Published by
The University of Tennessee Press
in cooperation with The Newberry Library
Center for the History of the American Indian

HP3139.

Their Number Become Thinned

NATIVE AMERICAN POPULATION DYNAMICS IN EASTERN NORTH AMERICA

by Henry F. Dobyns
including an essay with
William R. Swagerty
as co-author

E
98
.P76
D6
1983

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Manufactured in the United States of America
First edition

The border design used in this book was
adapted from *Authentic Indian Designs*
(New York: Dover, 1975), 23.

Clothbound editions of University of Tennessee Press
books are printed on paper designed for an effective life
of at least 300 years, and binding materials are chosen
for strength and durability.

Library of Congress Cataloging in Publication Data

Dobyns, Henry F.
Their number become thinned.

(Native American historic demography series)
Bibliography: p.
Includes Index.
1. Indians of North America—Population—Addresses, essays, lectures. 2. Indians of North America—Florida—Population—Addresses, essays, lectures. I. Swagerty, William R. II. Newberry Library. Center for the History of the American Indians. III. Title. IV. Series.
E98.P76D6 1983 304.6'2'08997 83-5952
ISBN 0-87049-400-7
ISBN 0-87049-401-5 (pbk.)

HP3140

Aug 84/03/20 453136

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Spaniards preached must indeed possess greater power than the natives' own pantheon. How else could the invaders withstand a scourge that struck defenders in appalling numbers?

Even more important, once the smallpox had been unleashed among Native Americans, the virus spread rapidly through the native population of the Americas. We shall never know precisely how far this first smallpox pandemic spread. Its victims were not literate, so they could make no record of the arrival of the disease or of their own passing. Most of them lived far beyond the relatively small area of Mesoamerica reached by any Spaniard during the period of pandemic mortality. Consequently, contemporary Spanish descriptions refer to but a few tribal chiefdoms in Mesoamerica near the Aztec empire.

Later Spanish records do provide evidence of the widespread biological invasion that occurred in 1520–1524. When Spaniards led by Francisco Pizarro invaded the Inca empire in the Andean area of South America in 1532, they met with comparatively little resistance. Two half-brothers, contenders for the scarlet fringe of the Sapa Inca, were brawling so bitterly with each other that they could not unite to fight the Spaniards. The aspirants' father and the crown prince had both died from the smallpox when it reached the Tawantinsuyu in 1524, and half of the senior generals of the imperial army had also perished during the pandemic. Thus Pizarro's relatively small troop was able to capture one of the brothers and to execute him not long after he had executed his adversary.[11]

Although Pánfilo de Narváez failed in 1520 to arrest Cortés, Emperor Charles V later granted him the privilege of conquering and ruling the entire area then known as Florida. That area ran around the entire Gulf of Mexico coast of North America from the neighborhood of Pánuco, which Cortés had conquered, to and including the peninsula now known as Florida. Narváez botched this later Florida opportunity in 1528. He was last seen sailing a makeshift raft selfishly away from similar rafts carrying other members of his expedition after losing contact with his supply ships and deciding to raft from Apalachee Bay to New Spain.

The man who recorded the last sight of Narváez was Alvar Núñez Cabeza de Vaca, one of Colonial Spain's great survivors of expeditionary adversity. In 1535, Núñez and a few companions finally struck out westward toward the Pacific Coast in hopes of striking Spanish Colonial territory. When they came within sight of the mountains of west Texas, Núñez noted evidence of the earlier smallpox pandemic of 1520–1524: a high proportion of the inhabitants of one settlement were blind in one or both eyes.[12] There can be little doubt that the

most lethal of all smallpox pandemics, the very first on the continent, swept through all of the most densely populated portions of the Americas.

The initial smallpox pandemic indelibly fixed in Spanish minds the image of Native Americans dying in droves. In the midst of a military campaign of conquest, Spaniards were not in any position to stop in 1520–1524 to take a census of any Native American group before and after the pandemic episode in order to obtain precise mortality figures. The "horseback" estimates that the Spaniards reported then and later therefore simply indicated that more than half of the natives perished during the pandemic.

Applying the principle of uniformitarianism, we are able to make a rather more accurate estimate of the scale of pandemic mortality. In 1898, smallpox spread from Euroamericans in New Mexico to residents of one or more Pueblos. Officials of the Office of Indian Affairs tried to quarantine each Pueblo to prevent further spread of the disease. Devout native believers in traditional religious doctrines flouted federal authorities and participated in communal dances or at least visited other Pueblos to watch communal dancing. Some of them transmitted the virus to additional Pueblos.[13] Among the afflicted settlements were Zuñi and some of the Hopi villages in Arizona. By the end of the nineteenth century, Christian missionaries had made some converts among the Hopis, and some non-Christians admitted the efficacy of Western medicine. Many Hopis continued to believe in their traditional religious system. Hopis of that persuasion who contracted smallpox refused any treatment by the Indian Service doctor assigned to the Hopi Indian Agency. That medical practitioner managed to compile reasonably accurate records of the outcome and reported to Washington the sad result. Of 220 traditionalist Hopis with smallpox who refused Western treatment, no fewer than 163 died[14]—74 percent of the known cases.

In 1898 not all Hopis were susceptible to smallpox. They had suffered repeated epidemic episodes of the disease, including a particularly serious one in 1853. Consequently, all or nearly all of the adults over about forty-five years of age in the population had acquired immunity by surviving an earlier onslaught of the virus. Thus mortality figures for the total population cannot be determined for that very first smallpox pandemic in 1520–1524. We can, however, estimate with some accuracy the case mortality among traditionalists. In 1520, no Native American had been exposed to the virus, so all individuals were susceptible. All or very nearly all Native Americans in 1520–1524 must have contracted the disease, so the death rate then was very close to the 1898 Hopi tradition-

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alist case mortality. Spanish reports that half of the Native Americans died were almost certainly underestimates.

The relatively well documented Hopi mortality takes on great analytical importance, for it provides a chilling quantitative perspective on the magnitude of casualties caused by the biological invasion of American peoples by Old World viruses and germs. The discontinuity in Native American affairs that began on the continent in 1519 was catastrophic.[15] Depopulation constituted the major single component of a process that historians usually refer to as the European conquest of the Americas. In the northern Mesoamerican instance, Woodrow Borah and Sherburne F. Cook calculated that a population of perhaps 25,300,000 Central Mexicans on the eve of Spanish Conquest was reduced by 97 percent during somewhat more than a century.[16] The fate of conservative Hopis in 1898 when attacked by the smallpox virus tells us that the peoples of Central Mexico and all other areas of the Americas to which the virus spread in 1520–1524 lost nearly 75 percent of their numbers during the first pandemic of an Old World disease to afflict the peoples of the New World. Discontinuity and biological-cultural shock were immediate and massive.

After the first great smallpox pandemic had slaughtered millions of susceptible Native Americans, that virus could find significant numbers of new victims only after a period of years. The women who survived the 1520–1524 contagion with unimpaired genitourinary tracts had to bear children who would grow for at least several years before the smallpox virus could again encounter a susceptible population of any great size. Smallpox was retransmitted to Native Americans on an epidemic scale possibly more than three dozen times between the 1520–1524 continental pandemic and the 1898 Pueblo epidemic episode (see Table 1). It seems not to have become endemic among Native Americans, as it did in larger cities, at least in the Old World. Consequently, truly high mortality occurred during later years when the virus was transmitted to groups of Native Americans who had not been exposed for a long period—by which time survivors of the last epidemic had mostly died of other causes, leaving a largely susceptible population.

There is necessarily some doubt as to the exact number of smallpox epidemics between 1520–1524 and 1898. During Colonial times, some pathogens that produced red rashes, such as scarlet fever, had not yet been identified as separate diseases. Consequently some cases labeled as smallpox by contemporaries surely involved measles or chickenpox or scarlet fever or perhaps other diseases. As far as Native American mor-

TABLE 1

Probable Epidemic Episodes of Smallpox Among Native Americans in North America, 1520–1898

Date	*Peoples Affected*
1520–1524	Total geographic extent unknown; at least from Chile across present United States, causing greater mortality than any later episode
1592–1593	Central Mexico to Sinaloa; southern New England; eastern Great Lakes
1602	Sinaloa and northward
1639	French and British Northeastern North America
1646–1648	New Spain north to Nuevo León tribes and western Sierra Madre to Florida
1649–1650	Northeastern tribes; Montagnais-Naskapi to Quebec, Huron, and Iroquois; Florida
1655	Florida chiefdoms
1662–1663	Iroquois, Delaware, Canadian tribes, and Central Mexico
1665–1667	Florida chiefdoms to Virginia tribes
1669–1670	French and British northeastern peoples
1674–1675	Coahuiltecan tribes of Texas, northeastern New Spain
1677–1679	Northeastern tribes in New France and British territory
1687–1691	Northeastern tribes on French and British frontiers; Texas tribes
1696–1699	Southeastern and Gulf Coast chiefdoms decimated
1701–1703	Northeastern tribes to Illinois
1706	Coahuiltecan tribes of Texas and northeastern New Spain
1715–1721	British northeastern tribes to Texas
1729–1733	New England; Creeks; California tribes
1738–1739	Southeastern tribes to Hudson Bay; Texas mission peoples
1746	New York and New England tribes; New Spain
1750–1752	Texas to Great Lakes tribes
1755–1760	From Canada and New England and Great Lakes to Virginia, Carolinas, and Texas
1762–1766	From Central Mexico through Texas and the Southeast to Iroquois, Potawatomi, Wea, Kickapoo, Miami, Shawnee, Arikara, and Northwest Coast
1779–1783	From Central Mexico across all of North America
1785–1787	Alaskan coastal tribes across northern Canada
1788	New Mexico Pueblos
1793–1797	New Spain
1799	Ottawa tribe
1801–1802	Columbia River peoples; Great Plains to Gulf of Mexico
1810–1811	Leech Lake Dakota to Lake Superior groups
1815–1816	Río Grande Pueblos and Plains tribes
1828	California tribes; Osage
1831–1834	Plains tribes; Great Lakes tribes; direct local transmissions from settlers
1836–1840	Alaskan, Columbia River, California, Plains, Plateau, and Mackenzie-Yukon tribes; Pueblos
1843–1846	Aleuts to Plains Crow
1848–1850	Plains Tribes; Coeur d'Alène; Kutchin

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