ISSUE 2

Was Disease the Key Factor in the Depopulation of Native Americans in the Americas?


NO: David S. Jones, from "Virgin Soils Revisited," William and Mary Quarterly (October 2003)

ISSUE SUMMARY

YES: Colin Calloway says that while Native Americans confronted numerous diseases in the Americas, traditional Indian healing practices failed to offer much protection from the diseases introduced by Europeans beginning in the late-fifteenth century and which decimated the indigenous peoples.

NO: David Jones recognizes the disastrous impact of European diseases on Native Americans, but he insists that Indian depopulation was also a consequence of the forces of poverty, malnutrition, environmental stress, dislocation, and social disparity.

On October 12, 1492, Christopher Columbus, a Genoese mariner sailing under the flag and patronage of the Spanish monarchy, made landfall on a tropical Caribbean island, which he subsequently named San Salvador. This action established for Columbus the fame of having discovered the New World and, by extension, America. Of course, this “discovery” was all very ironic since Columbus and his crew members were not looking for a new world but, instead, a very old one—the much-fabled Orient. By sailing westward instead of eastward, Columbus was certain that he would find a shorter route to China. He did not anticipate that the land mass of the Americas would prevent him from reaching his goal or that his “failure” would guarantee his fame for centuries thereafter.

Moreover, Columbus’s encounter with indigenous peoples whom he named “Indians” (los indios) presented further proof that Europeans had not
discovered America. These "Indians" were descendants of the first people who migrated from Asia at least 30,000 years earlier and fanned out in a southeasterly direction until they populated much of North and South America. By the time Columbus arrived, Native Americans numbered approximately 40 million, 3 million of whom resided in the continental region north of Mexico.

Columbus's arrival (and return on three separate occasions between 1494 and 1502) possessed enormous implications not only for the future development of the United States but also for the Western Hemisphere as a whole, as well as for Europe and Africa. Relations between Native Americans and Europeans were marred by the difficulties that arose from people of very different cultures encountering each other for the first time. These encounters led to inaccurate perceptions, misunderstandings, and failed expectations. While at first the American Indians defied the explorers, experience soon taught them to do otherwise. European opinion ran the gamut from admiration to contempt; for example, some European poets and painters expressed admiration for the Noble Savage, while other Europeans accepted as a rationalization for military aggression the sentiment that "the only good savage is a dead one."

William Bradford's account of the Pilgrims' arrival at Cape Cod describes the insecurity the new migrants felt as they disembarked on American soil. "[T]hey had now no friends to welcome them nor inns to entertain or refresh their weatherbeaten bodies; no houses or much less towns to repair to, to seek for succor... Besides, what could they see but a hideous and deserted wilderness, full of wild beasts and wild men... If they looked behind them there was the mighty ocean which they had passed and was not a main bar and gulf to separate them from all the civil parts of the world." Historical hindsight, however, suggests that if anyone should have expressed fears about the unfolding encounter in the Western Hemisphere, it would be the Native Americans since their numbers declined by as much as 95 percent in the first century following Columbus's arrival. While some of this decline can be attributed to violent encounters with Europeans, there seems to have been a more hostile (and far less visible) force at work. As historian William McNeill has suggested, the main weapon that overwhelmed indigenous peoples in the Americas was the Europeans' breath.

The following essays explore the role played by disease in the depopulation of Native Americans in the Western Hemisphere. Colin G. Calloway makes clear that Indian doctors possessed a sophisticated knowledge of the healing power of plants that they shared with Europeans, but these curatives were insufficient in providing protection against the variety of new diseases introduced into the Americas by European explorers and settlers. The "Columbian exchange" included epidemics that decimated indigenous tribes.

Physician David S. Jones recognizes the consequences of the introduction of European diseases among Native Americans, but he contends that there were other factors at work that explain the drastic loss of life among American Indians. For example, poverty, malnutrition, environmental stress, dislocation, and social disparity exacerbated the conditions within which infectious diseases could spread in such dramatic proportions.

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Healing and Disease

North American Indians did not in invasion. The great epidemic diseases and smallpox, diphtheria, influenza, typhus, dysentery; Indian peoples faced other, less dire, evidence of malnutrition at levels of fetal and neonatal deaths, dental problems, respiratory, pulmonary tuberculosis, and syphilis. To deal with these threats, they turned to the healing properties of native medicine. They combined knowledge with curative rituals and ceremonies.

Traditional Native American practices were necessarily in conflict with the introduction of European medicine and practices. Contrary to the popular modern view, plant life in the Americas was not the source of the "n" 1993. So too in early America, European explorers and colonists possessed properties, knowledge that modern societies have yet to be fully appreciated.

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YES  Colin G. Calloway

New Worlds for All: Indians,
Europeans, and the Remaking
of Early America

Healing and Disease

North American Indians did not inhabit a disease-free paradise prior to European
invasion. The great epidemic diseases and crowd infections that ravaged Europe
and Asia—smallpox, diphtheria, measles, bubonic and pneumonic plague, cholera,
influenza, typhus, dysentery, yellow fever—were unknown in America.
Indian peoples faced other, less devastating, problems. Bioarchaeological studies
reveal evidence of malnutrition and anemia resulting from dietary stress, high
levels of fetal and neonatal death and infant mortality, parasitic intestinal infec-
tions, dental problems, respiratory infections, spina bifida, osteomyelitis, non-
pulmonary tuberculosis, and syphilis. Indian people also suffered their share of
aches and pains, breaks and bruises, digestive upsets, arthritis, wounds, and
snakebites. To deal with these things, Indian doctors employed a rich knowl-
edge of the healing properties of plants and what today we would call therapeu-
tic medicine. They combined knowledge of anatomy and medicinal botany
with curative rituals and ceremonies.

Traditional Native American and contemporary Western ways of healing
are not necessarily in conflict, and are often complementary, as evidenced
when Navajo medicine men and Navajo oral traditions helped investigators
from the Indian Health Service and the Centers for Disease Control identify
deer mice as the source of the “mystery illness” that struck the Southwest in
1993. So too in early America, European and Indian cures could work together.
Contrary to the popular modern stereotype that all Indians were and are
attuned to plant life, all Europeans totally out of touch with nature, many
early explorers and colonists possessed an extensive knowledge of plants and their
properties, knowledge that modern urban Americans have lost. Europeans in
the seventeenth century generally believed that for every sickness there were
natural plant remedies, if one only knew where to find them. Indian healers,
many of them women, knew where to find them, and Europeans were receptive
to the cures they could provide. . . .

Unfortunately, traditional Indian cures offered little protection against the new diseases that swept the land after Europeans arrived in North America. Separated from the Old World for thousands of years, the peoples of America escaped great epidemics like the Black Death, which killed perhaps a third of the population in fourteenth-century Europe. But they were living on borrowed time. Lack of exposure to bubonic plague, smallpox, and measles allowed Indian peoples no opportunity to build up immunological resistance to such diseases. From the moment Europeans set foot in America, hundreds of thousands of Indian people were doomed to die in one of the greatest biological catastrophes in human history.

Imported diseases accompanied Spanish conquistadors into Central and South America at the beginning of the sixteenth century, wreaking havoc among the great civilizations of Mexico, Peru, and Yucatán, and facilitating their conquest by the invaders. It was not long before the unseen killers were at work among the Indian populations of North America.

Established and well-traveled trade routes helped spread disease. Indians who came into contact with Europeans and their germs often contaminated peoples farther inland who had not yet seen a European; they in turn passed the disease on to more distant neighbors. It is likely that most Indian people who were struck down by European diseases like smallpox died without ever laying eyes on a European. In tracing the course of imported plagues among Indian populations in colonial America, many scholars describe them not as epidemics but as pandemics, meaning that the same disease occurred virtually everywhere.

As many as 350,000 people lived in Florida when the Spaniards first arrived, but the populations of the Calusa, Timucua, and other tribes plummeted after contact. Calusas who canoed to Cuba to trade may have brought smallpox back to the Florida mainland as early as the 1520s. When Hernando de Soto invaded the Southeast in 1539, the Spaniards found that disease had preceded them. In the Carolina upcountry, they found large towns abandoned and overgrown with grass where, said the Indians, “there had been a pest in the land two years before.” In 1585, Sir Francis Drake’s English crew, returning from plundering Spanish ships in the Cape Verde Islands, brought a disease that was probably typhus to the Caribbean and Florida. Indians around St. Augustine died in great numbers, “and said amongst themselves, it was the Inglishe God that made them die so faste.” The population collapse continued in the seventeenth century. Governor Diego de Rebolledo reported in 1657 that the Guale and Timucua Indians were few “because they have been wiped out with the sickness of the plague and smallpox which have overtaken them in past years.” Two years later the new governor of Florida said 10,000 Indians had died in a measles epidemic. According to one scholar, the Timucua numbered as many as 150,000 people before contact; by the end of the seventeenth century, their population had been cut by 98 percent. The Apalachee Indians of northern Florida numbered 25,000-30,000 in the early seventeenth century; by the end of the century, less than 8,000 survived. Two and a half centuries after contact, few Indian people were gone.

The pattern repeated itself colony at Roanoke Island in Virginia to fall ill and die. “The disease that we knew as smallpox,” they told the Pueblo Indians who were living there in the 18th century, “had spread through the land as far south as Boston.” When they first encountered it, most Puebloans were killed. When they recovered, they were mostly immune. Even after many years, when they returned to the area, they found that the land was still deserted. In 1698, Frenchmen found Quapaw villages after a recent attack animalistic and a half centuries after conta Indian people were gone.

The pattern repeated itself in New Mexico. Indians of New Mexico, who had lived in the region for thousands of years, were suddenly struck down by smallpox, which had spread from Mexico to the south. The disease killed many of the Puebloans who had been living in the region for centuries. In 1599, the Spanish conquistadors traveled through the area and found that the Puebloans had been killed or driven away by the disease. They built a fort and established a outpost to protect themselves from future attacks.

Indian peoples in eastern North America were also affected by these epidemics. In the early 17th century, the Iroquois Confederacy was established to protect the region from the British and French. However, the smallpox epidemic of 1763-1765 had a devastating effect on the Iroquois, killing thousands of warriors and leaders. The Iroquois were forced to retreat to their reservations in the 18th century, where they remained isolated from European diseases. The Iroquois were able to survive the smallpox epidemic and continue their culture.

Deadly pestilence swept through the Americas, killing millions of people. As reports of the plague spread, the Spanish, French, and British colonists were forced to abandon their settlements in the face of the epidemic. The smallpox epidemic of 1647-1652 killed over 90% of the population in the Caribbean, and over 50% of the population in New England. The smallpox epidemic of 1719-1721 killed over 20% of the population in the Americas. The smallpox epidemic of 1876-1878 killed over 40% of the population in the Americas. The smallpox epidemic of 1918-1919 killed over 20% of the population in the Americas. The smallpox epidemic of 1930-1931 killed over 50% of the population in the Americas. The smallpox epidemic of 1942-1943 killed over 70% of the population in the Americas. The smallpox epidemic of 1950-1951 killed over 80% of the population in the Americas. The smallpox epidemic of 1957-1958 killed over 90% of the population in the Americas. The smallpox epidemic of 1961-1962 killed over 95% of the population in the Americas. The smallpox epidemic of 1965-1966 killed over 99% of the population in the Americas. The smallpox epidemic of 1968-1969 killed over 99% of the population in the Americas. The smallpox epidemic of 1971-1972 killed over 100% of the population in the Americas.
and a half centuries after contact with the Spaniards, all of Florida’s original Indian people were gone.

The pattern repeated itself elsewhere. In 1585, the English established a colony at Roanoke Island in Virginia. Almost immediately, local Indians began to fall ill and die. “The disease was so strange to them,” wrote Thomas Hariot, “that they neither knew what it was, nor how to cure it.” Across the continent, Pueblo Indians in New Mexico may have suffered from a huge smallpox epidemic that spread as far south as Chile and across much of North America in 1519-24. When they first encountered Europeans in 1539, the Pueblos numbered at least 130,000 and inhabited between 110 and 150 pueblos. By 1706, New Mexico’s Pueblo population had dropped to 6,440 people in 18 pueblos. When de Soto’s Spaniards passed through the area now known as Arkansas in 1541-43, the region was densely populated. Thousands of people lived in large towns, cultivating extensive cornfields along rich river valleys. One hundred thirty years later, these thriving communities were gone, victims of disease and possibly drought. When French explorers arrived in the mid-seventeenth century, they found Caddo, Osages, and Quapaws living on the peripheries of the region, but central Arkansas was empty. Epidemic diseases continued their devastation. In 1698, Frenchmen found less than one hundred men in the Quapaw villages after a recent smallpox epidemic killed most of the people. “In the village are nothing but graves,” the French chronicler reported.

Indian peoples in eastern Canada who had been in contact with French fur traders and fishermen since early in the sixteenth century experienced the deadly repercussions of such commerce. Jesuit Father Pierre Biard, working among the Micmacs and Maliseets of Nova Scotia in 1616, heard the Indians “complain that since the French mingle and carry on trade with them they are dying fast, and the population is thinning out. For they assert that before this association and intercourse all their countries were very populous and they tell how one by one different coasts, according as they traffic with us, have been reduced more by disease.”

Deadly pestilence swept the coast of New England in 1616-17. Indians “died in heapes,” and the Massachusetts Indians around Plymouth Bay were virtually exterminated. As reported by Governor William Bradford, the Pilgrims found cleared fields and good soil, but few people, the Indians “being dead & abundantly wasted in the late great mortality which fell in all these parts about three years over before the coming of the English, wherein thousands of them dyed, they not being able to bury one another; their sculls and bones were found in many places lying still above ground, where their houses & dwellings had been; a very sad spectacle to behold.”

Smallpox was a fact of life—or death—for most of human history. An airborne disease, normally communicated by droplets or dust particles, it enters through the respiratory tract. People can become infected simply by breathing. Not surprisingly, it spread like wildfire through Indian populations. However, because early chroniclers sometimes confused smallpox with other diseases and because the contagions came so quickly, it is difficult to discern which disease was doing the killing at any particular time. By the seventeenth century, smallpox in Europe was a childhood disease: most adults,
having been infected as children, had acquired lifelong immunity and were not contagious. The long transatlantic crossings further reduced the chances that European crews could transmit the disease to America. Not until children crossed the Atlantic did smallpox, and the other lethal childhood diseases that plagued Europe, take hold on Native American populations. The Spanish brought children to the Caribbean early, but not until the beginning of the seventeenth century did Dutch and English colonists bring their families to New York and New England. The arrival of sick European children sentenced thousands of Indian people to death.

Smallpox struck New England in 1633, devastating Indian communities on the Merrimack and Connecticut Rivers. Bradford reported how “it pleased God to visit these Indians with a great sickness, and such a mortality that of a 1000 above 900, and a halfe of them dyed, and many of them did rott above ground for want of burial.” The epidemic reduced the Pequots in southern Connecticut from perhaps as many as thirteen thousand people to only three thousand, setting the stage for their defeat by the English in 1637, and it may have reduced the Mohawks in eastern New York from almost eight thousand to less than three thousand. Such mortality rates were not unusual when virulent new diseases cut through previously unexposed populations. Indians from the Hudson River told Adriaen Van der Donck in 1656 “that before the smallpox broke out amongst them, they were ten times as numerous as they are now.” John Lawson estimated that in 1701 there was “not the sixth Savage living within two hundred Miles of all our Settlements, as there were fifty Years ago.” A recent smallpox epidemic in the Carolina upcountry had “destroy’d whole towns.”

At the beginning of the seventeenth century, the Huron Indians numbered as many as 30,000-40,000 people, living in perhaps twenty-eight villages on the northern shores of the Great Lakes in southern Ontario. The French identified them as crucial to their plans for North American empire. The Hurons were the key to extensive trade networks reaching far beyond the Great Lakes, and their villages could also serve as jumping-off points for Jesuit missionary enterprises among more distant tribes. French traders and missionaries arrived in Huronia, and it was not long before the new diseases were reaping a grim harvest among the Hurons. Their longhouses were transformed into death traps. The smallpox epidemic that ravaged New England in 1633 reached Huronia in 1634. Smallpox or measles was thinning Huron numbers in 1635-36. A Huron elder, blaming the epidemic on the Jesuits, said, “The plague has entered every lodge in the village, and has so reduced my family that today there are but two of us left, and who can say whether we two will survive.” Influenza struck in 1636-37. Smallpox returned in 1639. Huron population was scythed in half between 1634 and 1640. In 1648-49, famine and the attacks of the Iroquois completed the deadly work the diseases had begun. The Hurons scattered, most of the survivors being absorbed by other tribes.

Smallpox continued throughout the eighteenth century. It killed half the Cherokees in 1738 and returned in 1760; the Catawbas of South Carolina lost half their number to the epidemic of 1759. In 1763, the British doled out blankets from the smallpox hospital at Fort Pitt to visiting Indians; smallpox erupted among the tribes of the smallpox were reported among 1733, 1738, 1747, and 1749; in the California, where Indian neophytes made easy targets for new crowns.

The massive smallpox epidemic between 1779 and 1783 illustrates how its tentacles spread out, broken out in Mexico, and it affected Spanish settlers there picked up by Indians who visited quickly transmitted north and east, slaughtering as it went. Many as 90 percent of the Chipewyas were killing Cree Indians around.

Abundant sources of fish populations on the Northwest explorers brought smallpox in explorer George Vancouver sailed with people with pox marks faces along the beach, a grim reminder of the widespread smallpox in the region. Smallpox was probably the cause of the 1701 epidemic that caused the Indian population of the region to decline.

Recurrent epidemics allowed for the survival of hunger and famine, which rendered them more susceptible to disease. The Indian populations of the Great Lakes region continued to decline to the eastern coast. The western door of the colony remained stable, but this was largely due to grants from neighboring communities.
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1759. In 1763, the British doled out
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erupted among the tribes of the Ohio Valley soon thereafter. Outbreaks of
smallpox were reported among Indian populations in New Mexico in 1719,
1733, 1738, 1747, and 1749; in Texas recurrently between 1674 and 1802; and in
California, where Indian neophytes congregated in Spanish mission villages
made easy targets for new crowd-killing diseases.

The massive smallpox epidemic that ravaged western North America
between 1779 and 1783 illustrates the speed with which the disease could
spread its tentacles throughout Indian country. The epidemic seems to have
broken out in Mexico, and it afflicted Indian peoples in Peru and Guatemala.
Spreading north to Spanish settlements like San Antonio and Santa Fe, it was
picked up by Indians who visited the area to trade for horses. It was then
quickly transmitted north and west, through the Rockies and across the
plains, slaughtering as it went. It spread into the Canadian forests, killed as
many as 90 percent of the Chipewyans in the central subarctic, and by 1783
was killing Cree Indians around Hudson Bay.

Abundant sources of fish and other marine resources supported dense
populations on the Northwest Coast before European maritime traders and
explorers brought smallpox in the late eighteenth century. When English
explorer George Vancouver sailed into Puget Sound in 1793, he met Indian
people with poxmarked faces and found human skulls and bones scattered
along the beach, a grim reminder of the ravages of an earlier epidemic. These
northwestern populations declined dramatically over the next century.

Smallpox was probably the number-one killer of Indian people, but it
was by no means the only fatal disease. Epidemics of measles, influenza,
bubonic plague, diphtheria, typhus, scarlet fever, yellow fever, and other un-
identified diseases also took their toll. Alcoholism added to the list of killer
diseases imported from Europe. “A person who resides among them may eas-
ily observe the frightful decrease of their numbers from one period of ten
years to another,” said John Heckewelder, lamenting the impact of alcohol.
“Our vices have destroyed them more than our swords.”

Recurring epidemics allowed Indian populations no opportunity to bounce
back from earlier losses. They cut down economic productivity, generating
hunger and famine, which rendered those who survived one disease more vul-
nerable to affliction by the next. New diseases combined with falling birth
rates, escalating warfare, alcoholism, and general social upheaval to turn
Indian America into a graveyard. Decreased fecundity hindered population
recovery. Nantucket, off the coast of Massachusetts, was once described as “an
island full of Indians” and is estimated to have had a population of about
3,000 in the mid-seventeenth century. By 1763, there were 348 people. An epide-
mic of yellow fever that year left only twenty survivors. Some 3,000 Indians
inhabited Martha’s Vineyard in 1642; 313 survived in 1764. Mohawk popula-
tion continued to decline to little more than 600 by the time of the Revolu-
tion. At the western door of the Iroquois confederacy, Seneca population
remained stable, but this was largely because they adopted captives and immi-
grants from other communities ravaged by war and disease. The Illinois
Indians of the Great Lakes region numbered more than ten thousand people
in 1670; by 1800, no more than five hundred survived. On the banks of the
Missouri in present-day Nebraska, the Omaha Indians numbered more than three thousand in the late 1700s; cholera and smallpox cut their population to less than three hundred by 1802. In years when Indian peoples needed all their resources to deal with Europeans and to cope with a world that was changing around them, their numbers were being steadily eroded by disease.

Survivors, many of them disfigured by pockmarks, faced the future bereft of loved ones and without the wisdom of elders to guide them. Societies woven together by ties of kinship and clan were torn apart. After disease struck Martha’s Vineyard in 1645-46, one survivor lamented that all the elders who had taught and guided the people were dead, “and their wisdom is buried with them.” In 1710, Indians near Charleston, South Carolina, told a settler they had forgotten most of their traditions because “their Old Men are dead.” In some cases, power struggles followed the deaths of traditional leaders. Old certainties no longer applied, and long-established patterns of behavior must sometimes have seemed irrelevant. The impact of such losses on Indian minds and souls is incalculable.

Traditional healing practices proved powerless against the onslaught. Fasting, taking a sweat bath, and plunging into an icy river—a common Indian remedy for many ailments—aggravated rather than alleviated the effects of smallpox. Just as some Europeans looked to Indian skills and practices to deal with snakebites and ailments native to North America, so some Indian people looked to Europeans to provide relief from European sicknesses. Some believed that European witchcraft caused the new diseases; so it made sense to combat them with European power and medicine. Others, with their loved ones dying around them, were willing to try anything. Many Hurons accepted baptism from Jesuit priests, regarding it as a curative ritual and hoping it could save their children.

Despite instances of genocide and germ warfare against Indian populations, Europeans frequently provided what help and comfort they could. Dead Indians were of no value to European missionaries seeking converts, European merchants seeking customers, or European ministers seeking allies. Hearing that Massasoit “their friend was sick and near unto death,” Governor William Bradford and the Plymouth colonists “sente him such comfortable things as gave him great contente, and was a means of his recovery.” French nuns ministered to sick Indians in seventeenth-century Quebec. Most Spanish missions in eighteenth-century California had dispensaries, medical supplies, and medical books, and some padres displayed genuine concern for the health of their mission populations. The state of medical knowledge was still rudimentary in the eighteenth century, but Europeans, motivated by self-interest as much as humanitarian concern, shared with Indians what medical advances there were. British Indian superintendent Sir William Johnson had the Mohawks inoculated against smallpox, and some Indians were vaccinated after Edward Jenner developed the cowpox vaccine in 1796. Many Indian people overcame their suspicion of the white man’s medicine to accept the protection it could offer against the white man’s diseases.

Nevertheless, the protection was too little and too late to stop demographic disaster. Not all Indian populations suffered 75 percent or 90 percent mortality rates—indeed, in some areas the rise in the eighteenth century in Indian inhabitants. Europeans: more epidemics made inaccurate on the basis of head counts of gained a distorted impression of that had once existed—and that the continent was empty, that was a reason more populous. The new world Europeans in North America, wa

Historians working to revis America as a story of progress an cataclysm that followed European European societies and shattered its and famine with appalling eighteenth centuries. Recurrent London in the seventeenth centuries of the population. In 1665, 11 Plague, which did not end until the following year. European im Old World diseases, and they spread among Spanish expeditions. Jamestown, Virginia, suffered 1740, Ephraim and Elizabeth H helplessly as all five of their young that ravaged New England. Boston seventeenth and eighteenth centuries, Tropics, killed one out of every ten the United States, in 1793. But with conditions, improved diet, and g enjoyed a healthier life and longer their contemporaries in Europe.

Though scholars disagree, what is today the United States between 5 million and 10 million around 600,000. By contrast, the in America doubled every ten years. The first U.S. census in 1790 counted 3.5 By 1800, North America had just blacks. As James Axtell points out, even United States were being en; demographic complexion of the peans, Indians, and Africans was three centuries before.

Nevertheless, the American European healing practices. In
naha Indians numbered more than nd smallpox cut their population to rs when Indian peoples needed all and to cope with a world that was re being steadily eroded by disease. y pockmarks, faced the future bereft of elders to guide them. Societies clan were torn apart. After disease survivor lamented that all the elders are dead, “and their wisdome is bur- rnest, South Carolina, told a set- litations because “their Old Men are wed the deaths of traditional leaders. ng-established patterns of behavior. The impact of such losses on Indian d powerless against the onslaught. into an icy river—a common Indian other than alleviated the effects of s Indian skills and practices to deal hth America, so some Indian people European sicknesses. Some believed dses; so it made sense to combat Others, with their loved ones dying of Many Hurons accepted baptism dive ritual and hoping it could save er warfare against Indian popula- t help and comfort they could. Dead ionaries seeking converts, European in ministers seeking allies. Hearing ear unto death,” Governor William ate him such comfortable things as of his recovery.” French nuns min- iury Quebec. Most Spanish missions saries, medical supplies, and med- uine concern for the health of their knowledge was still rudimentary in ativated by self-interest as much as alns what medical advances there William Johnson had the Mohawks dians were vaccinated after Edward .96. Many Indian people overcame ene to accept the protection it could o little and too late to stop demo- is suffered 75 percent or 90 percent mortality rates—indeed, in some areas of the country Indian populations were on the rise in the eighteenth century—but the result was a world newly emptied of Indian inhabitants. Europeans arriving in Indian country in the wake of one or more epidemics made inaccurate estimates of precontact Indian population size on the basis of head counts of survivors. Seeing remnant populations, they gained a distorted impression of the size and sophistication of the societies that had once existed—and that distorted impression entered the history books. America, many believed, was an “empty wilderness,” a “virgin land.” If the country was empty, that was a recent development; it was depopulated rather than unpopulated. The new world of opportunity, which “free lands” opened for Europeans in North America, was in itself a by-product of European invasion.

Historians working to revise the old view of the European settlement of America as a story of progress and triumph have rightly stressed the biological cataclysm that followed European “discovery.” But epidemic diseases also plagued European societies and shattered European families. France suffered epidemics and famine with appalling regularity throughout the seventeenth and eighteenth centuries. Recurrent outbreaks of plague devastated overcrowded London in the seventeenth century, sometimes, as in 1665, killing 25 percent of the population. In 1665, London experienced the horror of the Great Plague, which did not end until the Fire of London destroyed much of the city the following year. European immigrants to America did not entirely escape Old World diseases, and they succumbed to some new ones. Malaria wreaked havoc among Spanish expeditions in the sixteenth century. Early settlers at Jamestown, Virginia, suffered high death rates in unfamiliar environments. In 1740, Ephraim and Elizabeth Hartwell of Concord, Massachusetts, watched helplessly as all five of their young children died of the “throat distemper” that ravaged New England. Boston suffered recurrent outbreaks of smallpox in the seventeenth and eighteenth centuries. Yellow fever, imported from the Tropics, killed one out of every ten people in Philadelphia, then the capital of the United States, in 1793. But with less crowded communities, more sanitary conditions, improved diet, and greater economic opportunities, most colonists enjoyed a healthier life and longer life expectancy in their new world than did their contemporaries in Europe.

Though scholars disagree widely in their estimates, it is likely that in what is today the United States, Indian population stood at somewhere between 5 million and 10 million in 1492. By 1800, the figure had fallen to around 600,000. By contrast, the European population of the English colonies in America doubled every twenty-five years in the late eighteenth century. The first U.S. census in 1790 counted a total population of 3.9 million people. By 1800, North America had just under 5 million whites and about 1 million blacks. As James Axtell points out, the Indian peoples who survived in the eastern United States were being engulfed in a sea of white and black faces. The demographic complexion of the new world created by the interaction of Europeans, Indians, and Africans was very different in 1800 from what it had been three centuries before.

Nevertheless, the American population of 1800 combined Indian and European healing practices. Indians and Europeans alike employed “folk
remedies” as well as doctors to cure diseases and injuries. The British lagged behind the Spaniards in establishing hospitals in the New World: Cortez built the first hospital in Mexico City for Indian and Spanish poor in 1521, and by the end of the seventeenth century, there were more than one hundred fifty hospitals in New Spain. In contrast, the first general hospital to care for the sick poor in the British colonies was established in Philadelphia in 1752; Massachusetts General Hospital, not until 1811. The first medical school was established at the University of Pennsylvania in 1765; Harvard Medical School, not until 1783. For most of the eighteenth century, American physicians who wanted a medical education had to go to Europe. With few trained physicians and few medical facilities available, people in rural and small-town communities turned in times of sickness to family, neighbors, clergymen, skilled women, and local healers. In many areas of the country, itinerant Indian physicians remained common well into the twentieth century, providing health care for America’s poor, whether Indian, white, or black. Many Indian people preserved their belief in the efficacy of traditional medicine—both herbal and spiritual—even as they benefited from European medicine as practiced by white doctors. False Face societies and curing rituals continued among the Iroquois long after many Iroquois had embraced Christianity. Medicine was power, and Indian people needed to draw on all the power available to them as they struggled to survive in the disease-ridden land that was their new world.

David S. Jones

Virgin

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From William & Mary Quarterly, vol. LX, 2003 by Omohundro Institute of Early References omitted.
or in the Depopulation . . . ?

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David S. Jones

Virgin Soils Revisited

The decimation of American Indian populations that followed European arrival in the Americas was one of the most shocking demographic events of the last millennium. Indian populations declined by as much as 95 percent in the first century after the arrival of Christopher Columbus, prompting one historian to conclude that “early America was a catastrophe—a horror story, not an epic.” This collapse established the foundation for the subsequent social and political developments of American history. Since the earliest encounters of colonization, colonists and their descendants have struggled to explain how and why depopulation occurred. They have debated the role of race, politics, and even genocide. All have concluded that infectious diseases, introduced by Europeans and Africans, played a decisive role. American Indians suffered terrible mortality from smallpox, measles, tuberculosis, and many other diseases. Their susceptibility led to American Indian decline even as European populations thrived.

Discussions of the epidemiological vulnerability of American Indians rose to prominence with the work of William McNeill and Alfred W. Crosby in the 1970s. Both argued that the depopulation of the Americas was the inevitable result of contact between disease-experienced Old World populations and the “virgin” populations of the Americas. As Crosby defined them in 1976, “Virgin soil epidemics are those in which the populations at risk have had no previous contact with the diseases that strike them and are therefore immunologically almost defenseless.” His theory provided a powerful explanation for the outcomes of encounter between Europeans and indigenous groups, not just in the Americas but throughout the world. Since Crosby’s analysis of virgin soil epidemics appeared in the *William and Mary Quarterly*, countless writers have cited his definition and attributed the devastation of American Indian populations to their immunologic inadequacy. As argued in Jared Diamond’s Pulitzer Prize-winning *Guns, Germs, and Steel*, “The main killers were Old World germs to which Indians had never been exposed, and against which they therefore had neither immune nor genetic resistance.” Such assertions, which apply the intuitive appeal of natural selection to the demographic history of the Americas, dominate academic and popular discussions of depopulation.

Even as Crosby’s model of virgin soil epidemics remains a central theme of the historiography of the Americas, it has been misunderstood and misrepresented. Crosby actually downplayed the “genetic weakness hypothesis” and instead emphasized the many environmental factors that might have contributed to American Indian susceptibility to Old World diseases, including lack of childhood exposure, malnutrition, and the social chaos generated by European colonization. Subsequent historians, however, have often reduced the complexity of Crosby’s model to vague claims that American Indians had “no immunity” to the new epidemics. These claims obscure crucial distinctions between different mechanisms that might have left American Indians vulnerable. Did American Indians lack specific genes that made Europeans and Africans, after generations of natural selection, more resistant to smallpox and tuberculosis? Did they lack antibodies that their Eurasian counterparts acquired during childhood exposure to endemic infections? Were their immune systems compromised by the malnutrition, exhaustion, and stress created by European colonization? These different explanations, blurred within simple claims of no immunity, have very different implications for our understanding of what was responsible for this demographic catastrophe.

It is now possible to revisit the theory of virgin soil epidemics and reassess the many possible causes of American Indian susceptibility to European pathogens. The confusion can be untangled by surveying and resynthesizing diverse research about Indian depopulation. A review of the literature of colonization shows the prevalence of simplistic assertions of no immunity and their possible ideological appeals. It also demonstrates the importance of defining the specific claims contained within the theory of virgin soil epidemics and evaluating each of them separately. Recent immunological research has clarified the different mechanisms that can compromise human immunity. Parallel work by biological anthropologists, archaeologists, and historians has elucidated the details of the mortality of specific Indian populations. Taken together, this work suggests that although Indians’ lack of prior exposure might have left them vulnerable to European pathogens, the specific contribution of such genetic or developmental factors is probably unknowable. In contrast, the analyses clearly show that the rates of individual populations depended on contingent factors of their physical, economic, social, and political environments. It could well be that the epidemics among American Indians, despite their unusual severity, were caused by the same forces of poverty, social stress, and environmental vulnerability that cause epidemics in all other times and places. These new understandings of the mechanisms of depopulation require historians to be extremely careful in their writing about American Indian epidemics. If they attribute depopulation to irresistible genetic and microbial forces, they risk being interpreted as supporting racial theories of historical development. Instead, they must acknowledge the ways in which multiple factors, especially social forces and human agency, shaped the epidemics of encounter and colonization.

Taken as a whole, recent immunological research offers many clues about the state of Indian immunity. American Indians could certainly mount immune responses to European pathogens. Perhaps their “naïveté” left them without protective genes, making their homogeneity left them vulnerable about these questions continue possible that definitive evidence will emerge. The historic European and American population scientists could study them adec on first contact populations revealing immunity will forever remain unclear and immunity promising, but understand vulnerability must there immunological mechanisms represent immunity likely left Arctic pathogens, but certainly not too recent seem to have been relevant for these societies.

Furthermore, the mechanisms of simultaneous and cumulative importance of the disease environment shaping a population’s susceptibility, defined broadly, also in terms of physical, social, economic patterns of vulnerability, they assert racial arguments of disease they saw that a wide range of specific disease. After studying an outbreak of Fiji in 1875, W. Squire, the variability of race or peculiarity of disease blamed social conditions, especially in 1909, anthropologist Aleš Hrdlička claimed Indians: “Doubtless much of the complexity is a result of other conditions disease amongst indigenous populations.”

Malnutrition provides the answer of the links between social conditions. In addition to causing deficiency diseases, it increases susceptibility to skin breakdown, eroding the first line of defenses impairs both cellular immunity and childhood has immune function. Certain disease Malnutrition, especially vitamin deficiencies. Malnourished children are susceptible to diseases like measles. Malnourished children are at risk of diseases that require calories and protein, and
Factor in the Depopulation...?

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ens. Perhaps their “naïveté” left them
without protective genes, making them incrementally susceptible. Perhaps
their homogeneity left them vulnerable to adaptable pathogens. Research
about these questions continues on the cutting edge of immunology. It is
possible that definitive evidence of demographically significant resistance
genes will emerge. The historical experiment, however, has run its course.
European and American populations mixed for over five hundred years before
scientists could study them adequately. The opportunity for further research
on first contact populations remains remote. As a result, the state of virgin
immunity will forever remain contested. This leaves the literature on genetics
and immunity promising, but unsatisfying. Genetic arguments of population-
wide vulnerability must therefore be made with great caution. Other
immunological mechanisms remain plausible, but problematic. Initial lack of
adaptive immunity likely left American Indian societies vulnerable to certain
pathogens, but certainly not to all of them, and adaptive immunity does not
seem to have been relevant for the dominant causes of mortality in developing
societies.

Furthermore, the mechanisms of adaptive immunity, along with the
impact of simultaneous and successive synergistic infections, emphasize the
importance of the disease environment, and not only the population itself, in
shaping a population’s susceptibility to infection. Other features of the envi-
ronment, defined broadly, also have profound effects on immunity. A popula-
tion’s physical, social, economic, and political environments all interact to
create patterns of vulnerability, regardless of its genetic substrate.

Such vulnerabilities have long been recognized. Even as observers began
asserting racial arguments of disease susceptibility in the nineteenth century,
they saw that a wide range of social factors created susceptibility to epidemic
disease. After studying an outbreak of measles among the indigenous popu-
lations of Fiji in 1875, W. Squire concluded, “We need invoke no special suscep-
tibility of race or peculiarity of constitution to explain the great mortality.”
He blamed social conditions, especially “want of nourishment and care.” In
1909, anthropologist Aleš Hrdlička reached a similar conclusion about Ameri-
can Indians: “Doubtless much of what now appears to be greater racial suscep-
tibility is a result of other conditions.” Sherburne Cook came to believe that
disease amongst indigenous populations worldwide “acted essentially as the
outlet through which many other factors found expression.”

Malnutrition provides the most obvious, and prevalent, demonstration of
the links between social conditions, environmental conditions, and disease.
In addition to causing deficiency diseases, such as rickets and pellagra, malnutri-
tion increases susceptibility to infection. Some vitamin deficiencies cause
skin breakdown, eroding the first barrier of defense against infection. Protein
deficiencies impair both cellular and humoral responses. Malnutrition during
infancy and childhood has particularly devastating effects on subsequent
immune function. Certain diseases have more specific connections to nutrition.
Malnutrition, especially vitamin A deficiency, increases mortality from
measles. Malnourished children are more likely to die from chickenpox. Such
interactions create “a vicious circle. Each episode of infection increases the
need for calories and protein and at the same time causes anorexia; both of
these aggravate the nutritional deficiency, making the patient even more susceptible to infection." Understanding these relationships, scientists have realized that malnutrition "is the most common cause of secondary immunodeficiency in the world."

Historians have thoroughly documented the impact of malnutrition on disease susceptibility. Such connections have clear importance for American Indians, who faced both disease and social disorder following European colonization. As Cronon describes, villages disrupted by disease and social breakdown "often missed key phases in their annual subsistence cycles—the corn planting, say, or the fall hunt and so were weakened when the next infection arrived." This would have been particularly damaging for the many populations that eked out only a precarious subsistence before European arrival. Although some writers have described American Indians living in bountiful harmony with their environment, archaeologists and physical anthropologists have shown that many groups were terribly malnourished. The accomplishments of the Mayan civilization might have been undone by climate change, crop failures, and famine. Disease, malnutrition, and violence made Mesoamerican cities as unhealthful as their medieval European counterparts, with life expectancies of 21 to 26 years. The Arikaras had life expectancies as low as 13.2 years. Careful study of skeletal remains has found widespread evidence of nutritional deficiencies, with health conditions worsening in the years before contact with Europeans. Baseline malnutrition, especially in the large agricultural societies in Mexico and the Andes, left American Indians vulnerable—at the outset—to European diseases. When the conditions of colonization disrupted subsistence, the situation only grew worse.

Malnutrition may be the most obvious factor, but it was only one of many. Environmental historians have shown how physical environments can leave populations susceptible to disease. Lowland Ecuadorians, weakened by endemic parasites and intestinal diseases, were more vulnerable to European infections than their highland compatriots. After Spanish arrival in Mexico, a "plague of sheep" destroyed Mexican agricultural lands and left Mexicans susceptible to famine and disease. Colonization introduced a host of damaging changes in New England. Deforestation led to wider temperature swings and more severe flooding. Livestock overran Indian crops and required pastures and fences, leading to frequent conflict and widespread seizure of Indian land. Europeans also introduced pests, including blights, insects, and rats. All of these changes fueled rapid soil erosion and undermined the subsistence of surviving Indian populations. More dramatic environmental events also wreaked havoc. Drought, earthquakes, and volcanic eruptions undermined resistance to disease in Ecuador in the 1690s. A devastating hurricane struck Fiji in 1875, exacerbating the measles outbreak there. As one observer commented, "Certainly for the last 16 years there has been experienced no such weather, and nothing could be more fatal to a diseased Fijian than exposure to it."

Historians and anthropologists have also documented many cases in which the varied outcomes of specific populations depended on specific social environments. The Lamanai Mayas, heavily colonized by the Spanish regime, had higher mortality than the more isolated Tipu Mayas. While much of Peru suffered severely, the region of Huanca between 1532 and 1570, the result of remote high-altitude areas to dis Pueblos suffered when "the endem superimposed upon the economic food and labor." Severe outbreaks 1800 to 1805 reflected a combination failures, and economic collapse. reflected specific historical events. breaks of smallpox from West Afric the slave trade, to Brazil. Measles r 1875 as a series of conferences carry along with the virus, from the n throughout the island. Local variab conclude that "levels of decline an the size, distribution, and character patterns, social organization, and le century, specific social factors I able to European pathogens. Mag contact epidemics in South America "sedentism, poverty, and poor access. Studies of North American trib have found similar local variabl single epidemic among the norther for contiguous Native groups," dep sion rates, immunity, subsistence tion." Drought and famine left epidemic in 1780. The Mandans su ine since the previous winter had weather confined them to their cr had both high levels of exposure a concludes, "It is no wonder the de: Once North American tribes came in the United States and Canada, poor sanitation. Mary-Ellen Kelm, British Columbia, concludes that i

Comperative studies have pi specificity of depopulation. Stepl fered more severely than Saoaans seizure by colonizing Europeans. Hopi because their pastoral lifest imposed by American settlers. In encountered similar colonizers, colonial contact that occurred wa demonstrate that "diseases rarely shaped by the different contexts i
necy, making the patient even more fragile these relationships, scientists have identified the impact of malnutrition on health. Clear importance for American Indian disorder following European colonizers disrupted by disease and social breaks in annual subsistence cycles—the corn was weakened when the next infection rapidly damaging for the many populations before European arrival. American Indians living in bountiful ecosphere and physical anthropologists ribly malnourished. The accomplishment had been undone by climate change, malnutrition, and violence made their medieval European counterparts.

The Arikaras had life expectations as Gets to skeletal remains has found widespread health conditions worsening in the subsistence malnutrition, especially in the Andes, left American Indians diseased. When the conditions of colo,"nion only grew worse.

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Once North American tribes came under the care of the federal governments in the United States and Canada, they often suffered from malnutrition and poor sanitation. Mary-Allen Kelm, who has studied the fates of the Indians of British Columbia, concludes that "poor Aboriginal health was not inevitable"; instead, it was the product of specific government policies.

Comparative studies have particular power for demonstrating the local specificity of depopulation. Stephen Kunitz has shown that Hawaiians suffered more severely than Samoans, a consequence of different patterns of land seizure by colonizing Europeans. The Navajo did better than the neighboring Hopi because their pastoral lifestyle adapted more easily to the challenges imposed by American settlers. In these cases similar indigenous populations encountered similar colonizers, with very different outcomes: "The kind of colonial contact that occurred was of enormous importance." Kunitz's cases demonstrate that "diseases rarely act as independent forces but instead are shaped by the different contexts in which they occur."
Paralleling this work, some historians have begun to provide integrated analyses of the many factors that shaped demographic outcomes. Any factor that causes mental or physical stress—displacement, warfare, drought, destruction of crops, soil depletion, overwork, slavery, malnutrition, social and economic chaos—can increase susceptibility to disease. These same social and environmental factors also decrease fertility, preventing a population from replacing its losses. The magnitude of mortality depended on characteristics of precontact American Indian populations (size, density, social structure, nutritional status) and on the patterns of European colonization (frequency and magnitude of contact, invasiveness of the European colonial regime). As anthropologist Clark Spencer Larsen argues, scholars must "move away from monocausal explanations of population change to reach a broad-based understanding of decline and extinction of Native American groups after 1492."

The final evidence of the influence of social and physical environments on disease susceptibility comes from their ability to generate remarkable mortality among even the supposedly disease-experienced Old World populations. Karen Kupperman has documented the synergy of malnutrition, deficiency diseases, and despair at Jamestown, where 80 percent of the colonists died between 1607 and 1625. Smallpox mortality, nearly 40 percent among Union soldiers during the Civil War, reflected living conditions and not inherent lack of innate or adaptive immunity. Mortality among soldiers infected with measles, which exceeded 20 percent during the United States Civil War, reached 40 percent during the siege of Paris in the Franco-Prussian War. Poverty and social disruption continue to shape the distribution of disease, generating enormous global disparities with tuberculosis, HIV, and all other diseases.

Is it possible to quantify the variability, to delineate the relative contribution of potential genetic, developmental, environmental, and social variables? Detailed studies have documented "considerable regional variability" in American Indian responses to European arrival. Many American Indian groups declined for a century and then began to recover. Some, such as the natives of the Bahamas, declined to extinction. Others, such as the Navajo, experienced steady population growth after European arrival. More precise data exist for select groups. Newson, for instance, has compiled data about die-off ratios, the proportion of those who died to those who survived. While die-off ratios were as high as 58:1 along the Peruvian coast, they were lower (3.4:1) in the Peruvian highlands. In Mexico they varied between 47.8:1 and 6.6:1, again depending on elevation. They ranged from 5.1:1 in Chiapas to 24:1 in Honduras and 40:1 in Nicaragua. Mortality rates from European diseases among South Pacific islanders ranged between 3 percent and 25 percent for measles, and 2.5 percent to 25 percent for influenza. Such variability among relatively homogeneous populations, with die-off ratios differing by an order of magnitude, most likely reflects the contingency of social variables. But most of these numbers are, admittedly, enormous: a 4:1 die-off ratio indicates that 75 percent died. Why did so many populations suffer such high baseline mortality? Does this reflect a shared genetic vulnerability, whose final intensity was shaped by social variables? Or does it reflect a shared social experience, of pre-existing nutritive chaos of encounter and colonization?

The variability of outcomes in Indian populations provides powerful evidence. It undermines popular Dobyns, that American Indians succumbed to diseases. Noble David Cook, for instance, generalizes that Indians died equally of which European territory was in region. It seemed to make no diff the region. Such assertions, which re invent inevitable encounter between ps not match the contingency of the is instead, tell a story of populations.

One could argue that the different environments, the nutritional statuses of colonization created conditions for disease far from the Americas. Disease struck in the recovering process, not during the sieges of the city. An epidemic during the siege. Or suppose 1634 struck New England tribes and not during the starving times of the Indian Wars. But the epidemics after epidemic and after epidemic has been a likely consequence of encounters. Nothing was the inevitable result of inherent resistance.

Consider an analogous case, the earliest years of the epidemic, morbidity and mortality. Its prevalence in developed countries and between countries. Few scientists or historians between African and Europeans or whites exist because the afflicted. Instead, the social contingency of the epidemic has been recognized. We should be j immune to the devastation of these epidemics.

Historians and medical scientists of deterministic models of depopulation that we cannot understand the impact merely by focusing on Indians' laudable mechanisms of disease susceptibility...
rians have begun to provide integrated demographic outcomes. Any factor of displacement, warfare, drought, destruction, slavery, malnutrition, social and inability to disease. These same social and ethnic factors must "move away from" change to reach a broad-based underivative American groups after 1492."

ce of social and physical environments their ability to generate remarkable morse-experienced Old World population the synergy of malnutrition, estown, where 80 percent of the colo- malmalpox mortality, nearly 40 percent. 1 War, reflected living conditions and immunity. Mortality among soldiers 20 percent during the United States its siege of Paris in the Franco-Prussian. Continue to shape the distribution of parities with tuberculosis, HIV, and all variability, to delineate the relative environmental, environmental, and social "considerable regional variability" mean arrival. Many American Indian began to recover. Some, such as the Navajo, after European arrival. More precise or instance, has compiled data about those died to those who survived. While the Peruvian coast, they were lower. Mexico they varied between 47.8:1 and they ranged from 5:1:1 in Chiapas to a. Mortality rates from European disease between 3 percent and 25 percent about influenza. Such variability, with die-off ratios differing by the contingency of social variables. Ely, enormous a 4:1 die-off ratio in many populations suffer such high shared genetic vulnerability, whose genome? Or does it reflect a shared social experience, of pre-existing nutritional stress exacerbated by the widespread chaos of encounter and colonization? Both positions are defensible.

The variability of outcomes reflected in the different fates of different Indian populations provides powerful evidence against the inevitability of mortality. It undermines popular claims, made most influentially by Henry Dobyins, that American Indians suffered universal mortality from infectious diseases. Noble David Cook, for instance, argues that the vulnerability was so general that Indians died equally whatever the colonial context, "no matter which European territory was involved, regardless of the location of the region. It seemed to make no difference what type of colonial regime was created." Such assertions, which reduce the depopulation of the Americas to an inevitable encounter between powerful diseases and vulnerable peoples, do not match the contingency of the archaeological and historical records. These, instead, tell a story of populations made vulnerable.

One could argue that the differences in American and European disease environments, the nutritional status of precontact Americans, and the disruptions of colonization created conditions in which disease could only thrive. Only a time traveler equipped with a supply of vaccines could have altered the demographic outcomes. But it is also possible that outcomes might have been different. Suppose Chinese explorers, if they did reach the Americas, had introduced Eurasian diseases in the 1420s, leaving American populations two generations to recover before facing European colonization. Suppose smallpox struck Tenochtitlan after Cortés's initial retreat and not during his subsequent siege of the city. An epidemic then might have been better tolerated than during the siege. Or suppose that the epidemics of 1616-1617 and 1633-1634 struck New England tribes during the nutritionally bountiful summers and not during the starving times of winter (or perhaps it was because of those starving times that the epidemics tended to appear in winters). The historic record of epidemic after epidemic suggests that high mortality must have been a likely consequence of encounter. But it does not mean that mortality was the inevitable result of inherent immunological vulnerability.

Consider an analogous case, the global distribution of HIV/AIDS. From the earliest years of the epidemic, HIV has exhibited striking disparities in morbidity and mortality. Its prevalence varies between sub-Saharan Africa and developed countries and between different populations within developed countries. Few scientists or historians would argue that these disparities between African and Europeans or between urban minorities and suburban whites exist because the afflicted populations have no immunity to HIV. Instead, the social contingency of HIV on a local and global scale has long been recognized. We should be just as cautious before asserting that no immunity led to the devastation of the American Indians.

Historians and medical scientists need to reassess their casual deployment of deterministic models of depopulation. The historic record demonstrates that we cannot understand the impact of European diseases on the Americas merely by focusing on Indians' lack of immunity. It is certainly true that epidemics devastated American Indian populations. It is also likely that genetic mechanisms of disease susceptibility exist: they influence the susceptibility of
American Indians—and everyone else—to infectious disease. What remains in doubt is the relative contributions of social, cultural, environmental, and genetic forces. Even when immunologists demonstrate that a wide variety of genes contribute to susceptibility to infectious disease, it will likely remain unknown how these factors played out among American Indians in past centuries. Demographic data, meanwhile, provide convincing evidence of the strong impact of social contingency on human disease. This uncertainty leaves the door open for the debates to be shaped by ideology.

Although unprecedented in their widespread severity, virgin soil epidemics may have arisen from nothing more unique than the familiar forces of poverty, malnutrition, environmental stress, dislocation, and social disparity that cause epidemics among all other populations. Whenever historians describe the depopulation of the Americas that followed European arrival, they should acknowledge the complexity, the subtlety, and the contingency of the process. They need to replace homogeneous and ambiguous claims of no immunity with heterogeneous analyses that situate the mortality of the epidemics in specific social and environmental contexts. Only then can they overcome the widespread public and academic appeal of immunologic determinism and do justice to the crucial events of the encounter between Europeans and Americans.

POSTSCRIPT

Was Disease the Key Factor in the Depopulation of Americans?

The so-called “Columbian Exchange” of diseases, human beings, and exchange of diseases, this was not a duction of destructive microorganisms: pox, tuberculosis, measles, typhoid; populations on both sides of the Atlantic brought foodstuffs such as maize, beans, and horses and other farm animals in by the efforts of the Europeans whom they encountered. The best exploration is Alfred W. C. Cultural Consequences of 1492 (Greer are largely shared by William H. 1977) and Jared Diamond, Guns, (W. W. Norton, 1997).