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Pathogen Empire
New and Old World conquest and disease
from the Columbian Encounter through the 16th century

Five hundred years after it first began, the role of disease in the Spanish imperial experience in the New World still garners vast and fervent debate. For much of this timeframe, however, a consistent focus on Spanish violence against native populations has restricted the expansion of scholarly work, from expanding beyond an exchange of defensive claims of divine sanction and vehement tirades against Spanish imperial actions. This is in part due to Bartolomé de Las Casas' notorious *Short Account of the Destruction of the Indies*, but scholarship has since found numerous sources to proliferate the debate. A review of work in this field, however, reveals a distinctive change in focus in the past thirty or forty years. Where before scholars looked to either defend or blame imperial agents for an incredible number of indigenous deaths in the decades following Columbus' landing, newer scholarship has nominated auxiliary and oftentimes inadvertently deadly agents of destruction—namely disease. Interdisciplinary investigations abound in this newer route of inquiry, incorporating data and theories from historical, anthropological, biological, demographical, epidemiological, and other disciplines. While this brief survey is in no way comprehensive, effort has been made to include some works that are themselves syntheses of these fields in order to effectively convey the great complexity and ever-expanding scope of methodology used in examinations of disease and the Spanish Empire. The past 50 years have seen a momentous change in methodology of researching the interaction of Old and New World pathogens and people, and the resulting, though still nascent, interdisciplinary techniques hold much promise for future investigation in this field.

Major Routes of Inquiry and Methodologies

The field has seen two fairly distinct patterns of methodology. The first began with Las

Casas' *A Short Account of the Destruction of the Indies* and lasted for over 400 years until the mid- to late 20th century. As Alfred Crosby explains it:

Each generation of scholarly historians has not a universal but at least a common and characteristic way of looking at the past...a paradigm, if you will...The [paradigm] a century ago of historians...about modern imperialism and the industrial revolution was simple. The Europeans had conquered or at least cowed nearly everyone else in the world because the Europeans were the best people in the world.¹

The Spanish Empire's expansion into the New World² was no exception to this pattern of thought, and it perhaps even set the tone for the study of other areas of the world. For instance, integral to understanding historiography on this topic are the concepts of the White Legend and Black Legend. As Francis Brooks explains it, the Black Legend "had it that it was the Spaniards who had caused—in Las Casas' celebrated phrase—'la destrucción de las Indias'"³ The White Legend resembles the Rudyard Kipling's conception of the White Man's Burden and refers to the defence of the Spaniards' civilising mission.⁴ For years, the conflict between these two views marked almost all discourse on imperial treatment of indigenous peoples⁵.

Research on the interaction of the Old and New Worlds, however, underwent a marked change of focus in the late 20th century. The growth of interdisciplinary studies prompted new routes of inquiry into the effect of disease upon the Spaniards' conquest. Alfred Crosby and

¹ Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*, 4th ed. (Cambridge: Cambridge University Press, 1986), xv.

² While demarcations of New World and Old World are fairly well known, in this study, the former will primarily refer to what is now Latin America.

³ Francis Brooks, "The Impact of Disease," in *Technology, Disease, and Colonial Conquests: Sixteenth to Eighteenth Centuries*, ed. George Raudzens (Leiden: Brill, 2001), 141. Scholarship in this vein often reads like the following from David Stannard: "Wherever the marauding, diseased, and heavily armed Spanish forces went out on patrol, accompanied by ferocious armored dogs that had been trained to kill and disembowel, they preyed on the local communities—already plague-enfeebled—forcing them to supply food and women and slaves, and whatever else the soldiers might desire". David E. Stannard, *American Holocaust: Columbus and the Conquest of the New World* (New York: Oxford University Press, 1992), 69.

⁴ Brooks, "The Impact of Disease," 129.

⁵ Last to be addressed are the wide variety of terms used to describe indigenous Americans. These include aboriginals, n/Native Americans, natives, Indians, indigenous Americans, Amerindians, and many more depending on social and date-related contexts. This study will attempt to limit the variety of terms it uses, but the reader should be advised that the field at large uses many terms to describe the indigenous population.

Jared Diamond spearheaded this movement, producing “generalizations simple enough yet sufficiently convincing to facilitate effective communication of historical knowledge in ways which maximize consensus”.⁶ In the process, however, the concept of a “main” source of demographic collapse has all but disappeared. In its place are explanations in which “causes too often appear as sum totals of all possible complexities”.⁷ This led to intensive demographic research and calculations, as scholars across the various disciplines attempted to figure out demographic data from before, during, and after the Encounter.⁸ Demographic statistics are a notoriously malleable area of study, and the complex calculations required to approximate population levels have resulted in a vast range of estimates. Specialist scholarship on this subject has grown almost exponentially, despite, as George Raudzens claims, the fact that “much of this is beyond the interests or capabilities of non-specialist readers, who cling to broad concepts like ‘guns and germs’”.⁹

Recent scholarship is now in the process, not of rejecting these more generalised theories, but of modifying and improving “the plausibility of older views”¹⁰ on explanations of demographic data. Recent research in this field now attempts to answer a variety of questions, including: How and when were Old World diseases spread? What were the diseases that crossed the Atlantic Ocean? How much of the undeniable though unclear population decline was actually due to disease? What was the “final” toll that Old World disease took on indigenous populations? How did these diseases circulate? Were these diseases knowingly disseminated? Did New World diseases have any impact on the Old World?

⁶ George Raudzens, “Introduction,” in *Technology, Disease, and Colonial Conquests: Sixteenth to Eighteenth Centuries*, ed. George Raudzens (Leiden: Brill, 2001), xii.

⁷ *Ibid.*, xii.

⁸ The Columbian Encounter, often shortened to just “the Encounter” can denote specifically the first meeting of Columbus’ crew and the indigenous American population or more generally to the period of time in which the Spaniards penetrated the continent and came into contact with new populations.

⁹ *Ibid.*, xii

¹⁰ *Ibid.*, xii

To understand the current patterns of investigation, these questions must be taken one at a time. Firstly, much discussion surrounds when exactly Old World diseases first began affecting native populations. David Cook asserts that “all who have surveyed the Hispaniola experience admit disease was a contributing factor, but only AFTER the introduction of smallpox in 1518”.¹¹ This oversimplifies the issue, but there is a general consensus that Old World disease, namely smallpox, did not immediately decimate native populations single-handedly. Other Old World diseases introduced to the New World include measles, typhus, the plague, cholera, malaria, and yellow fever.¹²

In his 1993 article, Cook claimed that research since the early 1980s overwhelmingly agreed that “in spite of death precipitated by warfare, famine, exploitation, suicide, infanticide, and a drop in the birth rate, sickness was the predominant factor in the disappearance of native peoples”.¹³ But this sickness could be a combination of both Old World and New World illnesses, not necessarily and exclusively the newly introduced Old World diseases. For example, Cook notes that the illness on Hispaniola resulted in “fever and lethargy, followed by prostration then coma [which] strongly suggest that the malady was severe influenza coupled with life threatening pneumonia. However, it might have been typhus, particularly when symptoms included macular and/or maculopapular eruptions, or another unidentified disease”.¹⁴

The past few decades have seen a second marked change in the finger pointing about population decline. It is not within the scope of this paper to address the alternatives to disease in the significant decline of native populations, though some attempt will be made to identify common auxiliary culprits. *Technology, Disease and Colonial Conquests* serves as a prime and

¹¹ Noble David Cook, “Disease and the Depopulation of Hispaniola, 1492-1518,” *Colonial Latin American Review* 2, no. 1-2 (1993): 215.

¹² *Ibid.*, 220.

¹³ *Ibid.*

¹⁴ *Ibid.*, 235.

succinct example of this new wave of scholarship. The editor, George Raudzens, notes that “The objective of this work as a whole is to refine and improve the big generalizations historians must make in order to reach the widest possible audience, among themselves and beyond themselves”.¹⁵ While the general explanation of “guns and germs” is valid in almost every case of European conquest in the Americas, the collected essays in this volume all attempt to fill in the missing sources of power and advantage in individual conquests. In some, military advantages and the impact of disease “decline in importance close to becoming irrelevant”.¹⁶ Many essays offer alternative “agents” of conquest, such as numerical superiority of Europeans within two decades of settlement, aristocratic infighting, and accommodation by dissatisfied locals.¹⁷ Throughout each of the essays, the authors focus on specific times and locations as well.

Through this work and others like it, the presence of numerous other agents of destruction becomes clear. Despite assurances that sufficient eyewitness attestation of disease exists,¹⁸ compelling evidence exists for the contributions of general violence against and between natives, a drop in birth rates (which can themselves be attributed to disease), and significant changes in agricultural practices leading to famine, among many more. Imperial activity affected almost all aspects of the natives’ lives, and “they suffered high mortality from overwork. The breakdown of the [existing agricultural] system caused starvation, and the introduction of Old World livestock and plants disrupted native agricultural patterns and practices”.¹⁹

Henige is particularly impassioned about other explanations for population decline, as seen by his almost accusatory tone in the following passage:

¹⁵ Raudzens, “Introduction,” xii.

¹⁶ *Ibid.*, xiv.

¹⁷ George Raudzens, “Outfighting or Outpopulation? Main Reasons for Early Colonial Conquests, 1493-1788,” in *Technology, Disease, and Colonial Conquests: Sixteenth to Eighteenth Centuries*, ed. George Raudzens (Leiden: Brill, 2001), 31-58 suggests the last two.

¹⁸ Cook, “Disease and the Depopulation of Hispaniola,” 237.

¹⁹ *Ibid.*, 214.

It must be a continual source of embarrassment that the redoubtable Bartolomé de Las Casas, the godfather-by-acclaim of the [High Counters] movement, had so little to say about the effects of disease, even though he wrote extensively, passionately, and extravagantly about the decline of the Indian population... To my knowledge, no High Counter has ever addressed this awkward problem. Instead, they are content to use Las Casas' undocumented and implausibly high figures to hallow their enterprise.²⁰

While the dependence on the high figures of Las Casas' work is a valid criticism of the work of the "High Counters",²¹ it must be noted that Las Casas' intent was not to describe the diseases ravaging the native population. Instead, he "overlooked the role disease played in shaping the colonial experience" in order to make his point that the loss of life was due to "demoniacal acts of cruelty on the part of Spanish conquerors and colonists".²² Las Casas, like many earlier "chroniclers of human history had no knowledge of germs, and most believed epidemic disease to be supernatural in origin, something to be piously endured but rarely chronicled in detail".²³

Regardless of what factors are most to blame, an estimate must be made of pre-Encounter population levels in order to understand the impact of Spanish imperial activity in the New World. Scholars have produced a remarkable range of pre- and post-Encounter population estimates. Works such as Henry Dobyns' *Their Number Become Thinned* and David Henige's *Numbers from Nowhere*²⁴ demonstrate the extreme opposing ends of the population debate. To illustrate this issue, we look at population investigations of Hispaniola for the decades following Columbus' arrival. According to Noble David Cook, the "best" estimates for the original population of Hispaniola, for example, range from 200-380,000 on the low end to

²⁰ Henige quoted in Cook, "Disease and the Depopulation of Hispaniola," 237.

²¹ The designations "High Counter" and "Low Counter" are used in reference to, respectively, the zenith and nadir calculations of indigenous population levels before the arrival of Columbus. The former describes scholars who believe original indigenous population of the Americas was closer to 100 million, such as Dobyns, who postulates a figure of 90 to 112 million. The latter indicates those such as Kroeber, who suggests the considerably lower figure of 900,000. See Charles C. Mann, *1491: New Revelations of the Americas Before Columbus* (New York: Random House, 2005), 104.

²² Noble David Cook, and W. George Lovell, eds. *Secret Judgments of God: Old World Disease in Colonial Spanish America*. (Norman: University of Oklahoma Press, 1992), 241.

²³ Crosby, *Ecological Imperialism*, 196.

²⁴ See Dobyns, Henry. *Their Number Become Thinned*. Knoxville: University of Tennessee Press, 1983, and Henige, David. *Numbers from Nowhere*. Norman: University of Oklahoma Press, 1998.

1,130,000 on the high end—an almost incredible range.²⁵ Angel Rosenblat could not explain the massive depopulation of Hispaniola from 1492-1517, so he concludes that the original population was low.²⁶ Moya Pons credited “mass suicides, homicides, abortions, [and] malnutrition” with much of the population decline. Henige does not even believe that disease is a compelling explanation for the population decline. He sees the “the specter of epidemiological disaster merely as a *deus ex machina*”²⁷ to unconvincingly account for rapid population loss.

Woodrow Borah and Cook disagree about the late 1518 starting date mentioned above, stating:

We disagree on relative lateness of the introduction of disease. From the men of the first voyage of Columbus on, there was disease among the Spaniards. A large proportion of the men were ill at any given time, and there was a steady loss through death. 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.²⁸

The terrific variation in opinion on this topic springs in part from the different starting numbers these historians use to calculate population decline. After making calculations based on Miguel de Pasamonte (via Bartolomé de Las Casas), Diego Columbus, and Rodrigo de Albuquerque, as well as taking into account the 40,000 natives from nearby islands imported for labour purposes, Pons believes de Albuquerque’s 1514 count of 26, 334 to be most reliable in terms of native numbers under Spanish domination approximately 15 years after first contact. The range of possible population levels Pons came up with was slightly over 3.3 million to over 16 million for original levels. The latter was clearly not within the carrying capacity of the island, however, so he concluded the actual number to be somewhere in between.

To get a sense of the calculations these scholars have conducted, we look to Sherburne Cook and Woodrow Borah:

²⁵ Cook, “Disease and the Depopulation of Hispaniola,” 218.

²⁶ *Ibid.*, 215.

²⁷ *Ibid.*, 216.

²⁸ *Ibid.*, 215.

The total [population] of [Area 1] is 668,867 and of [Area 2] 332,256. The ratio 1595/1568 is 0.497. By proportion, the entire population of Region I in 1595 would be $1,709,793 \times 0.497 = 849,767$...Part E shows similar data for 1595 and 1646, with 81 places. Here the totals are respectively 231,140 and 93,572, and the ratio 1646/1595 is 0.405. The entire population of Region I in 1595, calculated from the total in the 1646 reporting (313,379 as above), would be 773,775...²⁹

One can clearly see the lengthy spiral of complicated computations involved in population estimation. These calculations are further complicated by the simple—though sometimes unacknowledged—reality that population loss is not a consistent process.³⁰

Complicating this matter still further is the fact that there were no censuses of indigenous populations before Columbus appeared, as the natives “had no cultural reason to count themselves, and by the time the colonists found a ‘census’ to be necessary, the major impact of the ecological exchange between the eastern and western hemispheres was well underway”.³¹ When the Europeans finally did conduct a census, its results were questionable, as they were incomplete and done during a time of significant demographic fluctuation. This limited diversity of sources combined with the questionable reliability of those we do have, though not new issues for historians, certainly cause problems for post-Encounter population research. Even 16th century attempts to gather information were hindered in this endeavour because the decimated populations had little chance to preserve their shrinking societal and cultural information. On this, Cook almost resignedly writes that most colonists believed there were originally about 1,130,000 indigenous Americans on the island of Hispaniola.³² In the end, the most specific consensus historians can come to for now is that “the native population of the island of Hispaniola reached virtual extinction a scant half century after Christopher Columbus

²⁹ Sherburne F. Cook and Woodrow Borah, *Essays in Population History: Mexico and the Caribbean*, Volume One (Berkeley: University of California Press, 1971), 28.

³⁰ Cook, “Disease and the Depopulation of Hispaniola,” 217.

³¹ *Ibid.*, 214.

³² *Ibid.*, 219.

first touched its northern shores”,³⁵ and populations in the rest of the Americas underwent similar changes. Increasing regional studies on specific populations have surfaced in the past fifteen years, and these are certainly valuable additions to the field. However, the problem inherent in any region-specific study is that conclusions about specific populations cannot always be applied to overall patterns.

The importance of having general demographic information about pre- and post-Encounter populations is incontrovertible, but we simply do not have early and reliable enough demographic and cultural data from which to calculate population levels. Why is this? Primarily, it is because often enough, our first glimpse of these civilisations is through the eyes of Europeans. There is a distinct lack of written sources about many aspects—though certainly not all—of pre-Encounter civilisations in the Americas. Archaeological research provides a substantial amount of our information. As such, much of the history written about these empires and cities gives us a picture of general ways of life and culture, but rarely do we hear about specific rulers, wars, or other key components of empire-building before the 15th century. Undoubtedly, among these many powerful states, various polities that we would recognise as empires did exist. However, our knowledge of them much before the 1370s for the Aztec, and 1430s for the Inca, is limited to what we can discover through archaeological research and what local knowledge of these societies survived the Encounter long enough to be recorded by 16th century Europeans and educated indigenous Americans. The (one might say) obsession with population calculation has in some ways, actually hurt other studies on pre-Encounter peoples. Francis Brooks even asserts that:

There has been remarkably little new insight, directly attributable to these new demographic theories, into either pre-conquest society or the structures of Indian society under Spanish rule. There has been a remarkable upsurge of knowledge of [everyday]

³⁵ *Ibid.*, 217-18.

Indian life both before and after the arrival of the Spaniards...Studies of the impact of western culture on native societies have proliferated. But, in general, studies of the first impact of diseases have not added directly to what we know about pre-contact societies nor about such equilibrium as was eventually worked out between colonial rulers and ruled. They have been, that is to say, somewhat unproductive beyond their own rather special and limited terms.³⁴

Moreover, the ever-increasing sophistication of the demographers' mathematical techniques has "given rise to criticism of the somewhat cavalier attitude they sometimes display".³⁵

Setting aside the fact that we may never have definitive information on population levels, we next must turn to how these deadly diseases spread throughout the empire, as they undoubtedly did in some capacity. Smallpox likely first crossed the Atlantic in 1518 or 1519. It played an "essential...role in the advance of white imperialism overseas...because the indigenes did turn the musket and then rifle against the intruders, but smallpox very rarely fought on the side of the indigenes".³⁶ However, smallpox was easily spread and very deadly once contracted,³⁷ and it did kill both Europeans and indigenous Americans. As Crosby points out, a sudden increase in cases in the sixteenth century lasted for 250 to 300 years (until the vaccine was invented), and in the 1700s, it accounted for between 10 and 15 percent of all deaths in some European countries.³⁸ Clearly, the Europeans continued to prove themselves "capable" of suffering from this disease alongside the indigenous peoples they conquered, but the difference in death rates can be explained by one fact: most European adults, especially in ports and large cities, had already had smallpox as children and had thus built up an immunity. The indigenous populations, however, had never encountered smallpox before, so the disease struck down both the young and the old.³⁹ Therefore, the deadliness of smallpox may have been the same for both

³⁴ Brooks, "The Impact of Disease," 145-46.

³⁵ *Ibid.*, 146.

³⁶ Crosby, *Ecological Imperialism*, 200.

³⁷ *Ibid.*, 199.

³⁸ *Ibid.*, 199-200.

³⁹ *Ibid.*, 200.

conquered and conquerors, but the greater number of susceptible hosts in the former ultimately made for more victims.

These diseases often raced ahead of their original hosts. The conquests of Francesco Pizarro in Peru and Hernando De Soto both benefited from this, as by the time they reached imperial or royal cities, much of the population had been decimated by or fled from the rapidly spreading New World diseases. Spread by messengers, traders, shipwrecked sailors, and the like, these diseases penetrated the continental interior much faster than a human force could alone. Of the path of the first smallpox epidemic in the New World, Crosby has this to say:

The malady quickly exterminated a third or half of the Arawacks on Española, and almost immediately leaped the straits to Puerto Rico and the other Greater Antilles, accomplishing the same devastation there. It crossed from Cuba to Mexico and joined Cortés's forces in the person of a sick black soldier, one of the few of the invaders not immune to the infection. The disease exterminated a large fraction of the Aztecs and cleared a path for the aliens to the heart of Tenochtitlán and to the founding of New Spain....The miraculous triumphs of [Cortés]...are in large part the triumphs of the virus of smallpox.⁴⁰

Canoeists likely took the disease up from Cuba to the southeastern United States, and the Mississippi, whose villages were generally no more than a day or two apart, provided a highway along which the disease could travel to the rest of the interior of the continent.⁴¹

Thus far, we have discussed the inadvertent spread of smallpox, the issue of purposeful dissemination of the disease remains. Specifically, while professional historians may not be persuaded by claims of smallpox-infested blankets being distributed to indigenous peoples, the story of such blankets has made its way into school textbooks and popular culture. Distorted responses to this issue in popular history have spread the rumour that Europeans purposefully handed out smallpox-infected blankets to spread the disease among troublesome tribes. As Russell Thornton asserts, this likely grew out of a series of letters from the 18th century between

⁴⁰ *Ibid.*

⁴¹ *Ibid.*, 201.

Sir Jeffrey Amherst and Col. Henry Bouquet, wherein the former suggested to the latter that he try to inoculate various tribes by giving them items with small amounts of the virus. After this attempt at inoculation, however, smallpox swept along the Ohio River, killing many natives.⁴²

Despite the compelling evidence proponents of the smallpox epidemic give as the primary destructive force in the New World, a 1988 report by the World Health Organization in 1988 called into question the likelihood of smallpox's guilt. The report found that "there was no such thing as inherited immunity".⁴³ Any population that had not had contact with the disease for 30-40 years was susceptible to the status of "virgin soil",⁴⁴ so European populations who had not seen smallpox for a generation were just as likely to suffer from a smallpox epidemic as the populations of the New World were. True, Europeans had more *experience* with the disease, but this counted for little in terms of avoiding the disease. The same report also found that "smallpox spreads slowly, it does not spread very far, and epidemics often burn themselves out quite quickly".⁴⁵ Thus, the search for a single agent of death was proliferated further.

Another subject of investigation by recent scholars is the impact of New World disease on the Old World. Certainly, in this area of inquiry we have more numerous and reliable sources than for accounts of Old World pathogens on indigenous Americans. Europeans were more concerned with their own encounters with new diseases than what they saw as the sad but admittedly routine appearance of smallpox and other Old World diseases. Thus, we have more data and information concerning the diseases that were new to the Spaniards. Among

⁴² Russell Thornton, *American Indian Holocaust and Survival: A Population History Since 1492* (Norman: University of Oklahoma, 1987), 78-79.

⁴³ Brooks, "The Impact of Disease," 148.

⁴⁴ Brooks notes that "virgin soil" refers a population that has "never previously experienced a particular disease and thus have no immunity to it", ("The Impact of Disease," 133). This concept is very a vital to inquiries in paleopathology.

⁴⁵ Brooks, "The Impact of Disease," 152.

the diseases that were almost certainly present in the New World before it was thus called were leishmaniasis, chagas disease, histoplasmosis and/or tuberculosis, syphilis, and amoebic dysentery, not to mention the intestinal worms that weakened resistance of even healthy persons.⁴⁶ Syphilis is unique among this list as a disease that travelled from the New World to the “virgin soil” of the Old World, wreaking devastation on its new victims, though not to the same extent as diseases that were transferred the other direction. Imperial trade routes and the flow of administrative activity determined where diseases would flow after arrival in the Old World. For instance, many scholars, such as Cook and Lovell, believe that syphilis spread from the New World to the Old. They can trace the first recorded outbreak of that disease from the court of Ferdinand and Isabella to Naples—the route that many of Columbus’ crew members took after returning from the New World.⁴⁷ The routes of empire served as the highways of disease throughout both the Old and the New World.

Difficulties in Examining Pre- and Post-Encounter Diseases

To the already mentioned difficulties of researching disease in the Americas, still more must be added. Interdisciplinary studies present inherent complications. In a field that incorporates research from history, paleopathology, anthropology, biology, demography, epizootology, epidemiology, immunology, and more, the resulting problems are especially pressing. Brooks points out that “experts in one field sometimes easily, almost naïvely, accept the still speculative conclusions of experts in a different field”.⁴⁸ Conversely and equally problematic is that at times:

Far from querying the historians’ accounts [of smallpox-related deaths], epidemiologists more often adapted their own theories. They noted the large numbers of deaths reported in those first attacks of smallpox in America...But they noted too massive infectivity and

⁴⁶ Cook, “Disease and the Depopulation of Hispaniola,” 220.

⁴⁷ Cook and Lovell, *Secret Judgments*, 11.

⁴⁸ Brooks, “The Impact of Disease,” 149.

the rapid spread of the disease. These were different than their own observations, yet they accepted the authority of historians and allowed that in the first attacks infectivity must have been much higher than it was found later to be. Historians, in their turn, found that their own original assertions were now confirmed by the epidemiologists and could therefore be made authoritatively. So the logic came full circle.⁴⁹

Brooks asserts that epidemiologists accepted and therefore reinforced the historians' findings, despite their contradiction to present-day knowledge of smallpox because "they read the record of massive mortality and lightning-swift spread in the first pandemics, and saw no reason to question that record".⁵⁰

We have two equally compelling and contradictory points here: One, that *only* smallpox could have caused the massive destruction of the indigenous population as reported by both contemporaries and recent historians based upon those reports. Two, that smallpox does not behave in a way that would make this level of epidemic possible. Therefore, thinking along the lines of the Occam's razor principle, wherein the simplest explanation or theory is most often the correct one, we can (though by no means definitively) posit that if there is only one disease to blame, it is not smallpox. From this, we can conclude that the original reports must be inaccurate and therefore require a re-examination. The difficulty of diagnosing disease from a distance of nearly 500 years is undeniable. Instead of devoting thousands of pages to complex demographic calculations and possible explanations for the supposed change in the characteristics smallpox, historical accounts of the impact of Old World diseases would be best served if historians and their peers in other fields devote their time to re-examining the original accounts of the Encounter.

It is unlikely that we will find out what disease it was, as diagnosing vague reports of symptoms from 500 years in the future is difficult. As Cook points out, "only in the 20th century

⁴⁹ *Ibid.*, 148-149.

⁵⁰ *Ibid.*, 153.

is it possible to make an accurate disease identification, yet even now medical misdiagnosis is frequent”.⁵¹ Additionally, descriptions of the natives’ symptoms are often vague or inaccurate because “the Europeans were obviously most interested in describing how illness afflicted their brethren, not native Americans”.⁵² Such problems indicate that the biggest issue in this field is that we lack reliable demographic data before the mid-16th century, making death rate estimation highly speculative and disease identification equally suppositional. As Cook laments, “No matter how hard scholars have searched for fresh data or squeezed old fact for new truth, they have been frustrated”.⁵³

Conclusions

As Latin American nations continue to struggle what colonial legacies have left them, issues in this field remain relevant, yet sensitive. Medical research on remnant indigenous populations, often conducted for the sake of discovering more about 16th century populations, can yield results that are also poignant to the health of modern Latin Americans. However, Mann points out that “given the charged relations between white societies and native peoples, inquiry into Indian culture and history is inevitably contentious”.⁵⁴ Relations among academics, as in common in any scholarly endeavour, are fraught with tension as well. Anthropologists fight over the acceptability of forcing contact with “virgin” tribes in the Amazon and historians continue to combat (or support) the Black Legend that catapulted into existence in the wake of Las Casas’ work.

Published in 2005, Mann’s book is the most recent of the books surveyed for this work. It is a well-praised work that synthesises information from a variety of fields, but the research

⁵¹ Cook, “Disease and the Depopulation of Hispaniola,” 223.

⁵² *Ibid.*, 230.

⁵³ *Ibid.*, 214.

⁵⁴ Mann, *1491*, 4.

that informs the book tends to be either in its early stages or uncorroborated as of yet. However, the interdisciplinary approach Mann takes may be an example to other scholars in the field, as his research has opened the door to many new possibilities. For example, a 2004 study by two U.S. anthropologists and a medical researcher from Venezuela revealed that:

Native American susceptibility to infectious disease might have a second cause: helper T-cells... The body cannot sustain large numbers of both [types of helper T-cells], and hence adult immune systems tend to be skewed toward one or the other, usually depending on whether as children they were more often exposed to microorganisms or parasites. Indians have historically been burdened by flukes, tapeworms, and nematodes, so they have long had majorities of parasite-fighting helper-T cells.⁵⁵

Thus, the adult natives' helper-T cells were likely oriented toward fighting off parasites, so they lacked the ability to fight the same diseases that adult Europeans, who grew up with more disease-causing bacteria, were able to fight off fairly easily. This information is not useful just to fill history books. As Mann points out, it might save lives today, as "if further research supports this hypothesis, preventing childhood parasite infections might allow Indian immune systems to orient themselves toward bacteria and viruses, possibly reducing further deaths".⁵⁶

As useful as such interdisciplinary research has proven itself to be, until kinks in interdisciplinary techniques are worked out, some holes in the examination of the conquest of the New World will remain. For instance just how much credit can be given to imperial conquerors and how much to circumstance? Studies like Cook's article on Hispaniola or the place-specific investigations included in *Secret Judgments of God: Old World Disease in Colonial Spanish America* may reveal techniques and questions useful in studying other imperial conquests. In fact, work on the infiltration and conquest of the South Pacific is already often discussed in

⁵⁵ Mann, *1491*, 118. Mann explains that helper T-cells "help the immune system recognize foreign objects. To simplify considerably, helper-T cells occur in two main types, one that targets microorganisms and one that targets parasites".

⁵⁶ *Ibid.*, 118.

conjunction with patterns of inquiry and resulting evidence from the New World.⁵⁷

Additionally, much of the writing on death rates mentions that “both Europeans and Native Americans were afflicted”⁵⁸ or that “health conditions...were terrible for both natives and Europeans”,⁵⁹ yet rarely does the literature reveal death counts for *both* European and indigenous populations.⁶⁰ Separate studies have been conducted on each of these groups, but future studies of epidemic disease should seriously consider both populations. After all, these two groups lived, worked, and procreated together, and comparing epidemics that swept through certain areas where Spaniard and native lived in close proximity might reveal more about how much deadlier these diseases really were for native populations.

It seems then, that much work remains to be done in this field. Interdisciplinary studies and a re-examination of original sources both offer promising sources of “new” evidence and should be pursued. Though recent scholarship illustrates that changing research focuses and the gradual clarification of the relationship of data from different disciplines, we cannot yet offer a definitive answer to the question, just “how did 500 men conquer an empire of millions, and how did they do so in less than two years”?⁶¹

⁵⁷ See Newson, Linda. “Pathogens, Places and Peoples: Geographical Variations in the Impact of Disease in Early Spanish America and the Philippines.” In *Technology, Disease, and Colonial Conquests: Sixteenth to Eighteenth Centuries*, edited by George Raudzens, 167-210. Leiden: Brill, 2001.

⁵⁸ Noble David Cook, *Born to Die: Disease and New World Conquest, 1492-1650* (Cambridge: Cambridge University Press, 1998), 112.

⁵⁹ *Ibid.*, 105.

⁶⁰ When these two sets of data are mentioned together, it is often as vague as the following: “About 3,000 perished in Lima from the epidemic in 1586, mostly Indians, but many Blacks died too”. 4.124 It is unclear whether the sources available to scholars merely do not have sufficient evidence on both populations during the same epidemics to make a comparison or whether scholars have thus far just chosen to focus on one population or the other.

⁶¹ Brooks, “The Impact of Disease,” 128.

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