
AMERICAN INDIAN DEMOGRAPHY IN HISTORIC PERSPECTIVE

It is my land, my home, my father's land to which I now ask to be allowed to return. . . . If this could be I might die in peace, feeling that my people, placed in their native homes, would increase in numbers, rather than diminish as at present, and that our name would not become extinct.

Geronimo, 1877

WHEN COLUMBUS first encountered the original inhabitants of the Americas, people he later described as "Indios," nothing was known about their numbers, where they lived, or the characteristics of their social structure. Three hundred years later Thomas Malthus published his *Essay on the Principle of Population* and launched demography, the scientific study of populations. Since Malthus, Western society has amassed a wealth of information about the immigrants and their descendants who settled in North America. Yet compared with what is known about these newcomers, Western society knows little more about the original inhabitants of this continent than Columbus did 500 years ago.

This book is about the demography of the first Americans. It deals with the number, distribution, and social characteristics of American Indians and Alaska Natives. These dimensions of the Native American population reveal more than basic demographic information. They also

chart the position of this group within the larger complex of American society.

In 1980 American Indians and Alaska Natives numbered 1,423,043, or a little more than one half of 1 percent of the total U.S. population. About one half live in rural areas, many of which are remote and inaccessible. In most urban centers Indians do not reside in sufficient numbers and density to form outwardly recognizable communities, as do blacks, Hispanics, Asians, and other ethnic groups. Compared with larger ethnic groups, Native Americans are not numerous enough to swing elections, contribute significantly to the Gross National Product, affect unemployment figures, or otherwise attract the attention of academics or the mass media.

Given the smallness of the Native American population, why should this group concern the rest of American society? First, American Indians and Alaska Natives are the first inhabitants of the land known today as the United States of America, which makes knowledge about them essential for a complete view of American society.

Second, American Indians, like other economically disadvantaged groups such as blacks, Hispanics, and women, are important because their experiences in the labor market contradict institutionalized ideals about equal opportunities regardless of race, color, or creed. The hardships of these groups make a profound statement about the actual conditions of American society, suggesting unmet needs, unachieved goals, and areas for further improvement. Historically, Indians represent the low end of the U.S. socioeconomic spectrum. American Indian reservations have been consistently among the poorest areas in the United States. The standard of living on many reservations, in terms of sanitary conditions, running water, paved roads, and other public facilities, is not very different from that in Third World countries.¹ Compared with other minority groups, American Indians, rural and urban, are still among the most poorly housed, poorly nourished, least educated, unhealthiest, and most unemployed. For example, data from the 1980 census show that 44 percent had less than 12 years of schooling, 13 percent were unemployed, and 30 percent were below the official poverty line. In the same year, 6.5 percent of the American population as a whole were unemployed, 12.4 percent were below the poverty line, and 67.5 percent had a high school education.

Third, American Indians have played a continuing role in the development and expansion of American society from the earliest days of European discovery and exploration. The presence, contributions, and even opposition of Indian people helped shape the history of the United

¹Lorraine Turner Ruffing, "Navajo Economic Development: A Dual Perspective," in Sam Stanley, ed., *American Indian Economic Development* (The Hague: Mouton, 1978).

States. Perhaps no other minority group is as deeply embedded in the common culture as are American Indians. In American folklore, they are as central as the immigrant pioneers who settled the western plains. In American art, literature, and popular culture Indians are often portrayed as either cunning and untrustworthy savages or spiritual beings living in ethereal harmony with nature: in reality, they are neither.²

Fourth, the bureaucratic institutions of American society have been no less influenced. At the federal level, a specialized branch of law and legal study is devoted to Indian issues; an entire volume of the Code of Federal Regulations outlines the scope of Indian law; a special agency, the Bureau of Indian Affairs (BIA), administers federal policies and legislation affecting Indians; and American Indians are the only ethnic minority specifically mentioned in the Constitution.

Fifth, because traditional American Indian culture and lifestyles are a unique form of non-Western social organization and because contemporary American Indians have adapted to Western society by amalgamating old traditions with new innovations from American culture,³ anthropologists and other social scientists have a major interest in studying them.

Finally, a less obvious but no less valid reason that American Indians deserve special attention is related to the popular interest in the diffuse ancestry of the American people. The links between American Indians and the balance of the U.S. population are perhaps far more extensive than might be expected from simply examining population statistics. Indians are a relatively small group, but a sizable number of Americans (nearly 7 million) include at least one Indian among their ancestors. Regarding themselves as the distant or not-so-distant relatives of contemporary Indians, many Americans have more than a passing interest in the present status of American Indians.

Several abiding themes frame the content of this book. A foremost objective is to chronicle the position of American Indians within the larger context of American society. The 1980 decennial Census of Population and Housing constitutes a major source of information for this task for two reasons. One is that studies of modern Indian demography are virtually nonexistent, except for a few studies of specific tribes.⁴

²For a discussion of racial stereotypes about American Indians, readers should consult Robert F. Berkhofer, Jr., *The White Man's Indian* (New York: Vintage Books, 1978).

³Joan Ablon, "Relocated American Indians in the San Francisco Bay Area: Social Interactions and Indian Identity," *Human Organization* 23(1964):296-304.

⁴Robert A. Hackenberg and C. Roderick Wilson, "Reluctant Emigrants: The Role of Migration in Papago Indian Adaptation," *Human Organization* 31(1972):171-186; Julie M. Uhlmann, "The Impact of Modernization of Papago Indian Fertility," *Human Organization* 31 (1972):149-161; Henry F. Dobyns, *Native American Historical Demography: A Critical Bibliography* (Bloomington: Indiana University Press, 1976).

Most of what is known about American Indian demography is for historical populations based on centuries-old documentary evidence such as the diaries of explorers and archaeological discoveries. There is a need to know something about currently living populations of American Indians in terms of their size, location, and social characteristics.

Another reason is that the U.S. Bureau of the Census went to great lengths to obtain high-quality data for the Indian population. The scope of the Census Bureau's efforts to accurately enumerate Indians in the 1980 census was unprecedented. As a result, the quality of the data, although not perfect, is better than that of earlier enumerations. Since so little is known about contemporary Indian demography, this information presents an extraordinary opportunity for significantly advancing the current state of knowledge.

The information collected in the 1980 census is especially useful for highlighting two other objectives related to the status of Indians in American society. One is to portray the diversity and uniqueness of the whole Indian population: American Indian tribes, Eskimos, and Aleuts. The diversity among these groups is staggering and should not be discounted: Some tribes are very large and others are very small; some Indians live in highly urbanized areas while others reside in remote wilderness areas; some Indians are relatively well off economically while many others live in desperate poverty.

A second objective is to show the influence of the federal government in shaping the social profile of the Indian population. Federal authorities in the Bureau of Indian Affairs and numerous other agencies exercise a pervasive influence on the lives of many Indians, especially those residing on federally administered reservations.⁵

Unlike other minority groups, Native Americans vary profoundly in terms of having different languages, cultures, and historical backgrounds. For example, American Indians of the East Coast have little in common with Indians of the Plains, and these groups have even less in common with Indians in California. The differences between Alaska Natives, Eskimos and Aleuts, and American Indians in the lower 48 states are especially striking. As Thornton explains, the anthropological differences are sufficiently great that Alaska Natives are rightly considered Native Americans, but they *are not* American Indians, that is, the original inhabitants of the lower 48 states.⁶

However, a growing number of American Indians and Alaska Natives are not comfortable with the term "Native American" because it

⁵Sar A. Levitan, and William B. Johnston, *Indian Giving: Federal Programs for Native Americans* (Baltimore: Johns Hopkins University Press, 1975).

⁶Russell Thornton, *American Indian Holocaust and Survival: A Population History Since 1492* (Norman: University of Oklahoma Press, 1987).

creates even greater confusion than the term it was once proposed to replace—namely, American Indian.⁷ American Indians are easily distinguished from Asian Indians by a single locational adjective, but “Native Americans” include Hawaiian natives and the descendants of immigrants from all nations, along with American Indians, Eskimos, and Aleuts. A casual survey of recently published books and articles indicates that the term “Native American” is falling into disuse and that “American Indian” is preferable. Given this nomenclature, readers should note that much of the data presented in this book is not reported separately for American Indians, Eskimos, and Aleuts because the Census Bureau usually does not make these data available. However, for the sake of convenience and unless otherwise specified, the term “American Indian” will be used as a shorthand expression for the longer and more cumbersome “American Indians, Eskimos, and Aleuts.”

The Demography of Pre-Contact American Indian Populations

As an introduction to the demography of contemporary American Indians, estimates of the size and distribution of pre-Contact populations provide a background for understanding modern demographic conditions. Estimates of the Indian population before 1492 have been a subject of great interest to a small group of scholars, primarily anthropologists and historians, for over 50 years and continue to generate sharp controversies. Understanding these debates over the pre-Columbian population is useful because they offer insight into the discrepancies among widely differing population estimates and because they offer alternative views of the nature of North American Indian social organization before the arrival of Europeans. The original inhabitants of North America did not leave a written legacy to be studied by modern scholars, and consequently most of what is known is speculative and inferential. Surveying the literature dealing with historic Indian populations exposes markedly different images of the culture and social organization of these people. Alternative views of fifteenth century Indian societies deeply influence contemporary assessments of how much and in what fashion the native population has changed since Columbus. Insights about the character of pre-Contact populations serve as a benchmark for judging the implications of modern population estimates.

⁷Joyotpaul Chaudhuri, “American Indian Policy: An Overview,” in Vine Deloria, Jr., ed., *American Indian Policy in the Twentieth Century* (Norman: University of Oklahoma Press, 1985), p. 20.

The estimates of pre-Contact populations, the manner in which they are derived, and their implications are relevant to the modern demography of American Indians because they provide a benchmark for recently gathered statistics. (An extensive literature is available on American Indian historical demography, and there are numerous books and annotated bibliographies better suited for readers specifically interested in pre-Contact populations.)⁸

Early Population Estimates

In some ways the vast range of estimates for the size of the pre-Columbian Indian population is as interesting as the actual estimates. Fifteenth century population estimates typically describe population sizes in the last pre-Contact years preceding the arrival of Columbus. Unless otherwise specified, most of these figures are for population size in 1492. These estimates of the population in the region of North America above the Rio Grande river range from a low of 900,000 to a high of 18 million.

The earliest available estimates for the North American Indian population are provided by individuals who had the opportunity to observe firsthand American Indian settlements. In many instances, explorers, missionaries, and, later, Indian agents were the first to visit Indian villages and make reports about the numbers of inhabitants. These eyewitness accounts are the nearest facsimile to objective data about early village populations. As estimates of the pre-Columbian North American population, these recollections are not especially useful, and there are many reasons for doubting their validity.

Among the shortcomings of these figures is that they are necessarily impressionistic and limited to a single tribe, or to a few villages or tribes within a relatively small geographic area familiar to the authors of these accounts. Systematic estimates of the complete North American population are unavailable in these early descriptions. Apart from military purposes, European explorers had little serious interest in the exact size of native villages, and as a result their reports are sketchy. Many of these early estimates are for the number of warriors defending a particular location or the number of "houses." Dobyns also suggests

⁸Dobyns (1976); Alfred W. Crosby, Jr., *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT: Greenwood, 1972); Sherburne F. Cook and Woodrow W. Borah, *Essays in Population History: Mexico and the Caribbean*, vol. 1 (Berkeley: University of California Press, 1971); Sherburne F. Cook and Woodrow W. Borah, *Essays in Population History: Mexico and the Caribbean*, vol. 2 (Berkeley: University of California Press, 1974).

that most of these figures are for populations already reduced by epidemics that spread across the continent following the arrival of Europeans.⁹ For example, the Pilgrims arrived at Plymouth in the aftermath of an epidemic that depopulated the area in which they settled.¹⁰

Systematic estimates of the sixteenth century population in North America were not developed until James Mooney's work in the early twentieth century, and few individuals equal his importance in the development of American Indian historical demography. Mooney was an anthropologist employed by the Bureau of American Ethnology of the Smithsonian Institution. In his time, the Bureau of Ethnology was engaged in an intensive effort to document information about American Indian lifestyles that were rapidly changing, if not headed toward extinction. Mooney's contribution to this effort involved studying and recording the size and location of Indian tribes and settlements at the time of contact with Europeans. His work in this area represented a pioneer attempt to produce the first scholarly estimates of the pre-Contact native population in North America. In 1910 Mooney published a brief article in a Bureau of Ethnology Bulletin wherein he reported that by his reckoning the North American Indian population numbered 1.15 million in 1600.

Mooney's work established the study of pre-Contact American Indian demography as a subject of scientific inquiry, but in his lifetime he did not publish detailed tribal estimates. After Mooney's death, a colleague at the Bureau of American Ethnology, John Swanton, had the opportunity to review Mooney's notes and unpublished work. Swanton found that Mooney had completed population estimates for all major tribal groups, and in 1928 he published Mooney's work posthumously. Swanton was unable to ascertain Mooney's exact resources, but in prefacing these materials he encouraged readers to accept their accuracy because of Mooney's reputation for careful and meticulous research.¹¹ The 1928 publication reported that the North American aboriginal population numbered 1,152,950 at the time of European contact. MacLeod and Willcox¹² published studies at approximately the same time as

⁹Henry F. Dobyns, *Their Number Become Thinned: Native American Population Dynamics in Eastern North America* (Knoxville: University of Tennessee Press, 1983).

¹⁰Thornton (1987).

¹¹John Reed Swanton, "Preface," in James Mooney, *The Aboriginal Population of America North of Mexico*, Smithsonian Miscellaneous Collections, vol. 80, no. 7 (Washington, DC: Smithsonian Institution, 1928).

¹²Walter F. Willcox, "Increase in the Population of the Earth and of the Continents since 1650," in Walter F. Willcox, ed., *International Migrations*, vol. 2 (New York: National Bureau of Economic Research, 1931); William C. MacLeod, *The American Indian Frontier* (New York: Knopf, 1928).

Mooney's posthumous work appeared, but they did not seriously dispute Mooney's estimate.

The population estimates published by Swanton were highly influential, and they went unchallenged for over a decade. In 1939 Kroeber reviewed these figures and concluded that Mooney's estimate for the total population was too high, especially for the California area. He substituted his own estimates for California and reduced Mooney's estimate for the total population by 152,000, to 1.0 million. On the basis of his findings for the prehistoric California population, Kroeber observed that the correct figure for the pre-Contact North American population was probably closer to 900,000. Nevertheless, he did not raise major objections to Mooney's other estimates and endorsed them as essentially correct.¹³

Kroeber's acceptance of Mooney's estimates added to their influence, and they continue to be a frequently cited source of information.¹⁴ In 1959 Aschmann published a substantially higher number of 2.2 million for the North American population, twice the estimates of Mooney and Kroeber.¹⁵ Dobyns offered in 1966 one of the most controversial challenges to the Mooney and Kroeber data,¹⁶ criticizing their work as excessively conservative. Applying newly developed techniques to historic and archaeological data, Dobyns obtained an estimate of 9.8 million to over 12.0 million. This remains one of the highest estimates in the published literature.

Dobyns's work was a breakthrough because it raised scholarly interests in American Indian historical demography by seriously challenging the long-established work of Mooney and Kroeber. Since their publication, Dobyns's estimates have stimulated a flurry of publications. Aspects of his work, especially some of his methodological assumptions, have been harshly criticized.¹⁷ Driver modified some of the more objectionable assumptions in Dobyns's methodology and re-estimated

¹³Alfred L. Kroeber, "Native American Population," *American Anthropologist* 36 (1934):1-25; Alfred L. Kroeber, "Cultural and Natural Areas of Native North America," *American Archaeology and Ethnology*, no. 38(Berkeley: University of California Press, 1939).

¹⁴John Upton Terrell, *American Indian Almanac* (New York and Cleveland: World, 1971), uses Mooney's figures for example.

¹⁵Homer Aschmann, *The Central Desert of Baja California: Demography and Ecology* (Riverside, CA: Manessier, 1967 [1959]).

¹⁶Henry F. Dobyns, "Estimating Aboriginal American Population: An Appraisal of Techniques with a New Hemispheric Estimate," *Current Anthropology* 7(1966):395-416; and "Reply," *Current Anthropology* 7(1966):440-444.

¹⁷Harold E. Driver, *Indians of North America* (Chicago and London: University of Chicago Press, 1969); William M. Denevan, "Introduction," in William M. Denevan, ed., *The Native Population of the Americas in 1492* (Madison: University of Wisconsin Press, 1976); Russell Thornton, "But How Thick Were They?" *Contemporary Sociology* 31 (1984):149-150.

his population figures to obtain a much more conservative estimate of 3.5 million, but still substantially higher than the estimates of Mooney and Kroeber.

More recently, Ubelaker reviewed a series of updated population estimates for tribes included in Mooney's original figures.¹⁸ Combining these newer figures with Mooney's original estimates, Ubelaker surmises that Mooney would have obtained a number twice as large if he had had access to better data. Adjusting Mooney's data, Ubelaker reports a projection of 2.2 million instead of 1.15 million. Viewing Ubelaker's adjustment of Mooney's figures in light of the work of other researchers, Denevan believes that the pre-Columbian North American population was probably nearer to 4.4 million.¹⁹ Thornton and Marsh-Thornton obtain a slightly higher estimate of 5.13 million by adjusting the data used by Dobyns.²⁰

Among the recent contributions to this literature, Dobyns subsequently presented estimates which he admits will be controversial well into the future.²¹ He reviews a variety of documentary and archaeological data to conclude that the aboriginal population north of meso-America numbered as many as 18.0 million, nearly doubling his 1966 estimate. This figure represents the largest credible estimate published.

Dobyns's estimate of 18 million North American natives is four to five times greater than most of the appraisals submitted by other experts on pre-Contact populations. A sampling of the better-known estimates are shown in Table 1.1. The definitive estimate of the North American pre-Contact population size has not been established, and there is much work to be done before this is achieved. However, these figures unequivocally demonstrate the enormous problems in constructing meaningful estimates of pre-Contact population sizes.

How Many Indians?

There is probably no single figure that can be accepted as the "best" estimate of the late fifteenth century North American population, especially given the wide range of numbers from which to choose. For

¹⁸Douglas H. Ubelaker, "The Sources and Methodology for Mooney's Estimates of North American Indian Populations," in William M. Denevan, ed., *The Native Population of the Americas in 1492* (Madison: University of Wisconsin Press, 1976).

¹⁹Denevan (1976), p. 291.

²⁰Russell Thornton and Joan Marsh-Thornton, "Estimating Prehistoric American Indian Population Size for United States Area: Implications of the Nineteenth Century Population Decline and Nadir," *American Journal of Physical Anthropology* 55(1981):47-53.

²¹Dobyns (1983).

TABLE 1.1
Estimates of the North American Native Population, Circa 1492

	Publication Date	Population Estimate
Mooney	1910, 1928*	1,152,950
Sapper	1924	2.5-3.5 million
MacLeod	1928	1.0 million
Willcox	1931	1,002,000
Kroeber	1939	900,000
Rosenblatt	1954	1.0 million
Aschmann	1959	2.24 million
Dobyns	1966	9.8 million
Driver	1969	3.5 million
Ubelaker	1976	2.2 million
Denevan	1976	4.4 million
Thornton and Marsh-Thornton	1981	1.8-5.13 million
Dobyns	1984	18 million

*Published posthumously by Swanton.

decades the Mooney-Kroeber figures stood unchallenged, but most contemporary studies reject them for being overly conservative. The available evidence suggests that the pre-Columbian population was substantially larger than the approximately 1 million advocated by Mooney and Kroeber. In view of recently obtained data from archaeological and other sources, a conservative estimate is that at least 2 million natives inhabited the North American continent at the time of Columbus's arrival. As Ubelaker shows, updating Mooney's conservatively inclined data with recently obtained information yields a population size exceeding 2 million. Thornton and Marsh-Thornton extrapolate the Indian population decline from 1800 to 1880 backward to 1492 and find that 2 million is a reasonable estimate based on this linear trend alone. In all likelihood, the pre-Columbian American population was much larger.

If 2 million constitutes an acceptable lower bound for the range of aboriginal population estimates, the upper bound is much more difficult to ascertain. Dobyns's work clearly suggests that a much higher number is conceivable, if not highly plausible. A liberal upper bound includes the estimates of a majority of researchers, and most estimates do not exceed 5 million. This approach yields a range for the pre-Columbian North American population size of 2 million to 5 million. This range reflects a consensus across a wide spectrum of scholars. It is higher than the Mooney-Kroeber figures, which demonstrably underestimate the population. It is much lower than the number Dobyns proposes; but as

Dobyns admits and Thornton²² emphasizes, it is unlikely that a plurality of scientific experts will accept a number as high as 18 million in the near future.

Techniques for Estimating Pre-Contact Populations

Variation in population estimates can be understood as partly the result of differences in the techniques used to calculate estimates, and especially the consequence of different assumptions embedded in these methods. Understanding the manner in which population estimates are derived reveals much about the sources of differences in these figures.

At the outset, it should be realized that the very nature of the problem denies prehistoric demography much of the exacting scientific rigor found in demographic studies of modern populations. A large part of pre-Contact American Indian demography is speculative, indirect, and inferential, as written records seldom exist, and by definition careful enumerations are unavailable. Dobyns addresses this problem succinctly, noting that "demographers accustomed to analyzing census data will be little satisfied with the quality of information necessarily utilized in the historical demography of the New World. . . . One either uses such data as may be available and learns something, however inadequate, or abjures such data and learns nothing."²³

The data for pre-Contact population estimates are primarily derived from two basic sources. Archaeological data in a variety of forms are extremely important, especially as technological advances have made reliable dating possible. Archaeologists are now able to make remarkably accurate determinations of the age of artifacts. These artifacts provide a great deal of information about the lifestyles and settlement patterns of early populations, and they can be used for estimating settlement sizes and population densities for prehistoric areas. For example, prehistoric middens reveal dietary habits and consumption patterns. Comparing this information with other data about environmental conditions reveals the likely number of inhabitants sustained by environmental resources. Areas with bountiful protein sources have predictably larger prehistoric populations than areas with limited access to food and fiber.

Another important source of data is extracted from the written records left by the few literate Europeans who first encountered the native

²²Thornton (1984).

²³Dobyns (1976), p. 7.

population. As mentioned, there are many reasons to question this information. In some instances the entries in diaries, reports, and letters appear reliable, and in others the information is clearly distorted. Dobyns discounts this evidence as overly conservative and untrustworthy. At the very least, this is an important source of information as the only written records of early Indian populations. It is corroborating information for archaeological data, and the more reputable documentary sources offer important primary data for generating area population estimates.

Archaeological and documentary data are used in all of the major techniques for estimating prehistoric populations. Two major methodological strategies are found in the literature and reflect varying degrees of technical sophistication and scientific rigor. They also embrace certain assumptions that heavily influence the magnitude of prehistoric population estimates.

The "dead reckoning" method is the oldest and least exacting in its application of technical information. Mooney's population estimates are the best-known examples of this method. The exact sources of many of these figures are lost to history, and Ubelaker is responsible for most of what is known about Mooney's original sources. The estimates Mooney published in 1910 and the tribal figures posthumously published by Swanton were based primarily on the records of literate colonials. For example, many of Mooney's estimates for tribes of the South Atlantic states in 1600 are based on the writings of Captain John Smith. Mooney's technique is dead reckoning because for each tribe he relied on educated guesswork to determine the accuracy of colonial reports. He raised or lowered the estimates to counter understated or exaggerated colonial documents. In other cases, he reckoned population size by choosing the most apparently reliable figure among conflicting reports of tribal size or selecting a compromise estimate.

More rigorous than dead reckoning, "depopulation ratios" and various sorts of projection methods are other tools used to estimate pre-Contract populations.²⁴ Area projection, for example, takes the population densities known for one area and obtains a population estimate for another unknown area by assuming similar population densities in the known and unknown areas. Other projection methods extrapolate total population numbers from fragmentary sources such as partial information about age-sex distributions, the numbers of warriors, or the number of dwellings and their likely number of inhabitants. These projection techniques rely heavily on corroborating evidence such as information about agricultural practices, the complexity of social structures, environmental resources, and skeletal remains.

²⁴Denevan (1976), pp. 7-12.

Depopulation ratios are an especially important tool used to estimate prehistoric populations. From the arrival of Columbus until 1890 the native North American population experienced an almost genocidal reduction. The largest population losses resulted from the introduction of European diseases to a population with little immunity and no experience in treating these afflictions. Smallpox heads a list of maladies that nearly annihilated the aboriginal populations in North America and South America. Scholars generally agree on these facts but disagree on the magnitude of depopulation and the details of constructing depopulation ratios.

Depopulation ratios are constructed by estimating maximum and minimum population sizes for one or more well-known areas. These ratios are then applied to larger or less well known geographic areas. Minimum populations are relatively undisputed because frequently they can be obtained from recent historical sources such as ethnographies or actual enumerations. For example, the North American Indian population minimum was cited as approximately 228,000 in 1890. In contrast, establishing a population maximum is much more problematic, and it is usually derived indirectly from archaeological and/or corroborating documentary data.

Once maximum and minimum populations are established for one or more known areas, a "standard" depopulation ratio can be computed and applied to lesser known regions for the purpose of obtaining complete population estimates. In his 1966 article, Dobyns reviews data for several areas and obtains a standard depopulation ratio for North America of 20 or 25 to 1. This ratio means that peak populations were 20 to 25 times larger than their smallest size. Dobyns applies this ratio to the 1930 census estimate of American Indians to arrive at a figure of 6.6 million for the continental United States (and 9.5 million for the entire North American region). Thornton and Marsh-Thornton point out that the American Indian population reached its nadir 40 years earlier than Dobyns's 1930 estimate. They find that the 1890 nadir yields a peak population estimate one half as large as Dobyns's estimate. Driver also criticizes Dobyns's depopulation ratio of 20:1 as unnecessarily high. Driver favors a lower depopulation ratio of 10:1, and applying this to the 1890 minimum population he obtains an estimate of 2.5 million. However, as the Thorntons point out, Driver uses an estimate of the minimum population that is too high.

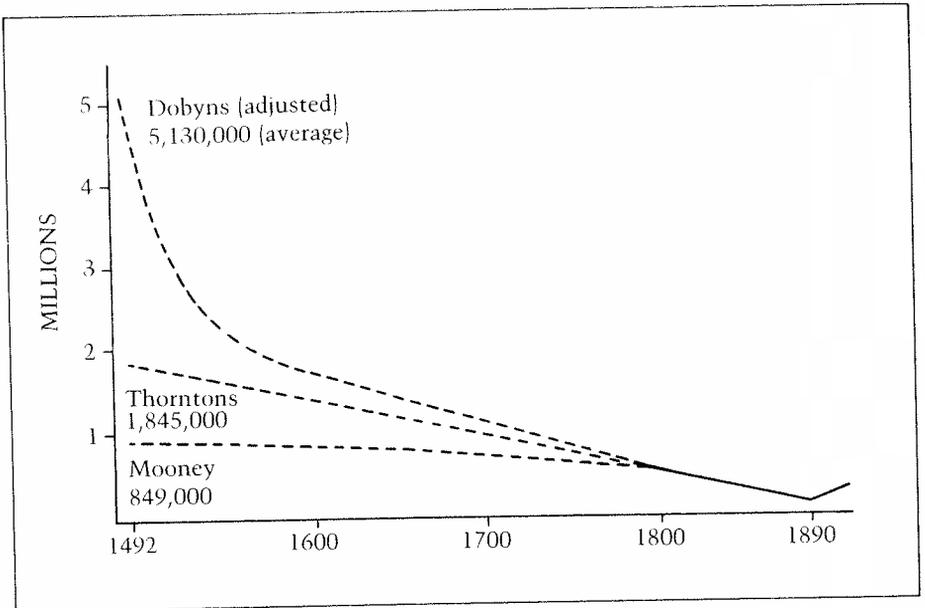
Another technique for estimating early American Indian populations is linear extrapolation. This method is less widely used than depopulation ratios but is equally, if not more, rigorous. Depopulation ratios use data for two extreme points in time, while linear extrapolation employs trend line data for known periods to project backward into history. Thornton and Marsh-Thornton argue that American Indian popu-

lation declines from 1800 to 1880 approximate a linear trend and use this information to project population estimates backward to 1490. They conclude that the Indian population of North America was about 2.5 million when Columbus arrived. This technique assumes that population declines are constant across long historical periods and does not allow for precipitous decreases in size resulting from widespread epidemics.

However, assuming linear, monotonic population declines and neglecting the profound impact of epidemic disease are at variance with much of what is known about demographic events after 1500. There were steep declines in the native population after 1500, and by 1700 numerous tribes were nearly extinct or already vanished. Figure 1.1 compares population estimates based on Dobyns's depopulation ratios and Thornton and Marsh-Thornton's linear trend. As this illustrates, the depopulation ratios reflect the massive drop in population while the linear trend does not. This figure also forcefully demonstrates how methodological assumptions influence population estimates.

FIGURE 1.1

Pre-European American Indian Population Estimates for the United States Area Minus Alaska and Hawaii, by Mooney, the Thorntons, and Dobyns (adjusted), and Their Likely Patterns of Decline from 1492 to 1890



SOURCE: Figure prepared by Thornton and Thornton (1981).

Implications of Pre-Columbian Population Estimates *The Magnitude of Depopulation*

Estimates of the pre-Columbian native population have profound implications about the nature of these societies, the impact of Western society, and the outcomes of contact between fundamentally different cultures.²⁵ These implications are closely tied to the magnitude of depopulation after 1500.

It is generally agreed that native populations declined precipitously in North America and South America after 1500. Numerous factors were responsible for population declines that continued well into the nineteenth century. Military action, genocide, slavery, and famine are commonly cited agents of depopulation, but these factors played a relatively small role for most tribes compared with the extraordinarily lethal influence of European diseases. Natural selection and repeated exposure to strains of communicable diseases helped the European population develop resistance to illnesses such as smallpox and cholera. North American populations were free of these Old World diseases until the early 1500s. Because they possessed no resistance to the most virulent and lethal symptoms of these diseases, exposure meant almost certain death to American Indians and decimated the aboriginal population. Smallpox headed a list of communicable diseases, including cholera, diphtheria, bubonic plague, influenza, typhus, typhoid, measles, and scarlet fever, which annihilated Indian people.

Crosby notes that the first 100 years of contact with Europeans and Africans were accompanied by a spectacular rate of mortality among Indians.²⁶ In Denevan's words, "the discovery of America was followed by possibly the greatest demographic disaster in the history of the world."²⁷ Europeans were awestruck at the rate at which the natives succumbed to diseases that were not nearly as virulent among their own people. Undoubtedly this reinforced beliefs about the natural inferiority of the Indian population. A German missionary wrote in 1699 that "the Indians die so easily that the bane look and smell of a Spaniard causes them to give up the ghost."²⁸

Without an exact estimate of the pre-Columbian population, it is impossible to determine precisely the magnitude of depopulation among

²⁵Woodrow Wilson Borah, "The Historical Demography of Aboriginal and Colonial America: An Attempt at Perspective," in Denevan (1976), and Dobyns (1983, essay 7), provide a review of the implications of different population estimates for understanding the impact of depopulation.

²⁶Crosby (1972).

²⁷Denevan (1976), p. 7.

²⁸Quoted in Crosby (1972).

American Indians. Conservatively, on the North American continent Indian population declined by 1.75 million to 4.75 million between 1500 and 1890. If the figures of scholars such as Dobyns are acceptable, the population decline for the same period is massive: 9.75 million to 17.75 million. The latter figures indicate that the Indian population declined at an average rate of 500,000 to 850,000 in each 20-year generation after 1500.

The extent of depopulation from disease and other factors is perhaps most significant because it shapes the image of American Indian social structure and culture prior to 1492. Borah identifies two conflicting views of Indian social organization before depopulation.²⁹ One view portrays Indian social structure as lacking the social and cultural amenities found in the more highly developed societies of the period; in primitive societies economic production is limited, surpluses are small, and exchange between groups is relatively uncommon. Another perspective argues that early native societies were highly complex and engaged in widespread economic exchanges with one another.

The relative merits of these opposing views of pre-Columbian social structure are heavily influenced by estimates of pre-1500 population sizes and the extent of sixteenth century depopulation. Highly complex social structures are most likely given large, densely settled populations. Adherents of this perspective argue that the American continent was heavily populated before the arrival of Columbus, equaling or exceeding the population of Europe. They are inclined to describe Indian depopulation in terms of a holocaust that lingered into the nineteenth century. In contrast, proponents of low population estimates generally believe that pre-Columbian social structures were relatively simple, with thinly scattered groups of natives living in Stone Age conditions. These competing views portray the impact of European discovery as either relatively slight or tragically significant.

Civilizations Lost

The proposition that large, densely settled populations are conducive to elaborate political and economic systems is well supported by historical data. The Incas, Mayas, and Aztecs developed highly complex societies in terms of their economic and political structures. They also achieved high levels of artistic and architectural sophistication. These societies are well known because they were intact at the time of European arrival. Complex societies also developed in North America, al-

²⁹In Denevan (1976).

though much less is known about them because many disappeared before directly meeting with Europeans. The Mississippi and Ohio river valleys were the center of development for two major cultures.

The Hopewell civilization emerged about 300 B.C. and lasted nearly 1,000 years, until A.D. 700. The Hopewell people settled throughout Illinois, Ohio, eastern Missouri, and the upper Mississippi valley.³⁰ Traces of Hopewell cultural influence spread as far as the Mid-Atlantic region. The artifacts of this culture are rich in intricate carvings and pottery resembling meso-American art forms. Archaeological sites indicate that Hopewell villages were stable settlements, organized around regional "capitals" in which major social events such as religious ceremonies were observed. Burial mounds and other types of spectacular earthworks are evidence that the Hopewell were sufficiently well organized to carry out large-scale "public works" and probably developed a rich spiritual and ceremonial repertoire. Very little is known about why this civilization declined. Archaeologists speculate that climatic changes, agricultural innovations, and protracted warfare with surrounding tribes may have dispersed the Hopewell.³¹ Disease does not appear to be responsible for their disappearance.

The Hopewell were succeeded by another civilization known as the Mississippian culture.³² Like the Hopewell, these people were scattered throughout the Ohio and Mississippi valleys, although there is some evidence that the Mississippian culture exercised a greater influence over the Southeast than their predecessors. The Mississippian culture developed around large settlements characterized by the construction of large temple mounds. Modern urban development has destroyed many of these sites. Cahokia, outside East St. Louis, is the largest known Mississippian settlement, and it is also the site of the largest known earthwork. Monk's mound is nearly 100 feet high and measures 600 by 900 feet at the base. Temples, the chief's home, and other important public buildings were located on this and other mounds. Mississippian artwork incorporated exotic materials such as conch shells and included finely detailed pottery and carvings. There is evidence suggesting that these people controlled an extensive trading network ranging from Wisconsin to Georgia.

The disappearance of the Mississippian culture is nearly as mysterious as the Hopewell decline. Some archaeologists rule out disease as a

³⁰Gordon R. Willey, *An Introduction to American Archaeology* (Englewood Cliffs, NJ: Prentice-Hall, 1966); Robert L. Hall, "An Interpretation of the Two-Climax Model of Illinois Prehistory," in David L. Browman, ed., *Early Native Americans: Prehistoric Demography, Economy, and Technology* (The Hague: Mouton, 1980).

³¹Browman (1980).

³²Willey (1966); Hall (1980).

cause; there are signs that some villages were abandoned much earlier than 1500.³³ However, the weight of circumstantial evidence is sufficiently great that disease cannot be easily discounted as a cause of Mississippian decline. The most compelling evidence links the disappearance of the Mississippians with the aftermath of epidemics documented by Dobyns and others. The Mississippian culture reached its peak influence between 1400 and 1500. In the wake of diseases that spread across North America after 1500, the Mississippians disappeared entirely by 1700. Archaeologists speculate that the Mississippian people dispersed throughout the Midwest and Southeast, dissolving into smaller, more primitive settlements after being decimated by disease. Many of the tribes encountered by early explorers—the Natchez, for example—were remnants of this culture.

The Hopewell and Mississippian cultures were not the only complex societies to develop in North America. Sophisticated towns and villages were carved out of the walls of mesas in the Southwest by the Anasazi people. In the centuries preceding Columbus, the Anasazi developed techniques for manufacturing pottery and agricultural practices for the arid southwestern climate. The Hohokam, Patayan, and Mogollon cultures joined the Anasazi to make the Southwest an important population center in pre-Columbian America. The Anasazi endured longer than most other southwestern cultures, surviving the massive pandemics of the seventeenth century, but frequent hostile encounters with Spanish military expeditions eventually dispersed this vigorous population by 1700. Descendants of the Anasazi are living in pueblo settlements throughout Arizona and New Mexico. Other large populations were not as successful in escaping the ravages of disease and military force. For example, Dobyns claims that 1.25 million inhabited the area of Florida. Of this number, 750,000 belonged to the now-extinct Timucuan tribe.

The welter of information produced by archaeologists and historical demographers leads to several conclusions about the native populations of North America. There are few doubts that these populations were much larger than once believed by researchers such as Mooney and Kroeber. Large populations imply that these cultures were also more highly developed than some have argued. The opinion that pre-Columbian populations consisted mostly of small disorganized groups roaming a deserted territory and foraging a Stone Age subsistence is not consistent with available data. A more likely scenario is that well-organized population centers developed throughout North America and South America. The greatest and most well known attainments belong to the

³³Hall (1980).

Aztecs, Incas, and Mayas of Central America and South America, and the achievements of these cultures were mirrored on a smaller scale by the cultures of North America. In the decades preceding European discovery, North America was, as one anthropologist observed, "civilization aborning."³⁴

The Impact of Depopulation

The presence of large native populations with complex social structures dramatizes the destructive forces of epidemic disease and warfare. In nightmarish proportions, the sixteenth century depopulation of America rivals the plagues of medieval Europe. The words of a Maya Indian describe the ghastly virulence of an epidemic.

Great was the stench of the dead. After our fathers and grandfathers succumbed, half of the people fled to the fields. The dogs and vultures devoured the bodies. The mortality was terrible. Your grandfathers died, and with them died the son of the king and his brothers and kinsmen. So it was that we became orphans, oh, my sons! So we became when we were young. All of us were thus. We were born to die!³⁵

Massive depopulation had a pervasive impact on the culture and social organization of American Indians. Pre-Columbian Indian social life was irrevocably changed by the upheaval of large-scale population losses.³⁶

Depopulation forced a massive reorganization of village settlement patterns. Villages in areas poorly endowed with food and fiber resources were abandoned in favor of more productive locations because of less competition for scarce environmental resources. As the survivors of epidemics relocated to more prosperous areas, they became incorporated into existing settlements, resulting in the gradual amalgamation of villages. In some instances, the process of village amalgamation facilitated changes in language, tribal and ethnic distinctions, and a smaller number of tribal polities. Indians also responded to the spread of disease by relocating entire villages. There is evidence of widespread migratory behavior and redistribution of population centers throughout North America in the sixteenth century.

Perhaps the most profound changes resulted from the cultural response to depopulation. Village amalgamation and territorial resettlement stimulated one set of adjustments by promoting contact between

³⁴Hall (1980), p. 402.

³⁵Quoted in Crosby (1972), p. 58.

³⁶Dobyns (1983) discusses these changes at length.

tribal cultures. Declining populations adapting to conditions of depopulated and sparsely settled areas displayed another set of changes: namely, less complex social structures and more rudimentary economic systems. Smaller populations spent more time securing the food and fiber necessary for survival. They devoted less energy to manufacturing surpluses such as fine crafts for exchange. Depopulation disrupted trade networks and further reduced the demand for nonessential economic goods. Smaller populations and declining economic change downgraded Indian economic systems into progressively lower levels of specialization characterized by rudimentary forms of technology.³⁷ Despecialization is particularly responsible for the primitive economic systems and production technologies witnessed by early colonial settlers. Low levels of economic complexity were matched by uncomplicated systems of social organization. Elaborate systems of organization require large investments in personnel and other resources and are unnecessary for coordinating the activities of smaller populations.

The response of native populations to disease and depopulation created lasting impressions of American Indians that still influence modern ideas. Many of these ideas are increasingly questionable in light of findings from recent studies in historical demography. One enduring misconception, a popular myth in American culture, is that Europeans discovered a territory sparsely settled by nomadic Stone Age primitives. Implicit in this view is that American Indian populations were so small and poorly organized, and their culture so technologically inferior, that they were swept away by their first contact with non-Indians. A more likely explanation is that the debilitating effects of infectious diseases advancing ahead of European settlers disorganized and dispersed native populations, leaving only the remnants of tribal societies to be overcome by European settlers. Disease, as much as technical superiority, was responsible for the success of early European settlers in acquiring new territory. Conquistadors such as Cortez and DeSoto were assisted by the lethal effects of smallpox in their military exploits.³⁸

Tribal amalgamation and territorial resettlement led early colonists to view the land as virgin territory, untouched and ripe for settlement. In reality, abandonment was often a very large factor in making land available to colonial settlers. The Pilgrims and other early colonists from England were among the beneficiaries of land given up by disease-stricken tribes. The Massachusetts Indians, numbering several thousand, lived along the coastal region bearing their name. Shortly before the Pilgrims arrived at Plymouth Rock, this tribe was conveniently dis-

³⁷Dobyns (1983).

³⁸Crosby (1972).

persed by a series of epidemics, most likely smallpox. Captain John Smith observed 11 towns along the coast in 1614. Three years later, most of these localities were depopulated, just three years before the Pilgrims landed in 1620.³⁹

Concluding Remarks

The number and distribution of American natives can only be guessed from fragmentary, painstakingly collected data. However, there is a growing consensus that the Americas were inhabited by a much larger population than experts once believed. As new data become available and as estimation procedures become more sophisticated, an upward trend is evident in the estimate of pre-Columbian population size. The significance of this trend is that new developments in historical demography may produce widely accepted population estimates that exceed the 2 million to 5 million figure for North America circulating among contemporary scholars.

The significance of higher population estimates is directly related to the magnitude of depopulation resulting from disease and warfare. Among the numerous infectious diseases that periodically raged in the sixteenth century, smallpox had the most devastating effects. Disease arrested the military power of the native population and opened the land for European settlement. A less-appreciated fact is that epidemic disease was a massive shock to pre-Columbian culture and social structure as these populations adapted to the spread of mysterious illnesses and dwindling communities.

The full impact of depopulation on American Indians will never be known. Uncountable details are lost to history, and the cultural changes are immeasurable. Following the arrival of explorers in the Caribbean basin, disease spread rapidly outward and farther away in North America; its deadly influence arrived years ahead of the earliest European settlers. Table 1.2 is a chronology of known smallpox outbreaks that began with a massive pandemic in 1520–1524 and resulted in a precipitous decline in the indigenous population. Similar chronologies can be constructed for a host of other diseases.⁴⁰

For most North American Indians, the earliest ethnographic records were prepared by observers who arrived in the aftermath of the early pandemics. Dobyns insightfully argues that most of these early accounts

³⁹Ubelaker (1976).

⁴⁰Dobyns (1983), pp. 8–32.

TABLE 1.2
*Probable Smallpox Epidemics Among North American Indians,
 1520-1797*

Date	Areas of Outbreak
1520-1524	Total Geographic Area Unknown; Possibly from Chile Across Present United States
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 Leon, Western Sierra Madre to Florida
1649-1650	Northeastern United States, Florida
1655	Florida
1662-1663	Mid-Atlantic, Northeast, Canada
1665-1667	Florida to Virginia
1669-1670	United States and Canada
1674-1675	Texas, Northeastern New Spain
1677-1679	Northeast in New France and British Territory
1687-1691	Northeast in French and British Frontiers; Texas
1696-1699	Southeastern and Gulf Coast
1701-1703	Northeastern to Illinois
1706	Texas and Northeastern New Spain
1715-1721	Northeast to Texas
1729-1733	New England; California Tribes; Southeast
1738-1739	Southeast to Hudson Bay; Texas Peoples
1746	New York, New England; New Spain
1750-1752	Texas to Great Lakes
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 Great Lakes; Northwest Coast
1779-1783	From Central Mexico across all of North America
1785-1787	Alaskan coast across northern Canada
1788	New Mexico Pueblos
1793-1797	New Spain

SOURCE: Henry F. Dobyns, *Their Number Become Thinned: Native American Population Dynamics in Eastern North America* (Knoxville, TN: University of Tennessee Press, 1983) pp. 15-16.

record native culture in the wake of depopulation. By the time they were written, traditional pre-Columbian cultures had collapsed under the burden of rapidly declining populations. By the time white explorers arrived, the "traditional" forms of social organization that existed before 1492 had disappeared forever. The standard belief that early settlers witnessed pristine lifestyles and social systems unaffected by the presence

of Europeans is misleading. More commonly, the early colonists observed the survivors of European pathogens practicing newly adapted lifestyles in response to their sharply reduced populations. As Dobyns points out, many tribal practices witnessed at the time of first contact are mistakenly associated with centuries-old traditions.⁴¹ These practices were probably recent adaptations of an earlier way of life and are not "traditional" in the usual sense of the term. The physical arrival of Europeans did not contaminate ancient Indian societies; European diseases had forced dramatic social changes years earlier.

Spelling out the likely extent of social change that resulted from depopulation is far beyond the scope of this brief survey of American Indian historical demography. The following chapters deal exclusively with modern demography. In closing, it is important to realize what the findings of historical demography mean for contemporary American Indians. One significant point is that today's American Indians are experiencing a demographic resurgence that is relatively recent in origin. American Indians almost disappeared from American society. By 1890 there were so few Indians left in America that it was widely believed that they would eventually disappear. The Bureau of Ethnology in the Smithsonian Institution proceeded to copiously document Indian culture for posterity. Gradually improved living conditions, especially in health care and nutrition, and the cessation of military hostilities helped American Indians make a demographic comeback. Instead of disappearing, their number has grown steadily, and for the first time in over two centuries their population exceeded 1 million in 1980.

Modern American Indians descended from people who coped with extreme adversity and who were nearly pushed into extinction. Their survival depended on their ability to change and adapt their lifestyle to changing conditions in the environment. The dynamic quality of American Indian cultures results from combining old and new ways, saving some practices, and discarding others. Since the arrival of Columbus, if not before, American Indian social life has been continuously changing. After 1500 many of these changes were forced by the appearance of large numbers of foreign populations with new technologies, deadly maladies, and warlike predispositions. The ever-changing quality of American Indian culture is routinely ignored by two popular views of Indian people.

A highly romanticized view of traditional American Indian culture creates an image of people living in perfect harmony with nature and untouched by the afflictions of Western civilization, especially those en-

⁴¹See Dobyns's 1983 discussion of the methodological implications of cultural discontinuity resulting from epidemics. See also Julian H. Steward, "Theory and Application in Social Science," *Ethnology* 2(1955):292-302.

demic to modern industrial society. This image of traditional American Indians is perpetrated in literary classics such as Longfellow's "Hiawatha" and more recently in not-so-classic works such as Ruth Hill's *Hanta Yo*. If American Indians ever lived as they are described in romantic literature, it was only for a brief moment in history.

The romantic image of American Indians is based on highly stylized perceptions of eighteenth and nineteenth century Indian culture, which itself evolved from lifestyles of earlier eras. American Indians of the eighteenth and nineteenth centuries did not live as their ancestors did in the sixteenth and seventeenth centuries, and Indians of the sixteenth and seventeenth centuries were undoubtedly different from their ancestors of, say, the twelfth century. Weaving and sheep herding among the Navajos and buffalo hunting from horseback among the Sioux did not become traditional activities for these tribes until the Spanish introduced domestic sheep and horses to the Americas in the sixteenth and seventeenth centuries. To speak meaningfully of "traditional" Indian culture, it is imperative to specify a particular historical period. Omitting a reference point conjures a static image of Indian culture, lifeless and divorced from the reality of social change.

Social scientists frequently subscribe to another view of American Indians which is not unlike the stereotypes of romantic literature. Social science images of Indian social behavior are derived from ethnographic reports written in the eighteenth, nineteenth, and even the twentieth centuries. Early reports consisted of eyewitness descriptions, but later studies systematically collected data by soliciting recollections of eighteenth and nineteenth century social life. Dobyns attacks this approach for confusing lifestyles peculiar to the nineteenth century with centuries-old customs. As a source of information about ancient traditions, ethnographies are especially misleading because they seldom recognize the widespread social and cultural changes resulting from earlier population declines. Dobyns compares ethnographic images of traditional Indian social life to "paintings of extinct birds based on hearsay and on the artist's imagination."⁴²

The distortions built into this view of traditional Indian culture are significant because they influence thinking about contemporary American Indians. Until recently, population declines and highly stylized images of traditional Indian social life led many social scientists to conclude that American Indians were about to disappear from American society. Observing that fewer Indians practice lifestyles once common among "traditional" nineteenth century Indian tribes, and that modern Indians have adopted many of the trappings of Western society, social

⁴²Dobyns (1983), p. 26.

scientists predicted that American Indians would soon fade into history. Evidence of changing lifestyles signaled that American Indians were slowly giving up their ethnicity and joining the American mainstream. This perspective contends that social change is eroding the core of Indian ethnicity, implying that American Indians will retain their place in society only by living as their ancestors did in the nineteenth century.

Few Indians faithfully follow the lifestyles of their ancestors; neither do most Americans, including those who claim membership in an ethnic group. Most American Indians live in houses, drive cars, participate in recreational activities, and earn a livelihood, like most other Americans. Unlike most Americans, they may belong to the Native American Church and use ritual peyote, speak a native language, participate in special social activities such as tribal ceremonies and powwows, live under the authority of tribal governments and the Bureau of Indian Affairs, and learn as a part of their heritage about the Trail of Tears or how the coyote stole the moon.

Indians are different from most Americans because they live in enclaves that were intentionally established away from the American mainstream. They have a complex relationship with the federal government that is different from that of any other segment of society. In the most fundamental sense, the many differences that set American Indians apart from other Americans are underscored by a single, self-evident fact: They share a common identity and heritage with their fellow tribesmen and with every other descendant of the original inhabitants of this continent. The boundaries of the American Indian population are set by this identity. Understanding how these population boundaries are drawn in empirical data is one of the fundamental problems for the study of American Indian demography.