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## *A Pest in the Land*



NEW WORLD EPIDEMICS IN A GLOBAL PERSPECTIVE

Suzanne Austin Alchon

UNIVERSITY OF NEW MEXICO PRESS  
ALBUQUERQUE

For my parents,  
Hadley Warner Austin and Elizabeth Coombs Austin,  
and my daughter,  
Lilla Aimée Austin Alchon

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• Contents •

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LIST OF ILLUSTRATIONS vii

ACKNOWLEDGMENTS ix

INTRODUCTION i

CHAPTER 1. OLD WORLD EPIDEMIOLOGY TO 1500	6
<i>The Universal Nature of Human Responses to Disease</i>	9
<i>The Origins and History of Human Disease in the Old World</i>	15
<i>The Significance of the Old World Disease Experience</i>	30
CHAPTER 2. AMERINDIANS AND DISEASE BEFORE 1492	32
<i>Dating the Arrival of Humans in the New World</i>	33
<i>Health and Disease Before 1492</i>	36
<i>Patterns of Mortality among Hunter-Gatherers</i>	39
<i>Patterns of Mortality among Sedentary Agriculturalists</i>	45
CHAPTER 3. COLONIALISM, DISEASE, AND THE SPANISH CONQUEST OF THE CARIBBEAN, MESOAMERICA, AND THE CENTRAL ANDES	60
<i>The Introduction of Old World Diseases to the Americas</i>	60
<i>The Smallpox Epidemic of 1518</i>	63
Mexico	68
Central America	71
The Andes	75
<i>The Old World and the New</i>	79

smallpox, measles, and bubonic plague. In the Old World, each of these infections had reduced local populations by 25 to 50 percent, and even higher in some instances. In each case, stricken populations required at least three to four generations to recover demographically. In many areas of the Americas, however, native communities experienced repeated outbreaks of at least two of the three imported illnesses, all within the space of twenty to thirty years. In the most densely populated and highly developed regions of Mesoamerica and the Andes, smallpox arrived in the early to mid-1520s, followed by measles in the early 1530s, and possibly pneumonic plague or an especially severe form of typhus in 1545–1548. The arrival of just one of these diseases had plunged many populations in the Old World into severe demographic and social crises, but the almost simultaneous arrival of two or even three such lethal infections in combination with military conflicts and famines easily explains the staggeringly high mortality rates of the sixteenth century.



#### 4 • Colonialism and Disease in Brazil and North America

As soon as I reached the aldeia [village] I found it all aflame with smallpox. I immediately ordered all the most dangerous cases gathered into one large hut, so that I could instruct and confess them. You cannot believe the trouble I had to confess one old woman who said she had not sinned.

João Felipe Betendorf,  
*Chronica da missão dos Padres  
da Companhia de Jesus no Estado do Maranhão*

News from the Gros Ventres, 'they say that they are encamped this side of Turtle Mountain, and that a great many of them have died of the smallpox—several chiefs among them. They swear vengeance against all the Whites, as they say the smallpox was brought here by the S.B. [steamboat].

F. A. Chardon,  
*Chardon's Journal at Fort Clark, 1834–1839*

The Spanish were not alone in their attempts to profit from the tremendous wealth of the Americas: during the sixteenth century, numerous Portuguese, French, British, and Dutch expeditions also sailed to the New World. In 1500, Pedro Alvares Cabral explored the Atlantic coastline of Brazil, laying claim to that territory for the king of Portugal, and for the next several decades, Portuguese interest in the region focused on the export of a valuable dyewood that grew along the coast. Following several



exploratory voyages along the coast of North America during the sixteenth century, the French gained control of the lucrative fur trade in the northeast and Great Lakes regions, and eventually New France encompassed a vast territory stretching from northern Canada to the Gulf of Mexico and from the Saint Lawrence River to west of the Mississippi.

Eager not to be left behind in the quest for American colonies, the early seventeenth century saw the arrival of Dutch settlers in the Hudson River Valley of New York and British settlers in Virginia. The British also colonized the Chesapeake Bay area and the region that became known as New England, beginning with the arrival of Puritan dissidents at Plymouth colony in 1620. Thus some 120 years after Columbus's arrival in the New World, the process of European colonization was well under way in many regions.

Unlike much of Mesoamerica and the Andean region of the Spanish empire, the areas colonized by the Portuguese, French, Dutch, and British differed in several respects. Most importantly for the purposes of this study, Brazil and North America were not home to highly developed civilizations such as those of the Mexica, Mayas, and Incas. As a result, the hunter-gatherer societies and chiefdoms of Brazil and North America boasted fewer inhabitants and lower populations densities. And while European contact with Brazil's coastal populations occurred at the beginning of the sixteenth century, in the rest of Brazil and throughout North America sustained contact developed later, during the seventeenth and eighteenth centuries. In addition, the colonial systems implemented by the Portuguese, French, Dutch, and British and their relations with conquered populations differed from those of the Spanish in significant ways that will be discussed in the next chapter. Thus levels of development, population densities, timing of contact, and colonial policies specific to each European nation determined the patterns of health and disease and the impact of epidemics in Brazil and North America.

### Brazil

Because Portuguese colonization of Brazil was confined to coastal enclaves for much of the sixteenth century and because the number of immigrants to that region was smaller than the number of Europeans flocking to Spanish-controlled areas, fewer Europeans witnessed the arrival of Old World diseases, and therefore considerably less is known about their impact on the natives of Brazil. Nevertheless, by 1555, more than 350 ships carrying more than ten thousand Europeans had landed on the Brazilian coast, providing numerous opportunities for the introduction of Old World infections to that region's indigenous inhabitants, the Tupinamba.<sup>1</sup>

While no specific descriptions of virgin soil outbreaks in Brazil exist for the half century before 1550, the frequency of contacts between Europeans and Amerindians suggests that such incidents probably did occur. Making this development even more likely is the fact that European sailors often abandoned their sick comrades on shore to remove contagion from their midst, and when ill seamen were put ashore in populated areas, native residents would almost certainly have been exposed to whatever infectious organisms those individuals carried. And when infected sailors were not abandoned onshore, many crews routinely experienced outbreaks of a variety of diseases, including smallpox, influenza, dysentery, and typhus, thus increasing the likelihood of transmitting disease organisms to native populations. In at least one instance, records reveal that an infectious fever claimed the lives of many crewmen in the fleet of Sebastian Cabot as it sailed along the Brazilian coast in 1527.<sup>2</sup> While no evidence indicates that this particular outbreak spread to local

Table 4.1 Epidemics in Brazil, 1550–1600

Location	Date	Disease	Mortality	Source
Bahia	1552	?	?	Hemming, 141
São Paulo	1554	fevers and hemorrhagic dysentery	?	Staden, 85–89; Hemming, 140
São Paulo to Bahia	1559–1561	fevers, hemorrhagic dysentery, and catarrh (possibly influenza)	at least 20 percent	Dean, 21; Hemming, 141–42
Bahia	1562–1563	smallpox and/or bubonic plague	30,000 natives died in first three months; one-quarter to one-third of survivors died subsequently	Dean, 22; Hemming, 142–43
Espirito Santo	1565	smallpox	?	Hemming, 144–45
Bahia	1575	smallpox and measles	?	Hemming, 175
Paraiba	1597	smallpox	10 to 12 deaths daily	Alden, 44–45



Tupinamba communities, the arrival of thousands of Europeans significantly increased opportunities for the transmission of Old World diseases to Brazil's coastal populations during the early years of European exploration. According to historian Warren Dean, the sparse population of the São Paulo coastline in the 1550s might be attributed, at least in part, to epidemics that went unreported.<sup>3</sup>

In addition, Portuguese colonial policies also facilitated the introduction of previously unknown infections to the region's inhabitants. Unlike Spain, Portugal permitted the legal enslavement of the native population, and especially after the founding of the first sugar plantations in the 1530s, the need for indigenous labor increased dramatically. The violence and dislocation occasioned by slave raiding most certainly provided many opportunities for the transmission of a variety of infectious organisms to Brazil's Tupinamba communities.

Permanent Portuguese settlement of the Brazilian coast began in the 1550s, and it is the observations of settlers and Jesuit missionaries that provide significant information on the impact of epidemics among the region's indigenous populations. While no details remain concerning the first recorded epidemic, an unidentified outbreak that erupted in 1552 near Bahia, considerably more information has survived on an epidemic of fevers and hemorrhagic dysentery that killed many Amerindians in the area of São Paulo in 1554. The published account of a German sailor, Hans Staden, held captive by the Tupinamba during this period, probably described this same epidemic. According to Staden, who was able to save his own life by convincing his captors that the god of the Christians had sent the epidemic to punish the Tupinambas for cannibalism, the disease claimed the lives of many Amerindians, but children and the elderly succumbed first.<sup>4</sup> Two years later, this same illness had reached the French colony at Rio de Janeiro, and according to one Frenchman, "This contagious malady ran everywhere so strangely that several of us died of it, and an infinite number of savages."<sup>5</sup> By 1559, fevers, respiratory infections (possibly influenza), and hemorrhagic dysentery had spread north to Espírito Santo, where some six hundred natives out of a population of three thousand died. From Espírito Santo, the epidemic continued its northern trajectory to Bahia, where it raged until 1561. The outbreak also reappeared in São Paulo that same year, claiming the lives of many thousands, especially children, who succumbed to the diseases within four or five days.<sup>6</sup> Throughout the epidemics of the 1550s, mortality rates were very high, especially among the many natives whose health had been seriously compromised by forced resettlement into Jesuit missions.<sup>7</sup>

In 1562, the first recorded epidemic of smallpox began, and while it is possible that the disease arrived earlier, to date, no evidence has been

found to support this supposition. One scholar has suggested that this incident may have occurred simultaneously with an outbreak of plague, possibly introduced from Lisbon, where that disease had claimed forty thousand lives a year earlier.<sup>8</sup> According to the Jesuit Leonardo do Valle, writing from Bahia:

When this tribulation [possibly referring to the epidemic of fever and hemorrhagic dysentery that ravaged the area in 1561] was past and they wanted to raise their heads a little, another illness engulfed them, far worse than the other. This was a form of smallpox or pox so loathsome and evil-smelling that none could stand the great stench that emerged from them. For this reason many died untended, consumed by the worms that grew in the wounds of the pox and were engendered in their bodies in such



Fig. 13. *How the natives of Brazil fell sick.* (Engraving by Theodore de Bry, 1592)



abundance and of such great size that they caused horror and shock to any who saw them.<sup>9</sup>

Indigenous residents of the missions and those enslaved on Bahia's sugar plantations succumbed in large numbers, leading to severe labor shortages. As food supplies shrank, starvation threatened, further increasing mortality. According to Do Valle, "Driven by necessity, some went so far as to sell themselves for something to eat. One man surrendered his liberty for only one gourd of flour to save his life. Others hired themselves out to work all or part of their lives, others sold their own children."<sup>10</sup>

According to Jesuit reports, thirty thousand died during the first three months of the epidemic, and between one-fourth and two-thirds of the remaining population perished before the disaster subsided. Native converts also reported that smallpox had spread to Amerindian communities in the interior, claiming countless more lives.<sup>11</sup> By 1565, the epidemic had spread south to Espirito Santo, where one witness observed, "It was a pitiful spectacle. The houses served equally as hospitals for the sick and cemeteries for the dead. . . . You did not know which to pity most—to attend to the healing of the living, or to give the dead the common piety of a burial. The former called you with their cries, the latter with their pestiferous smell, piled four by four on top of each other, rotting and corrupt."<sup>12</sup>

In response to labor shortages, the Portuguese redoubled their efforts at slaving. Slave raids, in turn, facilitated the further spread of infections, and throughout the 1570s, disease and the violence associated with forced labor systems continued to reduce Brazil's indigenous population. In 1575, for example, an epidemic of smallpox and measles struck the missions of Bahia, killing many.<sup>13</sup> Smallpox also appeared along the northern coast again in 1597, claiming Europeans as well as natives.<sup>14</sup>

The rapidly declining supply of native labor prompted the Portuguese to begin importing large numbers of African slaves, and as a result, during the seventeenth and eighteenth centuries, between four thousand and fifteen thousand Africans per year entered Brazil. Along with this human cargo came numerous infections, most frequently smallpox, and studies indicate a close correlation between droughts, famines, and epidemics of smallpox in various parts of west Africa and subsequent outbreaks in Brazil. In some instances, sources directly attributed these outbreaks to recently imported Africans.<sup>15</sup> As a result of significant increases in both European and African immigration, during the first half of the seventeenth century, epidemics developed at least every two to five years. One of the worst outbreaks of the seventeenth century occurred in 1660, when smallpox erupted among the natives of Maranhao and Belem. According to the

Jesuit João Felipe Betendorf, "Maranhao was burning with a plague of smallpox. The missionary fathers often dug graves with their own hands to bury the dead, for there were aldeias [villages] where there were not two Indians left on foot. Parents abandoned their children and fled into the forests in order not to be struck by that pestilential evil." Betendorf also described his journey to the village of Cameta, where he went to hear the confessions of his sick parishioners:

Three persons were missing who had fled into the forest. I sent repeatedly to summon them. They delayed, but our Good Lord permitted their enemies to shoot at them with arrows and wound some of their relatives, who then brought them to the aldeia. They were so covered in pox and putridity that they caused horror to their own families. When they saw that a Father wanted to confess them they told me not to approach, for the rotten smell they were giving off was intolerable. I rather feared that I would not hear them well, but it was God's pleasure that I heard them better than the others; and the rotten smell seemed to me like the smell of white bread when it is removed from the oven. To confess them I was forced to put my mouth close to their ears, which were full of nauseating matter from the pox, with which they were entirely covered.<sup>16</sup>

This same witness stated that the epidemic claimed the "greater part" of the natives, and in his description, he noted a problem frequently mentioned by Europeans: the tendency of infected natives to run away, thus spreading the disease to other communities. Widespread epidemics of smallpox also ravaged Brazilian populations during the 1680s and again in the 1690s.<sup>17</sup>

Throughout the seventeenth and eighteenth centuries, epidemics frequently spread into interior regions of Brazil, striking Amerindians residing in Jesuit missions in the Amazon and those farther south in Paraguay. One Jesuit, Father Sepp, described an epidemic of hemorrhagic smallpox that began in 1695:

The force of the disease manifests itself in small pustules, like those that attack children in Europe or those that we develop during a high fever. Here the pustules are a terrible plague that invades the entire body and scarcely leaves any member intact. . . . [The disease] begins by attacking the throat and then the stomach. It burns the intestines with acute pains, and then completely dries the body fluids and causes loss of appetite and weakness of the



stomach. Thence comes the continuous flux of blood. With the blood [the disease] finally produces a corruption and evacuation of the intestines themselves. Even the eyes and ears are not spared: some lose their sight, others their hearing. This merciless plague might just be tolerable if it satisfied its fury on the adults alone; but it strikes even unborn children, expelling them with cruel anticipation from the maternal womb, in which nature should give them the right to nine months shelter.<sup>18</sup>

Because so much of the demographic decline of Brazil's native population occurred in remote regions beyond the purview of Portuguese colonialism, it is difficult to arrive at an estimate of the overall rate of depopulation. But owing to the colony's large traffic in Amerindian slaves and the descriptions of several epidemics, it is not unreasonable to assume declines of 75 to 90 percent during the first century after contact. Along the coast, however, demographic decline was even more severe; according to Dean, coastal Tupinamba populations "were nearly extinct" by 1600.<sup>19</sup>

### North America

The native peoples of Greenland were the first to experience sustained contact with Europeans. During the five centuries between 1000 and 1500 AD, it is estimated that some seventy thousand Norse from Iceland and Norway lived in that region. Archaeological evidence clearly demonstrates that native Greenlanders and Europeans engaged in trade, and contemporary sources from Iceland and Greenland indicate that epidemics occurred in both areas during that five-hundred-year period. So while it appears likely that Paleo-Eskimo and Thule populations of Greenland and Labrador were the first to suffer from the introduction of Old World diseases, no direct evidence remains to support that conclusion.<sup>20</sup>

Plenty of evidence exists, however, to support the assertion that after 1492, the native societies of North America were repeatedly ravaged by epidemic infections, and throughout this vast area, French, English, and Dutch colonists frequently noted the devastating consequences of disease on indigenous communities. One of the earliest accounts to describe the impact of epidemic disease on the native population of North America was written by Thomas Hariot, who accompanied Sir Walter Raleigh's expedition to Roanoke Island in 1584:

Within a few dayes after our departure from everie such towne, the people began to die very fast, and many in short space; in

some townes about twentie, in some fourtie, in some sixtie, and in one sixe score, which in trueth was very manie in respect of their numbers. . . . The disease was also so strange, that they neither knew what it was, nor how to cure it; the like by report of the oldest men in the countrey never happened before, time out of minde. A thing specially observed by us, as also by the naturall inhabitants themselves.<sup>21</sup>

Hariot's observations regarding the timing of outbreaks, significantly increased mortality rates, and the natives' unfamiliarity with the illness were repeated by many colonists who settled in regions all over North America during the next three centuries.

### Florida and the Southeast

Spain's point of entry into North America was from the south. In 1513, Juan Ponce de León led a force from Hispaniola to explore the Atlantic and Gulf coasts of the land he called La Florida. Other Europeans followed, including those engaged in unofficial slaving expeditions. One of those, led by Pedro de Salazar sometime between 1514 and 1516, captured five hundred natives, two-thirds of whom died on the voyage to Hispaniola; the remainder reportedly died after landing.<sup>22</sup> While it is impossible to know what illness killed these natives, this incident coincided with the outbreak of modorra brought to Central America by the Pedro Arias expedition. In that instance, typhus or severe influenza was suspected, and they appear as likely possibilities in this case as well.

Other than the reference to the deaths of the natives captured by Salazar, no documentary evidence exists to elucidate the disease history of the southeastern United States during the sixteenth century. But that has not prevented scholars from arguing about whether or not epidemics of Old World origin arrived in the region before 1600. Based solely on inference and speculation, anthropologist Henry Dobyns argues that "eight serious epidemics in Colonial populations could rather easily have been transmitted from New Spain and/or Cuba to the Calusa and Timucua [of Florida]" between 1512 and 1562.<sup>23</sup> Dobyns includes among those extensions of the Mexican smallpox pandemic of 1520-1524, the matlazahuatl epidemic of 1545-1548, and the mumps epidemic of 1550. Relying on documentary and archaeological evidence, anthropologist Clark Larsen, on the other hand, mentions no outbreaks during the sixteenth century; rather, he cites unidentified epidemics in 1613-1617, 1649-1650, an outbreak of smallpox in 1655, and measles in 1659. He does concede, however, that more epidemics probably occurred.<sup>24</sup> The

Table 4.2 Epidemics in Florida, 1613–1659

Date	Disease	Mortality	Source
sixteenth century	no direct evidence, but it is likely that epidemics did occur		Dobyns (1983), 275–90; Larsen (1992), 27; Milanich, 214–18
1613–1617	?	Europeans and natives died; 50-percent mortality in some native communities	Hann, 175
1649–1650	?	Europeans and natives died	Hann, 23
1655	smallpox	Africans and natives died	Hann, 176
1659	measles	10,000 natives died	Hann, 177

chronology of archaeologist Jerald Milanich agrees with that of Larsen, but he adds an unidentified epidemic in 1595.<sup>25</sup> While insufficient evidence exists to prove the occurrence of the epidemics cited by Dobyns, there is no doubt that certainly by the first decades of the seventeenth century, the number of Florida natives plummeted as a result of their numerous encounters with various European infections.

Records reveal that at least two outbreaks of disease occurred between 1613 and 1617, claiming the lives of both Europeans and Amerindians. According to a Spanish priest, "We find that from four years ago down to the present, there have died on account of the great plagues and contagious diseases that the Indians have suffered, half of them, in the which Your Majesty has had a very great part in the growth that was given to heaven."<sup>26</sup>

The unidentified epidemic of 1649–1650 also killed Europeans and natives alike, and the smallpox outbreak of 1655, which lasted ten months, infected Africans as well as the indigenous population. In 1659, the governor of Florida reported that some ten thousand natives had perished during a recent outbreak of measles.<sup>27</sup> Some evidence suggests that the remote location of the Apalachee of the western Gulf Coast area around Pensacola and the natives' hostile relations with Europeans may have protected them temporarily from the worst depredations of disease. But the creation of mission settlements during the seventeenth century ensured sustained contact and the eventual decline of the Apalachee.<sup>28</sup>

Dobyns has argued for a 95-percent decline in the number of natives in the first century following contact.<sup>29</sup> But another source put the decrease at 80 percent by 1675. This same author also claimed, however, that as a result of continued outbreaks of disease, mistreatment, and slavery, the Amerindian population of Florida had become extinct by the 1760s.<sup>30</sup>

In other regions of the southeast, disease also took a heavy toll. While evidence is scant for the period before 1700, when sustained contact developed between natives and Europeans, in the lower Mississippi Valley and in the interior of Georgia, Tennessee, and Alabama archaeologists have uncovered evidence of dramatic population decline during the sixteenth century.<sup>31</sup> In 1526 Lucas Vázquez de Ayllon led an expedition that attempted to establish a colony on the coast of South Carolina. Within six months, more than two-thirds of the five hundred settlers had died and the colony was abandoned. When members of the expedition of Hernando de Soto arrived there sometime between 1539 and 1543, they noted: "About this place, from half a league to a league off, were large vacant towns grown up in grass that appeared as if no people had lived in them for a long time. The Indians said that two years before, there had been a pest in the land, and that the inhabitants had moved away to other towns."<sup>32</sup> They also described "four large houses . . . filled with the bodies of people who had died of the pestilence."<sup>33</sup>

While it remains uncertain that the disease that caused this devastation was of Old World origin, such a pathogen could have been introduced into the region either by direct contact with Europeans or by diffusion from native populations in Florida or some other coastal area that had at least periodic contact with disease-carrying Europeans. Between the de Soto expedition and the end of the seventeenth century, the historical record regarding incidents of disease in the southeast remains blank until 1698, when a French missionary in Arkansas noted the effects of a smallpox epidemic that had recently passed through the region:

It is not a month since they got over the small pox which carried off the greatest part of them. There is nothing to be seen in the village but graves. There were two (groups) together there and we estimated that there were not a hundred men; all the children and a great part of the women were dead.<sup>34</sup>

As contact between Europeans and Amerindians increased during the eighteenth century, travelers often commented on the sparseness of population throughout the region; this in marked contrast to the dense populations described by members of the de Soto force over a century before. In Louisiana, one observer noted the decline of local indigenous



societies, adding that some had disappeared altogether.<sup>35</sup> In Virginia and the Carolinas, smallpox also began to make regular appearances toward the end of the seventeenth century, with particularly devastating outbreaks developing in 1667, 1679–1680, and 1696–1698.<sup>36</sup> According to historian Peter Wood, “The region’s native population had already been suffering a steep decline for nearly two centuries [the sixteenth and seventeenth centuries], particularly among the coastal tribes. . . . Between 1685–1730, the South’s native population was further reduced by a full two-thirds, from roughly 200,000 to fewer than 67,000. Warfare, enslavement, and migration, but most of all epidemic disease, ravaged the major peoples of the Southeast.”<sup>37</sup>

### The Southwestern United States and Northern Mexico

European contact with the native societies of the southwestern United States and northern Mexico began with the journey of Alvar Núñez Cabeza de Vaca, who along with three other survivors of an ill-fated expedition to Florida in 1529 crossed the continent from Tampa Bay into Texas and New Mexico, headed south through Sinoloa and Sonora, and eventually reached Mexico City in 1536. Three years later, in 1539, a Franciscan priest, Father Marcos de Niza, led an exploratory force into northwestern Sonora, southern Arizona, and the territory of the Zuni in present-day New Mexico. The expedition of Francisco Vázquez de Coronado followed in 1540. Sustained contact did not develop, however, until the founding of Jesuit missions during the 1590s.

Nevertheless, documentary evidence indicates that from the 1530s on, epidemics of Old World diseases regularly reached the native peoples of this remote region. Although northern populations probably escaped the ravages of the first smallpox epidemic that struck central Mexico between 1520 and 1524, a Spanish force led by Nuño de Guzman introduced dysentery, typhoid, and possibly malaria into Sinoloa and Sonora in 1530 with devastating results for Europeans and natives alike. In Nayarit and Sinoloa, an epidemic of measles raged from 1530 to 1534.<sup>38</sup> One source claimed that 130,000 Amerindians from Culiacán alone died as a result of contracting this infection, leaving only 20,000 survivors.<sup>39</sup> It also appears likely that much of the northern area escaped the terrible matlazahuatl epidemic that struck central Mexico from 1545 to 1548; documentary evidence indicates the disease did not extend beyond Zacatecas and Culiacán.<sup>40</sup>

The absence of references to incidents of disease between the 1540s and 1570s may indicate that northern populations enjoyed a respite from epidemic illnesses, but it is more likely that such events simply went

Table 4.3 Epidemics in the Southwestern United States and Northern Mexico, 1530–1700

Date	Disease	Mortality	Source
1530s	dysentery, typhoid, measles, and possibly malaria	86 percent of the native population of Culiacán died	Tello, 250–51
1540s–1570s	no direct evidence, but occurrence of epidemics likely		
1576–1581	plague and/or typhus, typhoid and dysentery	?	Reff, 124–26
1587–1588	smallpox	?	Reff, 127
1593	smallpox and measles	in Sinoloa, two-thirds of children and one-half of adults died	Reff, 135
seventeenth century	number of epidemics increases following the arrival of Jesuits	?	Reff, 132–79

unrecorded owing to the small number of Spaniards in the region. But the northward expansion of the colonial silver-mining economy and the long-distance and local trade spawned by that sector eventually resulted in the regular introduction of many infectious agents. As a result, epidemics occurred with increasing regularity: plague and/or typhus, typhoid, and dysentery between 1576 and 1581; *cocoliztli*, possibly smallpox, in 1587 and 1588; and *cocoliztli* again in the 1590s.<sup>41</sup> Following the arrival of Jesuit missionaries in northwestern Mexico in 1591 and the subsequent creation of permanent mission settlements, the incidence of epidemics increased significantly, with outbreaks occurring frequently during the first half of the seventeenth century. In 1593, for example, an epidemic of smallpox struck the missions of Sinoloa, claiming the lives of two-thirds of infants and children and one-half of all adults.<sup>42</sup> Epidemics continued during the remainder of the colonial period, “but demographic data indicate most native populations largely were destroyed by 1678.”<sup>43</sup>

Documentation regarding the occurrence of disease in areas farther north, among the Pueblo peoples of Arizona and New Mexico, for example, is even more scant. The first Spanish colony in this region was founded in 1598, and between 1600 and 1643, half of the Pueblo’s settlements were

abandoned.<sup>44</sup> The first recorded epidemic of smallpox occurred in 1636, but it is likely that Old World diseases reached the area several decades earlier: another outbreak of an unnamed infection erupted in 1640.<sup>45</sup> Reporting of epidemics improved during the eighteenth century, but the lack of data for the remainder of the seventeenth century should not be interpreted as the absence of major outbreaks of disease. The Pueblo Revolt in 1680 destroyed many documents that may have contained information regarding disease patterns in the area. It was not until the reconquest of the area in 1696 that regular record keeping was reestablished. Thereafter, mission documents include references to at least twelve epidemics during the eighteenth century and at least nine during the nineteenth century.<sup>46</sup>

### The Northeastern United States and Canada

By the end of the fifteenth century, commercial fishing boats were arriving off the coast of New England and eastern Canada in ever-increasing numbers. During the sixteenth century, the number of explorers and fishermen who sailed for eastern North America numbered in the thousands. But regular, sustained contact between natives and Europeans in this region did not develop until the early seventeenth century. Thus evidence for the introduction of Old World infections to the native peoples of the northeastern United States and Canada is nonexistent for the fifteenth and sixteenth centuries. One reference to an outbreak of disease among the Saint Lawrence Iroquois in 1535 by French explorer Jacques Cartier may describe influenza or some other respiratory ailment, but there is no indication that Amerindians contracted the infection from Europeans.<sup>47</sup> In 1608, another French explorer, Samuel de Champlain, wrote that dysentery and scurvy had claimed the lives of several natives. Then in 1611, he recorded the deaths of many Algonquins from "a fever that had broken out among them."<sup>48</sup> Again, no evidence suggests that the diseases responsible for these casualties were of Old World origin. Nevertheless, because of the frequency of contact between natives and Europeans, it is possible that infectious organisms were introduced into indigenous populations early in the sixteenth century.

The first reference to the fact that introduced diseases had already taken their toll among native populations comes from a Jesuit account written in 1616, referring to an incident that took place among the Micmac of Nova Scotia between 1611 and 1613

[The natives] are astonished and often complain that, since the French mingle and carry on trade with them, they are dying fast and the population is thinning out. For they assert that, before

Date	Disease	Mortality	Source
1608	dysentery and scurvy	?	Carlson et al., 147
1611	fever	?	Carlson et al., 147
1611–1613	pleurisy and dysentery	?	Thwaites, 3:105
1616–1619	smallpox?	over 75 percent died	Adams, 1:9–11; Bratton, 351–83
1630s	smallpox	?	Bradford, 2:193–94; Cook, 493
1647	influenza?, dysentery, and tuberculosis	attacked both Europeans and natives	Cook (1973), 493–95
1640s on	localized epidemics of smallpox	?	Cook (1973), 493; Duffy, 43–69

this association and intercourse, all their countries were very populous and they tell how one by one the different coasts, according as they have begun to traffic with us, have been more reduced by disease.<sup>49</sup>

While the author of this passage failed to attribute population decline to particular disease agents, Jesuit documents elsewhere described "pleurisy, quincy (sore throat) and dysentery" among the Micmac.<sup>50</sup>

The first widespread epidemic of Old World origin to be witnessed by Europeans appeared in the region extending from central Maine to southern Massachusetts between 1616 and 1619. According to one observer writing in 1622:

[The natives] died on heapes, as they lay in their houses; and the living, that were able to shift for themselves, would runne away and let them dy, and let there Carkases ly above the ground without buriall. For in a place where many inhabited, there hath been but one left a live to tell what became of the rest; the livinge being (as it seems) not able to bury the dead, they were left for Crowes, Kites and vermin to pray upon. And the bones and skulls upon the severall places of their habitations made such a spectacle after my comming into these partes, that, as I travailed in the Forrest nere the Massachussetts, it seemed to mee a new found Golgotha.<sup>51</sup>



While many have written on the demographic impact of this deadly epidemic, the evidence does not permit a definite diagnosis of the disease responsible for this catastrophe. Sources describe headache, "spots" or lesions, and a yellow discoloration of the skin as characteristics of the illness. Mortality rates were very high, over 75 percent, suggesting that this was a virgin soil epidemic. Onset and progress of the disease were so rapid that many indigenous communities were unable to keep up with the soaring number of burials. In 1621, European colonists observed, "ther sculs and bones we found in many places lying still above the ground, where their houses and dwellings had been; a very sad spectacle to behold."<sup>52</sup> While the infection broke out several years before the arrival of Pilgrim colonists, other Europeans were already exploring the area and ample opportunities existed for the transmission of disease to the native population. Yellow fever, measles, typhoid, chicken pox, typhus, bubonic plague, cerebrospinal meningitis, and smallpox have all been mentioned as possible disease agents, and while we will never know for certain what the disease was, one author has made a convincing case for malignant confluent smallpox, a particularly virulent form of the disease in which the confluence of the pustules and the accumulation of pus under the skin produce a yellowish discoloration.<sup>53</sup> In any event, the epidemic claimed the vast majority of the region's native inhabitants, leading one observer to comment on the "ancient plantations, not long since populous, now utterly void." And according to one Plymouth chronicler, a local native informant had related "that about four years ago all the inhabitants died of an extraordinary plague, and there [was] neither man, woman, nor child remaining."<sup>54</sup> Thus when the Pilgrims arrived on the coast of Massachusetts in 1620, they encountered a native population greatly reduced by Old World disease. That the colonists and their descendents did not lament the decline of their new neighbors is illustrated by a statement written some eighty years later by the Reverend Cotton Mather, who noted, "The woods were almost cleared of those pernicious creatures, to make room for better growth."<sup>55</sup>

Other epidemics followed. In 1630 English passengers disembarking in Boston introduced smallpox to the area. Three years later the disease raged among the native population of Massachusetts, and by the following year it had spread into Connecticut and beyond. According to William Bradford, a leader of the Plymouth colony:

This spring, also, those Indeans that lived aboute their trading house there fell ill of the small poxe; and dyed most miserably; for a sorer disease cannot befall them; they fear it more then the plague; for usualy they that have this disease have them in

abundance, and for wante of bedding and linning and other helps, they fall into a lamentable condition, as they lye on their hard mats, the poxe breaking and mattering, and runing one into another, their skin cleaving (by reason therof) to the matts they lye on; when they turn them, a whole side will flea of at once, (as it were,) and they will be all of a gore blood, most fearful to behold; and then being very sore, what with could and other distempers, they dye like rotten sheep.<sup>56</sup>

Smallpox also appeared among the Iroquois of the Hudson River Valley and the Hurons and Ottawa of the Great Lakes and Saint Lawrence River regions. In fact, between 1633 and 1641 smallpox was a constant presence among the native populations of New England and eastern Canada. According to Cook, "After the decade 1630-1640, small pox was never absent among the populations of eastern North America."<sup>57</sup>

In 1647, an epidemic of what may have been influenza attacked Amerindians and Europeans alike, spreading throughout New England. Observers also noted frequent outbreaks of dysentery and the increasingly destructive presence of tuberculosis among natives.<sup>58</sup> Other respiratory ailments such as pneumonia and influenza as well as measles, typhus, and syphilis also contributed to the decline of indigenous communities. But smallpox, characterized by many as endemic following the 1640s, appears to have posed the most serious threat to native health. This disease flared into localized epidemics in 1648-1649, 1658, 1664-1666, 1675, and 1689-1690 and continued to wreak havoc throughout the eighteenth century.<sup>59</sup> By all accounts, the epidemics of the seventeenth century devastated the Amerindian peoples of the Northeast, at least 75 percent of whom had perished by 1650; by the end of the century, only 5 percent of their precontact numbers remained.<sup>60</sup>

### California and the Pacific Northwest

Only twelve years following the Spanish capture of Tenochtitlán, Europeans began exploring the territory that became known as Baja California. In fact, in 1535, Hernán Cortés himself arrived intent on conquest. In all, nineteen expeditions ventured into the area before permanent settlement began at the end of the seventeenth century. In 1542, Juan Rodríguez Cabrillo sailed up the coast of California as far as Santa Barbara, to be followed in succeeding years by other Europeans who pushed farther north. While sustained contact between natives and Europeans did not develop until the last years of the seventeenth century in Baja and even later in Alta, or Upper, California, Old World diseases

could have been introduced either by explorers or by natives traveling trade routes that extended into central Mexico. But while ample opportunities for such transmission existed, no evidence suggests that such an event occurred. Nevertheless, the oral traditions of the Chumash of the Santa Barbara area record that shortly before the arrival of Europeans in the 1770s, an epidemic broke out among coastal inhabitants and "people went around feeling sick until they fell backwards, dead."<sup>61</sup>

Because of its great distance from the center of power in Mexico City, Spanish colonization of Baja California did not begin until 1697, when the first in a series of Jesuit missions was created at Nuestra Señora de Loreto; sixteen more missions followed by the middle of the eighteenth century. Spurred on by concerns about growing Russian and English expansion, Spain authorized the Franciscans to establish twenty-one missions along the coast of Alta California from San Diego to San Francisco between 1769 and 1823. Along with the missions came military units and civilian populations from New Spain. One of the major goals of the missions was to remove natives from their villages and relocate them within mission settlements. Vague evidence suggests the outbreak of epidemic disease shortly after the arrival of missionaries in the late 1760s: "The number of coastal Chumash baptized by the missionaries is about half the number Portola saw in 1769."<sup>62</sup> Parish registers maintained by the Franciscans clearly indicate that shortly after the creation of the missions, their native populations began to decline dramatically. Among mission populations, venereal diseases, tuberculosis, and dysentery posed a constant threat, and mortality rates were very high, especially among infants and children. The first recorded, but unidentified, epidemic occurred between 1790 and 1792, followed by outbreaks of typhoid and pneumonia in 1796 and diphtheria between 1800 and 1802. The first recorded epidemic of measles occurred in 1806, followed by another in 1821–1822 and a third in 1827–1828. Influenza claimed many lives in 1832, and epidemic smallpox was officially recorded for the first time in 1844.<sup>63</sup> Cook has argued for a decline of at least 80 percent in the post-contact period.<sup>64</sup> Among the once numerous Chumash of the Santa Barbara area, only two hundred survived by 1880.<sup>65</sup>

The introduction of Old World diseases also coincided with the arrival of European explorers in the Pacific Northwest. Here native accounts tell of the devastation caused by the arrival of smallpox in the late 1770s or early 1780s. According to one version:

One salmon season the fish were found to be covered with running sores and blotches, which rendered them unfit for food. But as the people depended very largely upon these salmon for their

Table 4.5 Epidemics in California, 1760–1884

Date	Disease
1760s	unidentified outbreak
1790–1792	unidentified outbreak
1796	typhoid and pneumonia
1800–1802	diphtheria
1806	measles
1821–1822	measles
1827–1828	measles
1832	influenza
1844	smallpox

Sources: Walker, 419; Walker and Johnson (1992), 133–36; Walker and Johnson (1994), 110–14.

winter's food supply, they were obliged to catch and cure them as best they could, and to store them away for food. They put off eating them till no other food was available, and then began a terrible time of sickness and distress. A dreadful skin disease, loathsome to look upon, broke out upon all alike. None were spared. Men, women, and children sickened, took the disease and died in agony by hundreds, so that when the spring arrived and fresh food was procurable, there was scarcely a person left of all their number to get it. Camp after camp, village after village, was left desolate. The remains of which, said the old man, in answer to my queries on this head, are found today in the old camp sites or midden-heaps over which the forest has been growing for so many generations. Little by little the remnant left by the disease grew into a nation once more, and when the first white men sailed up the Squamish in their big boats, the tribe was strong and numerous again.<sup>66</sup>

Other oral traditions from the region also describe the widespread devastation that followed the arrival of the dreaded disease. Precisely where the epidemics originated and when they arrived is not clear, but



the British explorer George Vancouver, who visited many coastal areas of the Pacific Northwest in the early 1790s, recorded seeing many abandoned settlements. Another member of the expedition recorded this observation of remains encountered in the Puget Sound:

During this Expedition we saw a great many deserted Villages, some of them of very great extent and capable of holding many human Inhabitants—the Planks were taken away, but the Rafters stood perfect, the size of many a good deal surprised us, being much larger in girth than the Discovery's Main mast. A Human face was cut on most of them, and some were carved to resemble the head of a Bear or Wolf—The largest of the Villages I should imagine had not been inhabited for five or six years, as brambles and bushes were growing up a considerable height.<sup>67</sup>

While the cause of such widespread abandonment of villages was not clear to Vancouver and others, they did conclude that the region had been recently depopulated.<sup>68</sup> In addition, Vancouver and others noted that many natives displayed the scarring characteristic of smallpox. One wrote: "The smallpox most have had, and most terribly pitted they are; indeed many have lost their Eyes and no Doubt it has raged with uncommon Inveteracy among them but we never saw any Scars with wounds, a most convincing proof in my Mind of their peaceable Disposition."<sup>69</sup> Thus epidemics of Old World diseases had reached the Pacific Northwest sometime before the 1790s and in many instances preceded Europeans into the area.

Debate remains as to the origins of the disease, however. One theory holds that the outbreak of smallpox that devastated the Pacific Northwest during the 1780s began in central Mexico in 1782. Eventually the disease spread southward into Chile and north through New Mexico into the Great Plains and Pacific Northwest, where it caused great mortality among native populations.<sup>70</sup> Another possibility is that the disease originated in an epidemic that began in Alaska in 1769 and spread south down the coast.<sup>71</sup> Yet a third possibility also exists: that smallpox arrived among the crew of several Spanish ships that visited the region between 1774 and 1779.<sup>72</sup> In any case, once smallpox was introduced into native populations, the death tolls were staggering.

Smallpox returned to the region possibly as soon as 1801 but certainly in 1836–1838, 1853, and 1862–1863. Malaria was also introduced into the area sometime after 1830, triggering high mortality rates especially among children, who often died of complications.<sup>73</sup> In addition to devastation from smallpox and malaria, outbreaks of measles, influenza, and dysentery claimed many lives throughout the nineteenth century.

On the Columbia Plateau, epidemic disease also decimated the native population at the end of the eighteenth century. But recent archaeological findings suggest that infections of Old World origin may have entered the area as early as the first half of the sixteenth century.<sup>74</sup> The same epidemics of smallpox that devastated native communities along the Pacific coast during the 1770s probably struck inhabitants of the Columbia Plateau as well. It is also likely that a second, less virulent outbreak occurred in 1800–1801.<sup>75</sup> Thus by the time European fur traders arrived during the first decade of the nineteenth century, the indigenous population had already been reduced. Overall, estimates for the extent of the decline of native populations of the Pacific Northwest range from 80 to 90 percent.<sup>76</sup>

### The Great Plains

While Coronado explored sections of the Great Plains in 1541, it was not until the first half of the eighteenth century that Europeans recorded renewed contact with the region's native peoples. First in 1723 and again in 1738, French fur-trading expeditions traveled among the Arikara and Mandan. But recent archaeological evidence indicates that Old World diseases probably arrived in the area early in the seventeenth century.<sup>77</sup> Excavations of Amerindian settlements situated in the Middle Missouri region on the border of North and South Dakota have yielded the remains of European trade goods, and coincident with their appearance is evidence of population decline, probably occasioned by the introduction of epidemic disease. In this case, disease could have reached Plains populations in two ways: Infection could have spread along native trade routes, most probably from the southwest, where epidemics occurred in 1638 and 1671, and/or disease organisms could have been introduced directly by European explorers and trappers who ventured into the region. A human skull, excavated from Swan Creek, South Dakota, has been identified as that of a Caucasian male, forty to fifty years old, probably French or Spanish. The remains date from the period 1675–1725, clearly indicating that whites were present in the area several decades before their presence was officially recorded. The archaeological record also indicates demographic recovery following the declines of the early seventeenth century.<sup>78</sup>

Sustained contact between Europeans and the indigenous inhabitants of the Plains, however, did not develop until the last quarter of the eighteenth century. Sometime around 1780, an epidemic of smallpox broke out among the populations of the Middle Missouri. Europeans who traveled through the region during the 1790s and early 1800s frequently noted the presence of abandoned villages. According to Jean Baptiste Truteau, a French trader who visited the Arikara during the spring of 1795

In ancient times the Ricara nation was very large; it counted 32 populous villages, now depopulated and almost entirely destroyed by the smallpox which broke out among them at three different times. A few families only, from each of the villages, escaped; these united and formed the two villages now here.<sup>79</sup>

In addition, epidemics of whooping cough and cholera reportedly occurred between 1832 and 1834.<sup>80</sup>

The first epidemic among natives of the northern Plains to be observed directly by whites began in July of 1837, when smallpox arrived with passengers on a steamboat cruising up the Missouri River. Because the captain of the vessel feared schedule delays, he failed to quarantine passengers and crew, almost all of whom were sick. As a result, the disease quickly spread to many native communities in Kansas, Missouri, and North and South Dakota. Within three months, thousands of Mandans, Arikaras, and Hidatsas had died. According to Francis Chardon, a resident of Fort Clark, North Dakota, writing in September of 1837:

All the Rees and Mandans, Men's Women's and Children, have had the disease, except for a few Old Ones, that had it in Old times, it has destroyed the seven eights of the Mandans and one half of the Rees Nation, the Rees that are encamped With the Gros Ventres have just caught it. No doubt but the one half of them will die also.<sup>81</sup>

Chardon's journal described the suicides of husbands and wives who

Table 4.6 Epidemics in the Great Plains, 1780–1838			
Date	Disease	Mortality	Source
seventeenth century	no direct evidence, but epidemics likely		Sundstrom, 305–43
1780s	smallpox	?	Truteau, 1:299
1832–1834	cholera and whooping cough	?	Reinhard et al., 65
1837–1838	smallpox	one-half to over three-quarters of the native population died	Chardon (1997), 124–39; Stearn, 89–90; Trimble, 82–84

did not want to outlive their relatives, all of whom had already succumbed to the dreadful illness. He also recorded the speech of 4 Bears, a Mandan warrior who, after explaining that he had always “loved the Whites,” went on to exhort his people: “Listen well what I have to say, as it will be the last time you will hear Me. Think of your Wives, Children, Brothers, Sisters, Friends, and in fact all that you hold dear, are all Dead, or Dying, with their faces all rotten, caused by those dogs the whites, think of all that My friends, and rise all together and Not leave one of them alive.”<sup>82</sup>

By the time the epidemic subsided some seven months later, more than half of the native population of the Upper Missouri had perished; mortality varied from one community to another, with some observers reporting that half to two-thirds had died, while others reported rates as high as ten out of twelve. One estimate placed the total number of dead at seventeen thousand. Among the natives of the southern Missouri region, mortality was not nearly as high, owing to a government-sponsored program of vaccination.<sup>83</sup>

### Brazil and North America in Comparative Perspective

While the absence of densely populated, highly developed civilizations slowed, and in some cases delayed, the imposition of European colonialism in Brazil and North America, in the end, the arrival of people and institutions from the Old World produced remarkably similar consequences. As was the case in the Caribbean, Mesoamerica, and the Andes, the arrival of Europeans and their disease organisms in Brazil and North America was economically motivated, driven by competition among the European powers, all of which desired to share in the wealth of the Americas. Following close on the heels of Columbus, the Portuguese laid claim to Brazil in 1500, and during the course of the sixteenth and early seventeenth centuries, the French, British, and Dutch seized large territories in eastern North America. While the absence of a large indigenous labor force and easily extracted gold and silver deposits discouraged rapid colonization, nevertheless, contacts between natives and Europeans occurred frequently enough to provide numerous opportunities for the transfer of Old World disease organisms to Amerindian communities. And in some instances, virgin soil epidemics struck indigenous populations well in advance of the arrival of European settlers. In most regions, exploratory expeditions preceded the arrival of colonists, and while contacts between European explorers and indigenous communities were often ephemeral, even the briefest of contacts could result in the transfer of contagious illness. Once



a disease organism had been introduced, the vast networks of long-established trade routes that linked native populations in all but the most remote areas ensured rapid dissemination of the illness. The introduction of epidemic disease by exploratory expeditions probably explains the abandoned villages and piles of human remains that Pilgrim colonists discovered upon landing in New England in the early 1620s, as well as the abandoned settlements that Vancouver and others encountered in the Pacific Northwest and on the Columbia Plateau during the late eighteenth century.

A comparison of mortality rates also reveals striking similarities between the history of epidemic disease in Brazil and North America and other parts of the world. While data are even more scarce for these less densely populated regions than for other areas of the Americas, it nevertheless appears that during the century following contact, virgin soil epidemics routinely resulted in mortality rates of 25 to 50 percent. Regional variations remained significant, however, and in some instances, the percentage of deaths climbed even higher, as was the case in New England in the early 1620s, where it is estimated that as much as three-quarters of the native population succumbed to a virgin soil outbreak of smallpox. And even higher mortality rates could result when several diseases converged simultaneously, as was the case in Culiacán in the 1530s, where 86 percent of the indigenous population reportedly perished as a result of dysentery, typhoid, and measles.

As was the case in both the Old World and other regions of the Americas, the violence and dislocation of military conquest followed the arrival of Europeans and contributed to rising mortality rates throughout Brazil and North America. These military operations aimed at reducing or eliminating the autonomy of indigenous communities did not cease with the end of European colonialism in the late eighteenth and early nineteenth centuries. Throughout the nineteenth century, the government of the United States continued to wage war against native societies west of the Mississippi River, and as recently as the second half of the twentieth century, the governments of Brazil, Guatemala, Ecuador, Colombia, and Peru have all sanctioned large-scale attacks against indigenous communities that they perceived posed a threat to national or international economic interests.

In spite of the striking similarities between the history of epidemics in Brazil and North America and other parts of the world, several significant differences exist. First, particularly in Brazil, the introduction of more than half a million African slaves by 1700 significantly increased opportunities for the frequent importation of smallpox and other infections. And while the connection between epidemics among Africans and native Americans

is especially clear in Brazil, the presence of large African populations in other parts of the Americas, including the Caribbean and the southeastern United States, also influenced the timing and nature of disease patterns in North America.

Both economic factors and geography limited European penetration of interior regions of Brazil and North America, and as a result, vast areas remained isolated from sustained contact with colonists long after the intruders had put down roots in coastal settlements. Thus isolation played a significant role in determining disease patterns in Brazil and North America to an extent that it did not in Mesoamerica and the Andes. Native populations in the Amazonian region of Brazil enjoyed some protection from Europeans and their diseases simply as a result of their distance from centers of political and economic power along the coast. And the remote location of the Apalachee of western Florida also afforded them some measure of protection from the full impact of European colonialism, at least during the sixteenth century. The Tarahumara, residents of the southwestern section of the state of Chihuahua in northern Mexico, provide a significant case study of the benefits provided by isolation from European colonists. Throughout much of the seventeenth century, the Tarahumara sustained heavy population losses as a result of epidemics, but toward the end of the seventeenth century, they "made a conscious decision to isolate themselves from the outside world and to establish a 'region of refuge' in the inhospitable *barranca* (ravine) country of southwestern Chihuahua." As a result, while other indigenous societies in the region continued to decline and eventually disappeared altogether, by the 1940s the Tarahumaras numbered some forty thousand individuals.<sup>84</sup> Also significant is the fact that in at least two instances, native populations sustained heavy losses as a result of the introduction of Old World diseases, followed by periods of prolonged recovery, only to be followed later by even more severe declines. Evidence indicates that in the Southeast the size of the native population decreased between the arrival of the Vázquez de Ayllon expedition of 1526 and the arrival of de Soto in the early 1540s. Following these incursions, however, it appears that the indigenous population of the region recovered, at least in part, only to be reduced again following the arrival of missionaries at the end of the seventeenth century. A similar situation developed in the Pacific Northwest following the initial introduction of smallpox in the late 1770s: according to at least one observer, during the next decade the number of indigenous inhabitants of the region increased until recovery was cut short by the reintroduction of smallpox as well as other diseases.

Perhaps one of the most significant conclusions revealed by the study of disease patterns in Brazil and North America following the arrival of

Europeans is that even as late as the end of the nineteenth and into the twentieth century, mortality rates among indigenous populations often remained as high as those three hundred years earlier—and this at a time when mortality rates were declining significantly among populations of European and African descent in these same regions. Increasing numbers of European and African Americans reinforced the demographic, economic, and political marginalization of native Americans. Given the fact that the experience of native American peoples with epidemic disease closely resembles that of other human populations, the explanation for this disparity in matters relating to the severity of disease and mortality appears to lie in the policies of colonial powers and their successor states throughout the region.



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## 5 • *New World Epidemics and European Colonialism*

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Since epidemics can account for virtually all of the extra mortality in the sixteenth century, the principle of Occam's razor suggests that it is not necessary to assume that there were other important causes of death.

Whitmore, *Disease and Death in Early Colonial Mexico*

It is essential that scholars move away from monocausal explanations of population change to reach a broad-based understanding of decline and extinction of Native American groups after 1492.

Larsen et al.,

"Population Decline and Extinction in La Florida"

It seems to be irrevocably written in the book of fate, that the race of red men shall be wholly extirpated in the land in which they ruled the undisputed masters, til the rapacity of the Whites brought to their shores the murderous firearms, the enervating ardent spirits, and the all-destructive pestilence of the smallpox.

Stearn and Stearn,

*The Effect of Smallpox on the Destiny of the American Indian*

### **Native American and European Responses to Epidemic Disease**

In light of one of the central arguments of this book, that the experience of native Americans with epidemic disease closely resembled that of people



42. Prem, "Disease Outbreaks in Central Mexico," 38-42.
43. Gerhard, *A Guide to the Historical Geography of New Spain*, 23; and Malvido, "Cronología de epidemias," 1:172-74.
44. McCaa, "Spanish and Nahuatl Views," 429-31.
45. Lovell, "Disease in Early Colonial Guatemala," 49-83.
46. Archivo General de Indias (AGI), Guatemala 9A, as cited in Lovell, "Disease in Early Colonial Guatemala," 70.
47. Lovell, "Disease in Early Colonial Guatemala," 71-72.
48. AGI, Justicia 299, as cited in Lovell, "Disease in Early Colonial Guatemala," 71.
49. Fuentes y Guzman, *Recordación Florida*, 3:426; MacLeod, *Spanish Central America*, 98; and Orellana, *Indian Medicine*, 143, 146.
50. Recinos and Goetz, eds., *Annals of the Cakchiquels*, 143-44.
51. Martinez Duran, *Las ciencias médicas*, 79-80; Figueroa Marroquin, *Enfermedades de los conquistadores*, 57.
52. McBryde, "Influenza in America," 296-302.
53. Lovell, "Disease in Early Colonial Guatemala," 75-77.
54. Newson, "The Depopulation of Nicaragua," 278.
55. Ibid., 279; Newson, *The Cost of Conquest*, 128; and MacLeod, *Spanish Central America*, 98.
56. Porras Barrenechea, *Cartas del Peru*, 22.
57. Herrera y Tordesillas, *Historia general*, 10:72.
58. Newson, "The Depopulation of Nicaragua," 280; and Newson, *The Cost of Conquest*, 129.
59. Newson, "The Depopulation of Nicaragua," 280.
60. Newson, *The Cost of Conquest*, 129.
61. Lovell and Lutz, *Demography and Empire*, 6; and Newson, *Indian Survival in Colonial Nicaragua*, 339.
62. Newson, *The Cost of Conquest*, 331.
63. Cieza de León, *Obras completas*, 1:36.
64. Zinsser, *Rats, Lice and History*, 256; McNeill, *Plagues and Peoples*, 209; and Dobyns, "An Outline of Andean Epidemic History," 499-500. Subsequently Dobyns has written that the epidemic of 1546 may have been bubonic plague. Dobyns, *Their Number Become Thinned*, 264-65.
65. Newson and MacLeod both believe that the 1545-1546 epidemics in Mexico and Peru were attributable to pneumonic plague. Newson, "Old World Epidemics," 95-96; and MacLeod, *Spanish Central America*, 119; Cook cites plague as well as typhus. Cook, *Demographic Collapse*, 68 and 71.
66. "La ciudad de Quito," in Jimenez de la Espada, *Relaciones geográficas*, 3:205.
67. Dobyns, *Their Number Become Thinned*, 269-70.
68. Kilbourne, *Influenza*, 157-228.
69. Cook, *Demographic Collapse*, 70.
70. Toribio Polo, "Apuntes sobre las epidemias," 58.
71. Dobyns, "An Outline of Andean Epidemic History," 501.
72. It is also possible that the disease was introduced by slaves coming from the Cape Verde Islands. Dobyns, "An Outline of Andean Epidemic History," 503-4.

73. Ibid., 504.
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