Notes and Documents

Virgin Soil Epidemics as a Factor in the Aboriginal Depopulation in America

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DURING the last few decades historians have demonstrated increasing concern with the influence of disease in history, particularly the history of the New World. For example, the latest generation of Americanists chiefly blames diseases imported from the Old World for the disparity between the number of American aborigines in 1492—new estimates of which soar as high as one hundred million or approximately one-sixth of the human race at that time—and the few million pure Indians and Eskimos alive at the end of the nineteenth century. There is no doubt that chronic disease was an important factor in the precipitous decline, and it is highly probable that the greatest killer was epidemic disease, especially as manifested in virgin soil epidemics.[1]

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. The importance of virgin soil epidemics in American history is strongly indicated by evidence that a number of dangerous maladies—smallpox, measles, malaria, yellow fever, and undoubtedly several more—were unknown in the pre-Columbian New World.[2] In

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[1] Henry F. Dobyns, "Estimating Aboriginal American Population: An Appraisal of Techniques with a New Hemispheric Estimate," *Current Anthropology,* VII (1966), 395-449, is an excellent place to begin an examination of this theory.

[2] Percy M. Ashburn, *The Ranks of Death: A Medical History of the Conquest of America,* ed. Frank D. Ashburn (New York, 1947); Sherburne F. Cook, "The Significance of Disease in the Extinction of the New England Indians," *Human Biology,* XLV (1973), 485-508; Alfred W. Crosby, Jr., *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, Conn., 1972), 31-63; Henry F. Dobyns, "An Outline of Andean Epidemic History to 1720," *Bulletin of the History of Medicine,* XXXVII (1963), 493-515; Frederick L. Dunn, "On the Antiquity of Malaria in the Western Hemisphere," *Hum. Bio.,* XXXVII (1965), 385-393; Robert F. Fortuine, "The Health of the Eskimos, as Portrayed in the Earliest Written Accounts," *Bull. Hist. Med.,* XLV (1971), 98-114.

theory, the initial appearance of these diseases is as certain to have set off deadly epidemics as dropping lighted matches into tinder is certain to cause fires.

The thesis that epidemics have been chiefly responsible for the awesome diminution in the number of native Americans is based on more than theory. The early chronicles of America are full of reports of horrendous epidemics and steep population declines, confirmed in many cases by recent quantitative analyses of Spanish tribute records and other sources.[3] The evidence provided by the documents of British and French America is not as definitely supportive of the thesis because the conquerors of those areas did not establish permanent settlements and begin to keep continuous records until the seventeenth century, by which time at least some of the worst epidemics of imported diseases had probably already taken place. Furthermore, the British tended to drive the Indians away, rather than ensnaring them as slaves and peons, as the Spaniards did, with the result that many of the most important events of aboriginal history in British America occurred beyond the range of direct observation by literate witnesses.

Even so, the surviving records for North America do contain references—brief, vague, but plentiful—to deadly epidemics among the Indians, of which we shall cite a few of the allegedly worst. In 1616-1619 an epidemic, possibly of bubonic or pneumonic plague, swept coastal New England from Cape Cod to Maine, killing as many as nine out of every ten it touched.[4] During the 1630s and into the next decade, smallpox, the most fatal of all the recurrent Indian killers, whipsawed back and forth through the St. Lawrence-Great Lakes region, eliminating half the people of the Huron and Iroquois confederations.[5] In 1738 smallpox destroyed half the Cherokees, and in 1759 nearly half the Catawbas.[6] During the American Revolution it attacked the Piegan tribe and killed half its members.[7] It ravaged the plains tribes shortly before they were taken under United States jurisdiction by the Louisiana Purchase, killing two-thirds of the Omahas and perhaps half the population between the Missouri River and New Mexico.[8] In the 1820s fever devastated the people of the Columbia River area, erasing

[3] Wilbur R. Jacobs, "The Tip of an Iceberg: Pre-Columbian Indian Demography and Some Implications for Revisionism," *William and Mary Quarterly,* 3d Ser., XXXI (1974), 123-132, is a good brief introduction to the subject which cites most of the recent works.

[4] Cook, "The Significance of Disease," *Hum. Bio.,* XLV (1973), 487-491, 497.

[5] John Duffy, "Smallpox and the Indians of the American Colonies," *Bull. Hist. Med.,* XXV (1951), 328; Wilcomb E. Washburn, *The Indian in America* (New York, 1975), 105.

[6] Duffy, "Smallpox and the Indians of the American Colonies," *Bull. Hist. Med.,* XXV (1951), 335, 338.

[7] Washburn, *Indian in America,* 105.

[8] E. Wagner Stearn and Allen E. Stearn, *The Effect of Smallpox on the Destiny of the Amerindian* (Boston, 1945), 74-76.

perhaps four-fifths of them.[9] In 1837 smallpox returned to the plains and destroyed about half of the aborigines there.[10]

Unfortunately, the documentation of these epidemics, as of the many others of the period, is slight, usually hearsay, sometimes dated years after the events described, and often colored by emotion. Skepticism is eminently justified and is unlikely to be dispelled by the discovery of great quantities of first-hand reports on epidemics among the North American Indians. We must depend on analysis of what little we now know, and we must supplement that little by examination of recent epidemics among native Americans.

Let us begin by asking why the American aborigines offered so little resistance to imported epidemic diseases. Their susceptibility has long been attributed to special weakness on their part, an explanation that dates from the period of colonization, received the stamp of authority from such natural historians as the Comte de Buffon, and today acquires the color of authenticity from the science of genetics.[11] In its latest version, the hypothesis of genetic weakness holds that during the pre-Columbian millennia the New World Indians had no occasion to build up immunities to such diseases as smallpox and measles. Those aborigines who were especially lacking in defenses against these maladies were not winnowed out before they passed on their vulnerabilities to their offspring. Although there is no way to test this hypothesis for pre-Columbian times, medical data on living American aborigines do not sustain it, and the scientific community inclines toward the view that native Americans have no special susceptibility to Old World diseases that cannot be attributed to environmental influences, and probably never did have.[12]

[9] James Mooney, *The Aboriginal Population of America North of Mexico,* Smithsonian Miscellaneous Collections, LXXX, No. 7 (Washington, D. C., 1928), 14.

[10] Stearn and Stearn, *Effect of Smallpox,* 81-85; Henry R. Schoolcraft, *Information Respecting the History, Condition and Prospects of the Indian Tribes of the United States,* Pt. III (Philadelphia, 1853), 254.

[11] Henry Steele Commager and Elmo Giordanetti, eds., *Was America a Mistake: An Eighteenth-Century Controversy* (New York, 1967), *passim.*

[12] John F. Marchand, "Tribal Epidemics in the Yukon," *Journal of the American Medical Association,* CXXIII (1943), 1020; Maurice L. Sievers, "Disease Patterns Among Southwestern Indians," *Public Health Reports,* LXXXI (1966), 1075-1083; Jacob A. Brody *et al.,* "Measles Vaccine Field Trials in Alaska," *Jour. Amer. Med. Assoc.,* CLXXXIX (1964), 339-342; Willard R. Centerwall, "A Recent Experience with Measles in a 'Virgin-Soil' Population," in *Biomedical Challenges Presented by the American Indian,* Pan-American Sanitary Bureau, *Scientific Publication,* No. 165 (Washington, D. C., 1968), 77-79; James V. Neel *et al.,* "Notes on the Effect of Measles and Measles Vaccine in a Virgin-Soil Population of South American Indians," *American Journal of Epidemiology,* XCI (1970), 418-429; interviews with Dr. Frederick L. Dunn of the George Williams Hooper Foundation, University of California at San Francisco.

The genetic weakness hypothesis may have some validity, but it is unproven and probably unprovable, and is therefore a weak reed to lean upon. What is more, we have no need of it. The death rate among white United States soldiers in the Civil War who contracted smallpox, a disease to which their ancestors had been exposed for many generations, was 38.5 percent, probably about the percentage of Aztecs who died of that disease in 1520.[13] The difference between the Union troops and the Aztec population is, of course, that most of the former had been vaccinated or exposed to the disease as children, while the latter was a completely virgin soil population.

It should also be asked why the decline in numbers of the American aborigines went on as long as it did, 400 years or so, in contrast to the decline caused by Europe's most famous virgin soil epidemic, the Black Death, which lasted no more than 100 to 200 years.[14] The answer is that the Indians and Eskimos did not experience the onslaught of Old World diseases all at the same time and that other factors were also responsible for depressing their population levels. As far as we can say now, Old World diseases were the chief determinants in the demographic histories of particular tribes for 100 to 150 years after each tribe's first full exposure to them. In addition, the newcomers, whose dire influence on native Americans must not be underestimated just because it has been overestimated, reduced the aboriginal populations by warfare, murder, dispossession, and interbreeding. Thereafter the Indians began a slow, at first nearly imperceptible, recovery. The greatest exceptions were the peoples of the tropical lowlands and islands who, under the extra heavy burden of insect-borne fevers, mostly of African provenance, held the downward course to oblivion.[15]

The Indians of Mexico's central highlands perfectly fit this pattern of sharp decline for four to six generations followed by gradual recovery. Appalling depopulation began with the nearly simultaneous arrival of Cortés and smallpox; the nadir occurred sometime in the seventeenth century; and then Indian numbers slowly rose. The pattern of European population history was approximately the same in the two centuries following the Black Death.[16] The recovery in numbers of the Indians of the United States in the twentieth century is probably part of a similar phenomenon.

But why did Europeans lose one-third or so to the Black Death, imported

[13] Surgeon General, U. S. Army, *The Medical and Surgical History of the War of the Rebellion,* I, pt. iii (Washington, D. C., 1888), 625; Crosby, *Columbian Exchange,* 52.

[14] William McNeill, "Plagues and Peoples: A Natural History of Human Infections," chaps. 4, 5. Mr. McNeill allowed me to read the typed manuscript of his forthcoming book.

[15] Dobyns, "Estimating Aboriginal Population," *Current Anthro.,* VII (1966), 415; Joseph de Acosta, *The Natural and Moral History of the Indies,* trans. Edward Grimston, I (New York, n.d.), 160.

[16] Charles Gibson, *The Aztecs Under Spanish Rule: A History of the Indians of the Valley of Mexico, 1519-1810* (Stanford, Calif., 1964), 139, 141. McNeill, "Plagues and Peoples," chaps. 4, 5.

from Asia, while the American aborigines lost perhaps as much as 90 percent to the diseases imported from the Old World? The answers are probably related to the factors that have caused many fatalities in recent virgin soil epidemics among native Americans, not of such deadly diseases as smallpox and plague, which are tightly controlled in our era, but of such relatively mild maladies as measles and influenza. In 1952 the Indians and Eskimos of Ungava Bay, in Northern Quebec, had an epidemic of measles: 99 percent became sick and about 7 percent died, even though some had the benefit of modern medicine. In 1954 an epidemic of measles broke out among the aborigines of Brazil's remote Xingu National Park: the death rate was 9.6 percent for those of the afflicted who had modern medical treatment and 26.8 percent for those who did not. In 1968 when the Yanomamas of the Brazilian-Venezuelan borderlands were struck by measles, 8 or 9 percent died despite the availability of some modern medicines and treatment. The Kreen-Akorores of the Amazon Basin, recently contacted for the first time by outsiders, lost at least 15 percent of their people in a single brush with common influenza.[17]

The reasons for the massive losses to epidemics in the last four hundred years and the considerable losses to the epidemics just cited can be grouped conveniently in two categories, the first relating to the nature of the disease or diseases, and the second having to do with how individuals and societies react to the threat of epidemic death.

First, we must recognize that the reputations of measles and influenza as mild diseases are not entirely justified. Contemporary native Americans who contract them are not cured by "miracle drugs," even when modern medical treatment is available, because there are no such drugs. Modern physicians do not *cure* measles, influenza, and such other viral maladies as smallpox, chicken pox, and mumps, but try, usually successfully, to keep off other infections until the normal functioning of undistracted immune systems kills off the invading viruses. If doctors fail in this task or are not available, the death rate will be "abnormally high." Measles killed more than 6 percent of all the white Union soldiers and almost 11 percent of all the black Union soldiers it infected during the Civil War, even though the waves of this disease that swept the army were not virgin soil epidemics.[18]

Virgin soil epidemics are different from others in the age incidence of those they kill, as well as in the quantity of their victims. Evidence from around the world suggests that such epidemics of a number of diseases with

[17] A. F. W. Peart and F. P. Nagler, "Measles in the Canadian Arctic, 1952," *Canadian Journal of Public Health,* XLV (1954), 155; Noel Nutels, "Medical Problems of Newly Contacted Indian Groups," in *Biomedical Pan-Am. Challenges,* San. Bur., *Sci. Pub.,* No. 165 (1968), 70. Neel *et al.,* "Notes on the Effect of Measles," *Am. Jour. Epidemiology,* XCI (1970), 426; W. Jesco von Puttkamer, "Brazil's Kreen-Akarores, Requiem for a Tribe," *National Geographic,* CXLVII (1975), 254.

[18] Surgeon General, *Medical and Surgical History,* I, pt. iii, 649.

reputations as Indian killers—smallpox, measles, influenza, tuberculosis, and others—carry off disproportionately large percentages of people aged about fifteen to forty—men and women of the prime years of life who are largely responsible for the vital functions of food procurement, defense, and procreation.[19] Unfortunately little evidence exists to support or deny the hypothesis that native American virgin soil epidemics have been especially lethal to young adults. There is no doubt, however, that they have been extremely deadly for the very young. Infants are normally protected against infectious diseases common in the area of their births by antibodies passed on to them before birth by their immunologically experienced mothers, antibodies which remain strong enough to fend off disease during the first precarious months of life. This first line of defense does not exist in virgin soil epidemics. The threat to young children is more than just bacteriological: they are often neglected by ailing adults during such epidemics and often die when their ailing mother's milk fails. Infants in traditional aboriginal American societies are commonly two years of age or even older before weaning, so the failure of mothers' milk can boost the death rate during epidemics to a greater extent than modern urbanites would estimate on the basis of their own child-care practices.[20]

Mortality rates rise sharply when several virgin soil epidemics strike simultaneously. When the advance of the Alaska Highway in 1943 exposed the Indians of Teslin Lake to fuller contact with the outside world than they had ever had before, they underwent in one year waves of measles, German measles, dysentery, catarrhal jaundice, whooping cough, mumps, tonsillitis, and miningococcic meningitis. This pulverizing experience must have been common among aborigines in the early post-Columbian generations, although the chroniclers, we may guess, often put the blame on only the most spectacular of the diseases, usually smallpox. A report from Española in 1520 attributed the depopulation there to smallpox, measles, respiratory infection, and other diseases unnamed. Simultaneous epidemics of diseases, including smallpox and at least one other, possibly influenza, occurred in Meso-America in the early 1520s.[21] The action of other diseases than the one most apparently in epidemic stage will often cause dangerous complications, even if they have been long in common circulation among the victims. In the Ungava Bay and Yanomama epidemics the final executioner was usually bronchopneumonia, which advanced when measles leveled the defenses of aborigines weakened by diseases already present—malaria and pneumonia

[19] Macfarlane Burnet and David O. White, *Natural History of Infectious Disease,* 4th ed. (Cambridge, 1972), 97-100.

[20] Frederick W. Hodge, ed., *Handbook of American Indians North of Mexico,* Pt. I (Washington, D. C., 1912), 265.

[21] Marchand, "Tribal Epidemics in the Yukon," *Jour. Am. Med. Assoc.,* CXXII (1943), 1019-1020; *Colección de Documentos Ineditos, Relativos al Descubrimiento, Conquista y Organización de las Antiguas Posesiones Españoles de América y Oceanía* (Madrid, 1864-1868), I, 397-398, 428-429; Crosby, *Columbian Exchange,* 49, 58.

among the South Americans, and tuberculosis and influenza among the North Americans.[22]

Successive epidemics may take longer to dismantle societies than simultaneous attacks by several diseases, but they can be as thorough. The documentation of American Indians' experience of successive epidemics is slim and not expressed as statistics, but the records are nonetheless suggestive. The Dakotas kept annual chronicles on leather or cloth showing by a single picture the most important event of each year. These records indicate that all or part of this people suffered significantly in the epidemics listed below, at least one of which, cholera, and possibly several others were virgin soil. It should be noted that the considerable lapses of time between the smallpox epidemics meant that whole new generations of susceptibles were subject to infection upon the return of the disease and that the repeated ordeals must have had much of the deadliness of virgin soil epidemics.

Epidemics among the Dakota Indians, 1780-1851.[23]

1780-1781	Smallpox.
1801-1802	Smallpox ("all sick winter").
1810	Smallpox.
1813-1814	Whooping cough.
1818-1819	Measles ("little smallpox winter").
1837	Smallpox.
1845-1846	Disease or diseases not identified ("many sick winter").
1849-1850	Cholera ("many people had the cramps winter").
1850-1851	Smallpox ("all the time sick with the big smallpox winter").

Virgin soil epidemics tend to be especially deadly because no one is immune in the afflicted population and so nearly everyone gets sick at once. During a period of only a few days in the 1960s every member of the Tchikao tribe of Xingu Park fell ill with influenza, and only the presence of outside medical personnel prevented a general disaster. Witnesses to the Ungava Bay and Yanomama epidemics noted the murderous effect of nearly universal illness, however brief in duration. The scientists with the Yanomamas found that when both parents and children became sick, "there was a drastic breakdown of both the will and the means for necessary nursing." The observers

[22] Peart and Nagler, "Measles in the Canadian Arctic, 1952," *Can. Jour. Pub. Health,* XLV (1954), 147, 152; Neel *et al.,* "Notes on the Effect of Measles," *Am. Jour. Epidemiology,* XCI (1970), 422, 425.

[23] Garrick Mallery, "Pictographs of the North American Indian: A Preliminary Paper," *Fourth Annual Report of the Bureau of Ethnology: 1882-1883,* IV (Washington, D. C., 1886), 103-125, 131-142; Alexis A. Praus, *The Sioux, 1798-1922: A Dakota Winter Count,* Cranbrook Institute of Science, Bulletin 44 (Bloomfield Hills, Mich., 1962), 15.

saw several families in which grandparents, parents, and their children were simultaneously ill.[24]

The fire goes out and the cold creeps in; the sick, whom a bit of food and a cup of water might save, die of hunger and the dehydration of fever; the seed remains above the ground as the best season for planting passes, or there is no one well enough to harvest the crop before the frost. In the 1630s smallpox swept through New England, and William Bradford wrote of a group of Indians who lived near a Plymouth colony trading post that "they fell down so generally of this disease as they were in the end not able to help one another, no not to make a fire nor to fetch a little water to drink, nor any to bury the dead. But would strive as long as they could, and when they could procure no other means to make fire, they would burn the wooden trays and dishes they ate their meat in, and their very bows and arrows. And some would crawl out on all fours to get a little water, and sometimes die by the way and not to be able to get in again."[25]

The second category of factors—those which pertain to the ways native Americans reacted to epidemic diseases—often had as decisive an influence on the death rate as did the virulency of the disease. American aborigines were subjected to an immense barrage of disease, and their customs and religions provided little to help them through the ordeal. Traditional treatments, though perhaps effective against pre-Columbian diseases, were rarely so against acute infections from abroad, and they were often dangerous, as in the swift transfer of a patient from broiling sweathouse to frigid lake.[26] Thus, to take a modern example, when smallpox broke out among the Moqui Indians in Arizona in 1898, 632 fell ill but only 412 accepted treatment from a physician trained in modern medical practice. Although he had no medicines to cure smallpox or even to prevent secondary bacterial infections, only 24 of his patients died. By contrast, 163 of the 220 who refused his help and, presumably, put their faith in traditional Indian therapy, died.[27]

Native Americans had no conception of contagion and did not practice quarantine of the sick in pre-Columbian times, nor did they accept the new theory or practice until taught to do so by successive disasters. The Relation of 1640 of the Jesuit missionaries in New France contains the complaint that during epidemics of the most contagious and deadly maladies the Hurons

[24] Orlando Boas and Claudio Villas Boas, "Saving Brazil's Stone Age Tribes from Extinction," *Nat. Geog.,* CXXXIV (1968), 444; Peart and Nagler, "Measles in the Canadian Arctic, 1952," *Can. Jour. Pub. Health,* XLV (1954), 153; Neel *et al.,* "Notes on the Effects of Measles," *Am. Jour. Epidemiology,* XCI (1970), 427; Centerwall, "A Recent Experience with Measles," Pan-Am. San. Bur., *Sci. Pub.* No. 165 (1968), 80-81.

[25] William Bradford, *Of Plymouth Plantation,* ed. Samuel Eliot Morison (New York, 1952), 271.

[26] Harold E. Driver, *Indians of North America* (Chicago, 1961), 396-430.

[27] *Report of the Commissioner of Indian Affairs,* Pt. I, in *Annual Reports of the Department of Interior for the Fiscal Year Ended June 30, 1899* (Washington, D. C., 1899), 158-159.

continued to live among the sick "in the same indifference, and community of all things, as if they were in perfect health." The result, of course, was that nearly everyone contracted the infections, "the evil spread from house to house, from village to village, and finally became scattered throughout the country."[28]

Such ignorance of the danger of infection can be fatal, but so can knowledge when it creates terror, leading to fatalism or to frenzied, destructive behavior.[29] A large proportion of those who fall acutely ill in an epidemic will die, even if the disease is a usually mild one, like influenza or whooping cough, unless they are provided with drink, food, shelter, and competent nursing. These will be provided if their kin and friends fulfill the obligations of kinship and friendship, but will they do so? Will the sense of these obligations be stronger than fear, which can kill by paralyzing all action to help the sick or by galvanizing the healthy into flight?

If we may rely on negative evidence, we may say that aboriginal kin and tribal loyalties remained stronger than the fear of disease for a remarkably long time after the coming of the micro-organisms from the Old World. We will never be able to pinpoint chronologically any change as subtle as the failure of these ties, but whenever it happened for a given group in a given epidemic the death rate almost certainly rose. In most epidemics, contagious disease operating in crowded wigwams and long houses would spread so fast before terror took hold that panicky flight would serve more to spread the infection than to rob it of fresh victims, and any decline in the number of new cases, and consequently of deaths that might result from flight, would at the very least be cancelled by the rise in the number of sick who died of neglect. Observers of the Ungava Bay epidemic reported that a fatalistic attitude toward the disease caused the loss of several entire families, whose members would not help each other or themselves. Scientists with the Yanomamas during their battle with measles recorded that fatalism killed some and panic killed more: the healthy abandoned the sick and fled to other villages, carrying the disease with them.[30]

[28] Reuben Gold Thwaites, ed., *The Jesuit Relations and Allied Documents: Travels and Explorations of the Jesuit Missionaries in New France, 1610-1791 . . .*, XIX (Cleveland, Ohio, 1898), 89.

[29] The fear of epidemic disease and the psychic stress created by the advance of European and African invaders doubtless had a direct effect on disease and death rates. Extreme anxiety decreases the organism's ability to resist attack. See J. E. Nardini, "Survival Factors in American Prisoners of War of the Japanese," *American Journal of Psychiatry,* CXC (1952), 241-248; Henry Krystal and William G. Niederland, *Psychic Traumatization, Afteraffects in Individuals and Communities* (Boston, 1971); Robert Jay Lifton, *Death in Life: Survivors of Hiroshima* (New York, 1967).

[30] Peart and Nagler, "Measles in the Canadian Arctic, 1952," *Can. Jour. Pub. Health,* XLV (1954), 153; Centerwall, "Recent Experience with Measles," Pan-Am. San. Bur., *Sci. Pub.,* No. 165 (1968), 81. We must not regard such behavior as typical only of Indians and other pre-literate peoples. The classic description of this

When a killing epidemic strikes a society that accepts violence as a way of reacting to crises and believes in life after death—characteristics of many Christian and many Indian societies—the results can be truly hideous. Many fourteenth-century Europeans reacted to the Black Death by joining the Flagellants or by killing Jews. Some Indians similarly turned on the whites whom they blamed for the epidemics, but most were obliged by their circumstances to direct their fear and rage against themselves. During the epidemic of 1738 many Cherokees killed themselves in horror of permanent disfigurement, according to their contemporary, James Adair. Members of the Lewis and Clark expedition were told that in the 1802 smallpox epidemic the Omahas "carried their franzey to verry extrodinary length, not only burning their Village, but they put their *wives* and children to *Death* with a view of their all going to some better Countrey." In 1837 smallpox killed so many of the Blackfeet and so terrified those left alive after the first days of the epidemic that many committed suicide when they saw the initial signs of the disease in themselves. It is estimated that about 6,000, two-thirds of all the Blackfeet, died during the epidemic.[31]

The story of that same epidemic among the Mandans, as George Catlin received it, cannot be exceeded in its horror:

It seems that the Mandans were surrounded by several war-parties of their most powerful enemies the Sioux, at that unlucky time, and they could not therefore disperse upon the plains, by which many of them could have been saved; and they were necessarily inclosed within the piquets of their village, where the disease in a few days became so very malignant that death ensued in a few hours after its attacks; and so slight were their hopes when they were attacked, that nearly half of them destroyed themselves with their knives, with their guns, and by dashing their brains out by leaping head-foremost from a thirty foot ledge of rocks in front of their village. The first symptoms of the disease was a rapid swelling of the body, and so very virulent had it become, that very many died in two or three hours after their attack, and in many cases without the appearance of disease upon their skin. Utter dismay seemed to possess all classes and ages and they gave themselves up in despair, as entirely lost. There was but one continual crying and howling and praying to the Great Spirit for his protection during the nights and days; and there being but few living, and those in too appalling despair, nobody thought of burying the dead, whose bodies, whole families together, were left in horrid

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kind of pathological individualism is contained in the first pages of *The Decameron,* in which Giovanni Boccaccio depicts how medieval Florentines reacted to the Black Death.

[31] Samuel Williams, ed., *Adair's History of the American Indians* (Johnson City, Tenn., 1930), 245.; Bernard DeVoto, ed., *The Journals of Lewis and Clark* (Boston, 1953), 18-19; John C. Ewers, *The Blackfeet: Raiders on the Northwestern Plains* (Norman, Okla., 1958), 65-66.

and loathsome piles in their own wigwams, with a few buffalo robes, etc. thrown over them, there to decay, and be devoured by their own dogs.[32]

During that epidemic the number of Mandans shrank from about 1,600 to between 125 and 145.[33]

Whether the Europeans and Africans came to the native Americans in war or peace, they always brought death with them, and the final comment may be left to the Superior of the Jesuit Missions to the Indians of New France, who wrote in confusion and dejection in the 1640s, that "since the Faith has come to dwell among these people, all things that make men die have been found in these countries."[34]

[32] George Catlin, *Letters and Notes on the Manners, Customs, and Condition of the North American Indians,* II (Minneapolis, 1965 [orig. publ. London, 1841]), 257. For corroboration see M. M. Quaife, ed., "The Smallpox Epidemic on the Upper Missouri," *Mississippi Valley Historical Review,* XVII (1930), 278-299.

[33] Hodge, ed., *Handbook of American Indians,* 797-798.

[34] Thwaites, ed., *Jesuit Relations,* XXXII, 253.