Prologue

From Cosmic History to Human History

IN THE BEGINNING, ACCORDING TO THE NAVAHO, the world was created by Holy People, who had long lived underground and were forced to the surface by a great flood, from which they escaped through a hollow reed. First Man and First Woman were later formed from ears of white and yellow corn. To some of the ancient Greeks, an original Cosmic Egg, floating on a formless mixture of air, water, and matter, gave birth to the deities of Earth and Sky, who then created the earth and all its living creatures, as well as the sun, moon, and stars. For the Hebrews of biblical times, God brought order out of a primordial chaos, creating light and darkness, the earth, and all its living creatures. Pronouncing the creation good, God then made the first humans, placing them in the Garden of Eden, where they soon encountered temptation and choice in the form of a serpent.

These are among the multitude of stories, or myths of origin, that seek to answer that fundamentally human question: what happened in the beginning? Such stories seek to anchor particular societies in a larger context, providing their people with a sense of place, purpose, and belonging. Modern scholars, like earlier tellers of creation stories, also seek to puzzle out the beginnings of the cosmos, of the earth, of life, and of humankind. Unlike myths of origin, though, modern creation stories rely largely on those fields of study that emerged from the Scientific Revolution of the sixteenth century and later—astronomy, physics, geology, biology. Such accounts claim to be truer and more certain, at least in a literal sense, for they can be checked and verified rather than simply accepted and believed. They are, however, stronger on *how* things began than on *why*. Although they provide a more factually detailed account of beginnings, they may have less to offer about the meaning of it all. Therefore, many people in the modern world have tried hard to reconcile scientifically derived understandings of "in the beginning" with the meaning-based accounts contained in long-standing religious traditions.

The History of the Universe

World historians, although largely focused on the unfolding of all things human, have recently begun to situate that remarkable story in the larger contexts of both cosmic history and planetary history. The most inclusive of these modern frameworks

Snapshot The History of the Universe as a Cosmic Calendar[1]

Big bang	January 1	13.7 billion years ago
Stars and galaxies begin to form	End of January/ mid-February	12 billion years ago
Milky Way galaxy forms	March/early April	10 billion years ago
Origin of the solar system	September 9	4.7 billion years ago
Formation of the earth	September 15	4.5 billion years ago
Earliest life on earth	Late September/ early October	4 billion years ago
Oxygen forms on earth	December 1	1.3 billion years ago
First worms	December 16	658 million years ago
First fish, first vertebrates	December 19	534 million years ago
First reptiles, first trees	December 23	370 million years ago
Age of dinosaurs	December 24–28	329–164 million years ago
First humanlike creatures	December 31 (late evening)	2.7 million years ago
First agriculture	December 31: 11:59:35	12,000 years ago
Birth of the Buddha/ Greek civilization	December 31: 11:59:55	2,500 years ago
Birth of Jesus	December 31: 11:59:56	2,000 years ago
Aztec and Inca empires	December 31: 11:59:59	500 years ago

Change
What have been the major turning points in the prehuman phases of "big history"?

is sometimes called "big history." It is really the "history of everything" from the big bang to the present, and it extends over the enormous, almost unimaginable timescale of some 13.7 billion years, the current rough estimate of the age of the universe.[2]

To make this vast expanse of time even remotely comprehensible, some scholars have depicted the history of the cosmos as if it were a single calendar year (see the Snapshot). On that cosmic calendar, most of the action took place in the first few milliseconds of January 1. As astronomers, physicists, and chemists tell it, the universe that we know began in an eruption of inconceivable power and heat. Out of that explosion of creation emerged matter, energy, gravity, electromagnetism, and the "strong" and "weak" forces that govern the behavior of atomic nuclei. As gravity pulled the rapidly expanding cosmic gases into increasingly dense masses, stars formed, with

the first ones lighting up around 1 to 2 billion years after the big bang, or the end of January to mid-February on the cosmic calendar.

Hundreds of billions of stars followed, each with its own history, though following common patterns. They emerge, flourish for a time, and then collapse and die, and in doing so they sometimes generate supernova, black holes, and pulsars—phenomena at least as fantastic as the most exotic of earlier creation stories. Within the stars, enormous nuclear reactions gave rise to the elements that are reflected in the periodic table known to all students of chemistry. Over eons, these stars came together in galaxies, such as our own Milky Way, which probably emerged in March or early April, and in even larger structures called groups, clusters, and superclusters. Adding to the strangeness of our picture of the cosmos is the recent and controversial notion that perhaps 90 percent or more of the total mass of the universe is invisible to us, consisting of a mysterious and mathematically predicted substance known to scholars only as "dark matter."

The contemplation of cosmic history has prompted profound religious or philosophical questions about the meaning of human life. For some, it has engendered a sense of great insignificance in the face of cosmic vastness. In disputing the earth- and human-centered view of the Catholic Church, Voltaire, an eighteenth-century French thinker, wrote: "This little globe, nothing more than a point, rolls in space like so many other globes; we are lost in this immensity."[3] Nonetheless, human awareness of the mystery of this immeasurable universe renders us unique and generates for many people feelings of awe and humility that are almost religious. As tiny but knowing observers of this majestic cosmos, we have found ourselves living in a grander home than ever we knew before.

The History of a Planet

For most of us, one star, our own sun, is far more important than all the others, despite its quite ordinary standing among the billions of stars in the universe and its somewhat remote location on the outer edge of the Milky Way galaxy. Circling that star are a series of planets, formed of leftover materials from the sun's birth. One of those planets, the third from the sun and the fifth largest, is home to all of us. Human history—our history—takes place not only on the earth but also as part of the planet's history.

That history began with the emergence of the entire solar system about two-thirds of the way through cosmic history, some 4.7 billion years ago, or early September on the cosmic calendar. Geologists have learned a great deal about the history of the earth—the formation of its rocks and atmosphere, the movement of its continents, the collision of the tectonic plates that make up its crust, and the constantly changing landscape as mountains formed, volcanoes erupted, and erosion transformed the surface of the planet. All of this has been happening for more than 4 billion years and continues still.

The most remarkable feature of the earth's history—and so far as we know unrepeated elsewhere—was the emergence of life from the chemical soup of the

early planet. It happened rather quickly, only about 600 million years after the earth itself took shape, or late September on the cosmic calendar. Then for some 3 billion years, life remained at the level of microscopic single-celled organisms. According to biologists, the many species of larger multicelled creatures—all of the flowers, shrubs, and trees as well as all of the animals of land, sea, and air—have evolved in an explosive proliferation of life-forms, punctuated by massive die-offs as well, over the past 600 million years, or since mid-December on the cosmic calendar.

Each of these species has also had a history as its members struggled to find resources, cope with changing environments, and deal with competitors. The history of dinosaurs, for example, from their rise to their extinction, occupied about 165 million years, or about five days in late December on the cosmic calendar. Egocentric creatures that we are, however, human beings have usually focused their history books and history courses entirely on a single species—our own, *Homo sapiens*, humankind. On the cosmic calendar, *Homo sapiens* is an upstart primate whose entire history occurred in the last few minutes of December 31. Almost all of what we normally study in history courses—agriculture, writing, civilizations, empires, industrialization—took place in the very last minute of that cosmic year. The entire history of the United States occurred in the last second.

Yet during that brief time, humankind has had a career more remarkable and arguably more consequential for the planet than any other species. At the heart of human uniqueness lies our amazing capacity for accumulating knowledge and skills. Other animals learn, of course, but they learn the same things over and over again. Twenty-first-century chimpanzees in the wild master the same skills as their ancestors did a million years ago, but the exceptional communication abilities provided by human language allow us to learn from one another, to express that learning in abstract symbols, and then to pass it on, cumulatively, to future generations. Thus we have moved from stone-tipped spears to nuclear weapons, from "talking drums" to the Internet, from grass huts to the Taj Mahal and Notre Dame cathedral.

This extraordinary ability has translated into a human impact on the earth that is unprecedented among all living species.[4] Human populations have multiplied far more extensively and have come to occupy a far greater range of environments than has any other large animal. Through our ingenious technologies, we have appropriated for ourselves, according to recent calculations, some 25 to 40 percent of the solar energy that enters the food chain. We have recently gained access to the stored solar energy of coal, gas, and oil, all of which have been many millions of years in the making, and we have the capacity to deplete these resources in a few hundred or few thousand years. Other forms of life have felt the impact of human activity, as numerous extinct or threatened species testify. Human beings have even affected the atmosphere itself, and global warming is altering the climate of the planet. Thus human history has been, and remains, of great significance not for ourselves alone but also for the earth itself and for the many other living creatures with which we share it.

The History of the Human Species in a Single Paragraph: A Preview

The history of our species has occupied roughly the last 250,000 years, conventionally divided into three major phases, based on the kind of technology that was most widely practiced. The enormously long Paleolithic age, with its gathering and hunting way of life, accounts for 95 percent or more of the time that humans have occupied the planet. People utilizing a Paleolithic technology initially settled every major landmass on the planet and constructed the first human societies (see Chapter 1). Then beginning about 12,000 years ago with the first Agricultural Revolution, the domestication of plants and animals increasingly became the primary means of sustaining human life and societies. In giving rise to farming village societies, to pastoral communities depending on their herds of animals, and to state- and city-based civilizations, this agrarian way of life changed virtually everything and fundamentally shaped the human experience ever since. Finally around 1750, a quite sudden spurt in the rate of technological change, which we know as the Industrial Revolution, took hold. That vast increase in productivity, wealth, and human control over nature once again transformed almost every aspect of human life and gave rise to new kinds of societies that we call "modern."

Here then, in a single paragraph, is the history of humankind—the Paleolithic era, the agricultural era, and, most recently and briefly, the modern industrial era. Clearly this is a world history perspective, based on the notion that the human species as a whole has a history that transcends any of its particular and distinctive cultures. That perspective—known variously as planetary, global, or world history—has become increasingly prominent among those who study the past. Why should this be so?

Why World History?

Not long ago—in the mid-twentieth century, for example—virtually all college-level history courses were organized in terms of particular civilizations or nations. In the United States, courses such as Western Civilization or some version of American History served to introduce students to the study of the past. Since then, however, a set of profound changes has pushed much of the historical profession in a different direction.

■ Change
Why has world history achieved an increasingly prominent place in American education in recent decades?

The world wars of the twentieth century, revealing as they did the horrendous consequences of unchecked nationalism, persuaded some historians that a broader view of the past might contribute to a sense of global citizenship. Economic and cultural globalization has highlighted both the interdependence of the world's peoples and their very unequal positions within that world. Moreover, we are aware as never before that our problems—whether they involve economic well-being, environmental deterioration, disease, or terrorism—respect no national boundaries. To many thoughtful people, a global present seemed to call for a global past. Furthermore, as

colonial empires shrank and newly defined third-world peoples asserted themselves on the world stage, these peoples also insisted that their histories be accorded equivalent treatment with those of Europe. An explosion of new knowledge about the histories of Asia, Africa, and pre-Columbian America erupted from the research of scholars around the world. All of this has generated a "world history movement," reflected in college and high school curricula, in numerous conferences and specialized studies, and in a proliferation of textbooks, of which this is one.

This world history movement has attempted to create a global understanding of the human past that highlights broad patterns cutting across particular civilizations and countries, while acknowledging in an inclusive fashion the distinctive histories of its many peoples. This is, to put it mildly, a tall order. How is it possible to encompass within a single book or course the separate stories of the world's various peoples? Surely it must be something more than just recounting the history of one civilization or culture after another. How can we distill a common history of humankind as a whole from the distinct trajectories of particular peoples? Because no world history book or course can cover everything, what criteria should we use for deciding what to include and what to leave out? Such questions have ensured no end of controversy among students, teachers, and scholars of world history, making it one of the most exciting fields of historical inquiry.

Comparison, Connection, and Change: The Three Cs of World History

Despite much debate and argument, one thing is reasonably clear: in world history, nothing stands alone. Every event, every historical figure, every culture, society, or civilization gains significance from its inclusion in some larger context. Most world historians would probably agree on three such contexts that define their field of study. Each of them confronts a particular problem in our understanding of the past.

The first is constant **comparison**. Whatever else it may be, world history is a comparative discipline, seeking to identify similarities and differences in the experience of the world's peoples. What is the difference between the development of agriculture in the Middle East and in Mesoamerica? Was the experience of women largely the same in all patriarchal societies? What did the Roman Empire and Han dynasty China have in common? Why did the Industrial Revolution and a modern way of life evolve first in Western Europe rather than somewhere else? What distinguished the Russian and Chinese revolutions? What different postures toward modernity emerged within the Islamic world? Describing and, if possible, explaining such similarities and differences are among the major tasks of world history. Comparison, then, is a recurring theme in this book, with expressions in every chapter.

Comparison has proven an effective tool in the struggle against Eurocentrism, the notion that Europeans or people of European descent have long been the primary movers and shakers of the historical process. That notion arose in recent centuries when Europeans were in fact the major source of innovation in the world and

did for a time exercise something close to world domination. This temporary preeminence decisively shaped the way Europeans thought and wrote about their own histories and those of other people. In their own eyes, Europeans alone were progressive people, thanks to some cultural or racial superiority. Everyone else was to some degree stagnant, backward, savage, or barbarian. The unusual power of Europeans allowed them for a time to act on those beliefs and to impose such ways of thinking on much of the world. But comparative world history sets European achievements in a global and historical context, helping us to sort out what was distinctive about its development and what similarities it bore to other major regions of the world. Puncturing the pretensions of Eurocentrism has been high on the agenda of world history.

The art of comparison is a learned skill, entailing several steps. It requires, first of all, asking explicitly comparative questions and determining what particular cases will be involved. If you want to compare revolutions, for example, you would need to decide which ones you are considering—American, French, Russian, Chinese, Cuban. Defining categories of comparison is a further step. Precisely which characteristics of these revolutions will you compare—their origins, their ideologies, the social classes involved, their outcomes? Finally, how will you present your comparison? You might choose a case-by-case analysis in which you would describe, say, the American Revolution first, followed by an account of the Cuban Revolution, which makes explicit comparisons with the former. Or you might choose a thematic approach in which you would consider first the origins of both revolutions, followed by a comparison of their ideologies, and so on. You will find examples of both approaches in this book.

A second context that informs world history involves the interaction, encounters, and **connections** among different and often distant peoples. What happened when people of distinct civilizations or cultures met? Focusing on cross-cultural connections represents an effort to counteract a habit of thinking about particular peoples, states, or cultures as self-contained and isolated communities. Despite the historical emergence of separate and distinct societies, none of them developed alone. Each was embedded in a network of relationships with both near and more distant peoples. Moreover, these cross-cultural connections did not begin with the voyages of Columbus. The Chinese, for example, interacted continuously with the nomadic peoples on their northern border; generated technologies that diffused across all of Eurasia; transmitted elements of their culture to Japan, Korea, and Vietnam; and assimilated a foreign religious tradition, Buddhism, which had originated in India. Though clearly distinctive, China was not a self-contained or isolated civilization. The encounter with strangers, or at least with strange ideas and practices, was everywhere one of the most powerful motors of change in human societies. Thus world history pays attention not only to the internal developments of particular civilizations or peoples but also to the networks, webs, and cross-cultural encounters in which they were enmeshed.

A third context in which the particulars of world history can be situated is found in that perennial question that historians everywhere seek to explore: what changes,

what persists, and why. In world history, it is the "big picture" **changes**—those that impact large segments of humankind—that are of greatest interest. How did the transition from a gathering and hunting economy to one based on agriculture take place? How did cities, empires, and civilizations take shape in various parts of the world? What generated the amazing transformations of the "revolution of modernity" in recent centuries? World historians also pay attention to the changes that occur within and between particular civilizations. How can we explain the dramatic collapse of Maya civilization or the fall of the Roman Empire? How did Buddhism change when it entered China? How was Islam transformed when it encountered West African societies? What lay behind the emergence of a new balance of global power after 1500, one that featured the growing prominence of Europe on the world stage?

Both change and comparison provide an antidote to a persistent tendency of human thinking that historians call "essentialism." A more common term is "stereotyping." It refers to our inclination to define particular groups of people with an unchanging or essential set of characteristics. Women are nurturing; peasants are conservative; Americans are aggressive; Hindus are religious. Serious students of history soon become aware that every significant category of people contains endless divisions and conflicts and that human communities are constantly in flux. Peasants may often accept the status quo, except of course when they rebel, as they frequently have. Americans have experienced periods of isolationism and withdrawal from the world as well as times of aggressive engagement with it. Things change.

But some things persist, even if they also change. We should not allow an emphasis on change to blind us to the continuities of human experience. A recognizably Chinese state has operated for more than 2,000 years. Slavery and patriarchy persisted as human institutions for thousands of years until they were challenged in recent centuries, and in various forms they exist still. The teachings of Buddhism, Christianity, and Islam have endured for centuries, though with endless variations and transformations.

Comparisons, connections, and changes—all of them operating on a global scale—represent three contexts or frameworks that can help us bring some coherence to the multiple and complex stories of world history. They will recur repeatedly in the pages that follow.