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Culture Contact in Protohistoric California: Social Contexts of Native and European Encounters

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Author:

[Lightfoot, Kent G](#), Department of Anthropology, University of California, Berkeley
[Simmons, William S](#), Brown University

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Abstract:

There is great potential to address critical issues in contemporary culture contact studies through the study of the initial encounters (1542 to 1603) between natives and Europeans in California. Early exploration scholarship tends to focus on either the European ships and crews or the native communities they described, but rarely on the interactions between them. By reanalyzing the voyager accounts and relevant archaeological remains, one may evaluate how and why peoples from very different backgrounds responded to each other, and begin to examine the implications of early encounters with respect to cultural ideologies, ceremonial practices, gift giving, the meanings of foreign material culture, and disease. The purpose of this article is to consider four main issues underlying the social contexts of early encounters in California—the nature of initial contacts, the diverse responses observed, the role of material culture in early contacts, and the probability that lethal pathogens spread from these initial interactions. We find that religious practices played a critical role in structuring native and nonnative relations, and that the timing of encounters was very important, especially in relation to native and Christian ceremonial cycles. Furthermore, in considering the voyager chronicles and relevant archaeological remains, we question the conventional view, at least in California, that foreign goods were regarded as "merely trifles" by native peoples. Finally, we argue that early contacts with voyagers may have introduced lethal pathogens to coastal native populations, but that epidemics were probably geographically limited, sporadic, and short-lived.

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Culture Contact in Protohistoric California: Social Contexts of Native and European Encounters

KENT G. LIGHTFOOT, Dept. of Anthropology, Archaeological Research Facility, Univ. of California, Berkeley, CA 94720-3710.

WILLIAM S. SIMMONS, Executive Vice-President and Provost, Brown University, Providence, Rhode Island, 02912.

There is great potential to address critical issues in contemporary culture contact studies through the study of the initial encounters (1542 to 1603) between natives and Europeans in California. Early exploration scholarship tends to focus on either the European ships and crews or the native communities they described, but rarely on the interactions between them. By reanalyzing the voyager accounts and relevant archaeological remains, one may evaluate how and why peoples from very different backgrounds responded to each other, and begin to examine the implications of early encounters with respect to cultural ideologies, ceremonial practices, gift giving, the meanings of foreign material culture, and disease. The purpose of this article is to consider four main issues underlying the social contexts of early encounters in California—the nature of initial contacts, the diverse responses observed, the role of material culture in early contacts, and the probability that lethal pathogens spread from these initial interactions. We find that religious practices played a critical role in structuring native and nonnative relations, and that the timing of encounters was very important, especially in relation to native and Christian ceremonial cycles. Furthermore, in considering the voyager chronicles and relevant archaeological remains, we question the conventional view, at least in California, that foreign goods were regarded as “merely trifles” by native peoples. Finally, we argue that early contacts with voyagers may have introduced lethal pathogens to coastal native populations, but that epidemics were probably geographically limited, sporadic, and short-lived.

FOR more than a century, scholars have studied, interpreted, and debated the chronicles of European explorers who first visited California and documented its native peoples. Early exploration scholarship in California tends to focus on either the European sojourners or the native peoples they described, but rarely on the interactions that took place between them. A profusion of studies has been concerned primarily with the ships and their crews, describing in great detail the routes of individual voyages, notable landmarks, and specific landfalls (e.g., Davidson 1887; Bolton 1916; Wagner 1924, 1929, 1941; Mathes 1968; Kelsey 1986) (see Fig. 1). Other studies have emphasized the first written obser-

ventions of native Californians, but tend to divorce their analysis and interpretation of indigenous lifeways from the European chroniclers themselves so that “pristine” cultural practices of particular tribal groups can be identified. These accounts can be very insightful because they provide glimpses of Indian societies at the time of first contact (see Johnson 1982:43-49). They are also used to corroborate the geographic distribution of native groups and villages, as well as to provide additional insights as to where Europeans landed (e.g., Schumacher 1877; Kroeber 1925:273-278; Heizer 1947, 1973).

Archaeology is often incorporated into early exploration scholarship, but usually as a second-

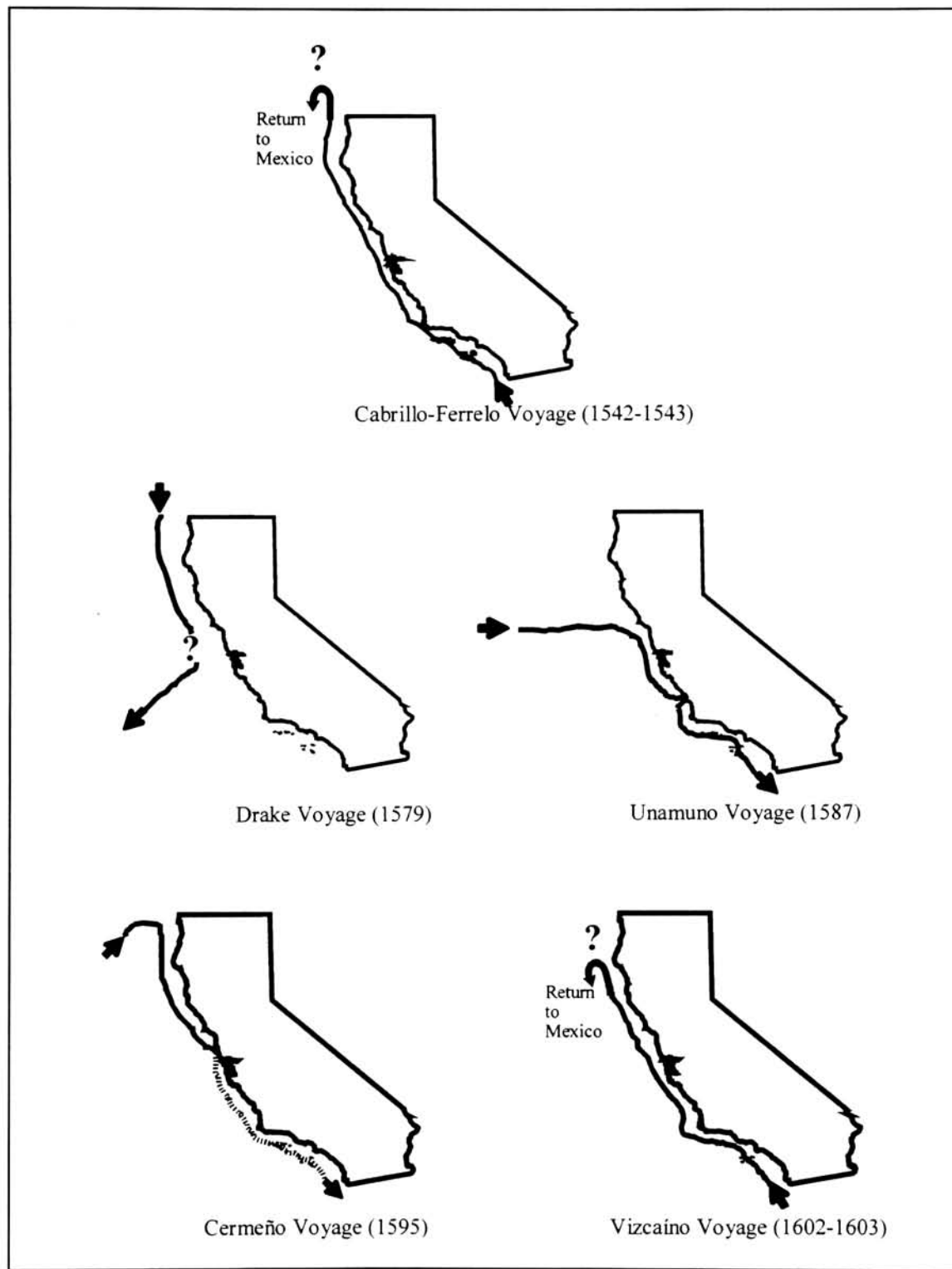


Fig. 1. Approximate routes of early European voyages along the California coastline (1542-1603).

dary source for evaluating specific events mentioned in the chronicles. The search for European and/or Asian artifacts has been undertaken to evaluate potential locations of anchorages, especially in controversial cases such as Drake's landing (e.g., Treganza 1957, 1958, 1959; Von der Porten 1963, 1973; Shangraw and Von der Porten 1981). Archaeological investigations of contact period sites are also used to evaluate village locations mentioned in many of the chronicles, to elaborate upon the architecture and life-ways of native peoples described by Europeans, and to construct and/or refine local archaeological chronologies and sequences by considering the stratigraphic provenience of European goods in midden deposits (e.g., Heizer 1941; Meighan 1952; Beardsley 1954).

With a few notable exceptions (Meighan 1981; Johnson 1982), conspicuously absent are studies that have explicitly addressed the nature and consequences of early encounters in protohistoric California. By protohistoric, we mean the interval that began with the first documented interactions between native peoples and foreigners (1542) and ended with the establishment of Spanish colonial settlements in California (1769). By accentuating the experiences that took place between indigenous peoples and foreign visitors in protohistoric times, the early chronicles and associated archaeological remains can be reanalyzed to address a number of critical theoretical issues in contemporary culture contact studies. The integration of both archival information and archaeology can provide a powerful perspective for considering the use and meaning of material culture during early encounters.

The purpose of this article is to consider four main issues underlying initial culture encounters in California: (1) the nature of the contacts; (2) the diverse responses observed; (3) the role of material culture in early contacts; and (4) the probability that lethal pathogens spread from these initial interactions. We begin by examining the social contexts in which early en-

counters took place, emphasizing the small groups that interacted, the multiethnic composition of ships' crews, and the short duration of most visits. We then consider the diverse responses of indigenous peoples to voyagers that ranged from fear to friendship to ambivalence to armed conflict. In considering their varied reactions, we examine information exchange among disparate native peoples, the critical role that religious practices played in structuring local and foreigner relations, and the timing of the encounters, especially in relation to native and Christian ceremonial cycles.

In the third section, we undertake an analysis of the materials exchanged between residents and foreigners and consider alternative sources for native acquisition of European/Asian materials in protohistoric California, including long-distance exchange and salvaged shipwrecks. In considering the latter source, we question the conventional view that in California, foreign goods were regarded as "merely trifles" by native peoples (e.g., Heizer 1941; Treganza 1959). Finally, we consider the possibility that lethal epidemics were transmitted during early encounters in California. While Euroasiatic pathogens were probably inflicted on local native populations, epidemics were most likely sporadic and relatively localized. We conclude by identifying those native peoples who probably experienced the greatest risk of infections during protohistoric times.

THE ANALYSIS OF EARLY ENCOUNTERS IN CALIFORNIA

To address the issues discussed above, this article considers the four early Spanish sailing expeditions of Juan Rodríguez Cabrillo and Bartolomé Ferrello (1542-1543), Pedro de Unamuno (1587), Sebastian Rodríguez Cermeño (1595), and Sebastian Vizcaíno (1602-1603), as well as the lone English voyage of Francis Drake (1579). In undertaking this analysis, we first identified primary sources of the encounters be-

tween the voyagers and native peoples. We then recorded the geographic places where the encounters took place, tabulating the duration of the anchorage for each place (or when possible, the length of time of actual encounters), the kinds of encounters that took place, and the types of materials that may have been exchanged. Also considered in this analysis were any archaeological remains attributed to these voyages, with a primary focus on materials recovered in midden deposits from the shipwreck of the San Agustín.¹

It is recognized from the outset that there are many problems in undertaking such an analysis. These problems include the brevity of original documents, mistakes in copying and translating journals and logs, controversies in identifying modern places where anchorages took place, and inaccuracies in recording dates, the timing of events, and the number of people involved in encounters. It is also important to consider how the writings of the early chroniclers were influenced by the geopolitics of the 1500s and 1600s, which most likely affected how events were portrayed to government officials, competing nations, and the literate public (e.g., Kelsey 1990:446-456). Given the continuing debate over the precise locations of anchorages, the geographic names as originally reported by the voyagers and translated in published sources are used herein. Since excellent accounts of these voyages are presented elsewhere, they are only briefly summarized here, along with the sources employed in this analysis.

The first of the five early voyages to California was the Cabrillo-Ferrelo expedition that embarked from Puerto de Navidad, Mexico, on June 27, 1542, in the flagship San Salvador, a companion vessel called the Victoria, and probably one other vessel (Kelsey 1979:322-327). The purpose of the voyage, originally commanded by Juan Rodríguez Cabrillo, and after his death by Bartolomé Ferrelo, was to explore and map the coastline north of known landmarks in

lower Baja California. In a journey that lasted for more than nine months, the crew may have sailed as far north as the Oregon border, contacting native peoples along the west coast of Baja California, the San Diego region, several Channel Islands, and the Santa Barbara Channel. Our analysis is based on the two primary sources of the Cabrillo-Ferrelo expedition, which are both condensed accounts written in the third person that probably summarize a much longer, more detailed journal of the voyage. The primary narrative, commonly attributed to Juan Páez, is translated by Bolton (1916:13-39) and Wagner (1929:79-93), while the other is Antonio de Herrera's account (Wagner 1941:65-70). Quinn's (1979a:451-461) version of the Páez account, which we rely on here, is taken from Bolton (1916) and corrected from Wagner (1929).

The second known expedition was that of the notorious English captain, Francis Drake, who visited a small harbor, probably in Coast Miwok territory, for 36 days (from June 17 to July 23, 1579). While the crew sought supplies and refurbished their ship, the Golden Hind, numerous encounters with local native peoples occurred in Drake's encampment, as well as in outlying villages. Our analysis is based primarily on the 1628 account by Francis Fletcher, a chaplain on Drake's ship (Vaux 1854; Quinn 1979b:467-476), as well as the "Famous Voyage" account of Drake's visit to California (Quinn 1979c:463-467).

The next voyage to California was in a small *frigata* commanded by Pedro de Unamuno, who made a brief landfall probably near Morro Bay from October 18 to October 20, 1587. During this stopover, an armed confrontation took place with local natives. The ship then returned to Acapulco, Mexico, without further incident. For the purposes of this analysis, we consulted the correspondence dated December 1587 from de Unamuno to the Viceroy of Mexico (Wagner 1929:141-151).

The fourth documented encounter was the ill-fated trip of Sebastian Rodríguez Cermeño and his crew, who were instructed to explore the coastline of California while sailing from the Philippines to west Mexico. The voyagers sailed into Drake's Bay in 1595, where they anchored and camped for more than a month (from November 6 to December 8), during which time they interacted with the local Coast Miwok. When their ship, the *San Agustín*, sank in the harbor, they were forced to sail to Mexico in a small launch, making some contacts with native communities and fishermen along the islands and south coast of Alta and Baja California. Our analysis is based on a summary of Cermeño's expedition translated in Wagner (1929:156-163), along with two additional "Declarations" from the voyage (Wagner 1924:20-24).

The fifth expedition, led by Sebastian Vizcaíno, set sail from Acapulco, Mexico, on May 5, 1602, in two ships and a frigate. During a voyage that lasted for about ten months, the flotilla visited indigenous communities along San Diego Bay, the Channel Islands, the Santa Barbara Channel, and Monterey Bay, and may have reached as far north as Cape Mendocino before turning back in the face of foul weather and scurvy. We relied primarily on observations made from Vizcaíno's flagship, the *San Diego*, in the "Diary of Sebastian Vizcaíno, 1602-1603" (Bolton 1916:52-103). These observations are then supplemented and corroborated (in many cases) by "Father Antón de la Ascención's Account of the Voyage of Sebastian Vizcaíno" (Wagner 1929:180-272). For most of the voyage, Father Ascención was on board on another ship, the *Santo Tomás*, which did not follow the exact itinerary of the *San Diego*. Consequently, the observations of Father Ascención included in our analysis are from locations visited by both the *San Diego* and *Santo Tomás*, where the same native peoples were encountered. In some cases, when the two ships anchored together (e.g., Cape of San Lucas, San

Diego Bay, Monterey Bay), the same encounters were presented from two different perspectives. We also consulted the summary version of Father Ascención's account, entitled "A Brief Report" (Bolton 1916:104-134; also see Quinn 1979d:414-426), as well as his 1632 opinion concerning the potential colonization of California (Aschmann 1974).

THE SOCIAL CONTEXTS OF EARLY ENCOUNTERS

The social contexts of early California encounters typically involved meetings of small groups of voyagers and natives for relatively short intervals on board ships and canoes or on land. The crews of the European expeditions were moderate in number (ranging from about 100 to less than 300), multiethnic in background, and composed of sailors, soldiers, officers, slaves, and clergymen.

According to Kelsey's (1986:95-122) most authoritative estimate, the size of the Cabrillo-Ferrelo expedition was about 200 men, and may have numbered as high as 250. They included Spanish officers, sailors, soldiers, some African and Indian slaves, Indian interpreters, conscripts, cabin boys, one or two priests, and perhaps a few merchants (Bolton 1916:5-6; Wagner 1941:8-9; Kelsey 1986:95-122). Drake's voyage to the Pacific began with a crew of 164 men, including two or more Africans, and at least one chaplain (Quinn 1979e:477; Meighan 1981:62). The size of de Unamuno's crew is not clear, but the *frigata* class ship they sailed was probably a single-decked vessel that could not have held more than a hundred men. The seafarers consisted of Spaniards, Portuguese, Philippine natives (Luzon "Indians"), young Japanese males, and probably Mexican Indians (Wagner 1929:140-141). Three priests were also on board. Cermeño's expedition was comprised of about 80 men, including four slaves of the captain, seven Indians, and at least one priest (Wagner 1924:4-21). Father Ascención observed that

Vizcaíno's three ships carried a full crew of about 200 men, including 150 soldiers and sailors, a number of officers, two pilots for each vessel, three priests, and two cartographers (Bolton 1916:104-106; Mathes 1968:54-56). The ethnic composition of Vizcaíno's voyagers is not detailed, but in addition to Spaniards and Mexican Indians, at least one African was on board (Wagner 1929:192).

The voyagers encountered diverse coastal native communities that varied in population, social organization, and political elaboration. Although many native peoples visited the sailors, most encounters took place in groups that were reported to be not much greater than the size of the ships' crews. While population estimates are not very precise in primary accounts, when given they tend to vary between one hundred and three hundred persons (e.g., Bolton 1916:80-86; Wagner 1924:21). These observations are similar in range to those projected by most archaeologists and ethnographers today, who suggest—with the possible exception of the Chumash and Gabrielino polities—that the peoples of central and southern California were organized into many small tribelets or village communities packed across the coastal landscape (e.g., Simmons 1997:56-60; Kroeber 1925; Lightfoot 1993:182-185).

The temporal duration of most encounters was relatively short, usually only a few hours over a one- or two-day landfall, punctuated by a few longer layovers (see also Johnson 1982:48). The Cabrillo-Ferrelo voyage recorded 20 places in Baja and Alta California where encounters took place with native peoples. They averaged about 5.6 days per stay in each location, but this included two long anchorages (57 and 14 days) on the Islands of San Lucas to wait out rough winter storms (see Fig. 2). In eleven of the 20 places where encounters occurred, the length of the visits lasted from a few minutes (usually when canoes paddled out to the ships) to less than a day on land. In other places where the

ships anchored for longer periods (besides the two wintering spots), the duration of stopovers ranged from two to seven days. The length of time spent on land tended to be short because Cabrillo frequently took advantage of opportune weather conditions in order to tack northward against the unfavorable winds and currents that typically flow down the coast of California. Furthermore, crew members were constantly in search of water and wood, and when these resources were unavailable or inaccessible, they would move to another anchorage. Many of the encounters along the Santa Barbara Channel were instigated by natives in canoes who briefly visited the ships as the crews slowly tacked northward searching for protected bays in which to anchor so that they could obtain water and wood.

Drake made only one recorded landfall in Alta California, and it lasted for 36 days. However, the rendezvous between locals and newcomers were highly structured events of limited intervals, especially during the initial encounters. During the first two weeks of Drake's stay in Nova Albion, it appears that the natives came to his encampment on a three-day cycle to exchange gifts, to perform dances and songs, to conduct "self sacrifices" and healing rituals, and on one occasion to undertake the celebrated "crowning" of Drake. At the end of the day's engagements, the natives apparently returned home to their respective villages while Drake's men remained in their encampment for protection. After the first few days of formal gatherings (June 18 to June 26, 1579), the tempo of the encounters increased as daily meetings took place between Drake's crew and local inhabitants, and the voyagers began to visit outlying villages.

De Unamuno and his crew experienced only two very brief encounters with the peoples of Morro Bay ("Puerto de San Lucas") over a two-day period (October 19 and 20, 1587). Both contacts involved aggressive posturing and

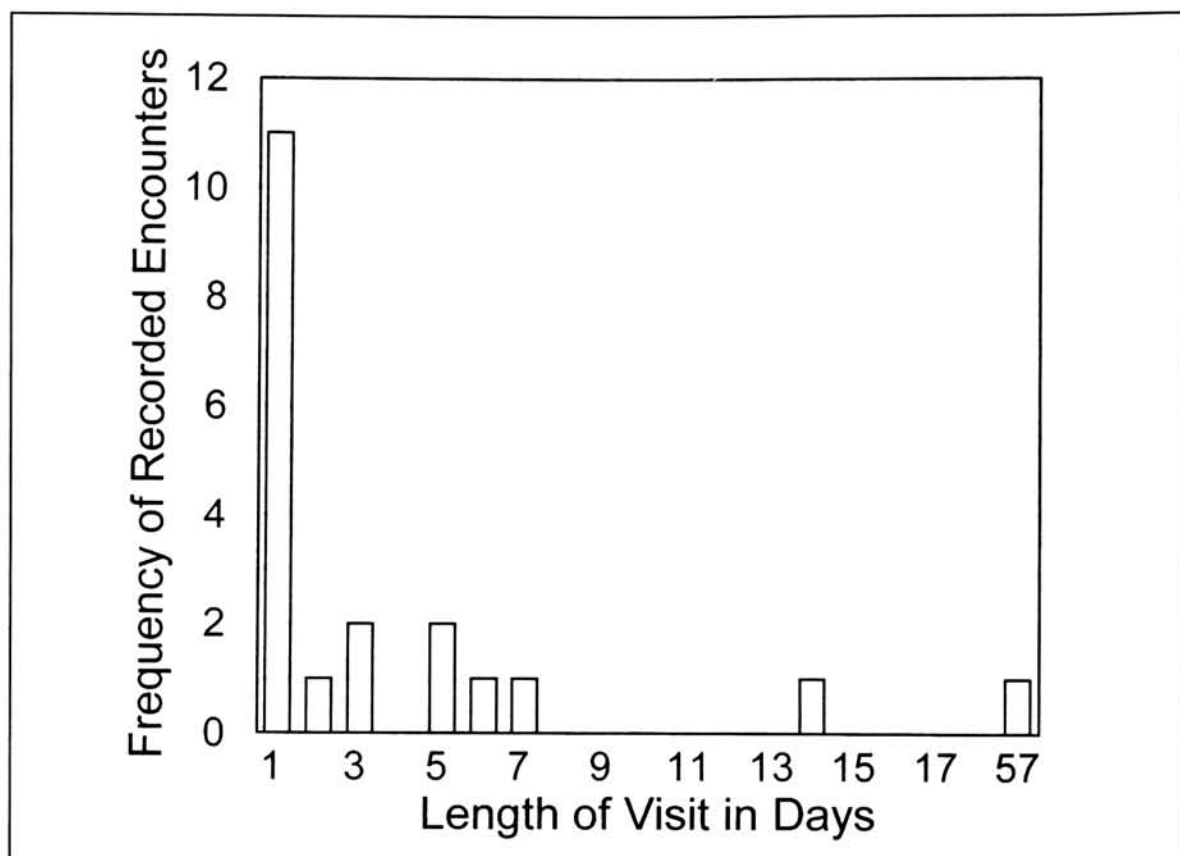


Fig. 2. Frequency of recorded encounters between natives and the Cabrillo-Ferrelo voyagers, and maximum length of visit in days.

armed conflict over the course of those two days.

The Cermeño expedition made one extended landfall at Drake's Bay ("La Baya de San Francisco") where multiple meetings took place with native peoples from November 6 to December 8, 1595. The documented encounters involved the initial meeting of the voyagers and natives alongside the San Agustín and later encounters in or near the native villages. Unlike Drake's account, little was recorded about gatherings at the Spaniards' camp or daily meetings with local peoples. After the voyagers abandoned Drake's Bay when their ship sank, three additional, but very brief, interactions were recorded with peoples in southern California and

Baja California as Cermeño and his crew sailed their modified ship's launch back to Mexico.

On board Vizcaíno's flagship, the *San Diego*, 18 placenames were recorded as natives were encountered in Baja and Alta California. Similar to Cabrillo's voyage, most visits were short. Vizcaíno and his men were also attempting to tack northward from Baja to Alta California against contrary winds and currents; consequently, when conditions proved favorable, the expedition maximized its time at sea. The average length of time per stay in the 18 places was 4.79 days (see Fig. 3). In half of the places, the extent of the layovers was one or two days (including brief meetings with people in canoes). Other landfalls were of longer duration that included

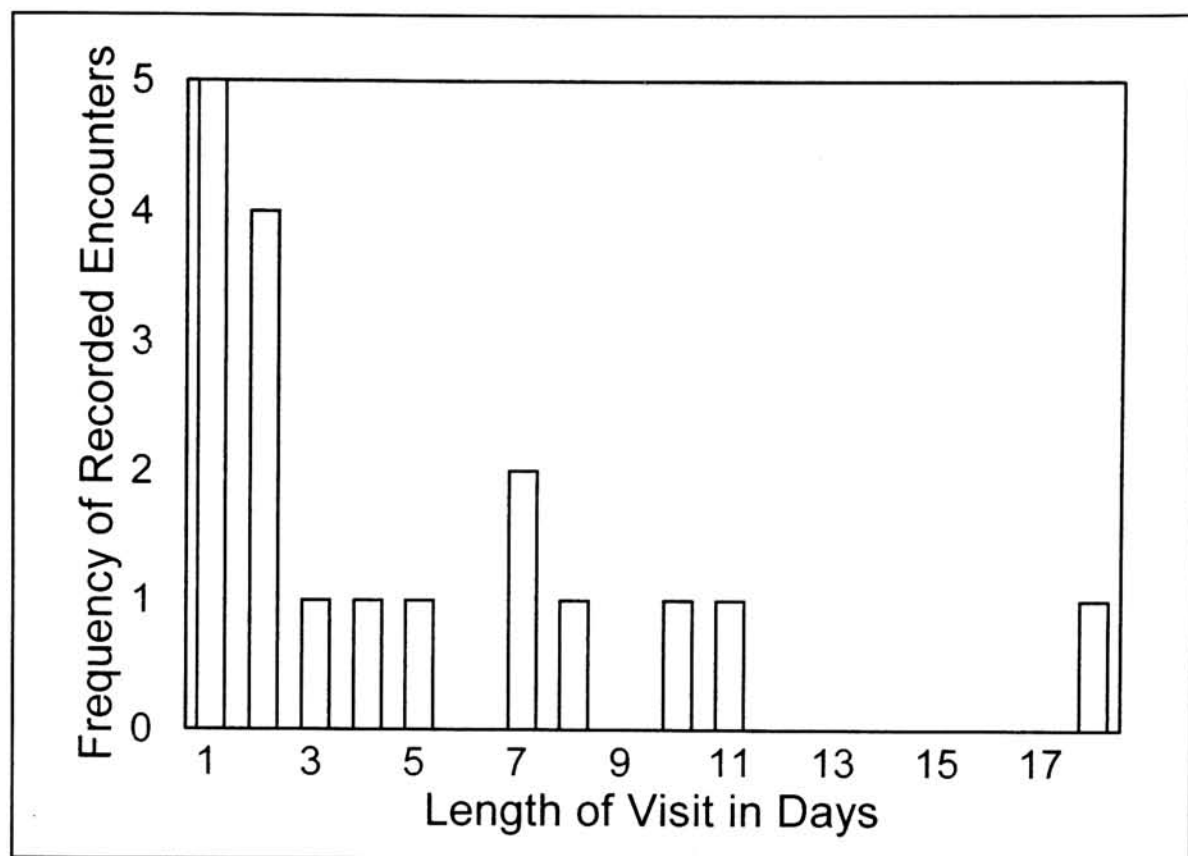


Fig. 3. Frequency of recorded encounters between natives and Vizcaíno voyagers, and maximum length of visit in days.

the possibility of more prolonged or multiple meetings with locals, ranging from three to five days (on three occasions), seven to eight days (on three occasions), and one occasion each of 10, 11, and 18 days. However, even during extended layovers, the ships were often moved within protected harbors and coastal embayments while crew members combed the countryside for available wood and potable water.

RESPONSES TO INITIAL ENCOUNTERS

The chroniclers of the voyages described above recorded very diverse native responses to their arrivals, including enthusiastic welcomes, friendly overtures, fear, ambivalence, threatening posturing, and armed confrontation. There

is no clear temporal pattern for these responses—peaceful relations and altercations between natives and foreigners were recorded throughout the period between 1542 and 1603. During initial encounters, a common practice for both sides was to send emissaries ahead of the main bodies of foreign soldiers and armed native warriors, usually to ascertain each other's intentions. As detailed in the Vizcaíno expedition (Bolton 1916:81-85; Wagner 1929:192, 233), the voyagers commonly dispatched officers and/or priests with gifts of food and other commodities to greet native representatives and to emphasize their peaceful meanings and actions. The native groups often sent out one or more spokespersons who performed lengthy orations or com-

municated by signs their views about the arrival of strangers, as recorded in the Drake, Cermeño, and Vizcaíno chronicles. Among some native groups, women played significant roles as peace envoys or brokers in meetings with foreign emissaries. In the Cabrillo-Ferrelo account, a woman leader stayed on board the ship for two nights near the Pueblo of Las Sardinias (Quinn 1979a:457), and during Vizcaíno's San Diego anchorage, where the local inhabitants were portrayed as being initially apprehensive, women (in one case a very old woman) in two separate encounters were sent forward to meet Spanish shore parties (Bolton 1916:80-82).

Each voyage recorded a different pattern of native responses. In the Cabrillo-Ferrelo voyage of 1542-1543, four initial observations were made of people fleeing from the Spaniards (on August 11, August 22, September 28, and October 7, 1542), one incident involved arrows being shot (September 28, 1542), and two cases indicated ambivalent reactions (September 8 and September 28, 1542); however, the majority of the other observations recorded by the Spaniards were relatively friendly. Nevertheless, during the long winter anchorage on the Islands of San Lucas, Francisco de Vargas, who sailed with Cabrillo, recalled that the "Indians never stopped fighting," attacking Spanish soldiers when they attempted to obtain water (Wagner 1941:25-26).

Drake's crew was portrayed as maintaining cordial relations with the natives of Nova Albion throughout their stay in 1579, but the experiences of the de Unamuno expedition in 1587 were tragic for all concerned. The first recorded mortality in a pitched battle between natives and Europeans in Alta California transpired during de Unamuno's visit to Morro Bay, where one Spaniard and one Luzon native died, another Spaniard was wounded, and some Obispeño Chumash Indians were killed and many wounded. While most of the encounters experienced by Cermeño and his men in 1595 were friendly,

or at least ambivalent, two incidents resulted in aggressive signaling and conflict. One (November 7, 1595) involved armed warriors who maintained an aggressive stance until persuaded by other native emissaries to lay down their bows and arrows (Wagner 1929:158-159). The other event, which occurred sometime between November 30 and December 2, included 20 natives who were attempting to salvage wood from the wreck of the San Agustín until the Spaniards forcibly intervened to stop them. In the ensuing altercation, at least one Spaniard was wounded (Wagner 1924:22-23).

Most of the encounters recorded during Vizcaíno's 1602-1603 voyage were relatively peaceful, with exuberant welcomes accorded the sailors on the Channel Islands and the Santa Barbara Channel. However, despite a formal edict from Vizcaíno to treat native peoples with respect (issued on June 8, 1602), the expedition still experienced aggressive reactions on both sides that led to bloodshed. The first incident occurred on September 2, 1602, on the Island of Serros, when water bottles left on shore were broken, and Vizcaíno's men were confronted by armed warriors. The second incident, which took place on October 27, 1602, was on San Simon y San Judas, where 100 armed natives attempted to stop the voyagers from filling water bottles. In the ensuing fight, the Spanish fired on the natives, killing two to four persons and wounding at least a half dozen. The final example of aggressive behavior transpired on February 6, 1603, on the return trip to the Island of Serros, at which time the inhabitants of the island continued to deny the Spanish access to water and the voyagers fired their guns to scare them away. In addition, on January 29, 1603, the voyagers caught some people from Santa Catalina Island stealing goods from their ship, the San Diego.

In evaluating the diverse range of responses to early native and European encounters in California, the following three factors are considered

herein: (1) the role of information exchange and oral tradition in predisposing native responses; (2) the critical position that ceremonial practices played in structuring responses on both sides; and (3) the timing of encounters, especially in relation to the native and Christian ceremonial calendars.

Information Exchange and Oral Tradition

Regional exchange and communication networks were used by native peoples to announce the coming of strangers across an extensive area of Baja California, southern Alta California, northwest Mexico, and possibly the American Southwest. While slowly tacking up the California coast from ports in west Mexico, the expeditions of Cabrillo-Ferrelo and Vizcaíno witnessed firsthand the scale of this communication system when they were repeatedly told by native peoples about armed men like them who had been seen in the interior. While it is possible that these stories were fabricated by native groups to entice the Spaniards to leave their territories, the number and consistency of the reports suggest otherwise. Cabrillo and his men were told about foreigners on eight separate occasions in seven different places spanning from Baja California to the Santa Barbara Channel (Quinn 1979a:453-457). Cabrillo evidently believed that they were referring to Alarcón's convoy up the Colorado River or Coronado's entrada through the American Southwest, since he sent letters and even men to them. Similarly, Vizcaíno and his crew were told about men in the interior who were clothed and armed as they were while at anchorages at Eleven Thousand Virgins and San Diego Bay (Wagner 1929:226; Quinn 1979d:419).

Regional communication channels broadcast the coming of the voyagers up the coast of California. This is clearly demonstrated by the December 2, 1602, visit of the "petty king" to Vizcaíno's ship via a canoe from the Santa Barbara mainland, when he had been informed of the pending arrival of the Spaniards from people

on Santa Catalina Island (Wagner 1929:239-240). Furthermore, previous encounters with foreign strangers had been incorporated into native oral traditions. Vizcaíno was told about a previous shipwreck in California waters by a woman on Santa Catalina Island, who even showed him two pieces of decorated China silk salvaged from the ship (Bolton 1916:85). Vizcaíno and his men were also told by the people at Cabo de San Lucas about the English capture of the Santa Ana by Thomas Cavendish in 1588, and about earlier encounters with Spaniards under the Marqués del Valle and Don Fernando Cortés (possibly referring to the aborted colony of Puerto de la Paz established nearby in 1535) (Wagner 1929:194).

The existence of broad-scale exchange and communication networks is important for understanding native responses to the voyagers for two reasons. First, extended sailing expeditions up the coast of California were likely trumpeted well ahead of their slow advance. The emergence of Cabrillo's and Vizcaíno's ships on the horizon probably surprised no one. Coastal peoples were doubtlessly warned well in advance of European sailing expeditions that were tediously working their way up the shoreline from Mexico. However, this advance warning system would not have come into play during the initial landfalls of ships sailing from the North Pacific, East Asia, or the Philippines (e.g., Cermeño) that had made no previous contacts in California.

Second, stories of strangers widely transmitted through regional communication networks, as well as oral traditions of local groups, influenced native reactions to the voyagers. As noted above, Cabrillo's crew observed local people fleeing from their ships. When asked why they fled, some natives communicated to the Spaniards that similar armed men were killing Indians inland (Quinn 1979a:455). Cabrillo's men did little to reduce the apprehension of the locals by repeatedly capturing individuals for in-

terrogation, although they reportedly gave most of them gifts and set them free. However, on at least one occasion the captives were not released by the Spaniards but transported to Mexico as translators. The Vizcaíno voyagers experienced a similar situation at Cabo de San Lucas where the natives were very fearful because of oral accounts of prior ill treatment at the hands of Spaniards, including the killing of many people and the use of ferocious dogs to attack them (Wagner 1929:194).

Ceremonial Practices

The respective world views and ideological constructs of natives and voyagers were critical factors in cultural encounters, influencing how participants presented themselves to strangers, how they interpreted the actions of "others," and ultimately how each responded to the other. Our reading of the chronicles suggests that public ceremonies and rituals were critical in mediating the first encounters between natives and Europeans in California. It appears that both sides commonly performed ceremonial rituals in public settings to communicate their cultural values and meanings to all participants during contact events, as well as to provide a context for making sense of "others."

The voyagers performed highly ritualized ceremonies for native onlookers whenever they claimed land for their god, country, and monarchy. While the symbolic acts of possession implemented by Spanish and English envoys varied considerably, they served the common purpose of legitimizing the right of each country to rule in the New World (Seed 1995:2-6). Drake and his men participated in a ceremony with local people in which he claimed Nova Albion for the Queen and later erected a "Plate of Brasse" as a monument to England's rightful title to the land (Quinn 1979b:474, 476). The Spanish explorers were obligated to read the "Requirement" (*Requirimiento*) to native peoples they encountered, a document which outlined an ultima-

tum to submit to Catholicism and Spanish rule or "be warred upon" (Seed 1995:70-73). Wagner (1938) and Servín (1963) reviewed the recorded symbolic acts of possession for the early Spanish explorers on the Pacific coast, indicating that along with the public reading of the "Requirement," the newcomers would often slash or attack trees with their swords, throw sand and rocks from one place to another, pull up grass, carry water from the sea to the land, and/or raise a large cross fashioned from a nearby tree, all the while challenging natives to contest their rightful claims.

The public ceremonies staged by the voyagers were greatly influenced by the dominant Christian faith practiced on board the ships. Each sailing crew was staffed with clergymen, one to three Catholic priests on board the Spanish expeditions and at least one Protestant chaplain on Drake's voyage. Not only did the clergymen affect the actions of the officers and crew of the ships, they were critical in forging relations with native peoples.

Masses and other religious services were common activities on land for all the expeditions. The most detailed observations were recorded in Father Ascención's account of the Vizcaíno voyage. He noted that the first clear sightings many natives had of Vizcaíno and his men were during public masses performed almost every day when on land. Subsequent to some masses, long ceremonial processions took place across the beach, led by the priests holding up the Holy Sacrament and a sculptured idol of the Señora del Carmen, followed by officers, sailors, and other crew members. After constructing an altar in a tent or hut, sermons and communion were then performed outside in clear view of voyagers and locals alike, with the priests inviting the native peoples to bow their heads, to participate in prayer, and to kiss the crucifix of Christ (see Bolton 1916:56, 74, 84; Wagner 1929:193, 232, 236).

Several accounts of these expeditions also re-

corded the ceremonial practices and ritual observances of native peoples during their initial meetings with voyagers. The most detailed observations were recorded during Drake's anchorage at Nova Albion, and have been the source of considerable analysis and interpretation (e.g., Barrett 1908:36-37; Kroeber 1925:273-278; Heizer 1947, 1973; Kelly 1978:422-423). Based on descriptions of the lifeways, ceremonies, material culture, and language of these people, it is commonly agreed that they were Coast Miwok (but see Kelsey 1990:458-459).

The definitive study was undertaken by Heizer (1947, 1973), who analyzed Coast Miwok activities for each instance during which they were recorded, persuasively arguing that various elements of Kuksu (or Guksu) and Ghost Dance ceremonies as recorded by ethnographers in the late nineteenth and early twentieth centuries were being enacted before Drake's men. The Kuksu and Ghost Dance rituals were related constellations of "ancient" religious practices of the peoples of the southern North Coast Ranges before the advent of the "modern" Ghost Dance and Bole Maru cults (Barrett 1917; Kroeber 1925; Loeb 1926, 1932; Meighan and Riddell 1972; Bean and Vane 1992). The Kuksu ceremony was an elaborate observance of dances and songs involving the impersonation of the Kuksu and other spirits, with some dancers dressed in "big head" costumes performing curing rites for patients by blowing a double bone whistle over them or by prodding or poking them with a long, black staff. The Ghost Dance was another elaborate series of performances involving dancers, singers, and drummers, some of whom impersonated the spirits of the recently deceased in a mourning ceremony.

In expressing their grief during the cremation of loved ones, as well as during the mourning ceremony of the Ghost Dance, it was not uncommon for Coast Miwok and Pomo women to wail, to beat themselves (sometimes with rocks), and to lacerate their cheeks and

breasts with their fingernails. These mourning practices were observed in the early 1800s by Russian managers at Fort Ross (Kostromitinov 1974:10) and in the late 1800s by Euroamerican settlers (Powers 1877:169). They were also noted by ethnographers in the early 1900s in interviews with elderly Pomo and Miwok peoples (Loeb 1926:162, 286, 291, 348; Gifford and Kroeber 1937:195; Gifford 1967:43).

In his analysis of the Drake chronicles, Heizer (1947:260-273) associated certain Coast Miwok material culture and practices with the Kuksu or Ghost Dance ceremonies (see also Kroeber 1925:277). A black feather bundle presented to Drake and his men during their initial meeting with a lone orator in a canoe on June 18, 1579, is similar to ceremonial bundles used during Kuksu dances. A procession of 100 men, led by emissaries and the "king," who came to Drake's encampment on June 26, is interpreted as the male initiates of a ceremonial secret society. The first man carried a "scepter" or "mace" that Heizer (1947:266) identified as a four-and-a-half-foot long black staff of either the Kuksu or Ghost Dance. The other men in the procession were distinguished by the distinctive dress and ornaments of Coast Miwok and Pomo ceremonies, including "chaines" (disk bead necklaces), "cawles" (net caps with down fill and/or feathers), and plumes of feathers (as well as single feathers). All of the men were painted black and white—colors that were clearly associated with Kuksu and Ghost Dance ceremonies—along with other unspecified body paint colors.

Heizer (1947:263, 271) also argued that the practice of women "sacrificing" every third day during any given mourning period by wailing, moaning, shrieking, and tearing their faces with fingernails was related to the mourning ritual of the Ghost Dance. The display of "griefes and diseases" to the English and the requests to have them blow upon or touch the infected areas (Heizer 1947:267) is interpreted as deriving from the curing ritual of the Kuksu ceremony.

Finally, Heizer (1947:272-273) believed the "sacrifice" of a string of disk beads and bunch of feathers when the English departed is part of the Coast Miwok and/or Pomo mourning custom in memory and honor of the dead.

The most common interpretation of the behavior of the Coast Miwok is that they perceived the English as a boatload of ghosts (Meighan 1981:64). Kroeber's (1925:277) perspective was that Drake and his crew were regarded "as the returned dead." Heizer (1947:263) argued that the Coast Miwok viewed the English as "unusual, perhaps supernatural, visitors since nothing is more clear than the fact that they were not treated as ordinary mortals." He believed that Coast Miwok women were supposedly "looking upon relatives returned from the dead, and hence performed the usual mourning observances" (Heizer 1947:271). In this interpretation, the world view of the Kuksu and Ghost Dance ceremonies provided the cultural context for making sense of the voyagers and for eliciting the proper behavioral responses to them. Drake and his crew, in turn, responded to the Coast Miwok according to the Christian tenets of the day, believing the Indians to be utterly "mad" and under the "power of Satan" (Quinn 1979b:474). One can view the encounter at Nova Albion as a classic case of clashing ideologies and world views as manifested in public ceremonial practices—as the women committed their bloody sacrifices in front of the voyagers, the English looked to the heavens, prayed, sang Psalms, and read the Bible (see Quinn 1979b:472).

Native ceremonial practices were also recorded during encounters with the Cermeño and Vizcaíno expeditions. Cermeño and his men made similar observations, in some respects, to those of Drake. As Heizer (1941:316-317, 1947:260-261) pointed out, a lone orator in a tule balsa initially greeted Cermeño's ship, and the leader of a band of warriors carried a "tall banner of black feathers" that may have been a ceremonial staff associated with the Kuksu ritual.

However, no observations were recorded of women's "sacrifices," the showing of diseases or wounds to the Spanish, or the "crowning" of Cermeño, as had occurred with Drake.

In sailing up the Santa Barbara Channel, Vizcaíno and his crew experienced a common patterned ritual from natives in canoes. The "petty king" arrived at Vizcaíno's ship in his canoe and circled it three times while the rowers sang; then he came on deck, made three turns around the waist while singing, and launched into a long oration (Wagner 1929:239). Other people in canoes performed a similar ritual, paddling rapidly around the ship two or three times while bowing their heads to the Spaniards (Bolton 1916:87-88; Wagner 1929:256). Vizcaíno and his men also observed "a place of worship or temple" on Santa Catalina Island where the natives performed their "sacrifices and adorations." Here they found an area decked with feathers of all colors and shapes and a painted figure where crows were supposedly worshiped. In another case of clashing ideologies, the Spanish soldiers shot two of the revered crows at the shrine because they believed that the natives were talking to the "Devil" through them (Wagner 1929:237).

The Timing of Encounters

A third critical factor that contributed to diverse responses between explorers and indigenous peoples is the timing of the encounters. The voyagers recognized that the seasonal cycle of native subsistence practices and residential movements influenced the types of reception they received, as well as the size of the coastal population they encountered. In the Cabrillo-Ferrelo chronicle, it was noted in the first trip to the Pueblo of Las Sardinias (on November 2, 1542) that they received a supportive welcome from local peoples who brought food and water to the ships. When the expedition returned to the same pueblo in the late winter (February 12, 1543), they "did not find so many Indians as at

first, nor any fishing at all, because it was winter" (Quinn 1979a:459). When Vizcaíno and a small party explored south of Monterey Bay in early winter (January 3, 1603), it was reported that "No people were found because, on account of the great cold, they were living in the interior. He [Vizcaíno] sent Ensign Juan Francisco with four soldiers to a ranchería to see what was there; he found it to be depopulated, and returned" (Bolton 1916:94).

The timing of encounters in relation to the ceremonial calendar of both the voyagers and native peoples is also critical to consider. On the Vizcaíno voyage, the crew observed and celebrated specific holy days of the Christian ceremonial cycle with masses, feasts, and other celebrations (e.g., Bolton 1916:80). As noted above, when Christian ceremonies were held on land, the native inhabitants were invited to view and even participate in the pageantry, on one occasion even dining with Vizcaíno at his table after mass (on October 12, 1602). Native responses were also influenced by the arrival of the voyagers during their seasonal ceremonial cycle. This point is exemplified in Sahlins' (1981:11-27, 1985:104-131) masterful analysis of the arrival of Captain James Cook in Hawaii during the sacred events of the Makahiki Festival, when Cook's actions during the ritual calendar personified the ancient god Lono in both life and death. Drake experienced a similar, but less tragic, encounter when he and his men sailed into the ritual world of the Coast Miwok in Nova Albion.

An ongoing, and often acrimonious, debate in early exploration scholarship is pinpointing the location of Drake's anchorage during his 36-day layover in Nova Albion (see Hanna [1979] for a detailed summary). While some have expressed doubt that Drake ever landed in northern California or even Alta California (Kelsey 1990), others have argued for stopovers in Bolinas Bay, Drake's Bay, Tomales Bay, Bodega Bay, San Francisco Bay, and even

Trinidad Bay, based on often elaborate considerations of Elizabethan shipbuilding, navigation and cartography, recorded landmarks, currents, weather conditions, flora, fauna, archaeological remains and the material culture, language, and practices of the native peoples (e.g., Ziebarth 1974). Since 1949, the Drake Navigators Guild, an organization dedicated to the study of Drake's voyage, has argued persuasively that the English sailors landed at Drake's Bay in Coast Miwok territory 16 years prior to Cermeño. Heizer (1947:279) initially believed that Drake landed at Drake's Bay, but later changed his mind, arguing that the most likely anchorage was in San Quentin Cove, based largely on the nearby discovery of the famous "Plate of Brass," an artifact that now appears to be a clever fraud (see Hanna 1979:242-262).

However, a salient reason why Wagner (1924:8), Heizer (1973:21, 26), Powers (in Ziebarth 1974:261-263), and Meighan (1981:57-59) questioned the Drake's Bay anchorage is the lack of key corroborative evidence from Cermeño's chronicles. While some observations of the Coast Miwok seem to substantiate the Drake accounts, it is noteworthy that Cermeño recorded no evidence of the very conspicuous "sacrifices" of women, healing rituals, or the celebrated "crowning" ceremony of Drake. In coming to grips with these discrepancies, Heizer (1941:325, 1973:26) speculated that possibly the Spanish and English acted very differently toward the natives, hence the native response was different, or that Drake and his men ignited a massive epidemic of some Euroasiatic disease upon the Coast Miwok that influenced their behavior toward Cermeño.

We believe that while Drake and Cermeño probably both encountered Coast Miwok peoples (as well as nearby Pomo groups), most likely at Drake's Bay, they arrived at very different times in the local native ceremonial cycle. Drake and his men arrived in early June, the time when the first fruit celebrations, including the Kuksu ceremonies and, in some years, Ghost Dance rites,

were traditionally held among most Coast Miwok and Pomo peoples (Loeb 1926:163, 363, 1932:103; Gifford and Kroeber 1937:206-207; Barrett 1952:51; Gifford 1967:45; Bean and Theodoratus 1978:297). We suggest that the strangers' auspicious timing would have been viewed within the ritual context of the first fruit ceremonial observances. Drake and his men may have become performers in a ritual moment of time, actors who unwittingly portrayed the incarnation of Kuksu spirits and ghost dancers in the annual commemorative event. In the eyes of the Coast Miwok, the strangers may not have been perceived as gods, supernatural beings, or returned ghosts *per se*; rather, they were individuals who had arrived to participate in the sacred dances and to portray mythical figures in the specific context of the Kuksu and Ghost Dance performances.

The ritual setting of the Drake encounter is exemplified in the coming of the "king" and his many retainers to the English camp on June 26, 1579. The large number of people (100 tall and warlike men) is suggestive of the multivillage gatherings that characterized most Kuksu and Ghost Dance ceremonies recorded in later ethnographic accounts. The dress, ritual regalia, and entrance of the singing and dancing men into Drake's camp are also very significant. Barrett (1917:399-401, 1952:51-53) described similar processions of ceremonial leaders, fire tenders, head singers, chorus members, drummers, dancers, and others marching into ceremonial enclosures at the commencement of a dance. The long orations and "crowning" of Drake with a "crowne," "chaines," and "scepter" are also critical observations (e.g., Heizer 1947:266-267). The "king" (ceremonial leader) presented Drake with ritual dress and paraphernalia employed in Kuksu and Ghost Dance ceremonies, including a net cap, clam disk beads, and the long black staff. Barrett's (1952:53) description of the Kuksu leaders is very revealing for interpreting Drake's "crowning":

The "head men" carried special staffs, each about five feet in length with a section of feather rope attached. This staff was called *yū'luk C*. They, as well as the head singer, were attired in beaded human-hair head nets (*e' kalai C*, *talē'ya kalai C*), and in great quantities of necklaces and other bead ornaments. As the informant expressed it: "They have their bodies, arms, and legs wrapped tightly with beads."

In adorning Drake in ritual regalia, the ceremonial leader was symbolically transforming the English leader and presumably his men into Kuksu spirits or ghosts as part of the ritual context. Following the "crowning," the women began their "sacrifices" in front of English sailors and sick people showed them their afflictions, practices that typically took place at the end of Kuksu and Ghost Dance ceremonies.

Cermeño and his crew arrived at Drake's Bay in November 1595, well after the first fruit observances had ended for the year. His men were greeted in a very different manner than Drake's, probably largely because they were not viewed as active participants in the Kuksu and Ghost Dance ceremonies. Consequently, the Cermeño chronicles did not describe the "sacrifices," "healing rituals," or "crowning" associated with Drake's visit. In contrast to Drake, there was only one brief observation of a native group coming into Cermeño's camp on the second day of their visit (November 7, 1595). Most observations of the Coast Miwok were made at native villages or in the nearby hinterland. While this may be an oversight on the part of the Cermeño account, it may emphasize another critical difference—the Coast Miwok's perception of Drake's encampment as sacred space during the first fruit observances versus the secular nature of Cermeño's site in the late fall season. Interestingly, towards the end of Drake's visit, the "sacrifices" of the women suddenly ceased, supposedly because the English finally persuaded the natives to stop their displeasing activity (Quinn 1979b:475). However, it is also possible that by July of Drake's anchorage, the formal obser-

vances of the first fruit ceremonies had come to a close for the season, and the rituals associated with it had abruptly ended.

Finally, Heizer (1973:26) was puzzled that the Coast Miwok had initially reacted to Cermeño and his men with "great fright," which he felt seemed odd if they had been in previous contact with the Drake voyagers. He suggested that this reaction may have been incited by a contagion associated with Drake. However, there is little evidence for such an epidemic (discussed below), and we believe the Coast Miwok may have been taken by surprise because the Spaniards arrived unexpectedly outside the ceremonial cycle of the Kuksu and Ghost Dance rituals.

MATERIAL REMAINS OF ENCOUNTERS

The recorded observations of the voyagers discussed above indicate that cultural contacts often commenced with the exchange of food and goods between natives and foreign visitors. The voyagers typically offered material items as tokens of their peaceful intentions, as ways of fostering further connections with other members of native entourages, and as a means of placating hostile groups. While the motives of the native peoples were not always clear, it appears that they initiated exchange relations with the voyagers as a common practice when meeting strangers and as a means of cultivating social relations.

The Cabrillo-Ferrelo chronicles recorded five places where the Spanish exchanged goods with native peoples (Quinn 1979a:453-457). The goods included presents and clothing (at La Posesion), presents and shirts (at San Miguel), beads and other articles (at San Salvador La Victoria), presents (at the Pueblo of Las Canoas), and "many" presents (on the Santa Barbara mainland). There were four places listed where the natives reportedly gave goods to the Spaniards, including fish (north of the Pueblo of Las Canoas), fresh sardines (on the Santa Barbara mainland), water and wood (at the Pueblo of Las

Sardinas), and water and fish (at Cape Galera).

There were five separate recorded incidences (June 18, 21, 23 or 24, 26, and sometime between June 27 and July 23, 1579) when Drake and his men offered goods to the Coast Miwok at Nova Albion (Quinn 1979b:470-476). The goods included a hat, shirts, linen cloth, "divers things" (not taken), a token to the "king," mussels, and seals. There were four separate observations of Coast Miwok gift-giving (June 18, 21, 23 or 24, and 26, 1579), when natives presented to the voyagers a bundle of black feathers, baskets or bags with the herb "tobah" (mentioned three times), feathers (mentioned twice), net caps, arrow quivers, skins, fish, seeds, a root known as "petah," and baskets, as well as the "crown" and "chaines" given to Drake.

Native peoples of Morro Bay did not actually exchange goods with de Unamuno and his men (Wagner 1929:143-149). The voyagers found two deerskin bundles in their exploration of the interior and replaced them with two handkerchiefs as gifts to the local natives (on October 18, 1587). Crew members later offered biscuits, cloth, and other items as unsuccessful peace tokens when first confronted by armed, agitated locals (on October 19, 1587).

The Cermeño chronicles recorded the exchange of European and Asian goods to the Coast Miwok in the vicinity of Drake's Bay during the first two days of their encounters (November 6 and 7, 1595) (Wagner 1929:158-160). The goods included cotton cloth (mentioned three times), silk things (mentioned twice), a red cap, taffeta cloth, and taffeta sashes. When they were returning to Mexico in the launch (December 12 to December 14, 1595), Cermeño and his men exchanged the following materials: cotton cloth (mentioned twice), taffeta, and pieces of silk (mentioned twice). The Coast Miwok presented the Spaniards with goods on at least three occasions (November 7, November 30, and December 2, 1595), including seeds, acorns (mentioned three times), hazelnuts, thistles, and pos-

sibly bows and arrows. The voyagers also confiscated a sack and a half of acorns from a native group who was salvaging boards from the San Agustín sometime between November 30 and December 2, 1595. Finally, while returning home in their launch, Cermeño and his men bartered for acorns and acorn mush, fish, a small seal, and cakes of yellow roots from local residents in southern California on December 12, 14, and 16, 1595.

The Vizcaíno voyage provided the most detailed observations of goods traded between explorers and natives (Bolton 1916:56-98; Wagner 1929:192-257). The voyagers bestowed goods on native peoples in 13 different places. The goods included presents/other things/other trifles (mentioned 11 times), food (mentioned three times), food and biscuits (mentioned twice), biscuits alone (mentioned four times), fish (mentioned twice), beads (mentioned eight times), cords/ribbons, clothes (mentioned twice), cloth, chemises, petticoats, scissors, looking glasses, and little bells. The native peoples furnished a variety of materials to the Spaniards in 10 different places. The goods were "lion" skins (mentioned twice), cat skins, "tiger" skins, deer skins (mentioned twice), bear skins, marten skins (mentioned three times), seal skins (mentioned three times), skins, net caps, net bags (mentioned three times), other nets (mentioned three times), cords, threads, twisted ropes, shells, food, fish (mentioned five times), "sweet potatoes," grain in basket, acorn in basket, prickly pears, water from flask (mentioned twice), and a female dog.

Although exchange activities were critical components of these early encounters, there has been little success to date in recovering sixteenth-century European or Asian artifacts in archaeological contexts in California. The major exception is the midden deposits at Drake's Bay, which are discussed separately below. In fact, outside the Cermeño (and possibly Drake) anchorage in Coast Miwok territory, materials at-

tributed to the early voyagers with at least some degree of certainty can be counted on one hand. They include several glass beads recovered from the Santa Barbara coast and a Yokuts cemetery in Kern County that possibly date to the sixteenth and seventeenth centuries (Heizer 1941:324, 1972:2; Woodward 1947:50-51; Meighan 1981:50), and the possible Cabrillo gravestone from Santa Rosa Island (Heizer 1972).

An analysis of the documented exchange relationships between voyagers and natives reveals three patterns that clarify why archaeological evidence for early encounters is rare. First, the most common trade goods offered by the crews of the sailing expeditions to the Indians were items of clothing (materials of cloth, silk, or cotton) and food (biscuits, fish, etc.). These perishable materials would not preserve well in most coastal archaeological contexts. In the chronicles of the five voyages, there were 53 cases in which trade goods were identified in more detail than a "present" or "trifle" (see Table 1). Articles of clothing were mentioned 27 (51%) times, items of food 14 times (26%), and manufactured goods (including glass beads) 12 times (23%). The practice of giving clothing as gifts was even more evident in the first four expeditions. A total of 24 exchange goods was mentioned in the Cabrillo-Ferrello, Drake, de Unamuno, and Cermeño accounts, of which items of clothing were mentioned in 20 cases (83%), while food items and manufactured goods were mentioned only three (13%) and one (4%) times, respectively. Food was recorded as a more common exchange item by Vizcaíno during his voyage (mentioned 11 times), although it was also mentioned on three other occasions in encounters with natives (see Table 1). Interestingly, both de Unamuno and Vizcaíno tended to offer food, especially biscuits, to hostile natives in an attempt to placate them.

Second, manufactured goods usually associated with Indian trade, such as glass beads, mirrors, bells, knives, etc., comprised a minor

component of the documented materials given to native peoples. This pattern suggests that durable goods most likely recoverable in archaeological contexts were not frequently exchanged, until possibly Vizcaíno's voyage. In the 53 instances where trade items were mentioned in the five voyages (see Table 1), nine cases (17%) were glass beads and only three (6%) were other manufactured goods (scissors, looking glasses, bells). This pattern is even more pronounced in the first four voyages, where glass beads were mentioned only once (4%) in the 24 cases of exchange, and no other manufactured goods were identified.

Third, the native peoples tended to give food items, clothing, and personal adornments to the voyagers. The majority of these materials would not be readily recoverable and identified as exchange goods in most archaeological contexts, except under extraordinary conditions. As summarized in Table 2, 27 (38%) of the 72 recorded cases of native goods given to the voyagers were food, primarily fish and acorns, while in 22 (30%) cases the goods included skins, feathers, and net caps. Perishable household equipment and subsistence-related tools (baskets, nets, cords) comprised 11 (15%) of the 72 cases. Other materials mentioned were water (four times), the herb "tobah" (three times), weapons (two times), wood (one time), and shell (one time).

There was little variation in native trade practices over time. Food, clothing, and personal adornments were the most common goods given by native peoples in all five voyages, although the percentages varied somewhat from expedition to expedition. The quantity of fresh foods exchanged by native peoples may have been relatively limited, and primarily presented in ritual or formal social settings, since the voyagers (with the exception of Cermeño after his ship sank) tended to rely on preserved stores on their ships. Had the voyagers taken more advantage of these fresh foods, the outbreaks of a

Table 1
EUROPEAN TRADE GOODS OFFERED
TO NATIVE PEOPLES AS IDENTIFIED
SPECIFICALLY IN THE CHRONICLES

Voyage	Clothing ^a	Food ^b	Glass Beads	Other Manufactured Goods ^c
Cabrillo-Ferrelo	2	0	1	0
Drake	3	2	0	0
Unamuno	3	1	0	0
Cermeño	12	0	0	0
Vizcaíno	7	11	8	3

^a Cloth, silk, or cotton materials.

^b Biscuits, fish, etc.

^c Scissors, looking glasses, and little bells.

debilitating disease recorded amongst both the Cabrillo-Ferrelo and Vizcaíno crews, which was almost certainly scurvy (see description in Wagner 1929:245-246), may have been better controlled.

Material Remains at Drake's Bay

Drake's Bay offers the best evidence of European and Asian goods recovered in sixteenth-century archaeological contexts in California. Since 1940, archaeologists have investigated at least 32 native sites in the vicinity of Drake's Bay, as well as another dozen or so sites in Coast Miwok territory, in search of material evidence of the Drake and Cermeño anchorages (Moratto 1970a, 1984:270). The initial purpose of this earlier archaeological research was to establish a sixteenth-century chronological datum for native materials associated with temporally diagnostic European and Asian artifacts (Heizer 1941:319; Meighan 1952:100; Beardsley 1954:55). In the 1960s, this goal changed to a concerted effort to distinguish between artifacts from the Drake and Cermeño expeditions (Von der Porten 1973:1-4). Four decades of intensive fieldwork throughout the early 1980s uncovered about 800 European/Asian objects from at least

Table 2
NATIVE GOODS OFFERED TO VOYAGERS
AS IDENTIFIED SPECIFICALLY IN THE CHRONICLES

Voyage	Food ^a	Clothing ^b	Baskets ^c	Weapons ^d	"Tobah"	Water	Wood	Shell	Dog
Cabrillo-Ferrelo	3	0	0	0	0	2	1	0	0
Drake	3	6	2	1	3	0	0	0	0
Unamuno	0	0	0	0	0	0	0	0	0
Cermeño	11	1	0	1	0	0	0	0	0
Vizcaíno	10	15	9	0	0	2	0	1	1

^a Fish, acorns, seeds, etc.

^b Animal skins, net caps, and feathers.

^c Also includes other woven goods (cords, threads, twisted ropes, net bags).

^d Arrow quiver, bow and arrow.

17 sites dating primarily to the sixteenth century (Meighan 1981:55; Shangraw and Von der Porten 1981).

In an exhaustive analysis of the foreign goods, Von der Porten (1963, 1970) documented a diverse assemblage of colorful Chinese porcelain sherds from assorted bowls, plates, and vases manufactured primarily during the Ming Dynasty's Wan-li era (1573 to 1619), along with fragments of Indo-Chinese stone wares, pieces of Spanish colonial terra-cotta wares, square-shanked and hand-forged iron spikes, bitumen, wax, and small metal objects that may have included a crude compass needle and square-headed nails (also see Shangraw and Von der Porten 1981). Other materials that have been attributed to either the Cermeño and Drake expeditions include the dubious "Plate of Brass" (Hanna 1979:242-262), an ancient brass mortar (Hanna 1979:238), a sixteenth-century halberd from Indonesia supposedly found near CA-MRN-281 not far from San Quentin Cove (Treganza 1957:11), and even a reputed anchor of "ancient design" recovered at Drake's Bay in 1887, which was subsequently lost and has remained missing for the last 90 years (Hanna 1979:236-237).

The majority of the remains unearthed at Drake's Bay appears to have been salvaged by natives from the timbers and cargo of the San

Agustín. There are several lines of evidence supporting this interpretation. First, ceramics and iron spikes were not mentioned in any of the voyagers' accounts as trade items typically given to native peoples. Meighan (1950:29) was skeptical that early voyagers would have traded large numbers of costly porcelain vessels to the Coast Miwok. Second, less costly and more durable trade items that the voyagers may have exchanged to the Coast Miwok have yet to be recovered at Drake's Bay. As Meighan (1981:58) emphasized, "[T]here are no beads, hawkbells, knives, buttons, or any of the numerous items commonly used by sixteenth-century Europeans to open up friendly relations with native peoples." Finally, although some of the sixteenth-century materials have been attributed to the Drake voyage based on stratigraphic evidence (Meighan 1952:102; but see Von der Porten 1970:240-241) and the absence of surf-tumbled abrasions on some sherds (Shangraw and Von der Porten 1981:11), many of the items exhibited evidence of wave and sand abrasion that would occur on materials scavenged from the water and the shore (see Shangraw and Von der Porten 1981:8, 73-74).

Significantly, while the Coast Miwok went to the trouble of recovering foreign objects from the surf and sand, the prevalent interpretation is

that most native peoples found the sixteenth-century artifacts of little use or interest. This perspective is based on four findings that surprised and initially puzzled early field workers.

First, few of the porcelain or terra-cotta ceramics exhibited evidence of use or modification after they were broken. Heizer (1941:322) believed that complete porcelain vessels were picked out of the wreckage by natives, brought back home, and probably used as utilitarian containers. Once broken, the porcelain sherds were then scattered into refuse heaps. However, Heizer (1941:322) was somewhat surprised that none of the ceramics was notched or drilled into native tools, leading him to suggest that the Indians did not view them as "particularly valuable objects." Von der Porten's (1970, 1973) analysis of a much larger ceramic assemblage identified only a handful of sherds that were retooled into native artifact forms, such as disks, pendants, and scrapers. He concluded that native artisans largely abandoned their efforts to reuse or modify Chinese ceramic fragments when they experienced problems penetrating the hard glaze, such as drilling white porcelain pieces to copy locally produced clam disk beads (Von der Porten 1970: 235, 1973:5).

Second, the iron spikes brought back to nearby native villages show no direct evidence of use as tools. Heizer (1941:322) asserted that the spikes were brought back to villages in the timbers of the ship, which were used as roofing material in houses. According to Heizer (1941: 322), the spikes are sharply bent because the timbers had rolled around in the waves and/or protruding spikes were bent down to protect the house dwellers. Concentrations of bent spikes found in archaeological contexts are interpreted as the remains of houses in which the planks had decomposed, although Beardsley (1954:56) admitted that no supporting evidence of house construction was ever found during excavation. The explanation for the absence of use wear on the spikes was that they were simply by-products

of the wooden boards; it was the planks used as roofing material, not the spikes, that were meaningful to the natives (Heizer 1941:322, 327; Von der Porten 1965:34-37). Meighan (1981) also argued that the planks may have been a source of firewood, leaving the spikes as residual refuse once the wood was consumed. Yet he remained perplexed about why the "Indians apparently made no attempt to put the iron to use, since most stone-using peoples are quick to recognize the advantages of metal and utilize it in the manufacture of tools and weapons" (Meighan 1981: 55).

Third, relatively few definitive sixteenth-century native burials have been excavated, and only two are associated with European/Asian artifacts. Since both graves contained spikes, Heizer (1941:327) and Beardsley (1954:56) speculated that the bodies may have been buried with ship planks placed over them. The paucity of foreign goods placed intentionally in grave assemblages was used as additional evidence for arguing that the Coast Miwok perceived porcelain sherds and iron spikes as being of little value.

Finally, archaeological testing of native sites beyond the immediate vicinity of Drake's Bay (Tomales Bay, San Quentin Cove, etc.) prior to the 1980s failed to detect many sixteenth-century materials (e.g., Treganza 1957, 1958, 1959). Treganza (1959:28) was puzzled why his archaeological investigation of midden deposits in nearby Tomales Bay failed to recover Chinese porcelain. He suggested that the paucity of European and Asian artifacts found outside Drake's Bay is an indication that salvaged goods from the San Agustín were not widely traded. In arguing that the Coast Miwok must have shown a "disinterest in the ceramics," Treganza (1959:28) made a telling statement about early contact remains that succinctly captured the view of many of his colleagues:

Porcelain is so dissimilar to anything in the Central California Indian's artifact inventory that it

was probably viewed more with idle curiosity than as something with a functional use. So far all porcelain specimens are fragmentary, none have been found in burial associations, no fragments have been reworked into artifacts though many pieces appear as if they had been subject to pressure flaking. It is difficult for us to understand the apparent lack of appreciation of pottery on the part of Indians, yet what would we have done with a galleon load of chop sticks.

Rethinking the Material Evidence for Early Culture Contact

We feel that it is time to take a fresh look at early contact materials in California archaeology. Our analysis of the chronicles indicates that the materials exchanged between the voyagers and natives were probably limited in quantity, mostly of a perishable nature, and delegated to primarily ceremonial or honorific contexts. We should not expect to find large numbers of recognizable European or Asian goods in archaeological sites associated with early encounters. The detection of a few sixteenth or early seventeenth century trade goods may be very significant for identifying possible locations where initial culture contacts took place. Other kinds of corroborating evidence should then be evaluated, including the possible remains of camp areas, the locations of sixteenth and early seventeenth century native sites, suitable anchorages, and readily accessible sources of water and wood.

We believe the majority of European/Asian goods that penetrated California in protohistoric times did not originate from direct interactions with early voyagers. Rather, most foreign goods entering native Californian communities prior to Spanish colonization in 1769 probably derived from scavenging shipwrecks and/or long-distance exchange. We caution that the San Agustín should not be viewed as an isolated event. There is growing recognition that shipwrecks provided significant sources of European/Asian goods to many coastal native peoples in the North Atlantic, the Gulf of Mexico, and the Pacific coast (see Turnbaugh 1993:136; Milanich

1995:41-43, 74-76; Erlandson and Bartoy 1996:305). Layton (1990:176-189) clearly demonstrated that Pomo peoples in northern California were salvaging Chinese porcelain fragments and glass bottle remains from the Frolic shipwreck after she foundered off Point Cabrillo in 1850.

During the late sixteenth and seventeenth centuries, native peoples along the Pacific coast may have derived European/Asian materials from stranded Manila galleons, Portuguese vessels, or even Chinese and Japanese vessels blown off course. While Manila galleons tended to sail down the coast of California well beyond its rocky shores and reefs (Schurz 1917), there are several reported shipwrecks of Spanish merchant ships in Alta and Baja California waters (see Johnson 1982:20, 30-32; Walker and Hudson 1993:20-21), including a native woman's account to Vizcaíno of a shipwreck near Santa Catalina Island (Bolton 1916:85). In the 1630s, a Portuguese ship was reported stranded off the Oregon coast (Erlandson and Bartoy 1996:305). There is also the possibility that undocumented Asian vessels may have visited the California coast prior to European colonization, as suggested by several instances when storms brought fishing ships to the coast in the 1800s (e.g., Heizer 1941:323).

Another source of early European/Asian goods derived from the interconnected regional exchange networks that moved information, people, and goods over a broad area of western North America. While archaeologists and ethnographers have considered the long-distance movement of native goods (marine shell, pottery, turquoise, cotton, feathers) over these networks in both prehistoric and historical contexts (e.g., Bennyhoff and Hughes 1987), a systematic investigation of European/Asian materials has never been undertaken. Yet this expansive system of down-the-line communication most certainly provided the conduit for announcing to coastal native Californians the arrival of Spanish soldiers in northwest Mexico and the American Southwest

during Cabrillo's and Vizcaíno's voyages.

The movement of European/Asian goods into southern California would have been facilitated in the late 1500s and 1600s by a network of native trails that connected into an extensive colonial transportation system established by the Spanish colonial government to service mission communities stretching from northern Mexico to Arizona and New Mexico. As Preston (1996:17-20) illustrated, native California trails crisscrossing the southern deserts were part of a transportation infrastructure that was ultimately linked to the major arteries of northern New Spain—the Camino Real, the Pacific Coast Road, and other minor roads and trails (see Reff 1992:266-268). This infrastructure provided the means for introducing a smattering of foreign goods into the Spanish and native economies of these regions. In addition to the westward movement of European/Asian materials into California, some foreign goods may have traveled northward on trade routes from Baja to Alta California, especially once the Baja mission system was founded in the late 1600s and early 1700s.

We advocate broadening the archaeological study of culture contact in California beyond the anchorages described in the voyagers' chronicles. This would involve the evaluation of other coastal locations where natives may have salvaged shipwrecks, as well as consideration of the implications of trade connections that brought foreign goods into southeastern California and beyond. By expanding the borders of culture contact and rethinking the implications of specific archaeological contexts, we may be able to provide a better basis for evaluating the meanings and values of different types of European/Asian goods to native Californians.

It is not clear to us, for example, that the native peoples at Drake's Bay regarded porcelain sherds and iron spikes as merely curiosities or trifles. The interpretation that European/Asian materials had little meaning to the Coast Miwok

contradicts voyager accounts of the critical role that material exchange played during initial encounters between natives and foreigners, which often took place in ceremonial and honorific contexts. Furthermore, we emphasize that the salvage of remains from Cermeño's shipwreck by the Coast Miwok would have taken place only 16 years after Drake and his men participated in the highly ritualized Kuksu and Ghost Dance ceremonies in 1579.

Our interpretation of the archaeological contexts of the porcelains and iron spikes is that they were incorporated into Coast Miwok material culture, not as utilitarian containers or tools, but probably as symbolic references in native cosmology of other unknown worlds, strangers, and even Kuksu and Ghost spirits. The traditional perspective on European/Asian artifacts at Drake's Bay is rooted in a Western functional approach towards material culture that permeates much archaeological research; that is, that the value or meaning of objects is directly related to their economic function in a society. Material items that cannot be assigned a functional usage through ethnographic analogy, tool classifications, or use wear studies are usually relegated to the ends of appendices along with charmstones, amulets, and other objects whose "functions" remain ambiguous to us. The Drake's Bay materials represent a classic case. Once it was determined that the porcelain sherds and iron spikes exhibited little evidence of use, they were classified as mere trifles by early investigators.

The problems with this functionalist interpretation are threefold. First, porcelain sherds, iron spikes, and other scavenged remains from the shipwreck comprise a significant portion of the total artifact assemblages of the midden deposits excavated at Drake's Bay. If these foreign objects were such trifles, then why are there so many of them in relation to other "native" artifacts? Meighan (1950:29) noted that the Cermeño shipwreck dispersed enough histor-

ical material in midden deposits to generate a ratio of one historical artifact for every five native objects unearthed; in other words, 20% of the entire artifact assemblage recovered from seven sites excavated between 1940 and 1950 are sixteenth-century manufactured goods. Of course, the recovery of European/Asian artifacts in these early excavations may have been skewed by the uneven use of screens and the common practice of shovel broadcasting. However, later excavations employing more sophisticated recovery methods have also recorded large numbers of "foreign" goods, as well as a diverse range of chipped and groundstone artifacts, shell ornaments, and bone tools. For example, using artifact counts from three of the best documented sites at Drake's Bay (CA-MRN-216, CA-MRN-298E, and CA-MRN-298W; see King and Upson [1970]), we calculated that porcelain sherds and iron spikes comprised 9.6%, 11.2%, and 19% of the total assemblages, respectively.

Second, the spatial distribution of the porcelain sherds in the midden deposits suggests that whole vessels were not being brought back to native villages. While Heizer (1941) suggested that ceramics were being scavenged as utilitarian containers, the Coast Miwok had no cultural referent for using ceramics as cooking or storage vessels. Rather, it appears that the sherds themselves were the primary object of their search. In archaeological deposits, many vessels are represented by a single sherd, matching sherds are often found at considerable distances from one other, and reconstructible vessels are very rare (Beardsley 1954:56; Von der Porten 1970:235). While some may argue that the natives were dragging timber back to their villages as roofing material or firewood, no archaeological evidence of their use as architectural elements has been well documented. It is just as possible that the timbers were being split apart to recover up to as many as 70 iron spikes that were then distributed to at least 10 sites in the nearby area (Von der Porten 1970:256). This interpretation, of

course, does not preclude the possibility that the planks were also used as firewood or even roofing material.

Third, King and Upson (1970:176-179) made a convincing argument that some of the native sites established on the beach were processing places where the remains of the San Agustín were collected and probably sorted. These beach sites were also used as local bases for fowling, fishing, shellfish collecting, and gathering plant products that presumably sustained the Coast Miwok during their visits. In addition, the beach sites (especially CA-MRN-216 and CA-MRN-298E) exhibited evidence of clam shell disk bead production, although King and Upson (1970:179-180) were unsure whether the bead production was contemporaneous with the exploitation of the wreck (but see Moratto 1984:274). If the European/Asian materials were merely curiosities, then it seems strange to us that the Coast Miwok would establish processing sites to recover and sort materials from the San Agustín.

In sum, we believe that the Coast Miwok probably collected porcelain sherds and iron spikes because they were valued as symbolic referents of previous encounters and as materials that signified unknown worlds. The primary purpose was not to modify them into tools or ornaments *per se*; rather, they were probably regarded as similar to charms—powerful objects in Pomo and Coast Miwok cosmology used in ceremonies, personal rituals, and for insuring success in doctoring, hunting, fishing, and gambling (Barrett 1952:371-373). While they have yet to be widely found in mortuary assemblages, it should be noted that few definitive sixteenth and early seventeenth century graves have been excavated at Drake's Bay.

Furthermore, the relative paucity of porcelain sherds and iron spikes outside the immediate vicinity of Drake's Bay may be related to an expected fall-off curve of materials from their source, the recovery techniques employed in past

excavations, and the relatively few sites that have been investigated in any detail beyond Drake's Bay in the Point Reyes Peninsula (see Moratto 1970b:260-262). More recent investigations at Tomales Bay that are systematically evaluating the archaeological evidence of early contact have documented one or more porcelain pieces (T. Wheeler, personal communication 1996). In addition, two porcelain pieces, as well as an English sixpence minted in 1567, have been recovered from Olompali, a Coast Miwok village situated about 30 km. east of Drake's Bay (Moratto 1984:273).

EARLY ENCOUNTERS AND THE INTRODUCTION OF LETHAL EPIDEMICS

A tragic implication of early encounters in California is the introduction of virulent Euro-asiatic pathogens to native peoples who were immunologically susceptible to highly contagious "crowd" diseases, such as smallpox, measles, and influenza, as well as sexually transmitted ailments, such as syphilis and gonorrhea. While it is generally recognized that foreign pathogens were likely transmitted to native populations in California prior to Spanish colonization in 1769, there is considerable debate among scholars over the timing, frequency, magnitude, and regional dispersal of precolonial epidemics (Johnson 1982:48-49; Walker and Johnson 1992:128-130, 1994:111-112; Walker and Hudson 1993:20-23; Larsen 1994:132-135; Erlandson and Bartoy 1995, 1996; Kealhofer 1996; Preston 1996). Two major pathways for diseases entering protohistoric California have been identified: (1) down-the-line transmission through regional exchange networks in which native carriers transported pathogens to Alta California from infected areas in northern Mexico, the American Southwest, and Baja California, especially in the seventeenth and eighteenth centuries, and (2) direct contact with early maritime voyagers. The strongest arguments have been made for the first

pathway, given the presence of native exchange networks that moved people, goods, information—and most likely pathogens—back and forth between the expanding colonial frontier in northwestern New Spain and southern California (see Walker and Johnson 1992:128; Walker and Hudson 1993:21-23; Erlandson and Bartoy 1995:164; Preston 1996:11-20).

Our purpose here is to consider the second pathway of seaborne disease transmission within the broader context of native and voyager encounters. Specifically, we argue that early contacts with voyagers may have introduced lethal pathogens to coastal native populations, but that epidemics were probably geographically limited, sporadic, and short-lived.

In considering the distinct possibility that pathogens were introduced by early voyagers in California, we caution that disease transmittal probably varied greatly among coastal groups. The social contexts of early encounters suggest that the risk of being exposed to lethal pathogens was relatively rare among most coastal native Californian populations. As noted above, most visits with native groups were infrequent, of short duration, and involved relatively small groups (see also Johnson 1982:48-49). The total number of potential disease carriers on the five recorded voyages who visited California prior to 1769 was less than 1,000 men. With the exception of a few long anchorages, most coastal native groups would have been directly exposed to only a few potential disease carriers for very brief intervals of time. Of course, the risks of contacting pathogens may have increased greatly with extended landfalls or shipwrecks of undocumented Manila galleons, other European vessels, or Asian fishing vessels.

Another factor that would have reduced the risk of spreading highly contagious crowd diseases to native Californians is the extended time it would have taken to sail to California in medieval ships. There is little doubt that the ports in west Mexico (Navidad or Acapulco) and the

Philippines were rife with deadly pestilence, and some members of the multiethnic crews, especially Mexican Indians, were particularly vulnerable to Euroasiatic pathogens. But the long ocean voyages could purify ships of some communicable diseases (influenza, smallpox, measles) that had incubation periods of several days to less than three weeks (Erlandson and Bartoy 1995:157-158; Preston 1996:22). The Cabrillo-Ferrelo and Vizcaíno voyages from west Mexico piers to southern Alta California (e.g., San Diego) were long and arduous, involving three to seven months of tacking back and forth against unfavorable winds. The passage across the Pacific from the Philippines was also difficult, involving five months at sea for Cermeño and his men. In the time it took any of the early voyagers to sail to Alta California, communicable infections with short incubation periods could have run their course through susceptible carriers in crews of 80 to 250 men.

The three most likely ways that lethal pathogens were transported on ships to Alta California are animal vectors, the survival of the *Variola* (smallpox) virus outside hosts in ambient conditions, and sexually transmitted diseases. While it is possible that some diseases requiring intermediate hosts (i.e., insects), such as typhus (lice) and malaria (mosquitoes), may have been transported on board, the likelihood of their widespread transmittal through sporadic encounters with native peoples was minimal at this time (see Settipane and Russo 1995:26-27). However, pigs, horses, and other domesticated animals transported in the holds of ships could have served as reservoirs for virulent strains of influenza that are communicable to humans. Swine influenza, first brought to the New World by pigs transported on Columbus's second voyage, was widely spread in the Caribbean by the common practice of leaving pigs on islands as sources of fresh meat for ships (Settipane and Russo 1995:26). It is not clear whether the early voyagers to Alta California were carrying

pigs on board (although Kelsey [1986] suggested that the Cabrillo-Ferrelo expedition may have carried at least horses and cattle), whether any of them survived the butcher block during the long ocean voyages, and whether any were released at California anchorages.

Another way that lethal pathogens may have been carried to California on long voyages was on clothing or cloth that was infected by smallpox. The *Variola* virus can survive outside living hosts in an infectious state for many months on clothing, bedding, and cloth that comes in contact with smallpox scabs (Upham 1986:119-120; Settipane and Russo 1995:26). Since clothing was one of the primary goods given to native Californians during all five voyages, it is possible that some of the old clothing may have come from men who had died at sea, possibly from smallpox. The crusted material from smallpox scabs that remained on old clothing could have been lethal to natives who came in contact with it.

Erlandson and Bartoy (1995:164-165) and Preston (1996:22) identified venereal afflictions as probably the most insidious diseases brought to Alta California by early voyagers. However, the initial spread of sexually transmitted diseases would have diverged greatly along the California coast given the varying lengths of visits and the different kinds of responses the sailors received. Many anchorages were very short, and it is not clear that the voyagers had much time to mingle with native populations after they performed their symbolic acts of possession and religious ceremonies. In other cases, the voyagers apparently spent some time visiting with people in villages and native men and women did come on board ships, some occasionally staying the night (e.g., Quinn 1979a:457). However, in these early encounters, it appears the English and Spanish crews would have risked armed conflict with native groups if they had forced women into unwanted sexual relations. While local women may have been coerced into sexual en-

counters by their own kinsmen and chiefs, as implied by the "petty chief" who offered each of Vizcaíno's men ten women as sexual partners (Bolton 1916:87-88), they probably maintained considerable control over their interactions with the foreigners. In this context, it is not clear that native women would actively choose to have sexual relations with the voyagers, and this may have varied from one tribelet to another. Heizer (1947:273) suggested that the Coast Miwok who did not have wounds or sores to cure did not want or allow Drake's men to touch them at Nova Albion, because they were viewed as the returned dead or ghosts. We believe this avoidance practice probably stemmed from the ritual context of their encounters.

If pathogens from animals, clothing, or direct contact with voyagers were unleashed in Alta California, then resulting epidemics were probably sporadic and regionally localized. The footholds for epidemics were most likely protected harbors where the voyagers had extended anchorages and contacts with local peoples, such as on the Channel Islands, San Diego Bay, Monterey Bay, and Drake's Bay. Erlandson and Bartoy (1996:306) suggested that early epidemics may have burned themselves out in a relatively short period of time. As O'Shea and Ludwickson (1992:289-290) noted for protohistoric diseases among the Omaha people in Nebraska, it often takes a century or more of sporadic exposure to specific pathogens before a cyclical epidemic pattern can be established. No infrastructure existed for the regular introduction of foreign pathogens into Alta California until possibly the establishment of the Spanish road and trail system in northern Mexico and the American Southwest in the 1600s and early 1700s. Prior to this time, epidemics were probably isolated events that were demographically reversible as populations rebounded in the next generation (e.g., Erlandson and Bartoy 1996:306; Kealhofer 1996:63-64).

From their coastal geneses, epidemics could

have been spread to interior groups through marriage ties, exchange networks, and ceremonial practices. However, the dissemination of diseases would not be random in occurrence, but would follow extant alliance systems and trade routes. Some groups would be affected while their neighbors might remain unscathed, an observation that appears to characterize the spread of protohistoric epidemics in other areas of North America (see Cook 1976; Salisbury 1982: 102-103; Hudson et al. 1989:134; Milner 1992; Larsen 1994; Baker and Kealhofer 1996).

We expect that a similar localized pattern of epidemics would have taken place in protohistoric California, where its cultural landscape was filled with many small communities that would have facilitated the spread of epidemics to some groups but discouraged their diffusion to others. The complex maze of social, political, and ceremonial relationships (and animosities) between literally hundreds of small polities would probably have produced an erratic transmission of Euroasiatic pathogens across the countryside. It is interesting to note that some of the later epidemics (post-1769) in California were very localized, inflicting many deaths in some missions while not noticeably affecting the mortality rates of native populations in neighboring missions (Johnson 1982:162; Walker and Johnson 1994: 114-115; Jackson and Castillo 1995; Milliken 1995:138, 173-176; Kealhofer 1996:64-74).

The evidence for diseases in protohistoric California is summarized by Walker and Hudson (1993), Erlandson and Bartoy (1995), and Preston (1996), and will not be repeated here. Suffice it to say that the data are ambiguous at this time. This observation is especially relevant when one considers the chronicles of the voyagers. A comparison of observations from the Cabrillo-Ferrelo and Vizcaíno expeditions for San Diego Bay, the Channel Islands, and the Santa Barbara mainland is inconclusive. The Cabrillo-Ferrelo chronicles did mention the locations of villages on the Channel Islands and mainland

coast, but provided little specific demographic information, while the Vizcaíno account presented population estimates for some groups they encountered but few references to named villages. Yet, both chronicles suggested that the islands and coastal mainland were densely populated given the number of settlements, people, and "fires and smokes" they observed on shore during the day and at night. Kealhofer (1996:63-64) emphasized that early observations of Chumash villages documented fully articulated communities, and that the number and size of villages recorded during Vizcaíno's voyage compare favorably to those recorded by Spanish colonists in 1769.

A careful reading of the Drake and Cermeño accounts among the Coast Miwok suggests little evidence for a 1579 epidemic. The Cermeño voyage mentioned no evidence of unburied bodies or depopulated villages that might be the aftereffects of pestilence transmitted by Drake and his men. Furthermore, the Cermeño account identified seven different villages near the anchorage of the San Agustín, while the Drake chronicle was cryptic about the native population in the hinterland, referring only to "several Villages here and there" (Quinn 1979b:475).

We agree with Erlandson and Bartoy (1995: 167), Kealhofer (1996:76-78), and Preston (1996: 5) that a critical evaluation of epidemics in protohistoric California will be best undertaken through detailed and innovative analyses of archaeological and bioanthropological data. As a beginning point for future studies, the following suggests those native populations who were at greatest risk for exposure to foreign diseases. The earliest epidemics (1542 to 1603) should be centered around protected harbors and embayments where the voyagers stayed during prolonged anchorages, and should extend east into the interior along extant native exchange and alliance networks. These areas would include the north and south Channel Islands and Santa Barbara coast, the San Diego Bay region, the Monterey Bay area, and Drake's Bay. Later

epidemics (1600s to 1769) would probably be most evident along the exchange routes leading into southern California from Sonora, Arizona/New Mexico, and Baja Mexico.

The native peoples at greatest risk throughout protohistoric times should be those where there was overlap between the two primary pathways of diseases in southern California; that is, those populations who were linked together in broad-scale exchange and communication networks extending from the ports where the voyagers made extended landfalls to the trail systems radiating into Baja California and northwestern New Spain. This would include the Chumash and Gabrielino (both on the Channel Islands and on the mainland), the Ipai, Tipai, Serrano, Cahuilla, Mojave, Halchidhoma, and Quechan (also see Preston 1996:18). Other native populations at risk were Ohlone peoples in the vicinity of Monterey Bay and the Coast Miwok.

SUMMARY AND CONCLUSION

There is great potential to address seminal theoretical issues in contemporary culture contact studies through the study of early encounters in California. The sailing expeditions of Cabrillo-Ferrello, Drake, de Unamuno, Cermeño, and Vizcaíno recorded the first meetings between the multiethnic crews of European ships and the diverse native communities of the central and south coasts of California. Early exploration scholarship provides an excellent historical context for these voyages; however, most studies focus either on the Europeans or the native peoples, and rarely on the interactions between them. By reanalyzing the voyager accounts and relevant archaeological materials to consider the nature of early culture contacts, we may evaluate how and why peoples from very different cultural backgrounds responded to each other, and begin to examine the implications of these early encounters with respect to cultural ideologies, ceremonial practices, gift giving, the meanings of foreign material culture, and disease.

The earliest encounters in Alta California were infrequent, usually of short duration, and involved relatively small groups of voyagers and natives. Local responses to the foreigners were diverse and shaped by many factors. Previous experiences with Europeans as transmitted through regional exchange networks and oral traditions were important considerations in native responses. Initial encounters were commonly mediated through ritual practices of both Europeans and natives who performed public ceremonies that embodied their cultural views and meanings of the world.

We argue that ritual played a critical role in structuring the perceptions of "others," and provided a context for interpreting the actions of "others" in contact events. The timing of encounters with respect to the ceremonial cycle of Christian and native observances is critical for understanding the responses of all parties, a point exemplified by the reanalysis of Drake's and Cermeño's interactions with the Coast Miwok. The exchange of food and goods took place during most of these initial encounters, and this exchange was often performed in ceremonial and honorific contexts. The meanings attached to foreign goods obtained through trade or by salvaging ships and campsites are not clear. However, the large number of "unmodified" sherds and iron spikes in midden deposits along Drake's Bay may have significance for the symbolic systems and cosmology of the native peoples who scavenged them from the wreck of the San Agustín. Ritual observances of both the Europeans and natives are also important to consider in attempting to determine how deadly pathogens may or may not have been transmitted to local groups, although the limited duration of most visits and the small number of potential disease carriers are critical factors to consider as well.

It is clear that the study of culture contact in protohistoric California needs to be reconceptualized for those places where early encounters took place and broadened well beyond the coast-

al regions where European ships first anchored. The spatial distribution of European and Asian goods dating to the sixteenth and seventeenth centuries and their association with other archaeological remains should become significant areas of research. It is only through detailed studies of archaeological deposits dating to protohistoric times, compared systematically with earlier prehistoric and later historical sites, that we can begin to critically evaluate the meaning of foreign goods, as well as the broader implications of early encounters and trade, including evidence for epidemics. These kinds of studies need to be undertaken not only for areas where the voyagers made landfalls, but also for other coastal areas of California, where undocumented European and Asian ships may have become stranded, as well as along the trade routes leading into southern California and beyond.

NOTE

1. For each voyage, we compiled an appendix that tabulates the duration of stay, type of encounter, and trade goods for each landfall recorded in the chronicles. Space does not permit the full publication of the five appendices here. However, copies of the appendices can be obtained from the authors.

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