

CHAPTER 1

WHEN DID SMALLPOX REACH THE NEW WORLD (AND WHY DOES IT MATTER)?

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- I. To kill an error is a good a service as, and sometimes even better than, establishing a new truth or fact.¹

The question of the course, character, and magnitude of the epidemiological impact of the discovery of the New World has serious historical implications.² Not only did the spread of diseases in the Americas help shape the Spanish conquest and is significant in terms of the history of Amerindian adaptation to colonialism, but the decline of Amerindian population in tropical areas has long been recognized as a major reason why African slave labor was introduced into the Americas as early as it was. Granted the close connection between the decline in Amerindian population and the development of the trans-Atlantic slave trade, its chronology remains unclear. When exactly and under what circumstances did Amerindian population decline? Beginning with Alfred Crosby's The Columbian Exchange (1972), the discussion has crystallized around two themes: the history of disease generally or of specific diseases, on the one hand, and the role of newly-introduced infectious diseases in depopulating the New World, on the other hand. Many scholars have assumed that there were many millions of Amerindians at the time of first contact and have argued that virulent epidemics of smallpox, typhoid, measles, influenza, and other diseases repeatedly struck the defenseless Indians, in most cases spreading faster than the movement of Europeans themselves, escalating to pandemics, and depopulating wide areas before the Europeans had the chance to estimate the numbers of people in them, let alone try to do anything about the spread of such diseases (Wright 1981: 22-23; Jennings 1975: 21-31; Dobyns 1983).

In this context, a discussion of the date at which smallpox, the most lethal of the new diseases, first appeared in the New World is significant beyond the event itself. It is the purpose of this chapter to review this issue briefly by

bringing together both the early sources and modern interpretations. Two schools of thought exist in the matter. One, of longer standing, holds that smallpox first struck the aboriginal inhabitants of Hispaniola late in 1518, spreading then to the mainland, where it continued for two years or more. A second school, on the other hand, believes that smallpox first arrived as early as 1507 in Hispaniola, the only Spanish settlement at that time. The difference may seem trivial until we remember that some models of aboriginal depopulation would have several millions of Indians dying in Hispaniola between 1492-1496 (Cook and Borah 1971-1979: vol. 1, 376-410). Should it be possible then to demonstrate convincingly that smallpox began its lethal work in 1507, both the arguments and the conclusions of the proponents of high population levels would gain in credibility. If 1518 is the more likely date of introduction, then the Amerindian population of Hispaniola, at least, would almost certainly have been less than previously thought. I begin by discussing the historiography of the case for 1507, continue by surveying briefly the earliest information we have on smallpox in the New World, and conclude by weighing the merits of the two cases and the implications for New World demography in the early colonial period.

- II. The sequence is an impressive tower of authority, though it also suggests that even the best historians may be unduly credulous when they see a footnote to an illustrious predecessor (Curtin 1969: 7).

Tracing the development of the case for the year 1507 is relatively straightforward since it is entirely a modern phenomenon. It is easiest to work back from the present since there is a limited number of sources involved and this procedure allows us to follow the course of the argument by means of the bibliographical citations of those who have championed it.

Most recently Kenneth Kiple (1984: 10), in a study of the biological history of African slaves in the Caribbean, has stated that "the bewildering blitzkrieg of European diseases [began] with smallpox, which apparently reached the New World in 1507." It is not clear why Kiple hedges his observation, but his belief seems to be based on Dixon's classic work on smallpox.³ There Dixon (1962: 192), exhibiting some uncertainty of his own, noted that "smallpox appears to have been introduced into the New World in the West Indies in the year 1507, . . . and was so disastrous that whole tribes were exterminated."

Dixon failed to cite a source for his comment but in fact he was following closely, if unadmittedly, the work of August Hirsch, published in German in the 1860s and in English twenty

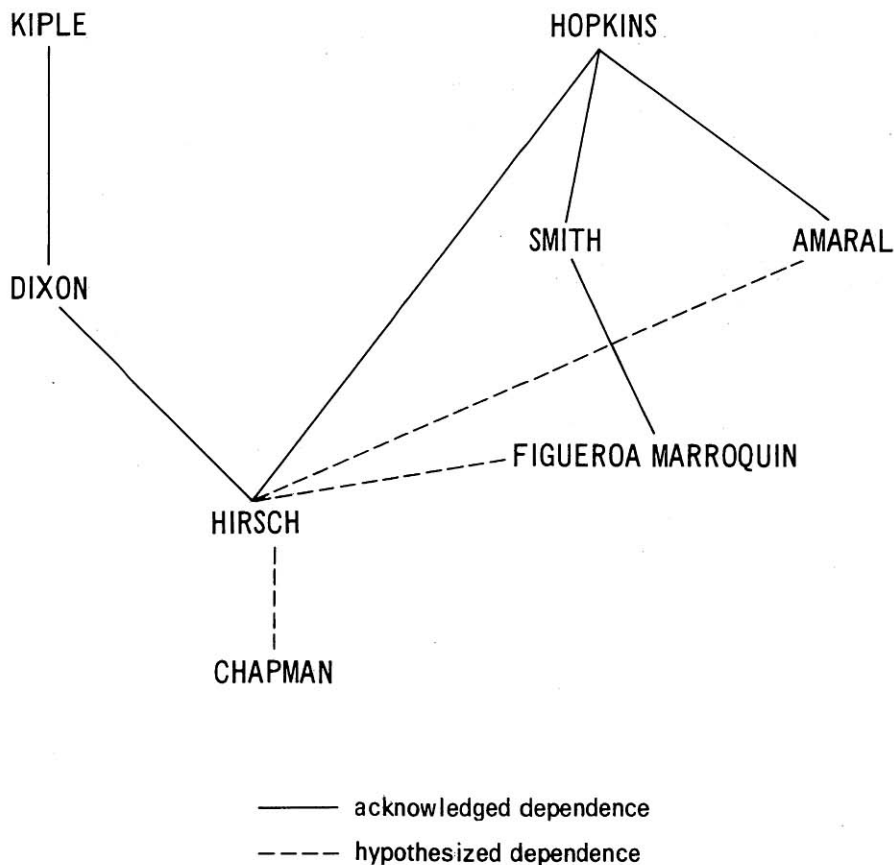
years later (Hirsch 1860-1864: vol. 1, 98; 1883-1886: vol. 1, 136). After adding that he had been unable to learn how long the epidemic lasted or how far it spread, Hirsch (1860-1864: vol. 1, 98), clearly confused in his geography or his history (as well as his chronology), went on to state that "the next information on the disease dates from 1517 [sic] when the Spanish imported the disease into Haiti," as though he was unaware that the purported 1507 epidemic had also affected Haiti (that is, Hispaniola). With Hirsch the spore in this particular hunt dies out since, whereas his work is otherwise heavily referenced, he cited no sources for this particular passage.

In his exhaustive history of smallpox, Donald Hopkins (1983: 204) is less cautious than either Kiple or Dixon, stating unreservedly that "the first outbreak [of smallpox] struck the island of Hispaniola in 1507." Hopkins cites Hirsch, as well as two other sources, for this statement. The first is a brief article on the history of smallpox which appeared in a Portuguese medical journal. There one Carlos Gonçalves do Amaral (1960: 541) claimed that "the first outbreak" of smallpox occurred "in 1507 in the island of S. Domingos [Hispaniola], where it recurred in 1517" before spreading to the mainland. Amaral cited no sources but his attribution of the second epidemic to the year 1517 makes it reasonably certain that he was himself also relying on Hirsch.

Hopkins' third source is a recent study (Smith 1974: 6) of a late eighteenth-century effort to introduce vaccination into the Spanish colonies. In providing background to his main story, the author states that "Hispaniola experienced epidemics [of smallpox] in 1507 and 1517." In turn Smith, although including the incorrect date of 1517, cited not Hirsch, but Horacio Figueroa Marroquín's *Enfermedades de los conquistadores* (1957: 51). For his part, Figueroa Marroquín was rather less categorical, noting only that there had been "various epidemics in the newly-discovered lands, some of which are held to have been smallpox, such as the epidemic in the year 1507, . . . and that of 1517 in Haiti." Figueroa Marroquín failed to cite any sources for his conclusions, but once again his citing of the year 1517 for the second epidemic can only lead us to suspect that he too made use of Hirsch.

In one way or another then (Figure 1.1) all historiographical lines unerringly lead us back to Hirsch's work, where the visible trail grows exceedingly cold - but perhaps not completely cold. While Hirsch did not footnote the particular statement which served either directly or indirectly as the inspiration for his assertion that smallpox had struck Hispaniola in both 1507 and 1517, he had earlier referred to several works on which he drew for his information on the historical incidence of smallpox in the New World (Hirsch 1883-1886: vol. 1, 135-136).⁴ One of these was Nathaniel

**Figure 1.1 HISTORIOGRAPHICAL GENEALOGY
OF HISPANIOLA SMALLPOX EPIDEMIC**



Chapman's pioneering study (1844) of various "eruptive fevers" published some twenty years before Hirsch's German edition first appeared. Comparing Hirsch's account with that of Chapman is inconclusive, but suggestive, and leads me to suspect a derivative relationship, which can be demonstrated best by juxtaposing relevant passages from each of them:

Twenty-five years after the discovery of this continent, [smallpox] occurred, and we are told, destroyed more than a moiety of the population of the provinces into which it penetrated. . . . Brought, afterwards, by emigrants from Europe to our immediate land [i.e., the United States], it swept off, also, several tribes of the aboriginals (Chapman 1844: 136).

The first outbreak of smallpox in the Western Hemisphere took place in the West Indies in 1507, fifteen years after the discovery of America, and it was so disastrous that whole tribes were exterminated by it (Hirsch 1860-1864: vol. 1, 98).

Only speculation is possible, but I suggest that, a) Hirsch's statement was a direct but muddled borrowing from Chapman, a conflation of two distinct incidents mentioned and which were in fact separated in time and place, and, b) that he inadvertently substituted "15" for Chapman's "25." The first might have occurred as a result of Hirsch's unfamiliarity with the English language, the second merely from a lapsus calami or as the subsequent misreading of a handwritten notation. Such an interpretation, while by no means demonstrable, is at least plausible and goes far towards explaining why there seems to be no reference in the literature before Hirsch to a smallpox epidemic in 1507.⁵ If this view is accepted, then it must also be accepted that a date of 1507 for the introduction of smallpox into the New World is no more than an illusion created by accident and perpetuated by carelessness.⁶

Before closing the argument, though, we need to consider some possible arguments (as opposed to simply reiterated assertions) that 1507 actually was a particularly likely year for smallpox finally to have crossed the Atlantic. In that year any ship carrying smallpox would almost certainly have come from Spain. Looking at the situation there we find that it was a bad year for illness - in fact "a very terrible and dreadful" year, characterized by various illnesses in several regions of the country (Bernaldez 1962: 518-519).⁷ In Andalusia there was the plague and modorra, as well as extreme hunger, and modorra and jaundice occurred in several other parts of the country, as did plague and more hunger.⁸ But, among this litany of ills we find smallpox conspicuous only by its absence.⁹

It has also been argued that smallpox must have come with the first slaves that reached Hispaniola directly from Africa rather than by way of Spain.¹⁰ Brau (1966: 315-316), for instance, suggested that smallpox had been introduced by infected slaves illegally brought to Hispaniola from the Levant by Genoese traders. Smith picked this idea up and applied it to the date of 1507, although Brau himself considered that the smallpox of 1518 was "new in the country" (Smith 1974: 6; Brau 1966: 315).

Inevitably this leads us to the question of whether slaves had been brought illegally from Africa to Hispaniola from a very early date - that is, before 1507. Such a contraband trade may have occurred, of course, but one would expect some indication of it even in the exiguous surviving records since the Spanish settlements on Hispaniola were few and small and within easy purview of royal officials, who were bound to take an unfavorable view of smuggling. Yet there are no surviving reports of illegally imported slaves until 1526 (Deive 1980: vol. 1, 159-160). Nor should we forget that Las Casas very definitely stated that at least the smallpox of 1518 had come from Spain.¹¹ Moreover, slaves brought from the Levant would have taken much longer to reach Hispaniola and the twelve-day incubation period that characterizes smallpox would then have played an even more inhibiting role in preventing victims from arriving on the island while still infected than if they had come from the much nearer Iberian peninsula.

In sum, we have no reasonable alternative but to conclude that there is no direct evidence - and no indirect evidence - that smallpox reached Hispaniola before 1518 and a good deal of both to suggest that it did not. The date of 1507 (and for that matter the date of 1517 so often coupled with it) is a historiographical mirage, the result of nothing more than promiscuously copying from one modern study to another. Conversely, the epidemic of 1518 is supported by an abundance of contemporaneous evidence, some of it eyewitness, for its having been the first to reach Hispaniola as well as a surprising, if not absolutely probative, amount of silence about any earlier epidemic.

III. La conviction ne se forme pas par la parole du maître, mais par les documents (Fustel de Coulanges 1893: 407).

If the earliest published reference to smallpox in 1507 is more than three centuries removed from the purported event, this is decidedly not the case for the well-documented epidemic which struck the West Indian islands and then the mainland between 1518 and 1521. This was mentioned by all the major early chroniclers - Peter Martyr, Las Casas, and Oviedo - and,

more importantly, was described in official correspondence even while it was raging. While none of these sources of course was able to anticipate the vagaries of modern scholarship by denying unequivocally that there had been an earlier epidemic in 1507, their descriptions are nonetheless of interest in helping to determine if the 1518-1521 epidemic was actually the very first in the area or whether it was, as Floyd (1973: 191) suggests, "only an intensified aspect of what had been occurring continually, if at times slowly, since at least 1505."

The indispensable account of this episode occurs in a letter written on 10 January 1519 (anon. 1864-1884: vol. 1, 368) by the Hieronymite Fathers then governing Hispaniola to the Spanish king. The Hieronymites had been sent by the Council of the Indies in 1516 to administer the island and deal with complaints by Las Casas and others regarding mistreatment of the dwindling Indian population. As it stands, this letter represents the first reference to smallpox in the New World. At the time it was written smallpox had already killed nearly one-third of the Indians of the island and was still raging. A few of the Spanish had been slightly afflicted and, although none had yet died, all feared the possible effects of the smallpox or some other "pestilence." No mention was made of the African slaves on the island, nor was any hint provided as to the suspected origin of the disease.¹² The Hieronymites reported that the smallpox had spread to the neighboring island of Puerto Rico, where it was producing similar mortality levels.¹³

The account of Peter Martyr followed on the heels on the Hieronymites' report (and may indeed have been based on it). Writing no later than 1520 and, as a member of the Council of the Indies probably basing himself on both correspondence and personal testimony, Martyr (Anghiera 1530: 158, Decade 4, Book 10) offered the most explicit denial in the literature that smallpox had occurred on Hispaniola earlier than 1518. Smallpox was, he wrote, "a disease hitherto unknown" on the island and he associated its appearance (if not quite causally) with the inhumane treatment of the Indians, who were forced to work in the gold mines, but he offered no information as to the cause of the epidemic.¹⁴ Martyr had been writing about Spanish activities in the New World ever since Columbus returned from his first voyage, and he probably would have been aware of and noted any earlier epidemics (Wagner 1946: 239-288; Arciniegas 1983: 525-531; Parks 1954-1955: 209-225).

Bartolomé de las Casas provided the most detailed account of the epidemic, even though he happened to be in Spain during the actual outbreak, returning to Hispaniola in 1520 (Wagner and Parish 1967: 168n). His description, apparently written much later and presumably drawn either from Indian or Spanish eyewitnesses, was included in his massive history of the Indies. Las Casas (1951: vol. 3, 270) related how, when the

disease first struck, the Indians continued their custom of bathing frequently in rivers, indeed began to do so with increasing fervor, expecting that they could wash the disease away. As a result the smallpox spread more rapidly than ever, and, as Las Casas expressed it with his accustomed hyperbole, "shortly all of them died." Unlike the reports of the Hieronymites and of Peter Martyr, Las Casas offered an explanation (of sorts) for the disease's origins in Hispaniola: "some person brought it from Castile," he reported, which could mean either a Spaniard or possibly an African domiciled in Spain.

The clear, if implied, sense of Las Casas' description of the Indians' response to the disease is that smallpox was a new experience to them and that, in their ignorance, they took measures which had entirely counterproductive and fatal effects.¹⁵ We can reasonably assume, I think, that if smallpox had struck the Hispaniola Indians only a decade earlier, either their own experience or the advice of the Spanish, long all too familiar with the disease and anxious to preserve their shrinking labor force, would have prevented the Indians from taking the measures that Las Casas ascribed to them in 1518.

The next account of smallpox in Hispaniola - and the latest having any pretense to being in any way first-hand - was that of Oviedo, who spent many years of his later life on the island. Referring in his monumental history to the year 1518, Oviedo (1851-1855: vol. 1, 105) wrote that "there occurred an epidemic of smallpox so virulent that it left Hispaniola, Puerto Rico, Jamaica, and Cuba desolated of Indians" or "with so few that it seemed a great judgment from heaven."¹⁶ As the successor of Peter Martyr as semi-official historian of the Indies for the Spanish court, Oviedo had access to records in Spain as well as to the records and the collective memory in Hispaniola, yet he mentioned no earlier epidemic.

The earliest extant sources then are unanimous in citing the smallpox epidemic of 1518-1519 in Hispaniola, and equally unanimous in failing to refer to any earlier episode. While it would have been helpful if any of the four primary sources had taken the trouble more frequently to include such terms as "first" or "never before" in their accounts, in fact what they do tell us is very much what we might expect in the circumstances, since none of them had reason to regard the 1518-1519 epidemic as more than the latest disaster in a colony which had already undergone a litany of travails from its very founding. The argument from silence can never be completely foolproof, but in this instance it must be regarded as convincing. If nothing else, it hardly bears imagining that Las Casas (who was in Hispaniola in 1507) would have failed to mention an epidemic of smallpox in that year had it occurred; after all, he was not entirely averse to mentioning other catastrophes which had not occurred.

Finally, I might mention one further early account which adds more silence, yet more muscle, to the argument that there were no smallpox epidemics in the New World prior to 1518. In 1518 the Spanish court decided to replace the regime of the Hieronymites (who in any case were anxious to relinquish their rather unusual duties) with a new administration, one which, it hoped, would finally resolve the protracted Indian question before there were no Indians left. Extensive and detailed instructions were given to Rodrigo de Figueroa, the official charged with effecting the new policies on Hispaniola. In these instructions (which were issued before word of the 1518 epidemic could reach Spain), the King and the Council of the Indies repeatedly underscored their concern that the declining Indian population "maintain and multiply itself."¹⁷ In outlining the projected measures, attention was naturally directed to the causes for this decline. Throughout the documentation these were held to be "ill treatment," largely consisting of overworking the Indians in the mines, as well as "extortions and cruelties." But the principal cause was held to be "hunger."¹⁸

Nowhere is this dreary catalog was there so much as a single mention of smallpox, or indeed of any disease whatever, even though the influence of Las Casas in the preparation of the document is clear throughout (Floyd 1973: 186; Bataillon 1971: 398-401).¹⁹ To anyone familiar with the views and work of Las Casas, it is inconceivable that, had disease (including but not necessarily confined to smallpox) been a serious problem among the Indians of Hispaniola, Spanish officialdom would have ignored its consequences and chosen not to discuss expedients for alleviating it.

Other explanations for the absence of any reference to a smallpox epidemic before 1518 are unconvincing. It is unlikely for instance, that smallpox had been present for some time on the island but had affected only the Africans there; or that the Spanish court viewed disease as an act of God not amenable to royal mandate and therefore not worth mentioning; or even that officials on the island, overlooking the various symptoms that would have been present, had mistakenly thought that the Indians were dying from hunger and ill treatment. While none of these contingencies can logically be ruled out, somehow each of them lacks the requisite plausibility to transform them into alternative hypotheses. This leaves us no choice but to conclude that there had been no serious or epidemic incidence of infectious disease in Hispaniola before late 1518.

- IV. The Mind, before it rationally assents or dissents to any Proposition, ought to examine all the Grounds of Probability, and see how they make, more or less, for

or against it. And upon a due balancing of the whole, reject or receive it, with a more or less firm assent, according to the Preponderancy of the greater Grounds of Probability, on one side or the other (Locke 1894: vol. 2, 366)

The implications of this conclusion are not insignificant. As previously noted, it has been argued that a smallpox epidemic killed an estimated four million people in just four years. According to Cook and Borah (1971-1979: 410): "It seems most unlikely that the sick among the Spaniards would have been kept so isolated that the natives would not have picked up any disease of epidemic possibility." Most certainly, if the population of the Caribbean islands was dense and epidemiologically vulnerable to such communicable diseases as smallpox, then twenty-five years or more of onslaught of the diseases carried by the newcomers would have caused great mortality. An early smallpox epidemic, therefore, presupposes a dense population, but we have seen that there was no epidemic before 1518. That the early Spanish settlers in Hispaniola were chronically ill is undeniable; that they were ill from communicable diseases against which the Indians had no immunity is open to serious question.

Here we are concerned only with determining the odds with respect to smallpox. In the most explicit attempt to deal with the issue, Crosby (1972: 45-46) points out why the particular epidemiological traits of smallpox provided at least temporary immunity to the Indians, simply by ensuring that the disease never reached Hispaniola. Its twelve-day incubation period meant that under ordinary circumstances the virus would have died off during the slow (and relatively infrequent) sea voyages to the Caribbean. But, as he notes, an unusually speedy voyage, the presence of an individual who had not acquired immunity by virtue of an earlier attack (very rare for the time), or the survival of the smallpox virus in pustules or in bales of textiles could have triggered an attack on a virgin population. Each of these was an unlikely contingency at the time and, all things considered, it is not at all surprising that a delay of more than twenty-five years ensued, although a shorter delay would not necessarily be less plausible.

Shrewdly, if unwittingly, Oviedo (1851-1855: vol. 1, 105) mentioned another circumstance which could help explain the particular timing of the 1518-1519 episode. As he put it: "as soon as the Indians were reduced into towns" the epidemic began. Oviedo referred here to the newly implemented policy of resettling the remaining Indians, still scattered around the island, into small settlements which were located near the Spanish towns (Floyd 1973: 176; Simpson 1950: 52-53). From the viewpoint of epidemiology this was fatal on two counts: it brought the Indians into larger and denser groupings, which

would have facilitated high mortality, and it brought them into closer and more continuous contact with possible Spanish (and African) carriers of the disease. Once this happened, it was only a matter of time before the Indians paid the price.²⁰ But until this happened, the demographics of the situation were not particularly conducive to the easy and rapid spread of smallpox.²¹

- V. There is no need, when I have found the source, to follow the streams (John Bolland in Acta Sanctorum 1845: vol. 1, xx).

I began by pointing out that the date of 1507 had recurred with increasing regularity and that it would prove a valuable and much-needed argument for the proponents of large numbers of Indians in Hispaniola and in other parts of the New World since, by their model, it would have provided an early and excellent mechanism for rapid depopulation and, better yet, a mechanism which would provide no opportunities for disconfirmation. Although the proponents of large populations have not yet pushed this particular argument very strenuously, the present discussion may have some value in precluding at least this part of the very circular, yet somehow persuasive, line of reasoning that characterizes that cause. In particular, the case of smallpox in Hispaniola suggests that the first-possible-opportunity scenario that has come to be the cornerstone of the large population argument is inappropriate and presumptuous. The idea that a "virgin" population is at immediate risk from any disease not endemic to it is refuted by the Hispaniola example. It is easy enough to assert that the 1518-1519 epidemic was simply the first recorded one there (or, as Kiple [1984: 193, n 14] puts it, the first "official" one) but to do so merely begs the question in a particularly desperate way. While it is certainly neither possible nor expedient to argue that no newly-imported infectious diseases raged outside the purview of European observation early in the sixteenth century, this must remain (probably for all time) no more than a not unreasonable assumption, entirely devoid of the evidence required to permit serious arguments based on it.

The case discussed here also illustrates a larger problem which has been one endemic among historians of disease - the reluctance, perhaps even the unwillingness, to consult whatever primary sources exist on particular episodes of "epidemic" diseases in ancient, medieval, and early modern times (cf. Hopkins 1983). The premise that there are no substitutes for the original sources as a point of departure seems strangely alien to this field, as it seeks to impose over-arching new interpretations of the ebb and flow of mankind's past

experience. Historians who have studied the impact of disease in the past are unquestionably correct to point out that the role of disease has been largely overlooked, sometimes purposefully, by their predecessors. But if they are right to avoid this example, they are wrong to ignore the methodological criteria for text criticism established by numerous generations of historians.

Beyond these points a few closing reflections may be in order. The fact that smallpox did not strike the Hispaniola Indians until they had begun to be concentrated into settlements by the Spanish only reinforces other evidence that the island's contact population was not particularly large and had been declining ever since the Spanish first arrived. Conversely, were there evidence of an earlier attack - earlier, that is, than the resettlement - it might well lead us to suspect the existence of an aboriginal population which, even in its traditional settlement configuration, was dense.

While the effects of Indian depopulation on the first stirrings of the Atlantic slave trade are obvious enough and have long been appreciated, one must inevitably wonder how different the transition from Indian to African slavery and from gold mining to sugar cane production would have been had there been a dramatic demographic crisis as early as 1507, when the Spanish had as yet colonized only Hispaniola, and in very limited numbers. What effect would an epidemic have had on the impending settlement of nearby islands? More intriguingly, would the timing of the conquest of Mexico (which originated from Cuba) and Peru have been changed if the Hispaniola Indians had disappeared even a decade sooner? It is not unreasonable to speculate that a difference of just a few years, either way, would have affected the Spanish adventure in Peru, which, in its actual timing, could not have been more exquisitely propitious for Spanish fortunes.

NOTES

1. Charles Darwin to A. Stephen Wilson, 5 March 1879 (Darwin 1903: vol. 2, 422).
2. For a similar approach, see Curtin 1969.
3. Kiple actually cites several sources in his relevant footnote, but there is much garbling. Two of the modern sources (Crosby 1972: 39; Ashburn 1947) do not support his statement, while his appeal to the primary sources does not invoke confidence. He cites Oviedo (1851-55: vol. 1, 103) when the relevant passage is on p. 105. Then he mentions las Casas (1951: vol. 3, 558), whereas volume 3 has only 525 pages. Finally, he refers to Antonio de

Herrera y Tordesillas, Historia general de los hechos de los Castellanos en las islas y tierra firme en el mar océano (17 vols.: Buenos Aires, 1945) 3:374-376. No such edition of Herrera's work was ever published. A seventeen-volume edition was published in Madrid between 1934-1957. In it, pp. 374-376 of volume 3 (published in 1935) deal with Balboa's activities in Panama. A ten-volume edition was published in Asunción in 1945. Pages 374-376 of volume 3 of this edition mention smallpox in Mexico City but do not refer at all to Hispaniola.

4. The English translation of the section on smallpox was nearly twice as long as the first German edition, and these additional comments probably reflected Hirsch's continuing research.
5. It is just possible that William Robertson's The History of America, several editions of which were published between 1777-1834, played a role in this confusion. As part of the editorial conventions of the time, single dates were placed in the margin next to passages which actually dealt with long-term processes. As it happens, "1507" was placed in the margin of a long section dealing with the depopulation of the New World through, among other things, disease, in at least one edition of the History. This may well have been construed into something more than it meant, or (and more likely) it was not noticed or used at all. See Robertson 1818: vol. 8, 254-255.
6. It also helps to explain the recurring and slightly erroneous date of 1517 ascribed to the second epidemic.
7. Bernaldez died in 1513 but his work was not published until 1873.
8. Modorra was a common disease in both Spain and the Spanish colonies at the time, but it has defied identification with any known modern disease. For modorra, see Ashburn 1947: 149-151.
9. Nor was it mentioned by Bernaldez (1962: 516-518) under the year 1506, apparently a somewhat less disease-ridden year in Spain. This is not to suggest that such an epidemic in Spain would have been a prerequisite for one in Hispaniola, but only to defuse the issue by showing that there was none.
10. At first only Africans already resident in Spain were transported to Hispaniola in order that the Spanish authorities could better monitor this traffic. For this and much else on early slavery in Hispaniola, see Deive 1980: vol. 1, 3-50.
11. Here, however, we must bear in mind that Las Casas probably wrote this account after he had come to regret his advocacy of bringing Africans to Hispaniola to do the work that had been done by Indians. We may reasonably suspect

- that he may have convinced himself that this had no role in the introduction of smallpox without that actually being the case.
12. Letter of 20 May 1519 (anon. 1864-1884: vol. 1, 369-370); undated [1520?] memorial of Hernando de Gorjón (anon. 1864-1884: vol. 1, 429), who also mentioned measles and catarrh.
 13. Letter of 10 January 1519 (anon. 1864-1884: vol. 1, 368).
 14. For Martyr's sources for this decade, see Wagner 1946: 247-255, 263-266.
 15. It is not impossible that the idea of Indians attempting to rid themselves of the smallpox pustules in this way was in the nature of a literary topos. Gómara (1943: vol. 1, 291) explained the high mortality among the Aztecs from it in precisely the same fashion.
 16. For Oviedo's life and work, see, among others, Iglesia 1969: 213-230; Cantù 1976: 207-246; Turner 1967, 1983, 1985; Arrom 1983: 133-145; Ballesteros Gaibrois 1981.
 17. "Instrucciones al licenciado Rodrigo de Figueroa," 9 December 1518 (Serrano y Sanz 1918: dlxxxviii et passim).
 18. Ibid. dlxxxviii, dxciii et passim.
 19. More awkward silence is added by the testimony of several settlers questioned by the Hieronymites in 1517 in preparation for establishing the encomiendas. Each was asked a specified series of questions about the treatment of the Indians, the causes and effects of their diminution, and ways and means to halt it. Several mentioned lack of food resources; none mentioned disease. For the verbatim testimony, see Rodríguez Demorizi 1971: 273-354.
 20. Peter Martyr also mentioned the royal order regrouping the Indians in his account (Anghiera 1530: 158).
 21. Interestingly, Oviedo's use of the phrase "as soon as" ("así como") suggests that he saw the matter (benefiting perhaps from hindsight) as a case of post hoc ergo propter hoc. We shall never know.

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