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Author

Jackson, Robert H

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REPORTS

The 1781-1782 Smallpox Epidemic in Baja California

ROBERT H. JACKSON

In the years 1781 and 1782, the Indian population of Baja California experienced a virulent smallpox epidemic that originated in central Mexico and then spread to the northern frontier provinces. The disease entered the peninsula by way of a group of infected families from Sonora, members of the Rivera y Moncada expedition enroute to Alta California (Sales 1956:60). Dominican missionary Luis Sales, O.P., stationed at San Vicente during the epidemic and a veteran of nine years service in Baja California, wrote:

... there entered the port of Loreto a bark which brought families from Sonora, infected with the smallpox. Through the Commandant's lack of precaution they went into the town and immediately it [the smallpox] spread like lightning through all the missions ... [Sales 1956:60].

By the end of the year the smallpox had spread to most of the peninsula missions. Quarantine measures were largely ineffective or non-existent, and any infected soldier, civilian Spaniard, or Indian traveling through the missions transmitted the contagion.

Indians frightened by the outbreak of the smallpox and the colonists passing through Baja California to Alta California probably carried the disease. The epidemic began in the spring of 1781 and lasted through half of 1782. In November of 1782, Pedro Gandiaga, O.P., stationed at San Fernando, noted that "En la epidemia de viruelas q[u]e hubo el año de 81, y duró hasta la mitad del presente. . ." (San Fernando Burial Register).

At three missions, San Ignacio de Kada-kaaman, San Francisco de Borja, and San Fernando de Velicatá, the missionaries attempted to improve the Indian survival rate by practicing inoculation by variolation; the transfer of pus from a "ripe" smallpox pustule with a lancet or other sharp tool to cuts between the fingers of a healthy person, infecting the variolated individuals with what would hopefully be a milder infection (Soler 1798). Doctors in New Spain first used the procedure in October of 1779 during the Mexico City episode (Cooper 1965:66). Sales wrote:

A missionary father [Juan Crisóstomo Gomez] tried inoculating them for the smallpox, since he was going to be left without Indians, and he had such good success that hardly more than three or four died. This was at the mission of San Ignacio and I was present [Sales 1956:61].

By practicing inoculation, the missionaries greatly reduced the mortality at the three missions. Gomez at San Ignacio, for example, buried only 81 people at his mission in 1781 and 1782 (San Ignacio Baptismal Register); Sales, who arrived at San Vicente in

Robert H. Jackson, Dept. of History, Univ. of Arizona, Tucson, AZ 85721.

the fall of 1781, and Andrés de Souto, O.P., recorded the burials of 89 Indians at San Francisco de Borja in the two years (San Francisco de Borja Burial Register); and deaths at San Fernando reached 94 in 1781 and 1782 (San Fernando Burial Register). In comparison, 296 died at Santa Gertrudis de Cadacaman¹ in the same two years from the smallpox, one of the missions where the missionaries did not use inoculation (Santa Gertrudis Burial Register).

The outbreak of the smallpox, or for that matter any other epidemic, had a devastating psychological as well as physical impact on the Indians. Sales wrote:

I can say from what I myself have experienced that many dead were to be seen in the fields. If one went into the caves he saw the dying . . . At that time I myself went out into the neighboring fields, the barrancas and caves to care for those who belonged to this mission of San Vicente . . . At a place called San Jacinto I found six dead adults in a cave and by their sides five boys and three girls dying, of hunger rather than of the smallpox. . . I believe that more Indians died of starvation than of sickness. . . The heathen Indians crowded in the caves, when they noticed any infected with the disease, fled to another cave and abandoned those unfortunates, and the former, who were sometimes already infected, spread it to others. . . Some threw themselves into the sea, others scorched themselves with firebrands, and the poor little children, abandoned beside the dead, died without help. . . [Sales 1956:168-1690].

When the Indians living in the missions discovered the first signs of smallpox they sought safety in the caves, *barrancas*, and mountains, where they spread the disease to the non-Christian Indians. Scores of people lay dying of either the pox, or starving because they were too weak to collect food. Others were left to die by their companions who had no idea of what to do for them. Some sought relief from the pain of the poxes

by burning the skin with firebrands, or attempting to lower the fever associated with the smallpox by jumping into mudpools or the sea. Having seen friends and family members killed in a short period of time from a disease they did not understand, the survivors probably remained mentally scarred for life—a form of “shell-shock”.

Sales's statement that numbers of Indians died in the mountains during the epidemic finds substantiation in the San Fernando, Rosario, and San Vicente burial registers. On November 15, 1782, Gandiaga noted that “En la epidemia de Viruelas . . . tuvo noticia de haver muerto entre los Gentiles de esta enfermedad. . .” (San Fernando Burial Register). Sales noted the deaths of six adults, two boys, and a girl on May 8, 1782 (San Vicente Burial Register). These were probably the unfortunates he had found at San Jacinto.

The epidemic claimed the lives of large numbers of people in the older ex-Jesuit missions, and followed a pattern of spreading along the main north-south mission trails. The data for Santa Rosalía de Mulegé (established in 1705), located off of the major trails and as a result spared the ravages of the contagion for some six months, is especially complete. Missionary Joseph Naranjo, O.P., identified each victim of the smallpox. Naranjo recorded the first death, that of a woman named Francisca Sistiaga, on the last day of January of 1782, and the last on May 6th of the same year. A total of 53 individuals identified with a “V” in the register for *viruelas* (smallpox) died between January and May. Another five, identified with a “D” for *dolor de costado* (side pain), may have been smallpox victims, and are included in the death count. From two recorded deaths in January, the mortality grew to 17 in February, 38 in March, and finally subsided with one death in May. Adults accounted for 38 of the victims, and 20 were children (Mulegé Burial Register).

Domingo Gimes, O.P., recorded the

smallpox-related deaths at San José de Comondú (established in 1708) in a unique fashion, a single long entry for all of the burials from the time that the contagion broke out at the end of May of 1781 to the middle of August the same year. All told, 51 adults and 8 children entered the death count (Comondú Burial Register).

The next mission north of Comondú on the mission trail, Purísima Concepción (established in 1719), lost 69 people between May and August of 1781 (Purísima Concepción Burial Register). The contagion did not break out at Santa Gertrudis until October of 1781, and had not run its course until the following April. According to a notation in the burial register, 296 people died from the smallpox at that mission (Santa Gertrudis Burial Register).

At the time of the epidemic the northernmost missions occupied the area north of the Central Desert known as *La Frontera*, roughly the northern half of the state of Baja California facing on the Pacific Ocean (see Fig. 1). The Franciscans began the conversion of the region with the establishment of San Fernando in 1769, and the Dominicans continued the process after receiving the peninsula in 1773 with the foundation of Nuestra Señora del Santísimo Rosario in 1774, Santo Domingo in 1775, and San Vicente Ferrer in 1780. The contagion reached El Rosario in August of 1781 and lasted through January or February of the following year. Including 35 people who died in the mountains, missionary Manuel Pérez recorded a total of 89 burials during the duration of the epidemic (Rosario Burial Register). José Alvar, O.P., at Santo Domingo recorded 40 deaths between August and December of 1781 (Santo Domingo Burial Register). Sales buried 36 Indians from February to May of 1782 (San Vicente Burial Register).

The impact of the smallpox, especially for those missions with no extant burial registers, can be thought of in other terms, namely the

degree of rapid population decline between 1780 and the end of 1782. On the other hand, it is difficult to assess the decline in the population for lack of census data for the years immediately preceding the epidemic. Between 1776 and the end of 1782, the missionaries took no head counts, and the first reliable population figures for two of the *La Frontera* missions comes from the 1782 census after the epidemic had run its course. Between 1774 and 1782, the population of the missions declined by 28 percent, while the Dominicans established three new missions on the northern frontier. A series of devastating epidemics swept through the missions during this period, including the 1781-1782 outbreak, and in the more recently established communities the missionaries recorded large numbers of deaths almost every year. The mortality at San Fernando, for example, reached 1004 between 1774 and 1782 (San Fernando Burial Register). One can make an educated guess of the population of the missions at the end of 1780, based upon the accumulated differences between baptisms and burials from 1775 to 1780, and taking into account the number of baptized Indians the missionaries failed to include in the death count, the number of unbaptized Indians living in the missions, and the number of fugitives. The population of the four *La Frontera* establishments was in the neighborhood of 1250 in 1780, and 1055 in 1782, a decline of 17 percent over two years.

Whereas the number of "Christian" Indians who died during the epidemic can be estimated from the extant burial registers and the census prepared after the contagion had run its course, the impact of the smallpox on the "Gentile" (non-Mission) population will never be fully known. The infected Indians who fled into the mountains spread the smallpox to the gentiles, and by the end of 1782 the disease may have advanced throughout most of *La Frontera* and possibly into

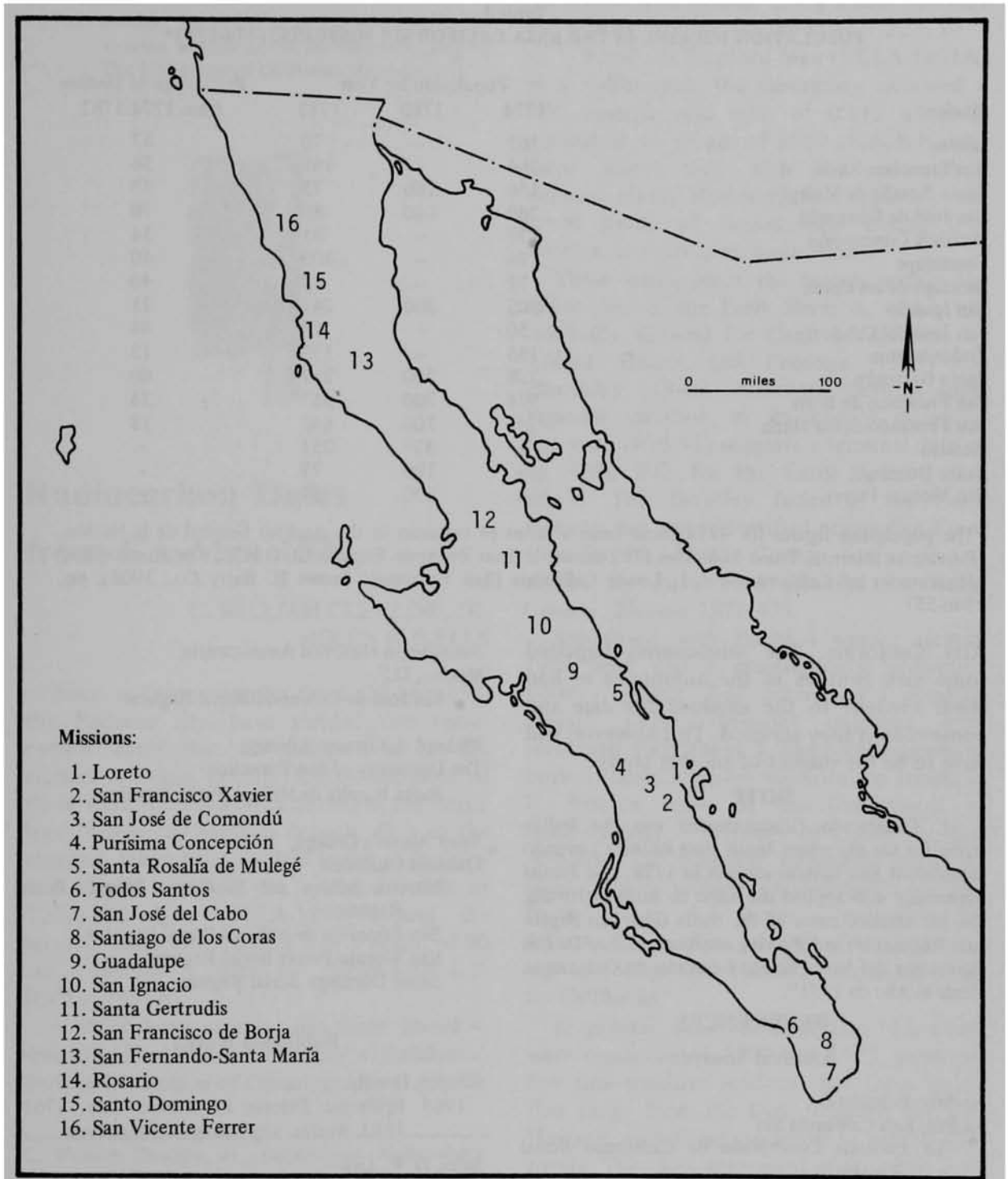


Fig. 1. Baja California Missions in 1780.

Table 1
POPULATION DECLINE IN THE BAJA CALIFORNIA MISSIONS, 1774-1782*

Mission	Population by Year			Percentage of Decline from 1774-1782
	1774	1780	1782	
Loreto	162	--	70	57
San Francisco Xavier	264	--	169	36
Santa Rosalía de Mulegé	158	160	75	53
San José de Comondú	269	140	80	70
Purísima Concepción	175	--	81	54
Guadalupe	176	--	105	40
Santiago de los Coras	72	--	43	40
San Ignacio	305	300	241	21
San José del Cabo	50	--	28	44
Todos Santos	155	--	135	13
Santa Gertrudis	798	700	317	60
San Francisco de Borja	978	700	657	33
San Fernando-Santa María	741	700	642	13
Rosario	--	325	251	--
Santo Domingo	--	100	79	--
San Vicente Ferrer	--	120	83	--

*The population figures for 1774 come from a series of censuses in the Archivo General de la Nación, Provincias Internas, Tomo 166. The 1782 census is from Zephyrin Englehardt, O.F.M., *The Missions and Missionaries of California*, Vol. 1, Lower California (San Francisco: James H. Barry Co., 1908), pp. 546-557.

Alta California. The missionaries baptized some sick gentiles in the mountains or had them brought to the missions for care and conversion if they survived. This however, will have to be the subject of another study.

NOTE

1. Cadacaman (Kadakaaman) was the Indian name for the site where Jesuit Juan Bautista Luyando established San Ignacio mission in 1728. The Jesuits apparently also applied the name to Santa Gertrudis. On the interior cover of the Santa Gertrudis Baptismal Register is the following notation: "Libro De Los Bautismos del Norte de Sta Gertrudis de Cadacaman desde el Año de 1751".

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San Fernando de Velicatá Burial Register

San Vicente Ferrer Burial Register

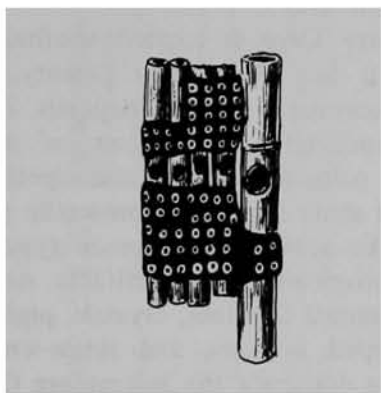
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Radiocarbon Dates from CA-Mrn-152

C. WILLIAM CLEWLOW, JR.
HELEN F. WELLS

Bone collagen samples from CA-Mrn-152, the Pacheco site, have yielded two radiocarbon dates that are believed to be the earliest in Marin County, California. Both of these were obtained from burials in the sterile layer below the midden deposit. One of the samples, taken from the left femur of Burial 4 at a depth of 85-90 cm., yielded a date of 3270 ± 150 B.P. (UCLA-1891A), and the second, taken from Burial 5 at a depth of 90 cm., yielded a date of 3050 ± 130 B.P. (UCLA-1891B).

A third bone sample, also from Burial 4, was submitted to the University of California, Scripps Institution of Oceanography, La Jolla,

for amino acid dating. Using a rate constant for aspartic acid racemization of $1.22 \times 10^{-5} \text{ yr}^{-1}$ based on Stanford Man (UCLA-1891A) as a calibration, the laboratory obtained a D/L aspartic acid ratio of 0.112 which is equivalent to an age of 3500 years B.P. This value agrees well with the radiocarbon determinations. However, the sample is at the lower limits of racemization dating (Pat Masters, personal communication).

These dates place the burials within the latter part of the Early Horizon, which was originally defined for Central California by Lillard, Heizer, and Fenenga (1939) and Beardsley (1948). Although there is some regional variation in its known duration, Elsasser (1978:41) suggests a terminal date of *ca.* 1000 B.C. for the Early Horizon as a whole. The Berkeley facies of the Early Horizon has been identified across San Francisco Bay in Alameda County, but no sites of similar age have been reported for Marin County (Elsasser 1978:43).

Associated with Burial 4 were a steatite tube bead and a nondiagnostic projectile-point fragment. Red ochre and a nondiagnostic projectile-point fragment were recovered with Burial 5. The point fragments, both of obsidian, were submitted to Johathan E. Ericson, then of the Department of Anthropology, University of California, Los Angeles, for obsidian hydration measurements. They yielded measurements ranging from 1.8 to 4.7 microns, averaging 3.2 microns. These data were used for determining source-specific obsidian hydration rates for California.

In general, excavations at Mrn-152, which were conducted in 1972 and 1973, produced few time-sensitive artifacts, but those identified range from the Early through the Late Horizon, as defined elsewhere in central California. The close agreement of the three dates reported here indicates that there may have been an early occupation of Marin County,

C. William Clewlow, Jr., Institute of Archaeology, Univ. of California, Los Angeles, CA 90024. Helen F. Wells, Dept. of Anthropology, Univ. of California, Riverside, CA 92521.