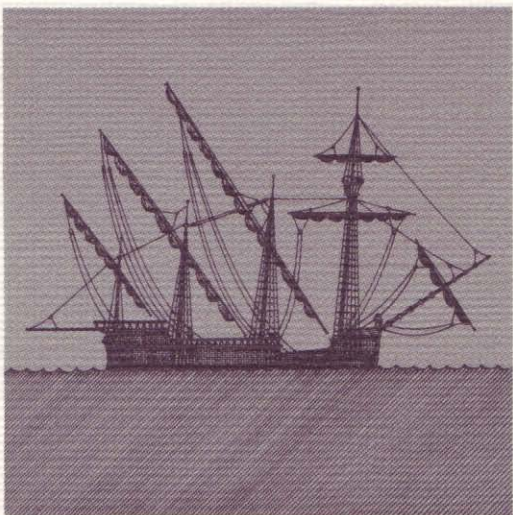




california's oldest historical relic?

BY ROBERT F. HEIZER



ROBERT H. LOWIE MUSEUM
OF ANTHROPOLOGY
UNIVERSITY OF CALIFORNIA,
BERKELEY

TABLE OF CONTENTS

	Page
Preface	iv
Discovery and Evaluation of the Relic	1
The Cabrillo Voyage of 1542-43	16
Two Accounts of Cabrillo's Death	33
Kroeber's Analysis of the Santa Barbara Portion of Cabrillo's Voyage	35
Alexander S. Taylor's Analysis of Chumash Place Names in Cabrillo's Account of 1542-1543	39
Opinions by Three Spanish Scholars of the JR-Inscribed Stone	42
Notes on the Geology and Harbors of Santa Rosa and San Miguel Islands	46
Experimental Attempts to Replicate the Engraved Lines on the Stone Identified as Possibly Being Cabrillo's Gravemarker. By Thomas R. Hester	49
Preliminary Report on Lichens on the JR-Inscribed Stone By Doris E. Baltzo	51
References	57

ILLUSTRATIONS (AT END)

- Plate 1. The Santa Rosa Island stone, possibly Cabrillo's gravestone. Photograph taken July, 1972. Compare with Pl. 2b.
- Plate 2. *a*, photograph (not previously published) of the stone before cleaning, taken by P.M. Jones in 1901. Lowie Museum negative No. 321;
b, photograph (previously published in Jones 1956, Pl. 120e) of stone after cleaning, taken by P. M. Jones in 1901. Lowie Museum negative No. 320.
- Plate 3. Three photographs of the stone after cleaning taken in 1901 by Philip Mills Jones and published in Jones 1956:Pl. 120e-f.
- Plate 4. Small occupation cave across ravine from Jones' camp 6 showing petroglyph which Jones says looks "somewhat like markings shown on stone, Plate 120f." Photo by P. M. Jones, 1901.
- Figure 1. Sketch of the JR stone (by Judith Ogden).
- Figure 2. The Santa Barbara Channel Islands.
- Figure 3. San Miguel Island. Scale in nautical miles. From Coast and Geodetic Survey Chart 5116.
- Figure 4. East half of Santa Rosa Island. Scale in nautical miles. From Coast and Geodetic Survey Chart 5115.
- Figure 5. Santa Rosa and San Miguel Islands. From Coast and Geodetic Survey Chart 5202.
- Figure 6. Approximate route of the Cabrillo expedition of 1542-43.
- Figure 7. San Miguel Island archaeological sites (after Rogers 1929:Map 32).
- Figure 8. Santa Rosa Island archaeological sites (after Rogers 1929:Map 33).
- Figure 9. Santa Rosa Island showing archaeological sites (after Jones 1956:Pl. 86).
- Figure 10. Native villages of the Channel Islands (after Kroeber 1925:Pl. 48).
- Figure 11. Native villages of the Channel Islands (after Brown 1967).

PREFACE

In 1956 Dr. Albert B. Elsasser of the Lowie Museum of Anthropology collaborated with me in publishing the manuscript report and photographs of Philip Mills Jones' archaeological investigations on Santa Rosa Island in 1901. At that time neither of us paid any particular attention to one specimen (Lowie Museum, catalogue number 1-5086) which we illustrated. Nor, so far as known, has any reader since 1956 remarked on this artifact which is a narrow slab of sandstone thirteen and one-half inches long, and which bears the inscribed initials JR. In June, 1972, I was examining the Santa Rosa Island archaeological report for illustrations of a particular kind of flint implement and my eye caught the photograph of the stone. It occurred to me then that the initials might be those of the discoverer of California, Juan Rodriguez, usually known as Cabrillo, who died and was buried in January, 1543 on one of the Santa Barbara Channel Islands. My interest was aroused, and in spare time I have done some reading about Cabrillo and have written the following about him, his voyage, and the stone which I believe may have been used to mark his grave.

At the outset of this report certain limitations must be noted which constitute barriers to reaching firm decisions on several critical points. Foremost among these is the need to rely, for details of Cabrillo's voyage of discovery, on an obviously confused abstract made by Juan Paez de Castro some time between 1555 and 1560 of the precious original account of the voyage. That original has been lost for the last four hundred years, but we may hope that in future it will come to light in some archive. Antonio de Herrera in 1615 published a brief summary of the voyage (English translation in Wagner 1928:55-59). The abstract which has come down to us was first published (in the original Spanish) by Buckingham Smith in 1857. The first English translation was published 22 years later by H. W. Henshaw (1879). In 1928 Henry R. Wagner published a facsimile of the Paez de Castro abstract together with an English translation (Wagner 1928). We believe that the long-lost original report of the voyage would provide us with the kind of detail which is needed to reach decisions on a number of topographical-geographical-ethnological questions. The present effort to do an ethnohistoric inquiry is hampered by the poor quality of the surviving historical documents.

In this research which I have written as an anthropologist (which I am) rather than as a historian (which I am not) I have been helped by a number of friends, and by listing their names here I hope to express my appreciation: Miss Jane Beaumont, Secretary of the

Archaeological Research Facility; Miss Judith Ogden, Illustrator; Professor Woodrow Borah, Department of History; Chancellor Albert H. Bowker, Berkeley campus; Dr. Albert B. Elsasser, Lowie Museum of Anthropology; Mr. Campbell Grant, Carpinteria; Mrs. Marion Popenoe Hatch and Mr. Thomas Roy Hester, graduate students in the Department of Anthropology; Dr. Errol Mauchlan, Assistant Chancellor, Berkeley campus; Dr. William L. Merrill, Research Assistant, Smithsonian Institution; Mr. Phil C. Orr, Santa Barbara Museum of Natural History; and Mrs. Jean Pitzer, Berkeley. Professor Manuel Ballesteros Gaibrois and Professor José Alcina of the University of Madrid and Professor Claudio Esteva-Fabregat of the University of Barcelona provided me with opinions which I value, and have graciously permitted me to quote their letters. Some of my colleagues at the Center for Advanced Study in the Behavioral Sciences have been kind enough to read the pages which follow, and have given me good advice (not always listened to). Among these are John Hall, Yale University; William Longacre, University of Arizona; Preston Cutler, Assistant Director of the Center.

Nothing in this paper is aimed at reaching a positive or final decision on the authenticity or connection with Cabrillo of the stone which is discussed. Rather, I consider this report merely a means of bringing to public notice the fact that the stone exists, and the possibility that it was engraved and set over the grave of the discoverer of California 429 years ago.

CALIFORNIA'S OLDEST HISTORICAL RELIC?

Robert F. Heizer*

Juan Rodriguez Cabrillo came to New Spain in 1520 as a soldier in the expedition of Pánfilo de Narváez. According to Wagner (1928:21) he served as the commander of a company of cross-bowmen in the troops under Cortez' command in the siege against the Aztecs in Tenochtitlán. Cabrillo also aided in the construction of the thirteen brigantines which were built by order of Cortez for service on Lake Texcoco in 1521 when the final battle for the Aztec capital took place (Pourade 1960:38-39; Gardiner 1956). He participated in the expedition under Francisco de Orozco against Oaxaca, and later went to Guatemala, probably with Alvarado. After the reduction of the natives of Guatemala he was awarded several estates (encomiendas), one of which was Coban in Verapaz. Cabrillo, designated by Alvarado as admiral of the exploring expedition on which he died, sailed a fleet from Guatemala to Navidad, Mexico, where it arrived on Christmas day, 1540 (Wagner 1929:55). The further northward sailing of the expedition was delayed, and in 1541 Alvarado was killed in an Indian uprising in Jalisco. After the death of Alvarado, and because of Cabrillo's absence from Guatemala, the latter's estates were seized by Francisco de la Cueva, Alvarado's successor. One of Cabrillo's surviving sons who bore the same name in 1563 petitioned the Spanish Crown for title to certain of the encomiendas of his father which had been earlier seized. These legal suits, while interesting, throw no light upon Cabrillo's place of origin or his voyage to the north except the statement that "he had sailed for the discovery of China, where he died" (Saint-Lu 1968:94-101, 170-172, 519-536). Cabrillo was sent on his voyage of northward exploration in 1542 by the Viceroy of Mexico, Antonio Mendoza. Two ships, the *San Salvador* and *Victoria*, formed the exploring fleet. Cabrillo, the leader, died and was buried on an island in the Santa Barbara Channel in January, 1543, and the expedition was taken over and concluded by one of his chief pilots, Bartolomé Ferrer. The original full account of the expedition has not survived. What we have, and refer to subsequently as the Cabrillo account, is a summary of the full original, and one which obviously omits details which would be of interest to us today.

Hubert H. Bancroft in the first volume of his monumental *History of California*

*Center for Advanced Study in the Behavioral Sciences, Stanford, and Fellow, John Simon Guggenheim Memorial Foundation, 1972-73.

(1886:77) wrote, "No traces of [Cabrillo's] last resting place, almost certainly on San Miguel [Island] near Cuyler's Harbor, have been found; and the drifting sands have perhaps made such a discovery doubtful." Bancroft (op. cit) alludes to "unsuccessful researches by [Alexander S. Taylor], Admiral Alden, and [George] Nidever. In 1875, however, he [Taylor] found two pits on a level near Cuyler's Harbor, about 10 feet in diameter, which he doubts not will prove to be the grave of Cabrillo and his men. At any rate, 'they had a very peculiar look'." Equally unsatisfactory is the statement by H. L. Oak who simply reports he was told by Dr. J. L. Ord of Santa Barbara that he had seen Cabrillo's grave (Oak 1874:570). Nothing further about this seems to have been recorded.

P. Schumacher (1877:45), an archaeologist who collected on the mainland and islands for the Smithsonian Institution and Peabody Museum, wrote about the port where Cabrillo died, that its description "corresponds entirely with the appearance of Cuyler Harbor during the time of rough sea, because from the eastern side of the bay to the rock-islet, heavy breakers roll over the partially exposed reef and the rocks in the bay a little to the westward of it, so that coming from the northwest, its way of approach, the entrance seems barred and impassable. Taking Cuyler Harbor [on San Miguel Island] and the ports in Santa Cruz [Island] and Santa Rosa [Island] into consideration as shelter, and comparing their natural formations with the historic record, there seems to be little doubt that the harbor in San Miguel, and not Prisoner Harbor in Santa Cruz, as some believe, is the port in which Cabrillo died. We did not spend any time in searching for his grave in San Miguel, where the best location is offered between the spring below the house and the east end of the harbor, but, to satisfy my curiosity, we dug in a place at Prisoner Harbor [Santa Cruz Island] which was well described to me in a letter of a southern gentleman, and in a very positive manner, as the grave of Cabrillo; but in vain did we try to enable [by discovering Cabrillo's grave] the Spanish nation to erect for him a monument in commemoration of his noble deeds." C. F. Holder (1910:296) in referring to Cuyler's Harbor on San Miguel Island "where Cabrillo is said to lie" says that "scores of attempts have been made to find the remains and give him suitable honor as the discoverer of California," but gives us no details on who supposedly carried out these efforts. Holder was prone to making unsupported statements, and I doubt the accuracy of his statement.

A. Woodward (1947:50-51, Fig. a on p. 34) attributes a large glass bead of the "Star" (also called "chevron," "Twelve Apostles," or "rosetta") type found in a Yokuts cemetery at Elk Hills in Kern County to probable introduction by Cabrillo to the Chumash from whom the Yokuts presumably secured it by trade. Similar beads have been recovered from sites on the Santa Barbara mainland coast (Haldeman 1879:270, Pl. XIII:figs. 14, 15). Woodward (1947:50) states that these date from the sixteenth and seventeenth centuries, and once informed me (Heizer 1941:18) that in the Santa Barbara region these beads "may be safely attributed to the Cabrillo period." While it would be nice to be able to accept Woodward's opinion, I am reluctant to do so for several reasons, though at the same time acknowledging

that it may be true. Haldeman (1878:303) refers to "modern Venetian beads of which I have examples much like that of [those from] Santa Barbara, Ca.," and the Lowie Museum of Anthropology has in its collections examples of these "Star" beads which I bought in Venice in 1964. The other objects of European manufacture found at Santa Barbara (at the La Patera or Dos Pueblos sites) in association with these "star" beads all seem to be rather later than of mid-sixteenth century date (Wheeler 1879:272-276), and since the same is true of the Elk Hills site in Kern County, this provides us with grounds for the suggestion that these particular beads, proposed as having been introduced by Cabrillo, are more probably of post-Cabrillo date. Everything considered, the evidence is too weak to support the conclusion that the "star" glass beads are relics of Cabrillo's California visit. I think that despite earlier efforts to locate Cabrillo's grave and glass beads which are attributed by Woodward to introduction by Cabrillo, we must conclude that this is all of too inconclusive a nature to state that we have any direct or tangible evidence of Cabrillo's presence in California in 1942-43.

The chief account of the voyage of exploration under command of Juan Rodriguez Cabrillo covered the period June 27, 1542 to April 14, 1543 and records the death and burial of Cabrillo as follows:

"While wintering at the Isla de Posesion, there passed from this present life, January 3, 1543, Juan Rodriguez Cabrillo, the captain of the ships, from a fall which he had in this island the previous time [October?] they were there, in which he broke an arm, close to the shoulder. . . . They named [i.e. re-named] this island [Isla de Posesion] the "Isla de Juan Rodriguez"; the Indians called it "Çiquimuymu" . . . On the Isla de Posesion there are two towns, "Cico" and "Nimolollo." (Wagner 1928:51). Wagner (op. cit, p. 76, n. 113) quotes written testimony of 1560 of two persons (Lázaro de Cárdenas and Francisco de Vargas) who had been on the Cabrillo voyage which indicate that the island where he was injured was also called "Isla Capitana," and further, that he died some ten or twelve days after having broken his leg rather than his arm. In one of these, Cabrillo is referred to as "General Juan Rodriguez," and in the main account of the voyage simply as "Juan Rodriguez" or "Juan Rodriguez Cabrillo" (Wagner 1928:41, 51). In the legal suit of 1563 referred to above Cabrillo is referred to as Juan Rodriguez Cabrillo.

The Isla de Posesion, which was renamed Isla de Juan Rodriguez following Cabrillo's death and burial, has been generally identified as San Miguel (Bowers 1878:317; Davidson 1887:206, 226; Henshaw 1879:311, 313; Heye 1921:26; Holder 1910:11, 296; Pourade 1960:50-51; Rogers 1929:3, Schumacher 1877:45; Wagner 1928:74; Yarrow 1876:313; Yarrow 1879:45). Cabrillo took formal possession of the country at various spots where he landed on the voyage.* One of these acts of taking possession in the name of the Spanish

*One of these was on October 13 on the Santa Barbara coast at the Pueblo de las Canoas which was near the present Mugu Lagoon. The act of possession on the island occurred on or a few days before October 25.

Crown must have occurred on the island where he died and which was named Isla de Posesion. No actual statement to this effect is made in the account which has come down to us, but we can scarcely doubt that it occurred on one of the Channel Islands, probably either San Miguel or Santa Rosa. Why Cabrillo should have taken formal possession twice in the Santa Barbara region is not stated. Perhaps he was struck by the large number of native residents and desired to impress them with the formal act of possession, or possibly he wanted to claim both the mainland and off-lying Channel Islands for the Spanish crown.

Kroeber (1925:555) through analysis of the few identifiable Chumash Indian names given in the Cabrillo account of the islands and villages on them, suggested that Isla de Posesion/Isla de Juan Rodriguez may have been Santa Rosa rather than San Miguel Island. Kroeber decided that "Since nothing certain can be made of the native names [recorded by Cabrillo] that refer to either island [Santa Rosa and San Miguel], this problem [of where Cabrillo died and was buried] is one for the geographer rather than the ethnologist." Since Kroeber wrote, Wagner (1928:76, n. 115) has shown that the second listing of Isla San Salvador is a copyist's error for Isla San Sebastian, and the confusion over name duplication is thus removed. There are many problems in trying to harmonize conflicting evidence in order to get a picture which is consistent with the few certain facts in the Cabrillo account. Some of the errors, conflicting statements and duplications in the Cabrillo account probably are the result of its being "merely a summary of what was probably a long detailed account" (Wagner 1928:21). The major difficulty in following Cabrillo's voyage in detail lies in the fact that the account which has come down to us is not the original day-by-day record of the voyage, but an abbreviated summary written in the third person. Wagner (1928:21) notes that "most of the interesting details, or at least such as would be more interesting to us [are] eliminated." Kroeber may have been right, in my opinion, when he concluded that the Isla de Posesion may have been Santa Rosa rather than San Miguel.

The Cabrillo account gives as the name for the Isla de Posesion the word Çiquimuyumu. This spelling of this place name, which is given twice, is quite clear in the photographic copy of the original document published by Wagner (1928:38). While some of the Chumash village names in the Cabrillo account can be identified, it is not probable that they are accurate phonetic renderings of place names which the Spanish heard. Evidence of this is provided by Kroeber (1925:553) who points out the probability that the list of mainland Chumash villages in the Cabrillo account includes the following variably spelled repetitions: Sopeno, Misesopano, Garomisopona; Potoltuc, Paltatre, Partocac, Paltocac; Anacot, Anacoat; Nacbuc, Anacbuc; Opia, Opistopia; Cicakut, Ciucut, Caacat. If we conclude from this that whoever recorded these native village names did not have a very good ear, or that the copyist was careless, then perhaps we should not expect to find a precise duplication in village names recorded three centuries later. Kroeber (1925:553) concluded that *Liquimuyumu* as the native name for the Isla de Posesion could not be identified. But here he was misled by a printer's

error in the first English translation of the Spanish narrative which was published by H. W. Henshaw (1879). Henshaw gives the word as *Liquimuymu*, but Yarrow (1876:319) gives it correctly as *Çiquimuymu*. The photographic copy of the Cabrillo account (Wagner 1928:28-41) shows clearly that the proper spelling is *Çiquimuymu*. The name of a village on Santa Rosa Island was written in 1884 by Juan Estevan Pico, a literate Chumash Indian, as *Kshiu-kshiu*. H. W. Henshaw, for whom Pico made the village name list, then checked the true pronunciation of each written village name with Pico, and Henshaw's phonetic version of the name is given as *K' ciwuk' ciwu*. In the 1907 edition of *The Handbook of North American Indians* this is rendered *Kshiwukshiwu*. Pico's list (Henshaw 1955:197) gives the location of this village as "Rancho Viejo" on Santa Rosa Island. This is presumably the area on the east end of Santa Rosa between Skunk Point and East Point, though we cannot be certain whether this is the same "Rancho Viejo" locality referred to by P. M. Jones or the ranch at Boat House Canyon in Beecher's Bay* where Jones headquartered in 1901. Jones (1956:215) found some objects of Caucasian manufacture (glass beads and metal objects) in one site on Beecher's Bay (his Camp 2). Kroeber (1925:Pl. 48) locates the village of *Kshiwukshiwu* in Beecher's Bay, but does not tell us on what evidence he places it here. If *Çiquimuymu* was in 1542 the principal village on Santa Rosa Island, Cabrillo may have misunderstood the native response when he was inquiring for the name of the island itself. The similarity between *Çiquimuymu* and *Kshiwukshiwu*, while not very close, is at least sufficient to allow us to entertain the possibility that they may be the same name recorded three hundred and forty years apart. It is also possible that the rancheria (Indian village) name of *Chihuicchihui* which was on the Isla de Guima (Wimal, or Santa Rosa Island) as given in the San Buenaventura Mission register and from which four natives were baptized in 1815 and 1816 (Merriam 1970:42) is the same village as *Çiquimuymu* and *Kshiwukshiwu*.

Another possible interpretation of *Çiquimuymu* is that it is a compound word *Cico* (name of a village on the Isla de Posesion recorded by Cabrillo) and *Uimuymu* (i.e. *Wimuymu*, a version of *Wimal* or *Huima* or *Guima*, native names recorded in the mission period for the island of Santa Rosa) meaning "Cico village on Wimal island." The Cabrillo account says that on the Isla de Posesion (i.e. *Çiquimuymu*) there were two towns, *Cico* and *Nimollollo*. Neither is later recorded as a village name on San Miguel or Santa Rosa Island, but a village of *Nimalala* is known on Santa Cruz Island. Since it is stated that there were only two native "towns" on Isla de Posesion, San Miguel may be indicated since Santa Rosa and Santa Cruz had, respectively, at least seven and twelve villages in the early mission period.†

*The name of the bay is also spelled *Becher's*. This is the "official" spelling used by the U.S. Coast and Geodetic Survey.

†The native population of San Miguel Island apparently became extinct early in the mission period. The Chumash name of the island was *Tucan* (sometimes rendered *Tukan* or *Twocan*). In 1788 some 43 individuals from *Tucan* were baptized at Santa Barbara Mission (Merriam

A. Brown (1967:19) notes that the Mission La Purisima Concepcion baptismal register contains an entry referring to "Niuoiomi cerca de Toan" and suggests that Cabrillo's Nimollollo town may be the same as Niuoiomi. If this equation is accepted, it would clearly identify the Isla de Posesion as San Miguel Island since Toan (= Tukan, Tukkan, Tucam) is securely identified as San Miguel (see Fig. 10).

In 1899 Dr. Philip Mills Jones, M.D., was commissioned by Mrs. Phoebe Apperson Hearst, then a Regent of the University of California, to conduct archaeological explorations and make collections for the newly-established Museum of Anthropology at the University. One of Jones' several collecting trips was to Santa Rosa Island (Fig. 9), and the records made by him and his photographs of material collected were published over half a century later (Jones 1956). Jones picked up on the surface of an eroded archaeological site a stone slab measuring 13.5 inches long, 4.5 inches wide and 2.0 inches thick (Pls. 1-3; Fig. 1). The slab, made of fine-grained gray sandstone, is half of an aboriginal grinding stone which probably served for milling seeds. One of the flat surfaces bears several incised designs which have been applied on the smoothed surface. The stone appears to have been originally used by Indians for a grinding slab and later re-used by someone with a knowledge of the alphabet to inscribe the two letters. The stone bears a simple cross near the upper left corner. Below this are the initials JR (for Juan Rodriguez?) and below this what is apparently a headless "stick figure" of a man. The incised cross at upper left, the JR inscription at center and the headless stick figure at the bottom seem to be equally sharply cut. But there are some less deeply incised lines to the left of the JR which appear less prominent as a result of surface grinding. These last therefore seem to be older designs than the JR and stick figure elements whose lines are sharper and deeper and almost certainly were cut later. We have, apparently, a stone originally incised by some Indian which was found and later engraved with the cross, the letters JR and the stick figure.

Professor Woodrow W. Borah of the Department of History has examined the stone. He offered no opinion as to whether it was genuine or typical of grave markers of the period, but did observe that the form of the letter J and conjoined R were not unusual in any respect in sixteenth century Spanish writing. Since his opinion is one I respect, I accept it as not denying the possible sixteenth century style of the inscribed letters. Three opinions by Spanish scholars on the stone are given below. At the outer end of the R is what appears to be a small S. This may be a fancy finial; it may represent the last letter of Juan Rodriguez' name, thus: J(uan) R(odrigue)z; or it could represent the C of Cabrillo, thus: J(uan) R(odrigue)z C(abrillo). While Cabrillo's name is usually spelled Rodriguez in the Spanish

1962:200) and such a large number suggests that the island population was removed to the mission en masse. In 1803 two additional persons from "Tucan en las yslas" were baptized at Santa Barbara (*Ibid.*). Thereafter the mission records do not mention the island, and we can assume that it was no longer inhabited.

For archaeological sites on Santa Rosa and San Miguel Islands see Figs. 7-9. Many of these have yielded historic period artifacts.

fashion, it is said that by origin he was a Portuguese (Pourade 1960:34; Wagner 1928:20) and in this case he may have signed it Rodrigues. Pourade (1960:41) provides evidence that in July, 1524, Cabrillo signed his name as one of the 101 founders of the first capital of Guatemala (at Santiago de Guatemala) as "Juan Rodz." The finial on the R which looks to me like an "S" might therefore stand for a "Z."

I have not found any aboriginal painted, incised or engraved designs from the Santa Barbara area which are exactly like the square-shouldered, headless stick figure which appears below the JR inscription on the stone. If there were other aboriginal renderings of this motif, it might be argued that this stick figure was applied either before or after the cross and JR elements were inscribed, perhaps by an Indian. Jones (1956:Pl. 101, p. 229) photographed in 1901 the entrance of a small cave on the south side of Santa Rosa Island which bore an inscribed petroglyph which he thought was "somewhat like" the markings on the stone which bears the JR inscription. A design like a 4-tined pitchfork appears in his photograph (see Pl. 4). Orr (1968:Fig. 33) shows this same glyph but reverses its correct position so that the "tines" point up rather than down. There is a vague resemblance to what I have called the "pitchfork" on the cave wall and the "stick figure" on the stone bearing the initials JR, but the two are not very close and any connection between the two may, I believe, be discounted. Rogers (1929:Pl. 34) illustrates two flat-surfaced stone slabs (23 by 11 inches and 19 by 13.5 inches in size) found by him in an Indian cemetery on Santa Cruz Island. One of these bears two sharply incised crosses and a series of parallel incised lines; the sharply incised line pattern on the other is difficult to see in the photograph. These may be prehistoric (i.e. pre-1542), or, one or both may date from the mission period—we cannot date them even this roughly because Rogers does not provide us with the information needed to answer the question. Generically they are like the Santa Rosa Island inscribed stone found by Jones, but differ from it in shape, in having wholly geometric designs and lacking initials in Roman letters. I have, in short, not found anything of indubitable aboriginal authorship which is sufficiently similar to the headless stick figure on the JR stone to support an argument that the latter is of aboriginal or non-European type. At this time it seems most probable that the stick figure design was put on the stone at the same time and by the same person who cut the cross and JR initials. Careful examination of the inscriptions by Mr. T. Hester and me under a 30x binocular microscope show that the cross, the initials and the stick figure design were incised in a similar manner and apparently with the same tool.

The precise spot where the Santa Rosa Island stone was found was not recorded beyond the notation in Jones' record of a "sandstone slab that has been used for mealing or grinding stone, bearing on one side incised design. Stone found on the surface of an eroded camp site [i.e. Indian kitchen midden] near the Rancho Viejo." Jones ordinarily made careful records of the exact places where he excavated and of what he found, but in addition to digging, he also collected objects lying on the surface of occupation sites which had been exposed by the

wind. This kind of surface material he apparently considered as less important additions to the collection than excavated material, and his notes do not usually record the exact location of such surface finds. Thus, on March 17, 1901, his Journal reads: "Sent Billy [hired assistant] to Rancho Viejo for surface finds; brought in some very good arrowpoints, a fine mortar, and some miscellaneous stuff" (Jones 1956:206). Similar entries are made for March 31, April 3, April 4, and April 5, and we can assume that on one of these surface collecting trips the stone in question was found. Jones seems not to have taken particular notice of the incised stone beyond simply noting it for the reason that it was unusual in bearing the "incised design." So far as can be determined Jones had no interest in Cabrillo, did not visit or excavate on San Miguel Island, and did not suggest that the stone he found bore Cabrillo's initials.*

*Since Jones, as discoverer of the stone, is an important element in any attempt to interpret its significance, I provide here some data about him. Philip Mills Jones, as mentioned above, was hired from 1899 to 1902 by Mrs. Phoebe Apperson Hearst to make archaeological and ethnological collections for the newly established Museum of Anthropology of the University of California. She also similarly employed George A. Reisner, Max Uhle and Alfred Emerson who worked in Egypt, Peru, and the Mediterranean area (Kroeber 1923:iv). Jones was a practicing M.D. but gave up this work in 1916 to study law, was admitted to the bar and briefly practiced law in San Francisco until his death on November 27, 1916. He had, apparently, no professional aspirations to become an archaeologist, ethnographer or museum worker, and never published any of his findings made during the approximately three years he was employed by Mrs. Hearst. Kroeber abstracted from the manuscript copies of his official reports an account of mound explorations in 1900 near Stockton which was published in 1923, and A. B. Elsasser and I in 1956 did the same for his Santa Rosa Island work of 1901. Uhle and Reisner, of course, went on to become leaders in their fields, though not under the auspices of Mrs. Hearst or the University of California. This note about Jones is provided to answer some of the questions readers may have about Jones as the discoverer of the Santa Rosa inscribed stone. If the stone is a hoax it seems that Jones may be absolved from any connection with intent to perpetrate it or encourage its acceptance as being connected with Cabrillo. Nothing known about him suggests in the slightest degree any connection with an attempt to delude his sponsors or the public by creating a hoax. If Jones had had the intention of perpetrating a hoax on Mrs. Hearst one assumes that he might at least have given a slight hint in his report to her that he had found an item possibly connected with Cabrillo. But there is no mention in his account of Cabrillo. Further, since he was privately engaged by Mrs. Hearst, and his report was written for her alone, he cannot be said to have been in any position to have access to a public audience. A photograph of the stone taken by Jones in 1901 (reproduced in Jones 1956:Pl. 120e-g) stands as documentation for the statement that the stone has not been altered since the photograph was made. In the photographic files of the Lowie Museum of Anthropology are the negatives of the photographs taken by Jones to accompany his report to Mrs. Hearst of his investigations. These are the photographs published in Jones (1956). Among the negatives is one (LMA No. 321) showing the JR stone before it was cleaned by Jones. This photograph of the uncleaned stone (reproduced here in Pl. 2a) we believe was taken first, but since the incised elements did not show clearly, or perhaps because Jones was curious about what was inscribed, he cleaned the surface of the stone and took the second photograph (Pls. 2b, 3; Jones 1956:Pl. 120a). Jones' manuscript report states:

Of the several Channel Islands (Fig. 2), Cabrillo first saw the island of Santa Cruz. The identification of this island is quite positive because the native name he records for it (Limun) as well as for a number of villages whose names he gives, agree with later recorded native names, as pointed out by A. L. Kroeber in 1925. The expedition then discovered two more islands, a large one (Santa Rosa) said to be eight leagues long, and a small one (San Miguel) said to be four leagues long, and with a good port. The account does not identify the "good port" on the smaller island either as an anchorage, or as the harbor on the Isla de Posesion. After "they remained for a week in these islands [Santa Rosa and San Miguel] because there was a great storm . . . they left these islands, that is the one more to windward, which has a very good port inside which no bad effects will be felt in any kind of sea weather. They named it 'Posesion'." It can be argued that the first mentioned "good port" on the small island may not be the same as the harbor mentioned next as "a very good port" and which was named "Posesion." In short, it seems possible that Posesion could be identified either as Beecher's Bay on Santa Rosa Island (Figs. 4, 5) or as Cuyler Harbor on San Miguel Island (Figs. 3, 5). A later passage in the Cabrillo account written in February, over a month after Cabrillo's death and burial at the Isla de Posesion reads: ". . . they entered the same port of the Isla de Juan Rodriguez [i.e. Isla de Posesion] where they had first been . . . [After two days] they set out from the Isla de Juan Rodriguez for the Isla de San Lucas, which is in the middle of the others, in order to get some anchors which, unable to raise, they had left there during a storm." Interpretation of this passage presents difficulties. On Friday, January 19, 1543 the expedition left the Isla de Juan Rodriguez, having remained there since the death and burial of Cabrillo on January 3, and began a search for supplies for the continuation of the voyage. The account says, "In leaving the port such a strong wind from the west-northwest struck them that they had to take refuge at the other Islas de San Lucas and to anchor at the Isla de Limun [Santa Cruz] which they named "San Sebastian." They were obliged to weigh anchor again as there was no port there, only the shelter which the islands afforded, and the wind had shifted to one on shore." If this is the storm referred to in the passage just quoted and the Isla de Limun [Santa Cruz Island] is where they lost the anchors, we must interpret the phrase "in the middle of the others" as indicating some other island than Santa Rosa which lies between

"Plate 321 [shown here as Pl. 2a] shows the side on which are the markings before it was cleaned. Plate 320 [shown here as Pl. 2b] shows the same side after careful cleaning with soap and water." The first photograph clearly shows lichen growths on the surface, and faint discolorations left by these after their removal with soap and water are visible on the second photograph of 1901. Since such lichen growths must take some time to grow, it appears that the photograph in Pl. 2a may be taken as evidence that the stone picked up on Santa Rosa Island in 1901 was already old in 1901, though how much older we cannot determine. None of the round lichen growths actually cover lines of the incised cross, JR letters or the stick figure.

San Miguel and Santa Cruz. If an earlier storm is referred to as the one when they lost the anchors, there seems nothing specific in the account to indicate in which harbor or island they took shelter or which storm might have been the one responsible. It is this kind of problem which prevents us from being able to determine from the account of the Cabrillo voyage which island was called Posesion.

If the Isla de Posesion of Juan Rodriguez was Santa Rosa Island, the ships must have anchored in Beecher's Bay. It can be assumed, in this case, that his body would have been buried somewhere fairly near the ship at a spot overlooking the bay. But the stone interpreted here as possibly being his grave marker was found by Jones in 1901 at some unspecified point estimated to be about four or five miles southeast of the anchorage in Beecher's Bay (Fig. 4). Since it is highly unlikely that his body would have been carried this distance for burial, it is therefore almost certain that if this is the grave marker, subsequent to its being placed on his grave it was moved, and was not found by Jones at the spot where Cabrillo was interred. Thus we are offered by the stone with the JR inscription no leads as to the possible location of the grave if it was on Santa Rosa Island. All of the skeletons excavated by Jones in 1901 from sites on Beecher's Bay appear to have been those of Indians since they were accompanied by articles of native manufacture (flint-arrowpoints, shell beads and ornaments, etc.). Cabrillo's skeleton, if we had it, could probably be identified since he was a Caucasian and his body might have been accompanied by items of recognizably sixteenth-century European manufacture—items such as buttons, buckles, a sword, a dagger, a crucifix, a ring, and so on. If such a grave were discovered, the identification of its occupant could be supported by observing whether the person had suffered a broken arm close to the shoulder, or as other accounts have it, a broken leg. Unless Cabrillo's grave has already been dug up and not recognized as such (a possibility suggested by the extraordinary amount of unscientific site looting which has for a hundred years been going on on Santa Rosa and San Miguel Islands) it is even possible that it could be located with a magnetometer or a sensitive metal detector, providing, of course, that his body was accompanied by metal objects of sufficient size to be detectable by these instruments. Such a search scarcely seems feasible, however, in view of the total absence of information regarding the location of his grave.

The Santa Rosa Island stone, I believe, could be the gravestone bearing the initials of Cabrillo who was usually known as and referred to as Juan Rodriguez. Nothing more than this can be argued. The counterarguments and objections to this opinion are numerous. Among them are:

1. The inscription is a deliberate fake made sometime before 1901 with the hope that it would be taken as the grave marker of Cabrillo. But if this is true, we may ask why was it not left by the perpetrator of the hoax to be found on San Miguel Island which has generally been considered to be the place where he was buried?

2. The initials (JR) on the stone do not refer to Juan Rodriguez, but may be more recent and are those of some missionized Indian, or of a vaquero, or a shepherd, or a casual visitor to the island in recent times, or a cattle brand, etc., etc. This cannot be denied since the stone does not bear a date, and cannot be proved to be of any certain age or authorship. The initials are not those of the next most important persons in Cabrillo's fleet, the chief pilots being Bartolomé Ferrer and Lorenzo Hernandez, and the masters Antonio Correa and Gerónimo de San Ramon (Wagner 1928:20). Nor are the initials those of the two Mexicans who in 1843 were awarded Santa Rosa Island as a land grant, José Antonio and Carlos Castillo.
3. The chances of the stone being a hoax are amplified by the mere fact that from the early 1850's on there has been speculation about, and at times excavation (by A. S. Taylor, P. Schumacher, and perhaps others) in search of Cabrillo's grave. This must be admitted, since fakes are usually manufactured to "prove" some disputed point or to "solve" a problem which requires additional information. Usually, however, those who create hoaxes manage to "discover" or arrange for someone else to discover the object. Since P. M. Jones seems innocent of creating a hoax, the probability of the stone being a deliberate fake seems somewhat reduced.
4. Cabrillo died and was buried on San Miguel Island, but his supposed gravestone was found on Santa Rosa Island. Therefore, it cannot have anything to do with Cabrillo. A possible answer to this is that the long-held belief that Cabrillo died and was buried on San Miguel Island may be incorrect. Some of the reasons for believing that he died on Santa Rosa rather than San Miguel Island have been given above. Alternatively, the stone may have been left by the Spanish on San Miguel Island and later taken by Indians to Santa Rosa Island.

Despite these, and other objections which could (and probably will) be suggested, there still remains the possibility that we do have here Juan Rodriguez Cabrillo's gravestone which was hurriedly made and placed on his grave in January, 1543. Portable objects which were first installed on the surface in the presence of natives at the moment of first contact with Europeans, it seems to me, might become objects of considerable interest, since their placement was made in what to natives would appear to have been a ceremonial or ritual context. And for this reason the piece might be later carried off. This may have been the case with the plate of brass which Drake said he left on the California coast in June, 1579, and it may well have been true of a stone marker placed on Cabrillo's grave at the time of his interment in 1543. For this reason, we might not expect to find, some hundreds of years later, such portable markers still in position at the precise spots where they were originally placed. Accepting the probability that such items would be moved, we should not be surprised to find Juan Rodriguez Cabrillo's gravestone at some other spot than his grave, whether on San Miguel Island where he has been thought by most persons to have been buried, or even on a neighboring island (Santa Rosa). Numerous archaeological sites on

Santa Rosa Island contain objects such as iron weapons and glass beads which are of European origin (Jones 1956), so we can be certain that in post-1543 times Santa Rosa was occupied by Chumash Indians. Records of the mission period attest to the fact that numerous converts were drawn from the island known to the natives as Wimal (Santa Rosa) into the Channel missions of Santa Barbara and San Buenaventura, and these facts at least allow for the possibility that the stone could have been carried to Santa Rosa from a neighboring island after Cabrillo's death as a relic or object of curiosity. Of course there is an equal possibility that some missionized Chumash Indian who was originally from Santa Rosa Island may have died on a return visit to his island home and was buried there with the grave marker bearing the initials of his name, usually that of a saint, which was bestowed upon him at his baptism.

The greatest obstacle in the way of trying to reach some decision on whether the stone bearing the initials JR has anything to do with the burial of Juan Rodriguez lies in the almost total absence of specific facts recorded in the surviving account of his voyage. We are told that Cabrillo died as the result of a broken arm, or a broken leg. The fact of his death resulting from a broken limb we can accept, and we can also take as a fact that his body was taken ashore and buried. But where he was interred we are not told with certainty, and nothing at all is said about the circumstances of his burial. If we could read the original record, made on the *San Salvador* in 1543, it is possible that some details of the burial of Cabrillo would be stated. For example, it might have been recorded that a wooden cross was set over the grave, or the grave might have been located with reference to some local physiographic features, or a list of what items were placed in the grave as accompaniments might be given, or even that one of the burial party fashioned a rough gravestone which was left to mark the final resting place of the expedition leader. But, since nothing of such detail has been preserved, we can only speculate on what might have occurred on San Miguel Island, or perhaps Santa Rosa Island, on January 3, 1543. One such speculative effort is that presented here, but it must be confessed that it rests upon a very unsubstantial foundation of fact.

No scientific tests known to us can throw any light upon the age, genuineness, identity of the engraver, identity of the person whose initials are incised, or precise place of origin of the stone or its inscriptions. The geology of San Miguel and Santa Rosa Islands are so similar that the source of the sandstone cannot be proved to be one or the other island, and in any case there was abundant intercourse between the several Channel islands and with the mainland, so that objects of all sorts could have been carried from one island to another. Among these transported pieces could have been the object which I believe may have been the grave marker of Juan Rodriguez Cabrillo, a special object in the eyes of Indians, and one endowed with the "ceremonial" aura deriving from its being a relic of the first contact of the Chumash Indians with Europeans.

At best, it seems, we have in this aboriginal artifact which bears the initials of the European discoverer of the coast of California and was found on an island on or near which he died in January, 1543, what *might* be the oldest historical relic of California. At worst, it is a fake, or perhaps a stone which coincidentally bears the initials of Juan Rodriguez (Cabrillo) and has no bearing whatsoever on that person and his voyage to California or his burial. Without the means of proving that the stone is or is not the one which marked Cabrillo's grave, we are simply left with the possibility that it may be that marker. Drake's plate of brass is another artifact whose authenticity is not proved to everyone's satisfaction. Questions have been raised about the inscription, and the fact that it was found in 1936 on San Francisco Bay has led some students of Drake to suggest that it was carried there by Indians from Drake's Bay where they believe (without any good evidence) it was originally placed in 1579. These are precisely some of the questions which exist in connection with the Santa Rosa Island stone which is identified here as the possible grave marker of Juan Rodriguez Cabrillo. The documentary record of Drake on the California coast is almost lacking in specific geographical detail, and as a result, the bay in which he spent the month of June, 1579, cannot be identified with certainty. It is a similar lack of precise geographical information in the Cabrillo account which does not allow us to fix with certainty the island where he wintered and died in 1543.

In writing what has gone before I have tried to be objective, and to avoid giving my own, wholly individual, opinion on the authenticity of the inscribed stone, and whether, considering all of the problems and obscurities which attach to it, I personally believe that is probably the grave marker of Juan Rodriguez Cabrillo. At this point I will state that I do believe it is highly probable we have here the stone which was carved in 1543 and set over the grave of Cabrillo, the first European to explore the California coast and the first European to be buried in California. Whether Cabrillo died and was buried on San Miguel or on neighboring Santa Rosa Island seems less important than the opinion of experts that the stone which bears his initials is in harmony with the gravestone tradition of his times. Further, the high probability that the stone is not a hoax, something which we can conclude from the date and circumstance of its being found in 1901, seems to me to provide strong support for its genuineness. Even if the stone itself seems to be consistent with a marker which might have been devised on the spot by one of the ships' masters or even a simple sailor—an Indian artifact picked up on the spot and with a conveniently flat surface and of the general proportions of a regular gravestone. The simplicity of the inscription, in my thinking, supports an impression arrived at on other grounds, namely that it is an authentic and genuine object and not a piece cleverly made to deceive. The inscription looks as though it was hastily done, rather than having been planned in advance and made with care and deliberation. We note that one member of the Cabrillo expedition, Francisco de Vargas (whose statement is quoted below) said that "With some natives of this island he [Cabrillo]

had some great fights as they came out in a warlike manner. During all the time the fleet was at the Isla Capitana [Isla de Posesion, Isla de Juan Rodriguez] the Indians never stopped fighting." Cabrillo's burial on shore was probably performed as rapidly as possible, and with an escort of soldiers to protect the burial party from Indian attack. Perhaps his stone grave marker was made on the spot by one of the burial party or armed guard while the grave was being dug and filled. But even when all of the arguments hopefully advanced to support the legitimacy of the stone bearing the JR inscription are weighed, we must still admit that none of these provides the proof for the opinion that we have an artifact dating from January, 1543. It is possible that in the future some paleographer, linguist, petrographer, geographer, historian, archaeologist, or ethnographer may interest himself in the problem of evaluating the stone and be able to provide an answer which unequivocally settles the matter. For my part I am willing to reach my own conclusion, recognize that it is nothing more than an intuitive one, and note that the stone is available in the Lowie Museum of Anthropology for additional examination by any serious and qualified student. I anticipate that there will be interest in this artifact and that in the course of time we may achieve a more certain decision or consensus on whether or not it is California's oldest historical relic.

The voyage of exploration of the Pacific coast north of Mexico made by Juan Rodriguez Cabrillo in 1542 was undertaken exactly fifty years after the discovery of the New World by Columbus. Mexican, Central American and western South American native civilizations had by this time succumbed to the Spanish conquest, and Coronado had two years before entered the Southwest, encountered the Puebloan tribes, and pushed east and north into the western Great Plains. But the Pacific shore north of Mexico was then wholly unknown, and in 1542 Cabrillo's sailing venture was truly one of exploration and discovery into a part of the earth where Europeans had never been (Fig. 6). The voyage was by no means an easy one, partly because his ships were the first sailing vessels to enter these waters, and partly because they were not very good vessels. Exploration of wholly unknown seas and lands is hazardous because no man can imagine what will be found. Everything is uncertain since the problems of finding food, wood and water, and carrying out official orders to explore and report on what is found must be performed in uncharted waters and in regions occupied by native peoples of uncertain temperament.

It is possible that Cabrillo's voyage of discovery was not soon followed up by colonizing expeditions by reason of his death on the voyage, an event which removed the person who might have been most interested in trying to capitalize on the arduous endeavor. The Pacific in 1542 was still wholly a Spanish ocean. Francis Drake, the first European sailor to pose a challenge to Hispanic supremacy of the Pacific, came to California 37 years after Cabrillo's voyage, but the Spaniards do not seem to have interpreted his foray as a real threat to their control of the ocean.

California was first settled in 1769, not as a belated response, after two centuries, to

Cabrillo's reports of finding a fair and well-peopled land which could be settled to advantage, since he observed no native peoples who had precious metals which the Spaniards would have desired, and not as a reaction to the possible threat of English colonization stimulated by the reports Drake took back to England, but rather for the reason that by 1769 the Pacific was clearly no longer the exclusive sailing waters of Spain and it was only good sense to establish settlements in this area to support and protect the claim of Spanish ownership. In short, while Cabrillo's voyage was important in providing early information on the coastal margin and its native inhabitants, it seems not to have had much effect. The purpose of Vizcaino's voyage of 1602 in part was to learn more about the Bahia de Pinos (Monterey) which Cabrillo had seen earlier, but this voyage had as little impact as the one of sixty years before. In the end these two early voyages along the California coast had two main results: 1), they showed that the western shore of America extended indefinitely to the north; and, 2), they did not lead to the discovery of peoples who possessed things such as gold and silver which the Spaniards would have been interested in. And for the latter reason, one might argue that California today is a better place because it was spared from the blight of European conquest and settlement for slightly over two centuries following its discovery.

THE CABRILLO VOYAGE OF 1542-43*

Juan Rodriguez left the Puerto de Navidad [20 miles north of Manzanillo, Colima] June 27, 1542 to discover the coast of New Spain. From the Puerto de Navidad to Cabo de Corrientes it took a day and a night with a southeast wind, forty leagues. From Wednesday until the following Thursday they held their course along the coast thirty-five leagues, and Sunday, July 2, had sight of California, having been delayed in crossing almost four days on account of the winds which were not very favorable. On Monday, the 3rd, they cast anchor at the Punta de la California and remained there two days. From there they went to the Puerto de San Lucas on Thursday and took in water, and during this time saw not a single Indian. It is said that this port is in 23^o and from the point to the port it is clean and suitable for anchoring. The country is bare and broken.

They sailed from Puerto de San Lucas Thursday night and on the following Saturday, the 8th, anchored at the Punta de la Trinidad in 25^o—about five leagues from San Lucas. The coast is clean and without dangers. In the country inside high mountains appear, bare and broken. They remained at anchor here on account of contrary winds from the west-northwest until the following Wednesday, the 12th, when they left. An island at the Puerto de la Trinidad makes a good port, protected from the west-northwest winds. It is at the head of the island on the southeast side, is clear and suitable for anchoring, but has neither wood nor water. The island is ten leagues in length and two in width. That night they anchored. On the following Thursday they set sail and passed by the Puerto de San Pedro in 25½^o. In this port there is neither water nor wood; its direction is to the southeast and it has good shelter from the west winds.

They continued sailing along the coast, which makes a great ensenada, the cape of

*Translation from the original by Henry R. Wagner and published in California Historical Society Quarterly, Vol. 7, pp. 41-54, 1928. This is not the actual account of the voyage recorded by Cabrillo and his successor, Ferrer (also known as Ferrel or Ferrelo) after his death, but an abstract of the account made by Juan Paez de Castro, official Chronicler of the Indies from 1555 to 1560. The full, original version of the voyage is now lost (Wagner, *op. cit.*, p. 60). Buckingham Smith first published the account in Spanish in 1857, and the first English translation was presented by H. W. Henshaw (1879).

which is in 26° . It is low land and sand dunes, and the coast is white and clean. They went sailing along this with favorable winds up to 27° , and Wednesday, the 19th, went ashore at a port which they found. When they landed they found an Indian trail and went along this about an arquebus shot, to where they found a spring. The land inside is level, bare, and very dry. They named it "Puerto de la Madalena." It may be forty leagues from the Baia de San Martin to this port. On Thursday following, the 20th, they continued sailing along the coast with vile winds and about six leagues beyond found anchorage behind a point which they called the "Punta de la Santa Catalina." Thus they went sailing along the coast, and Tuesday following, the 25th, discovered a large bay in $27\frac{1}{2}^{\circ}$, having made very little progress these days on account of the vile winds. In this port they anchored, naming it the "Puerto de Santiago"; it is about twenty-three leagues from the Puerto de Madalena. Five leagues from the Punta de Santiago are some very dangerous reefs of rocks called "Abrejo" which only appear when the surf breaks on them. They are a league from land and in full $27\frac{1}{2}^{\circ}$. They went sailing on the same course along the coast up to 28° , where they anchored under the shelter of a point where there are some trees, the first seen since leaving the Punta de la California. From this point to the Puerto de Santiago, that is, its northwest point, it may be about twenty-three leagues. The sierras are high and rugged with some trees on them. We named it "Santa Ana"; it has a small island about a league from land. Thursday, the 27th, they left the Puerto de Santa Ana and went on about six leagues to anchor in a port they named "Puerto Fondo," on account of the great depth they found, for close to the land there were thirty fathoms of water. It is clean. The following day they left this port, but had to return there three times on account of contrary winds, and they remained in port until the Monday following. Monday, the 31st, they left this Puerto Fondo and anchored that night about eight leagues from there and the day following continued on their voyage.

Tuesday, the first day of August, they proceeded some ten leagues to where they anchored in a port they named "San Pedro Vincula," in sight of the Isla de Cedros. The port is in full $28\frac{1}{2}^{\circ}$; the country is high, rugged and bare, and from California to this place we have not seen an Indian. Wednesday, the 2nd, they left this port and encountering a contrary wind went on beating and came to anchor at an island four leagues from the southeast part of the Isla de Cedros. This island, which they called "San Esteban," bears east-west with the end of the point of the mainland from which it is about a league distant; the coast runs northwest-southeast. From this point the mainland turns toward the east-northeast, making a great ensenada in which land cannot be seen. Between the island and the mainland there is a good passage, but you have to pass close to the island, for there is a reef running out about a quarter of a league from the point. There is on the water a great deal of grass which grows from the bottom and is fastened there. The island bears northwest-southeast with San Pedro Vincula and is about three leagues in circumference. We

were here on account of contrary winds until the following Saturday, the 5th. It has a good harbor on the southeast side and many fish can be caught with a hook, and there are many birds. They left the Isla de San Esteban Saturday, the 5th, and went to anchor at the Isla de Cedros, where they remained until Thursday, the 10th, taking water and wood. They found no Indians, although they did find some signs of them. The leeward point of the island on the south side is in 29° , and on this south side there are some good ports, water and wood, but on this side it is bare, having nothing but some small shrubs. The island large, high and bare, and runs almost east and west, being a matter of twelve leagues long on the south side.

They left the Isla de Cedros on Thursday, the 10th, to continue their voyage, and went towards the north in the direction of the mainland. This day they sailed some ten leagues and on Friday came to anchor in a good port, which they named "Puerto de Santa Clara." They went ashore and found four Indians, who fled. It is in scant 30° , northeast of the Isla de Cedros. From here towards the ensenada, the coast runs south-southeast and is clean and suitable for anchoring. The country is bare but not rugged, having plains and valleys. They remained in this port until Sunday, the 13th, on account of the vile winds. Sunday, the 13th, they left the port and sailed along the coast with light winds, anchoring each night, and on Tuesday following anchored at a point in $30\frac{1}{2}^{\circ}$ which makes an ensenada. It has very little shelter, so they named it "Punta de Mal Abrigo." Wednesday following they went sailing along close to the coast and encountered much contrary wind from the northwest, so they lay to at night without gaining anything, and on Thursday following, proceeded with rainstorms, sudden changes of wind and calms, so that they did not go to land. That night they had a strong wind from the west-northwest so they lay to, and on Friday went on with favorable winds and found themselves six leagues to the windward of Punta de Mal Abrigo. Thus they went on until the following Saturday, the 19th, when they cast anchor at a small island which is about a half a league from the mainland and about ten leagues from Punta de Mal Abrigo. It is in $30^{\circ} 40'$, has a good anchorage and affords good shelter. They named it "San Bernardo." It measures about a league from north to south. The coast of the mainland, which is clean, runs from north-northwest to south-southeast. The country inside is of very good appearance and is level; there are some good valleys and some trees. The other [that is, the island] is bare. During these days they found no sign of Indians.

Sunday, the 20th, they left the Isla de San Bernardo and arrived at Punta del Engano, which must be seven leagues from the island and is in 31° . From the point towards the island the coast trends north-northwest south-southeast. At the Punta del Engano the country is not high and seems to be good land and level. The mountains are bare; we saw no sign of Indians. So they went sailing on until the next Monday, following the coast towards the north and northeast, and a matter of ten leagues from Punta del Engano discovered a good port in which one can make any kind of repairs to ships, putting them on shore for that purpose. The following Tuesday Captain Juan Rodriguez Cabrillo went ashore and took

possession in the name of His Majesty and the most illustrious Don Antonio de Mendoza, naming it "Puerto de la Posesion." A lagoon was found which had three large [arms]. They discovered some Indian fishermen, who at once took flight, but they captured one of them. They turned him loose, however, after giving him some presents, and he went away. The country inside is high broken land, has good valleys and appears to be good country, although bare. They remained here until Sunday, the 27th, dressing the sails and taking water. Thursday they saw some smoke, and going there with the ship's boat, found about thirty Indian fishermen, who waited for them. They brought to the ship a boy and two Indian women, to whom they gave something to wear and some presents and then let them go. They could not make out anything from them, even by signs.

On the following Friday, when going to take water, they found at the watering-place some Indians who awaited them and who showed them a spring and a saline which contained much salt. These explained by signs that they did not have their home there but inland, and that there were many people. The same day in the afternoon five Indians who seemed to be intelligent came to the beach. They took them to the ships, and as they went aboard they pointed out and counted the Spaniards and made signs that they had seen other men like them who had beards and who had with them dogs, cross-bows, and swords. The Indians were painted on the thighs, body and arms with white bitumen, put on like slashes in cloth, so that they looked like men in slashed breeches and jackets. They made signs that the Spaniards were five days' journey from there and also that there were many Indians and that they had much maize and many parrots. They were covered with deerskins which some wore dressed in the same manner as the Mexicans dress the hides they wear in their cutaras. The people are large and well built and carry bows and arrows like those of New Spain, the arrows having flint points. The Captain gave them a letter to carry to the Spaniards who they said were inland.

Sunday, the 27th, they left Puerto de la Posesion and proceeding on their course found an uninhabited island two leagues from the mainland, with a good harbor in it, which they named "San Agustin." It is about two leagues in circumference. So they went beating along the coast with light winds, until the following Wednesday, the 30th, when a storm from the northwest struck them which obliged them to return to the Isla de San Agustin. On this island they found signs of people and two cow-horns, as well as very large trunks of trees which the sea had cast up, measuring more than sixty feet in length, and of a thickness so great that two men together could not reach around them. They looked like cypresses and there were cedars besides. Altogether there was a great quantity of this wood. There is nothing else on this island except a good harbor, and here they stayed until the following Sunday.

Sunday, September 3, they set out from this island, and following their course, anchored near the land on the Monday following, some seven leagues to windward on a

north-south coast, but soon went on their course and continued sailing with favorable but light winds along a north-south coast until Thursday, the 7th, when they came to anchor in an *ensenada* which the mainland forms. Here the coast ends its north-south trend and turns toward the northwest. In this *ensenada* there is a great valley; the land is level on the coast and there are high sierras inside. The broken country seems to be good and all the coast is bold and so sloping that a half a league from land they were anchored in ten fathoms. Here there was much kelp in the water. Friday following, the 8th, they went on with light winds plying to windward and here encountered contrary currents. They came to anchor at a point which makes a cape and affords a good shelter from the west-northwest winds, naming it "Cabo de Santa Maria." It is the end of country from both sides, as some high sierras which come from behind end here and other small sierras begin. There is a great valley, and many others; apparently it is a good country. It is in $32\frac{1}{2}^{\circ}$, is a clean port with bottom in each reach and bears north-south with the Isla de San Agustin. While in this Puerto de Santa Maria they went on shore for water and found a small lagoon of fresh water, where they obtained some. At this watering-place about forty Indians came up with their bows and arrows, but they could not be understood. They were naked and brought roast maguey and fish to eat. They are large people. Here they took possession and remained until the following Monday. Monday, the 8th [11th], they left Cabo de Santa Maria and sailed about four leagues on a north-northeast south-southwest coast, but from there the coast turns to the northwest. The country is high and bare. The following day they sailed along a northwest-southeast coast a matter of six leagues, all bold and clean. The following day also they sailed with vile winds some four leagues along a northwest-southeast coast; on the land there are high and rugged sierras. The following Thursday they anchored about three leagues beyond at a point which runs out into the sea and makes a cape from one side and the other which they named "Cabo de Cruz." It is in 33° ; there is no water or wood, nor did they find any sign of Indians. Having left Cabo de la Cruz, they found themselves on the following Saturday, by reason of the vile winds, only two leagues from the cape, on a coast trending north-northwest. On shore they saw some Indians in some very small canoes. The land is very high, bare and arid. All the country from California here has beaches of sand; but now country of another character commences, as it is of reddish color and of good appearance.

Sunday, the 17th, they went sailing along on their voyage, and about six leagues from Cabo de Cruz found a good closed port, having passed a small island near the mainland before reaching it. In this port they took water in a lagoon of rain water. There are some trees like silk-cotton trees except that they are of hard wood. They found some big thick logs cast up by the sea. This port is called "San Mateo" and is apparently a good country, there being great savannas and grass like that of Spain. The land is high and broken. They saw some herds resembling domesticated animals of a hundred and even more, which in

their appearance and their way of going, looked like the sheep of Peru. Their wool was long and they had small horns about as long as the distance between the extended thumb and forefinger, and about as thick as the thumb. The tail was broad and round and of a hand's length. It is in $33^{\circ} 20'$. They took possession and were there until the following Saturday. Saturday, the 23rd, they left the Puerto de San Mateo and sailed along the coast until the Monday following, making about eighteen leagues and seeing many beautiful valleys, groves of trees and level and broken country. They saw no Indians. On the following Tuesday and Wednesday they sailed along the coast about eight leagues and passed by some three uninhabited islands. One of these is larger than the others, measuring about two leagues in length, and affords shelter from the west wind. They are three leagues from land and in 34° ; they named them "Islas Desiertas." On this day they saw on the mainland some great smokes. The country appears to be good, with large valleys. Inside, there are some high sierras.

On the Thursday following they sailed about six leagues along a north-northwest coast and discovered a very good closed port in $34^{\circ} 20'$, which they named "San Miguel."¹ After anchoring they went ashore where there were some people, three of whom awaited them, while the rest fled. To these some presents were given, and they explained by signs that inland people like the Spaniards had passed, and they displayed much fear. That night some went ashore from the ships to fish with a net, and it seems that there were some Indians who commenced to shoot arrows at them and wounded three men. The following day in the morning they went with the ship's boat farther up into the port, which is large, and brought back two boys who understood nothing by signs; they gave them some shirts and shortly sent them away. The following day in the morning three large Indians came to the ships and explained by signs that some people like us, that is, bearded, dressed and armed like those on board the vessels, were going about inland. They showed by signs that these carried cross-bows and swords; they made gestures with the right arm as if using lances, and went running about as if they were going on horseback and further showed that these were killing many of the native Indians, and for this reason they were afraid.² The people are well built and large and go about covered with the skins of animals. While in this port a great tempest passed over, but nothing of it was felt as the port is so good. It was from the west-southwest and the south-southwest and violent. This is the first storm which has occurred. They were in this port until the following Tuesday; here they called the Christians *Guacamal*.

On the Tuesday following, October 3, they left San Miguel, and Wednesday, Thursday, and Friday sailed on their course some eighteen leagues along the coast, where they saw many valleys and plains and many smokes and sierras inland. At nightfall they were close to some islands which are about seven leagues from the mainland, and as the wind died off they could not reach them that night. Saturday, the 7th, at daybreak, they reached them, and named them "San Salvador" and "Vitoria."³ They anchored at once and went ashore with the ship's boat to see if there were any people there. As the boat was nearing land a

great number of Indians came out of the bushes and grass, shouting, dancing, and making signs to come ashore. As from the boats they saw the women fleeing, they made signs to them not to fear; so shortly they became assured and put their bows and arrows on the ground. Launching into the water a fine canoe containing eight or ten Indians, they came out to the ships. These were given some beads and presents with which they were well pleased, and shortly went back. The Spaniards afterwards went ashore and both the Indian men and women and everybody felt very secure. Here an old Indian made signs to them that men like the Spaniards, wearing clothes and having beards, were going around on the mainland. They remained at this island only until midday.

The Sunday following, the 8th, they came to the mainland in a large bay, which they named "Baia de los Fumos" on account of the many smokes they saw there. Here they engaged in intercourse with some Indians they captured in a canoe, who made signs to them that towards the north there were Spaniards like them. The bay is in 35° ; it is an excellent harbor and the country is good, with many valleys, plains, and groves of trees.⁴ On the following Monday, the 9th, they sailed from the Baia de los Fuegos and that day went about six leagues, anchoring in a large *ensenada*.⁵ From there they proceeded on the following day, Tuesday, some eight leagues along a northwest-southeast coast. We saw on land an Indian town close to the sea with large houses like those of New Spain, and they anchored in front of a large valley on the coast. Here many fine canoes holding twelve or thirteen Indians each came to the ships, and gave news of Christians who were going about inland. The coast runs northwest-southeast. Some presents were given them with which they were much pleased. They made signs that in seven days one could go to where the Spaniards were, so Juan Rodriguez decided to send on a chance two Spaniards inland with these Indians with a letter to the Christians. These explained besides that there was a large river. They named the town "Pueblo de las Canoas." The people wear some animal skins, are fishermen, and eat raw fish as well as maguey. The town is in $35^{\circ} 20'$.⁶ The country within is a very beautiful valley, and the Indians explained that inland in that valley there was much maize and food. Beyond this valley some high, very broken sierras were visible. They call the Christians *Taquimine*.

Here they took possession and remained until Friday, the 13th. On Friday they sailed from the Pueblo de las Canoas on their voyage and went this day six or seven leagues, passing along two large islands, each of which measures four leagues in length and must be four leagues from the mainland. They are unpopulated because there is no water on them, but there are good harbors.⁷ The coast of the mainland runs to the west-northwest and the country is level with many savannas and groves of trees. On the following day, Saturday, they went no more than two leagues, anchoring in front of a very beautiful and well-populated valley.⁸ The country is flat and with many trees. Here canoes came out with fish to barter, and they became very friendly. On the following Sunday, the 15th, they

continued their voyage about ten leagues along the coast, and during all that time many canoes were in evidence, because all the coast is very well settled. Many Indians kept coming aboard the ships and pointed out to us the towns, telling their names, which are: Xuco, Bis, Sopono, Alloc, Xabaagua, Xocotoc, Potoltuc, Nacbac, Quelqueme, Mizinagua, Misesopano, Elquis, Coloc, Mugu, Xagua, Anacbac, Partocac, Susuquei, Quanmu, Gua, Asimu, Aguin, Casalic, Tucumu, and Yncpupu.⁹ All these towns are from [i.e. extend from] the Pueblo de las Canoas, which is called "Xucu," to here. They are in a good country with fine plains and many trees and savannas. The people go about dressed in skins and say that inland at three days' distance there are many towns and much maize. They call maize *oep*, and cows, of which they say there are many, they call *cae*. They also gave us news of people bearded and wearing clothes.

That day they passed along a large island about fifteen leagues long which was said to be well populated and to contain the following named towns: Niquipos, Mazul, Xugua, Nitel, Macamo, and Nimitapal. They named this island "San Lucas."¹⁰ From here to the Pueblo de las Canoas it must be about eighteen leagues, and from the island to the mainland about six leagues. Monday, the 16th, sailing along the coast, they went four leagues and anchored in the afternoon in front of two villages.¹¹ On this day as well, canoes kept coming out to the ships, and they pointed out that there were still larger canoes beyond. Tuesday, the 17th, they proceeded three leagues with favorable winds, and from daybreak many canoes went along with the ships, to whom the Captain always gave many presents. All this coast passed is very well settled, the Indians bringing them many very good fresh sardines. These say that inland there are many towns and much food, but they do not eat maize. They go dressed in skins and have very long hair tied up with some long cords. Inserted between the hair and these cords are many daggers made of flint, bone, and wood. The country appears to be excellent. Wednesday, the 18th, they ran along the coast until ten o'clock and saw it all inhabited. As the wind was fresh, canoes did not come out to them. They arrived at a point like a galley which makes a cape and named it "Cabo de Galera." It is in full 36^o.¹²

As a fresh northwest wind struck them they stood off to sea and discovered two islands, one large, about eight leagues in length from east to west, and the other about four leagues. In the small one there is a good port. They are inhabited, are ten leagues from the mainland, and are called "Islas de San Lucas."¹³ From the mainland to the Cabo de Galera they trend west a quarter northwest. From the Pueblo de las Canoas to Cabo de Galera there is a well inhabited province called "Xexu." There are many different languages, and they carry on great wars with each other. From the Pueblo de las Canoas to Cabo de Galera the distance is thirty leagues. They remained in these islands until the Wednesday following, because there was a great storm.

Wednesday, the 25th, they left these islands, that is, the one more to windward, which

has a very good port inside which no bad effects will be felt in any kind of sea weather. They named it "Posesion."¹⁴ That day they only sailed a little because there was no wind. On the midnight following, a south-southwest and west-southwest wind with rain struck them, and they saw themselves in trouble as it was an on-shore wind and they were near land. They could not double the cape on one tack or the other. On Thursday following, at vespers, the wind shifted to the south, and with this they went on their way ten leagues along a coast trending north-northwest, south-southeast. All this coast is inhabited and the land seems to be good.¹⁵ That night they held out to sea because an on-shore wind was blowing, and on the following Friday, Saturday, and Sunday they went beating about in one direction and another with contrary winds, without being able to gain any distance. Then they were in $36\frac{1}{2}^{\circ}$, ten leagues from Cabo de Galera. Monday and Tuesday, the 31st, the eve of Todos Santos, they went tacking about endeavoring to reach the mainland in search of a large river on the other side of Cabo de Galera of which they had information, and because on the land there were signs of rivers. They did not find any, however, nor did they anchor there, because the coast was very bold. During this month they found the weather on this coast from 34° up, like that in Spain, very cold in the mornings and afternoons and with great storms of rain, heavy clouds, great darkness, and heavy air.

Wednesday at midnight, November 1, while standing off, a heavy north-northwest gale came up which did not allow them to carry an inch of sail. At daylight it came so much fresher that they could do nothing but run back to shelter, which they did under Cabo de Galera, where they anchored and went on shore, as there was a large town there called "Xexo."¹⁶ As wood did not seem to be close at hand they decided to go to the Pueblo de las Sardinias where water and wood were very close. They called this shelter under Galera the "Puerto de Todos Santos." Thursday following they went to the Pueblo de las Sardinias, where they remained three days taking water and wood. The natives helped them and brought the wood and the water to the ships. This town at the Puerto de las Sardinias is called "Çicacut," and the others from there to the Cabo de Galera are: Çicacut, Anacot, Maquinanoa, Paltatre, Anacoac, Olesino, Caacac, Paltocac, Tocane, Opia, Opistopia, Nocos, Yutum, Quiman, Micoma, and Garomisopona.¹⁷ The chief of these towns is an old Indian woman who came on board the ships and slept two nights in the *Capitana*, many others doing the same. The town of Çicacut seemed to be the head of the other towns because they came there from them when called by the chief. The town at the cape is called "Xexo." From this port [that is, Sardinias] to the Pueblo de las Canoas is another province which they call "Xucu." They have round houses, well covered down to the ground. They wear skins of many different kinds of animals, eat acorns and a white seed the size of maize, which is used to make tamales. They live well. They say that inland there is much maize and men like us go about there. The port is in $35^{\circ} 40'$.

Monday, November 6, they set out from the Puerto de Sardinias and that day made

almost no headway. Until the Friday following they sailed with very light winds, and that day we arrived at Cabo de Galera. In all this travel they were able to avail themselves of the Indians who came on board with water and fish and displayed much friendship. In their towns they have large plazas and circular enclosures around which imbedded in the ground are many stone posts which stand about three palm-lengths above it. In the middle of these enclosures there are many very thick timbers like masts sunk in the ground. These are covered with many paintings, and we thought they must worship them because when they danced they did so around the inside of the enclosure.

The Saturday following, the day of San Martin, November 11, they went sailing along the coast and in the morning found themselves twelve leagues from the cape in the same place from whence they had gone back for refuge the first time.¹⁸ All this day they had favorable winds so that they went close to a northwest-southeast coast and made twenty good leagues. All the coast followed this day is bold, without shelter, and a range of very high sierras on which the sea breaks runs along all of it, as high at the sea as inland. They saw neither towns nor smokes, as all the coast, which has no shelter from the north, is uninhabited. They named these sierras the "Sierras de San Martin." They are in $37\frac{1}{2}^{\circ}$, and the end of them and of some other sierras to the northwest makes a cape which projects into the sea at 38° . This they named "Cabo de Martin."¹⁹ This same Saturday night, four hours after nightfall, while lying to a matter of six leagues from the coast, waiting for daybreak, with the wind in the southeast, such a rainstorm and heavy clouds from the south-southeast and south-southwest came up that they could not carry an inch of sail. They had to run before it all that night with a small piece of sail on the foremast, with great labor, and on the Sunday following the storm became much more violent, lasting that day and night and until Monday at midday. The storm was as great as any could be in Spain. Saturday night they lost sight of the consort.

Monday, November 13, at the hour of vespers the wind calmed down and shifted to the west. They at once set sail and turned towards land in search of their consort, praying God to succor her, as they very much feared that she would be lost. They ran to the north and to the north-northwest with a west and west-northwest wind, and the following Tuesday at daybreak had sight of land. They had to sail until the afternoon; they came to reconnoiter it in a very high country and then went along close to the coast looking for a port where they could take shelter. The sea was so high that it was frightful to see; the coast was bold and the mountains very high. In the afternoon they lay to. The coast runs northwest-southeast. They sighted the country at a point which projects into the sea and makes a cape; it is covered with trees and is in 40° .²⁰ Wednesday, the 15th, they sighted the consort, for which they gave hearty thanks to the Lord, as they had considered her lost, and bearing down on her joined her in the afternoon. Those of the other ship had passed through even greater hardships and perils than those on the *Capitana* as she was small and

had no covered deck. The land along which they passed is very good in appearance, but they saw neither Indians nor smokes. There are great sierras covered with snow and there is much timber. At night they took in sail and lay to.

The following Thursday, November 16, at break of day they arrived off a large *ensenada*,²¹ which came from behind. As it seemed to have a port and a river²² they went beating about all that day and night and the following Friday until they saw that there was no river nor any haven. In order to take possession they cast anchor in forty-five fathoms, but did not dare go ashore on account of the great surf. This *ensenada* is in full 39°; all of it is full of pines down to the sea, and they named it the "Baia de los Pinos." The night following they lay to until the following day, and Saturday ran along the coast and found themselves at night off Cabo de San Martin. All the coast passed this day is very bold; there is a great swell and the land is very high. There are mountains which seem to reach the heavens, and the sea beats on them; sailing along close to land, it appears as though they would fall on the ships. They are covered with snow to the summits, so they named them the "Sierras Nevadas."²³ At their beginning there is a cape which projects into the sea which they named "Cabo de Nieve." The coast runs north-northwest to south-southeast and it does not seem that Indians live on it. The Cabo de Nieve is in 38° 40'. Whenever the wind blew from the northwest the weather was clear.

Thursday, the 23rd, they arrived on their return at the Islas de San Lucas, at the one named "Posesion." They had run along all the coast from point to point from Cabo de Pinos to the islands, and having found no sheltered port, were obliged to return to this island, as during the past days there was a strong wind from the west-northwest and a very high swell. All the way from the Cabo de Martin to the Cabo de Pinos we saw no Indians for the reason that the coast is bold, without shelter, and very rugged at the shore. On the southeast side of the Cabo de Martin, for fifteen leagues, they found the land inhabited and many smokes, as the country is good, but from Cabo de Martin up to 40° we saw no sign of Indians. The Cabo de San Martin is in 37½°.

While wintering at the Isla de Posesion, there passed from this present life, January 3, 1543, Juan Rodriguez Cabrillo, the captain of the ships, from a fall which he had in this island the previous time they were there, in which he broke an arm, close to the shoulder.²⁴ He left as captain the chief pilot, who was one Bartolomé Ferrelo, a native of the Levant, and strongly charged him at the time of his death not to fail to discover as much as possible of all that coast. They named this island the "Isla de Juan Rodriguez"; the Indians call it "Çiquimuyму."²⁵ Another they call "Nicalque" and the other "Limu."²⁶ On the Isla de Posesion there are two towns, "Çico" and "Nimollollo." In the other island there are three towns, "Nichochi," "Coycoy," and "Estocoloco."²⁸ In the remaining island there are eight, as follows: Niquesesquelua, Poele, Pisqueno, Pualnacatup, Patiquiu, Patiquilid, Nimemu, Muoc, Pildquay, and Lilibequé.²⁹ The Indians of these islands are very poor, being

fishermen, and eat nothing except fish. They do not sleep on the ground. All their business and occupation is to fish. In each house they say there are fifty souls, who live very filthily, going naked. They remained at these islands from November 23 to January 19, and in all this time, almost two months, there was very rough wintry and rainy weather. The winds which were most frequent were west-southwest and south-southwest and west-northwest, some very violent.

Friday, January 19, 1543, they set sail from the Isla de Juan Rodriguez, which is called "Çiquimuyumu," in order to go to the mainland in search of some supplies for their voyage. In leaving the port such a strong wind from the west-northwest struck them that they had to take refuge at the other Islas de San Lucas and to anchor at the Isla de Limun, which they named "San Sebastian."³⁰ They were obliged to weigh anchor again as there was no port there, only the shelter which the islands afforded, and the wind had shifted to one on shore. They went around these islands eight days with very vile winds, sheltering themselves under the islands themselves from the bad weather, and on the 27th of the same month entered the same port of the Isla de Juan Rodriguez where they had first been.³¹ The greatest trouble they had was from unsettled winds which kept changing about from one quarter to the other, but the most constant are from the west-northwest and the west-southwest. Tuesday, the 29th, they set out from the Isla de Juan Rodriguez for the Isla de San Lucas, which is in the middle of the others, in order to get some anchors which, unable to raise, they had left there during a storm.³² These they secured and also took some water. They left this Isla de San Lucas Monday, February 12, not being able to do so sooner on account of the vile weather of wind and snow. It is inhabited and the people are like those of the other island. The Indians call it "Nicalque," and there are three towns on it named "Nicochi," "Coycoc," and "Coloco."³³ That day they went to the Puerto de las Sardinias to get wood and other things necessary for their voyage which were not to be found on the island. Wednesday, the 14th, they left the Puerto de Sardinias after taking a boatload of wood, not daring to stay longer on account of the high sea. They did not find so many Indians as the first time nor any fishing, as it was winter; the Indians were living on acorns, another seed, and crude herbs from the fields. From here they went to the Isla de San Sebastian in order to make sail to run out to sea, as they would be more secure there from the storms.

Sunday, February 18, they left the Isla de San Sebastian with a favorable northeast wind and ran to the southwest, because they were told that towards the southwest there were some other islands. They sailed till nightfall that day some twelve leagues from the Isla de San Sebastian and saw six islands, some large and some small.³⁴ That day a sailor died. The Monday following, at daybreak, they were to the windward of the islands a matter of ten leagues, and with the wind in the west-northwest, they stood out to sea for five days to the southwest. At the end of this time, having gone about a hundred leagues, they found the

winds stronger and a high sea. Thursday, the 22nd, they went about in the direction of land in order to go in search of the Cabo de Pinos,³⁵ with a south-southeast wind which lasted for three days, each day coming stronger. The Sunday following, at daybreak, they had sight of Cabo de Pinos, and that day to nightfall had sailed twenty leagues to windward on a northwest-southeast coast, bold and without shelter. No smoke was seen on land. They saw a point which marks a change of trend of the land, as the coast there turns to the north-northwest.³⁶ At midnight the wind shifted to the south-southwest and they ran west-northwest until daybreak. In the morning the wind shifted to the west-southwest, very strong, which lasted until the Tuesday following. They ran to the northwest.

Tuesday, the 27th, the wind returned to the south-southwest and lasted all that day. They ran to the west-northwest with the forecourse as it blew very strong. As it was growing dark the wind shifted to the west, and they ran all that night to the south with little sail. There was a high sea which broke over them. On Wednesday, the 28th, at daybreak, the wind shifted to the southwest, true but not very strong. That day they observed the latitude in 43°. Towards night the wind freshened and changed to the south-southwest, and that night they ran to the west-northwest with great difficulty. Thursday at daybreak the wind shifted and came from the southwest with great fury, the seas coming from many sides, which molested them very much or broke over the ships. As these had no covered decks, if the Lord had not aided them, they could not have escaped. As they could not lay to, they had to run before the wind to the northeast in the direction of land. Considering themselves lost they commended themselves to our Senora de Guadalupe and made their vows. So they ran until three o'clock in the afternoon with great fear and travail as they saw that they were about to be wrecked. Already they saw many signs of land, which was near, such as birds and fresh logs, which came out of some rivers, although by reason of the great darkness land could not be seen. At this hour the Mother of our Lord succored them with the grace of Her Son, and a very strong rainstorm came up from the north, which made them run before it towards the south with lower foresails all night and all the following day until sunset. As there was a high sea running from the south, each time that it assailed them on the bow it passed over them as if over a rock. The wind shifted to the northwest and to the north-northwest with great fury, forcing them to run before it to the southeast and the east-southeast until Saturday, March 3, with such a high sea that it set them wildly crying out that if the Lord and His blessed Mother did not miraculously save them they could not escape. Saturday at midday, the weather improved and the wind remained in the northwest, for which they gave many thanks to Our Lord. They also passed through hardships on account of the food, as they had nothing except some damaged biscuit.

It seemed to them that there is a very large river, of which they had heard much, between 42° and 43°, as they saw many indications of it. This day in the afternoon they sighted Cabo de Pinos, but on account of the high sea they could do nothing but run down

the coast in search of a port. They endured much cold. Monday, March 5, at daybreak, they found themselves at Isla de Juan Rodriguez, but did not dare enter the port on account of the storm which was blowing, which made the sea break in fifteen fathoms at the entrance.³⁷ It was a north-northwest wind and the entrance is narrow. They ran to take shelter under the Isla de San Sebastian on the southeast side.³⁸ During the previous night while sailing with a high wind with only both small headsails, the other ship disappeared, so that it was suspected that the sea had devoured her; even after day dawned they could not find her. They believed that they were in 44^o when the last storm which made them turn back struck them.

Thursday, the 8th, they set out from the Isla de San Sebastian to go to the mainland in search of the other vessel and went to the Pueblo de las Canoas, but found no news of her. Here they took four Indians. Friday following, the 9th, they left the Pueblo de las Canoas and went to the Isla de San Salvador,³⁹ but did not find the consort there either. Sunday, the 11th, they came to the Puerto de San Miguel and they neither found her there nor any news of her, but here they waited six days and took two boys to carry to New Spain to learn to be interpreters,⁴⁰ leaving certain signals in case the other ship should come there. Saturday, the 17th, they left this Puerto de San Miguel and the Sunday following arrived at the Baia de San Mateo, but did not find any trace of the other ship there either. Sunday, the 18th, they left the Baia de San Mateo in the afternoon and the following Wednesday, the 21st, arrived at the Puerto de la Posesion, but did not find any news of their consort there either. They waited two days outside without entering the port, as they did not dare to do so on account of the high northwest wind blowing. As the cable was cut they were obliged to weigh anchor. Friday, the 23rd, they left the Puerto de la Posesion and the Saturday following, at midnight, reached the Isla de Cedros. While there, on the Monday following, the 26th, the other ship arrived, at which they were delighted and gave many thanks to the Lord. At the Isla de Juan Rodriguez during the night this vessel passed over some reefs, which made them think they were about to be lost.⁴¹ The sailors made a vow to go to their church stark naked and Our Lady saved them. Monday, April 2, they set out from the Isla de Cedros in quest of New Spain, as they did not have sufficient supplies to turn about and undertake the discovery of the coast, and arrived in the Puerto de Navidad Saturday, April 14.

Bartolomé Ferrel, chief pilot of the ships, came as captain in place of Juan Rodriguez Cabrillo, who died at the Isla de la Posesion. There came in the said ships men.

* * * * *

Notes to Cabrillo of interest in the present connection.

Abstracted in part from Wagner (1928:73-77).

1. San Diego in 32^o 40' (error 1^o 40'). Nearly all of Cabrillo's determinations of latitude are in error by being too high. Wagner (1928:20-27) discusses this and gives the corrected figures for all of those in the account. For further discussion of sixteenth century navigation methods see Waters 1958.

2. Probably a reference to Coronado's expedition.
3. Wagner disagrees with the usual identification of San Salvador as Santa Catalina Island and Vitoria as San Clemente Island and believes that what Cabrillo "saw was undoubtedly Santa Catalina, which always appears to be two islands at no very great distance."
4. Identified by Wagner as San Pedro Bay.
5. According to Wagner this was Santa Monica Bay.
6. "Pueblo de las Canoas" is usually identified as a Chumash village near Mugu Lagoon.
7. Identified by Wagner as the Anacapa Islands.
8. Carpinteria Valley.
9. Kroeber (*Handbook of the Indians of California*, 1925:553) attempted to identify these names but with little success, but notes that "they cannot represent any consistent geographical order." The first effort to identify the names of Chumash Indian villages given in the Cabrillo account was by Alexander S. Taylor in his series "Indianaology of California," *California Farmer* (newspaper), issues of April 17, 1863 and August 14, 1863. Brown (1967) has contributed the most recent map of native Chumash village locations. See Fig. 10 in the present paper.
10. Wagner says, "After that Saint, whose day is October 18. Usually said to be Santa Cruz and Santa Rosa combined, as these islands appear to overlap to a certain extent when seen from certain directions. Subsequently the name San Lucas was restricted to the middle island, Santa Rosa. The names of the towns bear no resemblance to those afterwards given in the narrative to towns on either Santa Rosa or Santa Cruz."

As Kroeber (1925:554) points out, San Lucas is clearly identifiable with Santa Cruz Island. Several of the villages names given by Cabrillo are definitely those on Santa Cruz Island.
11. Identified as the two villages on opposite sides of a stream, hence "Dos Pueblos." The site was excavated by the Wheeler Survey Party in 1875.
12. Cabrillo is now at Point Conception.
13. Cabrillo now realizes that these two islands, San Miguel and Santa Rosa, are what he earlier took (see note 10) to be one and which he named San Lucas. The "good port" on the small island is apparently Cuyler's Harbor on San Miguel.
14. Wagner says, "This island was San Miguel and the port could hardly be any other than Cuyler's Harbor, as explained by Davidson." Herrera's account of the Cabrillo expedition states that after discovering Point Conception "on account of the fresh northwest wind they stood out to sea and discovered two islands, one eight leagues in length, running east and west, and the other four; in the latter they hit upon a small port, but very good. . . . This port they named Posesion." Herrera's account says later, "As no port was found they had to go back to the Isla de la Posesion, which is one of the San Lucas group, and they arrived there Thursday, November 23. As it was a good

port they repaired the small ship [*Vitoria*], putting her on shore as she was about to go to the bottom."

15. Wagner says this is the coast north of Point Arguello.
16. Wagner says this is the place "now called Cojo Anchorage, a name which looks very much as if it had been derived from this Indian name."
17. These are mainland Chumash villages, some of which can be identified. The best analysis is by Kroeber (1925:558).
18. Wagner says this is in the area of San Luis Obispo, perhaps off Point Sal.
19. Cape San Martin or Point Piedras Blancas.
20. Wagner thinks this was Point Reyes (error 2^o).
21. Monterey Bay.
22. Wagner's opinion is that the river is the Salinas.
23. The northern part of the Santa Lucia Range according to Wagner.
24. Wagner doubts the correctness of the statement that Cabrillo died as a result of a broken arm and quotes two persons who had been with Cabrillo on the matter. One, Lazaro de Cardenas, states that as Cabrillo "was going ashore in a boat with some soldiers he fell between some rocks and broke a leg." The other, Francisco de Vargas, says that Cabrillo "with some soldiers went ashore, and as they were landing his foot slipped from the boat and his shinbone was shattered on a rock." See full quotation below in section entitled "Two Accounts of Cabrillo's Death." Herrera in 1615 merely stated that Cabrillo "had died of sickness" (Wagner 1928:58). Yarrow (1876:321) says Cabrillo's death "was caused by injuries received from a spar which fell from aloft and broke his arm near the shoulder."
25. A name which has not been recorded in recognizable form by anyone else. The island of San Miguel was named Tu-kan (or Toan, Tucam) by the Chumash. Santa Rosa Island was named Wi-mal (or Guima, Huimax, Huima, Huimal) by the Chumash. Santa Cruz Island was named Limu. Mi-chu-mac is also recorded as the Chumash name of Santa Cruz. Luktukai was the name of Anacapa.
26. For Nicalque see note 33. Limu was Santa Cruz Island (see note 25).
27. None of these is recorded later as village names on any of the Channel islands.
28. None of these are now identifiable as village names on San Miguel, Santa Rosa or Santa Cruz islands. See note 33.
29. Kroeber failed to identify a single one of these with known Chumash villages.
30. Limun, of course, is Limu and identifiable beyond question as Santa Cruz Island. Wagner points out that a copyist's mistake in the Navarrete account of the Cabrillo

voyage gave the Spanish name of Limun as San Salvador rather than San Sebastian on whose day the island was seen and named.

31. That is, the port on the Isla de Posesion where Cabrillo died and was buried three weeks earlier.
32. If the Isla de Juan Rodriguez (also called Isla de Posesion) was San Miguel Island, as is generally believed, the place where the anchors were lost in the storm would be Santa Rosa since it is "in the middle of the others"—i.e. between San Miguel and Santa Cruz.
33. The native name "Nicalque" may be the same as the Chumash name of a Santa Rosa Island village on the north shore, Niakla. Kroeber suggested also the possibility that Nicalque was a version of the name for another Santa Rosa village, Nümkülkül. The Indian towns on the island of Nicalque are given twice by Cabrillo as Nicochi (or Nichochi) Coyoc (or Coycoy) and Coloco (or Estocoloco), but none of these can be identified in the list of later recorded villages on Santa Rosa. There was a Kolok village near Carpinteria, but from its location it cannot be the same place as Coloco. See note 28.
34. Wagner says "It is rather useless to speculate about which islands these six might have been, but it seems probable that they included the three they had just left."
35. Wagner thinks this was Point Reyes.
36. Identified by Wagner as Point Arena (38° 57').
37. Both Cuyler Harbor on San Miguel and Beecher's Bay on Santa Rosa have 15 fathoms of water at the entrance. See copies of hydrographic charts in the present paper (Figs. 3-5).
38. San Sebastian is the present day Santa Cruz Island.
39. San Salvador is probably Santa Catalina Island.
40. These two boys of the Chumash tribe and speakers of the Ventureño dialect, if they survived the return voyage to Mexico, would be the first California natives to have had such an experience. The fact that they were taken to Mexico "to learn to be interpreters" is a clear indication that someone on the Cabrillo expedition was anticipating a return voyage on which the two Chumash interpreters would, after mastering Spanish, be of use in direct communication with the Santa Barbara natives. So far as I know nothing more was ever said about them.
41. The mention of reefs in the harbor on the Isla de Juan Rodriguez makes it sound more like Cuyler Harbor on San Miguel Island than Beecher Bay on Santa Rosa Island. Note the description of Cuyler Harbor by Davidson quoted below in section entitled "Notes on geology and harbors of Santa Rosa and San Miguel Islands."

TWO ACCOUNTS OF CABRILLO'S DEATH

Wagner (1928:20, 61, 76) cites an *Información* of 1560 which was recorded before the Audiencia of Guatemala during the legal proceedings where Cabrillo's son, also named Juan Rodriguez Cabrillo, was attempting to secure restoration of certain lands and some remuneration for his father's services of two decades earlier. Two persons gave testimony who had sailed in 1542 with Cabrillo. The information which they gave does not agree wholly with the account of the voyage quoted above.

One witness, Lazaro de Cardenas, deposed that:

"... he [Cabrillo] reached an island which he named the 'Capitana,' where he decided to winter as he had encountered a violent tempest at sea and thought that the ships would be lost. As he [Cabrillo] was going ashore in a boat with some soldiers he fell between some rocks and broke a leg. From this fall a fatal illness ensued from which he died within twelve days and was buried there. Before the end he called Captain Ferrer and gave him the appointment as captain-general of the said fleet in the name of His Majesty by reason of a royal commission which he carried. He admonished and begged him to take charge of the service of God and His Majesty and the handling of the fleet until he could go to give an account of it all to the Viceroy of New Spain. By reason of his death, which occurred there, the island retains the name 'Capitana'."

The second witness, Francisco de Vargas, testified that:

"... he [Cabrillo] discovered the island named 'Capitana' and according to what the pilots said there, from the observations which they took, he was very near Maluco [Molucca] and the spice country and in the neighborhood of China. The pilots were Matia, Bartolomé Ferrer, and the Corsican, Lorenzo Hernandez, some of whom had before been to the said Islas del Maluco. With the natives of this island he had some great fights as they came out in a warlike manner. During all the time the fleet was at the Isla Capitana the Indians never stopped fighting. One day, a larger party of soldiers having

gone ashore to take water,* a number of Indians attacked them and handled them so roughly that they were in danger. General Juan Rodriguez, seeing from the ship the difficulties in which the Indians had his men and hearing the clamor, hurried up to give them assistance. He himself with some soldiers went ashore, and as they were landing his foot slipped from the boat and his shinbone was shattered on a rock. From this he died on his own ship in ten or twelve days, first having extracted his soldiers from the dangers in which they were."

*There are freshwater springs both in Cuyler Harbor on San Miguel Island and in Beecher Bay, Santa Rosa Island.

KROEBER'S ANALYSIS OF THE SANTA BARBARA PORTION OF CABRILLO'S VOYAGE

A. L. Kroeber's discussion of the Chumash ethnographic data recorded in the Cabrillo expedition account was published in his *Handbook of the Indians of California* (Bureau of American Ethnology, Bulletin No. 78, 1925, pp. 552-556). Since frequent reference has been made to this passage in the present work, it is reprinted here. The reader is reminded that the Liquimuymu of Kroeber is based on a misprint in Henshaw (1879) and should be, correctly, Çiquimuymu.

CABRILLO'S DISCOVERIES

"The report of Cabrillo's voyage mentions by name a considerable number of coast and island Chumash villages. As this list antedates by more than two centuries any similar record for other California Indians, its examination is of interest.

Beginning with Xucu, the Pueblo de las Canoas sometimes placed at Santa Barbara or Ventura but more likely to have been at Rincon, the Cabrillo narrator names Xucu, Bis, Sopono, Alloc, Xabaagua, Xotococ, Potoltuc, Nac buc, Quelqueme, Misinagua, Misesopano, Elquis, Coloc, Mugu, Xagua, Anac buc, Partotac, Susuquey, Quanmu, Gua (or Quannegua) . . . Asimu, Aguin, Casalic, Tucumu, Incpupu. The context implies that these extended westward not quite to Dos Pueblos. Subsequently Cabrillo speaks of the greater part of this coast, namely, the stretch from Las Canoas to Cicakut or Pueblo de Sardinias, identified with Goleta, as the province of Xucu, appearing to contrast it with the province of Xexu which reaches from Xexu to Xexo on the lee side of Point Conception to Dos Pueblos. From Sardinias to Point Concepcion he then names Ciucut (the "Capital," where an old woman reigned as "señora"), Anacot (or Anacoac), Maquinanoa, Paltatre, Anacoat, Olesino, Caacat (or Caacac), Paltocac, Tocane, Opia, Opistopia, Nocos, Yutum, Quiman, Micoma, Garomisopona.

It is clear from the misspelled repetitions in these lists, as well as their

correspondences, that they cannot represent any consistent geographical order. Sopono, Misesopano, and Garomisopona; Potoltuc, Paltatre, Partocac, and Paltocac; Anacot, Anacoat, and probably Nacbuc and Anacbuc; Opia and Opistopia; Cicakut, Ciucut, and perhaps Caacat, are all duplicate references.

The identifications with villages mentioned in more recent sources point to the same conclusion. The more probable of these are:

Xucu: Shuku, at Rincon (not Ventura).

Alloc: Heliok, near Goleta.

Xabaagua: Shalawa, near Santa Barbara (b for l?).

Quelqueme: Wene'me, at Hueneme (q for g?).

Elquis: Elhelel (?), near Santa Barbara.

Coloc: Kolok, at Carpinteria.

Mugu: Muwu, on Mugu lagoon.

Xagua: Shawa on Santa Cruz Island, or for Xabaagua (?).

Susuquey: Shushuchi, between Refugio and Gaviota.

Quanmu: Kuyamu (?), at Dos Pueblos.

Casalic: Kasil (?) at Refugio.

Tucumu: Tuhmu'l, near Shushuchi.

Incpupu: Humkaka, on Point Conception.

Ciucut: Siuhtun or "Siuktu" in Santa Barbara.

Tocane: Perhaps a misreading of *Tucumu*, but Tukan, the name of San Miguel Island, may be intended.

Xexo: Shisholop, inside Point Conception.

It may be added that Paltocac is placed by a later authority near Goleta, presumably on native information.

The islands present more difficulty, since the expedition may have confounded or rediscovered them. Two of the three Cabrillo names for the islands can not be identified: Liquimuyumu, San Miguel, and Nicalque, Santa Rosa. The third is involved in doubt: Limu or Limun, Santa Cruz.

Liquimuyumu is said to have had two towns: Zaco or Caco, which may be for Tukan (the island may well have been named after the principal settlement); and Nimollollo, which suggests Nimalala on Santa Cruz. Liquimuyumu itself suggests the Santa Cruz village of L'aka'amu, or, as it has also been written in Spanish orthography, Lucuyumu.

On Nicalque three villages are named: Nichochi or Nicochi; Coycoy; and Caloco [Coloco] or Estocoloco ("este Coloco, this Coloco"?). None of these can be identified. Coloco may be another Kolok distinct from that at

Carpinteria: compare Shisholop at both Point Concepcion and Ventura. Nicalque itself might possibly stand for either Nümkülkül or Niakla on Santa Rosa.

Limu is said to contain eight towns, and ten are then enumerated, whose names seem unusually corrupted: Miquesesquelua, Poele, Pisqueno, Pualnacatup, Patiquiu and Patiquilid (sic), Ninumu, Muoc, Pilidquay (sic), and Lilibeque. If these words are Chumash, the initial syllables in P- suggest a native article or demonstrative which has been erroneously included. Not one name of this list can be connected with any known Chumash settlement.

A previous mention of "San Lucas" has been interpreted as referring to Santa Rosa, but several of its six villages can be safely identified as on Santa Cruz: Maxul is Mashch'al; Xugua (compare the mainland list), Shawa; and Nimitopal, Nimalala. The others are Niquipos, Nitel, and Macamo. If we are willing to allow a considerable play to misprints, Nitel may be Swahül (Ni-for Su-), and Macamo, L'aka'amu (M for L). Hahas, one of the principal towns in later times, is not mentioned by Cabrillo. Even if some of these identifications with Santa Cruz settlements seem doubtful, it is significant that not one of the San Lucas villages bears any resemblance of name to the villages of Santa Rosa.

It follows, therefore, that "San Lucas," as the designation of a single island, is Santa Cruz, and not Santa Rosa. Limu or "San Salvador," for which an entirely different list of villages is given, accordingly would be not Santa Cruz but Santa Catalina, as indeed at least one authority has already asserted. There is the more warrant for this attribution, since the name Santa Catalina in the mouths of all Shoshoneans is Pimu, of which Limu is an easy misreading. Hence, too, the eight or ten unidentifiable village names on "Limu": they would not agree with any known designations of Chumash villages because Santa Catalina is Gabrielino, that is, Shoshonean. It is true that the words do not ring Shoshonean. They are almost certainly not Gabrielino, which has "r" where more southerly cognate dialects have "l." Various conjectures can be advanced on this point. Perhaps the simplest is that Chumash names were obtained for Shoshonean settlements.

It may be added that these reinterpretations are much more consonant with a reasonable course for Cabrillo's little vessels. The route formerly accepted is: San Pedro Harbor (San Miguel), then westward to Santa Cruz (San Salvador), back easterly to Santa Monica (Bahía de los Fumos or Fuegos), then west once more to Mugu, and then to Ventura (Xucu); with Catalina, which is in plain sight of San Pedro, unmentioned until later. The

following chart is suggested instead: San Diego or Newport Bay (San Miguel); Santa Catalina; either San Pedro or Santa Monica (Los Fumos); Mugu; and Rincon (Las Canaos [Canoas], native name Xucu). This gives a continuous course.

On the other hand, Limu reappears in later sources, and almost certainly as Santa Cruz. Father Tapis in 1805 wrote of two islands, whose position seemingly best fits that of Santa Cruz and Santa Rosa, as being called, respectively, Limú and Huima. The latter is clearly Wima'l, that is, Santa Rosa. It was said to contain seven settlements, which is the number located on it in Plate 48. Limú must therefore be Santa Cruz. Its 10 rancherias nearly reach the number on the map. The three principal, with populations of 124, 145, and 122 adults, respectively, were Cajatsá—that is, Hahas; Ashuagel; and Liam, the Liyam of the map.

This evidence seems almost inescapable; but its acceptance gives Cabrillo a confused route; makes his San Salvador (Limú) and San Lucas (Maxul, etc.) the same island; furnishes two entirely different lists of villages said by him to be on this island, one of them identifiable and the other wholly unidentifiable by more recent Chumash data; and makes the voyager silent on the inhabitants of Santa Catalina. These difficulties lend a certain seduction to the temptation somehow to regard Cabrillo's Limú as having been Pimu-Catalina; enough, perhaps, to justify the maintenance of some suspicions until further elucidation is forthcoming.

With "San Lucas" and possibly "San Salvador" shifted one island east from the accepted interpretation, it may be that the "Isla de la Posesion" or "Juan Rodriguez" where Cabrillo wintered and lies buried, was Santa Rosa instead of San Miguel. Since nothing certain can be made of the native names that seem to refer to either island, this problem is one for the geographer rather than the ethnologist.

Two things are clear that are of general interest to the historian of the natives of California. First, many place names have endured for centuries in California. And, second, on allowance for the accumulation of errors in successive recording by mariners, copying, and printing of meaningless terms, there is no evidence that the Chumash language has materially altered in more than 350 years.

ALEXANDER S. TAYLOR'S ANALYSIS OF CHUMASH PLACE NAMES
IN CABRILLO'S ACCOUNT OF 1542-1543

There is a little, but not much, of value in Taylor's short resume of Cabrillo's record of native place names in the Santa Barbara region (mainland and Islands). In spite of this, Taylor's writing of 109 years ago should be more readily available than in the very rare files of *The California Farmer*, a California newspaper of the 1860's. Taylor investigated, wrote, plagiarized, and quoted at a rate which reminds one of a desperate assistant professor trying to qualify for tenure rank. His "Indianology of California" which appears in installments, numbered and inconveniently divided into "series" in *The California Farmer* between 1860-1863, has never been reprinted. It should be republished, but only by someone whose knowledge of source materials available to Taylor is adequate. Such an annotated reprinting would provide us with a new and fresh source of data. Probably a reprinting of the entire "Indianology" would not be warranted since some of it is quite useless, and for this reason the editing of the reprint should be carried out by a person with enough knowledge to exercise the needed judgment on what to include and what to omit.

Another research project which would be worth the time is a complete collection and analysis of Chumash place names. A great deal of important early California history took place in the land of the Chumash Indians, but thus far we have nothing like a reasonably thorough listing and attempted identification of the several hundred place names of Chumash origin. Here again, an inadequate analysis would be likely to place us in a worse position than our present one of relative ignorance—misinformation is usually worse than no information.

Despite the lack of success by those persons who have tried to make sense out of the Chumash place names recorded by Cabrillo, I believe that some person who is competent in the Chumash language dialects, who is well learned in linguistics, and who has an imaginative historical sense, would see this project as a real intellectual challenge, and might provide historians and ethnographers (i.e., ethnohistorians) with results which would be of great interest and value. There are few such competent linguistic-ethnohistorians, but we may hope that one of these may give us the help we need on Chumash toponomy.

The following is reprinted from Taylor's "Indianology," Fourth Series, No. 130; continued from *Farmer* of April 10, 1863. It is given exactly as printed, and corrections of

obvious errors are provided by the present editor in brackets.

California Notes

By Alex. S. Taylor

The Indianology of California

Fourth Series

No. 130 of whole Series; continued from *Farmer* of April 10, '63

XXIII.-VI. Miscellaneous Addendum

Cabrillo's Voyage of 1542

.....

Cabrillo's Santa Barbara of 1542

"The following names of Rancherias are given in Cabrillo's very full and curious account of the discovery of Alta California, lately (1857), for the first time published. He was anchored along the coast of Santa Barbara for some 25 days.

Mugu, Xucer [Xuco], or Pueblo de Canvas [Canoas], Shucu (near the Rincon), Bis, Sopono, Alloc (on rancho Ortega, near the beach), Xabagua [Xabaagua], Xocotoc, Cojo or Cojotoc, Potoltecuc, Nacbue [Nacbuc], Quelquimi [Quelqueme], Misinajua [Mizinagua] (near San Marcos), Mississipone [Misesopano] (or Pona on Rafel Gonzalez farm), Elquis, Coloc (in the Carpinteria), Xaqua [Xagua] (or Sajay?), Anacbue [Anacbuc] (or Anacarck), Partocae [Partocac] (or Paltocac, the cemetery on the mesa of the Goleta farm), Susaguey [Susuquei], Quanmu, Gua, Asimu, Aguin (or one beach of Losdlagos [Los Llagos]), Casaliu [Casalic] (or beach of the Refugio), Tucremu [Tucumu] (or beach at Arroyo Hondo), Incpupu [Yncpupu].

San Lucas, or Santa Cruz, 18 leagues from Pueblo de Canvas [Canoas], he called Limu. Its rancherias were Nquipos [Niquipos], Maxul [Mazul], Xuqua [Xugua], Nitel [,], Macamo, Nimetapel [Nimitapal]; it was six leagues from the coast, and was very populous. Santa Rosa [Island] was called Nicalque; it had for rancherias, Niquesesquelua, Poele, Pisqueno, Pataquiled [Patiqui or Patiquilid], Ninimu [Ninemu], Muoe [Muoc], Peledquey [Pilidquay] and Lilibique [Lilibequ]. San Miguel Island was called Ciquimuymer [Ciquimuymu], and had for rancherias Zaco [Çico] and Nimololo [Nimollollo]. Here Cabrillo died 3rd January 1543. Some of the rancherias still went by these names in 1770 to 1800, as shown by the old priests, and confirmed to me by the old Indians, in 1861. San Lucas, which may be Santa Rosa, or Santa Cruz, or San Nicholas [Nicolas] Island, he also says,

had three rancherias, Nichochi, Coycoy, and Estilococo [Estocoloco].

The rancherias near Pt. Galera, or Concepcion, and north, were Cuncaae or Cacat [Çicacut?], Cicaut, Ciucut, Opia, Anacot, Opistopea [Opistopia], Maquin, Nanao [Maquinanao], Mocos [Nocos], Paltatro [Paltatre], Yutuim [Yutum], Quiman, Micoma, Tolame [Tocane?], Garimisopono [Garimisopona], Ciucut was the people near the Cojo Zaxo, or Caco. The country from Pueblo Canvas [Canoas], near Point Mugu, to [Point] Concepcion, was a province which he called Xucu, and was very populous. Near Point Concepcion a woman was the chief Cacique.”

* * * *

A manuscript written by Alexander S. Taylor entitled *The Discoverers, Founders and Pioneers of California Felix and California Petra* is in the collection of the Bancroft Library. In Vol. 1, No. 1, p. 2 of this manuscript is the following which is probably the source of the statement of H. H. Bancroft (quoted above on p. 2) on early attempts to locate the grave of Cabrillo.

One of the officers who made the Reconnaise Survey of the Coast Surveys informed us at Monterey when Captain (now Admiral) Alden was at San Miguel in 1853 search was made at the island of San Miguel and particularly at the small port indicated known as Cuylers Harbor but no signs remained of the burial place of Cabrillo. Probably Santa Rosa or Santa Cruz Island may have been the place, one or the other, of his burial, but from the wording of the original account we believe he was buried in the small port of San Miguel Island, known now as Cuyler's Harbor and will be found one of these days, San Miguel being the first island to fall in with on Cabrillo's return from Monterey Bay.

OPINIONS BY THREE SPANISH SCHOLARS
OF THE JR-INSCRIBED STONE

At the suggestion of Professor Woodrow Borah of the Department of History, University of California, Berkeley, I wrote to three Professors at universities in Spain, sending them a full size drawing of the stone with the initials JR inscribed, asking their opinion as to whether it was consistent with sixteenth century gravestones known to them.

My letter to each person read:

Sir:

I am writing to you at the suggestion of Dr. Woodrow Borah who tells me that you are expert on the matter of the style of tombstones or grave-markers of the sixteenth century.

We have in the Lowie Museum of Anthropology at Berkeley at sandstone slab found in 1901 on Santa Rosa Island which lies in the Pacific a few miles offshore from Santa Barbara, California. It was either on the island of Santa Rosa or the neighboring island of San Miguel that Juan Rodriguez Cabrillo, the discoverer of California, died and was buried on January 3, 1543. A drawing, natural size, of this stone is attached. Juan Rodriguez died as a result of an accident while landing in a small boat, and his death was therefore not anticipated and his burial was probably conducted with little planning or ceremony. What I would be interested in is your opinion on whether the stone, inscribed apparently with a metal tool such as a knife, could be, stylistically speaking, of mid-sixteenth century date. It is (assuming it to be a grave-marker) obviously not a "formal" gravestone, but rather, a hurried and makeshift one fashioned at the time of burial by the crew of his ship. However, one might expect that some observance of the standard mode of inscription of gravestones would be observed, and it is this matter on which I request your opinion. Is the position of the cross at the top an acceptable style element? Are the initials JR (for Juan Rodriguez?) stylistically correct? Does the absence of the date of death, 1543, seem unusual? The inscription of what is apparently a headless figure of a man at the bottom is puzzling, but it may be an inscription carved by an Indian

either before or after the stone was inscribed by Europeans.

I would be most grateful to you for your opinion on the point of whether this stone appears to be one which might have been inscribed, even in haste, in 1543 on the California coast by the men of Cabrillo's ship.

Sincerely yours,

Each person to whom the letter was addressed replied promptly, and relevant portions of their letters are printed here in English translation, with their permission.

Professor Manuel Ballesteros Gaibrois (Seminario de Estudios Americanistas, Departamento de Antropología y Etnología de América, Facultad de Filosofía y Letras, Universidad de Madrid) wrote:

"With the greatest pleasure I am answering your letter of the 14th of this month in which you asked me about the inscription which appears on the island of Santa Rosa and which might be the very rough tombstone of Juan Rodriguez Cabrillo, discoverer of California who died in 1543, placed on his grave by his companions.

"An answer on this subject is very difficult since there is only the photostat to go on. The letters "J" and "R" are very clear and the final stroke on the latter could be interpreted as a "C." It can correspond to the style of written capitals of Roman type, used on inscriptions of that period, at which time they no longer employed Gothic lettering.

The only critical problem is to know whether we are dealing with something authentic or a falsification; if the latter, it is evident that the fabricator was trying to imitate the usual style of writing on tombstones in use at that time.

In order to make a judgment one would have to have more of the details of the discovery of the stone rather than only those of the stone itself. If, as you tell me, the date of discovery was 1901, at which time it did not seem very important except as an archaeological object to be turned over to scientists, then it could be accepted as authentic; however, if the discoverer maintained from the start that it was inscribed to the memory of Juan Rodriguez Cabrillo, one must weigh the possibility of a fake.

From the point of view of a paleographer, then, it *could* perfectly well be a rough inscription of the 16th century."

Professor Claudio Esteva-Fabregat (Facultad de Filosofía y Letras, Etnología, Universidad de Barcelona) wrote as follows:

"My opinion is the following: Stylistically, we are dealing with a tombstone which forms part of the Spanish funerary tradition. Its characteristics show that it seems to have been engraved by a person that did not control very

well the technique of stone working. It is certain that, being a military expedition, there were probably no specialists and for that reason they had to improvise in engraving the stone.

With respect to the distribution of elements, the cross as well as the name and surname, all are correct. It is not important that dates do not appear, because in those times they were not concerned with "chronology." The important thing was to bury him with symbols to indicate the name, surname, and religion of the deceased.

Also, only the nobility and ecclesiastics were buried with tombstones of that type, usually in special sheltered parts of temples. The rest of the people were buried in the ground with a cross, generally of wood. It is probable that this JRC was not actually a nobleman, but because of his status as chief of the expedition, they treated him as though he was.

It is also certain that, apart from the nobility and the ecclesiastics, the members of guilds had the right to be interred in a guild grave, or exclusive of their role-status. The bourgeoisie had no special graves until late in the 18th century and during the 19th century one still finds tombstones with inscriptions which give the name of the head of the family and those of other members of the family were added as they died.

All of these antecedents seem to indicate that the tombstone of JRC is of Spanish tradition. The coarseness of the work rather indicates that the one who worked on the stone was not a specialist in it. He was forced to engrave it in the best way he knew how. In that era there were many who knew how to engrave stone and wood, especially shepherds. These were normally accustomed to do this to entertain themselves or pass the time. In that light it is worthwhile not to forget that if the group of JRC was composed of Castilians and natives of Extremadura, this pastoral tradition and hobby-handcraft was common to all of them.

As an addition, it is possible that the stylized figure that appears beneath the initials JR constitutes the intent of a reference to heraldry or, in another aspect, it could suggest the idea of a human burial. The photocopied drawings that I enclose correspond to inscriptions [from Spain] which belong to the 8th-9th century B.C., and show that we are dealing with a very ancient tradition.

The origin or lineage of JRC should be investigated, especially the place of birth and personal ancestry, in order to discern from whence he achieved nobility and had the right and privilege of a heraldic tombstone, or at least to find out at what point we are dealing with post mortem honors

interpreted by his military group in an act of identification with the person: charisma. In any case, already in America [in the 16th century] many conquerors and colonizers were treated in accordance with a status superior to that which they had on the Peninsula."

Professor José Alcina (Seminario de Estudios Americanistas, Departamento de Antropología y Etnología de América, Facultad de Filosofía y Letras, Universidad de Madrid) answered:

"I regret that my answers to the questions in your letter of June 14th can be not much more than halfway certain. In my opinion the main inscription says JR and seems to correspond to the type of lettering made by stone workers of the period, but there are not enough "stylistic" traits on the stone itself to be sure whether it is of the 16th century or the 17th, much less to be able to place it precisely in the middle of the 16th century. The very rough character of the inscription makes it *possibly* the stone or funerary slab of Juan Rodriguez. The "anthropomorphic" inscription on the lower part is, in my opinion, very possibly Indian, of earlier or later date than the cross and the initials JR."

NOTES ON GEOLOGY AND HARBORS OF SANTA ROSA AND SAN MIGUEL ISLANDS

The geology of Santa Rosa and San Miguel Islands is shown and briefly described on the Santa Maria sheet of the *Geologic Map of California* (State of California Department of Natural Resources, 1959). Santa Rosa Island geology, paleontology and archaeology is treated in detail in P. C. Orr's *Prehistory of Santa Rosa Island* (Santa Barbara Museum of Natural History, 1968). Santa Rosa Island geology is described by W. S. W. Kew, "Geologic Sketch of Santa Rosa Island" (Bulletin of the Geological Society of America 38:645-654, 1927). The geology of San Miguel Island is presented by C. St.J. Bremner, *Geology of San Miguel Island, Santa Barbara County, California* (Santa Barbara Museum of Natural History, Occasional Papers No. 2, 1933). Bremner says that when San Miguel Island was first visited by Europeans it supported a dense growth of brush, especially sumac and manzanita. Cattle and sheep were introduced on the island about 1880, and they destroyed much of the vegetation. The strong prevailing northwest winds then formed drifting sand dunes which now cover most of the island's surface. This drifting sand is gradually filling Cuyler's Harbor to the extent that anchorage is impaired by large swells which break in the harbor during the winter season. "It seems very probably that this condition did not exist when Juan Rodriguez Cabrillo, on the first voyage of discovery into these waters, wintered his boats there in 1542."

As regards the two chief contenders as the harbor where Cabrillo was injured, died and was buried, nothing certain can be argued as to which one (Cuyler's Harbor on San Miguel Island or Beecher's Bay on Santa Rosa Island) is identifiable from the confused account of the Cabrillo voyage.

Davidson (1887:206) believed that Cabrillo's Isla de Posesion was San Miguel Island. He describes Cuyler's Harbor on San Miguel as follows:

"Cuyler's Harbor. This is the largest and best harbor around the Island of San Miguel. It is a moderately large bay on the northeast face. Its extent is a little more than one mile between the eastern and the western heads, and about two-thirds of a mile deep. It has bold shores and approaches, and a large rocky islet [Prince Island] half a mile north of the eastern head. This

islet is five hundred yards in extent and 303 feet high, with a precipitous face to the north-northwest. Across the mouth of the harbor stretches a dense field of kelp having six fathoms of water throughout the greater part of it, but marked by two reefs and rocks near the middle, and almost in line between the heads. There are other rock patches in the eastern part of the harbor.

Vessels coming into the harbor from the northwest pass within half a mile of the western head, through the kelp, at a distance of only three hundred yards from the cliffs, and then haul towards the western bight of the bay, where they anchor in five fathoms of water, over hard bottom, but protected from all save the north and east winds, which rarely blow. The heavy swell from the strong northwest winds reaches well into the anchorage.

Vessels cannot easily enter by the eastern passage unless familiar with the dangers and currents.

Water is found at one place on the steep southern hill face, and during winter water drains down the gully at the western part of the long beach southeast from the anchorage."

D. B. Rogers, a pioneer in the archaeological exploration of the Santa Barbara mainland and Channel Island area describes (1929:270) the harbors of Santa Rosa Island as follows:

"Protected anchorage exists at but three places along the coast of Santa Rosa Island. Throughout most of the year, Beecher Bay, which indents the northeastern side, offers abundant shelter for boats of any draught. During the brief period of the "southeasters," this harbor is worse than useless, being lashed into fury by the enormous swells that sweep up the intra-insular channel. Skunk Harbor, near the southeastern extremity of the island, is shallow and only partially landlocked, but furnishes excellent anchorage for small vessels at all times except with the southeasters blow; during those storms no ordinary boat could live in it. Johnson's Lee, to the east of South Point, furnishes good anchorage for small craft throughout most of the year. This convenience is, however, nearly neutralized by the fact that no beach exists along this shore and landing is difficult. This handicap and the nauseating water of the locality make this a very unfrequented region."

J. Bugay (1963:105) observed that Cuyler's Harbor on San Miguel was a "good harbor." Anchorage is close to the high cliffs in the northwest portion of the harbor which has flat water and good holding ground in 4 to 6 fathoms. Roe (1962:53) stated that Beecher's Bay "is no place to be in a northerly, northeasterly or even easterly wind."

The ninth edition (1963) of the United States Coast Pilot 7 describes Beecher's Bay on

Santa Rosa Island as “a broad semicircular bight on the northeastern side of Santa Rosa Island, is 4.5 miles wide between Skunk and Carrington Points and 1.5 miles in depth. Southeast anchorage, 1.3 miles westward of Skunk Point affords protection in southeasterly weather in about 6 fathoms, sandy bottom. Northwest Anchorage, in the western part of the bight and 1.5 miles southward of Carrington Point, affords fair shelter in northwesterly weather.” Cuyler Harbor on San Miguel Island is described as “a bight 1.2 miles long and 0.6 miles wide on the northern shore southwestward of Princess Island. The anchorage is in the western part of the harbor; the eastern part is foul. Good shelter may be had in southerly weather, but the holding ground is poor. In strong northwesterly weather the heavy swells that sweep around the northern shore and into the harbor make the anchorage dangerous. The harbor is not safe in rare northerly or easterly winds. Water may be obtained at a small spring at the anchorage.”

EXPERIMENTAL ATTEMPTS TO REPLICATE THE ENGRAVED LINES
ON THE STONE IDENTIFIED AS POSSIBLY BEING
CABRILLO'S GRAVE MARKER

Thomas R. Hester

Brief experiments were carried out in an effort to replicate the kinds of engraved lines found on the postulated Cabrillo gravestone. As indicated in the article by Professor Heizer (p. 6 above) the major engraved lines on the stone (the "stick figure," the cross, and the JR initials) are uniform in appearance, and can be characterized as deep, V-shaped cuts. Under microscopic examinations all of these lines appear to have been made with the same implement.

A flat sandstone slab very similar in texture and color to the Cabrillo stone was selected from the Santa Rosa Island collection made by Jones and used for the experiments (Lowie Museum of Anthropology, catalogue no. 1-1536). Several types of tools were used to engrave straight lines on one face of the stone. Each of the tools was used for making four to eight strokes. The tools used in the experiments, and the engraved lines which resulted, are described as follows:

No. 1. Thin-bladed steel pocket knife. Maximum thickness of the cutting edge, .1 mm. A very narrow incised line was produced.

No. 2. Sharp-pointed ten-penny nail ("spike"), the point of which was 1.5 mm. wide. A broad shallow groove resulted.

No. 3. Hunting knife, with a cutting edge about .5 mm. in thickness. This tool produced an incised line with steep walls, much like the incision resulting from the use of tool No. 1.

No. 4. Heavy-duty screwdriver with a point .8 mm. wide and wedge-shaped in cross section (edge angle approximately 12°). This tool was used in the experiment to simulate a very heavy, thick-bladed knife. The resulting engraved line was broad and deep, and distinctly V-shaped in section; this line is remarkably similar to the lines forming the "stick figure," cross and initials on the JR stone.

No. 5. Sharp-edged chert flake of prehistoric date from Santa Cruz Island. Ten to twelve strokes produced only a shallow incised line which is quite different from these on the JR stone.

No. 6. Chert flake from Santa Cruz Island with a burin-like point. Six strokes produced a V-shaped engraved line which is narrower and with steeper walls than the lines on the JR stone.

It is possible that with prolonged use any of the tools listed above could replicate the engraved lines on the JR stone. However, if one assumes that the stone was engraved in a rather hurried fashion by a member of Cabrillo's crew, then it is likely that the original engraving tool would have been used with the fewest number of strokes required to accomplish the task. Thus, the tool most probably used would have been a metal implement such as heavy-duty sailor's knife with a wedge-shaped cutting edge roughly 1 mm. thick.

These experiments, of course, prove nothing and merely demonstrate that a flat sandstone slab from Santa Rosa Island can quite readily be incised with a tool like a heavy knife to produce lines which are identical to those on the stone which may have been Cabrillo's grave marker.

Berkeley

October 1, 1972

PRELIMINARY REPORT ON LICHENS ON THE JR-INSCRIBED STONE

Doris E. Baltzo*

An examination of a stone believed to be the gravemarker of Cabrillo, who died and was buried on one of the Santa Barbara Islands in January, 1543, reveals the presence of at least five lichens. Unfortunately Philip Mills Jones, who found the stone on Santa Rosa Island in 1901, cleaned the surface of the stone with soap and water. Before doing this Jones photographed the stone (Plate 2a). When it was cleaned he again photographed it (Plate 2b). He did not remove all of the lichens, however, and an attempt has been made to identify those fragments of lichens which remain, and to obtain some idea of the time it took for them to develop. This is a preliminary report on those lichens.

A drop of lactic acid upon the stone produced no bubbling or effervescence. From this it is assumed the stone is not an alkaline rock. Minute crystals of hornblende and quartz were observed under the dissecting microscope, suggesting a granitic origin. An abrupt line, below which no lichens grew, was observed running around the narrow sides of the stone, perpendicular to the broad, flat, inscribed face. It is assumed the stone was found lying flat upon the broad face, rather than upright as might have been expected of a usual gravestone orientation.

The photograph taken before the stone was scrubbed (Plate 2a), shows the presence of at least ten different lichens. The largest of these, visible on the lower left edge, is circular in shape and is approximately 0.65 inches in diameter. The inscriptions on the stone have two, perhaps three, different dark colored lichens growing in them, making it easier to see the inscriptions. Those lichens growing within the inscriptions have for the most part remained only in those channels.

Although the stone had been thoroughly scrubbed with soap and water, there were a few fragments of lichen apothecia found in two places within the engraved lines, specifically in the JR initials and the human "stick figure" element. The cross element was quite thoroughly cleaned by Jones but there are traces of what appear to be lichens in these lines. This lichen is a *Catillaria* species. The thallus has probably changed color with time and *B.A. (Botany), 1963, U.C. Berkeley; M.A. (Biology), 1970, San Francisco State College; presently doing research on the lichen genus *Usnea* in the Herbarium, U.C. Berkeley.

scrubbing. Its present color is pale brown-beige on those portions still remaining. Most of the thallus is gone. The apothecia had a brown-black to black disc, flat, with a regular elevated margin; epithecium dark brown, hymenium hyaline to pale brown, hypothecium hyaline to pale brown; spores hyaline, one-septate, 10.0 to 15.2 μ long and 3.0 to 5.0 μ in width. This corresponds in most respects to the description of *Catillaria lenticularis* (Ach.)Th. Fr. in Fink (1935), which, however, grows on basic rocks. Hasse (1913) found *Catillaria lenticularis* forma *acrustacea* Hepp. on Santa Catalina Island on sandstone which had slightly larger spores.

Another of the five lichen species remaining on the stone was *Buellia ambigua* (Ach.)Malme. It is located on the extreme lower right hand corner of the stone in a horizontal line with the half inch line on the ruler in Plate 2b. It is very small (0.5 mm. diameter) with an ochraceous to pale beige-brown thallus, a dark and indistinct hypothallus; apothecia with black discs and margins the color of the thallus but turning black; epithecium dark brown, hymenium hyaline, hypothecium dark brown with a yellow tinge; spores indistinctly muriform, with the secondary spore divisions more difficult to see, 8 in the ascus, 15.0 to 17.5 μ long by 8.0 to 10.0 μ wide. In a specimen (UCB 53001) collected by Hasse near Santa Monica in 1897, under the old name of *Buellia alboatra ambigua* (Ach.)T. Fries, on black slate schist, a dark hypothallus could not be seen, but Hasse (1913) notes that it is sometimes absent. Imshaug (1951) does not mention a black hypothallus.

Among the lichens observed by me on the stone were several *Caloplaca* species. On one of these species apothecial fragments were present but none of the rest of the thallus remained. Another species had no apothecia, only small rounded gold yellow areoles underlain by a black hypothallus.

The most frequent and largest lichen on the stone was a *Caloplaca* species with a buff-beige to ochraceous, areolate, tartareous thallus; red-orange apothecia, K⁺ fuchsia purple to deep brown (slowly); orange epithecium, hyaline hymenium, apricot hypothecium, spores polar-bilocular, uni-to biseriolate, 8 in an ascus, 17.5 to 20.0 μ long by 5.0 to 6.3 μ in width. Three of them in a group at the lower right side of the stone opposite the one-inch line on Plate 2b were 0.4 by 0.6 cm., 0.7 by 0.8 cm., and 1.0 by 0.8 cm. respectively. Two others were 0.7 by 0.9 cm., and 2.0 by 2.5 cm., and were located on the side of the stone (not illustrated) nearest the upper inscription which looks like a cross.

A lichen found near the *Caloplaca* species on the side nearest the cross inscription had a black hypothallus, a white areolate thallus, and what looked like small black apothecia innate in the thallus. These had no spores. They had straight hyaline pycnidia 7.5 μ long and 0.5 μ wide. The lichen was 0.5 cm. in diameter.

Identification of lichen species from a photograph can only be tentative and inconclusive in the case of less well known crustose lichens. Determination of species also depends upon color, spore characteristics, apothecial structure and chemical testing. To

correlate those lichens found on similar stones in the area with those in the photo might help, but one could not be certain of such identifications.

Lichens are slow-growing organisms. Crustose lichens grow more slowly than foliose or fruticose lichens. Their rate of growth varies with the climate, microclimate, season, temperature, availability of moisture, disturbances by animals, erosion; the rate also differs from one species to another. Many published observations show this to be true (Hale, 1967). Lichens growing within the lines of the inscriptions probably grew there because of the more favorable microclimate afforded by this channel which conserved moisture and protected the lichen.

An estimate of the age of lichens on this stone cannot be reasonably made until well-planned and fundamental studies of lichen growth have been completed. Observations on growth rates for *Catillaria* in the Channel Islands would give some indication of the rate of growth of the *Catillaria* on the stone. A preliminary survey of the literature showed no evidence of measurements of *Catillaria* or *Buellia* species growth rates. Hale (1967) lists the average radial growth rates of some crustose species in which the range is 0.44 to 2.0-3.0 mm. per year. The rate of *Rhizocarpon geographicum* is listed as 1.0 mm. annually. The lichens in the inscriptions measure from 2.0 to 2.5 mm. across. Beschel (1961) points out that a measurement of an uneven lichen thallus should only be considered in its shorter diameter when making estimates of age. If the radial measurement of the *Catillaria* in the inscriptions is half of its width, 1.0-1.25 mm., and if the growth rate of *Rhizocarpon* is applied in this case, then the lichens growing within the inscriptions might be at least one year old. Fink (1917) made some preliminary observations on growth rate and regeneration of lichens and concluded that it took from two to eight years for a crustose lichen thallus with apothecia to become re-established on a cleared substrate, and that apothecial development seemed to require four to eight years. In the case of several crustose lichens, Fink also noted that in two years the regenerating thalli could only be seen with the aid of a hand lens.

Other factors also suggest the possibility that the *Catillaria* had been on the stone for at least one to two years. The more favorable microclimate in the incised lines may have made possible a faster than normal lichen growth on a flat surface. There is no way of knowing how much time passed after the gravestone was exposed before a visible lichen flora developed. Rydzak (1961) showed that young thalli with small surfaces grow more rapidly than older thalli with big surfaces, and that thalli with numerous apothecia or soralia have a considerably slower growth rate, and at times no increase at all. It is not known just how much of the thallus area of the lichens within the inscriptions were *Catillaria*, and how much were other lichens. Only a few fragments of the *Catillaria* were preserved. The photograph of the stone before it was cleared does not permit one to distinguish between *Catillaria* and other genera.

The related lichen *Rhizocarpon grande* has an annual radial growth rate of 0.33 mm.

(Hale, 1959). If this figure were applied to the *Buellia ambigua* on the stone, it would be less than one year old.

Fink (1917) reported *Caloplaca (Placodium) microphyllina* had developed apothecia in eight years, *Caloplaca (Placodium) sideritis* on limestone developed apothecia in eight years and was 1.5 cm. in diameter. An estimate based on the above figures would make the *Caloplaca* on the stone at least eight years old to have developed apothecia, or at least ten years old when the thallus measurement is taken into account.

It is extremely doubtful that these lichens have been growing on the rock since 1543 when Cabrillo died 429 years ago. At an estimated average radial growth rate of 1.0 mm. per year there could be lichens present measuring 43 cm. in diameter. Beschel (1961) has proposed that large thalli of *Rhizocarpon* and *Lecidea* in the Alps may be 600 to 1300 years old. Rydzak (1961) found that a temperate climate with damp cool summers produces the best conditions for lichen growth. The growing seasons on the islands are essentially without extremes, making for a more even growth rate. They do not have the extreme cold of the Arctic nor the dryness of the desert, which might also stop lichen growth rate or slow it down appreciably. Hale (1967) points out that well-planned investigations of growth and life span of lichens have been started only in the last fifteen years, and that life spans seem to average at least 30 to 50 years.

SUMMARY:

A preliminary attempt to identify lichens growing on a stone found on Santa Rosa Island, off the coast of southern California, resulted in the identification of a *Catillaria* species, *Buellia ambigua* (Ach.)Malme, three *Caloplaca* species, and one other sterile species. A comparison of published growth rates of some crustose species with measurements of the lichens on the stone made possible an estimate that the *Catillaria* could be from one to eight years old, the *Buellia ambigua* might be less than one year old, and the largest, most abundant *Caloplaca* might be from four to ten years old.

Berkeley
October 9, 1972

REFERENCES

- Beschel, R. 1961. Dating rock surfaces by lichen growth and its application to glaciology and physiography (lichenometry). PP. 1044-1062 in G. O. Raasch (ed.), "Geology of the Arctic," Vol. 2, Univ. of Toronto Press, Toronto.
- Fink, Bruce. 1917. The rate of growth and ecesis in lichens. *Mycologia* 9(3):138-158.
- Fink, Bruce. 1935. The lichen flora of the United States. University of Michigan Press, Ann Arbor.
- Hale, M. E., Jr. 1959. Studies on lichen growth rate and succession. *Bulletin of the Torrey Botanical Club*, 86(2):126-129.
- Hale, M. E., Jr. 1967. The biology of lichens. Edward Arnold Ltd., London.
- Hasse, H. E. 1913. The lichen flora of southern California. *Contributions U.S. National Herbarium* 17:1-132.
- Imshaug, H. A. 1951. The lichen-forming species of the genus *Buellia* occurring in the United States and Canada. Ph.D. Dissertation. University of Michigan. University Microfilms Publication No. 2607. Ann Arbor, Michigan.
- Rydzak, Jan. 1961. Investigations on the growth rate of lichens. *Ann. Univ. Mariae Curie-Sklodowska, Sect. C*, 16(1):1-15. Polonia.

COMMENT (by Robert F. Heizer)

Mrs. Baltzo's study of the lichens on the JR stone is not as complete as she would have liked it to be, but she has been agreeable to our publishing her preliminary findings. It is hoped that Mrs. Baltzo will continue her study of the lichens on the stone and that this will lead to a definitive analysis. I believe her findings are important, although they do not throw any light on the age of the inscriptions and we are, therefore, just as far as ever from having any proof that the artifact was Cabrillo's gravestone. The lichens growing in the lines of the JR initials and in the lines of the "stick figure" seem definitely to eliminate Philip Mills Jones as the person who inscribed the cross, initials and stick figure. If the stone is a fake, Jones did not author it. There is nothing to indicate that Jones had ever visited Santa Rosa Island prior to his archaeological expedition there from February 18 to June 7, 1901, during which period he spent the month of May on the mainland. If, as Mrs. Baltzo appears to think at this time, the lichens have not been growing on the stone since 1543, it occurs to me (assuming it to date from Cabrillo's time) that the stone may have gotten covered with soil after his burial and was brought to the surface more recently, either through surface deflation, or as the incidental result of the excavating activities of early collectors such as the Reverend Stephen Bowers who in his article entitled "Santa Rosa Island" (Annual Report of the Smithsonian Institution for 1877, pp. 316-320, 1878) reports that he exhumed "some 5,000 skeletons, during eight or nine months explorations in this portion of California," or Paul Schumacher who was a very industrious collector of prehistoric materials in the Santa Barbara channel islands and mainland coast between 1873 and 1878. (For references to Schumacher's writings see Reports of the University of California Archaeological Survey, No. 61, pp. 48-50, 1964.)

REFERENCES

- Bancroft, H.H.
1886 History of California. Vol. I, 1542-1800. San Francisco.
- Bowers, S.
1878 Santa Rosa Island. Annual Report of the Smithsonian Institution for 1877:316-318.
- Brown, A. K.
1967 The Aboriginal Population of the Santa Barbara Channel. University of California Archaeological Survey, Report No. 69. Berkeley.
- Bugay, J.
1963 Cruising the Santa Barbara Channel Islands. Yachting 13:40-41, 102-105.
- Davidson, G.A.
1887 Voyages of Discovery and Exploration on the Northwest Coast of America from 1539 to 1603. U.S. Coast and Geodetic Survey, Appendix No. 7 to Report for 1886, pp. 155-253.
- Gardiner, C. H.
1956 Naval Power in the Conquest of Mexico. University of Texas Press.
- Haldeman, S. S.
1878 On a Polychrome Bead from Florida. Annual Report of the Smithsonian Institution for 1877:302-305.
- Heizer, R. F.
1941 Archaeological Evidence of Sebastian Rodriguez Cermeno's California Visit in 1595. California Historical Society Quarterly 20:315-328.
- Henshaw, H. W.
1879 Translation from the Spanish of the Account by the Pilot Ferrel of the Voyage of Cabrillo Along the West Coast of North America in 1542. In Report Upon United States Geographical Surveys West of The Hundredth Meridian, Vol. 7 (Archaeology), Appendix to Part I, Vol. 7, pp. 293-314.

1955 The Mission Indian Vocabularies of H. W. Henshaw. Edited by R. F. Heizer. University of California Anthropological Records Vol. 15, No. 2.
- Heye, G. G.
1921 Certain Artifacts From San Miguel Island, California. Museum of the American Indian, Heye Foundation, Indian Notes and Monographs, Vol. 7, No. 4.

- Holder, C. F.
1910 *The Channel Islands of California*. A. C. McClurg, Chicago.
- Jones, P.M.
1956 *Archaeological Investigations on Santa Rosa Island in 1901*. Ed. by R. F. Heizer and A. B. Elsasser. *University of California Anthropological Records* Vol. 17, No. 2.
- Kroeber, A. L.
1923 *Historical Introduction to Phoebe Apperson Hearst Memorial Volume*. *University of California Publications in American Archaeology and Ethnology* 20:iv-xiv.
- Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology, Bulletin 78.
- Merriam, C. H.
1962 *Studies of California Indians*. University of California Press.
1970 *Indian Rancheria Names in Four Mission Records*. Archaeological Research Facility, Contribution No. 9:29-58. Berkeley.
- Oak, H. L.
1874 *Some Rare Books About California*. *Overland Monthly* 12:570.
- Orr, P. C.
1968 *Pre-history of Santa Rosa Island*. Santa Barbara Museum of Natural History.
- Pourade, R.
1960 *The History of San Diego*. Vol. 1, *The Explorers*. Union Tribune Publishing Co., San Diego.
- Roe, J.
1962 *California's Cruising Challenge*. *Sea and Pacific Motor Boat*, January 52-53, 186.
- Rogers, D. B.
1929 *Prehistoric Man on the Santa Barbara Coast*. Santa Barbara Museum of Natural History.
- Saint-Lu, A.
1968 *La Vera Paz, Esprit Évangélique et Colonization*. *Thèses, Mémoires et Travaux, Centre de Recherches Hispaniques*, Vol. 10. Paris.
- Schumacher, P.
1877 *Researches in the Kjoekenmoddings and Graves of a Former Population of the Santa Barbara Islands and Adjacent Mainland*. U.S. Geological and Geographic Survey of Territories 3:37-56.
- Smith, Buckingham.
1857 *Collecion de varios documentos para la historia de la Florida y tierras adyacentes*. Vol. 1, London.
- Wagner, H. L.
1928 *Spanish Voyages to the Northwest Coast in the Sixteenth Century: The Voyage of Juan Rodriguez Cabrillo*. *California Historical Society Quarterly* 7:20-77.

Wagner, H. R.

- 1929 Spanish Voyages to the Northwest Coast of America in the Sixteenth Century. California Historical Society, Special Publication No. 4.

Waters, D. W.

- 1968 The Art of Navigation in England in Elizabethan and Early Stuart Times. Hollis and Carter, London.

Wheeler, G. M.

- 1879 Report Upon United States Geographical Surveys West of the One Hundredth Meridian. Vol. 7 (Archaeology). Washington.

Woodward, A.

- 1947 Report on the Historical Specimens. In E. F. Walker, Excavation of a Yokuts Indian Cemetery (pp. 49-54). Kern County Historical Society, Bakersfield.

Yarrow, H. C.

- 1876 Report on the Operations of a Special Party for Making Ethnological Researches in the Vicinity of Santa Barbara, Cal., with an Historical Account of the Region Explored. Report of Surveys West of the One Hundredth Meridian, Appendix H-13, pp. 312-321.

- 1879 Report on the Operations of a Special Party for Making Ethnological Researches in the Vicinity of Santa Barbara, Cal., with a Short Historical Account of the Region Explored. In Report Upon United States Geographical Surveys West of the One Hundredth Meridian, Vol. 7 (Archaeology), pp. 32-46. Washington.

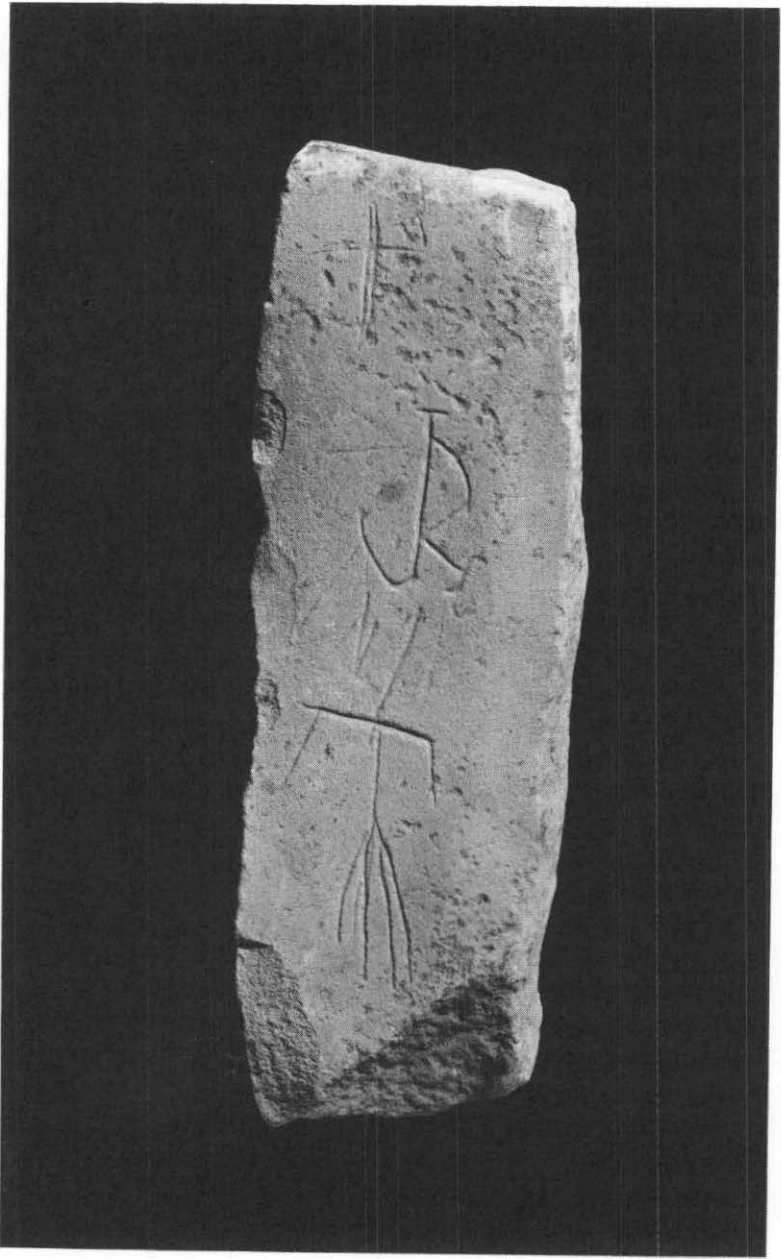


Plate 1. The Santa Rosa Island stone, possibly Cabrillo's gravestone. Photograph taken July, 1972. Compare with Pl. 2b.

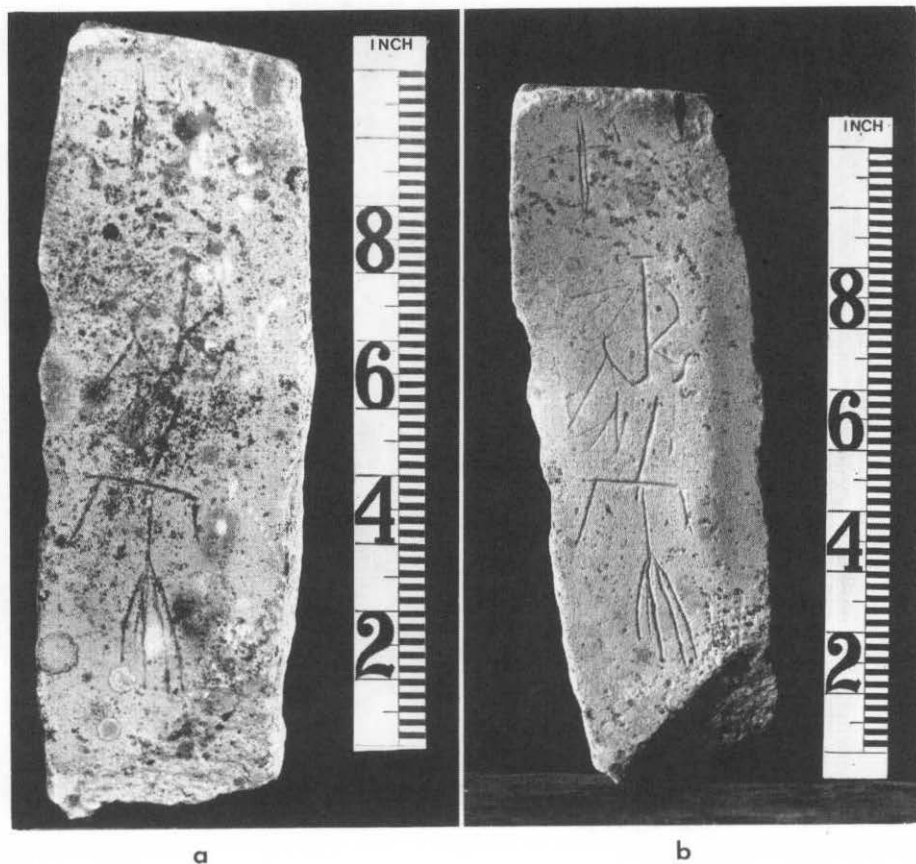


Plate 2. *a*, photograph (not previously published) of the stone before cleaning, taken by P.M. Jones in 1901. Lowie Museum negative No. 321;
b, photograph (previously published in Jones 1956, Pl. 120e) of stone after cleaning, taken by P. M. Jones in 1901. Lowie Museum negative No. 320.



Plate 3. Three photographs of the stone after cleaning taken in 1901 by Philip Mills Jones and published in Jones 1956:Pl. 120e-f.

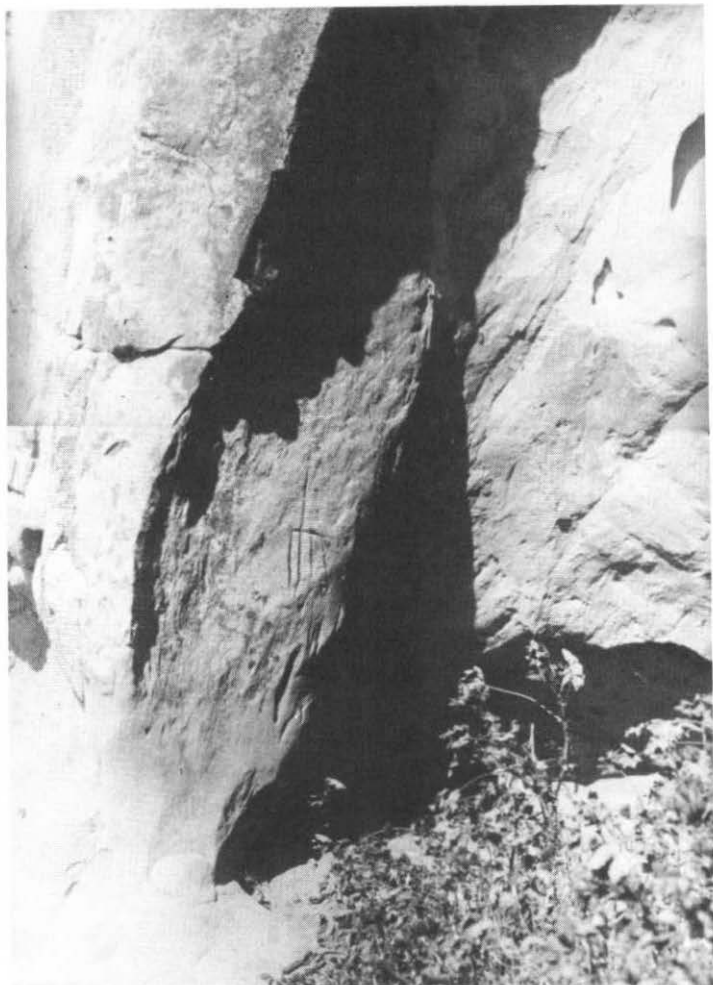


Plate 4. Small occupation cave across ravine from Jones' camp 6 showing petroglyph which Jones says looks "somewhat like markings shown on stone, Plate 120f." Photo by P. M. Jones, 1902.

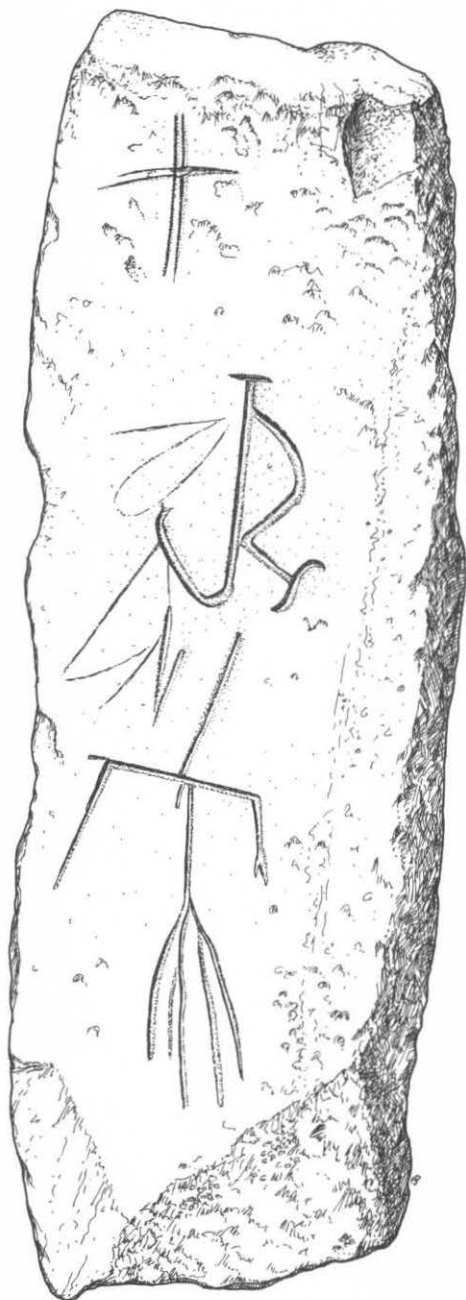


Figure 1. Sketch of the JR stone (by Judith Ogden).

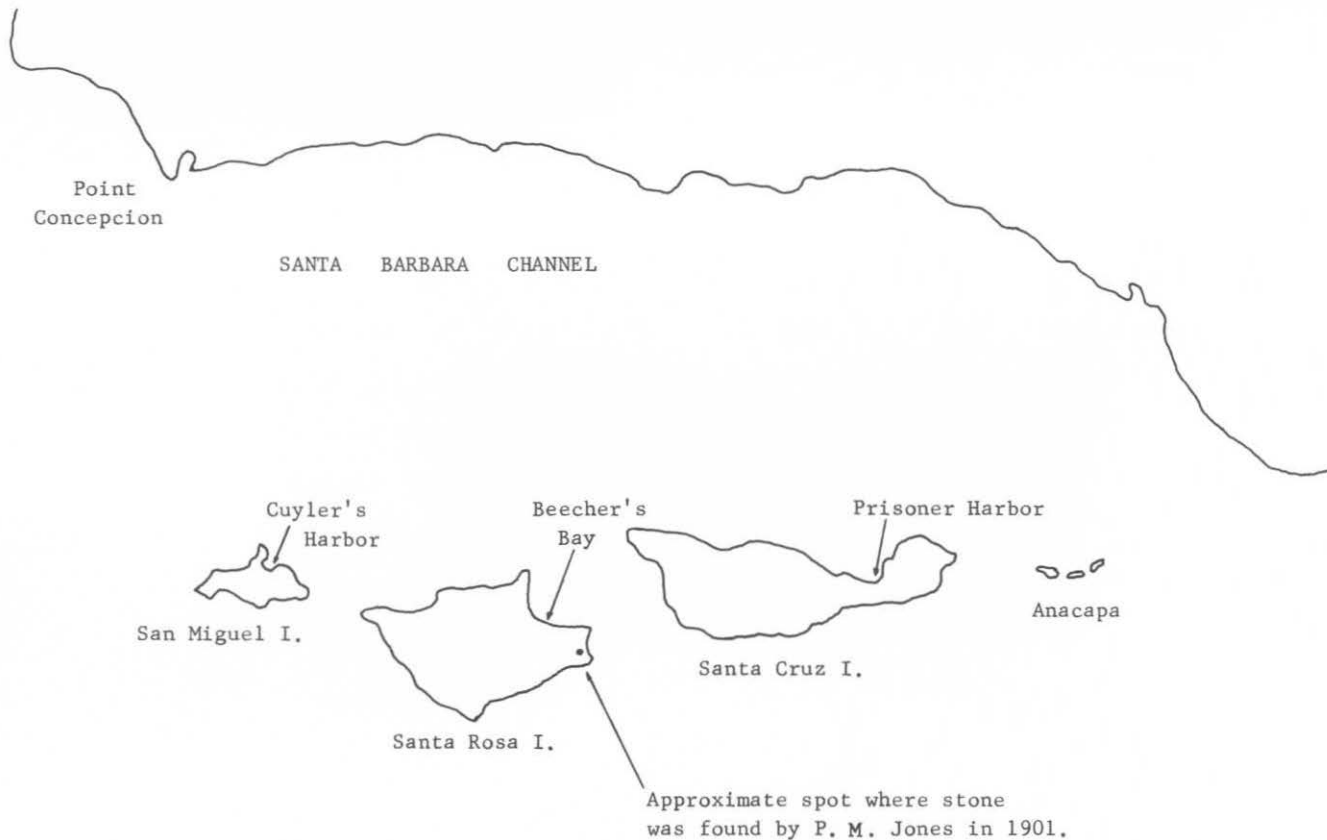


Figure 2. The Santa Barbara Channel Islands.

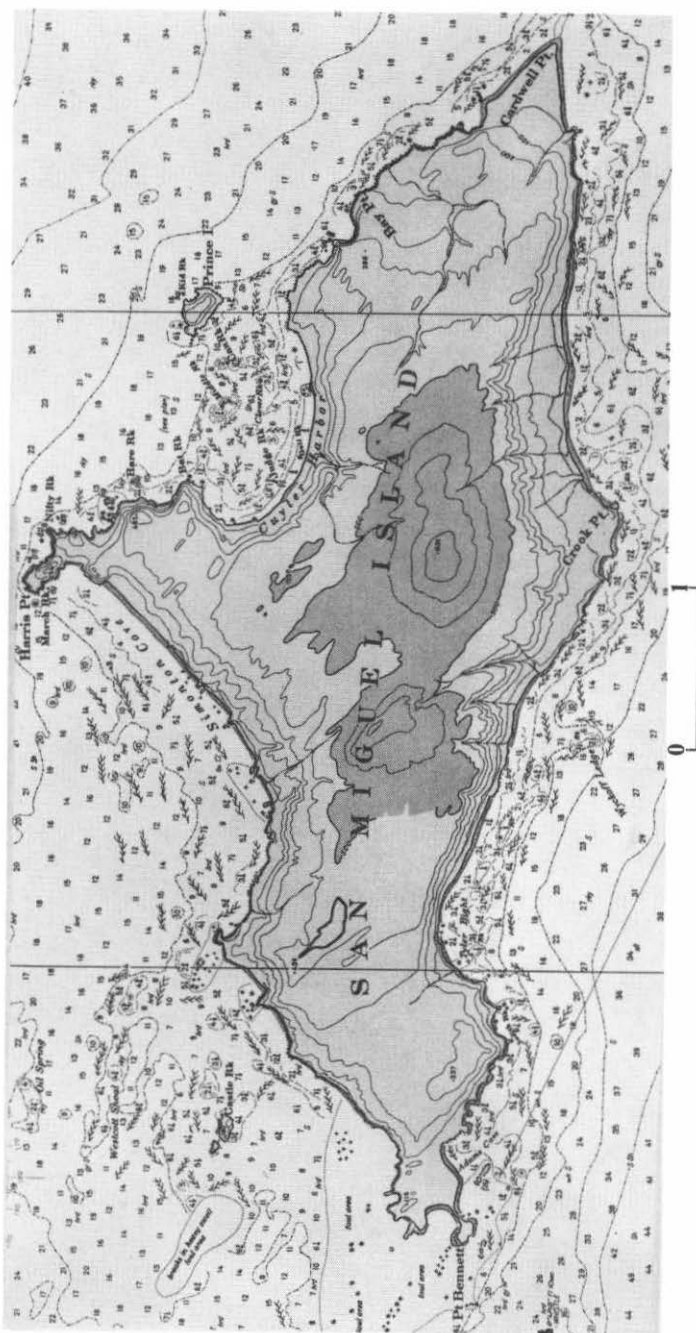


Figure 3. San Miguel Island. Scale in nautical miles. From Coast and Geodetic Survey Chart 5116.

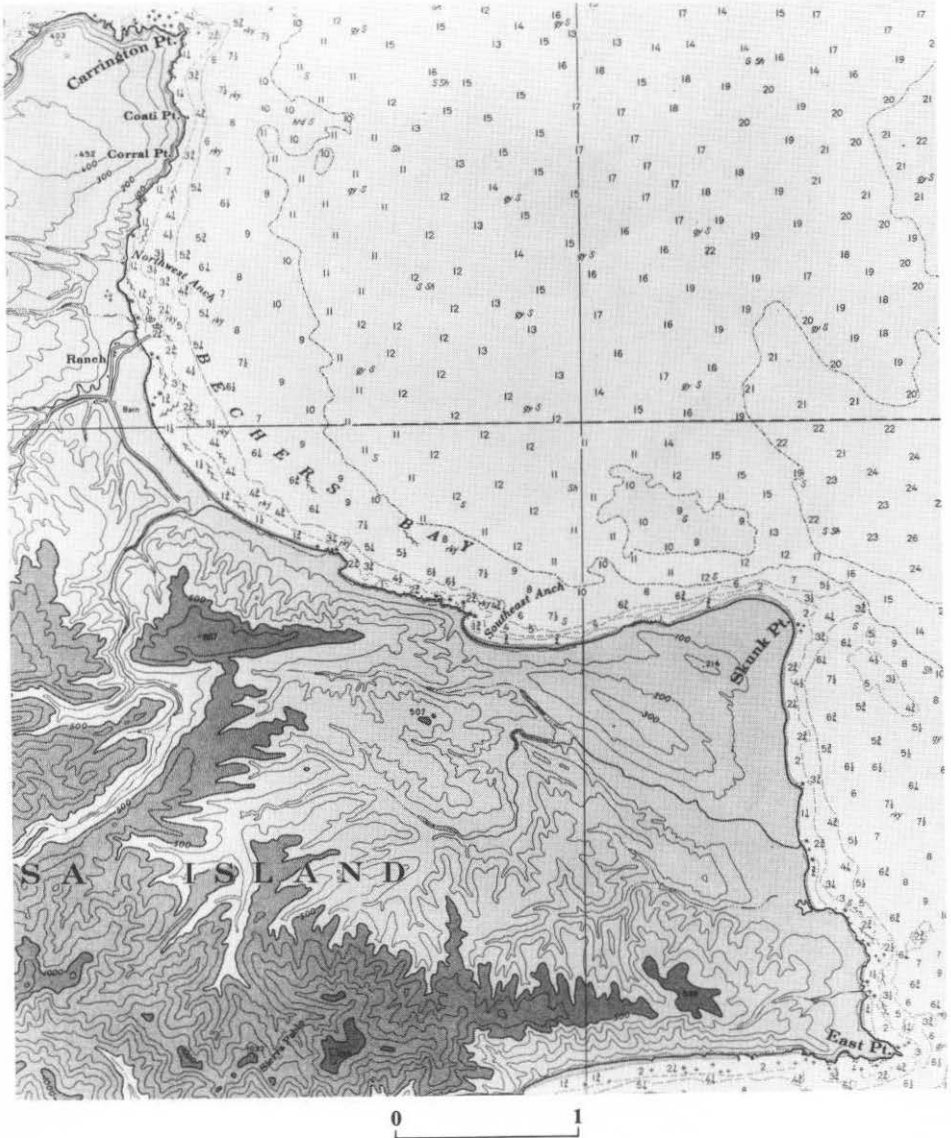


Figure 4. East half of Santa Rosa Island. Scale in nautical miles. From Coast and Geodetic Survey Chart 5115.

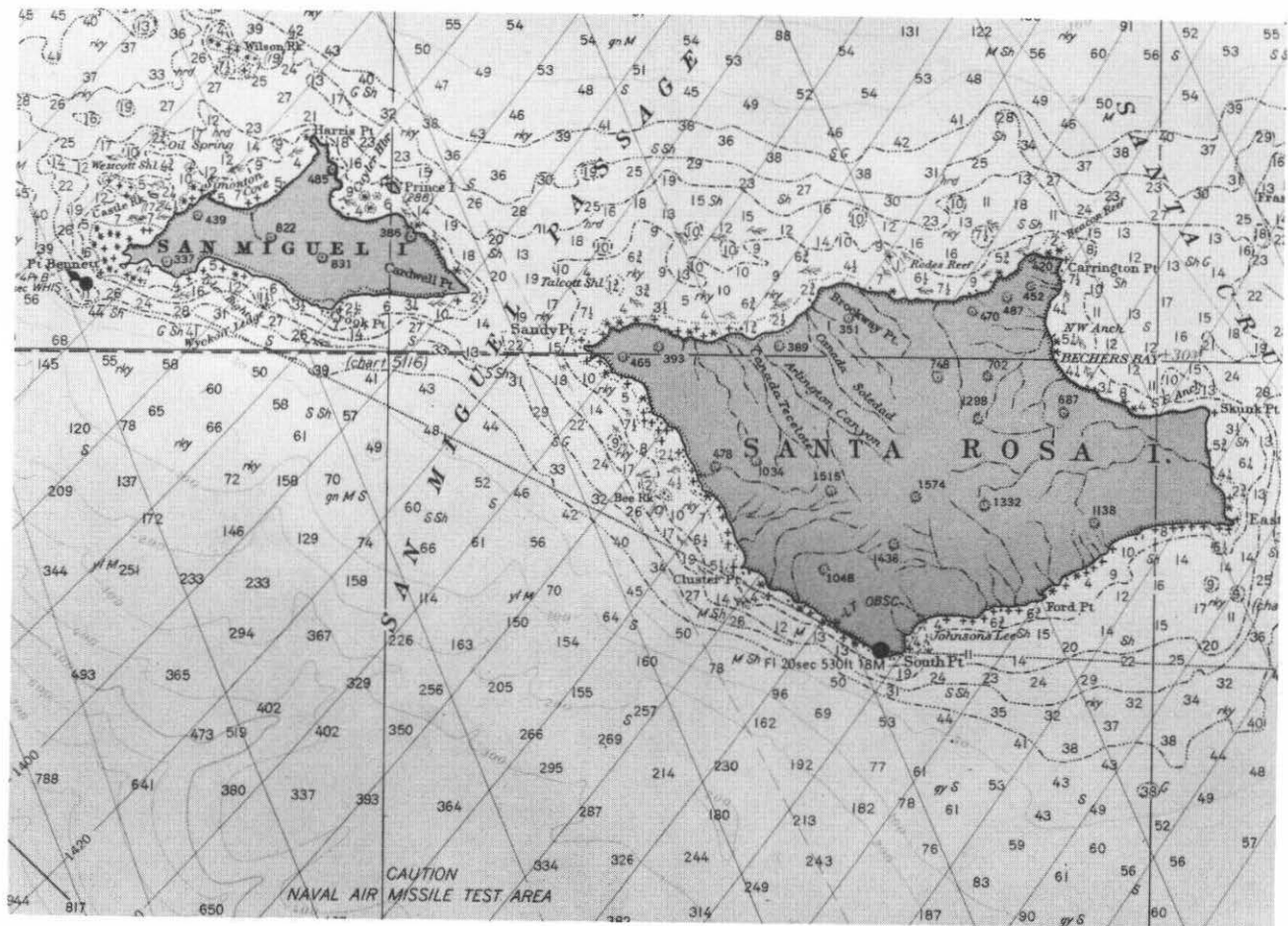


Figure 5. Santa Rosa and San Miguel Islands. From Coast and Geodetic Survey Chart 5202.

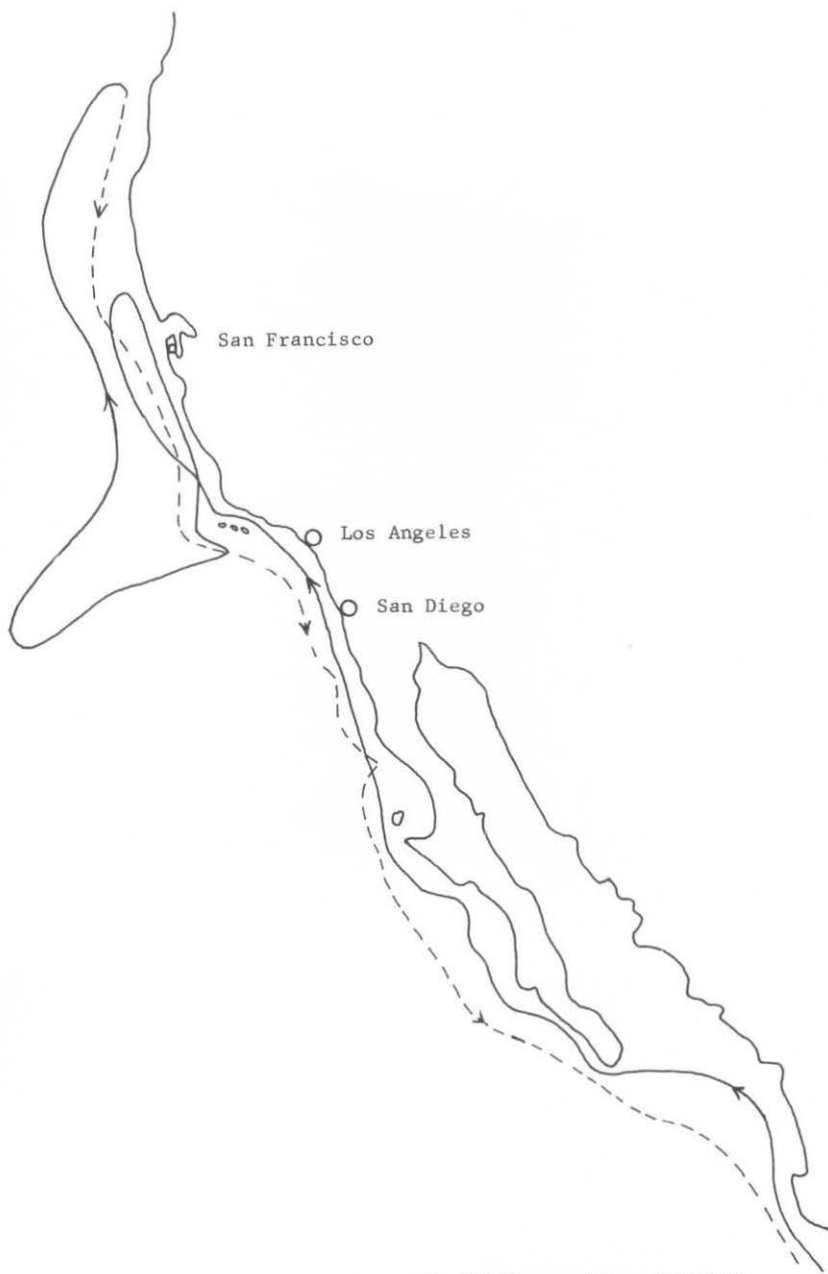


Figure 6. Approximate route of the Cabrillo expedition of 1542-43.

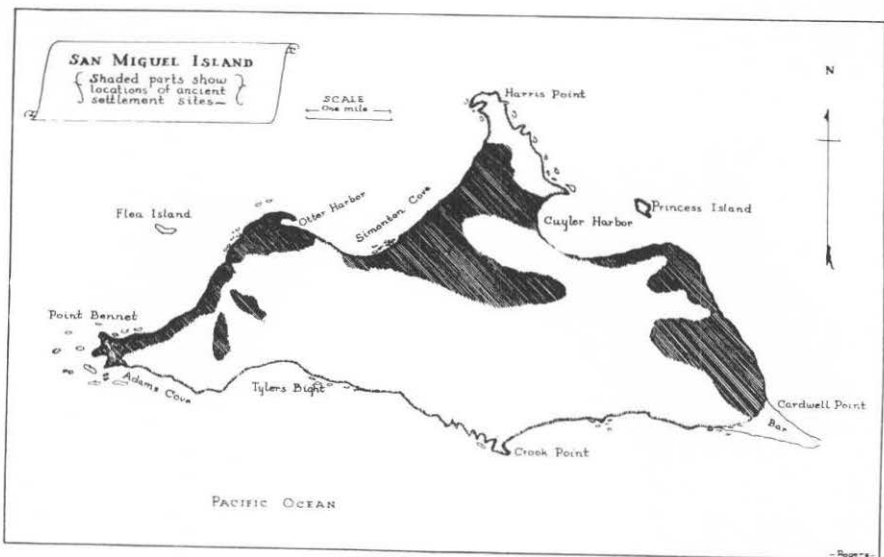


Figure 7. San Miguel Island archaeological sites (after Rogers 1929: Map 32).

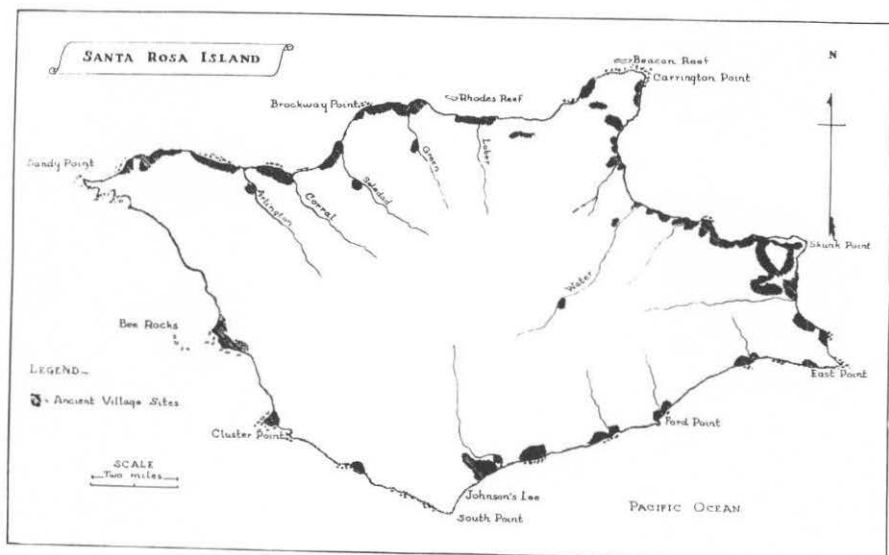


Figure 8. Santa Rosa Island archaeological sites (after Rogers 1929: Map 33).

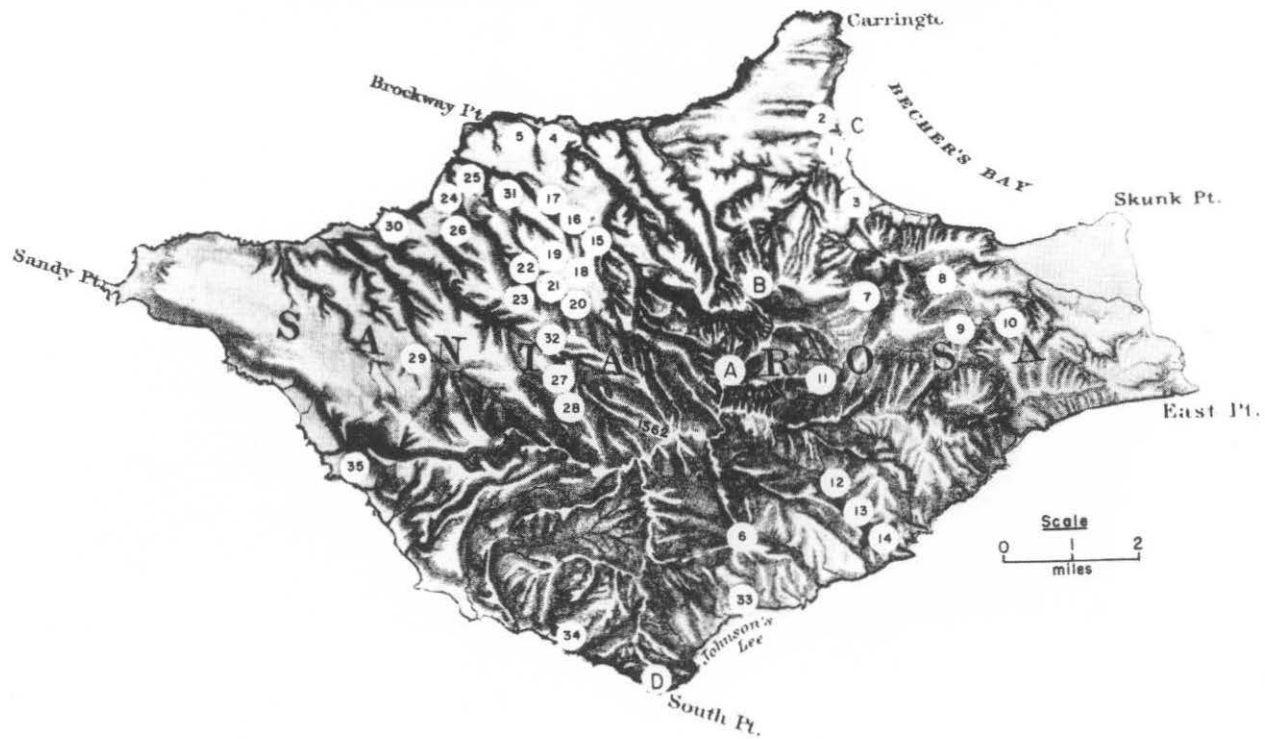


Figure 9. Santa Rosa Island showing archaeological sites (after Jones 1956:Pl. 86).

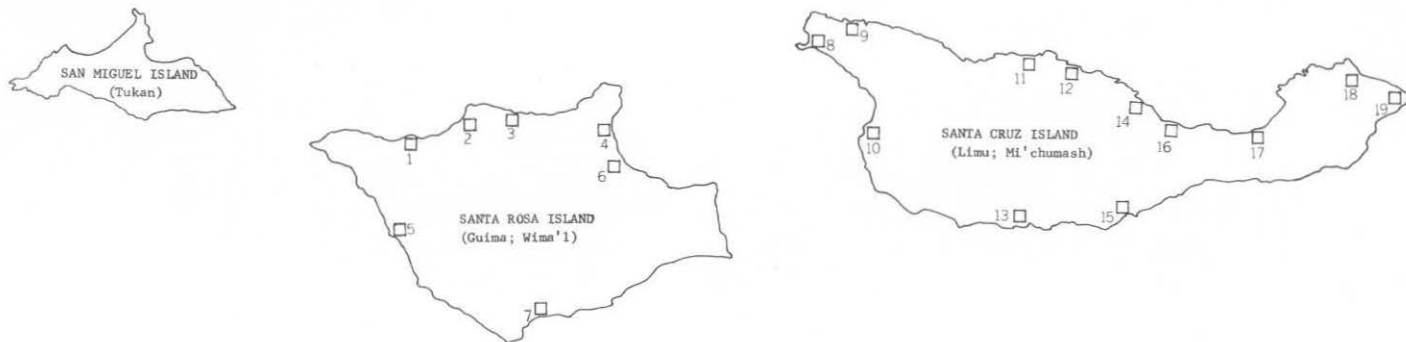


Figure 10. NATIVE VILLAGES OF THE CHANNEL ISLANDS (after Kroeber 1925:Pl.48).

- | | | | | |
|--------------|---------------|-------------|----------------|------------|
| 1. Nümkülkül | 5. Nawani | 9. Laka'amu | 13. Liam | 17. Hahas |
| 2. Niakla | 6. Kshiuksiu | 10. Shawa | 14. Maschch'al | 18. U'upsh |
| 3. Siliwihi | 7. Nila'lhuyu | 11. L'alalu | 15. Nanawani | 19. Swahul |
| 4. Kichuwun | 8. Choloshush | 12. Ch'ushu | 16. Nimalala | |

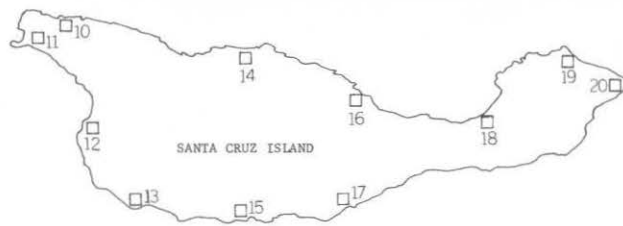


Figure 11. NATIVE VILLAGES OF THE CHANNEL ISLANDS (After Brown 1967: Map 1)

- | | | | |
|---------------------------|--------------------------|---------------|------------------------------|
| 1. Toán, Tucam | 6. Ixtémén | 11. Cholossus | 16. Mascchaala |
| 2. Niouiomi | 7. Etziuziu, Cchiucchuic | 12. Chuchahua | 17. Nanaguam |
| 3. Ninquèlquèl, Migèlquèl | 8. Nilalúy | 13. Geluascy | 18. Cajatssa |
| 4. Nia-cila | 9. Nahuani | 14. Lalale | 19. Luupsh |
| 5. Silímí | 10. Lacáyamu | 15. Liam | 20. Ishguagel,
Sashguahol |