

# Disease and Demographic Patterns at Santa Cruz Mission, Alta California

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**T**HE establishment of Santa Cruz Mission in 1791 in northern Alta California introduced a tragic pattern of high mortality and low birth rates to the Indian community living in the region, which led to a dramatic decline in population levels. Epidemics, respiratory disease, and dysentery exacted a heavy mortality. Missionaries at Santa Cruz baptized 2,321 Indians between 1791 and 1846, but only 557 of these were natal baptisms (i.e., baptisms of children born at the mission), an average of 10 births per year (Santa Cruz Baptismal Register). Continual decline in the mission population forced the missionaries to recruit gentiles (non-Christian Indians) from the coastal mountains north and east of modern-day Watsonville and ultimately from the Central Valley in order to maintain a sufficiently large labor force. The basic pattern described above, the inability of the Indian population to stabilize in the face of high death rates, was not unique to Santa Cruz, but occurred in other mission groupings in northwestern New Spain.

To understand the dynamics of Indian depopulation at Santa Cruz Mission, a number of demographic patterns can be examined that document high mortality and its manifestations. To calculate the degree of decline among the local population and population fluctuations, it is necessary to estimate a contact population size for the Santa Cruz area. Furthermore, a discussion of gentile

recruitment as related to total mission population sheds further light on the process of demographic change.

## CONTACT POPULATION LEVELS

Estimated population sizes are available for the indigenous groups around Santa Cruz, the Awaswas and Costanoan/Ohlone. Kroeber (1925: 464) estimated a population of 1,000 for the Awaswas language group occupying northern Santa Cruz County south and east to modern Aptos, and 7,000 Costanoan/Ohlone people in central California. Cook derived two calculations from different sources at two points in his career: 1,056 and 1,230 baptisms of "local gentiles" at Santa Cruz Mission (Cook 1976: 184; Cook and Borah 1979: 195). An estimate of aboriginal population levels can be based on these figures. Levy (1978: 485) estimated a population of 8,900 for the entire Costanoan/Ohlone cultural group, and 600 for the Awaswas.

Perhaps the proper method for estimating the Indian population in the Santa Cruz area would be to calculate an average *ranchería* size and apply it to the number of known Indian settlements. Data from the diaries kept by several members of the 1769 "Sacred Expedition" indicate the size and location of Indian settlements in the area of modern Santa Cruz County. On October 6, 1769, scouts reported:

... a populous village of Indians [near the Pajaro River] who lived in huts covered with thatch, and who, according to what they

[the scouts] said, must have numbered over five hundred souls [Teggert 1910: 67].

The Spaniards next encountered "Casa Grande Ranchería" located near Gazos Creek in southern San Mateo County. The Spaniards named the ranchería "Casa Grande," according to Juan Crespi, O.F.M., because:

In the middle of the village there was an immense house of spherical form, large enough to hold all the people of the town, and around it there were some little houses of pyramidal form, very small, constructed of stakes of pines [Bolton 1927: 219].

A second diarist estimated the population of the ranchería at 200 people (Smith and Teggert 1910: 67). The members of the expedition also observed signs of settlement near Soquel and Scott creeks (Bolton 1927: 214, 217).

Four villages can clearly be identified in the Santa Cruz Mission baptismal register: *Achistaca*—San Dionisio, *Uypin*—San Daniel, *Aptos*—San Lucas, and *Sayante*—San Juan Capistrano located in the Santa Cruz Mountains near modern Felton (Santa Cruz Baptismal Register). Levy (1978: 485) uses a figure of 200 as an average ranchería population, and records variations from 50 to 500. The total of the four rancherías would give a population of 800, plus another 200 each for *Cotoni*—Santiago on the north coast, and *Soquel* as described in 1769, producing an estimate of 1,200 people.

The Indian population in 1791, the year of the establishment of Santa Cruz Mission, was probably lower, however, than in the pre-Hispanic era. The decline in population probably began at the initial contact, as native populations succumbed to newly introduced diseases, relocation, and unhealthy environments at the missions. The *Soquel* ranchería, for example, was referenced in 1769 but not in the later mission records. The population of *Soquel* ranchería, and of other rancherías, may have been removed to Santa Clara

Mission before 1791, and was therefore not available for recruitment to Santa Cruz. Franciscans from Santa Clara (est. 1777) recruited in the Santa Cruz area, and *Soquel* would have been the first Indian settlement the missionaries encountered when they followed the "Old San José Highway" route over the Santa Cruz Mountains.

The Pajaro Valley contained at least one major Indian settlement of Mutsun speakers with a population in the neighborhood of 500. The location of this settlement, *Tiuvta*, shifted as the inhabitants migrated to different village sites to exploit seasonal food resources. Furthermore, people from *Risca* and *Culul* rancherías south of the Pajaro River camped at times with those from *Tiuvta*. In addition to the one large village, several smaller settlements occupied sites in the Pajaro Valley, one located close to or on College or Pinto lakes.

A minimum population estimate of 300 can be made for the Pajaro Valley. Missionaries from San Carlos (1770/1771) and San Juan Bautista (1797) missions recruited most of the Indians living in the Pajaro Valley, although evidence suggests that some individuals went to Santa Cruz Mission. In a 1798 letter, Santa Cruz Missionary Manuel Fernandez, O.F.M., noted that:

Some Gentiles from the far side of the Pajaro [River], relatives of the earliest Christians of this Mission, have been subdued, by which we will give much glory to God and benefits to the Mission [Fernandez Ms. 1798].

Missionaries stationed at San Juan Bautista baptized 258 people from the *Calendarrud* supratribes, of which *Tiuvta* was the principal settlement. Another 36 received the waters of baptism at San Carlos, giving a total of 294 (King 1978: 78).

The total population of the area of Santa Cruz County, then, was at least 1,700: 200 each from *Achistaca*—San Dionisio, *Uypin*—

San Daniel, *Aptos*—San Lucas, *Sayante*—San Juan Capistrano, *Cotoni*—Santiago, Casa Grande, and *Soquel*, and 300 from Pajaro Valley.

### PATTERNS OF INDIAN RECRUITMENT AND MISSION POPULATION FLUCTUATION

Patterns of gentile recruitment correlate closely with population growth and decline at Santa Cruz Mission. Three geographical zones of recruitment can be identified: the area of modern Santa Cruz and southern San Mateo counties, the southern Santa Clara Valley and the Coast Range-Pacheco Pass area, and the San Joaquin Valley (King 1975). Delineation of these zones is based on data taken from the Santa Cruz Mission baptismal register and several maps drawn by Chester King that identify the rough location of central California rancherías.

#### Zone 1: Santa Cruz and San Mateo Counties

In addition to the rancherías listed above, other Indian settlements appear in the sacramental registers: *Cajasta*—San Antonio and San Gregorio possibly in the area of San Mateo County. The number of baptisms from these villages in the first decade of the mission operation appears in Table 1.

#### Zone 2: Southern Santa Clara County-Coast Range

Perhaps the largest number of recruits came from the area east of modern Watsonville, identified in the baptismal register as San Juan, San Francisco Xavier, Locobo, Tomoy, the Sierra de Sumus, and other names. A summary of baptisms from this area is given in Table 2.

#### Zone 3: Central Valley

In examining the Santa Cruz Mission baptismal register, Cook and Borah (1979: 195) arrived at a figure of 1,230 baptisms of

Table 1  
BAPTISMS FROM SELECTED  
RANCHERIAS, 1791-1801

Years	Ranchería	Spanish Name	Baptisms
1791-1795	Achistaca	San Dionisio	84
1791-1795	Uypin	San Daniel	112
1791-1797	Aptos	San Lucas	112
1791-1795	Sayante	San Juan Capistrano	68
1792-1800	Cotoni	Santiago	57
1791		San Gregorio	2
1794-1801	Cajasta	San Antonio	55

Table 2  
BAPTISMS FROM SELECTED  
RANCHERIAS, 1795-1817

Years	Ranchería	Spanish Name	Baptisms
1795-1810	various	San Juan-San Francisco Xavier	323
1803-1813	Tomoy		114
1806-1810/1817	Locobo	Dulce Nombre de Dios	51
1806-1807	Sierra de Sumus		22

local gentiles, and 526 Yokuts and Plains Miwok from the Central Valley. After 1810, when Santa Cruz missionaries had exhausted local sources of recruits, recruitment efforts shifted to the Central Valley. Names of new rancherías began to appear in the baptismal register: *Tejey*, *Yeurata* or *Yeunata*, *Mallin*, *Huocon*, *Hapnis*, and *Notualls*, to name a few.

Population levels recorded for Santa Cruz Mission increased during periods of heavy gentile recruitment. Once the number of potential recruits from one area had declined, two things generally occurred: the missionaries directed recruitment to new areas and, if an equal or greater number of gentiles were not available for incorporation into the mission community, the "Christian" population declined in numbers.

In the first six years, 1791-1796, following establishment of Santa Cruz Mission, missionaries baptized 691 gentiles. The number of baptisms (population gains) was over five times that of burials (population losses), which totaled 131. In 1796, the Indian community at Santa Cruz Mission reached its

highest population (523) during 40 years of mission operation.<sup>1</sup>

In the next few years baptisms roughly equaled burials and the population fluctuated between 500 and 430. Banner years of recruitment, however, did raise the mission population. In 1810, for example, excess baptisms totaled 70, and the population increased from 442 to 507 in one year. Between 1811 and 1816, the population dropped from 462 to 358, and during the same six years burials exceeded baptisms by 149. Over the next five years, 1817-1821, as the volume of recruitment of Yokuts increased, the mission community passed through a second period of significant growth. An excess of 194 baptisms accounted for an increase in the population to 519 in 1821.

Indian population growth and decline at Santa Cruz Mission followed a cycle observable in both Alta and northern Baja California missions (Meigs 1935: 56). In the early years of mission operation the Indian population recruited from local groups grew to a recorded maximum. At Santa Cruz, this is reflected by the population count of 523 recorded in 1796. As the last local Indians entered the mission and burials outstripped the birth rate and gentile recruitment, the population declined. For Santa Cruz the low was 358 people recorded in 1816, although the population fluctuated in intervening years. Then, as missionaries expanded recruitment efforts, generally at some distance from the mission center, the numbers increased but did not reach the earliest recorded maximum population. The Santa Cruz population reached a second peak of 519 in 1821. Once again, the source of recruits dried up and the population gradually declined as missionaries recruited few gentiles. Between 1822 and 1833, the net loss in population totaled 284, and 236 Indians remained at the mission in 1833 (Table 3).

Few Indians from the Santa Cruz area or

natives of the mission survived to the end of the mission period—further evidence of the increasing importance of recruits from outside the mission. In 1834, for example, a bare 3% of the Indians living at the mission had been born there or in *rancherías* in the Santa Cruz area (Santa Cruz "Libro de Padrones" Ms.). Following the secularization of Santa Cruz in 1834, the process of depopulation continued. In four years, 1835 to 1839, the numbers dropped by 70%. Of the total decline, 44% resulted from a net loss in population caused, in part, by a severe smallpox epidemic in 1838. The other 56% of decline can be attributed to individuals leaving the mission to look for work in the ranches being established in the wake of mission secularization or to individuals returning to a modified aboriginal lifestyle in areas lying outside of Mexican control.

#### CAUSES OF INDIAN POPULATION DECLINE

One of the primary causes of Indian population decline at Santa Cruz Mission was newly introduced Euroasiatic diseases, including syphilis (to which the Indians had no prior contact or natural resistance), that reached epidemic and endemic proportions. Congregation of Indian populations into compact settlements with rudimentary or non-existent sanitation exacerbated the situation by facilitating the spread of disease.

Further research needs to be done with extant burial registers and other sources to accurately document the chronology of epidemics and the general impact of disease. Using letters and reports, Sherburne Cook found evidence in the course of his research of five epidemics in Alta California, but did not analyze sacramental registers. Evidence suggests that only three province-wide pandemics occurred: an 1806 measles outbreak, an 1828 measles episode, and a major smallpox epidemic in 1838. Although Cook gave

Table 3  
**GENTILE AND NATAL BAPTISMS, BURIALS, AND POPULATION  
 AT SANTA CRUZ MISSION, 1791-1840**

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1791	82	0	2	80		89
1792	73	1	5	69		158
1793	78	4	6	76		233
1794	119	11	27	103		332
1795	242	16	75	183		507
1796	97	14	91	20		523
1797	20	13	64		31	495
1798	72	16	64	24		504
1799	26	14	70		30	468
1800	41	11	51	1		472
1801	15	10	51		26	442
1802	42	14	61		5	437
1803	17	14	33		2	437
1804	63	12	49	26		461
1805	61	13	53	21		464
1806	90	15	105	0	0	466
1807	49	12	53	8		
1808	31	15	49		3	485
1809	1	6	49		42	449
1810	120	11	61	70		507
1811	1	9	56		46	462
1812	0	9	30		21	437
1813	1	8	49		40	398
1814	10	6	26		10	388
1815	1	11	37		25	365
1816	15	12	34		7	358
1817	69	14	33	50		408
1818	29	21	31	19		410
1819	0	13	48		35	381
1820	94	19	33	80		461
1821	98	13	31	80		519
1822	0	20	39		19	499
1823	10	16	53		27	474
1824	13	16	48		19	461
1825	1	18	51		32	429
1826	19	12	32		1	428
1827	1	10	29		18	410
1828	6	10	61		45	364
1829	7	3	41		31	333
1830	4	12	29		13	320
1831	1	9	33		23	298
1832	0	7	35		28	284
1833	2	6	16		8	236
1834	16	12	15	13		
1835	3	3	19		13	
1836	1	4	18		13	
1837	3	4	16		9	
1838	4	7	49		38	
1839	3	5	9		1	71
1840	0	6	8		2	102

no mortality figures for the 1838 episode, he noted that 234 people at San Francisco Mission died within a three-month period in 1806. The isolation of Alta California apparently protected the province from most of the epidemics that ravaged the Baja California mission populations (Jackson 1981b: 316).

While largely minimizing the importance of epidemics, Cook proposed an alternative explanation for Indian depopulation in Alta California missions. He proposed that chronic endemic diseases, e.g., dysentery, and such respiratory maladies as pneumonia, tuberculosis, and influenza combined to exact a heavy mortality on the Indian population (Cook 1976: 17-23). The high mortality rate at Santa Cruz Mission can probably be attributed to endemic diseases rather than to the three aforementioned pandemics.

The lack of proper sanitation combined with the enforced use of wool clothing contributed to the spread of disease. Wool clothing, when not frequently washed or changed, harbored disease-carrying parasites such as fleas or lice (Archibald 1978: 157). Concentrations of human feces near Indian housing and dormitories further facilitated the spread of intestinal parasites, and other disease organisms attacked human hosts through contaminated water (McNeil 1976: 42). Alta California governor Diego de Borica (1794-1800) related in one report how he entered an Indian dormitory at one mission where the missionaries locked the Indians up at night, and was overcome by the stench of human wastes. In the same document, Borica named poor sanitation as one of the causes of high mortality, and urged improved sanitation and general health measures to reverse the trend (Borica Ms. 1797).

Even though there appear to have been few outbreaks in Alta California, epidemics often had a double impact on Indians living in the missions. Epidemics not only killed large numbers of people in a short period of time,

but the survivors probably remained mentally scarred for life. It surely was a frightening experience, to say the least, to see friends and relatives dying from painful diseases that were not understood, and flight into the mountains or interior valleys to escape the unseen killer may have been a common response. The flight of people from the missions served in turn to spread the contagions to the non-mission population. Speaking of epidemics in general terms, historian William McNeil (1976: 69) wrote that:

The disruptive effect of such an epidemic is likely to be greater than the mere loss of life, severe as that might be. Often survivors are demoralized, and lose faith in inherited custom and belief which had not prepared them for such a disaster.

The cultural and spiritual cohesion of the Indians, already under attack by the process of missionary-directed acculturation, was shattered by the experience of living through an epidemic, or series of epidemics, and chronic maladies. The happy and peaceful people noted by the first explorers and missionaries changed in a generation into a populace that was capable of practicing abortion in order not to inflict mission life on their offspring, and that in some cases offered little moral or spiritual resistance to disease. It can be argued that some individuals sought a rapid death and had lost their will to live. The destruction of their culture, religion, and way of life at the hands of missionaries can be viewed as root causes of the problem.

This hypothesis is supported by a number of descriptions of former mission populations, but the missionaries provided little written evidence to document what can be called the psychological impact of the mission acculturation process. The argument presented above is by no means the only possible explanation for the moral collapse of some mission Indians, but serves as a point of departure for further discussion.

Missionaries in Alta California could do little to alleviate the impact of disease given, relative to modern standards, comparatively primitive European medical and health-care practices. Further, the basic philosophy of European medicine at the time still rested on Greek principles as transmitted from the Middle East to Europe. It is fortunate that three surviving documents describe the treatment of disease in Spanish and Mexican California during the late 18th and early 19th centuries, the high point of mission centralization. Although only one of the documents actually relates to the Santa Cruz Mission area (Villa de Branciforte), it can be assumed that the government in most instances distributed similar information to all missions. The documents provide a clear indication of the level of medical care available to mission Indians.

Smallpox, perhaps the greatest killer of Indians in colonial Mexico, could be treated by administering barley water, maidenhair fern tea, and *atole* (corn gruel). Cleanliness was to be observed, and cold water, alder flower tea, and milk proved useful in treating swollen eyes and preventing the collection of fluid in the eyes (Soler Ms. 1798a). After 1781, inoculation by variolation was possible. This involved intentional infecting of an individual with what hopefully would be a mild smallpox infection by introducing "ripe" pus from a pustule of a person already infected (Soler Ms. 1798b). Inoculation by variolation did not, however, receive universal acceptance in the 18th century. During a smallpox epidemic in Baja California from 1781 to 1782, for example, only three Dominican missionaries used this method—but with greatly reduced mortality at each of their missions. Dominicans who did not apply inoculation by variolation saw high death rates (Jackson 1981a: 138).

In the 1830s, cholera "morbus" spread to Central Mexico from Asia via Europe, and Mexican government officials feared that the

disease would reach the already underpopulated frontier territories. Therefore, one official drafted a circular containing 18 measures useful in dealing with a cholera epidemic. Measures outlined included cleanliness of houses and streets, establishment of cemeteries at sites removed from settlements (to prevent the spread of noxious winds, reflecting the then current miasma theory of the spread of disease by noxious or contaminated air). Other measures included covering of the stomach and feet of individuals to prevent chills and dampness, the use of fumigation in the streets to purify the air (another reference to the miasma theory), sobriety in eating and drinking, and a prohibition on the tolling of church bells that announced the burial of plague victims—a practice which only demoralized the living (Figueroa Ms. 1833).

Even if the methods described above had been universally applied, the missionaries could have done little to reduce the disruptive impact of epidemics. Epidemics generally infected as much as 100% of a population and only subsided when no new hosts were available to propagate the contagion (McNeil 1976: 55). In most cases, a population exposed to a new disease or combination of diseases requires some 120 to 150 years to reach an adjustment to the new organisms (McNeil 1976: 58). For the Indians living at Alta California missions, and specifically at Santa Cruz Mission, recovery was impossible because of their exposure to a number of new diseases and their demoralization as the result of forced assimilation. Further, the small size of the population did not facilitate establishment of some new diseases as endemic childhood maladies and this, combined with fatal dysentery and respiratory ailments, contributed to high infant and child mortality rates and low life expectancy. Cook and Borah (1979: 220, 239) estimated an average life expectancy of 8.6 years for "local" gentiles recruited into the missions, and a death rate

of 584 per 1,000 for children between birth and age five. In a 1798 report, Diego de Borica reported a death rate of 15% for the total population of Santa Cruz Mission in the first years of its operation (Borica Ms. 1798).

Missionaries at Santa Cruz rarely recorded the cause of death of their charges, and they identified few epidemics. One exception was the identification of the 1838 smallpox epidemic. At least two other epidemics can be identified by making a comparison with outbreaks in Baja California missions. To illustrate the impact of individual epidemics, two outbreaks are examined in detail here, the 1806 measles visitation and the 1838 smallpox epidemic. While mortality may seem low, the loss of even a handful of people had a considerable impact on a small community.

Measles broke out in Santa Cruz in February or March of 1806, and lasted until June. In four months, 78 people died, 60 adults above the age of ten and 18 children (Santa Cruz Burial Register). According to one source, measles mortality in Alta California in 1806 reached only 372, which seems low when compared to the high death rate at Santa Cruz and, as previously noted, at San Francisco (Archibald 1978: 157).

More documentation exists for the 1838 smallpox outbreak. In the middle of July, 1838, Fr. Antonio Real, O.F.M., the Zacatecan Franciscan stationed at ex-mission Santa Cruz, reported that in the first two weeks of the month he had buried eight smallpox victims during an epidemic the Franciscan attributed to God's wrath over the disrepair of the mission church (Real Ms. 1838). During the course of the epidemic the months of June to September, 35 adults died, 5 settlers, and 30 Indians living at the former mission. The heaviest mortality occurred in July and August with 21 and 11 deaths recorded, respectively. The last smallpox death, ironically, was that of Joaquin Castro, one of the leading citizens of the Villa de

Branciforte, who died on September 20 (Santa Cruz Burial Register). Mortality at other missions varied. Smallpox had a heavy impact on San Juan Bautista, where a total of 107 people died in four months (San Juan Bautista Burial Register). In contrast, a mere ten died of *viruelas* at San Francisco between August and December (San Francisco de Asis Burial Register).

One final disease caused considerable havoc among Indian populations. Syphilis contributed to high mortality, and became established in an endemic form in Alta California. The disease may have caused sterility in women and, transmitted to the fetus through the placenta of a pregnant woman, contributed to high infant congenital mortality. The powdered lead extract used in the 18th and 19th centuries to treat the malady caused lead poisoning and death after long-term use (Archibald 1978: 157). Syphilis weakened a person to the point that he or she succumbed to another disease that, by itself, would not necessarily have proven fatal. In their weakened condition infected Indians were incapable of working, a concern to many missionaries.

No one epidemic or endemic disease produced the consistently high mortality that caused demographic collapse at Santa Cruz Mission; rather, the collapse stemmed from the combined effects of some 50 years of exposure to new diseases and the stress of forced assimilation. Much of the discussion here has been theoretical, and has dealt with different aspects of the impact of disease. A paucity of specific documentation for Santa Cruz Mission has dictated such an approach. The findings, however, should prove useful in trying to understand the complex process of demographic collapse. In light of the factors delineated above, the missions can be compared to death camps. As the local Indian population reached the point of near extinction, the missionaries intensified recruitment

of gentiles from distant areas to replace those people who died. As long as recruits continued to enter the mission, a cycle of mortality followed by recruitment and more mortality or fugitivism prevailed at Santa Cruz. Formation of larger population centers facilitated the spread of disease, and the Indian population suffered from chronic ailments. A small number of lethal epidemics ravaged the missions. Current European medical technology did not provide the missionaries with the means to combat epidemics or chronic maladies. The missionaries may not have intended to destroy an entire people and unique culture, but that was the net result of the process of assimilation.

### DEMOGRAPHIC PATTERNS

As a result of the factors discussed above, the Indian population virtually disappeared. High infant and child mortality, coupled with heavy mortality among women and girls, created an unbalanced population in terms of age structure and sex ratio. Further, the number of children under age ten, in relation to the total population, remained small. As previously mentioned, the Indian population failed to stabilize itself in the missions. For sustained population growth, the average fam-

ily size should have been five or more, with at least two children per family surviving to adulthood. Overall, an Indian family at Santa Cruz averaged in size between 4.4 and 6.0 persons.

Analysis of the average family size would seem to indicate that the population had reached near stability or had increased. The apparent contradiction can be explained by two factors: the degree of gentile recruitment at the time of the censuses, and analytical techniques that can give a false impression. Limited data on average family size derives, in part, from periods of heavy gentile recruitment, and may reflect either the entrance of complete families into the mission or the recruitment of large numbers of children relative to adults. Following secularization, disruption of the Indian population and the flight of large numbers of people probably broke up families, and censuses from this period do not allow for accurate demographic reconstruction. An 1845 census of the remnant Indian population at ex-mission Santa Cruz shows a case of disrupted relationships, few families with children, and no families with two children (Jackson 1980-1981: 55-57).

Table 4 documents two phenomena, an

Table 4  
AVERAGE FAMILY SIZE AND THE POPULATION OF CHILDREN  
AT SANTA CRUZ MISSION IN SELECTED YEARS

Year	Population	Families	Average Family Size	Children	Children as Percent of the Total Population
1813	398	83	4.8	32	8
1814	404	83	4.9	34	8
1820	461			77	17
1823	474	102	4.6	90	19
1824	457	103	4.4	73	16
1825	429	83	5.2	67	16
1826	428	85	5.0	56	13
1828	364	70	5.2	50	14
1839	71			7	9
1845	120	20	6.0	24	17

\*Santa Cruz missionaries generally defined children as persons under 10 years of age.

Table 5  
**PERCENTAGE OF CHILDREN  
 IN RELATION TO TOTAL POPULATION  
 AT SANTA CRUZ MISSION**

Year	Population	Percent Adults	Percent Children
1791	89		
1792	158	53	47
1793	233	64	36
1794	332	65	35
1795	507	73	27
1796	523	70	30
1797	495	68	32
1798	504	76	24
1806	466	88	12
1809	499	91	9
1810	507	92	8
1811	462	94	6
1812	437	94	6
1813	398	92	8
1814	388	91	9
1815	365	90	10
1816	358	87	13
1817	408	90	10
1818	410	88	12
1819	381	87	13
1820	461	83	17
1821	519	84	16
1822	499	85	15
1823	474	83	17
1824	461	84	16
1825	429	84	16
1826	428	87	13
1827	410	85	15
1828	364	86	14
1829	333	89	11
1830	320	90	10
1831	298	89	11
1832	284	89	11
1833	236	86	14

increase in the number of children relative to the total population during periods of heavy gentile recruitment, and a fundamental weakness in the methods of demographic reconstruction when applied to Santa Cruz Mission. In the 1820s, the population declined, but the number of married couples declined at a faster rate. Flight and high mortality reduced the number of married couples, and gives the impression of growing families. The 1845 census is indicative in this respect. The number of children at Santa Cruz declined by roughly 50% between 1828 and 1845, but in the latter year children formed a larger percentage of the total population, reflecting a more rapid decline in the number of adults.

The bottom line, however, is that the number of children in the mission remained small relative to the total population, and that more than half of the children did not survive past their fifth birthday. Table 5 records the percentage of children relative to the total population. Significantly, the percentage of children rose during periods of heavy gentile recruitment.

An unequal sex ratio reduced the potential for natural reproduction as fewer women of childbearing age survived. A total of 623 women and 563 girls received the waters of baptism between 1791 and 1846 (49% of total baptisms). Yet for a number of reasons, one of which may have been a higher death

Table 6  
**FEMALE POPULATION AT SANTA CRUZ MISSION AS RELATED TO  
 TOTAL POPULATION AND THE TOTAL NUMBER OF BAPTISMS OF FEMALES**

Year	Population	Female Population	Percent of Total Population	Baptisms of Females to Date
1797	509	238	47	378
1813	398	139	35	789
1814	404	139	34	796
1820	401	175	44	950
1823	474	182	38	1,039
1824	457	184	40	1,060
1825	429	161	38	1,067
1826	428	167	39	1,087
1828	364	114	31	1,102
1832	284	87	31	1,133

Table 7  
 CRUDE BIRTH AND DEATH RATES PER 1,000 POPULATION  
 AT FOUR ALTA CALIFORNIA MISSIONS

Year	Santa Clara		Santa Cruz		San Rafael		Sonoma	
	Births	Deaths	Births	Deaths	Births	Deaths	Births	Deaths
1777	0							
1778	22	11						
1779	36	27						
1781	70	52						
1787	77	94						
1788	86	145						
1789	97	166						
1790	74	215						
1791	72	122	0	22				
1792	58	154	6	32				
1793	47	124	17	26				
1794	42	119	33	81				
1795	39	113	32	148				
1796	45	159	27	174				
1797			26	129				
1798			32	127				
1799	39	145	30	150				
1800	35	119	23	108				
1801	37	120	23	115				
1802	32	202	32	139				
1803	31	113	32	75				
1804	27	125	26	106				
1805			28	114				
1806	30	161	32	225				
1808	29	93	31	101				
1809			13	109				
1810	17	113	22	120				
1811	36	112	91	121				
1812	33	93	21	68				
1813	35	67	20	123				
1814	25	66	15	67				
1815	19	86	30	101				
1816	27	80	33	95				
1817	23	80	34	81				
1818	22	79	51	75	39	73		
1819	27	88	34	126	35	49		
1820	32	64	41	71	20	47		
1821	23	67	25	60	16	66		
1822	29	102	40	78	22	66		
1823	27	94	34	111	26	48		
1824	25	65	35	104	24	75	46	52
1825	26	97	42	119	22	69	13	47
1826	29	82	28	75	20	61	17	100
1827	20	72	24	70	14	36	19	99
1828	25	139	27	167	15	35	27	126
1829	15	96	9	123	20	30	30	66
1830	15	55	38	91	14	27	20	49
1831	18	69	30	111			33	56
1832	13	66	25	123			26	70
1833			25	68			28	137
1840	75	128	59	78				

rate among females, women and girls formed a minority in the population. In 1845, for example, there were 2.75 males for every female at Santa Cruz Mission. Granted that this figure represents a greatly reduced population disrupted by mission life and the secularization process, it nevertheless points to the nature of the problem. The practice by the missionaries of locking unmarried females at night in unsanitary, cold, damp dormitories could have contributed to higher mortality. Other factors may also have been involved. Table 6 presents data documenting the gradual deterioration of the female population at the mission.

With fewer women in the mission community, the prospects of forming new families remained poor and, as such, the potential for producing children in each succeeding generation declined greatly. The decrease in the number of females, coupled with high infant and child mortality and the small number of children relative to the total population, goes a long way towards explaining the inability of the Indian population to survive.

#### **PATTERNS OF GENTILE RECRUITMENT: THE LARGER HISTORICAL CONTEXT**

Basic demographic patterns in the missions of Baja and Alta California resembled conditions in pre-industrial European cities (Flinn 1981). Death rates consistently exceeded birth rates (Tables 7-8) and population levels, as previously noted, expanded or remained stable through in-migration from the surrounding hinterland. As discussed, high death rates resulted from epidemic and endemic diseases and living conditions at the missions, and were a function of increased exposure to disease as populations were concentrated into larger settlements. The process of conversion and reduction to mission life itself involved relocating mobile hunter-gatherers, who had lived in scattered villages with low population densities, into villages of

higher density characterized by poor sanitation, which created ideal conditions for the spread of disease. At this point, however, the similarity between the missions and pre-industrial European cities ends. Migration from rural hinterlands to European urban centers generally occurred as a result of a desire for improved economic opportunities (Flinn 1981: 69). The frontier mission, on the other hand, was in essence an artificial settlement form. The mission fits none of the town functions that Chance (1978) discussed in his study of colonial Oaxaca City, an administrative and commercial/market center. From the standpoint of the government, the mission served to control the Indian population at minimal cost. Further, the process of relocation may have involved a degree of force, although the question of forced conversion is still controversial (cf. Cook 1976; Guest 1979; Jackson 1983). The point, though, is that missionaries relocated gentiles from the hinterland to the mission, and no strong economic attraction served as a pull factor. The benefits of Spanish material culture, in part, may have attracted Indians from the immediate area, but with time the missionaries and armed soldiers ranged farther afield in search of recruits and fugitives and, in the process, applied different degrees of coercion.<sup>2</sup>

The two elements enumerated above, therefore, establish the nature and significance of gentile recruitment into the missions. From the point of view of the Spanish Crown, as a colonial institution missions served to control the Indian populations of marginal but politically sensitive frontier regions at minimal cost, and at the same time satisfied the Crown's sense of morality in providing for the conversion to Catholicism of indigenous peoples. Moreover, in Alta California where conditions enabled production of large surpluses of basic foodstuffs, missions acted as provisioners to the provincial military estab-

Table 8  
 CRUDE BIRTH AND DEATH RATES PER 1,000 POPULATION  
 AT THREE BAJA CALIFORNIA MISSIONS

Year	San Fernando		Rosario		Santo Domingo	
	Births	Deaths	Births	Deaths	Births	Deaths
1769	0					
1770	20					
1771	41					
1773	81					
1774	70	242				
1775	14	65	34	169		
1776	34	147	30	121		
1778	40	54				
1782	58	86	56	307	13	76
1786	38	54	64	104	30	67
1790	44	40	44	101	24	137
1791	70	36	49	81	46	77
1793			51	51	20	68
1794	44	59			8	46
1795	20	47	37	99	37	33
1796	11	35	38	81	30	97
1797	20	67	33	66	20	47
1798	16	47	27	57	13	33
1799	15	46	24	24	15	31
1800	19	187	4	148	25	73
1801	10	144	20	27	14	115
1802	20	78	16	35	37	26
1803	8	129	13	26	27	70
1804	36	83	20	58	26	60
1806	5	119	16	47	22	70
1808	42	52	25	116	52	134

lishment and, to a lesser degree, to the settler population. The economic system as it developed in Alta California missions eliminated the need to send supplies from central Mexico, and in so doing further reduced the cost for the Spanish government of maintaining a presence in Alta California.

Key elements in the mission economic system were control of abundant Indian labor and the ability of missionaries to expropriate any surpluses in their entirety. High death rates, however, necessitated continued gentile recruitment to maintain mission population levels and a sufficiently large labor force. Granted that missionary zeal was an important incentive for persistent gentile recruitment and a convenient argument for justifying recruitment, the need for labor remained just as pervasive. Over time, missionaries

increasingly had to recruit at further distances from mission centers and, as will be shown, short-term success or failure in gentile recruitment caused fluctuations in mission populations in both Baja and Alta California. In this regard, two specific case studies are examined: San Fernando Mission (est. 1769) in Baja California and Santa Clara Mission (est. 1777) in Alta California.

After establishment, San Fernando Mission initially served, in part, as an advance base for the Franciscan push into Alta California. In 1775, the Dominicans, who had inherited control of Baja California in 1773, closed short-lived Santa María Mission (1766-1767) located south of San Fernando and transferred the population of the suppressed mission to the jurisdiction of San Fernando (Jackson 1981b: 314).

Table 9  
 GENTILE RECRUITMENT AS RELATED TO POPULATION  
 AT SAN FERNANDO MISSION, 1769-1829

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1769	153	0				152
1770	174	7				349
1771	15	15				368
1772	36	12				
1773	114	24				296
1774	158	18	62	114		256
1775	629	20	92	557		1,406
1776	86	41	254		127	1,216
1777	5	30	179		144	
1778	2	38	51		11	947
1779	1	28	89		60	
1780	0	31	185		154	
1781	2	24	44		18	
1782	1	37	55		17	642
1783	0	33	65		32	
1784	11	35	84		38	
1785	0	24	43		19	
1786	0	21	30		9	559
1787	11	35	28	18		
1788	0	30	37		7	
1789	2	28	52		22	
1790	8	21	9	20		479
1791	13	18	13	18		506
1792	2	16	25		7	
1793	0	10	24		14	
1794	2	13	31		16	525
1795	2	11	26		13	550
1796	2	5	16		9	452
1797	0	9	30		21	450
1798	0	7	20		13	425
1799	0	7	22		15	476
1800	0	7	68		61	363
1801	0	3	45		42	313
1802	0	6	23		17	295
1803	0	2	34		32	263
1804	0	7	16		9	193
1805	0	1	42		41	
1806	0	1	33		32	201
1807	0	0	19		19	
1808	0	5	8		3	155
1809	0	5	20		15	
1810	0	5	11		6	
1811	0	2	11		9	
1812	0	3	16		13	
1813	1	2	8		5	
1814	0	0	10		10	
1815	11	1	6	6		
1816	0	0	2		2	
1817	0	0	10		10	
1818	0	1	11		10	
1821	0	0	3		3	
1829						19

Table 10  
GENTILE RECRUITMENT AS RELATED TO POPULATION  
AT ROSARIO MISSION, 1774-1829

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1774	84	0				
1775	412	7	34	385		207
1776	80	17	68	29		564
1777	17	10	85	58		
1778	14	14	67		39	
1779	10	18	60		32	
1780	15	11	33		7	
1781	8	13	45		24	
1782	31	14	77		32	251
1783	13	15	20	8		
1784	21	7	33		5	
1785	17	17	30	4		
1786	17	21	21	17		328
1787	29	17	20	26		
1788	5	19	37		13	
1789	16	17	46		13	
1790	18	15	34	1		338
1791	25	17	28	14		347
1792	41	16	13	44		
1793	6	20	20	6		390
1794	2	12	34		21	
1795	22	12	32	2		323
1796	6	5	26		15	320
1797	8	11	22		3	334
1798	0	8	17		9	300
1799	7	7	7	7		293
1800	3	1	38		34	256
1801	0	5	7		2	255
1802	0	4	9		5	255
1803	0	3	6		3	234
1804	1	3	13		9	225
1805	1	6	40		33	
1806	0	3	9		6	191
1807	0	11	15		4	
1808	0	5	23		18	199
1809	0	9	22		13	
1810	0	5	10		5	
1811	0	3	10		7	
1812	0	1	11		10	
1813	1	5	14		8	
1814	0	5	10		5	
1815	1	4	12		7	
1817	1	3	5		1	
1818	0	2	13		11	
1819	0	3	2	1		
1820	0	0	6		6	
1821	0	2	7		5	
1822	0	0	1		1	
1823	0	1	0	1		
1829						38

Table 11  
 GENTILE RECRUITMENT AS RELATED TO POPULATION  
 AT SANTO DOMINGO MISSION, 1775-1829

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1775	2	0	1	1		
1776	1	2	4		1	
1777	18	7	4	21		
1778	50	6	8	48		
1779	22	3	7	18		
1780	9	8	7	10		
1781	6	4	50		40	
1782	16	1	6	11		79
1783	28	6	6	28		
1784	16	10	10	16		
1785	27	4	18	13		
1786	2	6	18		10	119
1787	47	4	16	35		
1788	11	4	12	3		
1789	46	4	15	35		
1790	44	5	28	21		205
1791	86	9	15	80		194
1792	37	7	23	21		
1793	9	6	20		5	296
1794	17	2	12	7		261
1795	58	11	10	59		300
1796	15	9	29		5	300
1797	3	6	14	5		300
1798	2	4	10		4	300
1799	3	6	12		3	390
1800	18	8	23	3		315
1801	3	4	32		25	278
1802	0	10	7	3		267
1803	0	7	18		11	257
1804	2	7	16		7	267
1805	3	16	35		16	
1806	1	4	15		10	214
1807	0	6	10		4	
1808	0	10	26		16	194
1809	1	11	12	0	0	
1810	0	4	7		3	
1811	1	7	15		7	
1812	0	4	15		11	
1813	1	8	5	4		
1814	0	5	8		3	
1815	0	4	13		9	
1816	0	5	4	1		
1817	1	4	19		14	
1818	0	2	10		8	
1819	0	1	4		3	
1820	1	2	9		6	
1821	3	3	9		3	
1822	0	2	5		3	
1823	0	3	0	3		
1827	0	4	5		1	
1828	0	2	7		5	
1829						73

Table 12  
RECORDED BAPTISMS AND BURIALS AT SELECTED BAJA CALIFORNIA MISSIONS

Mission	Years	Gentile Baptisms		Natal Baptisms		Burials
		Number	Percent	Number	Percent	
San Fernando	1769-1818	1,441	68	669	32	(1,957)*
Rosario	1774-1844	932	69	428	31	1,201**
Santo Domingo	1775-1839	615	67	308	33	708
Total		2,988	68	1,405	32	

\*Burial register incomplete.

\*\*Burial records cover 1774-1822.

Between 1769 and 1818, Franciscans and Dominicans at San Fernando baptized 1,441 gentiles, of which 669 (46%) were natal baptisms. During these 49 years, gentile and natal baptisms averaged, respectively, 29.4 and 13.7 per year. During its early years of operation (1769-1778), 1,372 gentiles received baptism at San Fernando in contrast with 205 children born at the mission (San Fernando Rey de Velicatá Baptismal Register). Burials in the years 1773-1778 (the extant burial register begins in 1773) reached 675, and at least another 200 to 300 died between 1769 and 1773 (San Fernando Rey de Velicatá Burial Register). The largest number of gentiles, 629, entered the mission in 1775. The highest recorded population for the mission came in 1775, and reflected both the success of gentile recruitment and the transfer of Indians from Santa María Mission. Over the next 40 years, on the other hand, missionaries recorded a mere 60 gentile baptisms and 464 natal baptisms, an average of 1.5 gentile and 11.6 natal baptisms per year. Burials totaled 1,282, an average of 32 per year; this amounts to a net population loss of 729.

Of all gentile baptisms at San Fernando, 95% occurred in the first ten years of its operation. After 1779, the mission became in essence a closed community with minimal in-migration from the surrounding hinterland, and any population growth depended on local reproduction. As occurs with closed commu-

nities incapable of reproducing in sufficient numbers to replace those individuals who died, the Indian population of San Fernando faced virtual extinction within some 50 to 100 years after the founding of the mission (San Fernando Rey de Velicatá Baptismal and Burial Registers).

Whereas missionaries at San Fernando recruited most gentiles in the first years of the mission operation, the process of conversion at Santa Clara Mission continued throughout its history. Santa Clara Mission had an open population receiving immigrants from the hinterland. Between 1777 and 1795, missionaries there recorded 3,122 baptisms and 1,533 burials, a net gain in population of 1,589 (Santa Clara de Asis Baptismal and Burial Registers). In 1795, the population stood at 1,541. As recruitment of local Indians ended between 1795 and 1804 and the number of recruits entering the mission dropped, the population declined. In nine years Franciscans baptized 1,312 Indians compared to 1,652 burials—a net loss in population of 340. In 1804, the Indian population at Santa Clara Mission was 1,240.

After 1805, the influx of *tulareños* from the Central Valley initiated a period of demographic fluctuations but an otherwise upward trend in the Indian population at Santa Clara Mission. From 1805 to 1827, Santa Clara missionaries baptized 3,013 and buried 2,785 persons, a net population gain of 228. Mission Indian population was 1,462 in

Table 13  
 GENTILE RECRUITMENT AS RELATED TO POPULATION  
 AT SAN FRANCISCO MISSION, 1776-1840

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1776	0	0	0			
1777	31	0	3	28		
1778	41	4	2	43		133
1779	29	6	9	26		
1780	46	10	8	48		
1781	26	10	9	27		
1782	32	13	19	26		181
1783	34	4	25	13		215
1784	49	17	16	50		260
1785	19	15	24	10		
1786	114	15	48	81		354
1787	85	24	26	83		426
1788	9	20	38		9	
1789	22	20	31	11		429
1790	110	22	38	94		518
1791	102	18	54	66		590
1792	103	24	98	29		622
1793	167	25	102	90		711
1794	302	27	125	204		913
1795	143	21	207		43	872
1796	3	10	101		88	790
1797	1	30	105		74	790
1798	9	29	94		56	645
1799	1	24	65		40	
1800	70	35	74	31		635
1801	172	39	67	144		778
1802	154	38	130	62		814
1803	306	24	130	200		
1804	162	38	151	49		1,103
1805	155	47	159	43		
1806	72	22	471		377	886
1807	33	27	115		55	
1808	147	35	104	78		906
1809	194	25	120	99		
1810	160	39	151	48		1,057
1811	279	41	165	155		1,214
1812	128	62	180	10		1,224
1813	115	45	162		2	1,205
1814	97	45	167		25	1,180
1815	213	47	315		55	1,113
1816	266	43	332		23	1,091
1817	146	37	245		62	1,060
1818	24	33	157		100	1,100
1819	2	33	92		57	1,163
1820	14	36	60		10	1,252
1821	424	28	112	340		1,801
1822	51	34	159		74	958
1823	3	10	39		26	208
1824	1	7	15		7	265
1825	0	3	21		18	238
1826	0	9	19		10	232

(Table 13 continued on following page)

(Table 13 continued from preceding page)

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1827	0	9	13		4	241
1828	0	11	19		8	236
1829	0	7	10		3	229
1830	0	5	8		3	219
1831	0	5	7		2	210
1832	0	3	11		8	204
1833	0	4	9		5	
1834	0	3	21		18	
1835	0	3	9		6	
1836	0	5	9		4	
1837	0	1	7		6	210
1838	0	17	25		8	
1839	0	3	5		2	
1840	0	3	3	0	0	77

1827, the second highest recorded population. In subsequent years the number of gentile baptisms dropped and mission population steadily declined. With the beginning of secularization in 1835, Santa Clara Mission population decreased as many Indians—most likely recent converts—fled the mission. Mission Indian population was 1,125 in 1832, but by 1839 and 1840 the totals were, respectively, 291 and 344. Santa Clara population decline, however, did not result solely from high mortality. Baptisms and burials totaled 690 and 1,077, respectively, from 1828 to 1840—with a net population loss of 387. Had secularization not disrupted the functioning of the mission system, especially the control missionaries exercised over Indians, the population of Santa Clara would have totaled some 738 (Santa Clara de Asis Baptismal and Burial Registers).

The same basic pattern applies to other Baja and Alta California missions, but significant differences exist. Aside from geography and climate, population size and patterns of conversion differed, as did causes of depopulation. The three northern Baja California missions had closed populations. Once the process of conversion ended, mission populations depended on indigenous reproduction to maintain or expand population levels, and

decline inevitably followed. Recruitment lasted for 20 to 30 years at the three establishments, although the majority of converts entered two of the missions during the first years of operation. At San Fernando 95% of all gentile baptisms came in the first eight years; 69% at Rosario; but only 20% at Santo Domingo (Tables 9-11). Natal baptisms of children born at the missions made up 32% of all baptisms (Table 12).

In the northern Alta California missions, on the other hand, populations were open and continued to receive immigrants/recruits from the hinterland throughout the period of operation. The older missions such as San Francisco, Santa Clara, and Santa Cruz had exhausted sources of recruits in the years immediately before secularization, and experienced declines in population as fewer gentiles entered the missions. Missionaries stationed at the younger establishments, San José, San Rafael, and San Francisco Solano, however, continued to baptize substantial numbers of gentiles in the 1830s, and in 1834 San José missionaries baptized 892 gentiles, the largest yearly total at that mission. Whereas missionaries in northern Baja California had limited territories in which to recruit, Franciscans in Alta California recruited Indians at increasingly greater distances from the mission cen-

Table 14  
GENTILE RECRUITMENT AS RELATED TO POPULATION  
AT SANTA CLARA MISSION, 1777-1840

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1777	77	0	27	50		13
1778	56	2	1	57		91
1779	20	4	3	21		111
1780	79	9	6	82		270
1781	49	19	14	54		
1782	47	35	36	46		
1783	151	30	39	142		
1784	41	39	61	19		
1785	54	62	103	13		
1786	97	59	73	83		
1787	97	50	61	86		647
1788	64	58	98	24		672
1789	169	76	128	117		787
1790	256	68	197	127		910
1791	96	69	117	48		957
1792	147	58	154	51		1,001
1793	140	50	132	58		1,062
1794	440	60	127	373		1,418
1795	233	61	176	118		1,514
1796	60	65	231		106	1,433
1797	67	51	191		73	
1798	134	59	176	17		
1799	105	53	196		38	1,343
1800	86	47	159		26	1,318
1801	85	49	134	0	0	1,322
1802	182	42	262		38	1,291
1803	86	40	147		21	1,291
1804	67	34	156		55	1,240
1805	283	52	112	223		
1806	160	42	227		25	1,406
1807	91	47	145		7	
1808	93	42	133	2		1,410
1809	55	34	101		12	
1810	64	22	151		65	1,332
1811	142	50	154	38		1,371
1812	55	44	125		26	1,348
1813	39	47	90		4	1,347
1814	13	33	116		70	1,306
1815	86	25	112		1	1,306
1816	102	36	107	31		1,336
1817	77	31	107	1		1,336
1818	55	29	105		21	1,321
1819	71	35	116		10	1,313
1820	87	44	94	37		1,359
1821	86	32	93	25		1,388
1822	112	40	143	9		1,394
1823	80	38	131		13	1,395
1824	114	36	94	56		1,450
1825	63	37	136		36	1,403
1826	99	42	117	24		1,428
1827	118	30	106	42		1,462

(Table 14 continued on following page)

(Table 14 continued from preceding page)

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1828	92	34	191		65	1,369
1829	8	19	122		95	1,269
1830	12	19	67		36	1,226
1831	19	21	82		42	1,184
1832	0	15	74		59	1,125
1833	9	21	96		66	
1834	51	18	66	3		
1835	64	29	65	28		
1836	60	35	76	19		
1837	25	31	61		5	
1838	5	29	80		46	
1839	10	32	53		11	291
1840	6	26	(44)		(12)	344

ters, even from as far away as the Central Valley (Tables 13-17). The importance of gentile recruitment is reflected in the higher percentage, 77%, of gentile baptisms at the six Alta California missions relative to total Indian baptisms, as against 68% for the three Baja California missions (Tables 12, 18).

At both Baja and Alta California missions, the cause of depopulation was basically the same, the formation of mission communities with higher population densities that facilitated the spread of Euroasiatic diseases in epidemic and endemic forms. In Baja California, periodic epidemics caused most of the damage, coupled with chronic ailments that produced particularly high rates of infant and child mortality. The Alta California establishments experienced fewer major epidemics, but respiratory disease, fevers, and dysentery associated with overcrowding in the larger mission communities exacted a heavy mortality. Crude death rates were consistently higher than crude birth rates. The study of Santa Cruz Mission records supports such a pattern, and data from the other missions confirm the findings from Santa Cruz. A more detailed examination of the five San Francisco Bay area missions will shed further light on the process of demographic change in the Alta California missions.

Whether they intended to or not, Francis-

can missionaries at Santa Cruz Mission presided over the demographic collapse of the local Costanoan/Ohlone population in the north Monterey Bay area. As stressed throughout this essay, only continued gentile recruitment from as far east as the Central Valley enabled the mission to continue to operate, and provide sufficient labor to produce surpluses that were, in turn, supplied to the military. At the time of secularization in 1834, only a small number of Awaswas speakers and Indians born at the mission survived. Continued gentile recruitment disguised the degree of demographic collapse, but the results were the same. In Baja California, the degree of depopulation exceeded 90% by the end of the 18th century. The degree of decline in the Santa Cruz area was equally high. As occurred throughout the Americas, the arrival of Europeans with their diseases wrought demographic disaster on Indian populations.

## NOTES

1. Population data for this section is taken from annual and biennial reports prepared by Santa Cruz missionaries, and preserved in the Santa Barbara Mission Archive Library and in the archive of the Historical Society of Southern California. Population figures for the other northern Alta California missions were also obtained from the Santa Barbara Mission Archive Library.

Table 15  
GENTILE RECRUITMENT AS RELATED TO POPULATION  
AT SAN JOSE MISSION, 1797-1840

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1797	33	0	0	33		33
1798	130	8	8	130		154
1799	58	9	32	35		
1800	119	16	47	88		275
1801	221	22	63	180		
1802	233	15	91	157		622
1803	180	36	110	106		
1804	216	14	174	56		779
1805	171	32	174	29		
1806	28	14	198		156	662
1807	11	27	71		33	
1808	16	11	97		70	544
1809	78	11	62	27		
1810	14	17	58		27	545
1811	473	26	83	416		961
1812	288	60	137	211		1,172
1813	38	55	116		23	1,151
1814	48	33	84		3	1,149
1815	215	35	107	143		1,298
1816	323	39	157	205		1,508
1817	202	56	195	63		1,576
1818	246	55	176	125		1,675
1819	98	56	164		10	1,670
1820	234	47	163	118		1,754
1821	114	54	166	2		1,754
1822	19	39	193		135	1,620
1823	222	46	143	125		1,746
1824	300	32	195	137		1,806
1825	155	43	211		13	1,796
1826	190	25	230		15	1,783
1827	158	33	178	13		1,800
1828	194	21	259		44	1,766
1829	27	36	186		132	1,641
1830	191	30	118	103		1,745
1831	514	33	196	351		1,886
1832	1	26	203		176	
1833	43	49	209		117	
1834	892	42	225	709		
1835	56	51	180		73	
1836	67	44	165		54	
1837	8	58	140		74	
1838	12	40	252		200	
1839	9	39	136		88	
1840	171	61	163	69		1,322

2. In Alta California, fugitives from the missions fled to the hinterland, especially the Central Valley, and in turn organized raids on the missions. In response, the Spanish military establishment mounted punitive expeditions and took both fugitives and

gentiles captive. Documents from northern Baja California mention fugitivism, and there is an indication of a degree of forced conversion (see, for example, Luis Sales, O.P., *Observations on California, 1772-1790*, translated and edited by Charles Rudkin).

Table 16  
GENTILE RECRUITMENT AS RELATED TO POPULATION  
AT SAN RAFAEL MISSION, 1817-1840

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1817	31	0	0	31		
1818	164	15	28	151		386
1819	123	18	25	116		509
1820	102	12	28	86		590
1821	145	11	46	110		696
1822	181	18	55	144		830
1823	96	23	43	76		895
1824	204	20	63	161		839
1825	135	22	67	87		1,008
1826	109	21	64	66		1,051
1827	29	15	38	6		1,050
1828	73	16	62	27		1,026
1829	2	15	35		18	1,008
1830	4	19	29		6	970
1831	143	15	29	129		1,073
1832	5	15	38		18	
1833	0	14	38		24	
1834	2	8	8	2		
1835	0	12	23		11	
1836	0	11	28		17	
1837	1	9	18		8	
1838	2	9	46		35	
1839	9	10	27		8	
1840						93

Table 17  
GENTILE RECRUITMENT AS RELATED TO POPULATION  
AT SAN FRANCISCO SOLANO MISSION, 1823-1840

Year	Gentile Baptisms	Natal Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1823			1		1	
1824	64	32	36	60		692
1825	79	8	30	57		634
1826	96	11	64	43		641
1827	77	13	63	27		667
1828	110	19	89	40		704
1829	94	23	51	66		772
1830	10	15	37		12	760
1831	201	31	53	179		939
1832	101	26	70	57		996
1833	0	22	127		105	781
1834	174	13	46	141		
1835	115	18	49	84		
1836	6	26	1	31		
1837	47	19	24	42		
1838	1	26	92		65	
1839	0	14	40		26	
1840						144

**Table 18**  
**RECORDED BAPTISMS AND BURIALS AT SELECTED ALTA CALIFORNIA MISSIONS**

Mission	Years	Gentile Baptisms		Natal Baptisms		Burials
		Number	Percent	Number	Percent	
San Francisco	1776-1840	4,878	78	1,337	22	5,315
Santa Clara	1777-1840	5,691	70	2,446	30	7,076
Santa Cruz	1791-1840	1,751	76	538	24	2,078
San Jose	1797-1840	7,016	82	1,496	18	6,315
San Rafael	1817-1839	1,560	83	328	17	841
Sonoma	1823-1839	1,125	78	316	22	826
Total		22,021	77	6,461	23	22,451

## REFERENCES

### Archival Sources

- Archdiocese of San Francisco Chancery Archive, Colma, California  
 Fernández, Manuel, O.F.M., untitled manuscript, April 29, 1798, Santa Cruz Mission.
- San Francisco de Asis Baptismal and Burial Registers.  
 San José Baptismal and Burial Registers.  
 San Rafael Archangel Baptismal and Burial Registers.
- Bancroft Library, University of California, Berkeley, California  
 1798a Soler, Pablo, *Metodo facil subinal, como los Rs. Ps. Ministros de estas Misiones pueden tratara a sus Neofitos en case de propagarse a esta Provincia el contagio de las Viruelas arreglado a las circunstancias del pais*, April 23, 1798, Monterey.  
 1798b Soler, Pablo, *Metodo de practicar la Ynoculación de las Viruelas*, May 14, 1798, Monterey.
- San Francisco Solano Baptismal and Burial Registers.
- Branciforte Archive, McHenry Library, University of California, Santa Cruz, California.  
 Figueroa, José, untitled manuscript, December 19, 1833, Monterey.  
 Real, Antonio, O.F.M., untitled manuscript to Joaquín Buelna, July 16, 1838, Santa Cruz Mission.
- Monterey Diocese chancery Archive, Monterey, California  
 San Juan Bautista Burial Register.
- Santa Cruz Baptismal and Burial Registers.  
 Santa Cruz "Libro de Padrones," manuscript.
- Saint Albert's College, Oakland, California  
 Nuestra Señora del Santísimo Rosario Baptismal and Burial Registers.  
 San Fernando Rey de Velicatá Baptismal and Burial Registers.  
 Santo Domingo Baptismal and Burial Registers.
- University of Santa Clara Archive, Santa Clara, California  
 Santa Clara de Asis Baptismal and Burial Registers
- University of Texas General Libraries, W. B. Stevens Collection No. 9, Austin, Texas  
 Borica, Diego de, untitled manuscript, June 30, 1797, Monterey.  
 Borica, Diego de, untitled manuscript, February, 1798, Monterey.

### Published Works

- Archibald, Robert  
 1978 *The Economic Aspect of the California Missions*. Washington, D.C.: The Academy of American Franciscan History.
- Bolton, Herbert H., trans. and ed.  
 1927 *Fray Juan Crespi, Missionary Explorer on the Pacific Coast, 1769-1774*. Berkeley: University of California Press.
- Chance, John  
 1978 *Race and Class in Colonial Oaxaca*. Stanford: Stanford University Press.
- Cook, Sherburne  
 1976 *The Conflict Between the California Indian*

- and White Civilization. Berkeley: University of California Press.
- Cook, Sherburne, and Woodrow Borah  
1971- Essays in Population History (3 vols). Berkeley: University of California Press.
- Flinn, Michael  
1981 The European Demographic System, 1500-1820. Baltimore: Johns Hopkins University Press.
- Guest, Francis, O.F.M.  
1979 An Examination of the Thesis of S. F. Cook on the Forced Conversion of Indians in the Alta California Missions. *Southern California Quarterly* 61(1): 1-77.
- Jackson, Robert H.  
1980- The 1845 Villa de Branciforte Census. *Antepasados* 4: 45-57.  
1981a The 1781-1782 Smallpox Epidemic in Baja California. *Journal of California and Great Basin Anthropology* 3(1): 138-142.  
1981b Epidemic Disease and Population Decline in the Baja California Missions, 1697-1834. *Southern California Quarterly* 63(4): 308-346.  
1983 Population, and the Economic Dimension of Colonization in Alta California: A Study of Four Mission Communities. Paper presented at the Annual Meeting of the Society for California Archaeology / Southwestern Anthropological Association, March, San Diego.
- King, Chester  
1975 Map Indicating Approximate Locations of Many Costanoan and Neighboring Groups Recorded in Spanish Mission Registers. Map on file with the author.
- 1978 Calendarruc Ethnohistory. In: An Assessment of the Cultural Resources of the Lower Pajaro River Basin, California, With Selected Preliminary Field Studies, Rob Edwards and Mary Farley, eds. Manuscript on file at the United States Army Corps of Engineers, San Francisco.
- Kroeber, Alfred  
1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin No. 78.
- Levy, Richard  
1978 Costanoan. In: Handbook of North American Indians, Vol. 8: California, Robert F. Heizer, ed., pp. 485-495. Washington, D.C.: Smithsonian Institution.
- McNeil, William  
1976 Plagues and People. Garden City: Anchor/Doubleday.
- Meigs, Peveril  
1935 The Dominican Mission Frontier of Lower California. Berkeley: University of California Press.
- Sales, O.P., Luis  
1956 Observations on California, 1772-1790. Charles N. Rudkin, ed. and trans. Los Angeles: Dawson's Bookshop.
- Smith, Donald, and Frederick Teggert, trans. and eds.  
1910 Diary of Gaspar de Portolá During the California Expedition of 1769-1770. Academy of Pacific Coast History Publications 1.
- Teggert, Frederick, trans. and ed.  
1910 The Portolá Expedition of 1769-1770, Diary of Miguel Costanso. Academy of Pacific Coast History Publications 11.

