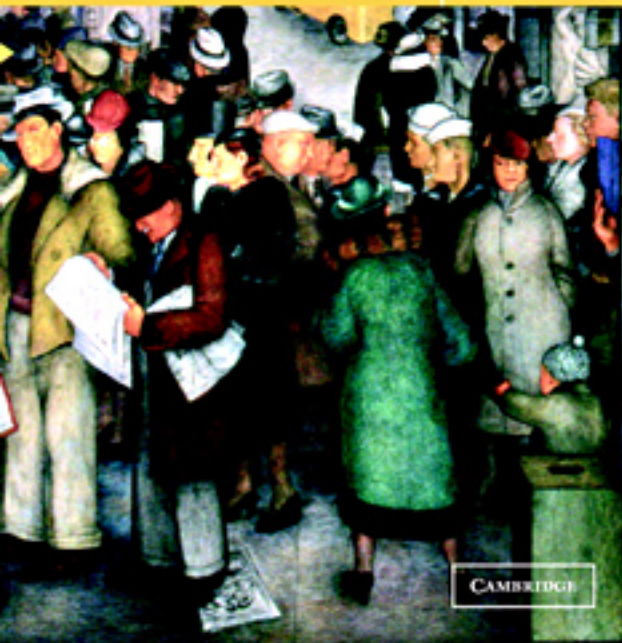


Herbert S. Klein

A
Population
History
of the
United States



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A POPULATION HISTORY OF THE UNITED STATES

This is the first full-scale, one-volume survey of the demographic history of the United States. From the arrival of humans in the Western Hemisphere to the current century, Klein analyzes the basic demographic trends in the growth of the preconquest, colonial, and national populations. He surveys the origin and distribution of the Native Americans, the postconquest free and servile European and African colonial populations, and the variation in regional patterns of fertility and mortality until 1800. He then explores trends in births, deaths, and international and internal migrations during the 19th century, and compares them with contemporary European developments. The profound impact of historic declines in disease and mortality rates on the structure of the late-20th-century population is explained. The unusual patterns of recent urbanization and the rise of suburbia in the late 20th century are examined along with the renewed impact of new massive international migrations on North American society. Finally the late-20th-century changes in family structure, fertility, and mortality are evaluated for their influence on the evolution of the national population for the 21st century and compared with trends in other postdemographic-transition advanced industrial societies in Europe and Asia.

Herbert S. Klein is the Gouverneur Morris Professor of History, Columbia University, and Research Fellow at the Hoover Institution, Stanford University. He is the author of numerous books, including *The Atlantic Slave Trade* (Cambridge, 1999) and *A Concise History of Bolivia* (Cambridge, 2003). He also coedited *The Transatlantic Slave Trade: 1562–1867: A Database* (Cambridge, 2000) with David Eltis, Stephen D. Behrendt, and David Richardson.

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HISTORY OF THE
UNITED STATES

HERBERT S. KLEIN

Columbia University



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UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press

The Edinburgh Building, Cambridge CB2 2RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org

Information on this title: www.cambridge.org/9780521782685

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First published in print format

ISBN-13 978-0-511-18962-3 eBook (Adobe Reader)

ISBN-10 0-511-18962-1 eBook (Adobe Reader)

ISBN-13 978-0-521-78268-5 hardback

ISBN-10 0-521-78268-6 hardback

ISBN-13 978-0-521-78810-6 paperback

ISBN-10 0-521-78810-2 paperback

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To

Stanley M. Elkins,
*who first taught me to think critically about the
history of the United States*

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INTRODUCTION

When my editor, Frank Smith, first suggested the need for this volume, I was rather surprised. Were there not a dozen books on the demographic history of the United States, I asked? No, he replied, not a one, and after a systematic checking I found, to my astonishment, that he was quite right. Most countries in Europe have several such volumes dedicated to their population histories, and even many developing countries have such histories. There were, of course, several important but partial general studies that had been produced in the 20th century from Rossiter's simple statistical compilation (1909), to the full-scale surveys of Thompson and Whelpton (1933) and Taeuber and Taeuber (1971). There were also numerous long-term historical studies on aspects of demographic change, especially related to fertility, but there was no one-volume synthesis that covered the entire history of the United States. Despite the extraordinary amount of research produced by individual scholars and even a recent collection of essays on the subject edited by Haines and Steckel (2000), no one had provided the general reader with a survey.

I myself had worked previously on some aspects of U.S. demographic history, most specifically on slavery, the Atlantic slave trade, and Italian immigration, but most of my research and writing has been involved with the demographic history of Latin America. Given this rather unusual background, I thought that I might be able to provide a viewpoint that was somewhat different from the usual approach, and I felt that I had the skills to interpret the more technical work done by demographers, economists, and sociologists for a

broader audience. My aim in this book is twofold: to report on the best of the current research and to summarize the mass of quantitative materials that private persons and public agencies have produced for understanding our society. Although few historians have ventured into this area, except for the colonial and early republican period, this is not an unworked field of research. Demographers, economists, and sociologists have devoted a great deal of time and research to understanding the evolution of the national population in the 19th and 20th centuries and have generated a great many new insights as well as new demographic materials. Even government demographers have written about historical demography as they begin to work through issues that are of contemporary concerns. There is thus a vast body of readily available research and materials that can be used to understand this history.

The demographic history of any country shares many characteristics with other populations and their evolution. I have thus tried to show both the commonality of patterns and changes that the population of the United States shared with other nations, especially those of the North Atlantic world, and also to examine those features that were unique to its evolution. Although all modern industrial societies arrive at roughly the same basic structures in the 21st century, they often took slightly different routes to get there. In the case of the United States, the decline of fertility before the fall of mortality, the existence from the beginning of a multiracial society, and the ongoing impact of foreign immigration have been among the special factors that have helped define some of the unique features of the population history. In the following analysis I have tried to show how these unique features modified the broad demographic changes that all populations of the advanced industrializing countries were experiencing in the past three centuries.

It also might be useful to define some of the terms and indices that I use throughout the book. Demographic change is traditionally determined by three major factors: the births, deaths, and in- and out-migration experienced by a given population. To measure these changes, demographers have established a series of indices that are expressed in ratios – usually to the resident population – and thus

comparable across different size populations.¹ In dealing with births, there are a host of measures that are used, such as the total births in a given year as a ratio of the total population in that same year. This is the so-called crude birth rate and is expressed as births per 1,000 resident population. Given the constraints on human fertility, a crude birth rate of 55 births per thousand resident midyear population would be considered a very high rate. Today, the crude birth rate in the United States is on the order of 14 per thousand resident population. But this crude rate is just one of many rates used to measure the births in a population. There are a series of more refined rates that try to take into account the fact that fertile women are the basic unit of analysis and compare total births to women in, say, the ages of 15 to 49 years or even the rate of infant girls born to these women in their fertile years. Further refining estimates are created using the birth order, the age of the mother at first and subsequent births, the spacing between children, and so on. The more refined the ratio, the more carefully it reflects the actual number of women who survive to produce female children and the better it predicts the fertility changes that will occur in the current and future generations. Given the poor quality of vital statistical registration in the United States until the 20th century, most scholars use the very simple crude rates generated from the census, the child–woman ratio, which is the ratio of children listed in the census under 5 years of age to all women in their fertile years of roughly 15 to 49 years of age (taken from the census rather than from birth registrations), which they then use to estimate the “total fertility rates.” These are the total number of children produced by an average women from the given population over the course of her childbearing years. In developing countries today, that total fertility rate could be as high as six or seven children per woman who has completed her fertility, whereas in contemporary advanced industrial societies, that rate usually falls below the replacement level of 2.1 children.

¹ The standard manual that defines all of these various measures is Henry S. Shryock, Jacob S. Siegel and Associates, *The Methods and Materials of Demography* (New York: Academic Press, 1976).

Next in importance are the death rates, again with the crude death rate being the most used until well into the 20th century. The “crude death rate” is defined as the total number of people who died in a given year as a ratio of the resident population in that year. Demographers also have created a series of very refined death rates related to age, type of disease, and other factors, all of which are more useful to determine general movements in mortality than the crude death rate. One rate that is a rather sensitive indicator of well-being and change is the “infant mortality rate,” which calculates the number of infants dying before age 1 as a ratio of all children born in that year. In many regions and districts of the United States, this infant mortality rate has been calculated for populations before the 20th century, and these numbers are often presented here. In turn, the “child mortality ratio” is also a good indication of the well-being of a population and is calculated from the number of children dying before 5 years of age to the number born in a given year. More recently, the infant mortality rates have included fetal deaths as well as deaths by days and months after birth.

Once death rates have been established for all ages, then a life table can be constructed, which essentially predicts the ratio of a given population at birth dying at each subsequent advancing age. Normally, when demographers say that life expectancy of a given population is 45 years of age, it means that half the population born in, say, 1850 will survive to the age of 45 years in 1895. Like the infant mortality rate, this measure of average life expectancy is much used today to compare world populations in terms of health and well-being. This number is often confused by many people as meaning that few in a society with such a low life expectancy reached old age. But it should be remembered that prior to the second and third decades of the 20th century, the death rates among infants and children were extremely high. This means that those who survived to 5 years of age in any premodern society had an expectation of life that would go well beyond the average life expectancy at birth. Thus, for example, the white male life expectancy at birth in the United States in 1900 was 46 years of age; this at a time when infant and child mortality was still high, with some 23% of the males dying before 5 years

of age. For those who survived to 5 years of age, their life expectancy increased to 54 years of age. The half of the men who survived to 46 years of age in 1946 still had, on average, more than 20 years of life left.² Thus a low average life expectancy at birth in the pre-modern era did not mean that there was not a significant number of persons in the population reaching advanced ages.

To see if a population will grow or decline, one needs to know not only the birth and death rates but also the rates of migration that this resident population experiences. People can be lost by death and by migration and if they leave their original homes in their fertile years, this will also have a major impact on the reproductive potential of the remaining population. Equally, the age and sex of the immigrants who enter the given population in any year will influence their total numbers as well as their potential growth rate. It is often the case in the North American experience that immigrant women have higher rates of fertility and family size than do the natives of the receiving society.

It should be stressed that social, cultural, and legal norms and institutions that define marriage and the family will also have their impact on demographic change. If births out of wedlock are seriously restricted by the local population for religious or legal reasons, for example, then the marital fertility rate (the birth rate in a given year only to women who were legally married – thus ignoring children born outside of marriage) will become the single most important factor in determining fertility. Thus any changes in the age of marriage for women can influence potential fertility, expanding or contracting it depending on the age women enter marriage. Equally, married couples can practice birth control, so that voluntary constraints on births can also occur. Demographers and historians have attempted to examine this question of voluntary constraints indirectly by looking at the spacing between children and the age when women terminate their childbearing. These measures in months and

² Data taken from the 1900 U.S. life table found at the University of California, Berkeley, and Max Planck Institute for Demographic Research. *Human Mortality Database*. Accessed at <http://www.demog.berkeley.edu/wilmoth/mortality/>.

years are often the only evidence we have before modern social surveys of the late 20th century about voluntary controls over natality. There may also be fundamental changes in norms and attitudes that profoundly influence fertility and even mortality. In more recent times, for example, the family no longer plays the dominant role it once played in controlling fertility as societies relax their attitudes toward out-of-wedlock births. Such disparate factors as the costs of education or the increasing entrance of young women into the labor force will also influence demographic variables. All these factors suggest that the demographic measures we use are, in essence, constrained and influenced by a host of nondemographic attitudes, institutions, and events. These nondemographic factors could range from changes in the economy to religious beliefs, wars, ecological change, government social welfare policies, or even housing availability and the level of urbanization. But it is also true that, at times, the increasing number of children or the declining level of mortality will influence nondemographic institutions and force them to change. Employment, wages, marriage partner availability, and even the cost of education immediately come to mind as factors that are themselves influenced by demographic change. Although most often demographic factors are what social scientists call “dependent variables,” that is, they are influenced by nondemographic factors, at times they can also be causal or independent variables and directly influence attitudes and institutions within the society itself.

In this work I have also tried to explore two major demographic models and their applicability to the United States. The first is the movement that Richard Easterlin has called the “Mortality Revolution,” which began in the late 18th century and continued until the second half of the 20th century and would profoundly influence all world population. The other is the “Demographic Transition,” which resulted from this profound change in mortality. The Mortality Revolution took some three centuries to reach all the world’s populations. It meant that, for the first time in the history of humanity, death rates stabilized and then began a long-term decline for all ages, both causing more people to survive and reproduce and increasing life expectancy for all age groups in all societies. The Mortality

Revolution resulted in increasing population pressure due to the survival of ever larger numbers of persons. The response – the second part of the Demographic Transition – was to relieve that pressure both through out migration and voluntary fertility restraint. The “push” factor for European migration to the Americas in the 19th and 20th centuries and for Asian and Latin American populations in the late 20th and early 21st centuries was this population growth. In turn, voluntary population restraint occurred in many, although not all, societies as a response to increasing population pressure brought on by the Mortality Revolution. In the classic Demographic Transition model it was England that first responded to increasing population growth in the late 19th century by forcing down the fertility rates, a pattern that occurred in China in the second half of the 20th century and in Mexico by the beginning of the current century. How the United States differed from this fairly common model is also a theme that is dealt with in this survey.

Finally, I am concerned with the question of the demand for labor and its influence in shaping the origins, distribution, structure, and status of the national population. This constant in the history of the Americas would define the origins and status of many migrants who arrived in this hemisphere. In turn, I am also concerned with the spacial distribution of this population. In this work the western frontier will be seen to play a major role in the distribution of population as well as in influencing demographic change. But the spacial distribution of the United States population involved its movement not only across the continent but also from rural areas to urban centers. All modern societies since the transport revolutions of the 18th and 19th centuries have increasingly moved toward creating ever-larger cities. In turn, the increasing industrialization of many societies and the growing mechanization of agriculture have moved populations off the land and into these growing metropolises at an ever more rapid pace. A major demographic theme from the 19th century onward in the United States is this process of urbanization and rural decline, a process that will eventually be repeated in most world societies. But to this question of urbanization was added, in the 20th century, the rather special North American patterns of ghettoization and

suburbanization, both of which were much influenced by the ethnic and racial makeup of the national population.

Given the fact that few have ventured on this path before me, I have had to determine the periodization used in this work. As historians will realize, most of the chapters begin and end with major political or military shifts in national history and tend to follow standard chronology for historical texts. Sometimes major demographic shifts occurred at these political turning points, and sometimes they did not. Often, as I followed given demographic themes, several population characteristics changed at different times and I found that these divisions in time served as reasonable endpoints for some of these changes. Equally, much of the standard social history materials tended to follow these breaks as well. That said, there is a great deal of room for alternative groupings. One obvious alternative scheme would be to treat 1790–1880 as one coherent unit, ignoring the break of the Civil War, and organize another section going from 1880 to, say, 1950. In both cases, these larger divisions would better incorporate long-term trends in mortality and fertility but would do less well for immigration, for example. Given the somewhat arbitrary nature of some of these breaks, I have tried to compensate for this by providing the reader with an appendix that covers major demographic indices over the entire period.

I also made the decision to present all graphs timed to fit the dating in each chapter. Occasionally, some graphs will exceed these limits in order to emphasize a point or theme that preceded or followed this period. I therefore decided to present a complete series of the most important data in the Appendix tables so that readers who want to have a broader view of given trends can refer to these graphs at any time. The notes to all graphs and figures are given in short title format and the full citation can be found in the Bibliography.

The research for this work was initially supported by a seed grant from Institute for Social and Economic Research and Policy (ISERP) at Columbia University. Major support was then obtained from the Hoover Institution of Stanford University. I would like to thank Thomas Sowell for sponsoring my application for a visiting fellowship at the Hoover Institute during the academic year

2002–2003. Richard Sousa and John Raisian at Hoover provided me with an excellent working environment, which enabled me to complete this book. I was greatly assisted by the Social Science Data Service staff of Stanford University Library, and one of the greatest debts I owe is to the staffs of the U.S. agencies that have made so much of their material freely available on the Internet. Since the 1990 census, the Census Bureau has maintained full online access to all the census materials it is producing and to many of its recent special studies, which are often the best historical materials currently available. The National Center of Health Statistics of the Centers for Disease Control and Prevention (CDC) equally provides both contemporary and historical vital statistics and allows easy access to its vast storehouse of information. Finally, I would like to thank Dr. Gregory L. Armstrong of the CDC who most kindly made available to me his data on infectious disease mortality in the 20th century.

I owe a special debt to my editor and friend, Frank Smith, who proposed this topic to me, provided bibliographic help along the way, and remained enthusiastic about the whole enterprise until the end. Margo J. Anderson, Myron Gutman, and Stanley Engerman each provided fundamental criticism for improving the manuscript. Daniel Schiffner helped me to understand the literature on human genetics, and Alice Kessler-Harris introduced me to the latest works on women and the family. Dr. Judith Heiser Schiffner patiently explained to me issues related to disease and to medicine in general, and her love for all things historic created a wonderful environment for writing this book.

Menlo Park
July 2003

PALEO-INDIANS, EUROPEANS, AND THE SETTLEMENT OF AMERICA

There is little question that the early demographic history of North America is still one of the most controversial fields in current scholarship. To the older work of archeologists, geologists, and linguists has been added the new work of geneticists and physicists, all of which has often overturned long-established dogmas. The pre-history of North America also remains one of the areas in which all types of enthusiasts have created popular origin myths that still dominate some parts of national thought. In this chapter I will lay out the current state of the debate about the origins of mankind in the Americas and the dating and distribution of the pre-columbian populations over time and space. I will show how this distribution of the American Indian population by 1492 influenced the subsequent European settlement patterns that evolved within the Americas.

The region that today forms the continental boundaries of the United States may have first been settled by humans as early as 30,000 B.P. (or years before the present era), but no later than 15,000 B.P.¹ Homo sapien Neanderthals emerged in eastern Africa some 300,000 to 200,000 years ago. They spread throughout the Euroasian land mass and were slowly replaced by modern Homo sapiens about 40,000 years ago. Given that no Neanderthal remains have been found in the Americas, it is now assumed that human migrations did not occur before this replacement had occurred.² It is also generally

¹ Michael H. Crawford, *The Origins of Native Americans: Evidence from Anthropological Genetics*. Cambridge: Cambridge University Press, 1998.

² William N. Irving, "Context and Chronology of Early Man in the Americas," *American Review of Anthropology* 14 (1985), p. 530.

accepted that mankind and numerous species of animals arrived in America via a land bridge across the Bering Strait, which connected the Americas to the Eurasian continent during the late Pleistocene period. This causeway was intermittently open from 70,000 B.P. until 15,000 B.P. Given the harsh Nordic conditions, people could not survive in these regions until they developed adequate protection. The oldest known clothing in Asia is dated to 25,000 B.P. Those *Homo sapiens* who migrated into America came fully skilled in making tools, knew fire, and wore clothing made from animal skins. The accumulation of recent genetic evidence suggests that one or more founding migrations separated from their Northeastern Asian origin groups sometime between 30,000 and 20,000 B.P.³; dental evidence appears to support a formal separation between Asians and Americans by about 15,000 B.P.⁴

Once across “Beringia,” as the land bridge between Siberia and Alaska was called, there were still glacial barriers that covered the northern land mass and blocked access to the southern plains. These glaciers began receding only some 14,000 years ago, permitting a slow opening in the mainland corridor to the south that was most likely exploited by humans a few thousand years later.⁵ But it would also appear that small groups of humans may have hugged the ice-free

³ The most recent genetic work on origins includes the study by Jeffry T. Leell, Rem I. Sukernik, Yelena B. Starikovskaya, Bing Su, Li Jin, Theodore G. Schurr, Peter A. Underhill and Douglas C. Wallace, “The Dual Origin and Siberian Affinities of Native American Y Chromosomes,” *American Journal of Human Genetics* 70 (2002), pp. 192–206, and arguing for a single migration origin see Eduardo Tarazona Santos and Fabrício R. Santos, “The Peopling of the Americas: A Second Major Migration,” *American Journal of Human Genetics* 70 (2002), pp. 1377–80; and Anne C. Stone and Mark Stoneking, “mtDNA Analysis of a Pre-historic Oneota Population: Implications for the Peopling of the New World,” *American Journal of Human Genetics* 62 (1998), pp. 1153–70.

⁴ See the initial survey on the dental evidence in Joseph H. Greenberg, Christy G. Turner II, and Stephen L. Zegura, “The Settlement of the Americas: A Comparison of the Linguistic, Dental and Genetic Evidence,” *Current Anthropology* 27, no. 5 (December 1986), pp. 480–5.

⁵ David G. Anderson and J. Christopher Gillam, “Paleoindian Colonization of the Americas: Implications from an Examination of the Physiography, Demography and Artifact Distribution,” *American Antiquity* 65, no. 1 (2000), pp. 43–66.

coastline and even used boats to migrate past these glacial barriers at a much earlier period.⁶ Humans probably arrived in the Americas in bands of 25 to 50 persons (a size considered the norm among contemporary hunters and gatherers), and once through or around the glaciers, they quickly spread as far south as Patagonia. There are good sites of big game hunting bands in North America from about 13,500 B.P. These hunters mostly used weapons tipped with chipped stone heads called "Clovis points," named for a site in New Mexico.⁷ But there are also early sites from at least 12,500 B.P. as far south as Chile showing small game hunters and shellfish gatherers who were not associated with typical Clovis point weapons of North America.⁸ The big game hunting model based on the production of stone projectile Clovis points is no longer considered the only culture developed by the earliest Paleo-Indian settlers, even in North America. Thus small game hunters and coastal and riverine food gathering groups were to be found alongside the big mammal hunters, and no one group seems to have dominated.

The end of the last Ice Age brought an end to the Bering crossing and thus closed this migration route between the Americas and Asia. This radical change in climate also resulted in the extinction of the big mammals, including horses and camels, which had until then existed in the Americas. Although earlier writers have suggested that

⁶ See Alan G. Fix, "Colonization Models and Initial Genetic Diversity in the Americas," *Human Biology* 74, no. 1 (February 2002), pp. 1–10.

⁷ Stuart J. Fiedel, *Prehistory of the Americas* 2nd ed. Cambridge: Cambridge University Press, 1992; pp. 48–9 also see his recent redating findings in Stuart J. Fiedel, "Older Than We Thought: Implications of Corrected Dates for Paleoindians," *American Antiquity* 64, no. 1 (1999), 95–116. For a recent attempt to unqualifiedly defend the old model of the late arrival of Clovis hunters as the first migrants – the "Clovis-First" school – see Gary Haynes, *The Early Settlement of North America: The Clovis Era* (Cambridge: Cambridge University Press, 2003). Unfortunately, this work ignores all the recent genetic studies on the origins questions. A more nuanced approach is found in David J. Meltzer, "Clocking the First Americans," *Annual Review of Anthropology* 24 (1995), pp. 21–45.

⁸ Thomas D. Dillehay, *The Settlement of the Americas: A New Prehistory*. New York: Basic Books, 2000; and Joseph F. Powell and Walter A. Neves, "Craniofacial Morphology of the First Americans: Pattern and Process in the Peopling of the New World," *Yearbook of Physical Anthropology* 42 (1999), pp. 153–88.

the extinction of big mammals was due to overhunting by humans, this is no longer the dominant position. It is now assumed that some serious environmental factors were the prime cause of their extinction. Thereafter animal domestication would be very limited in the Americas compared with Old World developments, whereas plant domestication would be quite impressive. With the loss of big game as a major food source, the Paleo-Indians (as these early settlers were called) engaged in plant gathering as a source of food, along with fishing and small game hunting. All this marked the slow decline of random nomadism. Even hunting and gathering now became scheduled and cyclic. Increasing sedentary activity slowly gave rise to village settlements. It is stressed by archeologists that plant domestication in the Americas preceded permanent agricultural settlement – a pattern different from Eurasian developments – and was a long and slow process with diets changing only gradually over decades.⁹

With the closing of the connection to Asia, American Paleo-Indians evolved their own patterns of culture and settlement and developed at a slower pace than did their counterparts in Eurasia. Whereas the agricultural revolution – the domestication of plants and to a lesser extent of animals – began in the Near East basin around 9,000 B.C., if not earlier, the first significant domestication of plants did not occur in the Americas until about 7,000 B.C. Plant domestication proceeded slowly and was most advanced in the Andes and its associated Amazonian flood planes and in central Mexico. From these core areas, beans, maize, potatoes, and a host of consumable plants radiated to the rest of the Americas over several centuries.

As these populations of humans spread across the hemisphere, they began to separate themselves into distinct groupings. In the distribution of populations, those settling in North and Central America tended to be fairly close genetically, but with two well-marked isolates: the Eskimos of Alaska and Northern Canada and the Nandene speakers of the Pacific Northwest coast. Some have suggested that these two groups may have migrated at a later date than

⁹ Fiedel, *Prehistory of the Americas* (1992), Chapters 4 and 5.

most of the other Paleo-Indians.¹⁰ From current genetic evidence, it appears that all the North American Paleo-Indian groups rather quickly separated from those south of Panama and in turn there seems to have been a genetic separation within South America on an east–west division. Nevertheless, all American Indian groups show greater genetic affinity to Asian populations than to any other group of humans in the world.¹¹

The region that is presently the United States was a relative backwater by New World standards. It contained a mix of hunters and gatherers through most of the northern plains regions and included simple agriculturalists and settled villages in the central and southern zones, which initially imported much of their domesticated plants and new technology from the advanced centers of Meso-America. In this period of early settlement, the North American Great Plains region contained primarily big game hunters with probably a small animal hunting culture on the East Coast. Between 8,000 and 6,000 B.C., the big game hunting culture slowly gave way, in the area north of the Rio Grande river, to a gathering and hunting culture with the slow disappearance of mammoths, and it finally evolved into an at least partially sedentary lifestyle associated with the beginnings of plant domestication.

By about 6,000 B.C. a sophisticated gathering culture dependent on fish and shellfish developed along both the Atlantic and Pacific coasts and in major estuaries and inland rivers. The oldest sites for this culture in the North Atlantic region are large mounds

¹⁰ L. Luca Cavalli-Sforza, Paolo Menozzi, and Alberto Piazza, *The History and Geography of Human Genes*. Princeton: Princeton University Press, 1994, p. 337ff. On the latest materials related to the number of migrations see P. A. Underhill, L. Jin, R. Zemans, P. J. Oefner, and L. Luca Cavalli-Sforza, "A Pre-Columbian Y Chromosome-Specific Transition and Its Implications for Human Evolutionary History," *Proceedings of the National Academy of Science USA* 93 (1996), pp. 196–200; and Wilson A. Silva, et al., "Mitochondrial Genome Diversity of Native Americans Supports a Single Early Entry of Founder Populations into America," *American Journal of Human Genetics* 71 (2002), pp. 187–92.

¹¹ For a survey of this material, see Herbert S. Klein and Daniel C. Schiffner, "The Current Debate About the Origins of the Paleoindians of America," *Journal of Social History* 37, no. 2 (Winter 2003), 483–92.

of abandoned shells that have been found along the Hudson River and in Labrador. Such shellfish “middens,” as these mounds are called, were now common along the entire Pacific Coast.¹² The Paleo-Indians also took to the water in boats, and in this period the settlement of the islands of the Caribbean and Tierra del Fuego occurred. In many regions, there now appeared formal burial sites, indicating more complex and stratified societies. The stabilization of the environment by 4,000 B.C. led to a major increase in population and sedentary life. Between around 3,500 B.C. and 2,500 B.C., pottery and cotton weaving appeared throughout Peru and Mexico.¹³

The rise of agriculture and settled village life in this period was also associated with the beginnings of trade, the specialization of tasks (from making weapons, fishing, and seed gathering to shamans or religious specialists), the production of tools used in agriculture and food processing, and formal burials. Trade, in turn, led to the rise of distinctive regional styles in tools and other artifacts. Although agricultural life predominated in most regions by 2,000 B.C., some hunting and gathering often existed alongside settled agricultural village life. There were also regions that developed rather unusual combinations of features. In the northern plains of what is today Canada and the United States and in the Pacific Northwest coast there emerged stratified societies organized in villages with long-distance trade that did not develop agriculture, although the predominant model everywhere else seems to have been domestication of plants followed by village settlements.

Paradoxically, settled village life and dependence on domesticated plants initially had a negative impact on the health of the American populations. Early farmers had a poorer diet than hunters and were more subject to food shortages. Bones of early farmers are smaller than those of contemporary hunters, show more growth crises because of famine, and have poorer teeth because of higher carbohydrate intake. Villagers had higher incidence of diseases because of crowding and contact than was the norm among the migrating and

¹² Fiedel, *Prehistory of the Americas* (1992), pp. 94–96.

¹³ Fiedel, *Prehistory of the Americas* (1992), Chapter V.

small bands of hunters.¹⁴ Given this paradoxical finding, the question is Why did hunters adopt agriculture? The obvious answer is that they had no choice. Resources of hunters and gatherers were disappearing in the Americas, and increasing population density forced hunters to go more fully into farming. The origins of farming in the New World (though not in the Old World) coincided with end of the last Pleistocene glaciations, which brought an end of the mammoths and the rise of the oceans to their present level. It is now assumed that because of these transformations, the Paleo-Indian populations outgrew their subsistence bases and had to turn to agriculture for food.

By the end of late Archaic period, which archeologists currently date from 4,000 B.C. to 1,700 B.C., settled village life had appeared throughout the Americas, and most of the basic plants and animals in use at the time of the European conquest had been domesticated. Also, most of the basic plants and technologies developed by the Mexican and Andean Paleo-Indians were now diffused throughout large parts of the Americas, north and south. Strong regional variations existed and much hunting and gathering persisted everywhere, although even in this activity surviving projectile points indicate that the hunting of small game was now the norm and was quite different from the hunting known in earlier periods. Agriculture, for all its negative impact on the health of native populations, created guaranteed food sources that permitted much denser populations than previously. There was a major increase in populations everywhere. By now, the general pattern was for most regions to depend primarily on gathered and domesticated plant foods and aquatic sources for their subsistence, with game a supplementary source. One of the last regions to shift in this direction was the Great Plains and the coastal groups occupying North America. But even here, permanent housing remains have been dated as early as 5,000 B.C. at sites in southern Illinois and Virginia and to ca. 4,000 B.C. in northern California. At these sites, significant findings of gathered seeds and plants

¹⁴ Clark Spencer Larsen and George R. Milner, eds., *In the Wake of Contact: Biological Responses to Conquest*. New York: Wiley-Liss, 1994.