 – 2,000 ft.	Hot Steppe	Pinyon / Juniper	Juniper, Pinyon, Yucca, Cacti
3,000 – -20 ft.	Desert	Creosote Bush Scrub	Creosote, Brittlebush, Ocotillo, Cacti

habitats. Processing acorns was a labor-intensive business. But this food resource was reliably available in abundant quantities and could be stored for use during times of the year when other resources might be scarce. Native people still gather acorns today and make traditional foods.

Among the other staples, pine nuts also ripen in the fall, in the higher elevations of the Corridor. Agave stalks become enriched in sweet sap just as they send up their flowering stalks in spring; roasted agave was another resource that could be stored. Mesquite and screwbean pods were collected in July.

Domesticated agricultural crops – including the critical Native American trinity of corn, beans, and squash, as well as some other, less important domesticates – were grown prehistorically in the floodplain and delta of the lower Colorado River. According to historic and ethnographic accounts, the Kamia or eastern Kumeyaay sometimes shared the use of crop-growing areas along the river with their neighbors and allies, the Quechan. The Kamia may also have raised crops at times in the Imperial Valley, when the incidental spilling of water from the Colorado River made this possible.

It has sometimes been suggested that the prehistoric western Kumeyaay might also have practiced agriculture or horticulture on a large scale. This claim remains controversial and has not yet been clearly confirmed, either archaeologically or with evidence from the ethnohistoric record. There is some evidence that the Kumeyaay used water from the hot and cold springs in the Jacumba Valley to irrigate crops. However, the documented record for such practices can be projected back no farther than the 1850s, and, by that period, refugees from the mission, the ranchos, or the lower Colorado River tribes might have been instrumental in the introduction of agriculture to local aboriginal people.

The western Kumeyaay seem to have subsisted largely, and probably entirely, by hunting and by gathering wild plant crops. Even for the native groups living on the lower Colorado River,

including the Mohave, Quechan, and Cocopa, agricultural plants generally accounted for less than half of their diet.

Animals also provided key subsistence resources. While it is probable that animals, as a rule, contributed fewer of the calories that went into prehistoric diets than did plants, animals offered valued sources of protein as well as dietary variety. Their use is attested ethnographically and is well-documented through discovery of their remains in the discarded wastes of archaeological middens.

Three species of large herbivores (artiodactyls) were available to the people of the Corridor: mule deer, mountain sheep, and pronghorn antelope. Deer browsed in a variety of settings, while mountain sheep could be stalked on the rocky eastern slopes of the Peninsular Range, and pronghorn grazed on open plains. Of the three, deer seem to have been by far the most common prey for prehistoric hunters, as attested both by ethnography and by bones that are found in archaeological middens.

Small mammals may have been equal or even superior to larger game in their prehistoric dietary importance. True, an individual animal provided only a small food package, but those packages were abundantly available and often relatively easy to procure. Above all, rabbits and jackrabbits were targeted by small-game hunters, both for their meat and for the use of their skins in robes and blankets. Many other small mammals, including ground squirrels, squirrels, chipmunks, gophers, rats, mice, and moles, were also caught. Ranking after rabbits and jackrabbits, packrats or woodrats seem to have been the next most important small-mammal food resource.

Carnivores and other medium-sized mammals, such as mountain lions, bobcats, coyotes, foxes, badgers, raccoons, and skunks, don't seem to have been the focus for prehistoric hunters, although the skins of some species were highly valued. The remains of most of these animals show up occasionally as minor constituents in local archaeological middens. Another medium-sized mammal, the dog, was the only domesticated animal in this region prehistorically. Non-domesticated young mammals and birds were reared as pets or for use in ceremonies. In addition to the role of dogs as hunting assistants and companions, they may also have been used as a food source.

Prehistoric people in the region hunted or collected many non-mammalian animal species. These included birds such as quail, doves, roadrunners, hawks, eagles, crows, mudhens, ducks, and geese; reptiles such as lizards, snakes, and turtles; fish,

primarily the Colorado River species that were found in Lake Cahuilla; and invertebrates, such as yellow-jacket larvae, grasshoppers, caterpillars, and freshwater mollusks from Lake Cahuilla.

Mineral resources were sought primarily for making tools. Within the Corridor, the extensive outcrops and cobble deposits of plutonic rocks such as granite, granodiorite, and gabbro, and of metamorphic rocks such as gneiss and schist, provided materials and surfaces that were suitable for use in the milling of seeds and other materials. More localized outcrops of soapstone or soft schist, a metamorphic rock, occur in the Cuyamaca, Mount Laguna, and Jacumba areas. This rock provided a soft material that could be shaped into containers, arrowshaft straighteners, or ornaments. Within the areas where plutonic rocks outcropped, veins of quartz provided a material that could be flaked into projectile points as well as into tools used for cutting or scraping tasks.

An even better stone for points and other flaked stone tools was fine-grained volcanic or metavolcanic rock. Some potential sources of this material outcropped on the eastern edge of the Peninsular Range, but the most extensively used metavolcanic formation lay near the western edge of the Corridor, along the eastern margin of the coastal plain. Mineral resources were also used for other purposes in addition to making tools. Among these were dietary salt and the red, white, or black pigments that went into paints. Suitable pigment sources tended to be highly localized. Several distinct source areas for prehistoric pigments have been identified in and around Jacumba Valley.

WHAT TECHNOLOGIES DID THEY POSSESS?

In the imagination of archaeologists, technology may occupy a disproportionately large place. This aspect of culture is the one that tends to be most clearly represented in the physical residues that are left behind by human prehistoric activity. In any case, material culture was an important element in the lives of its users. The inhabitants of the Corridor were able to deploy a technology that was both diverse and effective, although it was also one that was relatively simple, by worldwide standards.

One of the main tasks of aboriginal technology was to acquire, store, and process food. As noted, acorns played a key role within the system of native subsistence, at least during the Late Prehistoric period, and they called forth a fairly elaborate technology. In the fall, acorns that were still on the oak trees might be knocked down with long, straight poles. Carrying nets were used to haul the harvested acorns from the oak groves back to base camps. To dry and store acorns, large, tightly woven basket granaries were erected on posts to keep out pests. In the Corridor, archaeologists have identified rings of stones that had been set on horizontal bedrock outcrops and that probably served as the foundations for acorn granaries.

When acorns were ready to be processed, perhaps at a time when other foods were running low in the late winter or early spring, the acorn nuts were cracked, using conveniently available stone anvils and stone or wooden hammers. The extracted acorn meal might be stored in pottery vessels and cached in rockshelters. To make the acorn meal edible, more processing was necessary; the meal was pounded with pestles in mortars, milled meal was sifted by being tossed in a basket, and the indigestible tannin in the acorns was leached out with fresh

Bedrock Milling Outcrop with Mortar

water. This was accomplished by putting the meal in another basket and successively filtering first cold water and then warm water through it. Finally, the meal might be put in a pot over a fire, stirred, and cooked. When finished, it had the consistency of pudding and a slightly nutty taste. Herbs and other foods were added to this basic foodstuff for variety.

The prehistoric mortars that were used to process acorns are a particularly conspicuous part of the archaeological landscape in the Corridor. They are recognizable as round, smooth-sided cavities, sometimes in portable rocks but more often in large, immovable boulders or on bedrock outcrops. Wooden mortars and pestles were also used, but unfortunately they are largely invisible archaeologically. Mortars were employed for a variety of tasks. They were used to mill various plants, to

Remains of a Granary Platform with Foundation Stones

grind up small animals, and to process materials intended to be used for pigments. However, mortars are associated, above all else, with acorn processing.

In the uplands of the Corridor and surrounding regions, bedrock mortars seem to proliferate in contexts assigned to the Late Prehistoric phase. This fact suggests to many archaeologists that a major shift occurred in subsistence strategies during the final centuries of prehistory: a shift toward more intensive settlement in inland areas, and the emergence of acorns as a dietary staple. It is possible that such a change might have reflected an improved understanding of the technology that was needed to process acorns. More likely, though, it represented the inhabitants' reluctant adoption of a way of making a living that was more labor-intensive but also more dependable and productive overall. Such a change might have happened in response to the need to feed a growing population or in response to a decline of marine resources on the coast after the sea level stabilized and lagoons began to fill in with sand and silt, reducing the previously available shellfish that had been such an important component of their diet.

Agave processing has also left behind conspicuous traces within the Corridor. Agave plants flourished on the otherwise resource-scarce eastern slopes of the Peninsular Range. The flowers and leaves were used for food, but what was particularly prized by the Kumeyaay and other groups were the agave plants' basal rosettes or heads. These were dug out in the spring, killing selected plants just as their stalks were beginning to emerge. The agave heads had to be baked in a rock-lined pit with a bed of coals for one to three days before they were ready to eat. The remnants of hundreds, and more probably thousands, of agave earth ovens are scattered throughout the region where agave grows, marked on the ground surface by tell-tale charcoal stains and scatters of fire-cracked or fire-blackened rocks. Below the surface these roasting pits are more distinctive.

In addition to acorns and agave, other plant foods were collected and processed in a variety of ways. Poles, tongs, wooden chisels, seed beaters, trays, and knives may have been included in the tool kits used to harvest them. The plants' spines or shells may have been removed by hand. Baskets may have been used for winnowing. Resources were stored in excavated, rock-lined cache pits, in ceramic pots or baskets, or in granaries. Preparation included drying, curing, or leaching, as necessary. These products were then parched, roasted, baked, or boiled. Besides using fire for cooking and for warmth on cold nights, fires may have been purposely set to burn over harvested patches of ground in order to improve or accelerate their future yield.

Seeds from a wide variety of plants were milled with stone manos (hand stones) and metates (the nether grinding surfaces). Metates ranged from flat slicks to strongly concave basins, and, like mortars, they might be created either as portable stones or as fixed features on boulders or bedrock outcrops. These are distinctive and long lasting indicators of the presence of native people that are found over much of San Diego County. Bedrock basins and slicks outnumber bedrock mortars in the Corridor as well as in surrounding regions. Manos and metates seem to have been used much more extensively than mortars and pestles during the Archaic period, but both kinds of milling equipment continued in use side-by-side into the Late Prehistoric phase. One distinctive type of bedrock milling basin that is relatively deep and narrow and is found in particular within this region has been termed the "Cuyamaca Oval."

Like most other peoples of Native California, the inhabitants of the Corridor manufactured finely coiled or twined baskets. These were used for carrying, processing, cooking, and storing food resources, among their other functions. Some of the additional fiber products that were manufactured included nets,

Surface Evidence of an Earth Oven

cordage, brushes, paddles, digging sticks, awls made of wood (used along with awls of bone and horn, which are more commonly preserved in archaeological deposits), cradles, drills for making fire, and torches for carrying fire. The use of such fiber artifacts is attested ethnographically, but only rarely do we find surviving remnants archaeologically.

Another craft, but one that was not so widely shared within prehistoric California, was the manufacturing and use of pottery. Jars, bowls, trays, and ladles were made to be employed, like the products of basketry, for carrying, processing, cooking, and storing. Other ceramic creations included tobacco smoking pipes, musical rattles, ornaments, and figurines. In common with their Yuman kinsmen and also with the unrelated Uto-Aztecan groups that lived to their immediate north, such as the Luiseño and

Local Forms of Arrow Points

Cahuilla, the Kumeyaay used the paddle-and-anvil technique to produce pottery that was durable and well-shaped.

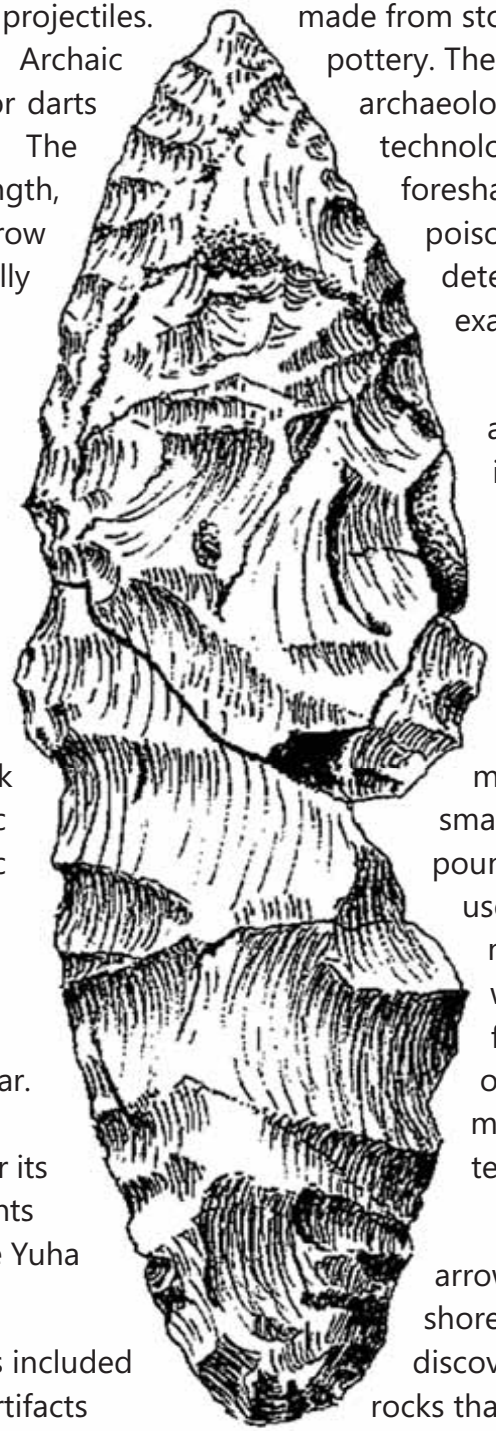
In contrast to the pottery in some of the other regions of aboriginal America, most of the local pottery was undecorated, although painted designs, incising, surface finishes, and other decorative techniques were occasionally used. Abandoned complete pottery storage vessels have occasionally been found in isolated rock shelters within the Corridor. However, more commonly encountered are the potsherds from numerous broken vessels that provide one of the archaeological hallmarks of the Late Prehistoric phase.

Hunting made additional demands on aboriginal technology. Most conspicuous and recognizable in the archaeological record are the often finely flaked, symmetrical

stone points that were used to tip prehistoric projectiles. Large points, dating from the Paleoindian and Archaic phases, were associated with the use of spears or darts that were thrown by means of an atlatl. The appearance of small points, an inch or so in length, marked the local adoption of bow-and-arrow technology, which probably occurred locally sometime between A.D. 500 and 1000.

A variety of names have been applied to distinctive forms of projectile points in this region. The types are differentiated primarily on the basis of the conformation of their bases, which reflect the ways in which they were attached to the projectile shaft, and by their sizes, which reflect their use either on spears/darts or on arrows. Notable Paleoindian types include the fluted-base Clovis points mentioned previously and the Lake Mohave and Silver Lake points with long, thick stems, as well as more common but less diagnostic ovate point forms from the Early Holocene. Archaic forms include corner-notched or split-stemmed Pinto points and subsequent Elko points, together with tapering-stemmed Gypsum points. Finally, in the Late Prehistoric phase, the small, triangular Cottonwood and side-notched Desert points appear. One variety of small points, called Dos Cabezas, is identical to Cottonwood or Desert forms except for its strongly serrated edges. Dos Cabezas serrated points take their name from a location on the edge of the Yuha Desert within the Corridor.

The manufacturing of wooden arrow shafts included straightening them through the use of grooved artifacts made from stone, preferably the soft rock steatite, or from pottery. These artifacts are uncommon but impressive finds in archaeological sites. Other elements of bow-and-arrow technology, such as the projectile shafts and hardwood foreshafts, atlatls, bowstrings, fletching, quivers, and poison, are much less likely to be preserved or detectable archaeologically, although ethnohistoric examples are preserved.

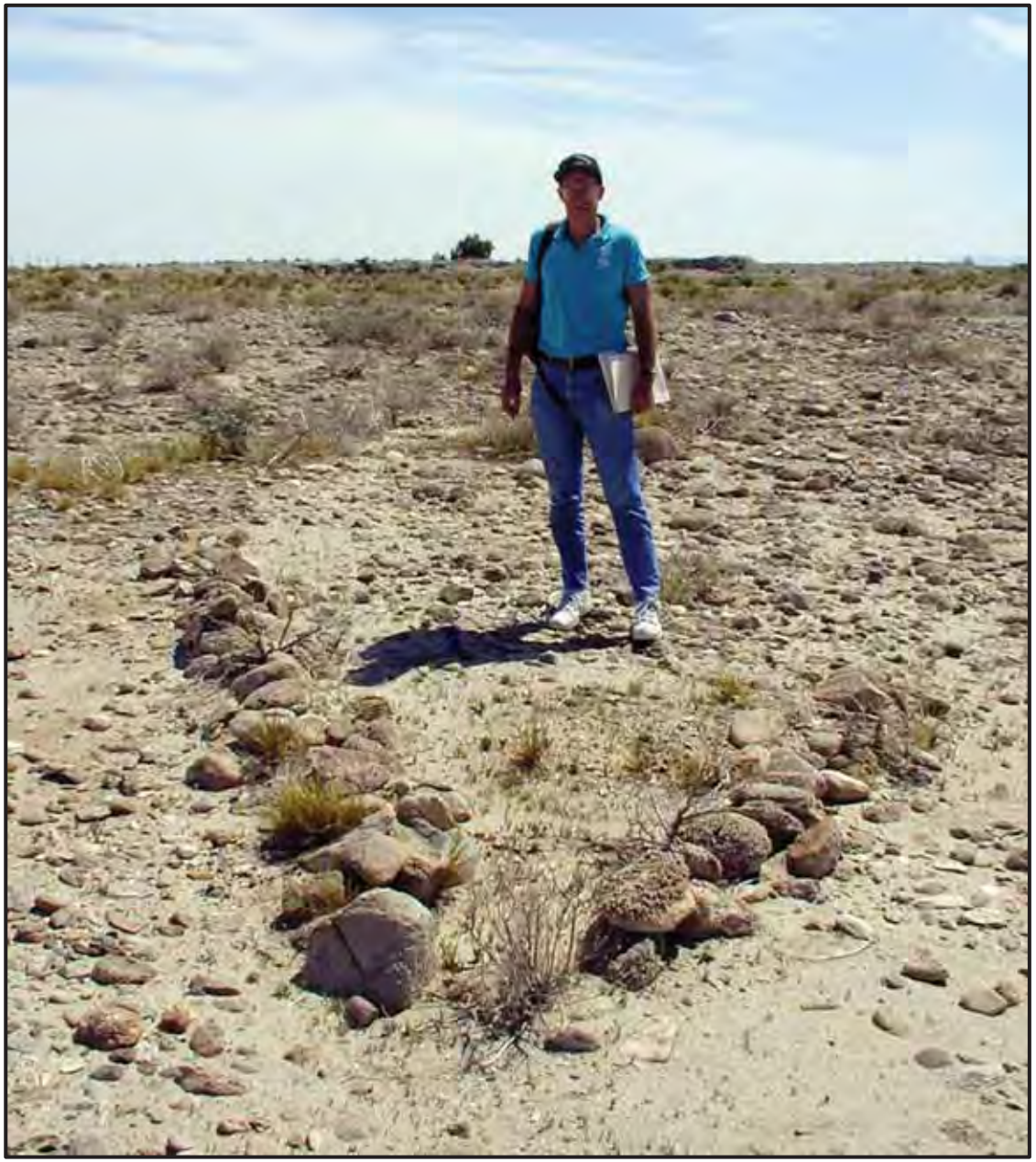


Projectile systems were only one element of aboriginal hunting technology. Other elements included various types of snares, nets, and deadfall traps; throwing sticks (or non-return boomerangs), clubs, sticks for probing underground animal nests, and deer-head decoys; and use of fire and dogs to drive game. Among processing tools, stone knives were used for butchering game, stone and bone scrapers were used to remove meat and to process animal hides. The remains of small animals, including their bones, might be pounded in mortars. The technologies that were put to use in preparing animal products and cooking their meat substantially overlapped with the ones that were applied to plant resources. Often, the specific function of an archaeologically recovered tool can only be determined by examining it under a microscope to find distinctive patterns of wear or by testing its surface for diagnostic chemical residues.

The Kumeyaay fished with nets, with bows and arrows, and with lines and hooks. Below the maximum shoreline of Lake Cahuilla, archaeologists have discovered numerous V-shaped alignments of large rocks that are recognizable as the foundations for

prehistoric fish traps. To move across the water, Kumeyaay on the west coast and other groups living on the Colorado River used balsas or small rafts that were made from bundles of tule; the same sort of watercraft must also have ridden on the waters of Lake Cahuilla during earlier periods.

Aboriginal utilitarian technology was applied to other tasks beside subsistence, including construction of dwellings and the manufacture of clothing. For the most part, this region's climates are not severe, and therefore the need for elaborate shelter was not a pressing concern. Seasonally, people were able to live under the shade of a convenient tree or in a small rockshelter. In the desert, there are numerous circular clearings on the desert pavement surfaces that have been termed "sleeping circles," which suggests one possible explanation of their origin and function as camping spots. A more substantial sort of winter house was also sometimes built. Rectangular or circular in floor plan, it might be "semi-subterranean," with a floor that was excavated a few inches into the ground. Such a structure would likely be covered by a thatched roof and have a fireplace in the center of the floor. Some enclosures of stacked rock walls found in archaeological contexts have been suggested to have been living areas, although some of them might alternatively have been storage areas, hunting blinds, ceremonial areas, or possibly even military features. Other structures that were erected to provide shelter and for other purposes included windbreaks, ramadas, sweat houses, and large ceremonial enclosures.



Lake Cahuilla Fish Trap

As with housing, there was little practical need for clothing. Children might go naked and men might be either naked or wear breechclouts, while women wore aprons made from the pounded soft inner bark of cottonwood or willow trees. Both sexes possessed basketry caps to cover their heads, and they might use sandals made from yucca or agave fiber for extended travelling. Capes of rabbit skins, deer hides, or willow bark might be worn to protect them against the winter weather. Unfortunately, this aspect of prehistoric life is mostly lost to us, as these items typically do not preserve in the archaeological record.

Circular Clearings in the Desert Pavement

HOW DID THEY ORGANIZE THEMSELVES?

Equally as important for prehistoric people as managing their relationships with the natural world were the ways they managed relationships among themselves. Ethnography is our primary source of information as to how the Late Prehistoric people of the Corridor worked together, lived together, and passed on their culture to succeeding generations.

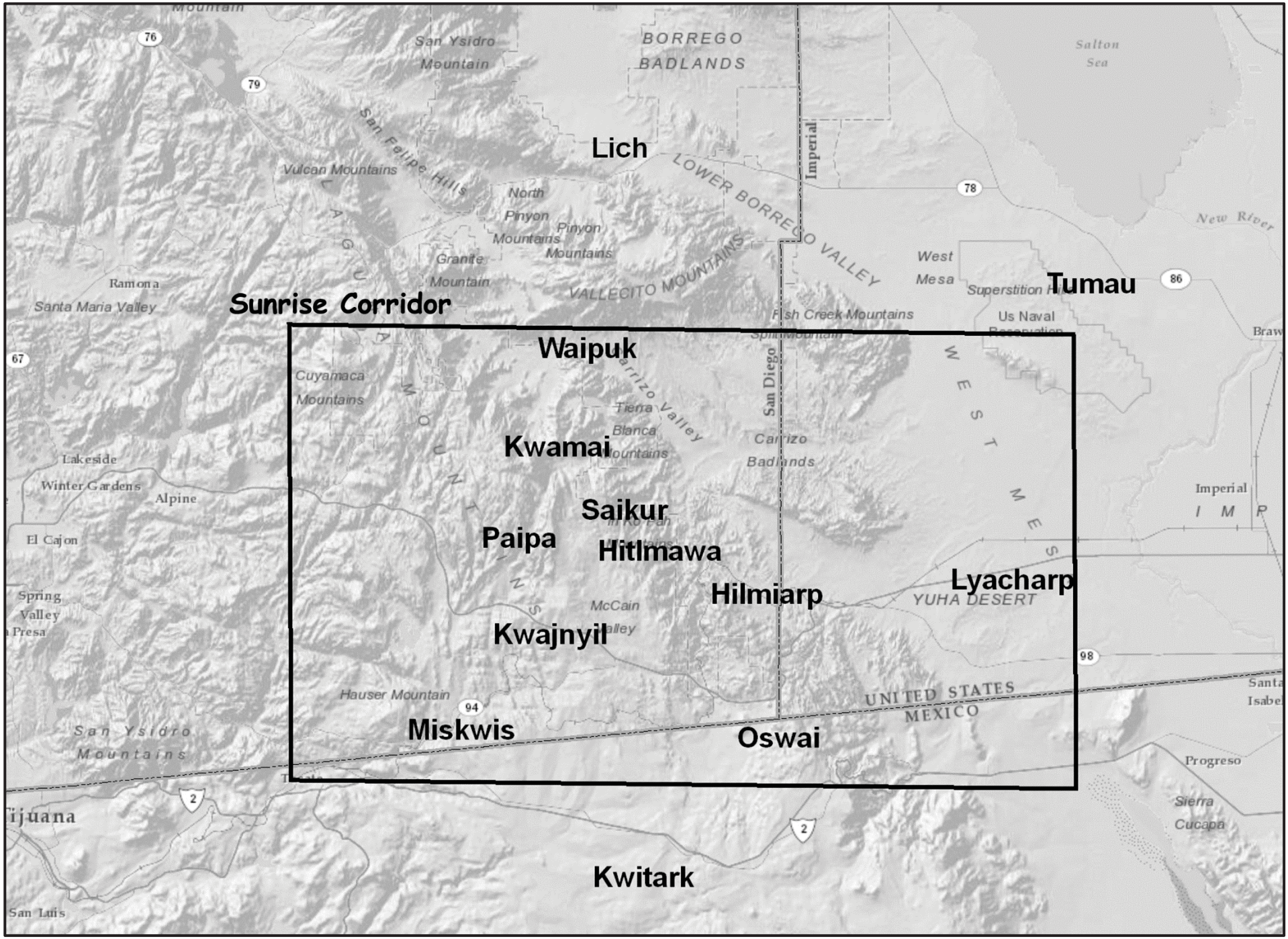
The fundamental division of labor in local aboriginal society wasn't arranged on the basis of class or on specializations in particular occupations or crafts, but on the more universal divisions of age and sex. As children matured, they gradually took on more adult tasks, while elders gradually relinquished the tasks to which they were no longer fitted. Women and men had separate fields of endeavor, to a degree, although the sexual division of labor wasn't rigid. Men generally had the responsibility for hunting, but women might also take part in animal drives. Women were the primary gatherers of plant resources. However, men also had some substantial roles in this regard, for instance as the ones who were responsible for gathering and processing agave, and for climbing oak trees to collect acorns. Making baskets and pots was the province of women, and most of the cooking was also done by women. Aboriginal society recognized berdaches, or men who assumed feminine roles.

Most work was done on an individual basis, but collective efforts were also important. Agave might be baked either individually or collectively by a group. Deer might be stalked or run down by individual hunters, but alternatively they might be driven into ambushes by a group of men. Mountain sheep seem to have been individually stalked. Jackrabbits might be either individually hunted or caught in nets in communal drives. Rules existed for sharing the products of collective enterprises among the participants. When tasks were performed by individuals, the workers might still work in close proximity, in order to enjoy each other's company.

The fundamental social unit was the nuclear family, consisting of a man, his wife, and their children. Some marriages were arranged by the couple's parents, but afterwards there were strong restrictions on the interactions that were allowed between a son-in-law and his mother-in-law, or between a daughter-in-law and her father-in-law. The bride received presents of food. After marriage, the couple usually resided in the husband's community, and they initially lived in his parents' house. The taking of multiple wives was permitted, but polygamy was probably only practiced by a small minority of men, primarily chiefs. Divorce could take place on the grounds of barrenness, infidelity, maltreatment, laziness, or general incompatibility.

Multiple families lived together within a community. Most evidence indicates that communities were usually composed of members belonging to a single patrilineal clan, called a shimul, (such as the Miskwis, Hilmiarp, and Lich) a unit that looked back to real or fictitious descent from a common ancestor in the male line. However, the rules weren't hard and fast, and at least some intermixing of members of different shimuls within communities probably occurred, even prior to the demographic collapse that followed Spanish colonization after 1769. A single shimul might also encompass several separate communities. Marriage partners had to be taken from different shimuls, so that wives were normally alien to the communities where they lived. Some types

Kumeyaay Dancers (1873)



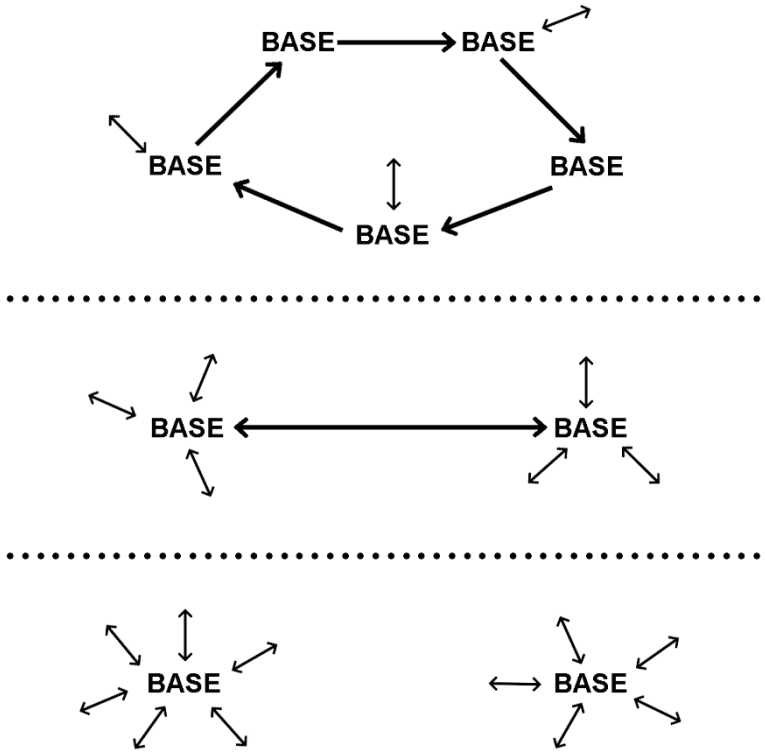
Locations of Shimuls in the Corridor Vicinity

of property, such as gathering areas, springs, and eagle nests, might be owned collectively by the shimul or the community.

Shimul chiefs, called kwaipais, and assistant chiefs, called kaponyals, generally held their offices by right of primogeniture, ideally being the oldest sons of their predecessors in office. There might be exceptions to this rule of primogeniture if the normal candidate for the office wasn't considered to be a suitable individual. In any case, the functions of these leaders were largely ceremonial ones, rather than involving military, judicial, or economic responsibilities.

The ways that different communities lived off the land through the course of a year may have varied. It has been suggested that some communities established more or less fixed bases in permanent villages, from which they would travel out to exploit the various resources through the community's surrounding territory. According to another model, communities relocated themselves at intervals during the seasons of an annual round. For instance, a community might spend the winter on the edge of the low desert and then gradually move up to higher elevations in stages, as natural crops became available for harvesting. They would pass the summer in the upland valleys and the fall in the higher-elevation oak and pine groves, before returning to the desert. Still another model suggests that communities underwent a "fission/fusion" pattern, spending part of the year living together as a unit in a valley but then splitting up into family groups that scattered throughout the oak and pine groves. Each of these settlement patterns may have been practiced in different parts of Kumeyaay territory.

The archaeological evidence that is used for reconstructing prehistoric patterns of settlement and mobility is usually ambiguous, although season-specific faunal or floral remains are

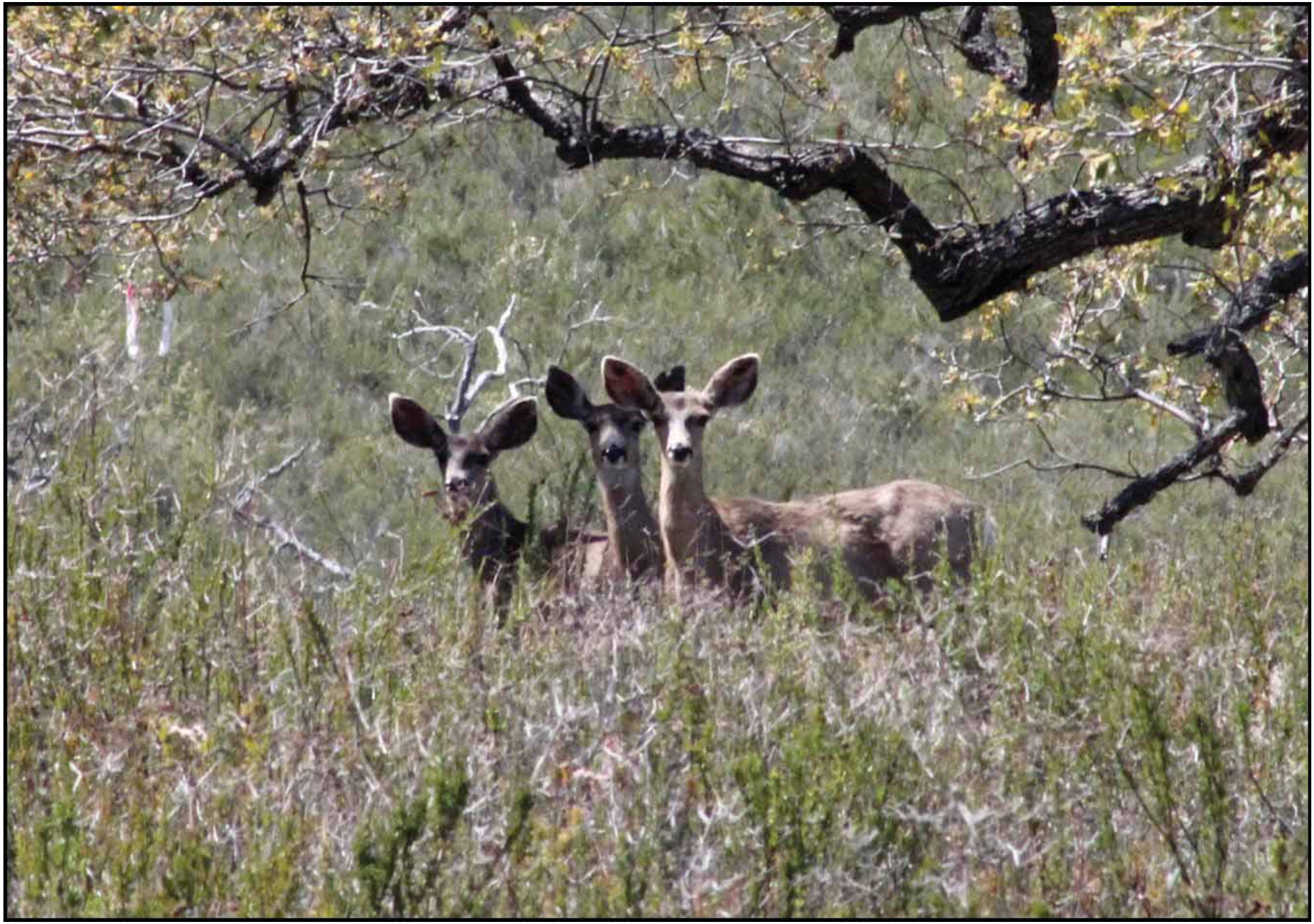


Settlement Models:
Mobile Forager Base Settlements (top); Semi-Fixed Bases (center); Fixed Collector Bases (bottom)

sometimes identifiable at sites. Some archaeologists believe that they have detected evidence of an important shift in the region's settlement practices from earlier to later time periods. During the early period, it is suggested that a community moved its base camp fairly frequently, in order to live near the resources as they became available. This is termed a "forager" mobility system. During the later period, base camps or villages are thought to have been moved less frequently. Instead of moving the base settlement, work parties travelled out from the base in order to harvest various resources, bringing them back for processing, storage, and consumption at the base. This has been termed a

"collector" mobility system. People in the Corridor may have been foragers during the Paleoindian and Archaic phases of prehistory, and then become collectors during the Late Prehistoric phase. The population size of individual communities may also have increased from early to later times, from small hunting bands to comparatively large villages.

Above the level of the community, there seems to have been little or no practical feeling of political unity, for instance on a "national" or ethnic level. The Kamia communities living in the Imperial Valley may have had a somewhat greater degree of unity among themselves, similar to the tribal unity of their Quechan neighbors on the lower Colorado River. But in conrast, to the west, each community seems to have functioned essentially as an independent entity.



WHAT WERE THEIR WIDER CONNECTIONS?

The prehistoric people of the Corridor did not live in isolated communities. They weren't cut off from other communities or from the different ethnic groups inhabiting the surrounding regions. Some of the wider connections involved intermarriage and shared participation in major ceremonial events. Other contacts involved conflicts. Still other intercommunity connections were concerned with the exchange of goods, whether that exchange was envisioned as a ceremonial expression of friendship or as economically motivated trade.

Major ceremonial occasions might involve invited guests from the surrounding region. These were occasions when the foundations were laid for extra-community marriages. Because marriage was barred between related individuals, partners usually had to be sought from outside the community, and they sometimes came from outside of the ethnic group as well.

With regard to conflict, some early observers reported that there were frequent wars between villages over women or food resources. On the other hand, later ethnographic reports about the Kumeyaay described these affairs as not being real wars, but rather as feuds over poaching, witchcraft, or murders, which, most often, only involved the ambush of a lone enemy. Thus the level of intercommunity violence was relatively muted, as compared to the conflicts experienced in many regions of native America.

The Kumeyaay were at least nominally implicated in a system of interethnic military alliances, the most intensive and geographically the most widespread such system reported for Late Prehistoric western North America. The alliance system was centered on the lower Colorado and Gila rivers, and it might involve sizeable pitched battles. The main participants in these conflicts were the Mohave and Quechan on one side and the Cocopa and Maricopa on the other. The Kamia or desert Kumeyaay were said to have been allied with the Mohave and Quechan, while their close kinsmen, the mountain Kumeyaay, were reported as allied with the Cocopa and Maricopa.

The ethnographic record attests to the participation of the Kumeyaay in systems of long-range and interethnic economic exchange. When goods from outside reached the local area, it may have happened in one of two ways. In some cases, the local

Lower Colorado River Alliance System

Prehistoric Trail

inhabitants themselves travelled directly to the source areas and brought back the goods. In other cases, down-the-line exchange was involved, with the goods being passed from one community to the next before reaching their ultimate destination. Salt, fish, and shellfish came from both the coast to the west and the Cocopa and Quechan to the east. Agricultural foods also came from the east. In exchange, the Kumeyaay were able to offer acorns, baked agave, mesquite beans, wild tobacco, stone for making tools and paints, baskets, and eagle feathers.

Some aspects of prehistoric trade are visible in the archaeological record. This happens in the form of either raw materials or manufactured products that are recognizable as being exotic to the areas where they are ultimately discovered. However, in many cases, it is difficult to be sure whether exotic items were acquired through exchange or whether they were collected directly by individuals travelling to the source locations.

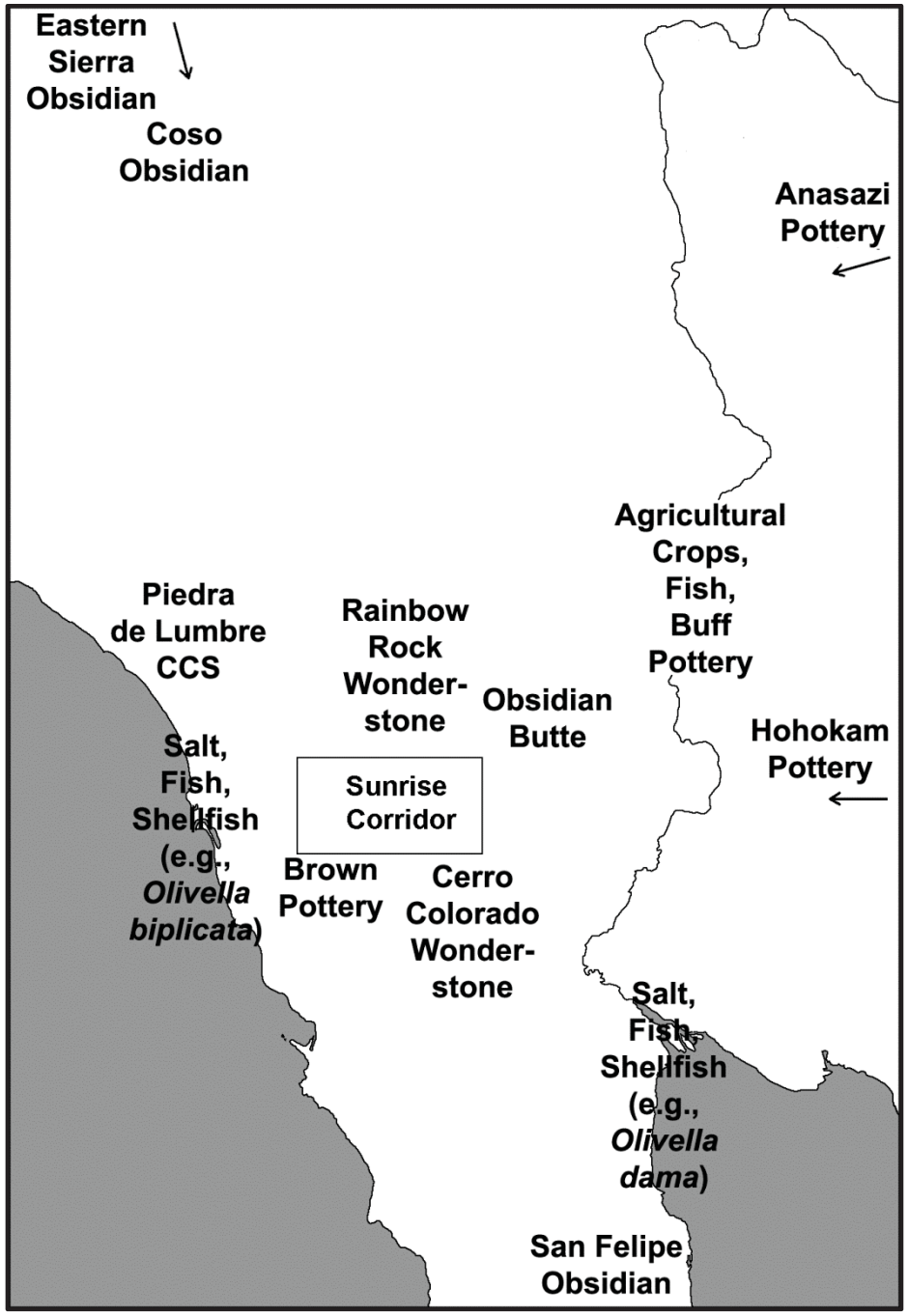
Marine shell is one material that is clearly exotic within the Corridor and is found in small amounts in the inland region's archaeological sites. In these contexts, shell more likely represents material used for making ornaments or tools rather than representing food residues. If meat from shellfish was going to be consumed at inland locations, the meat would probably have been first shucked from its shells at coastal sites, and the shells would have been discarded there. This would minimize the burden of carrying the shells over many miles. Consequently, this food resource would be nearly invisible archaeologically.

In some cases, the marine shells that are found at inland sites come from species that live exclusively either off the West Coast or in the Gulf of California. A notable example is a genus of small marine snails, *Olivella*, whose spiral shells were the favorite material for manufacturing shell beads. *Olivella biplicata* is a

species that lives on the West Coast, while *Olivella dama* lives in the Gulf of California. Beads made from both of these species are found in Colorado Desert and western San Diego County archaeological sites; they consequently betray specific links of trade or travel that must have extended both to the west and to the east.

Among exotic lithic materials, obsidian holds the pride of place for archaeologists. This natural volcanic glass was valued highly for its outstanding flaking properties. Geologically, outcrops of the material are relatively rare, and it is so chemically homogeneous within a given flow that it is relatively easy to trace archaeological specimens back to their specific sources. The obsidian quarry that was closest to the Corridor was Obsidian Butte, located on what is now the southern shoreline of the Salton Sea, within the historic territory of the desert Kumeyaay. Material from Obsidian Butte is by far the most common kind of obsidian found at the Corridor's archaeological sites, although it still is usually less than 10 percent of all the stone materials discarded at those sites. An added twist is that during periods when Lake Cahuilla was present, the Obsidian Butte quarry was inaccessible, because it was submerged beneath more than 170 feet of water.

Obsidian use in the region around the Corridor was limited during the earlier phases of prehistory. The primary early source of obsidian was the Coso Volcanic Fields, in the Mojave Desert to the east of the Sierra Nevada mountains, more than 200 miles north of the Corridor. This source was surely too far away to have been accessed directly by the people living in the Corridor. Down-the-line exchange from one community to the next must have been involved in moving Coso obsidian south. Material from other obsidian sources located east of the Sierra Nevada, in Mono County and western Nevada, also show up in San Diego County



Sources of Locally Exotic Materials

sites, although only rarely. Somewhat more common is another variety of obsidian, this time coming from the south, from a source south of San Felipe in northeastern Baja California.

Cryptocrystalline silica (CCS) is a type of rock that was second only to obsidian as a preferred material for making many types of flaked stone tools. This material is a microscopic form of quartz and commonly goes under such names as chert, chalcedony, jasper, agate, and flint. Although sources of cryptocrystalline silica are comparatively rare, they are more numerous than obsidian sources. They are also more difficult to distinguish visually or to fingerprint chemically. More than half a dozen quarries of this stone have been identified in western San Diego County. One that has received particular attention from archaeologists is called Piedra de Lumbre, on the Marine Corps base at Camp Pendleton. The Colorado Desert also contains other sources of silica-rich stone. These include the "wonderstone" found at Rainbow Rock in northwestern Imperial County and at Cerro Colorado, just south of the border in Baja California.

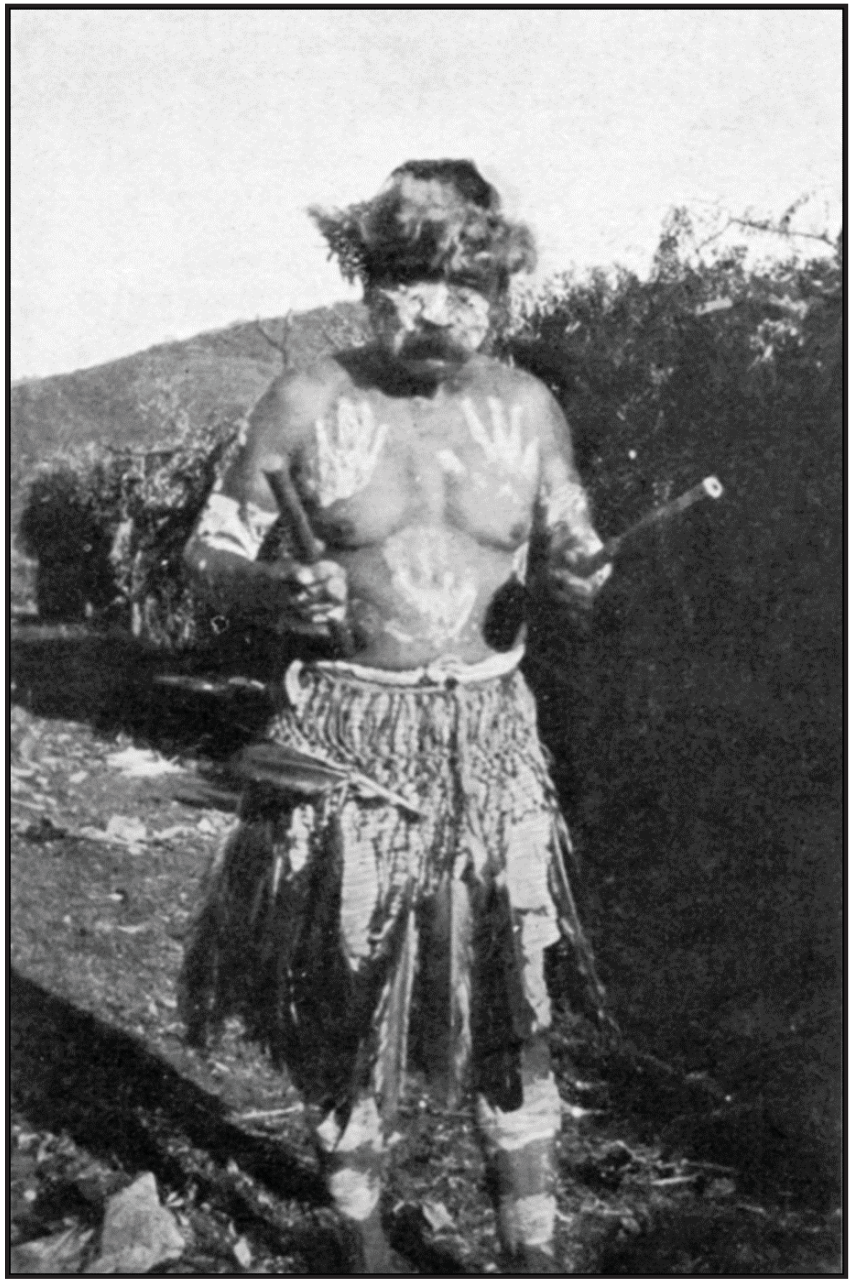
Pottery is the manufactured product that most strongly betrays its exotic origins. Very rarely, pieces of pottery manufactured in the American Southwest culture area, including parts of Arizona and Utah (cultures of the Hohokam, Anasazi, etc.), have been found at southern California archaeological sites. These discoveries provide evidence for the existence of at least tenuous long-distance links. Within southern California, two main locally manufactured ceramic wares are distinguished. One of these is a buff-colored pottery, produced in the desert using sedimentary clays that were in most cases ultimately derived from the Colorado River (including Lake Cahuilla). The other is a darker, brown-colored pottery manufactured primarily in the mountains by using the residual clays left behind when granitic bedrock weathers away. The pieces of buff pottery that are frequently found at sites in the mountains and farther west attest to trade or travel from desert areas. Brown pottery found in the desert is a little more ambiguous, because some dark-colored pottery was also produced in the desert, but a considerable amount of the brown pottery found at desert sites indicates the existence of trade or travel in the opposite direction: from the mountains to the desert.

Moving beyond just these two basic classes of local pottery, archaeologists have attempted to distinguish more specific types within each of the two classes. Some types have been used as time markers, but different types may also suggest localized areas of pottery manufacturing, and consequently may help trace patterns of long-distance trade and travel. Pottery types are sometimes distinguished by the details of vessel shape, surface modifications, and other external characteristics. Types are also defined on the basis of the mineral grains and other materials that were included within the clay, either as natural contaminants in the case of the residual brown pottery or as temper intentionally added to improve vessel strength in the case of the sedimentary buff pottery. The production of some of these pottery types has been identified with specific areas, such as particular sections of the lower Colorado River valley, the shores of Lake Cahuilla, or portions of the Peninsular Range.

HOW DID THEY EXPERIENCE THEIR WORLD?

The prehistoric people of the Corridor didn't entirely spend their lives eking out a living from harvesting their region's resources. Beyond accomplishing that essential task, they developed a variety of ways to enrich their lives with amusements and to come to terms with what they perceived as the supernatural world.

If the practical requirements for clothing in this region were not very rigorous, the impulses to personal adornment were strong. Beyond taking steps to protect themselves from the weather with capes, aprons or breechclouts, headgear, and sandals, and measures for personal hygiene (for instance, clay soap, and mud plasters against lice), the ethnographic Kumeyaay devoted considerable attention to their personal appearance. Face and body painting, elaborate coiffures, tattooing, and piercing of ears or the nose were used. Archaeological evidence adds the use of shell beads, disks, and pendants, as well as bone and clay beads and ornaments.



Kumeyaay Dancer (1910)

Recreational activities involved toys, games, dancing, and music. Games included various kinds of races, archery contests, shinny (a ball-and-goal game), peon (a group gambling game based on guessing), and games with wooden dice. Women juggled and made string figures. Musical instruments included rattles made from gourds, deer hooves, or pottery, as well as bullroarers (wooden slats that were swung through the air on the end of a string), flutes, and whistles. Such instruments were used in ceremonial as well as recreational contexts.

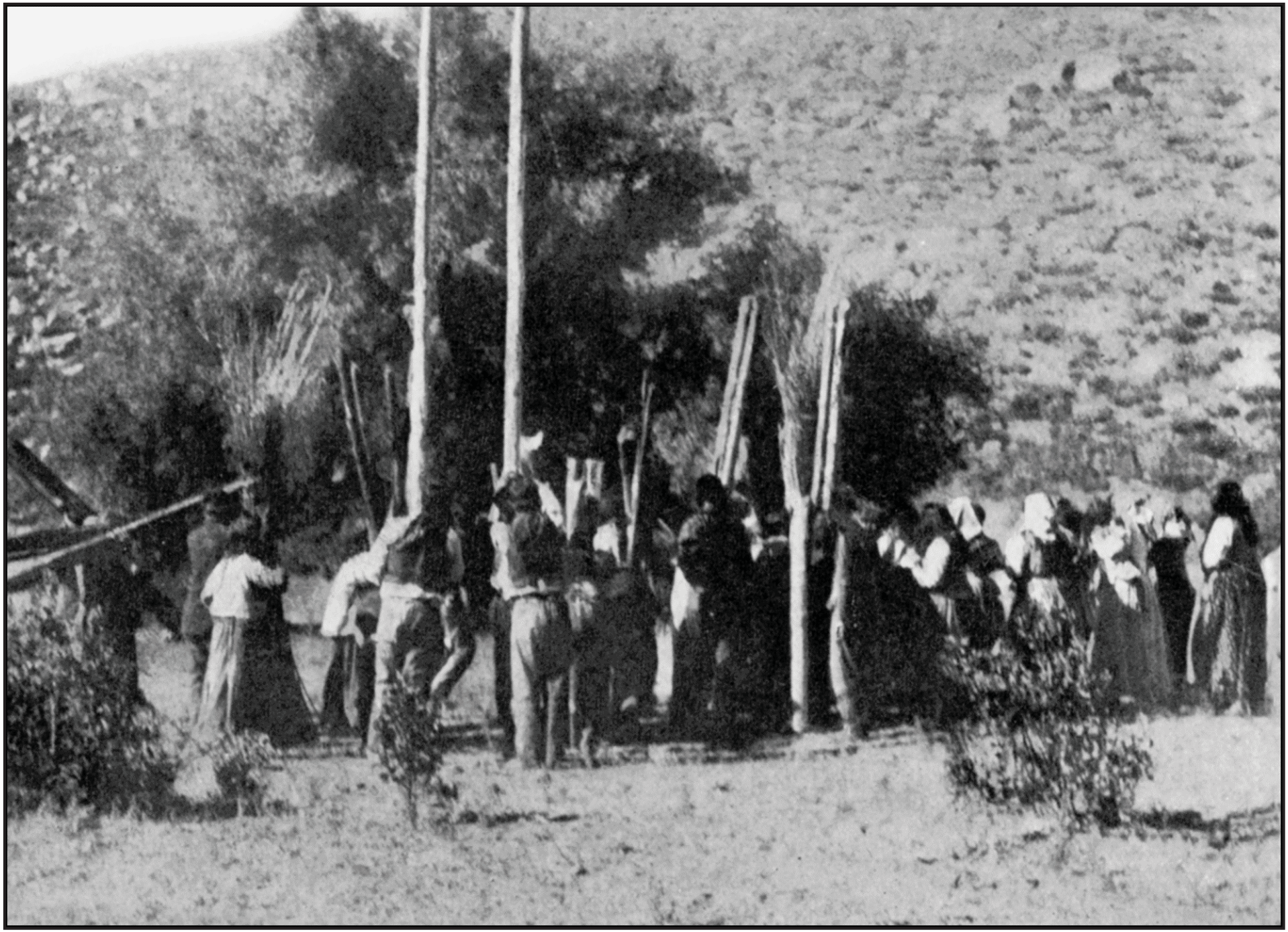
The most important and elaborate ritual occasions for the prehistoric Kumeyaay were focused on two life milestones: the separate initiation ceremonies for adolescent girls and boys, and the observances related to death. Adolescent ceremonies were public rites that involved the shimul or the

community as well as the young initiates themselves. These prolonged events featured such elements as the observance of various taboos on the part of the initiates, fasting, dancing, running, sand painting, and taking of the hallucinogenic plant toloache. When someone died, the house, clothing, and all other personal property of the deceased individual were destroyed. Subsequently, a more elaborate sequence of collective mourning ceremonies, the keruk, was held at intervals for all recent deaths. A keruk drew participants from beyond the community.

Other ceremonial observances took place on a variety of occasions. Childbirth, menstruation, marriage, eclipses, new moons, setting out on a hunting trip, or attempting to end a drought all involved some required actions or restrictions on actions. For some observances, eaglets were captured and ceremonially killed. Special types of dances were performed by selected individuals. Some of these ceremonial occasions generated physical residues that are potentially identifiable archaeologically, including the specially constructed enclosures within which the events were staged, personal regalia such as crystal-tipped wands, and the small stone mortars that were dedicated to grinding tobacco or wooden tablets.

Shamans or kwisiyai were religious specialists, usually male, who enjoyed an important but ambiguous position within Kumeyaay society. They were equipped with elaborate paraphernalia; one of their main functions was to cure disease, either as generalists or as specialized practitioners (for instance, as specialists in treating rattlesnake bites). In addition to treating disease and directing community ceremonies, some kwisiyai claimed the ability to predict events, manipulate the weather, or assume the forms of animals. The kwisiyai's powers might be put to either benevolent or malevolent uses. Consequently, they were regarded warily by the rest of the community, and sometimes even killed.

The Late Prehistoric peoples of the Corridor possessed a substantial oral literature, some portions of which have been preserved for us ethnographically. Long, complex cycles of songs were performed. Oral myths provided elaborate accounts of the creation of the world by two brothers who emerged from a primordial ocean. The myths describe and discuss the origins of human lifeways. Other stories, evidently intended more purely for entertainment, recite the misadventures of the rascal coyote.



Kumeyaay Mourning Ceremony (1908)

The plastic arts weren't neglected, and the efforts devoted to them went beyond merely satisfying utilitarian needs. Decorated basketry has only survived to any extent in the form of items that were made during the historic period. However, better-preserved pottery attests to the aesthetic attention devoted to producing well-shaped vessel forms and to occasionally adding painted designs, incising, surface slips, or other forms of decoration.

Perhaps the most striking of all the prehistoric visual arts that have come down to us are the remains of rock art found on boulders or in rockshelters. Pictographs were painted, usually making use of red or black pigments on light-colored granitic rock canvases. Petroglyphs were pecked or cut through the darkly weathered or patinated surfaces of rocks to expose the underlying fresh rock in contrasting patterns. Cupules, which look like miniature mortars but sometimes occur on surfaces that aren't horizontal, are more ambiguous; both utilitarian and aesthetic/ceremonial origins have been suggested for them. Another medium of artistic creation was geoglyphs, or earth figures. These were created by aligning large rocks into patterns or by removing patinated or varnished rocks within natural desert pavement surfaces. Such figures are particularly notable in the lower Colorado River valley, but some notable examples also occur farther west, including the desert portion of the Corridor.

Several different styles of prehistoric rock art have been distinguished in southern California. These include patterns based on angular or curvilinear geometric motifs and others based on recognizable representations of people, animals, or natural phenomena. One style that's particularly prominent in the Corridor is known as the La Rumorosa pictograph style, named after the Baja California community of La Rumorosa, located just south of the international border. Motifs that are particularly featured in this rock art style include digitate anthropomorphs (that is, human stick figures with exaggeratedly prominent fingers and toes), sauromorphs (lizard figures), sunbursts, circles, and rectangular grids. One of these images at Vallecitos in Baja California is known as El Diablito. The eyes of this figure are crossed by a "dagger" of sunlight that marks the annual arrival of the winter solstice.

SUMMING UP

The prehistory of the Corridor is a complex and fascinating tale. Spanning more than 450 generations, people lived in the Corridor, adapting to its complexity and changing environment, and shaping their own unique lifeways. In many ways, the region's prehistory is still only superficially understood. However, archaeologists, anthropologists, Native Americans, and others are actively collaborating to fill in more of the details and to bring fresh perspectives and a more complete understanding to the story.

The archaeological investigations of the Sunrise Corridor have produced a deeper and richer understanding of the complexity of the cultural resources and the interrelationship of those resources across this landscape. Beyond its scientific value, this work has raised our appreciation for the people who created these resources and made their lives in this region over thousands of years.

FOR FURTHER READING

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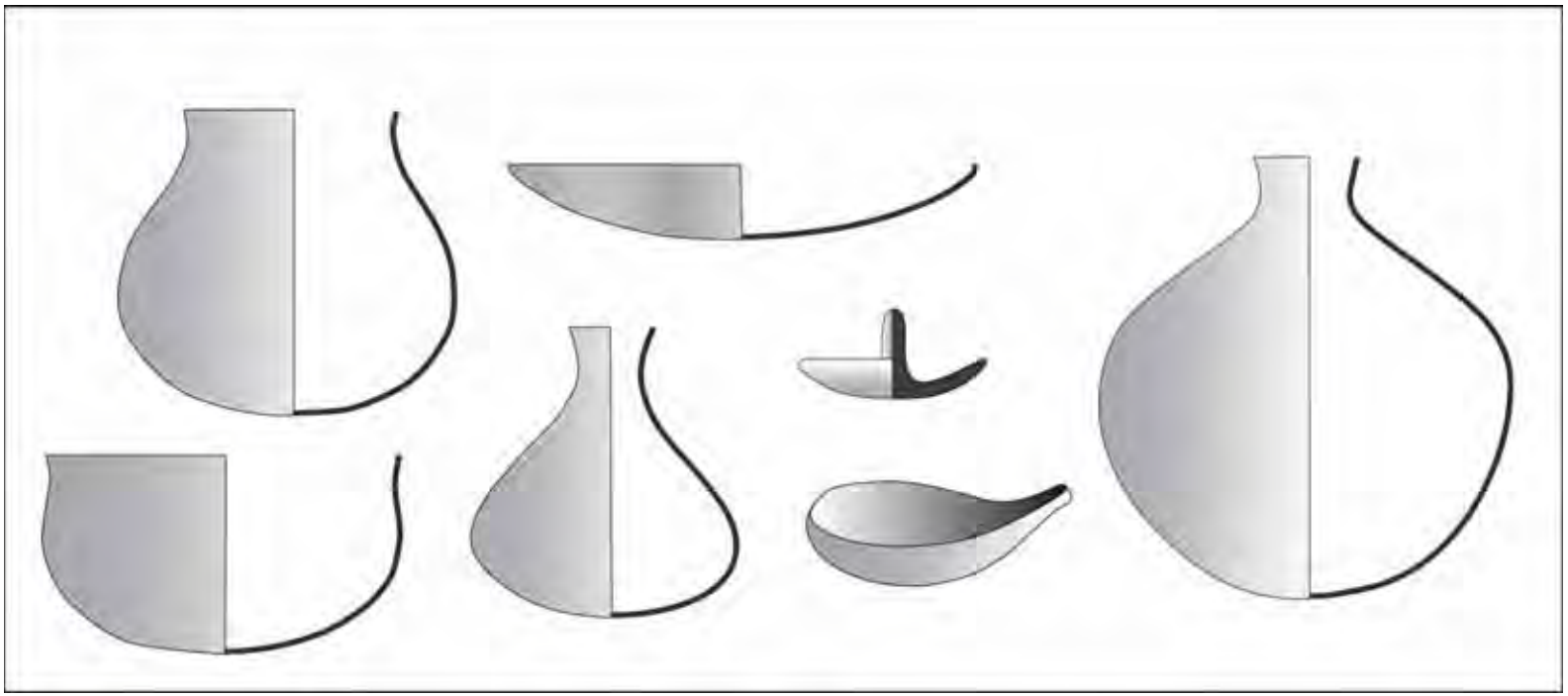
Contemporary Native American Links:

www.kumeyaay.com
www.kumeyaay.info



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