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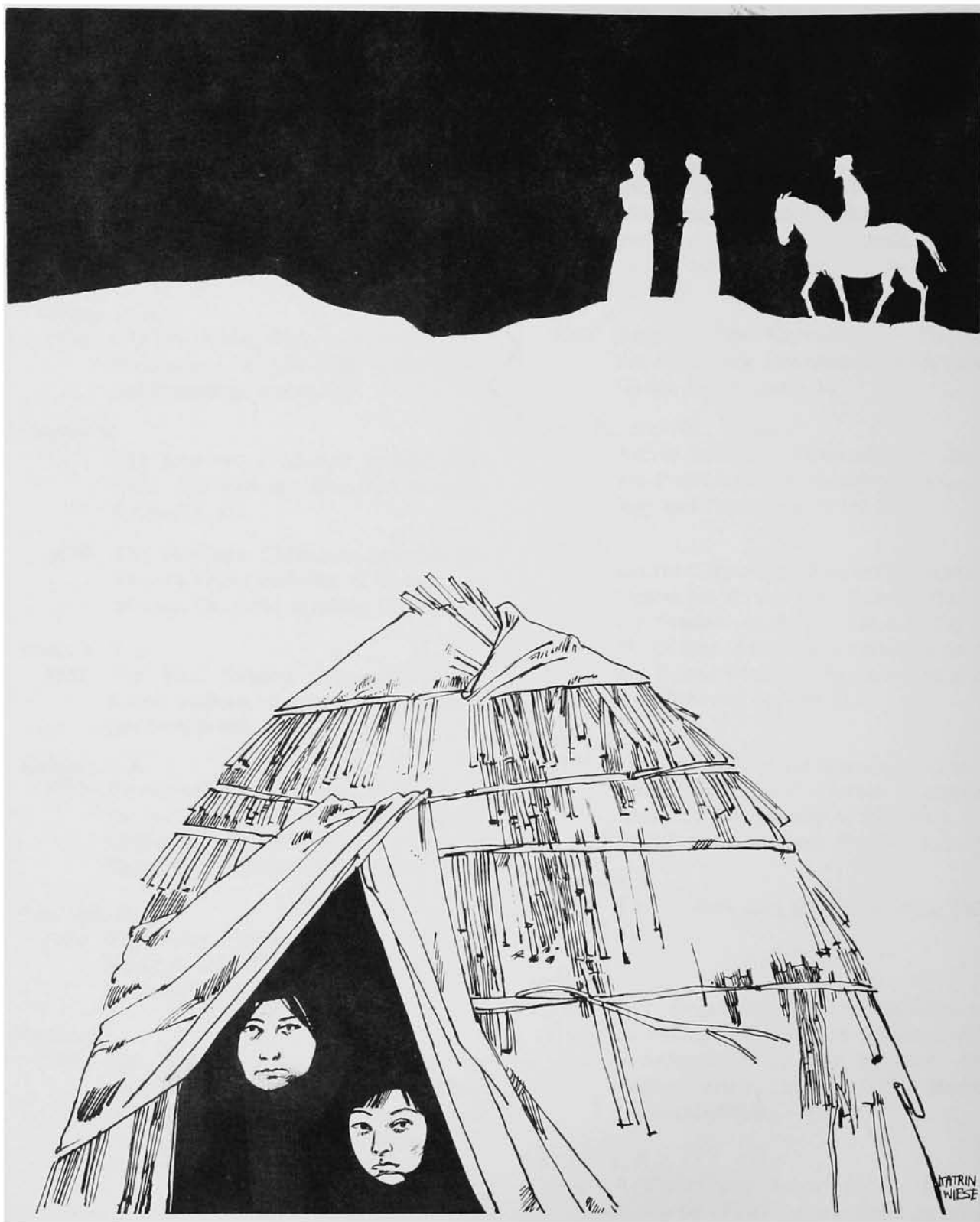
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Portolá's 1769 Expedition and Coastal Native Villages of San Diego County

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ON July 14, 1769, a Spanish exploring party led by Don Gaspar de Portolá left San Diego for a trip northward to Monterey. Although the men and animals were tired from an earlier trek to San Diego, Portolá realized the necessity to push on toward Monterey as part of an over-all plan to chart the coastal regions of New California and discover suitable locations for the nascent mission and presidio system (Van Hement and Teggart 1910, I:127).

Accompanying Portolá on his trip north was Father Juan Crespí, a Franciscan who greatly aided Father Junipero Serra in establishing the mission chain in New California, and Miguel Costansó, a cartographer who was later instrumental in drawing up the plans for the Monterey presidio. It was Crespí and Costansó who took copious and informative notes allowing us to recount that eventful July trip. Second in command was Lt. Pedro Fages who, like Crespí and Costansó, kept a diary and was generally an accurate observer.

In July, 1769, it would still be 13 years before a permanent adobe chapel would be completed on Presidio Hill above what later became Old Town, San Diego. Prior to their departure the 63 men of Portolá's exploration party received a High Mass in a rude brush shack which served as a temporary chapel (Palou 1926, II:11). The men prayed for salvation and safe-keeping as they prepared to leave on a trip which would not return them to San

Diego until January 24, 1770.

In an early entry of his narrative, Miguel Costansó noted that six soldiers and a corporal had been sent ahead of the party to scout the easiest access and find campsites with water and pasture (Costansó 1911, II: 167). Following the scouts were Native Americans "with spades, pick-axes, crowbars, axes and other implements . . . to cut brush and to open a passage wherever necessary" (Van Hement and Teggart 1910, I:129-130).

As in the case with most early European explorers, Portolá was preceded by knowledgeable natives who followed known trails and landforms. What may have appeared as an awesome uncharted wilderness to Europeans was to the Indians a friendly and familiar land crisscrossed with an elaborate trail network of great antiquity (Davis 1961).

Leaving the base camp near the Indian village of Cosoy, at the foot of Presidio Hill, the party followed ancient and well-worn Indian trails which wound their way northward along Mission Bay (False Bay). Just north of Mission Bay and adjacent to Rose Canyon (Fig. 1) the explorers encountered a large Indian village which they named Rinconada (Spanish for 'corner'). The Spaniards gave the Indians presents and, in general, enjoyed a peaceful and amiable exchange (Palou 1926, II:110-111).

As they had approached Rinconada, Crespí noted large quantities of rosemary, live oaks

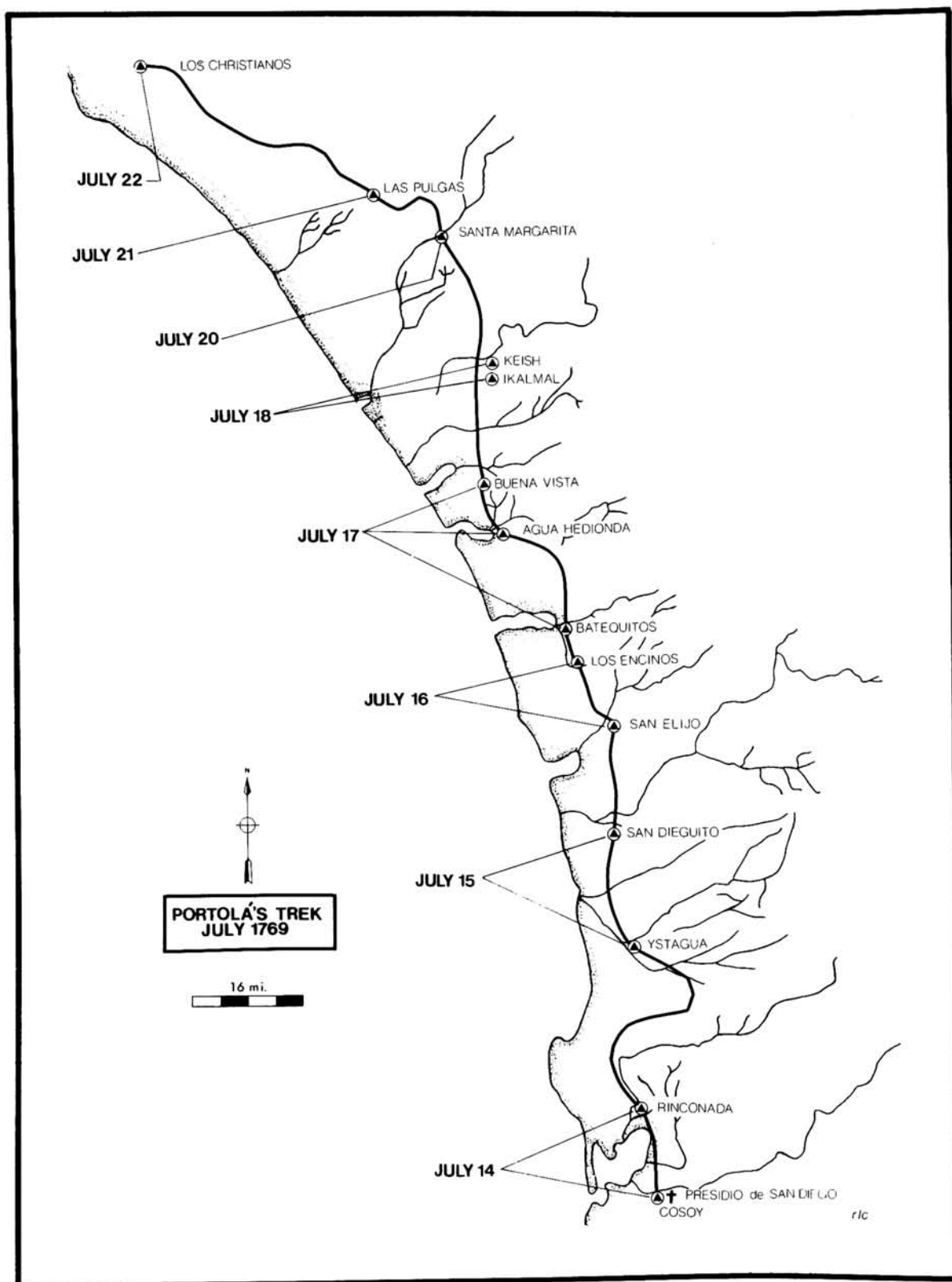


Fig. 1. Indian villages of coastal San Diego County as seen by Portolá in July, 1769.

(*Quercus agrifolia*), rabbits, and hares. In noting these plants and animals, Crespí was documenting major food sources for proto-historic Kumeyaay of San Diego County. Although the acorn from the black oak (*Quercus kelloggii*) was favored by Indians, the live oak was used as a supplement. Hares and rabbits were also of prime importance to native inhabitants of San Diego County as witnessed by accounts from both the eighteenth and nineteenth centuries.

In later years of the mission period, circa 1769-1832, Rinconada appeared frequently in mission records and other Spanish documents. In a 1775 report to the Spanish viceroy, Pedro Fages noted that to pass from Monterey to San Diego one had to travel through, or very close to, at least twenty Indian villages (Fages 1972:46-47). One of the twenty villages was Rinconada where Fages was subjected to a less-than-warm welcome in 1772.

Fages related that as he passed near Rinconada he was showered with stones and darts. He took alarm at the seriousness of the attack and assumed a defensive position "to punish the boldness of the insolent fellows, killing one or more of them but losing none of our men" (Fages 1972:47).

Although Lt. Fages and his military men experienced unpleasant relations with natives from Rinconada, the Franciscan priests fared better. On his various trips through Rinconada, Father Francisco Palou found the natives to be friendly and courteous. On one trek Palou noted that the Indians treated him with reverence and salutes which "brought tears to the eyes of the traveling religious" (Englehardt 1920:49).

The animosity between soldiers and natives was increased by soldiers who grazed cattle on native foodstuffs and by their repeated unsavory sexual conduct and violation of aboriginal women. In 1772, Father Luis Jayme bemoaned the lack of discipline among soldiers at the presidio and noted "Jose Rafael Hernandez and Jose Marcelino and Julian

Murillo raped an Indian woman from Rincon village" (Jayme 1970:43) and that soldiers had "turned their animals into their [the natives'] field and they ate up their crops" (1970:39).

The 1772 rape, the skirmish with Fages, and repeated contact with Spaniards could have left Rinconada villagers malcontented or vengeful. However, Captain Fernando Rivera y Moncada later reported in an *informe* to the Spanish viceroy that Rinconada was not one of the Kumeyaay *rancherías* which took part in sacking Mission San Diego de Alcalá on November 5, 1775 (Rivera y Moncada 1967,II: 455).

In mission records, Rinconada is listed under the Spanish name of Rincon, Rinconada, and by the Kumeyaay names Jamio, Japmo, and Jamo. Records for 1769 to 1772 are incomplete as a result of the 1775 burning of the Mission, although at least fifteen converts from Rinconada were recorded prior to 1773 (Englehardt 1920: 47). Between 1773 and 1806 a total of 41 persons from Rinconada were given baptismal rites. The year of greatest activity was 1778 when seven persons were baptized (Merriam 1968:160-161).

After their brief visit at Rinconada, the Portolá expedition traveled northeast through a sheltered valley along a route similar to that followed by tracks of the Santa Fe railroad. This route traversed Rose Canyon and jutted inland from the coast. After a march of almost three hours the party camped for the night within the protected walls of Rose Canyon near the present site of the Solar warehouse (Palou 1926, II:111).

Although it was nightfall by the time the Spaniards arrived, this did not deter nearby Kumeyaay villagers from walking into camp with offerings of sardines. Portolá's party accepted the sardines and reciprocated by giving the natives trade beads and clothing (Palou 1926, II:110).

The following morning the Spaniards continued north through Rose Canyon, across Miramar Mesa and into Soledad or Sorrento

Valley. Ever mindful of their royal sponsors, the Spanish explorers named the place Valle de Santa Ysabel after the Queen of Portugal (Costansó 1911, II:466). Following the valley to its northern end they crossed a wide meadow behind Del Mar and entered San Dieguito Valley which Crespí named San Jacome de la Marca and which his men christened La Poza de Ozuna. In total, the day's journey had taken the explorers ten miles from their previous night's camp.

As the party approached Sorrento Valley, Crespí noted that the valley looked "to us to be nothing less than a cultivated cornfield or farm, on account of its mass of verdure" (Palou 1926, II:111).¹ Adjacent to the valley on a small knoll the men saw a Kumeyaay village with six brush houses. After ascertaining that the natives were not only friendly but joyous at their arrival, Portolá and his party descended into the valley where they found that the rich verdure consisted of wild large-leafed calabashes and thickets of wild roses.

While the men and animals were resting, Portolá made a gesture of good faith toward the Indians by distributing "some beads among the heathen of this village" (Palou 1926, II:111). In return for his generosity the natives offered a guide to the explorers. As the group left the valley with an Indian guide leading the way, Crespí reported he saw two well-made clay canteens sitting in nearby pools of water.

Although perhaps not the first reference to clay pots among Indians of San Diego County, this early notation is proof that Indians of this area did manufacture pottery prior to Spanish contact, a point which had been debated in early years of California anthropology. Part of this conjecture was spawned by historian Hubert H. Bancroft in his *Native Races*. In that work, Bancroft stated that prior to the arrival of Spanish explorers Indians manufactured baskets and stone bowls but no pottery (Bancroft 1883, I:407-408). An early Luiseño ethnographer also cast some doubt about their use of ceramics in pre-Spanish

times although he wrote that at least some prehistoric peoples did make pottery (Sparkman 1908:201).

As in the case with Rinconada, the village at Sorrento had repeated contact with Spaniards in the ensuing years. The Kumeyaay name for this village was Hispanized as Ystagua or Estagua. Following a tradition of naming geographic areas and villages after religious figures, native words were often replaced with Spanish derived placenames. For Ystagua the name *Ranchería de la Nuestra Señora de la Soledad* was frequently used in mission records (Merriam 1968:155).

Between 1774 and 1800, Spanish missionaries succeeded in baptizing at least 142 persons from this village or from areas associated with it. An unusual feature of these baptisms is that 105 were performed on children (Merriam 1968:155). This high percentage of children is an anomaly when compared with records for most other Indian villages where the ratio was usually equal between adults and children.

In 1775, Ystagua did not take up arms against the Spaniards as many other *rancherías* did. Commandante Rivera y Moncada's report indicated that most coastal villages did not side with their inland and mountain brethren in the abortive attempt to drive Spanish colonists out of southern California (Rivera y Moncada 1967, II:455).

Arriving at San Dieguito Valley, or San Jacome de la Marca as Crespí dubbed it, Portolá made camp near a large pool of fresh water west of present day El Camino Real. The explorers noticed a substantial Indian village south of their camp near a large concentration of pools. Crespí reported "there is a large village of heathen and many well built houses with grass roofs . . . eighteen heathen came to visit us, with their women and children, all very affable" (Palou 1926, II:112). Pedro Fages found these villagers to be attentive, friendly, and overly gratified at the presents given them by the Spanish explorers. Their amity and

desire to be with the Spaniards was such that Fages noted "they [the Indians] were unwilling to leave our camp until we departed on the following day" (Fages 1972:8).

Miguel Costansó echoed Fages' dismay at the overt gregariousness of the villagers and added "upon being presented strings of beads they quieted down and became so familiar with us that they occasioned annoyance" (Costansó 1911, II:167). The friendliness of the large native population, the sheltered valley, and the nearness of fresh water led Crespí to consider this area a perfect site for a mission, an ideal which was never realized.

In mission records, no listing is given for either San Jacome de la Marca nor for La Poza de Ozuna, although there is a listing for the unrelated *ranchería* of Jamacha which was near Spring Valley, California, and also called San Jacome de la Marca (Merriam 1968:161).

Baptisms are recorded from the village of San Dieguito but it is difficult to determine exactly which village is documented. Over the years various Spanish officials confused native villages at Batiquitos Lagoon, San Dieguito Valley, and San Elijo Lagoon. The problem in assigning a specific village name for the *ranchería* at San Dieguito is that Batiquitos, San Elijo, and San Dieguito all contained *rancherías* and all were visited by Spaniards in the early colonial period. To further compound the confusion, Crespí called what later became Batiquitos, San Alejo, a name which is now applied to San Elijo Lagoon near Solana Beach. The name San Dieguito, unfortunately, occurs in mission records as an alias for San Elijo, Batequitos [sic], and San Benito Palermo, another unspecified village.

Between 1774 and 1808, these villages logged a total of 211 baptisms, including 41 in 1777. Whether these figures represent one major village, a series of villages, or dispersed camps, which became confused in mission documents, is unclear, although it seems probable that settlements at these locations were grouped together by Spaniards.

After a refreshing night's sleep at San Dieguito, Portolá's party left on July 16, 1769 and headed up a gradually curving canyon which today is traversed by Camino Viejo. This route took the explorers across Rancho Santa Fe and north on El Camino Real to Escondido Creek and then through a valley lined with oaks which they named Los Encinos (Palou 1926, II:114).

Arriving at Escondido Creek, the Spaniards were met by yet another group of Kumeyaay from a nearby village. The natives were amiable and made motions for the explorers to stay and rest at their village. Deferring to the wishes of the advance scouts, the party instead moved on to Los Encinos. In this oak-covered valley, the men found a steady stream of water and a large thicket of blackberry bushes containing another *ranchería*. Crespí reported that the village contained only six Indian women who had carefully constructed pots and vessels of clay (Palou 1926, II:114). Crespí and Portolá probably encountered this village at a time when a majority of the people were out hunting and gathering seasonal food stuffs so necessary to the subsistence pattern of foraging peoples.

After leaving Los Encinos, the explorers traveled north across good pasture land and well-drained valleys. Arriving at a rich green valley floor with a plentiful supply of water, they decided to make camp. Crespí called this place San Alejo (San Elijo) although later it became known as Batiquitos, a name it retains today (Palou 1926, II:114; Costansó 1911, II:169).

Crespí noted an Indian village in an adjacent valley which contained "eight men, three women, and four children" (Palou 1926, II:114). Arriving at the Spanish camp, the chief and his followers made introductory remarks which Crespí referred to as a "harangue." Unafraid of the Spaniards, the Indians sat down with ease and comfort "as though they had always known us" (Palou 1926, II:114). With his usual keenness for detail Crespí noted

that at least one Indian was smoking a well-formed black clay pipe.

After an amiable evening, the explorers broke camp on July 17, 1769 and crossed Agua Hedionda Creek, also called San Simón Lipnica by Crespí. Agua Hedionda was a name attached to the lagoon and creek by Portolá's men meaning 'stinking water,' a name still applicable to the stagnant pools of water. As the party crossed the creek Crespí saw a seemingly abandoned *ranchería* among a stand of alders. Again, it would seem that the Spaniards encountered a village which was temporarily vacated as its inhabitants traveled in search of food.

Traversing knolls and mesa tops, the explorers gradually descended into the valley formed by Buena Vista Creek, which they called Santa Sinforosa. Camping on the western slope of the valley, the men were near good grazing grass for the animals and a potable water source.

Crespí noted "we saw from the camp a village of heathen on the summit of a hill" (Palou 1926, II:115-116). Miguel Costansó stated that the inhabitants of the village had been told of the Spaniards' trek and had anticipated their arrival. Although the Indians were told to go away and pay a visit on the following day, they flowed into the Spanish camp *en masse*. Costansó wrote:

... there must have been as many as forty men, well built and good looking. The leader or chief soon afterwards began his harangue with loud cries and grimaces, but without giving him time to finish, we made presents to him and his people of some glass beads and sent them away [Costansó 1911, II:169].

If ethnographic studies by Philip S. Sparkman are correct, this village at Buena Vista, and possibly the one at Agua Hedionda, may have been Luiseño rather than Diegueño or Kumeyaay. Although recent works have delineated the boundaries between the Yuman-speaking Kumeyaay, or Diegueño, and the Shoshonean-speaking Luiseños as the San

Dieguito River and the mouth of Agua Hedionda, such divisions are not clear. It is certain that as the Spaniards continued their trek on July 18, 1769, marching north from Buena Vista Creek, they were in Luiseño territory.

Arriving at what is now the San Luis Rey River Valley, Crespí gave the valley the name San Juan Capistrano, a name later applied to the present site of Mission San Juan de Capistrano. As the party marched into the valley Crespí reported that they descended into a large, lush valley containing an ample water supply and two large Indian villages (Palou 1926, II:116).

Costansó found the Indians to be confident and forewarned of the Spaniards' coming. He noted that they were so much at ease that they brought their women on the first visit, an uncommon occurrence. The following day, July 19th, he reported:

The natives came . . . in greater numbers than on the preceding day—there must have been more than two hundred souls of both sexes. They mingled with us with as much familiarity as they could have done with their own countrymen and friends. We greeted them and made them presents [Costansó 1911, II:171].

Crespí ventured farther up the valley and again was struck with its lushness and beauty, ". . . all green with good grass . . . , many wild grapes, and one sees spots that resemble vineyards" (Palou 1926, II:116).² Crespí observed that the Indians were sympathetic toward his attempts to show them the teachings of Christ but, nonetheless, they were adamant in their refusal to kiss Christian images, much to Crespí's dismay.

Crespí found that Luiseño men went naked and that they made no effort to cover themselves in the presence of the white visitors. To Crespí's relief, he noted that women wore a woven apron for frontal covering and a type of deerskin rear garment. The breast area was covered with small capes of woven hair and rabbit skins (Palou 1926, II:116-117).

The use of rabbit skins as a blanket or cape is well documented by other contemporary sources. Writing in 1792, José Longinos Martínez noted of the northern Baja Californians: "They also wear over their shoulders a blanket or shawl made of twisted strips of rabbit, otter, or fox skin" (Martínez 1961:34). A Kumeyaay messenger from near Jacumba was later noted to carry his overland messages "enclosed in a small cloak of rabbit skin" (Ellison and Price 1953:100).

The villages at San Luis Rey later became an integral part of Mission San Luis Rey as a source of both converts and labor. Data compiled by Alfred L. Kroeber and others indicates that these villages were known as Keish and Ikalmal (Kroeber 1925:Plate 57). In the Mexican and American period, this complex of villages was often simply referred to as the village at, or of, San Luis Rey.

After a much deserved rest for men and animals, Portolá's party pushed northward over rolling hills and mesa tops toward the Santa Margarita River Valley. Along the way Crespí noted that they saw prickly pear cactus, alders, rosemary, and grasslands which had been burnt by Luiseños as a method of flushing out hares and rabbits.³ The later explorer, José Longinos Martínez,⁴ offered a more detailed analysis of native grass burning procedures. Martínez explained that the Indians burnt grass and brush for two reasons:

... one for catching rabbits (brush-burning being a form of hunting); two, so that with the first light rain or dew the shoots will come up which they call *pelillo* [little hair] and upon which they feed like cattle when the weather prevents their seeking other food [Martínez 1961:59].

While camped at Santa Margarita, near the present site of the United States Marine Headquarters at Camp Pendleton, about seventy Indians from a nearby *ranchería* visited the Spanish camp. Costansó reported that the contact was amiable but short-lived because "we gave the women some glass beads

and sent them away" (Costansó 1911, II:173). Although this initial contact may have been short and relatively uneventful, the *ranchería* at Santa Margarita was to have a long and varied history throughout the Spanish, Mexican, and American periods.

After camping overnight at Santa Margarita, the party traveled about two leagues the following day and made a new camp along a flea-infested creek, which they appropriately dubbed Las Pulgas. Three Indian men, eleven women, and numerous children from a nearby village visited the camp almost immediately. The Indians were friendly and seemed gratified at receiving glass beads from the Spanish party.

On July 22, 1769, Portolá's company made their way northwest and descended into Christianitos Canyon, their last stop in present-day San Diego County. Along the way Crespí noted the ever-present Castilian roses, alders, and live oaks. As the explorers were making camp near Los Christianitos Canyon, a group of Indians approached them and gave evidence of being amiable. Crespí recorded that there were 14 men, 14 women, and a group of boys and girls in the Indian party.

Informed that two Indian children from the nearby *ranchería* were sick and dying, Crespí made his way to the Indian village hoping to render whatever aid he could. Crespí found the mother frightened and unyielding of her dying children. Realizing that there was little hope for the youths, Crespí administered the last rites and left the mother and her daughters in peace (Palou 1926, II:122). Because of these baptisms, which were the first in northern San Diego County, the name Los Bautimos, Los Christianos, and Los Christianitos became place names for the major canyon system nearby.

Portolá and his men continued their trek up the coast of California and left additional records about Native Californians they encountered along the way. Although equally interesting and informative, the narratives

beyond San Diego County are outside the scope of this analysis.

The observations of Portolá, Fages, Constansó, and Crespí reveal many interesting facets about the life and culture of the native occupants of protohistoric coastal San Diego County. From these early documents, it appears that villages were located either in sheltered valleys or on gently sloping knolls near fresh and plentiful bodies of water somewhat removed from the coast. Had Portolá and his men traversed farther inland as later explorers did they would have encountered other highly populated villages. Even a cursory examination of early Spanish documents reveals that San Diego County was heavily populated, probably more so than many scholars have so far indicated.

Location of late prehistoric villages away from the coast has been explained by Claude Warren as the end result of an adaptive eastward movement which had begun over two thousand years before Portolá's arrival (Warren 1964:191-196). Warren postulates that a drastic decrease in the quantity of shellfish, which was a major food source, caused the predecessors of the Kumeyaay to gradually move away from direct coastal sites and relocate along the eastern ends of bays and estuaries. The slow movement away from the coast was accompanied by an increase in the importance of hunting and foraging for nuts, seeds, and berries.

Obvious exceptions to relocation of villages inland were Rinconada at Mission Bay and Ystagua at Sorrento Valley. Records at the San Diego Museum of Man indicate that occupation at the site of Rinconada went back thousands of years, implying an early preference for this area which continued into historic times. Recent field work at the village of Ystagua has documented that this site also was the scene of prolonged and often intensive shellfish exploitation in combination with an extensive grinding technology extending back at least 2000 years (Carrico 1974). Both

Rinconada and Ystagua were situated such that they could control and exploit more than one environmental zone, thus affording a wider subsistence base or catchment than was available at other locations.

Native villages witnessed by the early Spanish explorers consisted of brush thatched huts with resident populations varying from six women to over 100 Indians. At least one village was apparently abandoned. Many of the villages were situated near ample food supplies and construction resources such as live oak, willow, alders, a type of rosemary, prickly pears, berries, and *Rosa californica*, which the Spaniards called Castilian rose.

Cultural traits both material and social were noted by Crespí and the others. If one word could describe the initial attitudes of the Indians toward the Spaniards it would have been amiable. In no instance does Crespí note that Indians were offensive or warlike, or threatening in any way.

Pedro Fages found all of the Indians encountered by his party to be friendly and helpful. Fages reported the party was often supplied with "fish . . . nuts, pine nuts, acorns, and other seeds prepared after their fashion" (Fages 1972:8). Native assistance as guides was also noted by Fages. Fages remarked that the Indians had indicated the correct roads, pointed out watering places, and generally aided the less knowledgeable foreigners in their trek northward.

Coastal San Diego County Indians were noted to possess houses, clay pipes, pottery, clothing for the women, body painting, and well-established villages. A high degree of organization is implied from Spanish reference to grass burning. This type of hunting or land management involves burning, thrashing, spot fire control, and systematic hunting, or harvesting.⁵

In total, the Spanish narrative for July, 1769 leaves us with informative accounts of a group of Native Californians who were soon to be forced into acculturation and deeply af-

fectured by contact with Europeans. After Portolá's trek the mission system in southern California truly began, and with its start the seeds of destruction were sown for thousands of Native Californians. Increased contact with Europeans led to death by rampant diseases, rape by lustful soldiers, and cultural deprivation by a Spanish priesthood which sought to impose a European way of life on a proud people whom the Spaniards called heathen.

The serenity of the native land would soon fade, and, in many cases, the amity which had been shown Portolá and his men would turn into hatred and fear. Six years after the Portolá expedition at least 14 Kumeyaay villages banded together and attacked the Mission San Diego de Alcalá. Although they had been subjected to rapes, saw their hunting and gathering territories diminish, and had no doubt witnessed their numbers decreased by strange diseases, the coastal villagers did not take part in the attack.

Fages' initial favorable impression of southern California Indians soon dimmed and changed from one of tolerance and respect to one of ignorance and bigotry. In 1775, Fages wrote the Spanish viceroy:

The Indians of the entire region between San Diego and San Francisco Solano are of light brown color with homely features and ungainly figures; they are dirty, very slovenly, and withal evil-looking, suspicious, treacherous, and have scant friendship for the Spaniards [Fages 1972: 11].

What has happened to the village sites visited by Portolá and his men? Like so many historical and archaeological sites, they have either been forgotten, destroyed by thoughtless relic collectors, or covered by urban sprawl. After years of farming, grazing, erosion, relic collecting, and construction activities, little is left of the coastal villages of these people, although one, Ystagua, is currently under study for possible preservation. Scattered pot sherds, broken trade beads, and shell mounds

stand as silent testimony to a way of life which began its end in July, 1769, as another way of life commenced.

San Diego, California

NOTES

1. Bean and Lawton (1973) in a review of proto-agricultural practices and environmental manipulation by California Indians suggested that the description of the valley is of an effect most likely produced by burning the native vegetation. Such burning would have encouraged growth of annual grasses at the expense of perennial plants and given an appearance of cultivation. Burning the woodlands grassbelt, particularly in areas near villages, might have concentrated game in specific locations for ready accessibility in hunting, since browse in burned-over areas would have been richer. In addition, Bean and Lawton (1973:xxxiii) point out that Palou noted that Indians in the vicinity of Mission San Diego sheaved their grasses, a practice that had previously been considered an innovation introduced by the missions. They present a detailed discussion of the effects of both burning and sheaving on native grasses, hypothesizing that these grasses may have been "semi-domesticated" or on the way to becoming semi-domesticated at the time of Spanish contact. They have urged that more intensive scrutiny be given to grass seeds in archaeological sites in California, since literature from a number of Spanish sources indicates that the sizes of wild grains were impressive even to Europeans (Bean and Lawton 1973:xxxi). Florence Shippek (personal communication) has also provided data indicating that at least some native villages appear to have adapted a proto-agricultural subsistence pattern involving a complex system of land management that included planned burning as noted by Spanish explorers.

2. Bean and Lawton (1973:xxvii) call attention to this passage and suggest some tendance may have been carried out with the wild grape by California Indians.

3. See Bean and Lawton (1973) for a fuller discussion not only of the use of burning in hunting, but its broader implications as a form of ecological land management. See also Aschmann (1959).

4. Bean and Lawton (1973:xx) also cite Martínez' explanation of native grass burning practices, providing further data on burning in Baja California, where Father Serra in June, 1796 observed a valley "so green that if I did not know in what country I was, I would have taken it, without any hesitation, for land under cultivation." Signs of Indian habitation were noted in that valley by Serra, although the natives had fled from the Spanish. For the most recent bibliography covering most of the literature on aboriginal agriculture in California and sources on proto-agriculture and environmental manipulation see Lawton et al. (1976:46-50).

5. See Bean and Lawton (1973) for a synthesis of material relating to environmental manipulation along the entire route of the Portolá expedition.

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