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Demographic Patterns in the Missions of Central Baja California

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THE missions of Baja California provide an ideal opportunity to examine and analyze the causes and consequences of the "Colombian Exchange," the exchange of plants, animals, microbes, and cultural elements, the most important of which was the introduction into the New World of a number of new diseases. Following the arrival of Europeans, the populations of the New World underwent drastic reductions in number as epidemics spread along established trade routes throughout most of North and South America.

Scholars have used different methodologies to study the consequences of the "Colombian Exchange" with varying results. Sherburne Cook and Woodrow Borah, and Noble David Cook, for example, employed tribute lists to estimate the populations of central Mexico and Peru at contact (ca. 1520; in the case of Peru before the first major pandemic of 1520-1524), and the degree of depopulation over the next century or so (S. Cook and Borah 1971-1979; N. Cook 1981). Others have relied heavily on censuses, but few scholars have systematically used sacramental registers of baptisms, burials, and marriages to document demographic patterns or patterns of epidemics.

The missions of northern Mexico lend themselves to studies that employ both censuses and sacramental registers, because many of both types of records have survived; and

individual missions or mission groupings are both suitable units of analysis. Further, methods applied to the historical demography of Europe can be used with success in studies of the missions. Family reconstitution as developed in Europe proves useful in documenting the manifestations of Indian population decline, and the development of European cities and rural villages provide useful analogies for patterns observed in the missions (Flinn 1981; Wrigley and Schofield 1981).

Baja California developed in relative isolation from the problems created by non-Indian settlement and inter-tribal warfare that characterized the other northern frontier regions of Mexico. As such, the peninsular missions serve as an ideal case study of the impact of disease on an Indian population, and the factors that contributed to the actual process of depopulation. Earlier articles have documented the chronology and high mortality of epidemics in Baja California, and the pattern of gentile baptisms as related to the inability of Indian populations to reproduce in the face of high mortality (Jackson 1981, 1983). The missions located in central Baja California, however, present special problems of analysis, and demonstrate different patterns. The older Jesuit missions operated for a longer period of time, and clearly show rapid depopulation from the time of initial establishment to the end of the 18th century, when the process had really only begun in the northern missions. Therefore, a study of central Baja California can focus on the actual causes of

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decline. Registers do not exist for all of the central Baja California missions, but enough are available to not only document aggregate patterns, but also to apply family reconstitution. The following discussion of demographic patterns in the missions of central Baja California, then, will provide a more detailed understanding of the causes of depopulation, and depends on more conventional methodologies of historical demographers, namely the use of family reconstitution in one case.

**NUESTRA SENORA DE LORETO
(ESTABLISHED 1697)**

Loreto was the first successful peninsula mission and served as the headquarters of a small military garrison. As such it not only operated as an Indian mission, but was also one of the centers of non-Indian settlement in Baja California. The location of the mission and presidio so close together probably facilitated the process of miscegenation on a limited scale, although records do not exist to test such an hypothesis. What does survive, however, is a fragment of the baptismal register for the years 1702-1717, the oldest such record for the peninsula missions. An analysis of the baptismal register sheds light on the process of conversion in the first years of operation.

In sixteen years, Jesuit missionary Juan María de Salvatierra baptized 452 Indians—215 adults, and 237 children under age 10 (Table 1). Although incomplete, the record seems to indicate that by 1702 the instruction of adults had reached the point that many of them could be baptized. In 1717, after twenty years of operation, the process of conversion was for all intents and purposes complete. Baptisms after 1715 appear to be of children born at the mission, and not converts (Nuestra Señora de Loreto Baptismal Register).

The first extant census comes from a set of reports prepared in the year 1744, and the

**Table 1
BAPTISMS RECORDED AT
NUESTRA SENORA DE LORETO MISSION,
1702-1717**

Year	Adults	Children	Total
1702	5	20	25
1703-1704*	89	18	107
1705	1	49	50
1706	3	15	18
1707	32	22	54
1708	7	20	27
1709**	23	9	32
1710	14	13	27
1711	16	8	24
1712	4	9	13
1713	6	17	23
1714	5	9	14
1715	1	8	9
1716	8	14	22
1717	1	6	7
Total	215	237	452

*The break between 1703 and 1704 is not clear in the register.

**Epidemic year.

same document records the total number of baptisms from the foundation of the mission. The population totaled 150, and the number of baptisms 1,199 (Jackson 1981: 399, 1982: 66). Assuming that baptisms between 1697 and 1701 totaled some 100, and 452 from 1702 to 1717, then the rough outline of a pattern of decreasing baptisms at the mission begins to emerge. Mean annual baptisms reach 30 between 1702 and 1717, but only 24 from 1718 to 1744. A 1795 report records the total number of baptisms to date as 2,022, and 823 in the fifty years from 1745 to 1795, when the mean number of baptisms per year had dropped to 16 (Misiones Tomo 2: 1795 and 1796 Individual Annual Reports).

Declining numbers of baptisms would seem to indicate a declining population. An examination of census figures confirms this although some fluctuations did occur. As previously noted, there were 150 Indians at Loreto in 1744, 91 in 1755, 109 in 1762, and 99 when the Franciscans replaced the Jesuits in 1768 (Jackson 1981: 339). In 1768

visitor-general José de Gálvez ordered population redistributions among missions, and Loreto received surplus population from San Francisco Xavier Mission raising the population at the former mission to an estimated 191 (Jackson 1981: 324). Once again, however, slow decline set in with some fluctuations in total population. The Indian population stood at 162 in 1774, 70 in 1782 following a major smallpox epidemic, 49 in 1795, and a mere 14 in 1806 (Jackson 1981: 339-340). While the Indian population declined that of non-Indians increased. The population of the presidio was 274 in 1762, and stood at 456 in 1802 (Jackson 1982: 145).

SAN FRANCISCO XAVIER (ESTABLISHED 1699)

Whereas the case of Loreto Mission examined above shows fluctuations in the Indian population but slow decline, San Francisco Xavier Mission was unique in that the Indian population showed recovery and growth in the last twenty to thirty years of the Jesuit period after which it declined. Writing in 1744, missionary Miguel del Barco, S. J., reported a population of 352, and a total of 1,726 baptisms from 1699 to 1744. The Indian population lived at the *cabecera* (head village) and four *visitas* (subsidiary villages) (Del Barco 1973: 423-426). The next census in 1755 reported a population of 380, and in a 1762 report Del Barco confirmed the pattern of a slowly growing population (Jackson 1981: 339). Baptisms between 1745 and 1762 totaled 448 as against 357 burials, and an excess of 91 baptisms. In 1762 the population stood at 448. The report further stated that the population of the mission had increased by 150 since 1738, indicating a population of 298 in that year (Del Barco 1973: 429). The population continued to grow (see Fig. 1), and in 1768 totaled 482 (Jackson 1981: 339).

In 1768, however, the mission lost population to Loreto and San José del Cabo missions, and epidemics further reduced the numbers. In 1768, after the redistribution, there remained some 346 Indians at San Francisco Xavier. The population had fallen to 212 in 1771, indicating a short-term decline of 49% (Jackson 1981: 324). After 1771, however, the population again grew for a number of years. There were 279 Indians in 1773, and 264 in 1774 (Jackson 1981: 339). As late as 1774, the population continued to live at the *cabecera* and three *visitas*. The 1762 report and 1773 and 1774 censuses report the populations of the four villages, showing the degree of change after 1762. Decline occurred in each village, and in 1773 or 1774 San Xavier Antiguo was suppressed with the population being redistributed to the *cabecera* and Dolores *visita*. It would seem that the redistribution in 1773/1774 followed the logic of maximizing the benefits of an agricultural labor force declining in numbers by placing them in the villages with agricultural potential. Table 2 shows short-term shifts in population at the mission, and documents a specific example of a long-term trend in the missions, the contraction of the population into a smaller number of settlements as the process of depopulation progressed.

Table 2
POPULATION CHANGE IN THE VILLAGES
OF SAN FRANCISCO XAVIER MISSION

Village	1762	1768	1773	1774
Cabecera	170		96	111
Santa Rosalia	108		61	58
Dolores	101		69	106
San Xavier Antiguo	69		52	
Total	448	482	279	275

An analysis of census data for the last decades of the 18th century reveals a pattern of slow but steady decline accelerated by

periodic epidemics (Fig. 1). The 1781-1782 smallpox epidemic was the most devastating of the period, and killed a larger number of adults than children, thus reducing the number of adults capable of having children (Jackson 1981:329). Smallpox probably killed some 50 to 75 people at San Francisco Xavier. After the epidemic, in 1782, 169 Indians remained, and the number continued to decline in subsequent years. There were 140 in 1786, 98 in 1802, and 83 in 1808 (Jackson 1981: 339-340). Evidence from four annual reports from the years 1795 to 1798 substantiates the pattern of gradual decline. Baptisms in the four years reached 17 and burials 20, leaving a net loss in population of three people in four years (Misiones Tomo 2: 1795 and 1796 Individual Annual Reports; Provincias Internas Tomo 19: 1797 and 1798 Individual Annual Reports).

After an initial period of decline between about 1700 and 1738, the Indian population of the sierra recovered and grew for about 30 years, roughly 1738 to 1768. Population redistributions and epidemics, however, reduced the total number of people living at the mission and the number of adults capable of bearing children. The pattern after about 1773 seems to be one of slow population decline accelerated by periodic epidemics.

SAN JUAN BAUTISTA MALIBAT (ESTABLISHED 1705)

Little is known about this short-lived mission which existed for a mere sixteen years. The only information relating to the mission population comes from a report in the 1744 series. According to the report, an attack by Indians living on islands off the peninsula destroyed the mission sacramental registers, and all that survived was the record for the years 1716-1721. In those years, 215 Indians received baptisms, or an average of 43 persons per year. In 1721, missionary Clemente Guillen, S. J., removed the mission to a

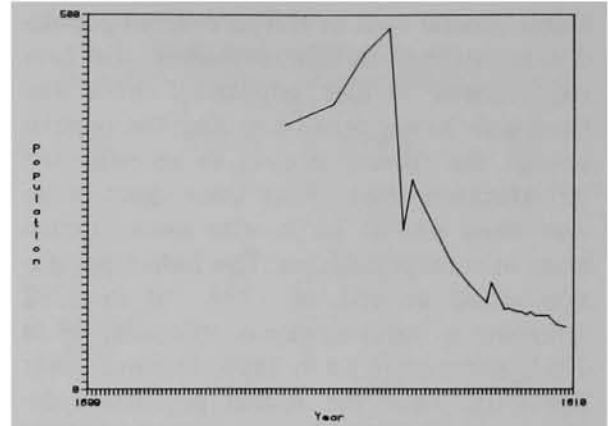


Fig. 1. Population of San Francisco Xavier Mission.

site further south among the Guaicura, and changed the name to Dolores. Guillen also moved the Indians from Malibat to the new establishment (Guillen Ms. 1744). Beyond those details not much can be said about the mission.

SANTA ROSALIA DE MULEGE (ESTABLISHED 1705)

Mulegé Mission proves to be an interesting case study. The extant burial register, which begins in 1718, is the oldest record of burials for the peninsula. Further, the extant baptismal register survives for the period 1771-1854, and thus documents the transition from an Indian village to a mestizo village. In addition to the analysis of aggregate baptisms and burials and changes in the population, a modified form of family reconstitution shall be applied for the years 1771-1821. The use of this methodology provides a more detailed data base for explaining the dynamics of depopulation in a closed mission population.

The earliest record is a 1730 report which recorded a population of 346 living in 13 rancherias. The record shows a slow but continuous population decline. There were 326 Indians in 1744, 294 in 1755, 281 in 1762, and 245 in 1768. Epidemics in 1768-1769, 1772, and 1782 reduced the

numbers to 75 in 1782, and 55 in 1794 (Luyando Ms. 1730; Jackson 1981: 339). In 1795, the Dominicans suppressed Guadalupe Mission, and some Indians from the former mission went to Mulegé. Evidence for the relocation can be seen in the Mulegé marriage register with marriages in 1795 and subsequent years of Indians from Guadalupe (Santa Rosalia de Mulegé Marriage Register). With the transfer of population from Guadalupe the numbers rose to 88 in 1795, but again began to decline over the next thirteen years. There were 84 Indians in 1797, 72 in 1800, 66 in 1804, and 39 in 1808 (Jackson 1981: 340).

An analysis of baptisms and burials can be made for a 50-year period, 1771-1821. The Jesuits had completed the process of conversion, and the mission population was a closed population. The numbers reached 180 Indians at the beginning of the period and, as previously noted, Mulegé received 33 "immigrants" from Guadalupe in 1795. In the years immediately preceding the 1782 smallpox epidemic, the record showed a net loss in population of but one. The mission population totaled 179 Indians on the eve of the smallpox epidemic. The epidemic itself left a negative balance of 74. Twenty-two married adults from the sample used for the family reconstitution died in 1782. A number of remarriages of widowers and widows occurred in the years following the epidemic, but the number of potential parents never reached pre-epidemic levels. Between 1783 and 1809, the Dominicans recorded a negative balance of 64 burials over baptisms. There is an eight-year hiatus in the record between 1810 and 1816, and the missionaries recorded a net gain in population of five between 1817 and 1822 (Table 3) (Santa Rosalia de Mulegé Baptismal and Burial Registers). The Mulegé Indian population reached near stability in the years 1772-1781. The 1782 smallpox outbreak, however, wiped out a significant

percentage of the married adult population, and in the years following the epidemic birth rates failed to match death rates. As a result the Indian population declined by 28% between 1771 and 1808.

Family reconstitution sheds further light on the patterns contributing to Indian depopulation. The weakness of the methodology, however, is the lack of any ages in the sacramental registers. To overcome this difficulty a smaller sample has been taken of individuals whose date of birth/baptism can be used to calculate age at first marriage or at death. The following reconstitution is based on a group of 75 married women who bore at least one child between 1771 and 1835, but had married by 1821. The number of women whose date of first marriage was recorded in the register was 31. The mean age of first marriage for women was extremely low. An admittedly small sample of twelve women and eight men gave mean ages at first marriage of thirteen years and nineteen years and six months, respectively. Based on the sample of 31 women the mean period between first baptism and the baptism of the last child born was six years and six months, and the mean number of children was three.

A sample of 143 children whose age at death can be calculated shows a pattern of high infant and child mortality. The sample is biased, however, in that the age at death of few adults could be ascertained. Nevertheless, some individuals in the sample did live past age ten. Of the total, 50% died before reaching their first birthday, another 33% from age one to five, 11% from age five to ten, and 6% lived past age ten (Santa Rosalia de Mulegé Baptismal, Burial, and Marriage Registers).

The data base was small in some respects, but a number of conclusions can be reached. Moreover, a useful comparison can be made with data from two other family reconstitutions of mission populations. Women married

Table 3
POPULATION, BAPTISMS, AND BURIALS AT
SANTA ROSALIA DE MULEGE MISSION, 1781-1828

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1718		4			
1719		4			
1720		4			
1721		4			
1722		9			
1723		115			
1724		5			
1725		7			
1726		17			
1728		62			
1729		59			
1730					346
1731		9			
1732		24			
1735		6			
1736		9			
1737		12			
1738		11			
1739		7			
1740		24			
1741		33			
1742		9			
1743		13			
1744		43			326
1745		37			
1746		7			
1747		18			
1748		35			
1749		31			
1750		19			
1751		23			
1752		17			
1753		12			
1754		22			
1755		10			294
1756		7			
1757		25			
1758		5			
1759		15			
1760		35			
1761		20			
1762		23			281
1763		17			
1764	12	19		7	
1765		14			
1766		27			
1768					245
1769		66			
1770		28			
1771	(5)	13			180
1772	15	13	2		

(Table 3 continued from previous page)

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1773	5	13		8	165
1774	17	7	10		158
1775	10	10	0	0	
1776	8	7	1		
1777	13	11	2		
1778	6	10		4	
1779	9	5	4		
1780	6	10		4	
1781	8	12		4	
1782	1	75		74	75
1783	7	0	7		
1784	3	6		3	
1785	0	6		6	
1786	8	10		2	72
1787	3	3	0	0	
1788	3	12		9	
1789	4	2	2		
1790	5	6		1	58
1791	4	5		1	64
1792	3	7		4	
1793	7	6	1		
1794	5	3	2		55
1795	5	5	0	0	88
1796	5	6		1	88
1797	4	11		7	84
1798	3	9		6	76
1799	4	6		2	71
1800	3	6		3	72
1801	3	7		4	64
1802	4	9		5	66
1803	3	6		3	
1804	2	7		5	66
1805	0	4		4	
1806	2	7		5	51
1807	1	4		3	
1808	4	4	0	0	39
1809	0	4		4	
1810	1				
1813	1				
1815	2				
1816	2				
1817	3	2	1		
1818	5	2	3		
1819	1	3		2	
1820	4	1	3		
1821	2	1	1		
1822	3	2	1		
1823	6				
1824	5				
1825	7				
1826	3	4		1	
1827	5	7		2	
1828	1	2		1	

young at Mulegé, and the mean period of childbearing was only six years. Women bore children at intervals of about two years and had three children on the average, but most children died before reaching age ten. At Tumacácori Mission in southern Arizona and the San Antonio, Texas, missions, women married and died young. At Tumacácori, a sample of 123 children gave a figure of 94% mortality before age ten, and it was 82% at the San Antonio missions (San José de Tumacácori Baptismal, Burial, and Marriage Registers; Schuetz 1980: 153).

As the Indian population declined in the last years of the 18th and the first years of the 19th centuries, a small non-Indian population grew alongside the mission consisting of soldiers, mission foremen, and their families. In 1798, for example, there were 20 non-Indians, 16 in 1800, and 22 in 1804 (Jackson 1982: 153). The record indicates little miscegenation between the Indian and non-Indian populations in the last years of the mission period. Only one Indian married a non-Indian and illegitimacy, an indicator of illicit relationships outside of formal marriage, was minimal. The non-Indian families, however, suffered high infant and child mortality rates. The *mayordomo* Luis Aguilar, for example, lost two of three children born at Mulegé between 1796 and 1802 (Santa Rosalia de Mulegé Baptismal, Burial, and Marriage Registers).

In the 1820s and 1830s the settler population grew through natural reproduction. Between 1822 and 1854 priests stationed at Mulegé baptized 407 people. From 1822 to 1828, 32 received baptism, an average of 4.6 per year. Of the total only a handful were baptisms of Indian children, and the priests identified 14 as *gente de razón*—"people of reason" (i.e., the non-Indian population). In 1828, the priests dropped the convention of differentiating between settler and Indian. Baptisms between 1833 and 1854 totaled 375

(there were no baptisms in 1846), or an average of 17.6 per year. Only one Indian, the child of "Gentiles from San Vicente" in northern Baja California was specifically identified. Burials from 1822 to 1839 totaled 21, leaving an excess of 81 baptisms in those years (Santa Rosalia de Mulegé Baptismal and Burial Registers). In 1847, the population of ex-missions San Ignacio, Mulegé, and Comondú was 1,000 (Jackson 1982: 154). Birth rates increased in relation to death rates, and the predominately mestizo population grew forming a village below the mission where modern Mulegé stands today. The small remnant Indian population merged with the mestizo population, and lost any separate cultural identity that may have survived after more than a century of acculturation in the missions.

SAN JOSE DE COMONDU (ESTABLISHED 1708)

In terms of extant sacramental registers those for Comondú Mission are the most complete for the older Jesuit missions founded before 1730. A complete run of baptisms exists for the years 1736-1806, and for burials from 1737-1826, both registers dating from the period during which the Jesuits relocated the mission. The nature of the record enables both aggregate and census analysis. Further, backward projection can be used to calculate the mission population at different points in time by adding or subtracting the aggregate of baptisms and burials from existing censuses. The accuracy of the method is shown by the fact that the 1755 census figure of 387 persons can also be determined using backward projection. Using this method, a 1737 population of 423 can be estimated, 413 in 1744 (San José de Comondú Baptismal and Burial Registers).

Aggregate analysis reveals a pattern similar to that at Mulegé. Between 1737 and 1768, the mission experienced a net loss in popula-

tion of 93, a mean loss of three persons per year. During the same years the numbers dropped from an estimated 423 in 1737 to 330 in 1768. In 1768, the mission received excess population from Guadalupe Mission, and through backward projection a mission population of 354 can be estimated after redistribution (San José de Comondú Baptismal and Burial Registers).

The slow decline of the Jesuit years accelerated into a more rapid loss following the 1769 measles and 1781 smallpox outbreaks. During the first epidemic year the population experienced a net loss of 129, and 80 during the second. By 1782, only 80 Indians remained, a decline of 77% over a period of only thirteen years. The two epidemics reduced the number of adults capable of having children, and birth rates consequently declined. Between 1769 and 1806, the net loss of population was 526, which seems contradictory when one considers the estimated size of the mission population in 1768 (Table 4). A close examination of the registers reveals the details of the extinction of the original population at Comondú Mission. The relocation of people from Guadalupe Mission has already been noted, and the Guadalupeños appear in the baptismal and burial registers with some regularity until the 1790s. Natives of Comondú appear in the registers until about 1782, and then a new group predominates. After 1783, Dominicans stationed at Comondú baptized three children of Indians from Santa Gertrúdis and buried eight. After 1785, missionaries baptized seven children of San Francisco de Borja Indians, and buried thirty-one. Similarly, after 1770 the missionaries buried a small number of Indians from San Francisco Xavier. What this appears to reflect is a small-scale migration between the older Jesuit missions, and an apparently conscious effort to repopulate the mission after the disastrous smallpox epidemic by relocating Indians from Santa Ger-

trúdis and San Francisco de Borja. For all intents and purposes the original population at Comondú Mission was extinct after 1782 (San José de Comondú Mission Baptismal and Burial Registers).

SAN MIGUEL CADANDOGOMO/COMONDU

San Miguel did not operate as a formal mission for most of its history, but was a *visita* of two other missions. Nevertheless, a short baptismal register survives, and serves as a case study of the history of a subsidiary settlement. Evidence from the register suggests that San Miguel had a resident missionary at least between the years 1730 and 1737.

The development of San Miguel began in 1714 under the direction of San Francisco Xavier missionary Juan de Ugarte, S. J.. The mission had the advantage of a relatively abundant water supply. Improvements included a dam and irrigation system, and the filling of a gorge with dirt and rock to create a trail to the site. Ugarte also settled Indians at the new village to provide labor for agricultural production (Dunne 1952: 171-172). Simultaneously, Juan María de Salvatierra, S. J., discovered the agricultural potential of the valley, and established a *visita* several miles from San Miguel with the name San Ignacio (Del Barco 1973: 255).

As frequently occurred in the early years of the Baja California missionary enterprise, San Ignacio and San Juan Londo *visitas* of Loreto Mission were transferred to the jurisdiction of Comondú in 1717 after Salvatierra's death. It was difficult to administer the two villages from Loreto, and the Indians living at the two *visitas* spoke the same language as that at Comondú. Between 1736 and 1738 missionary William Gordon, S. J., or Francisco Xavier Wagner, S. J., moved Comondú Mission to the site of San Ignacio to take advantage of a more abundant water supply, and in 1737 San Miguel was transferred to the jurisdiction of Comondú Mission.

Table 4
**POPULATION, BAPTISMS, AND BURIALS RECORDED AT
 SAN JOSE DE COMONDU MISSION, 1736-1826**

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1736	2				
1737	18	15	3		(423)*
1738	30	18	12		
1739	30	27	3		
1740	27	23	4		
1741	23	29		6	
1742	28	35		7	
1743	32	32	0	0	
1744	7	26		19	(413)
1745	59	48	11		
1746	22	39		17	
1747	29	13	16		
1748	26	67		41	
1749	27	23	4		
1750	27				
1751	22	16	6		
1752	29	24	5		
1753	29	60		31	
1754	34	22	12		
1755	35	26	9		387
1756	24	25		1	
1757	31	32		1	
1758	20	30		10	
1759	19	34		15	
1760	27	26	1		
1761	24	27		3	
1762	19	26		7	350
1763	23	25		2	
1764	20	23		3	
1765	21	31		10	
1766	12	22		10	
1767	24	8	16		
1768	13	1	22		330
1769	31	160		129	
1770	28	37		9	(225)
1771	14	33		19	216
1772	17	32		15	
1773	20	49		29	284
1774	9	22		13	269
1775	0	27		27	
1776	8	18		10	
1777	9	26		17	
1778	7	37		30	
1779	2	34		32	
1780	8	19		11	(163)
1781	3	83		80	
1782	3	7		4	80

*Population estimates based on backward projection (see text) indicated by parentheses.

(Table 4 continued on following page)

(Table 4 continued from previous page)

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1783	3	11		8	
1784	6	7		1	
1785	2	8		6	
1786	2	5		3	73
1787	3	19		16	
1788	2	14		12	
1789	5	8		3	
1790	3	4		1	67
1791	4	5		1	
1792	3	7		4	
1793	1	11		10	
1794	2	7		5	40
1795	2	3		1	46
1796	0	7		7	40
1797	0	7		7	41
1798	5	11		6	40
1799	1	3		2	19
1800	1	2		1	21
1801	1	1	0	0	20
1802	1	2		1	26
1803	3	3	0	0	30
1804	2	4		2	20
1805	2	5		3	26
1806	2	3		1	28
1807		2			
1808		3			36
1809		3			
1810		1			
1811		3			
1814		1			
1816		2			
1817		1			
1818		2			
1822		1			
1825		4			
1826		3			

As the process of depopulation progressed, however, the Jesuits stationed at Comondú removed the populations of the *visitas* to the *cabecera* (Del Barco 1973: 256-259).

The extant baptismal register indicates several patterns. Firstly, it appears that by 1730 the Jesuits had largely completed the process of conversion in the sierra. Of 57 Indian baptisms recorded between 1730 and 1737, all but four were of children, and only seven gentiles. Comondú missionaries recruit-

ed a number of Guaicura from the northern Magdalena Desert, thirteen between 1735 and 1737, indicating that the Jesuits had expanded their activities to the northernmost Guaicura rancherías south and east of San Miguel (San Miguel de Cadandogomo Baptismal Register).

The evidence is not conclusive, but it appears that San Miguel, as noted, had a resident priest during the years 1730-1737. It would make sense to station a missionary in

such an important agricultural area. Agustín María Luyando, S. J., tended San Miguel. The last entry in the register records the extinction of San Miguel as a separate mission in 1737 after Comondú Mission had been relocated to San Ignacio. There was no need for two missionaries assigned to villages only a few miles apart (San Miguel de Cadandogomo Baptismal Register).

LA PURISIMA CONCEPCION DE CADEGOMO (ESTABLISHED 1718)

The sources for the next three missions, Purisima, Guadalupe, and San Ignacio are fragmented, and thus a less detailed analysis can be made. For La Purísima there is a fragmentary burial register and scattered data on baptisms, but a good run of census figures from the early years of the mission's operation (Fig. 2).

The record shows a fairly continuous decline in population from 1720 to the end of the Jesuit period. From some 2,000 (ca. 1720) the numbers dropped to 152 in 1768. The mission received excess population from Guadalupe Mission in 1768 but, as Francisco Palou, O. F. M. observed, mortality during the 1769 measles epidemic wiped out the increase in population. There were 175 Indians in 1774, 81 in 1782 after the smallpox outbreak of the previous year, 77 in 1795, and 61 in 1808 (S. Cook 1937: 5; Jackson 1981: 339).

The extant burial register is too incomplete to reach any definite conclusions, but there is evidence of the impact of the 1781 smallpox epidemic (Table 5). The net loss in population in 1781 was 73, and using backward projection a pre-epidemic population of 154 and a decline of 47% can be estimated for 1781. The 1795-1798 annual reports record baptisms, and show a net loss in population over the four years (La Purísima Concepción de Cadegomo Burial Register; Misiones Tomo 2: 1795 and 1796 Individual Annual Reports;

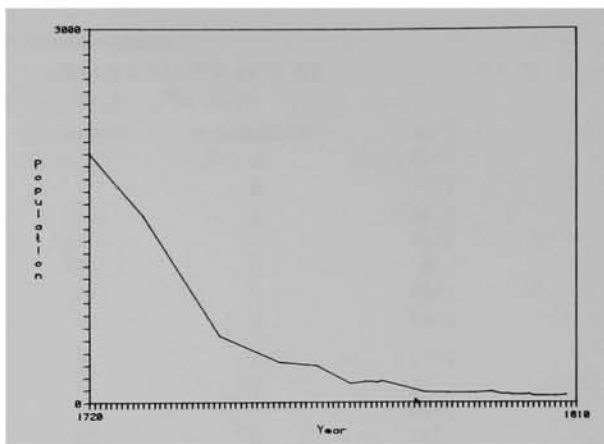


Fig. 2. Population of La Purísima Concepción de Cadegomo Mission.

Provincias Internas Tomo 19: 1797 and 1798 Individual Annual Reports).

As was the case with the other missions, the Indian population of La Purísima Mission declined drastically during the first years of operation. The rate of decline slowed in the last Jesuit years, but the 1769 and 1781 epidemics exacted a heavy mortality and reduced the number of adults capable of having children, and birth rates consequently fell.

NUESTRA SENORA DE GUADALUPE (ESTABLISHED 1720)

No sacramental registers survive for Guadalupe Mission, but there are several counts and estimates for the early period of its operation. The maximum recorded population was 2,000 in 1723, but the numbers fell rapidly as the result of epidemics and redistributions of the population following establishment of San Ignacio Mission in 1728. A 1726 figure recorded a total population of 1,707, but Homer Aschmann calculated an adjusted figure of 1,065 to account for the transfers of a part of the population to the jurisdiction of San Ignacio (Aschmann 1959: 155).

In subsequent years, the population continued to decline, but in the last Jesuit years

Table 5
**POPULATION, BAPTISMS, AND BURIALS AT
 LA PURISIMA CONCEPCION DE CADEGOMO, 1720-1809**

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population 2,000
1720					1,496
1730					535
1744					320
1755					
1757		35			
1758		16			
1759		16			
1762					295
1768					152
1770		(8)*			
1771		20			168
1772		(6)			
1773		(9)			160
1774					175
1775		(8)			
1776		13			
1777		18			
1778		18			
1779		11			
1780		12			
1781	2	75		73	
1782		7			81
1783		8			
1784	1	9		8	
1785	10	8	2		
1786		(6)			76
1788		(2)			
1789		(4)			
1790		(3)			81
1793		(3)			
1794		(5)			91
1795	2	10		8	77
1796	1	4		3	68
1797	4	7		3	69
1798	3	7		4	63
1800		(4)			61
1801					67
1802					51
1803					54
1804					51
1805		(7)			
1806					55
1807		(1)			
1808		(6)			61
1809		(4)			

* Figures in parentheses represent incomplete data.

growth occurred through natural reproduction. A 1744 report recorded a population of 701 living at five rancherías (Gasteiger Ms. 1744). An event in the same year demonstrated that factors other than disease contributed to population decline. In November of that year the adobe church at the *cabecera* collapsed killing some 100 people (Del Barco 1973: 261). The population numbered 472 in 1755, 524 in 1762, and 544 in 1768 (Fig. 3; Jackson 1981: 339).

As previously noted, the Franciscans moved excess population from Guadalupe to Comondú and La Purísima in 1768, and the 1769 measles epidemic further reduced the numbers. One hundred and forty Indians remained in 1771, 176 in 1774, 105 in 1782, and 74 in 1794 (Jackson 1981: 339). In 1795, the civil government ordered Guadalupe Mission closed, and at least 33 Indians went to Mulegé Mission. Former mission lands were converted into private ranches (Aschmann 1959: 213).

SAN IGNACIO (ESTABLISHED 1728)

A fragment of this baptismal register survives, and in some years the missionaries noted the number of burials in the baptismal register. There are also a number of population counts for the early years of the mis-

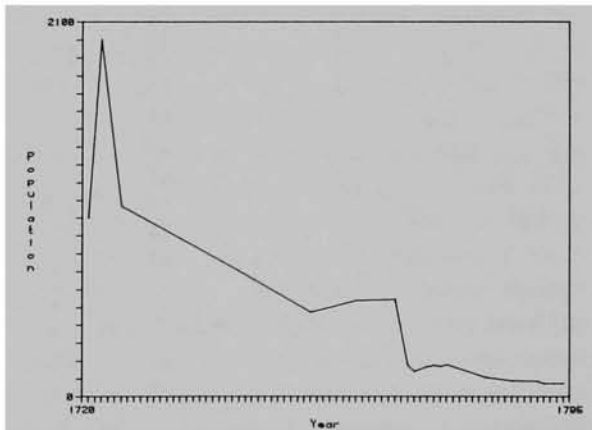


Fig. 3. Population of Nuestra Señora de Guadalupe Mission.

sion's operation. Before discussing the evidence of the baptismal register, the census data will be analyzed.

The Jesuits prepared the first census in 1730, and recorded a population of 1,249. The question is one of what the maximum mission population was. Aschmann (1959) recorded a figure of 3,000 for 1743, and there were 1,147 in 1752 and 1,012 in 1755. Mortality during the 1744-1745 and 1748 epidemics may have been heavy enough to reduce the numbers by nearly 2,000, but a low figure of 750 in 1745 seems to cast doubt on the 1743 figure. Aschmann (1959) suggested that the figure may represent an earlier time as it did not reflect losses resulting from the 1742 outbreak. On the other hand, some decline can be attributed to the transfer of some 600 people to the jurisdiction of Santa Gertrúdis when that mission was established in 1752, so perhaps the 1743 figure can be accepted as "accurate" (cf. Aschmann 1959: 156-157; Jackson 1981: 339).

Whereas the population of several missions recovered in the last Jesuit years, that of San Ignacio continued to decline until the early 19th century with some fluctuations. It stood at 838 Indians in 1762, 558 in 1771, 34 in 1773, 241 in 1774, 190 in 1795, 133 in 1800, and 81 in 1808 (Fig. 4; Jackson 1981: 339-340).

The baptismal register reflects two distinct phases in the development of the mission. Between 1743 and 1750 missionary Fernando Konsag, S. J., baptized at least 689 people, the majority of whom probably lived in territory later assigned to newly founded Santa Gertrúdis Mission. The number of baptisms declined after the establishment of Santa Gertrúdis in 1752. Between 1759 and 1765, there were 279 baptisms, and the number of baptisms/births declined even more after the 1769 and 1772 epidemics (San Ignacio Baptismal Register).

Although the register is far from com-

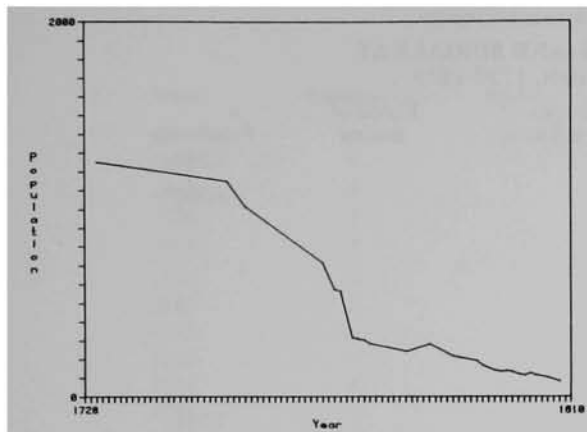


Fig. 4. Population of San Ignacio Mission.

plete, there are 22 years between 1774 and 1804 for which excesses of baptisms or burials can be calculated (pages are missing from the register). In those years, the mission faced a net loss in population of 209. Death rates, then, were consistently higher than birth rates (Table 6; San Ignacio Baptismal Register).

SANTA GERTRUDIS (ESTABLISHED 1752)

Santa Gertrúdis is the first mission for which complete runs of baptisms and burials exist from the date of establishment. Furthermore, there is a fairly good set of population counts beginning in 1755, only three years after the establishment of the mission.

Plans for establishing a mission north of San Ignacio existed as early as the 1740s and, as noted above, San Ignacio missionary Fernando Konsag, S. J., baptized numbers of Indians in the territory of the projected mission. It was not until 1751 that a missionary, Jorge Retz, S. J., was available for the new mission. In 1751, the establishment already had a population of some 600 Indians converted by Konsag (Del Barco 1973: 278).

The pattern observed in the sacramental registers is one of rapid growth in the mission population. Between 1752 and 1763 baptisms

exceeded burials by 1,009, and the mission population grew to 1,586 in 1755, and a recorded maximum of 1,730 in 1762. After 1764, however, the number of gentiles brought into the mission declined, and birth rates failed to match death rates. Further, epidemics in 1769, 1772, and 1781-1782 exacerbated the situation. In non-epidemic years, the population experienced a net loss of 194, with an annual mean loss of five individuals. In comparison, the net loss during four epidemic years was 737. Put in other terms, 79% of the net loss in population between 1764 and 1811 occurred during four epidemic years (Santa Gertrúdis Mission Baptismal and Burial Registers). Census data reflect the net loss in population after 1764. There were 1,360 Indians in 1768, 1,138 in 1771, 317 in 1782, 203 in 1800, and 137 in 1808 (Jackson 1981: 339-340).

The analysis of the data for Santa Gertrúdis provides the strongest proof of the role of epidemics in the process of Indian depopulation. Four epidemic years accounted for 79% of the net population loss during the period roughly corresponding to the end of gentile recruitment. The pattern observed at Santa Gertrúdis parallels that at the other missions, drastic decline following the incorporation of the bulk of the gentile population into the mission community. In the case of Santa Gertrúdis, however, the population showed no sign of recovery.

SAN FRANCISCO DE BORJA (ESTABLISHED 1762)

Santa Gertrúdis missionary Jorge Retz, S. J., paved the way for the foundation of San Francisco de Borja Mission in 1762, and at the time of the founding of the mission some 300 people were transferred to the jurisdiction of the new establishment (Del Barco 1973: 299). In 1762, missionary Wenceslao Linck, S. J., recorded a net gain in population of 184, and the population numbered 498

Table 6
 POPULATION, BAPTISMS, AND BURIALS AT
 SAN IGNACIO MISSION, 1730-1819

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1730					1,249
1743	30				3,000
1744	165				
1745	97				
1746	123				
1747	31				
1748	174				
1749	5				
1750	64				
1752					1,147
1755					1,012
1759	29				
1760	58				
1761	29				
1762	51				838
1763	47				
1764	52				
1765	13				
1768					710
1770					572
1771					558
1773					314
1774	17	24		7	
1775	9	20		11	
1776	22	24		2	
1777	17	15	2		
1778	13				
1780	24	24	0	0	
1781	16	24		8	
1782	11	57		46	241
1783	19				
1786					280
1789	17	42		25	
1790	12	13		1	216
1791	6	16		10	210
1792	3				
1793	6	18		12	
1794	2	23		21	190
1795	5	13		8	168
1796	8	15		7	152
1797	2	21		19	139
1798	6	10		4	133
1799	6	10		4	137
1800	9	15		6	130
1801	10	14		4	120
1802	5	13		8	113
1803	8	10		2	
1804	9	15		6	113

(Table 6 continued on following page)

(Table 6 continued from previous page)

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1805	7				
1806	7				102
1807	5				
1808	3				
1809	8				
1810	4				
1811	4				
1812	4				
1813	1				
1814	4				
1815	3				
1816	4				
1817	8				
1819	1				

(Jackson 1981: 339; San Francisco de Borja Baptismal and Burial Registers).

The registers show a short period of population growth, a mere six years, but during these years Linck recorded a net gain in population of 1,450. The maximum recorded population of 1,640 came in 1768. After 1769, however, the rate of gentile recruitment slowed and birth rates failed to match death rates. Epidemics in 1769, 1772, 1777, 1780, 1794, and 1796 killed large

numbers of people, especially the 1769 and 1772 outbreaks. The net result was loss in population between 1769 and 1816 of 1,047, and of this total 67% occurred in epidemic years and 51% in 1769 and 1772. From 1,479 in 1771, the numbers dropped to 1,000 in 1773, 657 in 1782, 500 in 1795, and 192 in 1808 (Table 8, Fig. 5; Jackson 1981: 339-340; San Francisco de Borja Baptismal and Burial Registers).

Table 7
POPULATION, BAPTISMS, AND BURIALS AT
SANTA GERTRUDIS MISSION, 1751-1816

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1751	29				
1752	70	96		26	
1753	335	82	253		
1754	536	160	376		
1755	184	142	42		1,586
1756	85	172		87	
1757	181	104	77		
1758	177	81	96		
1759	168	72	96		
1760	174	87	89		
1761	110	105	5		
1762	225	180	45		1,730
1763	103	89	14		
1764	76	89		13	

(Table 7 continued on following page)

(Table 7 continued from previous page)

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1765	75	80		5	
1766	69	77		8	
1767	64	86		22	
1768	51	51	0	0	1,360
1769	85	177		92	
1770	49	87		38	
1771	89	87	2		1,138
1772	35	370		335	
1773	53	46	7		808
1774	45	33	12		798
1775	37	30	7		
1776	41	38	5		
1777	23	34		11	
1778	28	23	5		
1779	33	41		8	
1780	33	41		8	
1781	28	193		165	
1782	11	163		152	317
1783	19	21		2	
1784	15	21		6	
1785	14	14		1	
1786	17	13	4		284
1787	12	12	0	0	
1788	8	24		24	
1789	13	12	1		
1790	16	8	8		241
1791	7	8		1	244
1792	8	6	2		
1793	11	13		2	
1794	13	23		10	234
1795	8	12		4	217
1796	9	9	0	0	224
1797	14	17		3	218
1798	9	12		3	226
1799	4	10		6	203
1800	12	11	1		203
1801	7	0	7		208
1802	7	21		14	198
1803	10	13		3	171
1804	9	22		14	198
1805	3	23		20	
1806	8	11		3	137
1807	8	15		7	
1808	5	10		5	137
1809	5	5	0	0	
1810	5	12		7	
1811	4	10		6	
1812	(2)	10			
1813		5			
1814		4			
1815		6			
1816		1			

Table 8
 POPULATION, BAPTISMS, AND BURIALS AT
 SAN FRANCISCO DE BORJA MISSION, 1762-1827

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1762	253	69	184		498
1763	420	143	277		
1764	360	90	270		
1765	353	64	289		
1766	321	67	254		
1767	156	78	78		
1768	185	87	98		1,640
1769	103	204		101	
1770	73	132		59	
1771	70	138		68	1,479
1772	33	448		415	
1773	66	74		8	1,000
1774	55	67		12	978
1775	52	53		1	
1776	43	56		13	
1777	23	86		63	
1778	29	43		14	
1779	42	38	4		
1780	35	76		41	
1781	36	53		17	
1782	27	35		8	657
1783	29	28	1		
1784	19	30		1	
1785	32	25	7		
1786	22	26		4	695
1787	21	21	0	0	
1788	27	47		20	
1789	18	36		18	
1790	23	20	3		614
1791	18	18	0	0	623
1792	8	6	2		
1793	12	14		2	
1794	5	36		31	539
1795	13	19		3	500
1796	9	40		31	452
1797	9	19		10	450
1798	5	4	1		443
1799	11	21		10	
1800	9	16		7	400
1801	15	17		2	395
1802	14	26		12	359
1803	15	11	4		
1804	9	0	9		359
1805	11	0	11		
1806	16	26		10	270
1807	2	25		23	
1808	6	18		12	192
1809	6	11		5	

(Table 8 continued on following page)

(Table 8 continued from previous page)

Year	Baptisms	Burials	Excess of Baptisms	Excess of Burials	Population
1810	6	8		2	
1811	5	16		11	
1812	4	9		5	
1813	5	8		3	
1814	3	11		8	
1815	3	9		6	
1816	3	12		9	
1817	(3)	14			
1818		5			
1819		6			
1820		7			
1821		4			
1822		1			
1823	1				
1824	2				
1827	2				

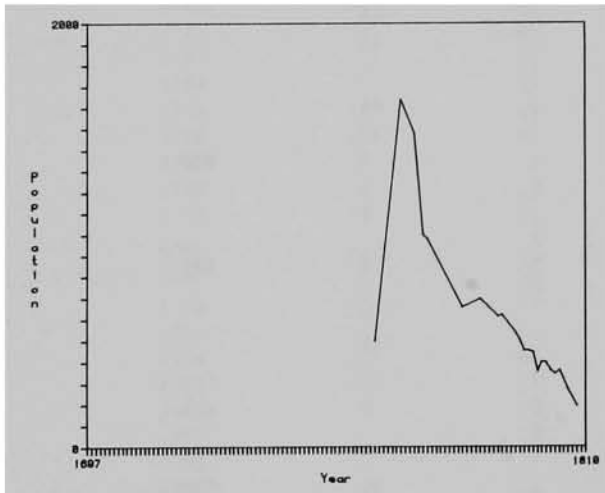


Fig. 5. Population of San Francisco de Borja Mission.

CONCLUSIONS

The analogy of the European city from 1500 to 1800 applies to the case of the missions of central Baja California. Unhealthy conditions in the cities contributed to high mortality rates, rates higher than birth rates. Immigration from the rural hinterland, however, maintained and continued to expand urban populations. Overcrowding, poor diet and sanitation, and epidemics of smallpox and measles all contributed to high mortality in

the cities (Flinn 1981: 22-23).

The missions in central Baja California demonstrated a similar pattern, but with a different result. The cities of Europe had open populations, receiving immigrants from the hinterland. The missions, on the other hand, can be characterized as closed populations. Once constituted, mission communities received no major influx of immigrants from a hinterland, although officials shifted populations between missions on several occasions. In the case of Santa Gertrúdis and San Francisco de Borja, the Jesuits recruited the bulk of the gentile population in a very short period of time. San Francisco de Borja experienced growth through recruitment during six years, and decline followed once the missionaries could find no new source of recruits.

Decline resulted from a number of factors. Periodic epidemics invaded the mission communities, and killed large numbers of children and adults. Almost 70% of the net decline in population after 1769 at San Francisco de Borja occurred in epidemic years, and outbreaks clearly made significant inroads into the populations of other missions. Based on the one family reconstitution, it appears that Indian women in the missions

did not necessarily have problems bearing children, but that they died after a short period of child bearing. Further, most of their children died before they reached the age of ten. Epidemics killed some children, but generally had a greater impact in reducing the number of adults capable of bearing children or in possibly leaving surviving women incapable of bearing children. Epidemics came with too high a frequency, and too few children survived to make up losses incurred from the epidemics.

Rates of decline differed over time. After the initial formation of a mission community, a period of rapid decline generally followed. In the older Jesuit missions in Baja California, on the other hand, the rate of decline slowed in the decades before the Jesuit expulsion, and the population of two missions actually grew after about 1740. The Jesuit expulsion, however, brought Baja California into closer contact with mainland Mexico, and saw the influx of new personnel associated with the change in administration and the push to Alta California. A new series of epidemics devastated the peninsula, and mission populations entered into a period of more rapid decline. In the case of one mission, Comondú, the original Indian population was for all intents and purposes extinct by the early 1780s following the 1769 and 1781 epidemics.

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