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Noble David Cook

Sickness, Starvation, and Death in Early

Hispaniola The island of Hispaniola, site of the first European settlement in the New World, has always intrigued historians of the Americas. The Spaniards on Columbus' first voyage, inauspiciously grounded there by the shipwreck of the *Santa María*, hastily constructed the fortress of Navidad, where many of them were to remain when Columbus sailed back to Spain to report his "discovery." Months later, on Columbus' return with a second fleet, about 1,500 Europeans ventured to the island, lured by the promise of wealth. The fate of those settlers, as well as that of the island's thousands of Taino inhabitants, provides a case study for encounters between peoples previously isolated from each other.

In the 1960s, two interrelated themes based on new historiographical trends stirred fresh scholarly inquiry—the ecological impact of the confrontation between the Old and New Worlds and the rapid, almost complete disappearance of the island's aboriginal inhabitants. Historical quantification and demography suddenly came to the fore. Woodrow W. Borah and Sherburne F. Cook, *Essays in Population History* (Berkeley, 1979–1982), 3v., offered data about central Mexico that stimulated new interest in Hispaniola's population, with hotly contested results. The 1992 quincentenary commemoration of Columbus' first expedition prompted further investigation. Scholars derived widely different positions about disease and population from the available research, and their discussions were frequently acrimonious. Resolution of the argument seemed impossible without new evidence.

In the mid-1980s, nine letters written by Columbus to the monarchs from 1492 to 1503 turned up in the hands of a book-

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seller in Tarragona, Spain; six of them held information previously unknown. These manuscripts, referred to as the “libro copiador,” are now housed in the General Archive of the Indies in Seville. Although the new documents do not change our fundamental understanding of early Spanish exploration and settlement of the Caribbean, they do clarify some of the details. The new information presents a sharper picture of both European and Taino health conditions relating to the second expedition to Hispaniola, specifically mentioning the diseases of syphilis, modorra, malaria, and smallpox.

The value of this documentary cache has been ignored until recently, largely because of its publication history. The first edition of the letters, by Antonio Rumeu de Armas, *El libro copiador de Cristóbal Colón* (Madrid, 1988–1989), 2v., was flawed by incomplete pages and incorrect transcription. The letters were later included in a modified version of the standard set of Columbus documents—Consuelo Varela and Juan Gil (eds.), *Cristóbal Colón. Textos y documentos completos* (Madrid, 1992)—but many libraries did not purchase this new volume, believing it to contain only minor changes from its predecessors. Varela and Gil’s first compilation under that title had appeared in 1984; a revised second edition came out two years later, with a few additions and deletions. The copyright page of the critical 1992 edition, with the new Columbus letters, refers to the work as an “expanded second edition.” Just pages later, however, a section entitled “Prologue to the Third Edition” follows (11). No wonder the confusion about whether the book had anything substantially new to offer. Nonetheless, a careful comparison of this source with other published materials coming from the Columbus voyages, if not decisive in the matter of disease and population, undoubtedly provides much food for thought.

SETTING THE STAGE: THE JERONYMITE INQUIRY In April 1517, an inquiry into the condition and preservation of the remaining aboriginal inhabitants of the island of Hispaniola began in the city of Santo Domingo. The inquiry was conducted under the direction of a small group of Jeronymite friars, who had been named to take over the administration of the island. They were ordered to conduct a count of the number of native chiefs (caciques) and Indians that still remained and to determine the most effective way

to control them. Numerous people testified, including secular priests, clerics of other orders, administrative officials, and settlers. The Crown wanted to know whether the caciques and the natives could govern themselves and maintain the viability of the colony for the European settlers. Would the Taino, the island's free people, work as Spanish peasants and laborers did? Could, or should, they be congregated into European style villages nearer the colonists, the better to indoctrinate them in the faith and "civilize" them, according to Old World standards? The upshot was that enslavement or some form of directed labor and coercion might be necessary for the colony to survive.¹

The inquiry took place just a few months before the devastating and well-documented epidemic of smallpox that swept away much of the remaining native population. Some of the witnesses had come with the second Columbus expedition twenty-four years earlier. Others were more recent arrivals to the island. The majority argued that the natives were lazy and undependable—even dangerous—and that they could never live as "civilized" Europeans, though a few suggested that, with freedom and Christianity, they could become equal citizens.

All those assembled for the inquiry were worried about the island's fate. In spite of a generation of settlement, the European population in 1517 was not large, well under 4,000. The gold production that showed much promise in the first years never lived up to expectations, and no other quick and easy alternatives for acquiring wealth had presented themselves. The planting, harvesting, and refining of sugar was still developing as a viable economic base, but sugar plantations required a large and secure labor force. The local labor force, however, was hard to direct, and, worse, it was declining rapidly. Slaves from other islands, and even the more distant mainland—not to mention a small number from Africa—had already been imported to replace those who were dying.²

Three years earlier, the Crown had directed town officials to prepare a list of the natives that each resident had under his con-

1 Friars Bernardino de Manzanedo, Luis de Figueroa, and Alonso de Santo Domingo—who conducted the inquiry—landed on Hispaniola on December 20, 1516, after a voyage of only a month. Frank Moya Pons, *La Española en el siglo XVI: 1493–1520. Trabajo, sociedad y política en la economía del oro* (Santo Domingo, 1978), 196–207.

2 Moya Pons, *Española en el siglo XVI*, 152–172.

trol. Registration was mandatory, and the penalties for non-compliance were severe. Furthermore, two people in each town were to be named to conduct an inspection of the estancias, mines, and Indian villages, and to prepare a “census” of the Indians, by occupation, age, sex, and capacity to work. The specific categories were: “caciques, naborías, indios de servicio, niños and viejos.” By the end of the census two months later, 733 people had received grants of natives, who officially numbered 25,303. That only 1,592 of the total count were listed as “niños,” or young children, reflects the demographic crisis affecting the native population of the island.³

No one is certain of the number of Taino living on the island when Columbus first arrived in December 1492. Bartolomé de las Casas, who did not reach the island until 1502, reported numbers that range from 1 to 3.5 million. Since he was a master of hyperbole, whose principal concern was the protection of the Amerindians, his high numbers cannot be trusted. One witness at the inquiry of 1517, Inspector Juan Mosquera, who came to the island with Governor Nicolás de Ovando in 1502, testified that the three distributions of natives among the Spanish settlers that he experienced had resulted in “much harm done to the land and many Indians.” Another, Licentiate Christobal Serrano, who also came to the island in 1502, reported that some lords had as many as “thirty and forty and fifty thousand naborías under their charge.” Whatever the number of Amerindians at first contact—figures given since the last half of the twentieth century range from 60,000 to over 8 million—scholars agree that the Taino did not survive well under the influence of the Old World. Sickness, starvation, murder, and exploitation seem to have been their lot. All accounts by the Europeans that come from the first years of reconnaissance and settlement report the substantial loss of Taino and Spanish lives.⁴

“PARADISE” GAINED AND LOST There is increasing evidence that the impact of the encounter between previously isolated eco-

³ *Ibid.*, 156–160.

⁴ Emilio Rodríguez Demorizi (ed.), *Los Dominicos y las encomiendas de indios de la isla Española* (Santo Domingo, 1971), 282, 299. William M. Denevan (ed.), *The Native Population of the Americas in 1492* (Madison, 1976; 2d ed., 1992), xxiii–xxiv, and Cook, “Disease and the Depopulation of Hispaniola, 1492–1518,” *Colonial Latin American Review*, II (1993), 214–220, summarize the debate over “numbers.”

systems of the Americas and the Old World was massive. But because of the relatively small number of Europeans who were with Columbus on the first venture, as well as their limited contact with coastal peoples of the islands during the three months from October 1492 to January 1493, it was not felt immediately. The exception was the likely transfer of New World syphilis, which hit Europe in epidemic proportions with the return of the men of the *Pinta* and *Niña*. Not until the second expedition, consisting of 17 ships and approximately 1,500 adventurers, did the ecological barrier of the Atlantic Ocean break and the explosive transformations begin. Thanks to new information on the second Columbus expedition, especially the admiral's *Relación del segundo viaje*, a more complete view of the nature of that process is available. The purpose of this article is to probe the rapidly changing health conditions on the island between 1493 and 1496. Although the health and nutrition of the Taino will be explored, the primary focus is on the European settlers, because the documentary record is skewed much more toward them than toward the Amerindians.⁵

The early Caribbean has been the focus of numerous studies, because what happened there in the quarter century following first contact provides a case study for the changes that occurred elsewhere in the Americas. Sauer's *Early Spanish Main*, a detailed analysis of the ecological changes taking place, provided a baseline for future investigations. Unfortunately his lead was not well served by his intellectual heirs. Floyd's book on the Columbus dynasty provided an administrative survey of the early European Carib-

5 Alfred W. Crosby, "Conquistador y Pestilencia: The First New World Pandemic and the Fall of the Great Indian Empires," *Hispanic American Historical Review*, XLVII (1967), 321–337; *idem*, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, 1972); *idem*, "Virgin Soil Epidemics as a Factor in the Aboriginal Depopulation in America," *William and Mary Quarterly*, XXX (1976), 289–299; Carl O. Sauer, *The Early Spanish Main* (Berkeley, 1966); Varela and Gil (eds.), *Cristóbal Colón*. The second revised edition of 1992, or subsequent editions, of this work are preferred; note that those prior to 1992 do not include the newly discovered Columbus letters. Miles H. Davidson, *Columbus Then and Now: A Life Re-examined* (Norman, 1997), xxii, evaluated the "libro copiado": "Spanish scholars accept these sixteenth-century documents as scribal copies of letters written by Columbus." The arguments presented herein are similar to those proposed in Cook, *Born to Die: Disease and New World Conquest, 1492–1650* (New York, 1998), 26–39, but with important differences: (1) A richer eyewitness narrative is provided, with a more critical evaluation of accounts; (2) evidence not available to the author when the book was published raises the possibility of small-pox among the Indian interpreters from Hispaniola, as they embarked on their return to the island in 1493; (3) Francisco Guerra, *Epidemiología americana y filipina, 1492–1898* (Madrid, 1999), comes under close scrutiny; and (4) the issues of nutrition, starvation, and death among both natives and Europeans are examined in the context of the initial three years.

bean, but only the various studies by Moya Pons most closely approximate Sauer's model.⁶

In the quincentenary period, a number of new studies treated the environmental impact of the discovery on the other lesser islands of the region. Crosby's work, for one, discusses the question of disease impact and levels and patterns of morbidity and mortality, in relation to Amerindian population size. In the late 1960s, Dobyns was simultaneously revising localized population estimates to provide a new hemispheric estimate that was substantially higher than previous ones. Dobyns closely linked Amerindian demise to epidemic disease, providing a still-useful chronology for epidemic outbreaks in the Andean region. Higher population estimates were fueled by the revisionist work of Borah and Sherburne F. Cook, which concentrated primarily on Mexico. Only one chapter of their seminal three volume work focused on Hispaniola, and their population projection for the island's contact size was about 8 million. Zambardino criticized their estimate on statistical grounds and Rosenblat on the basis of sources.⁷

GUERRA'S THESIS Although Denevan, who also was interested in population densities and environmental carrying capacities, edited a series of chapters on *The Native Population of the Americas in 1492* in 1976, close attention to the spread of European pathogens via the expedition of Columbus had to await the short studies of Guerra in the mid-1980s. Guerra was the first scholar to attempt to identify the "illnesses" and deaths on Hispaniola, beginning with the arrival of Columbus' second expedition in late 1493. He suggested that the primary cause of mortality was influenza, or swine flu. Guerra postulated that Columbus and Diego Alvarez Chanca—a university-trained court physician who sailed with the fleet—delineated this first New World epidemic "in authentic, truthful and incontrovertible documents." That article has re-

6 T. S. Floyd, *The Columbus Dynasty in the Caribbean, 1492 to 1526* (Albuquerque, 1973); Moya Pons, *Española en el siglo XVI, 1493–1520* (Santiago, 1971); *idem*, *Después de Colón. Trabajo, sociedad y política en la economía del oro* (Madrid, 1987).

7 Henry F. Dobyns, "Disease Transfer at Contact," *Annual Review of Anthropology*, XX (1993), 273–291; *idem*, "Estimating Aboriginal Populations: An Appraisal of Techniques with a New Hemispheric Estimate," *Current Anthropology*, VII (1966), 395–449; *idem*, "An Outline of Andean Epidemic History to 1720," *Bulletin of the History of Medicine*, XXXVII (1963), 493–515; *idem*, *Their Number Became Thinned: Native American Population Dynamics in Eastern North America* (Knoxville, 1983).

ceived much attention and some acceptance. In 1999, however, Guerra shifted his focus, emphasizing the potential effect of typhus. This article presents “new evidence” on other diseases not available when Guerra published in the mid-1980s, and which he omitted in his flawed compilation of 1999.⁸

All arguments are based on the extent and quality of the documentary evidence. The primary sources for the second expedition, although more numerous than the records of the first, are incomplete and less than satisfactory. Guerra combed Columbus’ published letters, his “diary” of the first voyage, Chanca’s lengthy letter, and the *Décadas* of Pedro Mártir de Anglería, which had been collected chronologically near the actual events that they related. Guerra also used subsequent texts of las Casas and those of Oviedo, an administrator and chronicler, as well as Ferdinand Columbus’ biography of his father and Herrera’s chronicle.⁹

Almost at the same time when Guerra was searching for evidence of disease in the early published sources, other scholars were revisiting the same accounts for verisimilitude. The evolving consensus in the 1980s and early 1990s, based on the work of Adorno, Zamora, Mignolo, González Echevarría, and other scholars who

8 Borah and Cook, *Essays in Population History*; Angel Rosenblat, *La población de América en 1492: Viejos y nuevos cálculos* (Mexico, 1967); *idem*, “The Population of Hispaniola at the Time of Columbus,” in Denevan (ed.), *Native Population*, 43–66; David Henige, “On the Contact Population of Hispaniola: History as Higher Mathematics,” *Hispanic American Historical Review*, LVIII (1978), 217–237; Rudolph A. Zambardino, “Critique of David Henige’s ‘On the Contact Population of Hispaniola: History as Higher Mathematics,’” *ibid.*, 700–708; *idem*, “Mexico’s Population in the Sixteenth Century: Demographic Anomaly or Mathematical Illusion,” *Journal of Interdisciplinary History*, XI (1980), 1–27. See Guerra, “La epidemia americana de influenza en 1493,” *Revista de Indias*, XLV (1985), 325–347 (quotation, 326); *idem*, “El efecto demográfico de las epidemias tras el descubrimiento de América,” *ibid.*, XLVI (1986), 41–58; *idem*, “The Cause of Death of the American Indians,” *Nature*, 326 (1987), 449–450; *idem*, “The Earliest American Epidemic: The Influenza of 1493,” *Social Science History*, XII (1988), 305–325; *idem*, “The Dispute over Syphilis: Europe versus America,” *Clio Medica*, XIII (1978), 39–62. The origin and nature of syphilis have received substantial coverage. Brenda J. Baker and George J. Armelagos, “The Origin and Antiquity of Syphilis,” *Current Anthropology*, XXIX (1988), 703–737, provide a good starting point. Guerra, *Epidemiología americana*, 114–125, reiterates his earlier arguments for the introduction of influenza. Most of his “sources” for the 1493 sequence are not actual eyewitnesses, but were prepared years later.

9 Bartolomé de las Casas (ed. Agustín Millares Carlo and Lewis Hanke), *Historia de las Indias* (Mexico, 1952); Gonzalo Fernández de Oviedo (ed. Juan Pérez de Tudela Bueso), *Historia general y natural de las Indias* (Madrid, 1959), 6v.; Fernando Colón (ed. and trans. Benjamin Keen), *The Life of the Admiral Christopher Columbus by His Son Ferdinand* (Brunswick, 1992); Antonio de Herrera y Tordesillas, *Historia general de los hechos de los castellanos en las islas y tierra firme del mar océano* (Madrid, 1935–1957), 17v.

probed the creation and hermeneutics of early sources, was that the accounts followed well-established rhetorical patterns that were part of Spanish humanist historiography, that the line between “fact” and fiction was blurred, and significant exaggeration and self-promotion corrupted the narratives. Further, the attempt to portray native peoples was flawed, especially at first, since few Europeans were fluent in both Amerindian languages and Spanish. At the extreme, the accounts provide little of the “true” past at a specific historical moment. Guerra stood largely outside this growing epistemological debate, accepting at, or near, face value the information found in the chronicles, letters, and diaries.¹⁰

Guerra’s reconstruction of the health of the second expedition’s members is relatively straightforward. There is little inconsistency in the chronology of the voyage found in the published sources. On September 25, 1493, seventeen ships with about 1,500 mostly males on board departed Cádiz. They reached the Canary Islands on October 2, and the island of La Gomera around the 5th. Guerra found evidence that eight sows were loaded aboard ship on the island of Gomera in the Canaries between 5–7 October. Hence, his argument for swine flu. Guerra seems to have speculated without evidence that both men and animals onboard quickly sickened. The voyage from the Canaries to the Caribbean was rapid; the fleet reached the Caribbean island of Dominica on November 3. According to Guerra, the vessels reached Hispaniola on the 28th or so, touching land near Navidad where the first expedition had departed a little less than a year earlier. They found none of the men they had left behind; all had succumbed to star-

10 See, for example, Walter Mignolo, “El metatexto historiográfico y la historiografía india,” *Modern Language Notes*, XCVI (1981), 358–402; Roberto González Echevarría, “Humanismo, retórica y las crónicas de la conquista,” in *idem* (ed.), *Isla a su vuelo fugitiva: ensayos críticos sobre literatura hispanoamericana* (Madrid, 1983), 9–25; Rolena Adorno, “Nuevas perspectivas en los estudios literarios coloniales hispanoamericanos,” *Revista de Crítica Literaria Latinoamericana*, XIV (1988), 11–28; Margarita Zamora, “Historicity and Literariness: Problems in the Literary Criticism of Spanish American Colonial Texts,” *Modern Language Notes*, XII (1987), 334–346; *idem*, “‘If Cahonaboa learns to speak . . .’: Amerindian Voice in the Discourse of Discovery,” *Colonial Latin American Review*, VIII (1999), 191–205. Henige deconstructs the sources for the first Columbus voyage in *In Search of Columbus: The Sources for the First Voyage* (Tucson, 1991). James C. Murray provides an overview in *Spanish Chronicles of the Indies: Sixteenth Century* (New York, 1994), 6–13. The arguments are placed in perspective by Santiago Juan-Navarro, *Archival Reflections: Postmodern Fiction of the Americas (Self-Reflexivity, Historical Revisionism, Utopia)* (London, 2000).

vation, sickness, or, in most cases, the hand of the not completely “peaceful” Taino.

Guerra postulated that almost immediately an illness that had been carried along with the fleet spread outward: “Suddenly, on the following day 9 December 1493, all the people began to sicken with high temperatures and great prostration, so that very few escaped, and even those who had left to explore had to return upon feeling ill.” When livestock and passengers disembarked on Hispaniola, most were already infected. Guerra argued that illness debilitated the Spaniards, and then spread rapidly among native peoples. “The Indians then died in infinite numbers.” Columbus was so weakened by sickness that he was unable to write for several weeks. In his review of the relevant published sources, Guerra found that Ferdinand Columbus’ biography of his father showed a three-month gap in the latter’s diary [December 11, 1493, to March 12, 1494]. Ferdinand’s text tells of the reconnoitering of the northern coast of Hispaniola and the discovery of what seemed an appropriate site for settlement, which Columbus named Isabela, in honor of the Spanish queen. According to Ferdinand, his father “so drove himself to lay the foundation of that town that not only did he lack time to enter in his journal each day’s happenings, as had been his custom, but he even fell ill and was unable to keep a journal at all from December 11, 1493, till March 12, 1494.” Ferdinand also wrote of growing discontent among a number of the settlers of the second expedition, who tired of the hard unrewarding labor and of being “made ill by the climate and diet of that country.”¹¹

Guerra was convinced in 1985 that his evidence was valid:

Contemporary descriptions of the first epidemic that took place in America, their concordance in terms of the basic clinical manifestations, confirmation of some complementary details and later epidemiological facts that are here presented permit one to affirm that the epidemic that appeared on the island of Santo Domingo in 1493, the principal cause for the disappearance of the American natives in the quarter century after discovery, was the swine flu. All the sources are in agreement that the epidemic that broke out in Isabela on 9 December 1493 was an acute infectious sickness, extremely contagious and with a short period of incubation, that af-

11 Guerra, “La epidemia americana,” 338. Colón, *Life of the Admiral*, 121–122.

fects simultaneously wide groups of the population, and was characterized by an elevated fever, great prostration, and an appreciable mortality.¹²

The symptoms described by Guerra, however, could cover various illnesses, not just influenza. Catarrh (*catarro*), clearly associated with influenza, is not even mentioned. Guerra qualifies his argument that “although in these first descriptions the respiratory symptoms do not yet appear, at the time that the sickness passed to Tierra Firme, the narratives begin to incorporate additional symptomatology: secretion of mucus (*romadizos*), catarrh (*catarrhos*), pleurisy (*dolor de costado*), and in Mexico for the first time nosebleeds are mentioned.” Hence, not until the third decade after 1493 did more specific influenza-like symptoms appear in the texts cited by Guerra. Although Guerra’s 1999 compilation reiterated that the first Old World epidemic to hit America was influenza, his evidence for swine flu striking early Hispaniola is inadequate to sustain his argument.¹³

In a 1999 article, Guerra introduced another element into the disease environment of the second expedition—typhus. He stated that Columbus became ill again several months after his malady in Isabela. In the mid-1980s, Guerra had written that the second time the admiral fell sick, he suffered a separate illness, “*una modorra pestilencial*.” But in 1999, Guerra ignored his diagnosis of swine flu: “The frequent parasitical infestation of the head and the body of sailors during these years, that Las Casas and other chroniclers of America spoke about, explains that typhus was frequent among the crews of the ships of the Indies fleet, and they called it “*modorra*,” owing to the characteristic drowsiness which the sick display. . . . One might accept that the first case of *typhus exanthematicus* in America was the Admiral Christopher Columbus himself.”¹⁴

12 Guerra, “La epidemia americana,” 325–326, 338. Almost a decade later, Guerra, “Early Epidemics at La Hispaniola and Demographic Collapse 1492–1518,” *Latin American Population History Bulletin*, 23 (1993), 19, maintained his position: “It can now be stated that every quotation by Guerra was correct, the facts stand as they were first presented, and even the Spanish dead from the influenza epidemic at La Hispaniola in 1493 have been found and can be counted.” Henige, “Is Virtual Reality Enough or Should We Settle for Less?” *ibid.*, 23, countered, “the disagreeable fact is that, when treated integrally and contextually, Guerra’s own sources undermine almost every aspect of his case.”

13 Guerra, “La epidemia americana,” 339.

14 *Ibid.*, 327; *idem*, “Origen y efectos demográficos del tifo en el México colonial,” *Colonial Latin American History Review*, VIII (1999), 283.

Guerra used the texts of las Casas, and the Ferdinand Columbus biography. Ferdinand wrote that his father, while returning from the reconnaissance of Jamaica and Cuba, stopped including entries in his journal in late September 1494: “Because of the great past hardships, his weakness and the scarcity of food, he was hit by a very serious illness between pestilential and *modorra*, which almost immediately deprived him of sight, of the other senses, and consciousness.” His crew continued sailing as quickly as possible to Isabela, where they landed on September 29, 1494. Las Casas provided a similar account: “All of a sudden he was afflicted by a pestilential *modorra* that totally removed from him use of the senses and all his strength, and he became as if dead, and they did not think he would last a day.”¹⁵

It took five months for Columbus to recover his health. For those attempting to diagnose the sickness using English-language sources, further confusion is added by Keen’s translation of Ferdinand’s biography of his father. Keen uses the word “drowsiness” instead of *modorra*, a specific disease. According to Keen, on September 24, 1494, as he sailed along the eastern end of Hispaniola, Columbus stopped entries in his daily journal. “Because of his great exertions, weakness, and scanty diet he fell gravely ill in crossing from Amona to San Juan; he had a high fever and a drowsiness, so that he lost his sight, memory, and all his other senses.”¹⁶

AN EARLY INTRODUCTION OF TYPHUS? In this new case, Columbus’ documents provide fresh insight. Las Casas and Ferdinand Columbus probably had access to a Columbus letter of February 26, 1495, that was sent back to Europe with Antonio de Torres’ fleet. The relevant text reads, “And having arrived at the island of San Juan Baptista [Puerto Rico] all of a sudden I was knocked down by a sickness that deprived me of all sense and understanding, *as if it were pestilence or modorra* [italics added]. The shipmasters and pilots and all the people then agreed to quickly go to the city for my cure, and thus ended my enterprise of discovering the other

15 *Ibid.*, 284. Guerra quotes from Girolamo Bordoni’s edition of *Historie del Sig. Don Fernando Colombo: Nelle quali s’ha particolare, & vera relatione della vita, & de’ fatti dell’ ammiraglio Don Christoforo sub padre . . .* (Milan, 1614). Las Casas, *Historia de las Indias*, I, 396.

16 Colón, *Life of the Admiral*, 145. Keen suggests that Columbus may have suffered a nervous breakdown (fn. 4, 299), taking a cue on this point from Samuel Eliot Morison, *Admiral of the Ocean Sea: A Life of Christopher Columbus* (Boston, 1942), 479.

[islands].” He blamed his condition on “the extreme hardships and dangers of this voyage. . . . I was filled with much anxiety day and night, so that I could not sleep, and in these last thirty days I have not slept except for three hour-glasses of half an hour each, so that I became half blind, and during some hours, entirely so.”¹⁷

Early introduction of European typhus to the Americas is not impossible, even as soon as the second Columbus expedition. But the above symptoms do not fit well with sixteenth-century Spanish descriptions of typhus, which usually include an appropriate label of *tabardillo*, describing the small spots that cover the trunk of the body several days after the onslaught of the disease. Unfortunately, the question of early modern disease identification is clouded by incomplete evidence, sketchy diagnosis, and distance. Today many “fevers” can be identified only after detailed and lengthy laboratory analysis, and even now some illnesses escape correct label. Hence, modern historians must use caution when they attempt to identify past illnesses, even of major epidemic proportions. The appearance of a “common” disease in a population that has not experienced the malady can result in unusual symptoms and levels of mortality for “virgin populations.” “Educated speculation” is the only method in most cases, particularly regarding initial European exploration and settlement in the Americas. Columbus’ lethargy, his delirium, and his sensory weakening might be epidemic meningitis or *encephalitis lethargica*. The latter often comes on the heels of influenza, with those falling ill showing symptoms of fever, lethargy, disturbed eye movements, headache, general weakness, tremors, delirium, convulsions, depression, faulty sensory perception, and lack of coordination. About 30 percent of victims without treatment succumb to the disease. Columbus’ own description of his symptoms, and his use of terminology, provides a much clearer approximation of the illness’ true nature than do the subsequent texts that have served as the sources of choice until now.¹⁸

The case made by Guerra, as well as Cook in 1998, for the early introduction of typhus, is worth closer evaluation. If Columbus indeed came down with European *typhus exanthematicus*, it would have been carried aboard the fleet that had come from Spain. As Guerra points out, “Two years before the discovery of

17 Varela and Gil (eds.), *Cristóbal Colón*, 313.

18 R. T. Ravenholt, “Encephalitis Lethargica,” in Kenneth F. Kiple (ed.), *Cambridge World History of Human Disease* (New York, 1993), 708–710. See also Cook, *Born to Die*, 54–56.

America there appeared in Andalusia the first epidemic of *typhus exanthematicus* of which there is certain notice.” The appearance of the disease is associated with the troops and conditions of warfare during the conquest of Granada. A full medical description was provided by Luis de Toro, in *De febris epidemicae et novae, quae Latine punctularis, vulgo tavadillo, et pintas dicitur, . . .* (Burgis, 1574). Numerous men onboard the second Columbus fleet had been engaged in the conquest of Granada. In fact, the Crown ordered twenty mounted cavalry, or lancers, from the *Hermandad*, or militia, of Granada to accompany the expedition to the Caribbean. They were to take full equipment for themselves and their horses, and to transport an additional five mares. A number of the men who had participated in the taking of Granada must have suffered through typhus, survived, and seemed immune. Conversely, others on board the second fleet had probably never contracted the disease. Zinsser pointed out that certain individuals, although immune from an earlier experience with the disease, can, under certain conditions, act as carriers. In a time of crisis with weakened body resistance, a subsequent full-blown case can recur, and the individual will once again transmit the disease.¹⁹

Conditions on board ship during the second crossing, as well as those on the island of Hispaniola after the passengers disembarked, were debilitating for the settlers. Nutritional deficiency, change of climate, and lack of sleep could have been enough to shift the balance and trigger a recurrence of typhus in severely weakened individuals. It is probable that live *Rickettsia prowazeki* came on board along with lice (*Pediculus humanus*) and that the infection could have been passed to humans, given the close packing and poor hygiene. Infected lice quickly die and the epizootic will falter, but, as Guerra points out, the *Rickettsia* can survive in the lice feces for two months before they enter the human body via a skin lesion or the lungs. For Guerra, the mortality rate for Spaniards infected with the European variety of typhus was about 60 percent among weakened individuals. Mortality for young people was much lower.²⁰

19 Guerra, “Origen y efectos demográficos del tifu,” 281; Cook, *Born to Die*, 37; Hans Zinsser, *Rats, Lice and History: Being a Study in Biography, which after Twelve Preliminary Chapters Indispensable for the Preparation of the Lay Reader, Deals with the Life History of Typhus Fever* (Boston, 1963; orig. pub. 1935), 234.

20 Davidson, *Columbus Then and Now*, 316, 319–320; Gil and Varela (eds.), *Temas colombinos* (Seville, 1986), 19–20; Guerra, “Origen y efectos demográficos del tifu,” 275.

Archaeological evidence suggests that murine typhus existed in America before the arrival of the Europeans. It differs in its mode of transmission and in its level of mortality. It is carried by a rodent reservoir—rats, mice, guinea pigs, or other mammals infested with fleas carrying live *Rickettsia*. Humans contract the disease when bitten by infected fleas. Survival of infection by one of the two forms of typhus (European or American murine) seems to provide immunity against both forms. It is unclear whether any murine typhus appeared in the Caribbean before Columbus. The cooler temperate climate of the high-civilization zones of Mesoamerica and Andean South America, with denser populations and heavier cotton or wool clothing, would seem to be more conducive to the spread of endemic murine typhus. Mammal vectors, with the possible exception of the hutia (a large, edible rodent), were noticeably absent in the islands of the Caribbean. Moreover, the frequent bathing of the Taino, their absence of clothing, and their closely cropped hair mitigate against infections by either fleas or body lice. Body painting may or may not have had a prophylactic value against anthropod infestations, depending on the chemical composition of the pigment. Chanca was specific regarding customs of the Taino when he first saw them in 1493: “All these people, as I have said, go about as they were born, except the women of this island who keep their shameful parts covered, with cotton cloth. . . , the heads shaved in parts with such a variety of tufts, that they cannot be described.” Europeans were much better hosts for the body-lice vectors of typhus than the Taino.²¹

Given these factors, it is unlikely that murine typhus was endemic in the area when Columbus arrived. Cleanliness and lack of clothing would work against quick outbreaks of epidemic typhus among native peoples, either murine, or the European strain spread by body lice. Therefore, if some of the Spaniards, including Columbus, were infected and brought typhus to Hispaniola in 1493, as was at least technically possible, the disease probably sputtered in the native American population, infecting and killing some but not the high numbers that seem to have perished in the

21 Gil and Varela (eds.), *Cartas particulares a Colón y relaciones coetáneas* (Madrid, 1984), 173. See Michael Craton and Gail Saunders, *Islanders in the Stream: A History of the Bahamian People* (Athens, 1992); Mary C. Karasch, “Disease Ecologies of South America,” in Kiple (ed.), *Cambridge World History of Human Disease*, 538.

years immediately following 1493. The Spaniards could have increased the possibility of later outbreaks of typhus as they gradually introduced and required the use of clothing among the Taino. Licentiate Lucas Vásquez de Ayllón, later an important figure in the attempt to settle Florida, first came to the island c. 1504. He testified in the 1517 Jeronymite inquiry that the Indians had been given “thin linen clothing which does not last long because they do not take care of it or wash it and it rots on their body, and for this reason they are nude most of the time.”²²

SMALLPOX ON THE SECOND VOYAGE? A new source for the second voyage, not available to Guerra in the mid-1980s, is the *Relación del segundo viaje*, which documents the possible existence of smallpox in Cádiz at the time of the fleet’s embarkation for Hispaniola. Columbus writes, “I put ashore [in Samaná] one of the four Indians that I had taken from there last year, who had not died as the others from smallpox on the departure from Cádiz.” The original manuscript text is easily readable; it leaves no doubt about the word smallpox (*viruela*) (see Figure 1). If the document is authentic, then the three or four Amerindians embarking for Hispaniola in Cádiz on September 25, 1493, were potential carriers of smallpox. Translation is an inexact science, and the translation of the Spanish term “*a la partida*” is imprecise. It refers to an action in progress, rather than a specific beginning, middle, or end. The rough English equivalent, “departing” or “on the departure,” captures the spirit reasonably well, and suggests that the deaths occurred as preparations were being made for leaving, or as they embarked to leave, or, in the time shortly after sailing from the port, but certainly before reaching the waters of the next stop in the Canary Islands.²³

The original text leaves it possible that one or more of the captured natives trained as interpreters could have died while still in Cádiz, or that one or more could have died while aboard ship. If they had died while in the port of Cádiz, the Spanish text would read differently—something like “en Cádiz, antes de la partida.” Given our modern medical understanding of the etiology of

22 Rodríguez Demorizi, *Los Dominicos*, 322.

23 Varela and Gil, *Cristóbal Colón*, 242: “que pusiese allí en tierra uno de los cuatro indios que allí avía tomado el año pasado, el cual no se avía muerto como los otros de viruelas [my italics] a la partida de Cádiz.”

smallpox, they could scarcely not have left residues of the live virus on board. The text permits an alternative rendering, however. For example, Henige, who in 1998 still seemed unaware of the 1992 critical edition of Gil and Varela, states that “Columbus wrote that some Indians (number unspecified) died of smallpox in Cádiz as the fleet was set to embark.” Davidson came closer to the correct understanding when he translated the passage as, “[He was] one of the four Indians that I had taken there the past year, who had not died from smallpox as the others had done on leaving Cáliz [sic], as well as others from Guanafani [sic] or Sant Salvador.” Davidson concluded, “It is important to note that the smallpox affected these particular Indians after they left Cádiz, a strong indication that smallpox was brought to the island with the second voyage.” The critical caveat concerns “strong indication.” Caution would require a much more tenuous qualifier.²⁴

The history of the ten or so young natives that Columbus took from the islands of the Bahamas and Hispaniola to train as translators for the return to the Caribbean can be reconstructed from previously known and new texts. Oviedo, born in Madrid in 1478, named a page at the age of thirteen in the court of the Catholic monarchs, and assigned to the service of Prince Juan, was an eyewitness. He wrote in his fifteenth year, “I was in Barcelona when the King was wounded as I have said; and I saw the arrival of the admiral there, Don Christopher Columbus, with the first Indians who went from those parts on the first voyage and discovery. Thus I do not speak from hearsay in any of these four things, but as an eyewitness.” He reported that Columbus had returned from Hispaniola with “nine or ten” natives not only to display them as proof of his venture but also to show them “the land of the Christians and learn the language, so that when they return there, they and the Christians who remained in the care of Guacanagarí and in the fort said to be Puerto Real, they would be translators and interpreters for the conquest and pacification and conversion of these people.” Oviedo wrote that one of the Indians had died aboard ship on the way to Spain. After disembarking in Palos, Columbus had left two or three who were sick (*dolientes*) and took “the six who were well” with him to the court in Barcelona.²⁵

24 Henige, *Numbers from Nowhere: The American Indian Contact Population Debate* (Norman, 1998), 369, fn. 36; Davidson, *Columbus Then and Now*, 335.

25 Oviedo, *Historia general*, I, 30, 28, 29; Murray, *Spanish Chronicles*, 100–101.

Las Casas, at the time about nineteen years old, witnessed the arrival of the natives of the New World, too. Las Casas wrote that Columbus departed for Barcelona with seven, not six, Indians, “who had remained from the past tribulations, because the others had died; I saw them at the time in Seville, and they resided next to the arch that is called “of the Images (*Imágenes*)” at [the parish of] San Nicolás.” Another chronicler, probably also an eyewitness, saw the Indians and described their arrival in Spain. Andrés Bernal (known as Bernáldez), a cleric of the Villa de los Palacios from about 1488 to 1513, wrote a chronicle of Spain under the Catholic monarchs. As chaplain of the archbishop of Seville, he had access to Columbus’ reports, as well as to a letter by Diego Alvarez Chanca. In his words, “Once the aforesaid land was discovered by the said Christopher Columbus, he came to Castile, and arrived in Palos on 23 March of the year 1493, and entered Seville with much honor on 31 March, Palm Sunday, well proven his intention, where he was well received. He brought ten Indians, of those he left four in Seville, and took six to Barcelona to show to the queen and the king, where he was very well received.”²⁶

The second fleet carried one surgeon and one physician—Chanca (c. 1460–1515), who penned an extensive report in the form of a letter describing the island and its resources. Chanca must have known as well as anyone the number of Amerindians who boarded in Cádiz; he probably traveled on the same ship with one or more of them toward the Caribbean. His extensive letter to the municipal council of Seville was transported with the fleet of Antonio de Torres, which left Hispaniola for Spain in late January 1494. Chanca wrote about the remaining Indians in the context of Columbus’ attempt to interview the cacique Guacanagarí, about the fate of the Spaniards that he had left on the island. Chanca, who was present at that interview, wrote that the Spaniards were able to understand the words of the chieftain because of the interpreters: “All this took place with the two Indians acting as interpreters, who had gone on the other voyage to Castile, who had remained alive of the seven that we put aboard in the port, be-

26 Las Casas, *Historia de las Indias*, I, 332; Andrés Bernáldez, *Historia de los reyes católicos D. Fernando y Doña Isabel* (Seville, 1870), I, 368–369. Gil, “Noticia de Andrés Bernal, cura de los Palacios,” in *idem* and Varela (eds.), *Temas colombinas* (Seville, 1986), 1–5, points out the correct name of the chronicler. For Bernal’s sources, see Gil and Varela, *Cartas particulares a Colón*, 20–23.

cause the five died en route, [and] those [two] escaped only by the skin of their teeth.”²⁷

The Spaniards looked after the health and well-being of the trained translators because they were critical to the success of the second expedition. Chanca did not describe the cause of death of the five Indians. It is important to note that the original group of captured islanders survived the ocean trip from the Caribbean to Andalusia and then the overland northward trek to Barcelona and back to Cádiz, the port of departure. Since ample food, drink, and clothing would have been set aside for the interpreters on the return voyage to the Caribbean, they must have been infected with some ailment(s) while in Spain. They may have been displaying symptoms already, or they may have been infected onboard. Possibly, they became ill from contaminated food or drink. Thanks to the “*Relación del segundo viaje*,” we now know that three died from smallpox.

Though he was a physician, Chanca, unlike Columbus, failed to detail the symptoms of the interpreters. Chanca’s primary duty was to see to the health of the Europeans on the venture, as clearly stipulated in the Crown’s letter of appointment. That he did so as well as he could under difficult conditions Columbus verified in his report. But Chanca’s other reason for making the journey was personal profit. Not unlike other doctors of the sixteenth century, he was as much a businessman as a medical practitioner. The interview with Guacanagarí gives at least a hint of his mentalité. Chanca reported that the chief presented Columbus with “eight and a half marks of gold and five or six belts worked in stones of various colors, and a cap of the same stonework, which tells me they must hold them in high esteem. In the cap was a small jewel which he gave much veneration. It seems to me they have more copper in them than gold.” Chanca was knowledgeable in the art of precious metals. His initial interest in the venture to the island may well have been the prospect of mineral wealth. Chanca’s letter to the city council of Seville provides a detailed description of the people and the flora and fauna of the newly discovered islands for the purpose of possible profit. His mention of health is thin, even regarding the Europeans. One of his few telling remarks on the subject comes at the end of his missive, in connection with the productivity of the gold in Niti and nearby Cibao: “A third of the

27 Gil and Varela, *Cartas particulares a Colón*, 171.

men have become sick in four or five days. I believe that the major cause of it has been the work and difficulty of the journey, in addition to the diversity of the land, but I have faith in Our Lord that all will rise healthy.”²⁸

But what of the mortality of the Taino? Did one or more of the survivors of the return to their homeland, or an infected member of the European contingent, inadvertently introduce smallpox to the island people? According to Columbus, when one of the Amerindians disembarked, “this one went on land very happy, saying that he was now very strong because he was Christian, and that he had God within, and praying the *Ave María* and *Salve Regina*, he said that, after spending three days in his house, he would come to Cibao where I would be.” Columbus then sent the translator to visit the family he had left the year before. “I gave him excellent clothing, and other things to give to his relatives.” Similarly, Chanca wrote that as they were sailing along the province called Samaná, they put ashore “one of the Indians that they had taken on the other trip, dressed and with some middling things that the admiral had ordered given to him.” This clothing, especially if it had been worn by the other sick young natives of Samaná, could have been the cause of further infection.²⁹

The clinical symptoms of “classical” smallpox were well known to the sixteenth-century Spaniards. In part, they based their medical descriptions on those of the Persian doctor Rhazes (c. 865–923 or 932), who wrote a treatise identifying both smallpox and measles—*De variolis et morbillis*. Sixteenth-century Spanish physicians could generally identify well-developed cases of measles and smallpox. Sebastián de Covarrubias Orozco—a lexicographer born in Toledo in 1539—included definitions of both maladies in his dictionary, indicating that they were largely childhood diseases. Smallpox could be deadly for European adults, but mortality varied significantly, dependent on the response to infection as well as on the specific form of the virus. In 1996, the Centers for Disease Control stored about 450 distinct strains of the smallpox virus, ranging from the milder forms (*Variola minor*) to the more deadly (*Variola major*).³⁰

28 *Ibid.*, *Cartas particulares a Colón*, 170, 173.

29 *Idem*, *Cristóbal Colón*, 242; *idem*, *Cartas particulares a Colón*, 165.

30 Borah, “Introduction,” in Cook and W. George Lovell (eds.), “*Secret Judgments of God*”: *Old World Diseases in Colonial Spanish America* (Norman, 1992), 6–7; Sebastián de Covarrubias

Smallpox is normally transmitted by contact of the uninfected with the live virus via the upper respiratory tracts. The virus is passed in secretions or droplets from the nasal passages and throat, or in secretions from the pustules. A sneeze or cough can spread the virus over a considerable distance; anyone in the same closed room, or onboard the same ship, could be infected. Incubation takes about eight to twelve days, at most ten to sixteen. Onslaught consists of malaise and fever, followed by a small generalized skin eruption on the third day. The pimple-like blisters grow into pustules, which ultimately dry, forming scabs between days eight and ten. At times, the eruptions can cover the entire trunk, and if dense enough, sections of the skin may appear to peel off the victim. If the pustules are internal, as in the lungs, death is normally the result. Those who survive the attack will usually have disfiguring pock marks, and blindness is common. The time from infection to a full cure of survivors who are no longer communicable can be so long as a month. But the virus can survive protected in scabs after falling off the body, and perhaps even longer in dried sputum. Secretions on clothing or bed linens, when packed in the right conditions, can survive for some time. Smallpox is exclusively a human disease, with no animal reservoir of infection, as in cowpox.³¹

Epidemics of smallpox were common in early modern Europe. In large cities, such as Barcelona or Seville, the disease had become endemic. As such, it was a childhood sickness, experienced regularly. One bout brought the survivor long-term immunity. There are variations in mortality, depending on the type of smallpox. As Barquet and Domingo point out, “Persons with fulminating smallpox (*purpura variolosa*) had mucocutaneous hemorrhages that preceded the appearance of the characteristic skin

Orozco, *Tesoro de la lengua castellana o española (1611)* (Madrid, 1994); Sheldon Watts, *Epidemics and History: Disease, Power and Imperialism* (New Haven, 1997), 86.

31 Roderick E. McGrew, *Encyclopedia of Medical History* (London, 1985), 313; C. W. Dixon, *Smallpox* (London, 1962). Guerra, *Epidemiología americana*, 52, argues, without citing his source of information, that the smallpox virus can survive up to three years in clothing. Specialists disagree regarding the length of time that the virus can survive. Some suggest that it does not survive long; others argue for substantial periods under ideal conditions of temperature and humidity. Given the fact that smallpox has been virtually eliminated, we probably will never know for certain. The case of the ill Taino translators needs no argument for transfer by clothing or goods. A simple chain of infection from individual to individual is sufficient to explain what might have taken place.

lesions. In malignant smallpox, the rash had a slow evolution characterized by pseudocropping, subconjunctival hemorrhages, and death when lesions on the face and limbs were confluent. In benign smallpox, the evolution of the rash differed from that of the malignant variety; this form was also less extensive.” Case fatalities normally ranged from 20 to 60 percent. The potential variation in mortality levels can range from 1 percent to almost 100 in the most deadly fulminating smallpox. Pregnant women are particularly susceptible. So far as children are concerned, 80 percent of those under five years of age who were infected in eighteenth-century London died; in Berlin, the mortality for the same period approached 98 percent. Vogel and Chakravarti demonstrated that both rates of infection and overall mortality can vary by blood groups. In a study of one of the last smallpox epidemics in India from 1964 to 1966, they documented an overall mortality rate of about 50 percent.³²

When or where the natives from Samaná were infected in Spain is unclear, but they must have been carrying the virus by the time they reached Seville, and experiencing symptoms by the time they were in Cádiz. En route from Barcelona to Andalusia, they had obviously been exposed to smallpox—either localized or more widespread—indicating that large enough pockets of young adults who had not yet experienced the disease were scattered throughout Spain. If there were three live carriers of the virus preparing to set sail from the port of Cádiz, it would have been virtually impossible for other people not to have come into close contact with the virus there. It is statistically unlikely that all of the 1,500 people onboard the seventeen or so ships in the fleet had contracted smallpox as children and thus acquired immunity. At least a handful of the participants in Columbus’ second voyage must have carried live smallpox.

But how many susceptible young men were onboard, other than the full contingent of Tainos, all of whom could carry the disease and would be most likely not to survive the experience? In

32 Nicolau Barquet and Pere Domingo, “Smallpox: The Triumph over the Most Terrible of the Ministers of Death,” *Annals of Internal Medicine*, CXXVII (1997), 635–642; Donald Joralemon, “New World Depopulation and the Case of Disease,” *Journal of Anthropological Research*, XXXVIII (1982), 108–127; F. Fogel and M. R. Chakravarti, “ABO Blood Groups and Smallpox in a Rural Population of West Bengal and Bihar (India),” *Humangenetik*, III (1966), 166–180; Dixon, *Smallpox*, 5–66.

the eighteenth century, the incidence rate varied, although it was highest during epidemics. In Boston, it was 37.5 percent during the epidemic of 1752, in 1730/31 Hastings, England, 43.1 percent, and in 1775 Chester 92.7 percent. According to Barquet and Domingo, “The incidence rate was so high that the disease was regarded as universal or almost universal, and many authorities believed that everyone would eventually develop it.” Seventy-five of those onboard, or 5 percent, were arguably under eighteen years of age. Of these, forty-five individuals, or about 60 percent, would have been most likely to come down with the disease. If they did indeed come down with it, none of the observers would necessarily have reported it. Smallpox, measles, and the other acute communicable childhood diseases were so prevalent that they were not normally noted as unusual, or worthy of mention in the record.³³

The ships that had set sail from Cadiz on September 25, 1493, stopped in the Canary Islands, but not for long; they left the island of Hierro on October 13. According to Columbus, and Chanca, the Atlantic crossing took only twenty-one days. On November 3, they discovered Dominica, and the next day, the island of Guadalupe. They continued in a northerly direction, discovering other islands, including the Virgin Islands and Puerto Rico. Briefly, sometime between November 23 and 25—after two months at sea—they touched Hispaniola, landing the young Indian translator near his home.³⁴

To date, no direct mention of smallpox among the Taino on the island in 1493 and 1494 has been found in the documentary record. But we now possess documentary evidence that at least three Amerindians died of smallpox on the departure from the port of Cádiz in late September 1493. More Amerindians were ill and died en route. Was smallpox the cause? At this point, we can do little more than engage in cautious speculation. Simula-

33 Donald R. Hopkins, *Princes and Peasants: Smallpox in History* (Chicago, 1983), 1–3, 38–39, 258; Barquet and Domingo, “Smallpox.” Thomas A. Whitmore, *Disease and Death in Early Colonial Mexico: Simulating Amerindian Depopulation* (Boulder, 1992), 55–57, examines the key variables. The point about acute communicable childhood diseases not being documented derives from the author’s several years of research in parish registers of the sixteenth through eighteenth centuries. The entries often indicate periods of exceptional mortality for children, but, frustratingly for the investigator, they make no mention of cause or symptoms.

34 Gil and Varela, *Temas colombinos*, 17–23.

tions of smallpox epidemics, although they cannot provide proof, at least present the probabilities inherent in a given situation. Thornton, Warren, and Miller have worked out a model for smallpox epidemics in the southeastern United States, based on the Hamer-Soper model as presented in Bailey's standard *Mathematical Theory of Infectious Diseases and Its Application*. It is based on the idea that epidemics respond to population size and density (number of contacts weekly per person), to the period of infectivity, to the removal rate of susceptibles due to infection, and to the removal rate due to recovery or death. The findings indicate that epidemics burn out more quickly in large and dense populations.

Snow ran a computer simulation focusing on the smallpox epidemic that hit a Mohawk population in 1633. He faced the same questions and worked with similar sources. His model is based on a norm of a twelve-day incubation period for smallpox, during which individuals are not ill or communicable. For the next fourteen days, individuals are fully contagious. He also made allowance for approximately ten percent who were not in the community at the time and hence not exposed to the original epidemic. In a relatively closed, yet highly susceptible, population of 2,000, he concluded that an epidemic would run its course from first to last cases in about 125 days.³⁵

Snow's findings can be applied to the seven highly susceptible Taino on Columbus' second voyage, all of whom fell ill. Three died at the approximate time of setting sail from Cadiz; two died en route; and two survived, barely escaping death. Assuming a chain of infection, only three Taino ill with smallpox are necessary to account for a contagious young man to set foot on Hispaniola in November. This scenario discounts completely the stipulation that one or more young Europeans had to have come down with smallpox on the voyage, notwithstanding the number of young *pajes* (pages), or cabin boys, who were undoubtedly aboard each of the vessels. But if all the Taino were infected the same week, their contagious period could conceivably have been over within two or three weeks after leaving the port of Cadiz. If so, the chain of

35 Russell Thornton, Jonathan Warren, and Tim Miller, "Depopulation in the Southeast after 1492," in John W. Verano and Douglas H. Ubelaker (eds.), *Disease and Demography in the Americas* (Washington, 1992), 187–195; Dean R. Snow, "Disease and Population Decline in the Northeast," in Verano and Ubelaker (eds.), *Disease and Demography*, 177–186.

infection would have to include susceptible Europeans onboard, or the virus would have had to remain alive in scabs or dried sputum to infect unsuspecting people later.

Whatever the exact links of the chain happened to be, there is more concrete evidence that a large number of island Taino died within three years of contact. Las Casas, in his later *Historia de las Indias*, lamented, “There came over them [the Indians] so much illness, death and misery, from which infinite numbers of fathers and mothers and children sadly died. So that with the killings of the wars and the starvation and sicknesses that came because of them, and the hardships and oppressions that afterward took place, and miseries, and above all the great inherent pain, anguish and sadness, that according to what was believed there did not remain a third part of the multitudes of people that were on this island from the year of 1494 until that of 1496.”³⁶

HEALTH CONDITIONS ON THE ISLAND, 1493 TO 1496 Columbus frequently referred to a large native population on the island. In April through May 1494, he had informed the monarchs that although the people were not great fighters, “they were innumerable, that I believe there to be billions of them.” Columbus’ hyperbole was meant to stress that the natives seemed too many to count. In a subsequent letter to the monarchs dated October 14, 1495, written in the Vega de la Maguana, Hispaniola, Columbus seemed depressed by the difficulties facing his attempts to settle, to turn the natives into miners, and to find enough food for his men. He also complained of sickness and death. After returning from a reconnaissance of Jamaica and Cuba, he complained of “a sickness that deprived [him] of all sense and understanding, as if it were pestilence or *modorra*.” In October, he provided a report about the deteriorating situation, which had seen several Spaniards killed in skirmishes with the natives. He found the “entire land depleted of foodstuffs, and so much, that innumerable Indians had died of hunger.” He “could not go to Cibao, because this province was more needy than any other and the one in which the most people were dead.” The Indians there died quickly, and “they themselves destroyed all the corn, believing that with starvation [Columbus] would leave the land.” Realizing that the Spaniards planned to re-

36 Las Casas, *Historia de las Indias*, I, 419–420.

main, however, they planted, but when the rains did not come, “they became so lost and they died, and are dying so that it is astonishing; they did not eat nor do they eat anything except fish and some wild roots of the island.”³⁷

Columbus observed that the food shortage was not uniform throughout Hispaniola. He would later note that he believed that Cibao had 50,000 *naborías*, or serfs. He intended them to pay a tribute in gold, to be delivered each four moons (lunar months), but, unfortunately, nothing had been given. “But need and hunger have been the cause of death of more than two-thirds of them, and it has not ended nor [is known] when one can hope for the end.” They also destroyed the crops in Cibao, and the rain failed when they finally planted.³⁸

In the period from 1493 to 1496, large numbers of Taino and a significant percentage of the initial European settlers on Hispaniola died as a result of hunger, disease, exploitation, and military engagement. The accounts of Columbus, Chanca, and others are replete with health complaints. Since the first settlement of Navidad was quickly deemed inappropriate, Columbus set out to begin construction of a new headquarters to the east, at a place that he named Isabela, in spite of conditions of ill health and hunger. The site seemed excellent at first, but conditions were difficult and food scarce.

Las Casas came to Hispaniola in 1502 with his father, who had taken part in the second expedition along with two brothers. All three men had reached the island in December of 1493. Not only did Las Casas have many of Columbus’ texts when he later wrote; he must also have conversed at length with active participants in the venture. Las Casas described the tribulations at Isabela vividly: “People suddenly began to fall ill, and because of the little sustenance that was available for the sick, many of them began to die also, so that there did not remain a man among the *hidalgos* and *plebeians* no matter how robust he might have been, who did not fall ill from these terrible fevers.” Columbus and later Las Casas initially blamed the ill health of the settlers on the alien climate and food.³⁹

37 Varela and Gil, *Cristóbal Colón*, 284, 313.

38 *Ibid.*, 318, 321, 328–329. Varela and Gil note that “one third” of the population died, according to Las Casas, who used Columbus’ text.

39 Guerra, “La epidemia Americana,” 330; Las Casas, *Historia de las Indias*, I, 363.

AN EARLY INTRODUCTION OF MALARIA? The origin of las Casas' account, like Colón's biography of his father, was probably the original, or a copy, of the recently discovered *Relación del Segundo viaje*, in which Columbus described the situation surrounding the founding of Isabela. Columbus' document provides important new insight:

Shortly after I arrived there, all the people came ashore for the sojourn, and it began to rain heavily. Afterwards many came down with intermittent fevers [*çiçiones*], [as] if the change of environment, given that they are the best in the world [and] they had been tested, and the shipboard foods had affected their blood, with the expectation of the long winter, which their bodies were accustomed to. However, I gave the greatest blame to the time spent with the women, that here are abundant; and if they are licentious and disorderly, it is not a surprise that there is affliction. But with all, praised be Our Lord, they heal afterward; four or five days is its strength; I leave some who are most affected. It was very useful here what Your Highness sent with a full pharmacy.⁴⁰

Columbus identified two illnesses—the “pox” or syphilis and intermittent fever, or *çiçiones*, which the Spanish also translate as *tercianas*. Although most scholars trace the first instance of malaria in the Americas to Diego Méndez on the fourth expedition of Columbus, it could have occurred earlier, via infected Spaniards on any of the larger fleets. The *Relación del segundo viaje* raises the possibility that malaria arrived as early as 1493.⁴¹

Columbus was well enough to author a report for the monarchs, dated January 30, 1494, that was dispatched with a return fleet of twelve ships under Torres. In it, he stated that he would have sent more gold had “the majority of men that are here, not fallen suddenly ill.” Wherever on the island the men went to explore, “most fell ill after returning.” He also added, however, “The men will convalesce quickly, as already they do.” He be-

40 Varela and Gil, *Cristóbal Colón*, 250–251.

41 The term *çiçiones* in Columbus' text can be translated as intermittent fevers—the clear definition provided in the 1611 dictionary of Covarrubias Orozco. But it is also defined in Spanish, as noted in the diccionario de autoridades, *Diccionario de la lengua castellana* (Madrid, 1963; orig. pub. 1726–1737), 3 v., as *terciana sencilla* (tertian fevers, ergo malaria). Many, including Guerra, *Epidemiología Americana*, 132–133, agree that malaria first arrived in the Americas on Columbus' fourth voyage, but Cook, *Born to Die*, 46–50, suggests that it could have been introduced earlier.

lieved that fresh meat would help, and he instructed Torres to bring back products that he deemed would have therapeutic effects on what he perceived as an illness caused by water, food, and climate: “raisins, sugar, almonds, honey and rice . . . and . . . medicines.”⁴²

The Torres fleet departed in mid-February 1494. Not until the end of the year did three or four caravels sent by Torres to reinforce the group return to Isabela with new supplies. In the meantime, three caravels under Bartolomé Columbus left Spain from the port of Cádiz, and then returned to Spain, within the same year. Later, on February 25, 1495, the ships of Torres began their return to Spain with a full cargo, including Amerindian slaves. In October 1495, four ships from Juan Aguado’s fleet reached Hispaniola. Columbus returned to Spain in March 1495. Clearly, once the Hispaniola settlement began, continuous movement back and forth across the Atlantic Ocean ensued. The number of people on a single sailing may not have been large, but the cumulative effect would have been substantial.⁴³

Chanca made strenuous efforts to heal the European sick. Columbus instructed Torres to “inform their Highnesses of the labor that Doctor Chanca has facing so many sick and even the scarcity of food, and that in spite of all this he exhibits great diligence and charity in all that pertains to his craft.” Chanca’s own report to Spain onboard the Torres fleet mentioned the impact of the illness on the first European settlers: “There are so many things to do that we are not enough to do it all, because a third of the people have become ill in four or five days. I believe that the principal cause of it has been the hardship and the difficulty of the journey, in addition to the diversity of the land, but I hope in Our Lord that all will rise healthy.” So great was the general fatigue, Chanca noted, that Columbus decided to end the search for mineral wealth until he had first dispatched the vessels for Castile, “because of much sickness that there has been among the people.”⁴⁴

THE ISSUE OF NUTRITION Historians have speculated on the causes for the excessive mortality of the Europeans in the Carib-

42 Varela and Gil, *Cristóbal Colón*, 255, 256, 257, 259.

43 Gil and Varela, *Temas colombinos*, 18–19; Davidson, *Columbus Then and Now*, 314.

44 Gil and Varela, *Temas colombinos*, 1–48; Aurelio Tió, *Dr. Diego Alvarez Chanca (Estudio Biográfico)* (Barcelona, 1966), 19–29; Guerra, “La epidemia americana,” 328; Varela and Gil, *Cristóbal Colón*, 263; Gil and Varela, *Cartas particulares a Colón*, 173, 175.

bean during the first months after the arrival of the second expedition. Based on symptoms provided by Chanca, and the description of Las Casas, Sauer argued that “the long voyage in close quarters must have been favorable to the spread of intestinal infection, further aided by their close congregation in building the town.” In 1992, Philips and Phillips wrote that “recent research suggests that the settlers may have developed Reiter’s syndrome, characterized initially by dysentery and later by arthritic conditions, especially of the lower joints; inflammation of the eyes, and even blindness; and a penile discharge. Its cause is a tropical bacillus named *Shigella flexneri*, and it is spread by unsanitary food handling.”⁴⁵

Indeed, both the Taino and the Europeans may have suffered from a form of bacillary dysentery. The description provided in a modern medical text resembles symptoms in the accounts of Columbus and Chanca: “fever, drowsiness or irritability, anorexia, nausea, abdominal pain, tenesmus, and diarrhea. Blood, pus, and mucus appear in the diarrheal stools within 3 days.” Incubation is quick, one to four days. Severe diarrhea can cause dehydration. Death can occur within twelve days of infection; recovery can take as long as six weeks.⁴⁶

Guerra described the symptoms for Spaniards and Amerindians on Hispaniola as “high fever, ague, prostration and great mortality, though those who recovered did not relapse.” As the disease spread, however, natives also “started to die in infinite numbers.” In the mid-1980s, Guerra diagnosed influenza, and, more recently, typhus.⁴⁷

The early impact of famine and malnutrition on the Europeans and the Taino is not well understood. The fast marches with inadequate supplies of food and tainted water led to dehydration, malnutrition, and, at times, outright starvation. The European diet was inadequate in the first place; the adjustment to native-American food products compounded the problem.

Spain’s drink of choice was wine, in substantial quantities. Although the long-term consequence could be liver damage, wine

45 Sauer, *Early Spanish Main*, 76; William D. Phillips, Jr., and Carla Rahn Phillips, *Worlds of Christopher Columbus* (New York, 1992), 200; Gerald Weissman, “They All Laughed at Christopher Columbus,” *Hospital Practice*, XXI (1986), 30–41, points out the similarities to Columbus’ symptoms, as later described.

46 K. David Patterson, “Bacillary Dysentery,” in Kiple (ed.), *Cambridge World History of Human Disease*, 605.

47 Guerra, “Earliest American Epidemic,” 323; *idem*, “Origen y efectos demográficos del tifu,” 281.

was relatively free of intestinal pathogens. The water that was consumed generally came from sources known to be relatively uncontaminated, but its intake per capita was limited. Other Old World liquids, such as milk and citrus juices, were not available during the initial period of settlement in the Caribbean. European consumption of native corn or manioc beer was slow to develop, and was largely confined to mainland America. Nor is it likely, given the relatively low alcoholic content of American beer, for all dangerous intestinal pathogens to have been neutralized. Nor was coconut milk an adequate substitute. The only readily available liquid for the explorers to drink, and thereby avoid the heat prostration and stroke of dehydration, was water. But the water in Hispaniola was contaminated by pathogens unlike those in Spain. It could cause severe cramps, diarrhea, dehydration, and lethargy. By the descriptions of conditions and symptoms given in various accounts, many Europeans fell to dehydration and starvation, or weakened by them, fell prey to opportunistic diseases that led to death.

The information on the plight of the European settlers is remarkably good. After the departure of the Torres fleet for Spain, Columbus, recuperating from his illness, undertook a reconnaissance of the island. He found conditions at Isabela critical, with “all the people weary, because few escaped death or illness, and those who still remained healthy were at least thin from little food.” He blamed the situation on his enemies, complaining that the supplies that had been loaded on the ships in Seville were of poor quality and were not properly stored. High humidity and heat sped up the process of spoilage in transit and on the island. Precious supplies of medicine and food ran out, to the point that they were forced to “purge five with one egg and with a kettle of cooked chick-peas.” The medicines that some of the men carried with them were insufficient and at times unsuitable, and not enough healthy people were left to help those who had fallen ill.⁴⁸

Henige recently examined how Juan Ginés de Sepúlveda, the royal chronicler, treated the difficulties faced by the Europeans on Hispaniola. According to Henige, Sepúlveda made no mention at all of death by disease “through the conquest of Mexico,” writing only “that the Indians adopted a scorched earth policy on Colum-

48 Las Casas, *Historia de las Indias*, I, 376–378.

bus's return in 1493, resulting in many of them dying from 'hunger.' The scarcity eventually spread to the Spaniards, many of whom in turn also died of 'hunger.'” Henige could find no other information in Sepúlveda's chronicle “about the health of either the Indians or the Spaniards in these early days.” Henige categorically stated that Sepúlveda “added details about Indian and Spanish activities and attributed the mortality on the island to hunger, not to disease. . . . Indeed, he was very precise in this: ‘a great part of the Indians died from hunger. . . . Ignoring the testimony in Ginés de Sepúlveda's brief account of Hispaniola in 1493–94 represents another lost opportunity to notice that some chroniclers did *not* [Henige's italics] mention disease and to take their testimony into account.”⁴⁹

Henige's contention that hunger led to death on the island is sustained in other accounts, but his argument that disease was not a factor is specious. In fact, Henige lends more “authority” to the voice of Sepúlveda than seems warranted. Sepúlveda's text has to be understood in the context of his long and heated debates with las Casas about the nature of Amerindians. Sepúlveda relied heavily on Oviedo for his information. He was never in America. He was an advocate of Spanish imperialism, as well as of the superiority of Europeans on theological grounds. He painted the native Americans in the worst possible light, to justify their control via the *encomienda* system. He omitted “evidence” that did not fit his rhetorical scheme, just as las Casas did in the *Brevissima relación* when he ignored disease in order to emphasize the cruelty of the Spaniards. Sepúlveda's intention was to highlight the Amerindians' “scorched earth policy” as the cause of Spanish, as well as ultimately their own, deaths. That Sepúlveda would make no mention of disease is no surprise. Eyewitness accounts of this “scorched earth policy” do not hesitate to mention illness.⁵⁰

A case can be made that as many Spanish settlers lay ill and dying, the native peoples of Hispaniola were also ill and unable to plant and harvest. They, too, died of hunger and sickness. In sixteenth-century Europe, the periods of starvation and epidemic disease coincided with almost mechanical regularity. The pur-

49 Henige, *Numbers from Nowhere*, 173.

50 Cook, *Born to Die*, 1–5; personal communication with Stafford Poole, March 16, 2000, and Adorno, May 19, 2000.

ported “scorched earth policy,” a well-known Old World fighting technique, employed in the recent siege of Granada, does not seem to fit the case of Hispaniola. What Columbus and others may have been describing was the slash and burn agriculture on part of the island, where the overgrowth was fired each agricultural cycle in the dry period from January to March, assigning to it a meaning with which they were familiar. Furthermore, the principal Amerindian staple on the island was manioc, which produces for several seasons after being planted. In its unprocessed form, bitter manioc, which contains cyanic acid, can be deadly; it may well account for some of the early European mortality. Famine is a regular consequence of epidemic disaster. On the other side of the coin, epidemics often follow on the heels of major crop failures. As often happens, starvation coincided with disease during the early period of settlement, and it affected both Europeans and native Americans.⁵¹

Mortality for the Amerindians on Hispaniola was high, but those sent to Spain perhaps faced a quicker and more certain death than those left behind on the island. An informative letter, written by Morelletto Ponzone in Ferrara, Italy, in June 1494, to the Marquesa of Mantua referred to the natives that had been sent to Europe with Torres as “people of our stature, . . . and all go about nude, men and women, . . . And they are so weak by nature, that two fell ill in Seville, in such a way that the physicians could not deal with their illness, and could not find their pulse, and they are dead.”⁵²

Many of the first European explorers in the Caribbean died from a combination of hunger, malnutrition, and starvation, as well as heat stroke and intestinal pathogens associated with contaminated water—especially under conditions of extreme stress. Some may have come down with Reiter’s syndrome, as noted by Phillips and Phillips, or *encephalitis lethargica*, which displays similar symptoms; others may have suffered from recurrent malaria. Typhus and influenza might have been introduced, but, as noted, the survival and propagation of the two diseases in the warm Carib-

51 John Walter and Roger Schofield (eds.), *Famine, Disease and the Social Order in Early Modern Society* (Cambridge, 1989); Watts, *West Indies*, 57.

52 *Raccolta di documenti e studi pubblicati dalla R. Commissione Colombina nel quarto centenario della scoperta dell’America* (Rome, 1892), III, no. 1, 169. Part of Ponzone’s letter is provided by Gil and Varela, *Cartas particulares a Colón*, 258. See also Phillips and Phillips, *Worlds of Columbus*, 201–202.

bean basin, particularly among natives with fastidious hygienic practices, would have been problematic. If typhus had been the principal culprit, *tabardillo* or *tabardete* would have been mentioned by one of the contemporary observers. Likewise, if influenza had been a major factor, the descriptive *catarro* label would have been employed in the texts. Both words are fairly popular labels of the symptoms in the Iberian nomenclature of the period. The description of the symptoms of Europeans who landed with the second expedition would certainly warrant their use, had the observers been so inclined. Many of the Spanish men undoubtedly came down with syphilis.

Subsequent European settlers faced a similar lack of food, contamination, and sickness, resulting in considerable mortality. The historical record for these later expeditions is more complete. Las Casas, who first came to Hispaniola with Ovando's fleet in 1502, along with over 2,000 colonists, described the health problems facing his cohort. Even a decade after Columbus' initial expedition, Ovando's fleet carried insufficient foodstuffs, and the settlers were unable to cope with the conditions on land. As was the case in the second expedition of Columbus, many men at once set out in search of precious metals. But again, food ran out after a week of hard work, and the starving miners returned to Santo Domingo. "With this the land tested them, giving them fevers," las Casas recalled. Without adequate foodstuffs, medicines, and supplies, "they began to die to such an extent that the clerics could not even bury them. More than 1,000 of the 2,500 died, and 500 of them with great anguish, hunger and need, remained sick." Although the death rate for the Europeans during the initial years of acclimatization was high, many more Amerindians perished. Las Casas later wrote that rapid native depopulation of the island continued during Ovando's administration. "Thus, the multitude of vecinos and peoples who were on this island were being consumed, who according to what the admiral wrote to the monarchs had been innumerable . . . and in the said eight years of that administration more than nine-tenths perished. From here this drag-net passed to the island of San Juan (Puerto Rico) and to Jamaica, and afterwards to Cuba, and after that to Tierra Firme, and thus it spread and infected and devastated all this sphere."⁵³

53 Las Casas, *Historia de las Indias*, II, 266, 257.

RETURN TO THE JERONYMITE INQUIRY Many of the witnesses at the Jeronymite inquiry of 1517 suggested that the Indians should live in closer proximity to the settlers so that they “could be better cured of their sicknesses.” Vázquez de Ayllón, an important figure in the attempt to settle Florida who first came to Hispaniola around 1504, provided especially informative testimony, much of it dealing with health, hunger, and the impact of maltreatment. He did not believe that the natives should be congregated into towns. He argued that even mention of a new repartimiento, or settlement effort, would cause unrest and that concentrating the natives would create many difficulties. They faced enough problems already; the villages of caciques that were located next to European settlements were already deserted. His solution was an encomienda system that would include adequate salaries, clothing, and bedding. He believed that “they should not sleep on the ground as is commonly the case, because this is a thing that is a principal cause for the said Indians to sicken and not live long.” He urged that all natives be provided with their traditional hammocks.⁵⁴

Like other witnesses, Vázquez de Ayllón pointed out that sickness could be alleviated in the city of Santo Domingo with more physicians. Elsewhere on the island, however, the care of ill Taino was more problematic. He recommended that a doctor and a surgeon be funded and appointed in the mining town of Villa de Buenaventura, the city of Concepción, and the Villa de Santiago to help cure the natives. The surgeons should specialize “in wounds, which is the most common malady among the Indians, and in their ills they would be useful also, although they do not issue prescriptions in the pharmacies.” He recommended the standard European treatment for disease. The physicians should bleed the natives as necessary, provide the proper diet, or purge them. If the illness were serious enough, the Indians should be permitted to return to their homes, with proper medicines. The ill should be given time for complete recuperation to avoid relapse. Also, similar to several other witnesses, he attributed the death of so many Tainos to travel between the mines and lands under Spanish control. The change in their diet was partly to blame. But Vázquez de Ayllón was loathe to consider a separation of the Indians from the

54 Rodríguez Demorizi, *Los Dominicos*, 303, 290, 299, 322.

Spaniards, and their Christian influence, whereby the natives “would perpetually be beasts condemned to hell.” Yet, if the natives were settled in communities next to the Europeans, they would continue to perish. His solution, not a good one, was to make the *encomiendas* perpetual, requiring that the *encomenderos* with their wives reside in the land. Nonetheless, regardless of his recommendations, he predicted that the Taino population would diminish, “because they are people who die just from living in order, even though they might be idle.”⁵⁵

Many explanations were given for the demise of the Taino, from forced service in the mines to dislocation. But no matter what the conditions were, the natives continued to die. The perfect cases in point were the native women married to Spaniards. According to Vázquez de Ayllón, they were “being treated as is reasonable that men would treat their own wives, without being involved in any work, going about always clothed and sleeping in Castilian beds, and eating good foods, the greater part of them, and more, are dead. . . . The rest of them that are still alive are consumptive and sick, and the same thing has happened with the women who are brought up with Spanish women who put them to embroidery and have them well treated and taken care of in their homes without making them work.” Vázquez de Ayllón explained that the “same [thing happens to] the Indians who are scattered in villages that do not have mines in which the said Indians work, nor do they work except in guarding livestock and planting cotton and tilling, and the women in spinning cotton and making shirts of it, and of these Indians as many are missing and die as those who work in the mines.”⁵⁶

Pedro Mexia, the Provincial Commissioner of the Franciscan Order, for their newly created Province of Santa Cruz, who had come to the island in 1506, was convinced that the Taino wanted nothing more than to live freely. He observed that the best candidates for conversion were the children and grandchildren, rather than the elders, who seemed more fixed in their ways, though it should be voluntary in any event. He further recommended that the Taino not be assigned to *encomiendas* but that they should be expected to provide some tribute to the Crown. If left free, “from

55 *Ibid.*, 323, 324, 328.

56 *Ibid.*

today in twenty years, if at present there are 20,000 souls, there will be on the island 100,000, but if they leave them in encomienda as they are presently are, there will not be here in the same period 2,000 people of the 20,000.” The friar’s words were prophetic.⁵⁷

Diverse testimony provided the Jeronymites little guidance for the final decision that they reached in late 1518. They concluded that the Indians should be freed from absentee Spanish encomenderos and concentrated into 25 or 26 villages of 400 to 500, under their caciques, the better to protect those remaining and indoctrinate them in the faith. Encomenderos and other settlers, who wanted control of these workers, voiced strong opposition, as did some parties at the court. In spite of any good intentions, however, all came to naught. In January 1519, the Jeronymites wrote to the king that they had settled natives in some thirty villages, but just as the men were ready to go to the mines in December 1518, “It has pleased Our Lord to give the said people a pestilence of smallpox that does not cease, and almost a third of the said Indians have died in it and continue to die at present,” despite their best efforts. They swore that if the “pestilence” continued for two more months, no gold could be produced that year. They requested the king to authorize importation of male and female African slaves, without imposition of taxes. They also noted that “from the said pestilence of smallpox some very few of our Spaniards have sickened but have not died; although we are all fearful, either of the said smallpox or of another pestilence.”⁵⁸

The smallpox epidemic that began in the Caribbean in December 1518 and spread to the mainland of America is solidly documented. The consequences were catastrophic for Amerindian peoples. Historians have provided tentative explanations for why it took smallpox so long to reach American shores, such as the length of time that voyages took and the small number of young Europeans who were susceptible to provide the mechanism for transfer. Others suggest that smallpox had to await a large enough number of young susceptible slaves from the coast of Africa. The possibility that an epidemic may have occurred in 1493 provides another explanation of why an epidemic did not break out in the

⁵⁷ *Ibid.*, 330.

⁵⁸ Moya Pons, *Española*, 241, from the *Colección de documentos inéditos para la historia de las Indias*, I, 366–368.

Caribbean until 1518. Explosive smallpox epidemics occur only among large numbers of susceptible individuals. For this reason, major epidemics recur at approximate generational intervals.⁵⁹

By 1519, the disaster for the Taino was almost complete. But the process had begun much earlier, at the inception of settlement. Unprepared and starving Europeans died rapidly in the years between 1493 and 1496, as did the aboriginal population. The outsiders forced the locals to give them food, or they pillaged it from the fields. As Oviedo pointed out, the Spanish settlers hunted down and eliminated much of the edible wildlife, including dogs—theirs and the natives'. Oviedo concluded that during the first three years, “more than two parts, or half of the Spaniards died, and of the Indians themselves so many died that they could not be counted.” As in Europe, famine and sickness coincided, and the Spaniards introduced *modorra*, as well as “intermittent fevers,” on the second expedition. Columbus wrote that some Taino died from smallpox as the fleet was beginning the return voyage to the Caribbean. Chanca and other contemporaries mentioned sickness, but without the more precise terms indicating the exact, or apparent, nature of the maladies.⁶⁰

The lack of specificity with regard to disease has two plausible explanations: First, the Europeans were sick and dying, and, second, because of their own suffering, they were not inclined to record the sickness among the native population. Numerous factors

59 Francis J. Brooks, “Revising the Conquest of Mexico: Smallpox, Sources, and Populations,” *Journal of Interdisciplinary History*, XXIV (1993), 29, posited that the epidemic that swept Mexico in 1518 may have been a mild form of smallpox, but few died. According to Brooks, those who argued that one-third to one-half of those affected died were wrong: “No such catastrophe actually occurred.” But Robert McCaa, “Spanish and Nahuatl Views on Smallpox and Demographic Catastrophe in Mexico,” *Journal of Interdisciplinary History*, XXV (1995), 397–431, clearly proved otherwise. McCaa also deals effectively with the extent to which smallpox was considered a childhood affliction in sixteenth-century Spain, discussing the matter of immunity versus genetic diversity to explain differential mortality. See Francis L. Black, “Why Did They Die?” *Science*, CCLVIII (1992), 1739. The interval between smallpox epidemics is short when the disease becomes endemic. See S. R. Duncan, Susan Scott, and C. J. Duncan, “Smallpox Epidemics in Cities in Britain,” *Journal of Interdisciplinary History*, XXV (1994), 255–271. Crosby, *Columbian Exchange*, 46; Hanns J. Prem, “Disease in Sixteenth-Century Mexico,” in Cook and Lovell, *Secret Judgments of God*, 21–48.

60 Oviedo, *Historia general*, I, 48. Lynn A. Guitar, “Cultural Genesis: Relationships among Indians, Africans and Spaniards in Rural Hispaniola, First Half of the Sixteenth Century,” unpub. Ph.D. diss. (Vanderbilt University, 1998), argues for Taino survival, especially cultural.

worked in conjunction—overwork, malnutrition, contaminated food and water, disease, and armed conflict—to cause the demise of the Taino and many of the Europeans trying to acclimate to the new environment. A decade later, licentiates Zuazo and Espinosa sent another long report to Spain, placing the blame for the disastrous loss of the native population on overwork, but also noting that the majority had died of diseases, “smallpox, and many other illnesses,” that did not seem to afflict the Spaniards. It seemed almost inexplicable to the two men that, for some reason known only to God, such was the case. Like English settlers of the northeastern part of the American continent just a century later, they found the divine hand in the process. The Crown of Spain and the Christians were receiving control of this land as had happened “in the Promised Land at the time it was given to the people of Israel.”⁶¹

61 Roberto Marte (ed.), *Santo Domingo en los Manuscritos de Juan Bautista Muñoz* (Santo Domingo, 1981), 281, from the Muñoz Collection in Madrid, Tomo A/105, folios 78–89.