Human Prehistory and the First Civilizations

Part I

Professor Brian M. Fagan

THE TEACHING COMPANY ®

Brian M. Fagan

Professor of Anthropology, University of California, Santa Barbara

Brian Fagan was born in England and educated at Pembroke College, Cambridge, where he graduated with a B.A. in archaeology and anthropology in 1959. He received his M.A. in 1962 and his Ph.D. in 1964. After obtaining his B.A., he worked as Keeper of Prehistory at the Livingstone Museum, in what was then Northern Rhodesia (now Zambia), from 1959 to 1965. During these years, he excavated a Stone Age camp and numerous farming villages dating to the past 2,000 years, becoming one of the pioneers of multidisciplinary African history.

After a year as Director of the Bantu Studies Project of the British Institute for Eastern Africa in Nairobi, Kenya, and a year as Visiting Associate Professor of Anthropology at the University of Illinois, Urbana, Professor Fagan became Professor of Anthropology at the University of California, Santa Barbara, in 1967. He has remained there ever since. He has also been a Visiting Professor at Whittier College and the University of Cape Town, South Africa.

Professor Fagan was a Guggenheim Fellow in 1973 and has received numerous awards, among them the Public Service Award of the Society of Professional Archaeologists and the Public Education Award of the Society for American Archaeology. He received a Distinguished Teaching Award from the University of California, Santa Barbara, in 2000.

Dr. Fagan's numerous books include *People of the Earth* and *In the Beginning*, two widely used university and college textbooks in archaeology and prehistory. His other works include *The Rape of the Nile*, *The Adventure of Archaeology*, *Time Detectives*, and *The Little Ice Age*. He also edited *The Oxford Companion to Archaeology*. He is currently working on a book on climate change and human society over the past 14,000 years.

Professor Fagan is married and has two daughters. His other interests include bicycling, kayaking, sailing, and sharing civilized dinner parties.

Table of Contents

Human Prehistory and the First Civilizations
Part I

Human Prehistory and the First Civilizations

Scope:

Human Prehistory and the First Civilizations is a thirty-six-lecture narrative covering human prehistory from our beginnings more than 2.5 million years ago up to and beyond the advent of the world's first preindustrial civilizations. The lectures are, above all, a narrative, but they also provide critical examinations of the key controversies and issues surrounding such important topics as the first human settlement of the Americas and the origins of agriculture. Glossaries of technical terms and major cultural entities and sites are found at the end of this guide, as is a timeline of major events during prehistoric times.

The course is divided into three parts of twelve lectures each; these three parts are further subdivided into two halves each, making a total of six groups of lectures, or sections. The first third of the course covers prehistory from human origins to the end of the Ice Age. The second third surveys the beginning of agriculture and animal domestication, as well as the world's earliest civilizations in the eastern Mediterranean. In the final twelve lectures, we examine the earliest states in Asia and the interconnected world of the past 3,000 years, ending with the sophisticated chiefdoms and civilizations of ancient native America.

Section I, "Beginnings" (Lectures One through Six), surveys the archaic world of the first humans. The first lecture sets the stage for the course, provides an introduction to world prehistory, and lays out the plan for the lectures. Lecture Two describes our remote ancestry among non-human primates and brings the evolutionary story in East Africa up to the moment when the first toolmaker, *Homo habilis*, appears. Lecture Three discusses the controversies surrounding our earliest ancestors and reconstructs their ape-like life way. Lecture Four explores the world of *Homo erectus*, the evolutionary descendant of the first toolmaker, who spread out of Africa as early as 1.8 million years ago. In Lectures Five and Six, we focus on the first human settlement of Europe as early as 800,000 years before present and visit the bitterly cold Ice Age world of the Neanderthals.

Section II, "Modern Humans" (Lectures Seven through Twelve), tells the story of the great diaspora of anatomically modern humans in the late Ice Age. Lecture Seven discusses the controversies surrounding modern human origins. Did we evolve in Africa or simultaneously in many parts of the Old World? We conclude that Africa was our most likely homeland. Lecture Eight describes how modern humans spread out of tropical Africa into Southwest Asia about 100,000 years ago and gives an overall portrait of the diaspora. Lectures Nine and Ten follow *Homo sapiens sapiens* north into Europe after 45,000 years ago. We explore the world of the Cro-Magnon hunter-gatherers of Western Europe, some of the first artists in the world, then venture out onto the frigid open plains of the Ukraine and Eurasia, where big-game hunters flourished, despite nine-month winters. Lecture Eleven dissects the ongoing controversies over the first human settlement of the Americas, bringing together archaeological, genetic, and linguistic evidence. Finally, Lecture Twelve surveys the Paleo-Indian cultures that developed in North America after first settlement.

Section III, "Farmers and Herders" (Lectures Thirteen to Eighteen), describes perhaps the most important development in all human prehistory, the beginnings of agriculture and animal domestication. Lecture Thirteen describes the rapid environmental changes after the Ice Age that transformed the hunter-gatherer world. These changes preadapted many groups for more sedentary living. In Lecture Fourteen, we visit the earliest farming settlements in the world by the Euphrates and Jordan Rivers, which document the changeover in about 10,000 B.C. Lecture Fifteen discusses the many theories put forward to explain why the changeover took place, as well as the consequences of food production, which were more important than its development. Lecture Sixteen tells of a huge natural cataclysm of about 5,800 B.C., which may have accelerated the spread of farmers into a thickly forested Europe. Lecture Seventeen takes us to Asia, where we discuss the origins of rice, one of the world's major staples, and show how easily stored root crops were a factor in the settlement of the offshore islands of the Pacific. Finally, Lecture Eighteen surveys what we know about early agriculture in the Americas, where there were several centers of plant domestication.

Section IV, "Eastern Mediterranean Civilizations" (Lectures Nineteen to Twenty-Four), describes early civilizations in an increasingly complex eastern Mediterranean world. Lecture Nineteen is a general discussion of the many theories that account for the appearance of urban civilization and the overall attributes of preindustrial civilizations. Lecture Twenty describes Sumerian civilization in the Mesopotamia and the intricate patchwork of city-states between the Tigris and Euphrates Rivers. Ancient Egypt is the subject of Lectures Twenty-One and Twenty-Two,

perhaps the most well known early civilization. Lecture Twenty-One surveys the beginnings of ancient Egypt and the Old Kingdom, with its spectacular pyramids. Lecture Twenty-Two carries the story through the Middle and New Kingdoms, when Egypt became a great imperial power. Lectures Twenty-Three and Twenty-Four cross to the other extreme of the eastern Mediterranean world to discuss civilizations in contact with Egypt. We explore the Minoan civilization of Crete in Lecture Twenty-Three and the Mycenaeans and Hittites in Lecture Twenty-Four. This lecture also discusses the Uluburun shipwreck from southern Turkey, a unique sealed capsule of international trade from 3,000 years ago.

Section V, "Africans and Asians" (Lectures Twenty-Five to Thirty), describes the ancient world around the Indian Ocean and far beyond, which became increasingly interconnected. Lecture Twenty-Five analyzes the beginnings of South Asian civilization and the mysterious Harappan civilization of the Indus, which traded with Mesopotamia. Lecture Twenty-Six resumes the story of South Asian civilization after the collapse of the Harappan and shows how Mauryan rulers on the Ganges encouraged trading much farther afield. Lecture Twenty-Seven examines the phenomenon of the monsoon winds, which revolutionized maritime trading among Africa, India, and Southeast Asia. It also describes Meroe, Aksum, and the coastal civilization of East Africa. Two lectures trace the beginnings of Chinese civilization. Lecture Twenty-Nine describes the Shang civilization and the three dynasties of the north—Xia, Shang, and Zhou. Lecture Thirty recounts the history of the Zhou Dynasties and describes the unification of China and the Han Dynasty, with its contacts with Southeast Asia and India. Lecture Thirty takes us to the flamboyant world of the Khmer civilizations of Southeast Asia, which created the largest religious building in the world.

Section VI, "Ancient Americans" (Lectures Thirty-One to Thirty-Six), describes some of the sophisticated chiefdoms and civilizations that developed in the Americas over the past 3,500 years. Lecture Thirty-One surveys the Pueblo cultures of the North American Southwest and the Mississippian culture of the South and Southeast, the most elaborate society to develop in the north, where short growing seasons prevented state formation. Lectures Thirty-Two and Thirty-Three explore Mesoamerican civilization. Lecture Thirty-Two describes the primordial Olmec culture of the lowlands and the spectacular Ancient Maya civilization. Lecture Thirty-Three moves to the highlands, where we visit the city-states of Monte Albán in the Valley of Oaxaca and Teotihuacán near the Valley of Mexico. We also describe the rise of Aztec civilization. The next two lectures take us to the Andes. Lecture Thirty-Four surveys the beginnings of Andean civilization on the arid north coast of Peru, culminating in the Moche civilization of the first millennium A.D. Lecture Thirty-Five continues the story in the southern highlands, with the rise of Tiwanaku near Lake Titicaca, the Chimu civilization of the coast, and the huge Inka empire. Finally, Lecture Thirty-Six describes the closing centuries of prehistoric times during the European age of discovery and summarizes the main issues and themes of the course.

Section I: Beginnings

Lecture One
Introducing Human Prehistory

Scope: This lecture summarizes the organization of *Human Prehistory and the First Civilizations*. First, we stress that the course is a narrative story of world prehistory—human history before humans developed documentary records—based on scientific evidence. Second, we summarize the organization of the course into six sections, beginning with human origins and the archaic world, then describing the emergence and spread of modern humans, the beginnings of food production, and the world's earliest preindustrial civilizations. Finally, we discuss the pervasive issues of the course, which include emerging human biological and cultural diversity, as well as our similarities; the importance of climatic and environmental change; and the consideration of prehistory as a chronicle of people, not just archaeological sites. We also stress the importance of the intangible beliefs of the ancients to the understanding of human prehistory.

Outline

I. This course describes more than two and a half million years of the human past, from our origins among the apes in eastern Africa to the appearance of literate urban civilizations in southwestern Asia some 5,000 years ago. We also describe the early civilizations that developed in Asia and the Americas, ending our story with the Spanish conquest of Mexico and Peru.

- **A.** This course is a narrative of prehistoric times, the thousands of years of preliterate history, a story that could not be told until about a half century ago, because the archaeological record was so incomplete in many places. It still is, but we can least give a preliminary account. By *prehistory*, we mean the human past before written records in the conventional historical meaning of the word came into being.
- **B.** This is a course about world prehistory, the study of the human past on a global level, a phenomenon that has been made possible by the development of radiocarbon dating after World War II and by a massive expansion of archaeologists and archaeological research into many hitherto unexplored parts of the world since the 1950s.
- **C.** This course is based on research in many academic disciplines, among them archaeology, oral history, and the incomplete written records of the early civilizations. This is a narrative based on science and scientific research, much of it conducted within the past thirty years.
- **D.** This is a course about human prehistory constructed from scientific research. It is not an account of the past based on fantasy, unsubstantiated legend, or science fiction, none of which has a place in our story.
  1. Science has laid out a linear view of the 2.5 million years of prehistory, reconstructed from a jigsaw puzzle of excavations, archaeological surveys, and scientific dating methods. Such a linear chronology is the framework for our story, something very different from the cyclical visions of time espoused by many ancient and traditional societies, which were, or are, often driven by the passage of the seasons.
  2. Prehistory ended at different times in different parts of the world, as early as 5,000 years ago in Egypt and Mesopotamia but as recently as the twentieth century in some areas of New Guinea. The prehistory of each area of the world runs according to a different clock and ends at different times. The chronological line is, therefore, "jagged" for the end of prehistory everywhere.

II. The course is divided into six sections, which coincide with major developments in prehistoric times.

- **A.** Section I, "Beginnings," describes the archaic world of the first humans. We discuss the controversial subject of human origins in East Africa, the fossil evidence for hominid evolution, the archaeological sites, and theories about early human behavior.
  1. Then we discuss the evolution of later, more advanced humans and their simple hunter-gatherer societies, chronicling their spread over the Old World after 2 million years ago (mya).
  2. Section I ends with archaic forms of *Homo sapiens*, especially the European Neanderthals of 100,000 to 30,000 years ago.

B. Section II, "Modern Humans," begins with the controversies surrounding the origins of *Homo sapiens sapiens*, modern humans.

1. We then trace their spread across the Old World and into the Americas during the late Ice Age, between about 100,000 and 15,000 years ago.

2. This was a period of tremendous innovations in human society, such as new, more sophisticated technologies; the first open-water navigation; and the appearance of both art and a rich symbolic life as a new part of human experience.

C. Section III, "Farmers and Herders," begins immediately after the end of the Great Ice Age, in about 10,000 B.C., when hunter-gatherers in Southwest Asia suddenly start cultivating cereal grasses. We examine some of the theories that seek to explain the changeover, then visit early farming sites in the region.

1. Food production also took hold in other regions independently of Southwest Asia, among them, South Asia (rice) and East Asia (cereals and rice). We analyze these developments and the first appearance of cultivation in the Americas, in about 5,000 B.C.

2. We tell the story of the spread of farming into Europe, perhaps in part the result of a great natural cataclysm, and survey the colonization of the offshore islands of the Pacific, the last landmasses to be colonized by prehistoric humans.

D. Section IV, "Eastern Mediterranean Civilizations," examines the major theories that account for the appearance of civilization, then traces the early history of urban civilization in Egypt and Mesopotamia. We also describe the Minoan and Mycenaean civilizations of Crete and Greece and the complex eastern Mediterranean world of the second millennium B.C.

E. Section V, "Africans and Asians," is the story of a world of interconnectedness, in which the camel and monsoon winds link civilizations from the Mediterranean to China by long-distance trading routes.

1. We describe the beginnings of civilization in South Asia, the world of which Indian civilization became a part, including the East African coast and the origins of Chinese civilization.

2. Finally, we chronicle the later history of Chinese civilization up to the flamboyant Han Dynasty and the emergence of the spectacular, centripetal Khmer civilizations of Southeast Asia about 1,000 years ago.

F. Section VI, "Ancient Americans," tells the story of the sophisticated native American societies that arose over the past 3,500 years.

1. We begin with the Pueblo cultures of the North American Southwest and the aggressive chiefdoms that developed in the South and Southwest, often called the Mississippian culture.

2. Two lectures then describe lowland and highland Mesoamerican civilization (Mesoamerica is that part of Central America where civilizations developed). We begin with the little known Olmec, then explore Ancient Maya civilization. On the highlands, we describe the rise of Zapotec civilization, the great city-state of Teotihuacán, and the militaristic Aztec civilization overthrown by Spanish conquistadors.

3. Two lectures explore the development of Andean civilization along the arid Peruvian coast and high in the Andes, including the gold-decked Moche state, Tiwanaku and Chimor, and finally, the astounding Inka empire destroyed by Spaniard Francisco Pizarro in A.D. 1532.

III. Inevitably, the story that unfolds in this course is lamentably incomplete. In designing the course, I decided to stress a flowing narrative at the expense of technical detail, to linger on the overarching themes and issues—and controversies—rather than the minutiae of individual sites and academic theories.

A. There is no one overarching theme of the course because the subject is too diffuse to allow such a luxury, but there are some pervasive issues that help shape the narrative.

B. Early human history is a chronicle of increasing biological and cultural diversity, which is reflected in our own biologically and culturally diverse world today.

C. We humans may be diverse, but we are remarkably similar in the ways we behave and in the solutions we develop for survival. This is why many of the early civilizations developed such similar institutions. The biological anthropologist Stephen J. Gould once remarked that we are all products of the same African twig. He is correct, and I hope our narrative reflects this idea.

D. Prehistory unfolded against a background of climatic change and environmental shifts. In large part (but not completely) the ways in which people adjusted to these changes shaped our prehistory.

E. Human prehistory is, inevitably, a chronicle of sites and artifacts, animal bones, and other archaeological data. But history is the story of people—as individuals, as men and women, as members of families, communities, and groups. Above all, then, this course is about people and how they behaved.

IV. The many societies described in these lectures had different and distinctive ways of explaining their world. This is what one might call the "mirror of the intangible," the beliefs that shape society and its responses to every kind of challenge imaginable. Where possible, I have tried to bring these beliefs to the forefront, be they those of a Cro-Magnon shaman or a Maya lord.

V. Lecture Two tells the story of the first humans of all, who appeared in tropical Africa some 2.5 mya, having evolved from ancestors who went back at least 2.5 million years earlier.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 1.

Inevitably, in a narrative course such as this one, we cannot spend time on the intricacies of archaeological methods. Some widely used college textbooks provide a good survey:

Brian Fagan, *Archaeology: A Brief Introduction* and *In the Beginning.*

Colin Renfrew and Paul Bahn, *Archaeology*.

Questions to Consider:

1. What is world prehistory and what does it tell us?

2. Why are peoples' intangible beliefs important for our understanding of prehistory?

Lecture Two
In the Beginning

Scope: In this, the second lecture, we begin our narrative of human prehistory, with an account of the earliest humans of all. Lecture Two covers human origins from before 7 mya up to 3 million years before present. The first part places humans among the primates and in the suborder *Hominidae*. We then consider the fundamental anatomical and behavioral changes that may have occurred among hominids before and after they separated from their common ancestor with chimpanzees between 7 and 5 mya. The next part of the lecture examines the different fossil forms, which define the earliest stages of human evolution, and concludes that we must conceive of human evolution as a form of conceptual bush. The lecture ends with the descendants of *Australopithecus afarensis* splitting into different lines about 3 mya.

Outline

I. Victorian biologist Thomas Huxley called human origins the "question of questions" for humankind. As long ago as 1863, he drew attention to the close anatomical relationships between humans and apes, a highly controversial piece of research at the time. In 1871, Charles Darwin, of evolution and natural selection fame, theorized that Africa, with its rich ape populations, would reveal much about human evolution. The research of a century and a half has proved them correct.

- **A.** Today's paleoanthropologists draw on researches in numerous academic disciplines to tell the story of early human evolution. Molecular biology in particular has helped pinpoint the moment when humans separated from our closest living non-primate relatives, the chimpanzees.
- **B.** All of us are members of the order *Primates*, which includes most tree-loving placental mammals. There are two suborders: *anthropoids* (apes, humans, and monkeys) and *prosimians* (lemurs, tarsiers, and other "premonkeys").
- **C.** The many similarities in behavior and physical characteristics between the hominids (primates of the family *Hominidae*, which includes modern humans and their ancestors) and *pongids* (our closest living primate relatives) can be explained by identical characteristics that each group inherited millions of years ago from a common ancestor.
  1. The basic anatomical pattern of the large hominids appeared in the Middle Miocene epoch, about 18 to 12 mya. By the Late Miocene, some 8 to 5 mya, tree-loving apelike animals with long arms and legs abounded in Africa, the ancestors both of modern non-human primates and hominids.
  2. The albumin protein substances found in primate blood have evolved at a constant rate. Thus, the difference between the albumins of any pair of primates can be used to calculate the time since they separated from each other.
  3. Chimpanzees, our closest living relatives, diverged from a common ancestor shared with humans about 5 to 6 mya.

II. Dramatic environmental changes affected tropical Africa, the cradle of humankind, about 5 mya and had a profound effect on the evolution of the first humans. At this time, primates abounded in thick forests, in more wooded country, and on the open savanna grassland, where they had to stand upright to survive.

- **A.** An upright posture and a bipedal gait are among the most characteristic human features. In the trees, a four-footed posture is highly effective. One walks on one's knuckles like a football lineman. Endurance and the ability to cover long distances are vital in open country, such as the savannas, which covered much of East Africa between 5 and 1 mya. Bipedalism made this easier and freed the hands for tool making.
  1. After about 10 mya, many primates spent more and more time on the ground, coming "down from the trees."
  2. By 5 mya, Africa's climate was drier, favoring more open country in many areas. Savanna living presented new challenges, among them, the necessity of finding food over large areas. Mobility was essential.
- **B.** Plant foods were rarer and more widely dispersed on the savanna. Meat became a larger part of the diet as a way of coping with long periods of plant scarcity. Our earliest ancestors became omnivorous and highly mobile—a characteristic of human foraging for thousands of years in later times.

III. The story of the earliest hominids comes from an extremely incomplete fossil record, largely because fossil beds are rare for the critical period between 7 and 3 mya.

A. In 1924, South African anatomist Raymond Dart identified a humanlike primate named *Australopithecus africanus*—the "southern ape-human of Africa"—a small primate, which Dart claimed was a direct ancestor of humankind. Subsequent research has proved him only partially correct.

B. The research of the next three-quarters of a century has taken the story of humanity back close to 5 mya. Then, in 2002, French paleoanthropologists Michel Brunet and Patrick Vignaud unearthed a hominid skull from 6 to 7 mya in the Djurab Desert of Chad in the southern Sahara.

1. The skull looks like that of a chimpanzee from the back and much more humanlike from the front, close, indeed, to the appearance of a hominid of about 1.75 mya.

2. Brunet and his colleagues nicknamed their new find Toumaï and gave it the label *Sahelanthropus tchadensis*. Most experts agree that it is a very early hominid, but the find confirms that early human evolution was complicated, more bush-like than linear.

3. Berkeley paleoanthropologist Tim White theorizes that Toumaï was some form of ancestor of *Ardipithecus ramidus*, until now the earliest known hominid.

C. *Ardipithecus* was a small creature that stood upright, with thin-enameled teeth and a skull closer to that of apes than humans. *Ardipithecus ramidus* was found by Tim White in the arid Awash region of Ethiopia and has been potassium-argon dated to about 4.5 mya. (For dating methods, see Glossary.)

1. Another early hominid, *Australopithecus anamensis* (named after the local Turkana tribe's name for a lake: *anam*) flourished at the south end of Lake Turkana in Kenya about 4.2 to 4 mya. *Anamensis* is a mosaic of apelike and humanlike anatomy, with humanlike limbs but less mobile hands than later hominids. It may have weighed between 104 and 120 pounds.

2. "Lucy," the most famous primordial hominid, was found by Maurice Taieb and Don Johanson at Hadar on Ethiopia's Awash River. This diminutive creature lived about 3.18 mya, stood about 3.5 to 4 feet tall, and was a form of *Australopithecine*, which may have flourished until at least 3 mya.

D. All these fossil forms are profoundly confusing to the lay person and scientist alike. A generation ago, people thought of human evolution as a single line. Now they consider it a bush, with many branches, one of which eventually led to the evolution of tool-making humans.

E. Dramatic evidence for what is probably *Australopithecus afarensis* comes from Laetoli in Tanzania: 3.59 mya, two hominids walked over a layer of soft volcanic ash, which subsequently hardened, preserving their footprints. We know that they walked with a rolling and slow-moving gait, with the hips swiveling at every step, unlike modern humans, who stride freely.

IV. These were but a few of the many hominid forms that flourished in East Africa in the 2 million years before the first tool-making humans appeared, about 2.5 mya.

A. As the hominids evolved, so did their brain size. This is a highly controversial aspect of human evolution, with some authorities linking greater brain size to the increased consumption of meat after 5 mya.

B. Others believe that the need for more meat required an ability to use one's knowledge to develop ideas about where to find predator kills and high densities of animals. The evolving hominids had a more sophisticated interaction with the environment than non-human primates.

C. Many believe that the larger brain of the first humans allowed for greater social intelligence—this enabled them to cope with the greater complexities of living in close juxtaposition to others.

V. Three mya, the descendants of *Australopithecus afarensis* split into different lines, among them, the earliest true humans. We describe these hominids, the earliest toolmakers, and the earliest human behavior, in Lecture Three.

Essential Reading:

Don Johanson and Maitland Edey, *Lucy*.

Roger Lewin, *The Principles of Human Evolution*, parts 1–4.

Ian Tattersall, *The Fossil Trail: How We Know What We Think We Know about Human Evolution*.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 2.

Roger Lewin, *Bones of Contention*.

Questions to Consider:

1. What were the most important qualities for a hominid "coming down from the trees"?
2. How should we think of human evolution, conceptually? Why is the old idea of linear evolution outmoded?

Lecture Three
Our Earliest Ancestors

Scope: Lecture Three describes the emergence of our earliest tool-making ancestors, between 3 and 2 mya. First, we describe the three major forms of hominid that split off from earlier lines about 3 mya, the most advanced of these being *Homo habilis*, the first toolmaker. In the second part of the lecture, we describe the salient features of *Homo habilis* and conclude that it was more apelike than human. Next, we describe Olduvai Gorge in Tanzania and the celebrated sites and tools from there, which paint a portrait of our earliest ancestors as meat scavengers and foragers. Finally, we outline the fundamental differences between *Homo* and other hominids 2.5 mya, the period from which we have the first archaeological evidence. We conclude that a vast chasm separated our earliest forebears from the first true humans, who appeared about 2 mya.

Outline

I. Three mya, a great diversity of hominids flourished in tropical Africa, notably in the more open country of east, central, and southern Africa.

- **A.** These were the *Australopithecines*, various forms of the hominid first identified by Raymond Dart in 1924.
- **B.** There were three main forms of hominid, broad categories that disguise many lesser forms.
  - **1.** *Australopithecus africanus*, the form originally described by Raymond Dart, was a gracile, highly mobile hominid, with a small, delicate skull and prognathous face. Little is known of *africanus*, which was apparently an evolutionary dead end.
  - **2.** Robust *Australopithecines* lived between 3 and 1 mya and flourished in many forms. They were remarkable for their heavy, squat build and massive skulls. They had small brains and teeth adapted for chewing coarse, fibrous plant matter.
  - **3.** Then there was *Homo*, the direct ancestor of humanity. Louis and Mary Leakey first identified this form in 1960 at Olduvai Gorge in northern Tanzania. Because the bone fragments were associated with simple stone tools and animal bone fragments, it was named *Homo habilis*, "handy person," confidently identified by Louis Leakey as the oldest toolmaker in the world.

II. Back in the 1960s, Olduvai Gorge in Tanzania was the location of the earliest archaeological sites in the world. This was where the Leakeys found not only *Homo habilis* but other hominids, as well as what they called "living floors," places where they claimed these hominids had butchered animals and camped. *Homo habilis* was potassium-argon dated to about 1.8 mya.

- **A.** *Homo habilis* was about 4 feet, 3 inches tall, weighing about 88 pounds, a slender, bipedal hominid that looked very like an *Australopithecine*. But the head was higher and rounder; the face, less protruding; the jaw, smaller.
  - **1.** This hominid had a larger brain than *Australopithecus* and walked upright, but had more curved hands, which were good for gripping. It also had opposed thumbs, which enabled it to manipulate small objects and make stone tools.
  - **2.** The skeletal anatomy of *Homo habilis* gives a mosaic picture of both apes and humans, with longer arms for climbing in trees. Almost certainly its behavior was more like that of an ape than a human.
- **B.** Our scientific predecessors thought of human evolution as a gradual and progressive mechanism. But the *Australopithecines*, *Homo*, and their predecessors present a different picture—long periods of relative stability, then bursts of sudden change caused by new selective pressures; such pressures were themselves the result of altered circumstances, such as environmental change, or alterations in the organism itself. Such a rapid change may have occurred between 3 and 2.5 mya.

III. Who, then, was the first human? Controversy rages, not only over the definition of what is, anatomically, a member of the genus *Homo*, but also over the relationships between different hominids 3 mya.

- **A.** Enough is now known to divide the hominids after 3 mya into two broad groups.
  - **1.** The first comprises the *Australopithecines* and *Homo habilis*. All have low body mass and a skeleton that combines bipedalism with an ability to climb in trees.

2. The second includes all later human forms, including ourselves. We have larger body mass; a modern, humanlike physique that functioned well in open country; and only limited ability at climbing.

B. A vast chasm, both anatomical and behavioral, separates these two groups, with the first members of the second group appearing in Africa about 1.9 mya. Before that date, human behavior was more apelike than human.

IV. For many years, paleoanthropologists assumed that the first humans were somewhat similar to living hunter-gatherers, such as the San of the Kalahari Desert in southern Africa. They had base camps; the males hunted and scavenged meat; the females collected plant foods. This assumption was based on research into modern-day hunter-gatherers and on the notion that the Olduvai living floors were campsites.

A. Olduvai Gorge is a slash through the Serengeti Plains in Tanzania, formed by a vast earth movement more than 100,000 years ago. The walls of the gorge expose fine-grained lake beds, the earliest of which date to about 2 mya. Hominids left simple stone tools and broken animal bones by the lake shore, scatters that appear in the gorge walls. *Homo habilis* came from one such "floor."

B. Although the Leakeys originally assumed that these were campsites, microscopic examination of the bones tells a different story. The earliest hominids were not hunters but scavengers, who seized meat from predator kills, then sliced up flesh and bones with stone tools at locations near the lake. These places were caches, not camps, because the hominids probably spent nights up in the trees where they were safe from predators.

C. From Olduvai and even earlier sites in the Lake Turkana area of northern Kenya, we know that the earliest humans made simple stone tools, little more than casually shaped flakes struck from rough cobbles, used for slicing up and dismembering flesh and bones. This technology is often called the Oldowan, after the Gorge.

D. The earliest archaeological sites of all come from the eastern shores of Lake Turkana. At Koobi Fora, an ancient dry streambed yielded the remains of antelope carcasses, which had been scavenged and butchered 2.5 mya by a small group of hominids using the simplest of stone artifacts. Shady trees overhung the site, providing shelter for those who scavenged the carcasses.

V. How, then, did *Homo habilis* behave? Were these hominids more apelike than human, as many researchers believe? Or did they behave differently in some ways? There are three significant differences between apes and early hominids.

A. First, hominids were bipedal, a posture that is far more efficient for carrying objects.

B. Second, they were adapted to open savanna living, where they had to organize themselves to cover far larger differences. As time went on, our remote ancestors became more and more dependent on technology; the casual, opportunistic artifacts of the first humans became far more sophisticated, standardized tools after one million years ago.

C. Third, the larger brain of *Homo habilis* allowed for greater social intelligence and permitted our ancestors to cope with the complexities of living in larger groups, in close juxtaposition to others. The future course of human evolution may well have been a consequence of the fact that our early ancestors had to be more and more socially adept.

VI. Two mya, the few humans on earth lived in tropical Africa, south of the Sahara Desert, with little to distinguish them from the other forms of hominid that lived alongside them. Gradually, these other forms became extinct and only *Homo* survived, to evolve into the first true humans, classified generically as *Homo erectus* and described in Lecture Four.

Essential Reading:

Robert Foley, *Humans before Humanity*.

Roger Lewin, *Principles of Human Evolution*, part 5.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 2.

Richard Klein, *The Human Career*, chapters 2 and 3.

Craig B. Stanford, *The Hunting Apes*.

Questions to Consider:

1. What distinguished *Homo habilis* from other hominids living in Africa 3 mya?
2. What was the link between enlarged brain size and technology?

Lecture Four
The First Human Diaspora

Scope: Lecture Four describes the first appearance of *Homo erectus* in Africa, the spread of these archaic humans out of Africa, and the first human settlement of Asia. We begin by introducing the Ice Age and make the point that constant climatic shifts after 780,000 years ago played a major role in human biological and cultural evolution. Then, we describe the first *Homo erectus* fossils from Africa, often called *Homo ergaster*; we discuss the spread of *erectus* across the Sahara, out of its original homeland, as part of a series of waves of mammalian migration, which culminated about 700,000 years ago. Finally, we summarize what little is known about the first human inhabitants of Asia and their life way. Their culture changed little until the appearance of fully modern people in the region, perhaps as early as 75,000 years ago.

Outline

I. Two mya, humans were still confined to tropical Africa south of the Sahara—only a few thousand of them, living mainly in the more open savanna and woodland areas of eastern and southern Africa. At about this time, new, more advanced humans appeared, known generically as *Homo erectus*.

- **A.** *Homo erectus* spread widely over the Old World, into Asia and Europe, but not into the Americas, which were settled much later (see Lecture Eleven). Many forms of this archaic hominid evolved in different environments.
- **B.** The Ice Age, often called the Pleistocene epoch, the last great geological era, began about 1.8 mya, just as *Homo erectus* appeared in Africa. Northern latitudes became colder, but climatic fluctuations between warmer and cooler conditions were relatively minor until about three-quarters of a million years ago.
  - **1.** About 780,000 years ago, the earth's magnetic field switched abruptly, for reasons unknown. Abrupt climate change now gripped the earth and has continued ever since.
  - **2.** Since then, at least nine glacial periods, separated by shorter, warmer intervals, have descended on the world. For over 75 percent of the past 780,000 years, the world's climate has been in transition from warm to cold and back again.
- **C.** Both *Homo erectus* and *Homo sapiens* (modern humans) evolved during a time when the world was generally colder than today, and the climate was constantly in transition. These constant changes played an important, and still little understood, role in the spread of early humans out of Africa into temperate and other tropical regions.

II. The humans known generically as *Homo erectus* evolved into highly diverse populations in many parts of the world.

- **A.** These archaic humans generally had a larger brain than *Homo habilis*, varying between about 775 and 1,300 cubic centimeters, far larger than the 600 to 700 cubic centimeters of its predecessor. The skull was more rounded, with conspicuous bony ridges over the eyes. The limbs and hips were fully adapted to an upright posture and were quite modern looking.
- **B.** These archaic humans had hands fully capable of precision gripping and many forms of tool making. They stood about 5 feet, 6 inches tall.

III. The earliest forms of *Homo erectus* developed in Africa and are often called *Homo ergaster.* Unfortunately, our knowledge of them is incomplete because we do not have many fossil specimens to work with.

- **A.** The earliest known *Homo ergaster* finds come from the Lake Turkana region of northern Kenya. A skull from east Turkana dates to between 1.6 and 1.7 mya, displaying massive brow ridges, an enlarged brain size, and a high forehead. It bears many resemblances to much later *Homo erectus* specimens.
- **B.** On the western side of the lake, the skeleton of a twelve-year-old boy dates to about the same time period.
  - **1.** From the neck down, the boy's bones are remarkably modern looking. His skull and jaw look more primitive, with a brain about half the modern size.
  - **2.** The Turkana boy confirms a common theory—that different parts of the human body evolved at different rates, with the body achieving a near-modern form long before the head.
- **C.** The tool-making abilities of *Homo ergaster* were vastly superior to those of earlier humans.

1. The crude chopper and simple flake knife and scraping tools developed into increasingly sophisticated hand axes and cleaving tools with sharp edges, capable of butchering large animals, digging up edible roots, and even being used as missiles. The hand axe was a versatile artifact, which remained in use in many parts of the world for over a million years.
2. Hand axes were first found in large numbers in the gravels of the Somme River, in northern France, in the early nineteenth century. Consequently, they are named *Acheulian hand axes*, after the town of St. Acheul in the Somme Valley.

D. About 1.8 mya, *Homo ergaster* tamed fire, which provided warmth, protection against predators, and the ability to cook food, as well as serving, on occasion, as a weapon. Fire was a defining invention in human history because it allowed people to survive in far harsher environments.
1. Fire also allowed them to set fire to vegetation to prey on animals fleeing from the flames.
2. We do not know whether *Homo ergaster* was merely a scavenger or whether humans were now hunting animals in their own right. Most experts believe that at least opportunistic hunting of medium- and smaller-sized animals was now commonplace.

IV. About 2 mya, Africa's hominids were adjusting to cooler, drier conditions; these conditions increased the areas that were ideal for bipedal foragers, which thrived at the expense of forest-loving primates. The human population increased considerably.

A. Sometime around 1.8 mya—the date is still uncertain—*Homo erectus* migrated out of tropical Africa, across a then better-watered Sahara or up the Nile Valley into Asia. The Sahara was like a pump, sucking people in during wetter periods, pushing them out when it became drier. Thousands of Acheulian hand axes have been found in the depths of the Sahara, many of them next to long since dried-up lakes.

B. This movement may have occurred as part of a large interchange of mammals between Africa and more temperate latitudes, which culminated about 700,000 years ago.
1. *Homo erectus* thrived in cooler environments, partly because of the invention of fire.
2. Perhaps as early as 1.8 mya (the date is controversial), humans had settled in Southeast Asia.

V. In 1891, Dutch surgeon Eugene Dubois, who had an obsession with the "missing link" between apes and humans, found the bones of an archaic human he called *Pithecanthropus erectus* ("ape-human who stands upright") in gravels along the Solo River in what is now Indonesia. On his return to Europe in 1895, he was greeted with scorn. Modern science has vindicated Dubois, who was the first to find *Homo erectus* in Asia, long before fossils came to light in tropical Africa.

A. We still know little about these early human settlers. By 700,000 to 500,000 years ago, *Homo erectus* populations were well established in what is now Indonesia and Vietnam.
1. They flourished in a tropical forest environment, where bamboo and other wood resources provided much of their toolkit.
2. All that survives of their toolkit are crude stone choppers and flakes. Their livelihood came from smaller game and forest plants, not from larger animals.

B. No one knows when people first settled in China, but it was at least 600,000 years ago, perhaps considerably earlier.
1. The most famous early human site is Zhoukoudian Cave, near Beijing, visited by *Homo erectus* between about 460,000 and 230,000 years ago.
2. At least forty individuals have been recovered from the cave, most of them younger than fourteen years of age. They were deer hunters, using increasingly sophisticated stone tools.

VI. During early prehistory, humans were part of a vast animal community. They radiated northward into Europe at the same time as many modern grazing animals and predators. *Homo erectus* was successful because early human populations could adapt to rapid cyclical changes in Ice Age climate, which took hold after 780,000 years ago.

A. Over many millennia, early Asians foraged in thick forests and in more open country, using a simple but highly adaptive toolkit, which remained in use until at least 75,000 years ago and, in some places, considerably later.

B. By then, *Homo erectus* had evolved considerably in skeletal morphology and brain size, just as their very distant relatives did in the far west.

C. In Lecture Five, we will discuss the first settlement of Europe and the very different human societies that developed there after 800,000 years ago.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 3, first half.

Roger Lewin, *Bones of Contention* and *Principles of Human Evolution*, part 6.

Stephen Mithen, *The Prehistory of the Mind*, chapter 7.

Supplementary Reading

Richard Klein, *The Human Career*, chapter 4.

Questions to Consider:

1. What impact did the taming of fire have on human life?

2. What was different about *Homo erectus* anatomically compared with earlier hominids?

Lecture Five
The First Europeans

Scope: Lecture Five describes the first human settlement of Europe, which was only colonized about 800,000 years ago—the date is controversial. The first part of the lecture describes very early fossils from Georgia and Israel, which date to 1.7 and 1.4 mya, respectively. Then we discuss the first settlement of Western Europe, the earliest fossils dating to about 800,000 years ago. We describe three sites that reveal something of the life way of *Homo erectus*—Boxgrove, Schoningen, and Torralba. Next, we discuss the highly diverse European fossils, which were the ancestors of the Neanderthals, described in Lecture Six. We also argue that the first Europeans lived a flexible and highly mobile life way. Finally, we discuss the cognitive and linguistic abilities of early Europeans and conclude that they were no match for those of modern humans.

Outline

I. The more northerly, temperate latitudes of Europe and Eurasia may have been a more formidable challenge for archaic humans, especially during glacial episodes. These were periods when much of northern Europe was mantled with huge ice sheets, and enormous glaciers surrounded the Alps and the Pyrenees Mountains between France and Spain. Nevertheless, *Homo erectus* ranged widely in search of food and sometimes traveled quite far north.

- **A.** Male and female skulls of *Homo erectus* recently came from Dmansi, in Georgia, found together with crude choppers and flakes. The crania came from river deposits dated by argon isotopes and paleomagnetism to about 1.7 mya. These Eurasians predate the first Western Europeans by at least half a million years.
- **B.** Stone tools and some very fragmentary human remains have come from Ubeidiya in Israel, dated to about 1.4 mya.
- **C.** Both these finds predate the first settlement of the west.

II. The earliest human settlement of temperate Central and Western Europe probably came during a period of interglacial climate, perhaps as a result of movement northward from warmer regions. The earliest human settlement of Europe took place about 800,000 years ago, with some scientists arguing for a much earlier date, of over a million years.

- **A.** The Gran Dolina site at Atapuerca in northern Spain has yielded *Homo erectus* remains dating to about 800,000 years ago and is the earliest well-attested site.
- **B.** The earliest widespread settlement was about 600,000 years ago, when Acheulian hand axe technology appears for the first time. Two hundred thousand years later, humans lived in many major river valleys and at strategic locations where game abounded.
- **C.** At the Boxgrove site in southern England, a shallow lake lay at the foot of a 300-foot cliff.
  1. Here, *Homo erectus* hunted large animals 500,000 years ago—rhinoceros, bison, deer, and horse, probably driving prey over the cliff, then butchering it by the water.
  2. Boxgrove leaves us in no doubt that *Homo erectus* was a skilled hunter rather than a scavenger like *Homo habilis*. A horse shoulder blade from the site displayed a 2-inch hole made by a spinning wooden spear.
- **D.** Long wooden spears dating to 400,000 years ago come from an open coal mine at Schoningen in northern Germany. They are up to 7 feet, 6 inches long, with tapering tails to give them better direction when thrown. Somewhat similar weapons may have been used at Boxgrove.
- **E.** At Torralba, northeast of Madrid in central Spain, hunters lived in a deep, swampy valley some 300,000 years ago. Here, they either hunted elephants migrating between summer and winter grazing areas or scavenged the carcasses of beasts mired in the swamps.

III. The first Europeans were eclectic and flexible hunters who relied on hunting, scavenging, and gathering plant foods. But they do not seem to have exploited small game, birds, fish, or sea mammals, as moderns did almost at once.

A. *Homo erectus* probably lived in relatively large groups at times, both to reduce the danger from carnivores and to improve the chance of finding food, especially from the carcasses of larger animals. At other times, band size may have been much smaller, especially when plant foods were abundant.

B. All of this argues for considerable social flexibility and intelligence in *Homo erectus*, reflected in their larger brain size. But they may have been incapable of integrating their social intelligence—their ability to share food and cooperate in the hunt—with other aspects of human intelligence.

C. The fossil record for the first Europeans is very incomplete, but it reflects considerable diversity. Apart from the 800,000-year-old specimens from Spain, a robust jaw bone from *Homo erectus* comes from Mauer, Germany, and dates to about 500,000 years ago. A heavily built thigh bone from Boxgrove is also from *Homo erectus* and dates to about the same age.

IV. By 400,000 years ago, humans lived throughout Western and Central Europe. Occasional fossil crania display larger vaults and more receding faces, foreshadowing the Neanderthals of later millennia.

A. The Sima de los Huesos (Pit of Bones) in northern Spain's Sierra de Atapuerca has yielded the remains of between thirty and fifty individuals dating to about 300,000 years ago. These represent a more advanced human form, clearly descended from *Homo erectus* and intermediate to the archaic Neanderthals, described in Lecture Six.

B. In Europe, as in Africa, there was great diversity in human forms but a gradual trend toward larger brains, more rounded skulls, and skeletal anatomy more closely resembling that of modern humans.

V. *Homo erectus* had a well-developed Broca's area of the brain, the zone associated with speaking ability. Its vocal tracts were more modern than those of *Homo habilis*, which suggests considerable potential for articulate speech.

A. Anthropologists Leslie Aiello and Robin Dunbar argue that the basis for language ability appeared in humans by 250,000 years ago. They believe it evolved as a way to handle increasingly complex social information.

1. As group sizes increased, so did a capacity for language, used primarily to communicate about social relations.

2. Only later did humans develop the kind of general-purpose language we use today, which allows us to communicate freely, whatever the behavioral domain.

3. Anatomically, the larynx had not yet shifted into the position that allows the enormous range of sounds made by modern humans.

B. Although like us in many ways, *Homo erectus* lacked the cognitive flexibility characteristic of modern humans. Yet it was from this archaic human that *Homo sapiens sapiens,* ourselves, ultimately evolved.

VI. By 150,000 years ago, several thousand families lived across Western and Central Europe, dwelling, for the most part, in large river valleys and near lakes. Thousands of finely made hand axes come from the ancient gravels of large rivers, such as the Somme and the Thames, used by hundreds of generations of hunters to butcher game and for other purposes.

A. The life way of people 150,000 years ago was little different from that of half a million years earlier—constant mobility, large hunting territories, and small camps, usually "anchored" to some more desirable location where water and, perhaps, game were abundant and dependable.

B. Technology was versatile and very simple, highly portable, and generally made of wood. Hunting depended on expert stalking, fire-tipped spears, clubs, and probably traps.

C. Stone tools were multipurpose artifacts like the hand axe, used for butchery and many other purposes, including cutting wood, grubbing for roots, perhaps even throwing at small game. Simple scrapers sufficed for processing hides and woodworking, as did casually made sharp-edged flakes. There was none of the specialized weaponry and more sophisticated artifacts that appeared after 100,000 years ago.

VII. By this time, the more archaic Europeans had evolved into the Neanderthals, perhaps the most famous of all prehistoric people, described in Lecture Six.

Essential Reading:

Clive Gamble, *The Palaeolithic Societies of Europe*, chapters 1–4.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 3, first half.

Richard Klein, *The Human Career*, chapters 4 and 5.

Mark Roberts and Simon Parfitt, *A Middle Pleistocene Hominid Site at Eartham Quarry, Boxgrove, West Sussex.*

Questions to Consider:

1. Why did it take so long for archaic humans to settle temperate Europe?
2. What were the salient characteristics of the first European life way?

Lecture Six
The Neanderthals

Scope: Lecture Six, the last in section I, describes the world-famous Neanderthals of Europe and Asia, who evolved from earlier archaic *Homo sapiens* populations. First, we describe the distribution of the Neanderthals and the misleading stereotypes that surround them. Next, we summarize the salient anatomical features of the Neanderthals and conclude that they were nimble, efficient hunters. Then, we examine their life way and the ways in which they adapted to the harsh climate of Europe and Eurasia in the late Ice Age. We also describe the simple but versatile toolkit they used to hunt animals and process foods of all kinds. Finally, we discuss the Neanderthals' disposal of the dead and conclude that they did not have the powerful reasoning powers and intellectual potential of their anatomically modern successor, *Homo sapiens sapiens.*

Outline

I. The Neanderthals are the stereotypic cave people, beloved of cartoonists, who depict them as squat, club-wielding brutes, perennially dragging their wives around by their long hair. This misleading image comes from a portrait of the Neanderthals compiled from a single burial of a crippled man found a century ago. In fact, the Neanderthals were strong, robustly built people with some archaic features.

- **A.** The first Neanderthal remains came to light in the Neander Valley, Germany, in 1857. With its heavy brow ridges and receding forehead, the Neanderthal seemed totally different from modern humans.
- **B.** Since the first discovery a century and a half ago, substantial numbers of Neanderthal individuals have come to light, most in Western and Central Europe but also in southwestern Africa and Eurasia.
- **C.** Neanderthals first appeared during an interglacial period in Europe well before 100,000 years ago, but they were apparently few in number. The Neanderthal population increased considerably after 100,000 years ago, during a period of intense cold—the last glacial period of the Ice Age.

II. In the 1930s, the great French paleontologist Marcellin Boule believed that the Neanderthals were clumsy, shambling people, so specialized that they became extinct in the face of modern humans. He based his ideas on an elderly, arthritic Neanderthal man found at La Chapelle-aux-Saints Cave in western France in the early years of the twentieth century.

- **A.** Boule was wrong. The skeletons found in European caves may look like anatomical anachronisms, with their massive eyebrow ridges and squat bodies, but the Neanderthals walked upright and as nimbly as modern humans.
  - **1.** The European Neanderthals stood just over 5 feet tall. Their forearms were relatively short compared with those of modern people. This "classic" variety of Neanderthal is confined to Western Europe, their squat stature an adaptation to extreme cold.
  - **2.** Neanderthal populations around the shores of the Mediterranean and in Asia displayed much greater variability and less extreme features, including reduced brow ridges and more modern-looking skulls.
- **B.** All Neanderthals had the same posture, manual abilities, and range and characteristic of movement as modern people.
  - **1.** They differed in having shorter, more robust forearms and massive limb bones, slightly bowed in the thigh and forearm, which reflected their massive musculature.
  - **2.** The Neanderthals were shorter, bulkier, and more heavily muscled than ourselves, and their brain capacity was slightly larger.
- **C.** Opinions differ as to Neanderthal linguistic abilities, but they were certainly capable of more effective speech and communication than their predecessors. They were not, however, as articulate as modern humans.
- **D.** Neanderthal evolutionary roots lay in earlier times, not in *Homo erectus*, but in the anatomically slightly more advanced humans of more than 200,000 years ago, described in Lecture Five.

III. Nimble, tough, and intelligent, the Neanderthals were expert hunters, who adapted successfully to the extremely cold climatic conditions of the late Ice Age.

A. The Neanderthal anatomical pattern appeared about 150,000 years ago, then stabilized for about 50,000 years, before being replaced by anatomically modern humans within a mere 10,000 years ago, after 40,000 years before present.

B. According to British archaeologist Clive Gamble, the Neanderthals adapted differently to European conditions compared with their predecessors, living in caves and rock shelters rather than open camps, while using the latter as temporary stopping places when following migrating game or gathering plant foods.

C. Like their predecessors, the Neanderthals occupied large territories, of which they exploited different parts according to the seasons, returning to the same locations year after year when game migrated or plant foods came into season.

D. They were skilled hunters who pursued game of every size. But their hunting still depended on drives, expert stalking, and the use of close-up weapons, such as clubs and spears. This was dangerous work. Many Neanderthal skeletons display serious wounds inflicted when hunting.

E. Another difference with earlier times: The Neanderthals were now developing hunting and gathering strategies based on four main herd animals—bison, horse, red deer, and reindeer. Much of their game meat must have come from culling seasonal migrations, which meant that stored dried meat assumed great importance in the hungry winter months.

IV. By 50,000 years ago, population densities had risen considerably, and there was more contact between neighbors, lessening the risk of isolated bands dying out in times of stress.

A. Environmental knowledge and larger group size were important to survival. The long, bitter winters of the late Ice Age caused most bands to settle in the deep river valleys of southwestern France, where huge rock shelters and sheltered caves abounded. From there, they fanned out into the open country to the north during the summer months.

B. No Neanderthal settlements have been found in extreme northern areas, close to the great ice sheets. The most northerly were probably summer encampments, at about 54 degrees north—about the latitude of Lübeck in northern Germany.

V. The European Neanderthals used a simple but versatile technology, but one far more sophisticated than that of their predecessors. It was first identified in the Le Moustier Cave near Les Eyzies in southwestern France in the 1870s, whence the name *Mousterian* for their culture—known to us almost entirely from stone tools.

A. Acheulian hand axe makers were skillful stone technicians. After 100,000 years ago, stone toolmakers, probably ancestors of the Neanderthals, began to shape stone cobbles (cores) carefully before striking flakes off them, to achieve a more standardized flake.

1. Mousterian technology was based, in particular, on disc-shaped cores; this shape provided quite a large number of flakes of various sizes before being exhausted.

2. The stone workers then turned these flakes into a variety of artifacts, among them, spear points and scrapers for working wood and scraping hides. They sharpened the edges of stone artifacts with careful trimming.

B. The Neanderthals were the first humans to make composite tools, that is, artifacts with several parts.

1. They were the first to mount stone spear points on wooden shafts to make far more lethal and effective weapons than the fire-hardened spears of their predecessors.

2. Despite their stone-working skills, the Neanderthals made a limited range of artifacts, toolkits, which vary considerably from one group to the next. Controversy surrounds the meaning of different toolkits, some of which had many small hand axes; others, with many scrapers.

C. One viewpoint sees these differences as evidence that different groups visited the same location. Others think that they are the result of gradual cultural change over time. A minority believes they are the result of different activities by the same group. The controversy is unresolved, but in practice, the Neanderthals made a highly varied and simple toolkit for different activities, far more than ever before.

VI. The world's human population was still tiny 75,000 years ago, probably numbering no more than 100,000 people or so. But life was becoming more complex. For the first time, humans buried some of their dead.

A. The Neanderthals disposed of some of their dead in the floors of caves and rock shelters. One French rock shelter yielded the remains of two adult Neanderthals and four children buried close together.

B. Whether this was merely corpse disposal or formal burial is a matter for discussion. We do not know whether the Neanderthals believed in an afterlife, engaged in any form of rituals, or possessed even simple spiritual beliefs.

VII. The Neanderthals were among the last of the archaic humans, near moderns, perhaps. But they lacked the awesome reasoning powers and logical thinking that marks *Homo sapiens sapiens* from its predecessors. The origin of modern humans, ourselves, is the subject of Lecture Seven.

Essential Reading:

Christopher Stringer and Clive Gamble, *The Search for the Neanderthals*.

Erik Trinkaus and Pat Shipman, *The Neanderthals: Changing the Image of Mankind.*

Supplementary Reading:

François Bordes, *The Old Stone Age*.

Clive Gamble, *The Palaeolithic Societies of Europe*, chapter 5.

Brian Fagan, *People of the Earth*, chapter 3.

Questions to Consider:

1. What were the salient differences between Neanderthal and earlier stone technology?

2. What, in your view, is the greatest difference between the Neanderthals and modern humans?

Section II: Modern Humans

Lecture Seven

The Origins of *Homo sapiens sapiens*

Scope: This lecture discusses the origins of *Homo sapiens sapiens*, modern humans, over 100,000 years ago. First, we describe three major grades of archaic *Homo sapiens*, which flourished in tropical Africa between 200,000 and 100,000 years ago. Then, we compare the two competing hypotheses that account for the origins of modern humans—the multiregional and out-of-Africa hypotheses. Next, we discuss the compelling evidence from molecular biology, especially mitochondrial DNA, which strongly suggests that *Homo sapiens sapiens* evolved in Africa. Finally, we survey the ecological background to this development and the very limited archaeological evidence for the appearance of new hunting toolkits south of the Sahara about 70,000 years ago or earlier.

Outline

I. Charles Darwin himself expressed a belief that Africa was the cradle of humankind. And so it has proved. In recent years, cutting-edge genetic research has shown that the same continent was probably the cradle of *Homo sapiens sapiens* as well.

- **A.** For years, archaeologists considered Africa a cultural backwater after the emergence of humans. They had little to go on, merely a handful of archaic-looking human skulls and thousands of crude stone artifacts. New fossil discoveries in recent years have painted a different picture of later human evolution south of the Sahara.
- **B.** At least three grades of archaic-looking *Homo sapiens* flourished in Africa, having evolved, ultimately, from *Homo ergaster* (see Lecture Three). All had larger skull vaults and many other anatomical features like those of modern humans.
  - **1.** An "early archaic *Homo sapiens*" was widespread from southern to northeast Africa some 200,000 years ago. In general, the few fossils in this group are heavily built, with massive brow ridges and other anatomical features like those of their predecessors.
  - **2.** A "late archaic *Homo sapiens*" group includes fossils with a mosaic of ancient and modern features, with the latter predominating. These date to around 100,000 years ago and somewhat earlier.
  - **3.** A third group consists of individuals who are anatomically modern, with only a few archaic features. This latter group was widely distributed in eastern and southern Africa as early as 115,000 years ago, perhaps earlier.
- **C.** The evolutionary developments that led to *Homo sapiens sapiens* had run their full course by 100,000 to 70,000 years ago in eastern and southern Africa, far earlier than in Europe or Asia. This was the time when the Neanderthals flourished in Europe and Southwest Asia. The changeover seems to have been a rapid one in evolutionary terms, far more so than that between *Homo ergaster* and archaic *Homo sapiens.*

II. The fossil evidence points to Africa as the cradle of modern humanity, but intense controversy surrounds this hypothesis. The controversy pits two schools of thought against each other—those who believe that modern humans evolved in Africa and spread from there over the globe and those who argue that modern humans evolved independently and more-or-less simultaneously in different parts of the world.

- **A.** Those who argue for the multiregional hypothesis claim that there is fossil evidence for evolutionary change in the direction of modern humans both in Europe and in East Asia.
  - **1.** They argue that *Homo erectus* in Asia developed ever more modern anatomical features through the millennia, until some population evolved into fully modern humans.
  - **2.** They also believe that *Homo sapiens sapiens* evolved from Neanderthal populations in the west.
- **B.** The fossil evidence, incomplete as it is, does not support the multiregional hypothesis. Furthermore, DNA extracted from Neanderthal limb bones shows complete incompatibility with that from modern humans, to the point where the two could not interbreed.

III. Molecular biology has played a decisive role in the debate. Mitochondrial DNA (mtDNA) is inherited only through the maternal line; it does not mix with and become diluted by paternal DNA. Thus, it forms a potentially reliable link with ancestral populations.

A. Mitochondrial analyses of women from all the continents show that the differences between them are very small, suggesting that they split off from one another comparatively recently. But the Africans displayed enough differences from the others to suggest that they were earlier. They developed more diverse forms of mtDNA than other present-day populations elsewhere in the world, as if they had more time to develop such mutations.

B. An even larger database of nuclear DNA and of blood groups and enzymes displays a primary split between Africans and non-Africans. There was then a later split between Eurasians and Southwest Asians.

1. These data imply an early split in Africa, a dispersal of population, then another bifurcation in Asia.

2. Many geneticists believe that ancestral *Homo sapiens sapiens* populations may have lived in Africa between 100,000 and 200,000 years ago.

C. At present, the weight of the genetic evidence favors the out-of-Africa hypothesis, but many details of the data remain controversial, and new methodologies develop rapidly. In particular, the dating of the ancestral populations is highly uncertain.

IV. The biological anthropologist Robert Foley argues that modern humans most likely evolved at a single location. Around 100,000 years ago, the African savanna would have been an ideal environment for promoting the speciation of modern humans. Foley believes that modern humans evolved in a mosaic of changing tropical environments, developing distinctive characteristics.

A. In response to such environments, some groups may have developed wide-ranging behavior, may have lived in larger social groups, and may have been highly selective in their diet.

B. With more efficient technology, more planning, and better organizing of hunting and collecting, the first modern humans may have reduced the unpredictability of the environment in dramatic ways.

C. In the long term, radically improved hunter-gatherer skills may have turned humans from scavengers and opportunistic hunters into super-predators that could hunt almost any animal on earth.

V. A handful of archaeological sites chronicle improvements in human technology at about the time modern humans appeared.

A. Acheulian hand axe technology gave way to more sophisticated and versatile toolkits based on flakes in eastern Africa between 200,000 and 100,000 years ago.

B. The Klasies River Cave in extreme southeastern Africa lies a short distance from the Indian Ocean and was occupied between 120,000 and 70,000 years ago.

1. The occupation levels of the cave contain fragmentary human remains, among them, bones of anatomically modern people.

2. About 70,000 years ago, the inhabitants of the cave suddenly started making small, thin flakes and flake-blades from fine-grained rock carried in from over 12 miles away. Some of the fine flake blades became spear barbs; others, knives. Their toolkit was much smaller, lighter, and more versatile than the flake tools found in other Klasies layers.

C. South African archaeologist Hilary Deacon believes that the new toolkit coincides with deteriorating climatic conditions during the last cold snap of the Ice Age, which began about 100,000 years ago. Conditions were drier and cooler in southern Africa, and the hunt was more challenging for the older, heavier weapons. When conditions became wetter and warmer, the old toolkits reappeared.

VI. Perhaps Klasies River and other South African sites are evidence for a new flexibility in human behavior, an ability to adapt to changing circumstances at a level impossible for earlier humans.

A. The origins of *Homo sapiens sapiens* are still largely a matter of speculation, but the weight of the evidence suggests that modern humans evolved in sub-Saharan Africa over 100,000 years ago.

B. From tropical Africa, they spread across the Sahara and into the rest of the world, a diaspora described in Lecture Eight.

Essential Reading:

Roger Lewin, *The Origins of Modern Humans*.

Chris Stringer and R. McKie, *African Exodus*.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 3, second half.

Richard Klein, *The Human Career*, chapter 5.

Questions to Consider:

1. What ecological conditions favored the evolution of *Homo sapiens sapiens* in tropical Africa?
2. What is the significance of mtDNA to the study of the origins of modern humans?

Lecture Eight
The Great Diaspora

Scope: Lecture Eight describes the dramatic spread of modern humans from Africa into other parts of the world. First, we describe how the Sahara Desert acted like a great pump, regulating movement from the tropics to the rest of the world. Next, we trace Neanderthal and modern human settlement in southwestern Asia, where the two groups lived alongside each other for over 45,000 years. Then, we discuss the first modern human settlement of south and southeastern Asia and the offshore islands. We analyze the evidence for the first settlement of Australia. Finally, we summarize the course of the diaspora in northern latitudes, described more fully in Lectures Nine to Eleven.

Outline

I. Most scholars believe that *Homo sapiens sapiens* first appeared in tropical Africa south of the Sahara between 200,000 and 150,000 years ago. However, the date when modern humans first spread out of Africa remains a matter of speculation.

- **A.** The Sahara Desert played a critical role in the initial stages of the diaspora. We can liken its role to that of a giant pump, sucking in animals and people during wetter periods, expelling them when the climate became drier.
  - **1.** During warmer, wetter periods, such as pertained for a while before 100,000 years ago, the desert supported many shallow lakes and semiarid grasslands. This may have been a time when modern human populations settled in the heart of the desert.
  - **2.** Around 100,000 years before present, the Sahara became much more arid. Its many lakes dried up. In the face of drought, both animals and humans moved out to the edges of the desert.
- **B.** This arid period may have coincided with the beginning of the last glacial period of the Ice Age, when great ice sheets mantled much of the northern latitudes.
- **C.** If this hypothesis is correct, then *Homo sapiens sapiens* moved out of the Sahara and into southwestern Asia by 100,000 years ago.

II. We have no idea which routes these early populations followed. The Nile Valley may have been one; a crossing of the Red Sea from northeast Africa, another. It is also possible that people migrated along the North African coast to Egypt and beyond.

- **A.** Thermoluminescence dates from Qafzeh Cave in Israel associated with modern human remains place *Homo sapiens sapiens* in southwestern Asia by between 90,000 and 100,000 years ago.
- **B.** Southwest Asia supported a sparse Neanderthal population until at least 45,000 years ago. For thousands of years, bands of modern and more archaic humans lived alongside each other in the region.
- **C.** The skeletal anatomy of the Neanderthals in this area displays great variation, many of them having less extreme archaic features than their contemporaries in Europe.
  - **1.** The more extreme characteristics of the European Neanderthals may be the result of adaptation to extreme cold.
  - **2.** It appears that there was little or no biological interaction between the two populations.
- **D.** Stone tools from Qafzeh and other caves, also from the Negev Desert, document gradual changes in human technology between 100,000 and about 45,000 years ago.
  - **1.** These changes involve a slow changeover from prepared core and flake technology (described in Lecture Six) to more sophisticated stone flaking using parallel-sided stone blades removed from a core of fine-grained rock with a punch. (This technology is described in Lecture Eight.)
  - **2.** Blade technology was fully developed by 45,000 years ago. Some experts believe that this sophisticated technology gave *Homo sapiens sapiens* a competitive edge that enabled them to move northward and adapt successfully to the extreme cold of areas further north.

III. The great diaspora of modern humans out of Africa and beyond began before 100,000 years ago and culminated with the settlement of the Americas, sometime either at the end of, or immediately after, the Ice Age, about 15,000 years ago. Many details remain unknown.

A. We do not know when modern humans first settled in South Asia, but it may well have been earlier than 45,000 years ago, when *Homo sapiens sapiens* moved into Europe. Immigrant bands would have encountered no insurmountable barriers.

B. Modern humanity first appeared in mainland Southeast Asia at a relatively earlier date. Some speculate that it was earlier than 75,000 years ago, but the evidence is effectively nonexistent.

C. During the height of the last glaciation after 100,000 years ago, the geography of Southeast Asia was very different from today. Sea levels were more than 300 feet lower. A huge continental shelf, called Sunda by geologists, joined Indonesia, Thailand, and Vietnam to Borneo and part of the Philippines. Another vast landmass, Sahul, linked Australia and New Guinea. Only short open-water passages separated the islands between the two continents.

1. No traces of *Homo erectus* or other archaic humans have been found on the modern-day remnants of Sunda and Sahul. Almost certainly, the first modern inhabitant was *Homo sapiens sapiens.*

2. There is good evidence for seafaring after 50,000 years ago. By 40,000 years ago, people had settled on what is now New Guinea; ground-stone axes of that age have come from the southern part of the island.

3. By 32,000 years ago, human settlers lived in caves on New Ireland, in the Trobriand Islands off the southeastern shore of New Guinea. Kilu rock shelter on the Solomon Islands, even further offshore, was in use as early as 28,000 years ago.

4. The colonization of island groups further offshore than this had to wait for the development of the oceangoing outrigger canoe and of domesticated foods that could be stored for long journeys.

IV. Great controversy surrounds the first settlement of Australia. One school of thought, relying on thermoluminescence dates from geological deposits, argues for a date as early as 45,000 years ago or even earlier.

A. The first well-documented sites were in use by 35,000 years ago. Most archaeologists believe that this later date is a more reliable one. By 30,000 years ago, human settlement was widespread along the coasts and in more fertile areas of the continent.

B. The modern-day island of Tasmania was part of mainland Australia during the late Ice Age, when temperatures were much colder than today. A series of caves and rock shelters in the southeastern parts of the island contain traces of wallaby hunters as early as 35,000 years ago and spanning the next 5,000 years.

C. Ice Age hunters continued to flourish on Tasmania until the end of the Ice Age, when the island was severed from the mainland. These were the southernmost Stone Age people on earth.

V. The settlement of more northerly parts of the Old World by modern humans began some time after 45,000 years ago, when *Homo sapiens sapiens* had developed the technology to survive extreme cold and long, subzero winters.

A. *Homo sapiens sapiens* replaced Neanderthals in Central and Western Europe between 45,000 and 35,000 years ago. These developments are described in Lecture Nine.

B. Small bands of Stone Age hunters had moved onto the great plains of Eurasia, north of the Black Sea, by 35,000 years ago (see Lecture Ten).

C. The first human settlement of northeastern Siberia did not take hold until about 18,000 years ago, with the first settlement of the Americas following soon thereafter (see Lectures Ten and Eleven).

VI. By 13,000 years ago, modern humans were living on every continent, except on the offshore islands of the Pacific and Antarctica. The great diaspora of modern humanity ceased its ebbs and flows at the end of the Ice Age, when global warming changed human history fundamentally.

Essential Reading:

Brian Fagan, *The Journey from Eden*.

Chris Stringer and R. McKie, *African Exodus*.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 3 second half; chapter 6, second half.

Clive Gamble, *Timewalkers.*

Questions to Consider:

1. Why do you think it took modern humans so long to settle in more northern latitudes?
2. Why are deserts important factors in human migration?

Lecture Nine
The World of the Cro-Magnons

Scope: Lecture Nine describes the first settlement of Europe by modern humans, known as Cro-Magnons, after 45,000 years ago. The lecture begins with a discussion of the cognitive fluidity that gave modern humans advantage over more archaic people. We then describe the European environment during the late Ice Age; the distinctive technology developed by the Cro-Magnons; and the first settlement of Eastern, Central, and Western Europe, between about 45,000 and 38,000 years ago. We stress that the Neanderthals survived alongside the newcomers for 5,000 to 10,000 years. Next, we describe the important developments that took hold in Cro-Magnon society, one of the first human societies that brought together the living and spiritual worlds. Finally, we analyze some of the general features of Cro-Magnon society and its economic basis.

Outline

I. After 50,000 years ago, there were a series of rapid cultural explosions in southwestern Asia and, later, in Europe, both areas with original breeding populations of modern humans that may not have exceeded fifty people or, at the most, a few hundred individuals.

- **A.** Rapid cultural change took place in one area but not in others. For example, blade technology developed in southwestern Asia; the first art appeared in Europe; Australia was settled about 35,000 years ago. Only after 30,000 years ago did rapid cultural change take hold in all parts of the Old World and, later, the Americas.
- **B.** Humankind now had the ability to bring together the natural and social worlds in a synthesis that is characteristic of many human societies to this day. This cognitive fluidity gave modern humans a compelling advantage over more archaic people.

II. Until about 50,000 years ago, Europe was in the grip of extreme cold. The first modern human groups appeared in Europe during a period of more temperate climate after that date. Even so, constantly changing climatic conditions and seasonal variations must have required new artifacts and more sophisticated hunting skills.

- **A.** Europe was where blade technology came into its own, with punch-struck blades providing the blanks for all manner of more specialized tools, among them, the backed knife and the burin, or chisel.
- **B.** The burin allowed people to cut long splinters of antler and bone, from which they manufactured a broad range of hunting weapons and other tools, including razor-sharp spear points; spear throwers, which extended the range of the spear; and harpoons—detachable spear points attached to the shaft with a thong.
- **C.** The most important antler and bone innovation was the eyed needle, used to fashion multilayered, tailored cold-weather clothing, which allowed people to work outside in subzero weather and enabled permanent settlement on the open plains of Central Europe and Eurasia.

III. The first modern humans arrived in Eastern Europe around 45,000 years ago. They were round-headed, completely modern people, known to anthropologists as Cro-Magnons, after a rock shelter of that name near the modern village of Les Eyzies in southwestern France.

- **A.** The Cro-Magnons had settled in Western Europe by about 38,000 years ago. For some five to ten millennia, they lived alongside slowly shrinking Neanderthal populations, but after about 31,000 years ago, the Cro-Magnons had Europe to themselves.
- **B.** At this time, Europe was very different from today. Huge ice sheets mantled Scandinavia and the Alps. A broad zone of treeless, rolling plains extended from the Atlantic coast deep into Eastern Europe and Eurasia. The Atlantic was 300 feet below modern levels; England was part of the continent.
- **C.** The most sheltered locales were river valleys in southwestern France and parts of Austria, as well as northern Spain. Here, many Cro-Magnon groups wintered, following summer migrations of reindeer and other animals onto the open plains to the north.

IV. French archaeologists have identified a long series of late Ice Age "cultures" in Western Europe, which are of little more than local interest.

A. More important, a number of significant changes affected European society after 30,000 years ago.

1. Population densities rose in some areas, resulting in more social gatherings and more closely defined territorial boundaries.

2. Hunting involved following seasonal migrations and resulted in contacts and trade with people living at considerable distances.

3. Blade technology allowed the development of all manner of specialized stone tools, some used only in small areas, as well as the elaboration of bone and antler technology, especially for hunting weapons.

4. Personal ornamentation and art played a new and important role in establishing personal identity and in exploding religious beliefs.

B. By 18,000 years ago, when the late Ice Age was at its height, human social relations had been completely reconstructed, with much greater importance being placed on both individual and collective identity, on kin ties and relationships with the supernatural. For the first time, we can discern important regional differences in European societies.

V. Late Ice Age Europe was a region of diverse food resources, especially a remarkable range of game animals. The Cro-Magnons subsisted off reindeer as a staple, but they also took wild ox, red deer, bison, and numerous smaller animals, such as arctic fox.

A. Many of these game resources were relatively predictable, with an ample cushion of other foods if the reindeer migrations of spring and fall were smaller than usual. This gave the Cro-Magnons a degree of economic stability unknown in earlier times.

B. Seasonal salmon runs were also an important food source, with many large rock-shelter sites located near salmon streams. Plant foods were consumed in the spring, summer, and fall.

C. The Cro-Magnons exploited these food resources with great efficiency, to the point that many bands lived almost permanently in one place.

1. Many Cro-Magnon groups lived in large caves and rock shelters, as well as in open camps.

2. Most rock shelters in sheltered valleys were close to large streams or fords where reindeer crossed rivers. Invariably, the people settled in south-facing caves, to get the full warmth of the sun.

VI. The highlight of the Cro-Magnon year was the summer, when neighboring groups came together at specific locations where game, such as reindeer, or salmon were abundant for a few weeks a year. At these times, marriages were arranged and initiation ceremonies were performed, highly intense rituals unfolded, shamans told tales and wove spells, and the ancestors and forces of the spiritual world were invoked to ensure the continuity of life.

A. The seasonal gatherings were also times when men and women traded artifacts, ornaments, and exotic materials from afar.

1. Cro-Magnon sites in southwestern France contain such exotica as seashells from the northwest Atlantic coast and Mediterranean shores and shiny Baltic amber, with its magical qualities when rubbed.

2. Many of these objects may have fostered gestures of social obligation between individuals and groups.

B. Many Cro-Magnon groups lived in much closer juxtaposition to one another than their predecessors ever had. Some of them achieved considerable social elaboration, of a type never seen before, with both kin leaders and shamans playing an important role in social, political, and religious life.

VII. The climax of the Cro-Magnon societies came with the Magdalenian culture of southwestern France and northern Spain, with its superb ceremonial artifacts and magnificent art tradition (named after the La Madeline rock shelter in France's Vezère River valley), which flourished from about 18,000 to 12,000 years ago.

VIII. We describe the ceremonial life and art traditions in the beginning of Lecture Ten, which also takes us east into Eurasia and deep into Siberia.

Essential Reading:

Clive Gamble, *The Palaeolithic Societies of Europe*, chapters 6–8.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 4.

Steven Mithen, *The Prehistory of the Mind*, chapters 9–11.

Questions to Consider:

1. What was the crucial difference between the Cro-Magnons and the Neanderthals that led to the extinction of the latter in the long term?
2. What important developments unfolded in Cro-Magnon society during the late Ice Age?

Lecture Ten
Artists and Mammoth Hunters

Scope: In Lecture Ten, we explore Cro-Magnon art and the late Ice Age settlement of Central Europe and Eurasia. We begin by discussing the first appearance of human art, which was global by 25,000 years ago. Then, we describe the first discovery of Cro-Magnon art, which was first thought impossible. After summarizing the major features of Cro-Magnon mobile and cave art, we evaluate the various theories developed to explain the significance of the engravings and paintings and attribute them to shamanistic rituals. Next, we journey to the Central European and Eurasian plains, where we visit the unique big-game hunting societies of the late Ice Age in this inhospitable environment. Finally, we discuss the amalgam of Eurasian and East Asian hunter-gatherer cultures that developed in the vast tracts of Siberia before 15,000 years ago.

Outline

I. Sometime between 40,000 and 30,000 years ago, Europeans first began making ornaments, such as beads, pendants, and perforated animal teeth, to adorn their persons. At about the same time, the Cro-Magnons started painting images of animals, signs, and anthropomorphic figures on cave walls.

- **A.** The Europeans were not alone; wall art appears almost as early in Australia and southern Africa. Art was a worldwide phenomenon by 25,000 years ago, at the height of the late Ice Age.
- **B.** In 1875, Spanish nobleman Marcellino de Sautola decided to dig for Stone Age artifacts in a cave on his estate at Altamira in northern Spain. His young daughter Maria discovered polychrome images of long-extinct bison on a side chamber.
  - **1.** The experts scoffed at Sautola and accused him of forging the bison paintings, which he claimed to be the work of Stone Age artists.
  - **2.** It was not until 1904 that the long-dead Sautola was vindicated, when some paintings very similar to those from Altamira came from a sealed cave named La Mouthe near Les Eyzies in southwestern France.
  - **3.** Since then, Cro-Magnon art has been recognized as among the earliest art traditions in the world.
- **C.** The sudden appearance of art is probably connected to the development of human cognitive fluidity. However, this was not art for art's sake, but art that had a vital symbolic meaning, with, as it were, a code behind it. Cro-Magnon art was a bridge between the living and spiritual world, but vigorous controversy surrounds its interpretation.

II. Cro-Magnon art comes in two broad forms—as mobile art in the shape of decorated artifacts, many of them obviously of ceremonial use, and as cave art—engravings and paintings.

- **A.** The Cro-Magnons were brilliant artists in stone, antler, bone, clay, ivory, and probably wood, which has not survived. Some 10,000 sculpted and engraved objects come from late Ice Age sites all over Europe and deep into Eurasia and Siberia.
- **B.** The people decorated their harpoons, spear points, spear throwers, and other artifacts with fine naturalistic engravings of wild animals and elaborate schematic patterns. Even fine eye details and hair texture are shown.
- **C.** Many of these objects were sculptures in the round, which were probably executed by a small number of skilled artists, most of them for ceremonial purposes, which now elude us.
- **D.** The Cro-Magnons are most famous for their rock art—paintings and engravings deep in the caves of southern France and Spain.
  - **1.** At Altamira, in northern Spain, you walk deep into the hillside, into a low chamber, where the artists made use of natural protuberances in the rock to shape polychrome bison.
  - **2.** Altamira was probably painted about 13,000 years ago, while Lascaux in southwestern France, a masterpiece of giant bulls, stag, and bison, was painted about 15,000 years ago.
  - **3.** Perhaps the most dramatic painted cave of all, the Grotte de Chauvet in southeastern France, was discovered only in 1994. Its chambers contain magnificent friezes of lionesses, rhinoceroses, and other

animals dating to as early as 31,000 to 24,000 years ago. In one chamber, a skin-clad shaman watches over the scene.

III. Intense debate surrounds the meaning of Cro-Magnon art. Early theories thought of the art as either art for art's sake or as "sympathetic hunting magic," but clearly, the art has a more intense symbolic meaning.

A. Most authorities now believe that the art was painted by shamans, much of it as a result of solitary vision quests deep in dark caves. They painted signs, even animals, as a result of their quests, when memories were fresh.

B. Shamans—the word comes from a Siberian word *saman,* were spirit mediums, people with unusual spiritual powers who could pass freely in trance from the living to the spiritual world. They were intermediaries between living people and the forces of nature and animal spirits.

C. Modern theories of Cro-Magnon art draw on modern-day research into San hunter-gatherer art in southern Africa. They argue that the art was created by shamans in dark places, both as a vehicle for their own experiences and as part of ceremonies in which people drew spiritual power from the animals they hunted.

D. The spiritual relationship between the Cro-Magnons and the animals they hunted may have been very close and commemorated in initiation ceremonies and rituals conducted in dark caverns.

E. We will never be able to fully discern the spiritual dimensions of Cro-Magnon life, but it seems likely that shamans flourished at this early time, as they did in many later hunter-gatherer societies.

IV. Late Ice Age societies flourished far to the east of the comfortable enclaves of northern Spain, southwestern France, and Austria, on the rolling plains and steppes of Central and Eastern Europe and far into Eurasia.

A. The development of needles and tailored clothing enabled people to live on the open plains through subzero winters, something that the Neanderthals may never have managed to achieve.

B. Modern humans were already living in the river valleys of the Ukraine and the Czech Republic by at least 35,000 years ago and were well established there by 25,000 years ago.

V. The undulating plains of Central Europe and Eurasia were a far less hospitable environment for Stone Age hunter-gatherers. For warmth and shelter, they had to create artificial dwellings with their own tools and from locally available raw materials.

A. A series of late Ice Age hunting and gathering societies, known to archaeologists as the East Gravettian complex (named after a rock shelter in France), flourished on the plains and varied terrain of Central and Eastern Europe between 28,000 and 10,000 years ago.

B. The people of these societies are commonly thought to have been mammoth hunters, who preyed on the herds of arctic elephants on the plains. In fact, much of their diet came from smaller animals, such as rabbits. Mammoth bones were invaluable for roof beams for houses, many of them collected from animals that died of natural causes.

C. The Dolní Vestonice and Pavlov sites in the Czech Republic overlooked a river about 24,000 years ago. Here, people lived in oval bone-and-timber houses dug partially into the ground. The inhabitants hunted rabbits and other small animals; made basketry, the earliest known in the world; and baked clay figurines of animals and humans, also the earliest such objects known.

D. In the Don and Dneiper River valleys of the Ukraine, the most intensive Gravettian occupation was between 18,000 and 14,000 years ago.

1. The Mezhirich site overlooked the Dneiper River 15,000 years ago.

2. The site is a small settlement of five houses dug into the ground, covered with roof frameworks of mammoth bones in intricate interlocking patterns, covered with hide or sod.

VI. To the east of the Don and Dneiper River valleys stretches central Asia, a vast area of steppe and varied topography that extended to Siberia's Lake Baikal and beyond. During the late Ice Age, a sparse population of big-game hunters inhabited river valleys and lake basins, where they came into contact with other hunter-gatherer groups from areas to the south.

A. Central Asia was subject to cultural influences from both the late Ice Age cultures of the west and the still little-known contemporary societies of China and areas to the south.

B. It was from this fusion of different cultural traditions that the first settlers of the Americas stemmed, the subject of Lecture Eleven.

Essential Reading:

Paul Bahn and Jean Vertut, *Images of the Ice Age.*

Randall White, *Dark Caves, Bright Images*.

Supplementary Reading:

Brian Fagan, *People of the Earth*, chapter 4.

John Hoffecker, *Desolate Landscapes*.

Questions to Consider:

1. What was the significance of Cro-Magnon art, and what does it contribute to our understanding of late Ice Age society?
2. What innovations were vital to the late Ice Age settlement of Eurasia?

Lecture Eleven
The First Americans

Scope: Lecture Eleven describes the controversies surrounding the first settlement of the Americas. We begin by outlining the fundamental questions, then describe the two competing hypotheses—for early and later settlement. Next, we analyze the evidence for very early settlement and conclude that the earliest well-documented site dates to about 14,000 years ago. The third part of the lecture describes Beringia and the Bering land bridge, along with the biological and linguistic evidence that derives native American ancestry from Northeast Asia. From there, we move on to a discussion of archaeological evidence from Alaska and of the routes southward into the heart of North America. Finally, we survey the limited evidence for human settlement around 14,000 years ago and the short-lived Clovis tradition, which began about 13,700 years ago and lasted for only 300 years.

Outline

I. The first human settlement of the Americas is one of the great controversies of prehistory. The debate is hampered by a lack of solid archaeological data. However, every authority agrees that no archaic humans ever set foot in the New World.

- **A.** There is also general agreement that first settlement came from northeastern Asia, by way of the Bering Strait, which was dry land for much of the late Ice Age, after 100,000 years ago.
- **B.** The debates surround three questions:
  1. When did people first settle in the Americas?
  2. What was their ultimate ancestry?
  3. What toolkit and life way did they bring with them?

II. Two competing hypotheses, each with passionate supporters, account for first settlement.

- **A.** A minority school of thought believes that the Americas were colonized some time during the last glaciation of the Ice Age, perhaps as early as 40,000 years ago.
- **B.** A second hypothesis, supported by most scholars, argues that settlement took place at the very end of the Ice Age or shortly thereafter, perhaps as recently as 15,000 years ago, possibly a little earlier.
- **C.** The evidence for very early settlement, as early as 40,000 years ago, is very weak, indeed, probably nonexistent. A number of archaeological sites, especially in South America, have been put forward as proof.
  1. The Boqueirão of Pedra Furada Cave in northeastern Brazil is said to contain evidence of 45,000-year-old occupation, followed by other visits around 28,000 and 10,000 years before present.
  2. A team of experts on the first settlement issue visited the site and showed beyond reasonable doubt that the earliest "occupations,"—alleged hearths and stone tools—were of natural origin.
  3. The earliest well-documented evidence of human settlement anywhere in the Americas dates to no earlier than about 14,000 years ago, from the Monte Verde site in southern Chile (see below).

III. Very early settlement is hard to support when the earliest known human settlement of Northeast Asia dates to only about 18,000 years ago. This region was savagely cold and inhospitable at the height of the last glaciation.

- **A.** Beyond Northeast Asia stretched the open reaches of the Bering land bridge, a low-lying landmass that joined Siberia and Alaska at a time of low sea levels. Together with the adjacent higher ground in Siberia and Alaska, this formed a now-severed continent named by geologists Beringia.
- **B.** Beringia was a treeless, arctic land, with violent climatic extremes and strong winter winds, all of which kept animal and human populations low. Settlement may have been difficult until temperatures warmed after 15,000 years ago.
- **C.** During the late Ice Age, almost all of Canada and the northern part of the United States were covered with two vast ice sheets. Sea levels were 300 feet lower than today. Access from the north into the heart of the Americas was probably almost impossible for Stone Age foragers.

IV. For more than a century, scientists have pointed to the biological similarities between Northeast Asians and native Americans.

A. Ancient Americans show fewer variations in their dental morphology than eastern Asians. They display dental features that also occur in Northeast Asia but not to the west. Biological anthropologist Christy Turner believes that the first Americans ultimately originated in northern China or further south.

B. Mitochondrial DNA also suggests that all native Americans were descended from a single, somewhat diverse group of Asians, something like modern-day Mongolians.

C. All native American languages appear to belong in a large Amerind family, with Aleut-Eskimo and Na-Dene language groups forming two smaller ones.

D. All these biological sources hint at a relatively recent arrival for the first Americans.

V. Most archaeologists believe that the first settlers were late Ice Age terrestrial hunter-gatherers, who crossed from Siberia into Alaska on land, pursuing arctic animals and living off some plant foods. They believe that this crossing took place either very late in the Ice Age or as temperatures warmed and sea levels began to rise, after about 15,000 years ago.

A. A minority hypothesizes that the first Americans were maritime people, who used skin boats and hunted sea mammals. Unfortunately, their sites, if they exist, are buried under modern sea level. A land crossing appears more likely, not a deliberate migration, but the result of the unending routine of hunting and gathering.

B. The first known human settlement of Alaska, which was largely ice-free during the late Ice Age, comes from the Tenana Valley southeast of Fairbanks and dates to about 13,700 years ago. The Dry Creek site in the Nenana River valley of the northern foothills of the Alaska Range dates to about the same period.

C. These sites, and several others, belong in a poorly defined "northern Paleo-Indian tradition," which is the northern equivalent of Paleo-Indian traditions to the south, described later in this lecture.

VI. If humans first settled Alaska around 13,000 years ago or slightly earlier, when and how did they penetrate south of the great ice sheets? Did they travel by land or along the continental shelf that mantled much of the Alaskan coast at the time?

A. For years, geologists believed that a narrow ice-free corridor led from Alaska into the heart of North America during the late Ice Age. We now know that it never existed. The earliest time that people could have passed south overland would have been after 15,000 years ago, probably somewhat later.

B. There is no evidence for coastal migration, but it is entirely possible that some groups moved southward along the coast into the Pacific Northwest.

C. The earliest archaeological evidence for human settlement south of the ice sheets is also disputed, but a series of sites hints at occupation after 14,000 years ago.

1. The Monte Verde site in southern Chile has been radiocarbon dated to around 14,000 years ago, the earliest well-documented human settlement. The site is a small settlement of wooden shelters in a forested environment. These people both hunted and collected plant foods; many of their tools were fabricated of wood.

2. In North America, the Meadowcroft rock shelter near Pittsburgh may date to as early as 14,000 years ago, but the lower levels of the site are controversial. There are mammoth kills in Florida and Virginia that may date to about the same time.

VII. About 13,200 years ago, the highly distinctive Clovis culture appears over much of North America. These Stone Age hunter-gatherers seem to have covered large distances.

A. They are most well documented by mammoth kills on the Great Plains, which for years led to them be described, wrongly, as big-game hunters par excellence.

B. Clovis people were highly mobile and used a portable toolkit containing spears armed with "Clovis points" with carefully thinned bases. This technology seems to have developed out of northern artifacts made during the late Ice Age.

C. By 13,000 years ago, small groups of hunter-gatherers had settled in most of the Americas, many of them preying on large Ice Age animals, such as mammoth, mastodon, and camelids. These animals became extinct suddenly about 13,000 years ago. To what extent humans were responsible is unknown.

D. In Lecture Twelve, we describe the consequences of this extinction.

Essential Reading:

Tom Dillehay, *First Settlement of America: A New Prehistory*.

Brian Fagan, *The Great Journey*.

Supplementary Reading:

Stuart Fiedel, *Prehistory of the Americas*, chapters 1–2.

Brian Fagan, *People of the Earth*, chapter 5.

Questions to Consider:

1. Why, perhaps, was the first settlement of the Americas such a late development?
2. What other factors beyond archaeology point to the origins of the native Americans being relatively recent and from Asia?

Lecture Twelve
The Paleo-Indians and Afterward

Scope: This lecture describes some of the Paleo-Indian and later Archaic hunter-gatherer societies that flourished in North America after first settlement. First, we contrast the theories surrounding the extinction of Ice Age big game around 13,000 years ago. Then, we describe the Plains bison-hunting societies, which succeeded Clovis and their hunting methods. From the Plains, we move to the Eastern woodlands to survey some of the hunter-gatherer societies of eastern North America, where the highest population densities were in food-rich river valleys, estuaries, and lake regions. In the west, Paleo-Indians and their Archaic successors adapted to increasingly dry conditions with cultures that endured for thousands of years with little change, while people began living on the Pacific coast from the earliest times. Finally, we discuss the increasingly elaborate spiritual beliefs that developed among native American societies, reflected in rock art, burial customs, and ceremonial artifacts.

Outline

I. The extinction of the Ice Age big game that thrived in the Americas until about 13,000 years ago is thought by many to have been a turning point in native American history. Or was it? The controversies over extinction have raged for half a century.

- **A.** In the 1960s, archaeologist Paul Martin of the University of Arizona thought of the first Americans as super-predators, who exploded into an uninhabited continent teeming with big game. The new human population increased rapidly and promptly decimated the megafauna, hunting it into extinction.
- **B.** Many scientists disagree with Martin's blitzkrieg hypothesis. They argue that global warming and increased aridity caused dozens of large animal species to become extinct, not only in the Americas but elsewhere in Europe and Asia.
- **C.** Most contemporary thinking gives humans a limited role in extinction. Systematic predation on mammoth, mastodon, and other slow-breeding species may have accelerated the extinction of populations already under stress from climate change.

II. After 11,000 years ago, Paleo-Indian societies continued to flourish throughout the Americas, as they adapted to a great array of different environments—everything from ocean coasts, river valleys, and lake floors to desert, temperate woodland, and tropical rain forest.

- **A.** Plains bison thrived in the drier conditions after the Ice Age, especially on the short grass of the North American Plains. Here, Paleo-Indians and their successors continued to rely on bison for much of their diet, hunting their prey on foot with stone-tipped spears. Their projectile points assumed many forms, all ultimately derived from Clovis points.
- **B.** Increasingly arid conditions on the Plains reduced the abundance of larger animals, but the surviving herds were larger and more mobile. Hunting methods changed, as Paleo-Indian and later groups found that that the most effective, if wasteful, way to hunt bison was by organized drives when the opportunity arose.
- **C.** The Olsen-Chubbock site in Colorado documents such a Paleo-Indian hunt 8,000 years ago, which drove a herd of about 200 bison toward a narrow gully. The animals dived into the arroyo and were speared and butchered while immobile. At least 150 bison perished in the drive, providing enough fresh and dried meat for several bands for at least two months.

III. The Eastern woodlands supported a thin scatter of Paleo-Indian bands around 10,500 years ago, the descendants of the original immigrations. These people foraged and hunted over thousands of square miles of tundra, coniferous forest, and deciduous woodland, mostly near permanent water sources.

- **A.** At least seven different fluted point styles, perhaps reflecting different cultures, are known from the Eastern woodlands, which bear many resemblances to the well-known Clovis and Folsom points of the Plains.
- **B.** As the Ice Age megafauna vanished, the Easterners turned to more diverse food sources. They relied more and more heavily on grasses and the abundant nut harvests of fall.

1. In some areas, especially large river valleys in the Midwest and Southeast, there were plentiful food supplies during the summer months, which allowed people to live in one place for long periods of time.
2. In less abundant areas, the main food source was small and medium-sized game, such as deer and rabbits, which supported a far sparser human population scattered over thousands of square miles.
3. Especially food-rich locations served as important base camps for mobile bands hunting in broadly prescribed territories. The Thunderbird site in Virginia's Shenandoah River valley is a classic example of such a camp, where many different activities took place. The general location was occupied for more than 3,000 years.

C. From about 9,000 to 2,700 years ago, a complicated series of local Archaic hunter-gatherer cultures flourished across the Eastern woodlands, with the densest populations concentrated in food-rich river valleys and near lakes.

D. In general, Archaic groups in the East and Midwest tended to make use of winter base camps, close to water and placed near locations where deer and other winter foods might be taken. During spring, summer, and fall, people moved out into smaller camps for collecting plants and other seasonal foods, as well as critical raw materials, such as tool-making stone.
1. By 8,000 years ago, the highest population densities tended to be in larger river valleys, where fish, waterfowl, and nut harvests were most abundant. Some locations were occupied almost continuously over many thousands of years.
2. The Koster site in the Illinois River valley supported Archaic hunter-gatherer seasonal and base camps from at least 8,500 years ago until later than 7,000 years ago.
3. As long as the population remained fairly stable, the Koster people could find most of their food within 3 miles of their settlement.

IV. In the desert west, the Paleo-Indian population was widely scattered and sparse. As the arid lands grew increasingly dry over the millennia, the inhabitants responded by exploiting a far more diverse food base. They relied heavily on processed seeds, often settling near the margins of permanent marshes and lakes.

A. Such settlements as Danger Cave and Hogup Cave in Utah were occupied as early as 11,500 years ago and visited for thousands of years. Dry conditions preserve many details of simple desert material culture and diet.

B. Reliable water sources served as the anchors of human settlement for thousands of years. Although archaeologists categorize Great Basin, southwestern, and interior Californian desert cultures into various subdivisions, the basic tenor of arid land life remained much the same over many millennia—anchored to permanent water supplies, with expeditions to outlying locations for nut harvests, piñons, bighorn sheep, and other seasonal foods.

C. The Pacific coast saw human occupation during Paleo-Indian times, but little survives because the key sites lie under modern sea levels.
1. By at least 12,000 years ago, interior hunter-gatherer groups were including the southern California coast in their seasonal rounds.
2. The shoreline provided reliable foods, such as shellfish and sea mammals, the latter being clubbed in their rookeries when they came ashore to breed.
3. Soon, small canoes ventured offshore to the Channel Islands, where mollusks and sea mammals, including dolphins, could be taken in abundance.
4. Coastal hunter-gatherer cultures assumed considerable social and political elaboration in food-rich areas, including the Santa Barbara Channel, with its rich fisheries, and the San Francisco Bay, where shellfish and fish abounded, especially in the last 2,000 years.

V. Between 11,000 and 3,000 years ago, the hunter-gatherer peoples of North America developed increasingly sophisticated adaptations to all manner of challenging environments. The increase in sophistication was partly the result of population increases, more sedentary living, and more circumscribed hunting territories than in earlier times.

A. At the same time, the native Americans developed increasingly complex ritual beliefs and ever-richer spiritual lives, reflected in elaborate seasonal rituals, the building of shrines and earthworks, and cave paintings.

B. Here, as elsewhere in the ancient world, the living and spiritual worlds passed imperceptibly into each other, bridged by priests and shamans who were able to pass effortlessly into the supernatural realm.

C. A profound spirituality and complex ritual life marked nearly every native American society from very early times, a spiritual complexity that seems to have intensified dramatically later and become an integral part of the elaborate chiefdoms and farming societies that flourished in late prehistoric times.

VI. Lecture Twelve ends Part I of this course. In Part II, we survey a major turning point in human history—when people first began to cultivate the soil, domesticate animals, and produce their own food.

Essential Reading:

Brian Fagan, *Ancient North America*, chapters 5–6, 10–13, and 16.

Supplementary Reading:

Judith Bense, *Archaeology of the Southeastern United States*.

Stuart Streuver and E. Holton, *Koster*.

Questions to Consider:

1. What contribution did humans make to the extinction of the Ice Age megafauna in the Americas?

2. Why were river valleys and lakes important in Paleo-Indian and Archaic North America?

Timeline

Notes

1. The timeline covers major developments only. For more detail, see Fagan, *People of the Earth*, or other world prehistories.
2. Dates are A.D./B.C. after 10,000 years ago, expressed in years before present (conventionally A.D. 1950) (B.P.)
3. *Million years ago* is abbreviated to mya. *Thousands of years ago* is sometimes abbreviated as kya.
4. Conventional archaeological practice places the earliest events at the bottom; therefore, this timeline works from bottom to top.
5. Obviously, this timeline is linear, but prehistory was much more complicated than a line, especially human evolution. Please consult this as a chronological guide, nothing more!

A.D. 1532 ..... Francisco Pizarro lands in Peru and makes contact with the Inka empire.

A.D. 1521 ..... Aztec capital, Tenochtitlán, falls to the Spaniards. Aztec civilization collapses.

A.D. 1519 ..... Hernan Cortés lands in Mexico.

A.D. 1438 ..... Inka expansion begins, Peru.

A.D. 1375 to 1475 ..... Chimu state, Peru.

A.D. 1325 ..... Aztecs found Tenochtitlán in the Valley of Mexico.

A.D. 1276 to 1299 ..... Ancestral Pueblo dispersal, Southwest.

c. A.D. 1200 ..... First settlement of New Zealand (date may be earlier).

c. A.D. 1130 ..... Chaco Canyon abandoned, Southwest.

c. A.D. 1000 to 1500 ..... Great Zimbabwe chiefdom, southern Africa.

A.D. 900 to 1200 ..... Toltec civilization in Mesoamerica.

A.D. 900 to 1560 ..... Mississippian culture in North America.

c. A.D. 900 to 1497 ..... East African coastal civilization.

c. A.D. 900 ..... Classic Maya collapse.

A.D. 802 to 1430 ..... The Khmer state of Angkor.

c. A.D. 600 ..... First settlement of Tahiti and Hawa'ii.

c. A.D. 600 ..... Apogee of Classic Maya civilization.

c. A.D. 500 ..... First settlement of the Marquesas and Easter Island.

c. A.D. 450 to 1100 ..... Tiwanaku state in southern Andes, Bolivia.

A.D. 220 ..... Fall of Han Dynasty, China.

A.D. 100 to 1100 ..... Aksum civilization in Ethiopia.

200 B.C. to A.D. 700 ..... Moche civilization on Peru's north coast.

206 B.C. ..... Han Dynasty comes to power in China.

200 B.C. to A.D. 650 ..... Teotihuacán city-state in the Valley of Mexico.

221 B.C. ..... Unification of China by Emperor Qin Shihuangdi.

269 to 185 B.C. ..... Apogee of Mauryan civilization, India.

350 B.C. to A.D. 300 ..... Meroe prospers on the Nile River.

900 to 200 B.C. ..... Chavín Horizon in Peru.

1,027 B.C. ..... Shang civilization overthrown by Zhou rulers, China.

1,070 B.C. ..... End of Egyptian New Kingdom and of Egypt's imperial power.

1,200 B.C. ..... Collapse of Mycenaean and Hittite states. General chaos in the eastern Mediterranean world.

1,300 B.C. ..... Egypt a major imperial power in the eastern Mediterranean.

1,310 B.C. ..... Uluburun shipwreck off Turkey.

1,365 to 612 B.C. ..... Assyrian civilization.

c. 1,450 B.C. ..... Collapse of Minoan civilization.

c. 1,500 B.C. ..... First appearance of Olmec culture, Mesoamerica.

c. 1,600 B.C. ..... Rise of Hittite and Mycenaean civilization.

c. 1,600 B.C. to A.D. 100 ..... Lapita cultural complex flourishes in the southwestern Pacific.

1,628 B.C. (?)..... Santorini cataclysm in the Aegean.

1,700 B.C. ..... Collapse of Harappan civilization.

c. 2,000 B.C. ..... Appearance of Shang civilization, northern China, with the Xia Dynasty.

c. 2,100 B.C. ..... First palaces appear on Crete at the beginning of Minoan civilization.

2,112 to 1,990 B.C. ..... Third dynasty at Ur, Mesopotamia.

2,334 B.C. ..... Akkadian civilization in Mesopotamia.

Before 2,500 B.C. ..... Domestication of the potato in the Andes (date is approximate).

c. 2,500 B.C. ..... Rise of Harappan civilization, Pakistan.

2,575 B.C. ..... Building of the Pyramids of Giza, Egypt, begins.

3,100 B.C. ..... Unification of Egypt by the Pharaoh Scorpion or Narmer.

3,100 B.C. ..... Sumerian civilization develops in Mesopotamia.

Before 3,600 B.C. ..... Domestication of maize and beans in Mesoamerica.

5,500 to 3,500 B.C. ..... Farming spreads across Europe. Bandkeramik tradition.

5,800 B.C. ..... The Euxine Lake becomes the Black Sea.

c. 6,500 B.C. ..... Millett farming begins in northern China (perhaps earlier).

c. 7,000 B.C. ..... Rice farming well established in the Yangtze River valley, southern China.

c. 7,000 B.C. ..... Agriculture spreads into Greece and Southeast Europe.

c. 7,000 B.C. ..... Çatalhöyük founded in central Turkey.

c. 8,500 B.C. ..... Food production widespread in Turkey and probably in the Nile Valley.

10,000 B.C. ..... Agriculture began in the Levantine Corridor—Abu Hureyra and Jericho.

11,000 B.C. ..... Onset of Younger Dryas event.

A.D./B.C. Chronology from here onward

13,000 kya ..... Extinction of American megafauna complete.

13,700 to 200..... Clovis tradition in North America.

14 kya ..... First settlement of the Americas (date is uncertain).

14 kya ..... Conventional end of the Ice Age.

14 kya ..... Altamira bison painted, Spain.

15 kya ..... Lascaux art painted, France.

18 kya ..... Magdalenian culture begins in Western Europe.

c. 30 kya ..... Neanderthals become extinct in Europe.

31 to 24 kya ..... Grotte de Chauvet art, France.

c. 33 kya ..... First Cro-Magnon art. Date is uncertain.

c. 33 kya ..... Human settlement of offshore islands of the southwestern Pacific.

c. 35 kya ..... First settlement of the east European plains.

c. 35 kya ..... First settlement of Australia. May be earlier.

38 kya ..... Cro-Magnons in Western Europe.

40 kya ..... Humans in New Guinea.

45 kya ..... Modern humans move out of southwestern Asia into Eastern Europe.

c.75 kya ..... Modern humans in Southeast Asia.

c. 100 kya ..... Modern humans at Qafzeh, southwestern Asia.

150 to 100 kya ..... Emergence of *Homo sapiens sapiens* in tropical Africa.

Before 150 kya ..... First appearance of the Neanderthals.

300 kya ..... Torralba butchery site, Spain.

300 kya ..... Sima de los Huesos, Spain: more advanced archaic humans.

400 kya ..... Schoningen spears, Germany.

460 to 230 kya ..... Zhoukoudian Cave, China.

500 kya ..... Boxgrove, England. Mauer *Homo erectus*, Germany.

700 kya ..... Solo *Homo erectus*, Indonesia.

800 kya ..... Gran Dolina, Spain. *Homo erectus* in Europe.

1.7 mya ..... Dmansi site, Georgia. First settlement of Eurasia.

c. 1.8 mya ..... First diaspora of *Homo erectus* out of Africa into Asia (date is controversial).

c. 1.8 mya ..... Taming of fire in Africa. Appearance of Acheulian technology.

c. 2.0 mya ..... First appearance of *Homo ergaster* in East Africa.

2.5 mya ..... Tool making appears in East Africa.

c. 3 mya ..... Hominids split into at least three forms, including *Homo habilis*.

3.18 mya ..... *Australopithecus afarensis* (Lucy).

3.59 mya ..... Laetoli footprints. ? *Australopithecus afarensis*.

4 to 4.17 mya ..... *Australopithecus anamensis*.

4.5 mya ..... *Ardipithecus ramidus*.

5 to 6 mya ..... Chimpanzees and humans split off from a common ancestor in Africa.

Glossary

Ashlar: Hewn-stone masonry, often used to face rubble walls.

Bipedal: Walking in an upright posture on two feet.

City: For the purposes of this course, a community with more than 5,000 inhabitants and a higher population density than towns or villages.

Core: A lump of stone from which flakes are struck off in various ways to produce the blanks for stone tools. The core was sometimes used as a chopper or some other form of artifact itself.

Cranium: Skull.

Dating methods: See Box.

Ecotone: A place where several ecological zones meet.

En: A religious and secular leader in early Mesopotamian city-states.

Flake: A thin flake of stone removed from a core, then turned into an artifact by further retouching.

Gracile: Lightly built.

Gypsum: Plaster.

Hieroglyph: Egyptian writing, after the Greek for "sacred writing."

Holocene: Geological time after the end of the Ice Age, c. 15,000 years ago.

Hominid: Primates of the family *Hominidae*, which includes all human forms.

Hominidae: A suborder of the order Primates, which includes apes, humans, and monkeys.

Megafauna: A term sometimes used to refer to large Ice Age animals as a group, especially in the context of their extinction in the Americas and, sometimes, in Australia.

Megalith: From the Greek *mesos*, *lithos*, "big stone." A term used to describe communal burial mounds from prehistoric Europe fashioned of large boulders.

Mit'a: Andean system of taxed labor for the state.

Mitochondrial DNA: DNA inherited through the female line, which is invaluable for studying early human population movements and relationships.

Nome: A province of ancient Egypt.

Obsidian: Volcanic glass used for tool making and mirrors; traded in the Old and New Worlds. Its sources can be traced with spectrographic analysis.

Paleoanthropologist: A scientist who studies human evolution from a multidisciplinary perspective.

Paleomagnetism: The use of remnant magnetism to date ancient deposits.

Pharaoh: The Egyptian king. After the ancient Egyptian *per-aa*, meaning "Great House." (Came in to use only during the second millennium B.C.)

Pleistocene: The last geological epoch, associated with the Ice Age.

Pongids: Our closest living primate relatives.

Potassium-argon dating: A method that dates volcanic rocks by measuring radioactive decay rates in them. Used to date the earliest archaeological sites (see Dating methods).

Prehistory: That portion of human history that unfolded before the advent of written records (whence, prehistoric archaeologist.)

Preindustrial civilization: A civilization that relies on the labor of human hands rather than fossil fuels.

Primate: The order that includes most tree-loving placental mammals.

Prognathous: Term applied to jutting out jaws, snouts, or faces of early hominids and humans.

Prosimians: Suborder that includes lemurs, tarsiers, and other "pre-monkeys."

Quipu: The Inka knotted string, used for record keeping.

Rachis: The hinge that joins a seed to a grass stalk, brittle in wild grasses, much stronger in domesticated ones.

Scapulomancy: Divination using animal shoulder blades, practiced by early Chinese rulers.

Shaman: From the Siberian word *saman*. A spirit medium with exceptional spiritual powers obtained by solitary visions. An intermediary between the living and spiritual worlds.

Slash-and-burn agriculture: A form of agriculture that involved clearing forest, then burning the felled trees and undergrowth. The ash fertilizes the soil, which is then planted.

Teosinte: A cereal grass that grows in the wild in Central America. The wild ancestor of maize.

World prehistory: The study of human prehistory on a global basis.

Dating Methods

Four main chronological methods are used to date the human past:

- **Historical Records (Present Day to 3,100 B.C.)**

Historical records can be used to date the past only as far back as the beginnings of writing and written records, which first appeared in Western Asia in about 3,100 B.C., much later in many other parts of the world.

- **Dendrochronology (Tree-ring dating) (Present Day to 8,000 B.C.)**

The annual growth rings of long-lived trees, such as sequoias, bristlecone pines, and European oaks, used for beams, posts, and other purposes by ancient people are an excellent way of dating archaeological sites in some areas, such as the American Southwest, the Mediterranean, and Western Europe. Tree rings are used to calibrate radiocarbon dates and to reconstruct drought cycles and other phenomena of short-term climate change.

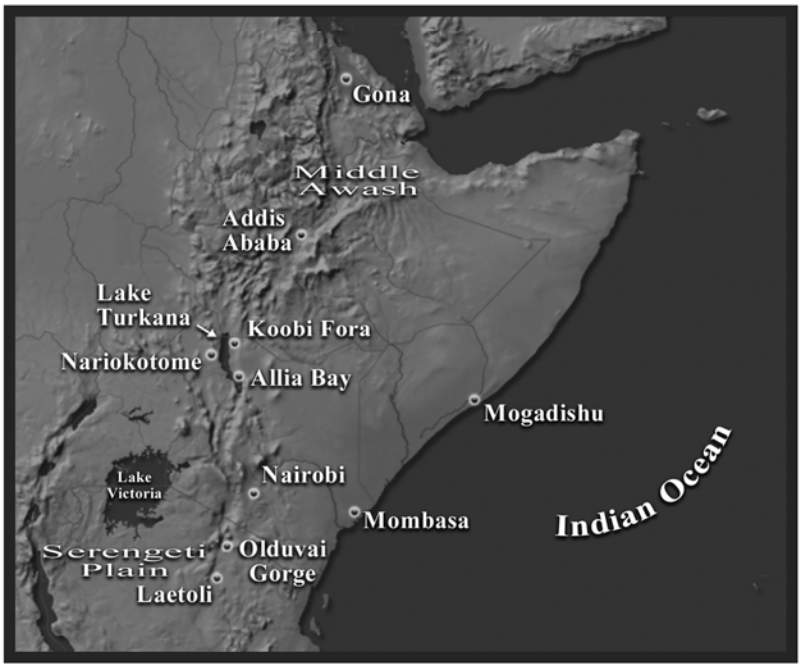
- **Radiocarbon Dating (c. A.D. 1500 to 40,000 years ago)**

Radiocarbon dating is based on the measurement of the decay rates of 14C atoms in organic samples, such as charcoal, shell, wood, hair, and other materials. When combined with accelerator mass spectrometry (AMS), this method can produce dates from tiny samples, such as individual seeds. Radiocarbon dates from the past 8,000 years are calibrated, where possible, against tree rings to provide accurate dates in calendar years.

- **Potassium Argon Dating (250,000 years ago to the origins of humankind)**

A chronological method used to date early prehistory, which measures the decay rate of 40K atoms in volcanic rocks. Potassium argon dating is an excellent way of dating early East African hominid fossils, which are often found in volcanic layers.

These four methods provide the basic chronological framework for human prehistory. There are numerous other dating methods, often of limited application, such as thermoluminescence and obsidian hydration, which are used on occasion but need not concern us here.

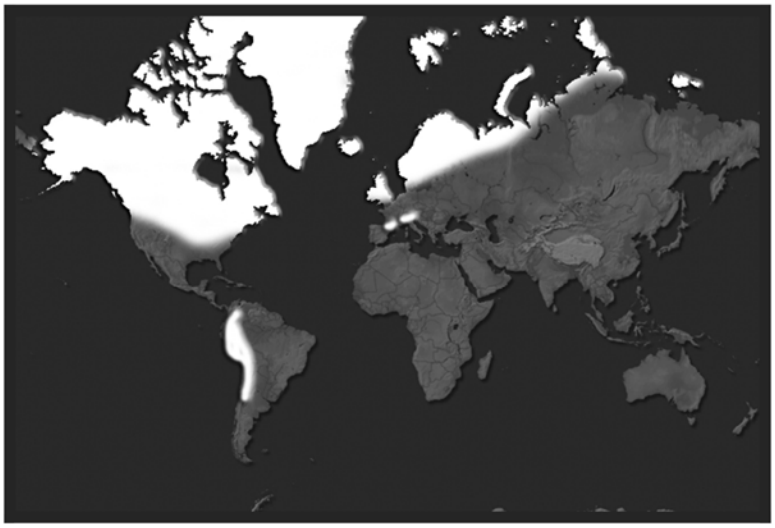


The Cradle of Man

Probable route taken by prehistoric man in the process of peopling the continents

***Homo erectus* sites in China**

Prehistoric Sites in North America



Maximum extent of glaciation during the last ice age

Human Prehistory and the First Civilizations

Part II

Professor Brian M. Fagan

THE TEACHING COMPANY ®

Brian M. Fagan

Professor of Anthropology, University of California, Santa Barbara

Brian Fagan was born in England and educated at Pembroke College, Cambridge, where he graduated with a B.A. in archaeology and anthropology in 1959. He received his M.A. in 1962 and his Ph.D. in 1964. After obtaining his B.A., he worked as Keeper of Prehistory at the Livingstone Museum, in what was then Northern Rhodesia (now Zambia), from 1959 to 1965. During these years, he excavated a Stone Age camp and numerous farming villages dating to the past 2,000 years, becoming one of the pioneers of multidisciplinary African history.

After a year as Director of the Bantu Studies Project of the British Institute for Eastern Africa in Nairobi, Kenya, and a year as Visiting Associate Professor of Anthropology at the University of Illinois, Urbana, Professor Fagan became Professor of Anthropology at the University of California, Santa Barbara, in 1967. He has remained there ever since. He has also been a Visiting Professor at Whittier College and the University of Cape Town, South Africa.

Professor Fagan was a Guggenheim Fellow in 1973 and has received numerous awards, among them the Public Service Award of the Society of Professional Archaeologists and the Public Education Award of the Society for American Archaeology. He received a Distinguished Teaching Award from the University of California, Santa Barbara, in 2000.

Dr. Fagan's numerous books include *People of the Earth* and *In the Beginning*, two widely used university and college textbooks in archaeology and prehistory. His other works include *The Rape of the Nile*, *The Adventure of Archaeology*, *Time Detectives*, and *The Little Ice Age*. He also edited *The Oxford Companion to Archaeology*. He is currently working on a book on climate change and human society over the past 14,000 years.

Professor Fagan is married and has two daughters. His other interests include bicycling, kayaking, sailing, and sharing civilized dinner parties.

Table of Contents

Human Prehistory and the First Civilizations
Part II

Human Prehistory and the First Civilizations

Scope:

Human Prehistory and the First Civilizations is a thirty-six-lecture narrative covering human prehistory from our beginnings more than 2.5 million years ago up to and beyond the advent of the world's first preindustrial civilizations. The lectures are, above all, a narrative, but they also provide critical examinations of the key controversies and issues surrounding such important topics as the first human settlement of the Americas and the origins of agriculture. Glossaries of technical terms and major cultural entities and sites are found at the end of this guide, as is a timeline of major events during prehistoric times.

The course is divided into three parts of twelve lectures each; these three parts are further subdivided into two halves each, making a total of six groups of lectures, or sections. The first third of the course covers prehistory from human origins to the end of the Ice Age. The second third surveys the beginning of agriculture and animal domestication, as well as the world's earliest civilizations in the eastern Mediterranean. In the final twelve lectures, we examine the earliest states in Asia and the interconnected world of the past 3,000 years, ending with the sophisticated chiefdoms and civilizations of ancient native America.

Section I, "Beginnings" (Lectures One through Six), surveys the archaic world of the first humans. The first lecture sets the stage for the course, provides an introduction to world prehistory, and lays out the plan for the lectures. Lecture Two describes our remote ancestry among non-human primates and brings the evolutionary story in East Africa up to the moment when the first toolmaker, *Homo habilis*, appears. Lecture Three discusses the controversies surrounding our earliest ancestors and reconstructs their ape-like life way. Lecture Four explores the world of *Homo erectus*, the evolutionary descendant of the first toolmaker, who spread out of Africa as early as 1.8 million years ago. In Lectures Five and Six, we focus on the first human settlement of Europe as early as 800,000 years before present and visit the bitterly cold Ice Age world of the Neanderthals.

Section II, "Modern Humans" (Lectures Seven through Twelve), tells the story of the great diaspora of anatomically modern humans in the late Ice Age. Lecture Seven discusses the controversies surrounding modern human origins. Did we evolve in Africa or simultaneously in many parts of the Old World? We conclude that Africa was our most likely homeland. Lecture Eight describes how modern humans spread out of tropical Africa into Southwest Asia about 100,000 years ago and gives an overall portrait of the diaspora. Lectures Nine and Ten follow *Homo sapiens sapiens* north into Europe after 45,000 years ago. We explore the world of the Cro-Magnon hunter-gatherers of Western Europe, some of the first artists in the world, then venture out onto the frigid open plains of the Ukraine and Eurasia, where big-game hunters flourished, despite nine-month winters. Lecture Eleven dissects the ongoing controversies over the first human settlement of the Americas, bringing together archaeological, genetic, and linguistic evidence. Finally, Lecture Twelve surveys the Paleo-Indian cultures that developed in North America after first settlement.

Section III, "Farmers and Herders" (Lectures Thirteen to Eighteen), describes perhaps the most important development in all human prehistory, the beginnings of agriculture and animal domestication. Lecture Thirteen describes the rapid environmental changes after the Ice Age that transformed the hunter-gatherer world. These changes preadapted many groups for more sedentary living. In Lecture Fourteen, we visit the earliest farming settlements in the world by the Euphrates and Jordan Rivers, which document the changeover in about 10,000 B.C. Lecture Fifteen discusses the many theories put forward to explain why the changeover took place, as well as the consequences of food production, which were more important than its development. Lecture Sixteen tells of a huge natural cataclysm of about 5,800 B.C., which may have accelerated the spread of farmers into a thickly forested Europe. Lecture Seventeen takes us to Asia, where we discuss the origins of rice, one of the world's major staples, and show how easily stored root crops were a factor in the settlement of the offshore islands of the Pacific. Finally, Lecture Eighteen surveys what we know about early agriculture in the Americas, where there were several centers of plant domestication.

Section IV, "Eastern Mediterranean Civilizations" (Lectures Nineteen to Twenty-Four), describes early civilizations in an increasingly complex eastern Mediterranean world. Lecture Nineteen is a general discussion of the many theories that account for the appearance of urban civilization and the overall attributes of preindustrial civilizations. Lecture Twenty describes Sumerian civilization in the Mesopotamia and the intricate patchwork of city-states between the Tigris and Euphrates Rivers. Ancient Egypt is the subject of Lectures Twenty-One and Twenty-Two,

perhaps the most well known early civilization. Lecture Twenty-One surveys the beginnings of ancient Egypt and the Old Kingdom, with its spectacular pyramids. Lecture Twenty-Two carries the story through the Middle and New Kingdoms, when Egypt became a great imperial power. Lectures Twenty-Three and Twenty-Four cross to the other extreme of the eastern Mediterranean world to discuss civilizations in contact with Egypt. We explore the Minoan civilization of Crete in Lecture Twenty-Three and the Mycenaeans and Hittites in Lecture Twenty-Four. This lecture also discusses the Uluburun shipwreck from southern Turkey, a unique sealed capsule of international trade from 3,000 years ago.

Section V, "Africans and Asians" (Lectures Twenty-Five to Thirty), describes the ancient world around the Indian Ocean and far beyond, which became increasingly interconnected. Lecture Twenty-Five analyzes the beginnings of South Asian civilization and the mysterious Harappan civilization of the Indus, which traded with Mesopotamia. Lecture Twenty-Six resumes the story of South Asian civilization after the collapse of the Harappan and shows how Mauryan rulers on the Ganges encouraged trading much farther afield. Lecture Twenty-Seven examines the phenomenon of the monsoon winds, which revolutionized maritime trading among Africa, India, and Southeast Asia. It also describes Meroe, Aksum, and the coastal civilization of East Africa. Two lectures trace the beginnings of Chinese civilization. Lecture Twenty-Nine describes the Shang civilization and the three dynasties of the north—Xia, Shang, and Zhou. Lecture Thirty recounts the history of the Zhou Dynasties and describes the unification of China and the Han Dynasty, with its contacts with Southeast Asia and India. Lecture Thirty takes us to the flamboyant world of the Khmer civilizations of Southeast Asia, which created the largest religious building in the world.

Section VI, "Ancient Americans" (Lectures Thirty-One to Thirty-Six), describes some of the sophisticated chiefdoms and civilizations that developed in the Americas over the past 3,500 years. Lecture Thirty-One surveys the Pueblo cultures of the North American Southwest and the Mississippian culture of the South and Southeast, the most elaborate society to develop in the north, where short growing seasons prevented state formation. Lectures Thirty-Two and Thirty-Three explore Mesoamerican civilization. Lecture Thirty-Two describes the primordial Olmec culture of the lowlands and the spectacular Ancient Maya civilization. Lecture Thirty-Three moves to the highlands, where we visit the city-states of Monte Albán in the Valley of Oaxaca and Teotihuacán near the Valley of Mexico. We also describe the rise of Aztec civilization. The next two lectures take us to the Andes. Lecture Thirty-Four surveys the beginnings of Andean civilization on the arid north coast of Peru, culminating in the Moche civilization of the first millennium A.D. Lecture Thirty-Five continues the story in the southern highlands, with the rise of Tiwanaku near Lake Titicaca, the Chimu civilization of the coast, and the huge Inka empire. Finally, Lecture Thirty-Six describes the closing centuries of prehistoric times during the European age of discovery and summarizes the main issues and themes of the course.

Section III: Farmers and Herders

Lecture Thirteen
After the Ice Age

Scope: Section III examines the origins of food production, agriculture, and animal domestication—a turning point in human prehistory. Lecture Thirteen surveys the dramatic environmental changes that followed the end of the Ice Age. Then, we describe the Mesolithic cultures, which developed out of earlier Cro-Magnon societies in Europe, adjusting to forest and coastal living. Next, we travel to southwestern Asia and examine the Natufian culture, a hunter-gatherer society that flourished in a wetter environment than is present in the area today. Finally, we describe how the bitterly cold Younger Dryas event brought major drought cycles to the region, with momentous consequences for humankind.

Outline

I. At the end of the Ice Age, the world's climate warmed up with dramatic suddenness. This followed the long-term trend of slow cooling and rapid warm-ups, observable over the past 700,000 years.

- **A.** The changes were especially dramatic in the northern hemisphere, where major ice sheets mantled both Scandinavia and modern-day Canada, as well as other mountain ranges.
- **B.** These ice sheets melted rapidly, releasing huge amounts of meltwater into the oceans. Sea levels rose rapidly, and the earth's crust adjusted to the reduced weight of water on land.
- **C.** Rapid sea level rise led to the inundation of continental shelves off the coasts of all continents. By 11,000 years ago, Siberia was severed from Alaska, and the plains off the Southeast Asian mainland had vanished. England was no longer part of the continent soon afterward.

II. Global warming brought major rainfall shifts in more temperate regions. The Sahara Desert supported shallow lakes and semi-arid grassland. southwestern Asia was covered with Mediterranean forest.

- **A.** In Europe and Eurasia, warmer conditions brought major vegetational and geographical changes.
  - **1.** As the Scandinavian ice sheets retreated, they left a huge glacial lake in their wake, which eventually became the Baltic Sea as sea levels rose.
  - **2.** The treeless steppe of Western and Central Europe gave way to birch forest by 9,000 B.C., then to temperate mixed-oak forest by 7,000 B.C.
- **B.** These dramatic environmental changes triggered major shifts in human life, as the successors of the Cro-Magnons adapted to entirely different conditions. These successors are known as Mesolithic peoples, after the Greek words *mesos* for "middle" and *lithos*, "stone."
- **C.** Some groups followed the retreating steppe north, pursuing reindeer and other cold-loving animals as their predecessors had done for thousands of years. Their camps are found close to the Baltic Sea until about 11,000 B.C., but soon they also were forced to change their life ways.
- **D.** As birch, then mixed-oak forest, spread across Europe, so Stone Age groups moved close to rivers and lakes, into clearings in the forest, and increasingly to sea coasts, where abundant and predictable foods were to be found.
  - **1.** Inland, across Western and Central Europe, people became forest hunters, dwelling on the edges of lakes and clearings or along rivers.
  - **2.** There, they hunted forest animals, such as elk and deer; took birds on the wing; and subsisted off plant foods.
- **E.** Toolkits now became lighter weight and more portable, with none of the elaborate bone and antler tools found in Cro-Magnon times.
  - **1.** A major invention, probably developed during the late Ice Age, now came into play. The bow and arrow enabled hunters to shoot animals from a slightly greater distance and to take waterfowl and flying birds.
  - **2.** Stone tools became much smaller, many of them diminutive microliths, which served as barbs for spears and arrows.

III. Along lake shores and the Baltic Sea in the north, Mesolithic societies became expert fowlers and fisherfolk, camping for long periods of time near swamps and along shallow-water coasts, where fish and birds abounded.

A. Thanks to excellent preservation conditions in waterlogged soils, we know a great deal about these societies, which depended heavily on wood and fiber for fish nets, baskets, and traps.

B. By 7,000 B.C., populations had risen considerably in the most favored locations. Territorial boundaries became more circumscribed, and there was intergroup conflict, probably over food supplies. We know of these conflicts because of war casualties in the cemeteries.

C. Many of the hunting and fishing practices of these people survived in common use into modern times, despite the introduction of farming within a few thousand years.

IV. In southwestern Asia, warmer and wetter conditions brought by global warming led to the spread of oak and pistachio forests over much of the region, which abounded in lakes and rivers.

A. While the Cro-Magnons flourished in Europe, a sparse population of late Ice Age hunter-gatherers adapted to dry conditions had inhabited the area. These populations now rose considerably at a time when food supplies were plentiful, especially in large river valleys, such as those of the Jordan and Euphrates.

B. The groups living in or near these valleys subsisted off desert antelope—gazelles—and off rich nut harvests and other plant foods. In the most favored areas, where several environmental zones were adjacent to one another, food supplies were plentiful enough and storage technology existed to allow the founding of more-or-less permanent settlements, which were almost as large as the farming villages that were soon to succeed them.

C. These Natufian people, named after the Natuf site, harvested both nuts and wild grasses, using flint-bladed sickles for the purpose. They dwelt in caves and open settlements between about 11,000 and 8,500 B.C., the largest sites lying close to the boundaries between coastal plains or grassland valleys and more hilly zones. Thus, the inhabitants could exploit a broad range of foods from one location.

D. The Natufians buried their dead in cemeteries, where the skeletons show clear signs of social ranking. The most important individuals lay with stone bowls, which were clearly status symbols.

E. This social ranking may have resulted from the need to maintain order in now increasingly large communities and from the necessity to distribute food equitably through communities.

V. After 10,000 B.C., the Natufians were faced with increasingly drier conditions at a time when their populations were expanding. The growing prevalence of drought conditions caused both nut and cereal crops to shrink, while reducing the abundance of permanent water supplies.

A. The severe drought cycles in southwestern Asia coincided with a dramatic climatic event in the north, when, for a thousand years, the climate reverted to near-glacial conditions.

1. This Younger Dryas event, named after a polar flower, resulted from a massive release of glacial meltwater from a huge freshwater lake in northern Canada, Lake Agassiz.

2. Billions of gallons of fresh water cascaded suddenly into the north Atlantic, abruptly shutting down the natural circulation of warm water in the ocean brought by the Gulf Stream.

B. Europe was plunged into arctic conditions within a century or less and suffered from exceptional cold for a millennium. Then, the ocean circulation resumed abruptly, and global warming resumed, if anything, faster than before.

1. The effects of the Younger Dryas event were felt far beyond Europe, in Asia, Africa, and as far afield as still uninhabited New Zealand.

2. In southwestern Asia, the renewed cold brought intense drought cycles, which caused oak forests to shrink and drastic reductions in natural food supplies at a time of climbing human populations.

C. In response, some groups turned to the deliberate cultivation of wild grasses and to farming, the subject of Lecture Fourteen.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 7.

Supplementary Reading:

Donald Henry, *From Foraging to Agriculture*.

Questions to Consider:

1. What was the response of Europeans to global warming after the Ice Age?
2. What lessons do we have to learn from the Younger Dryas event that are relevant to controversies over modern-day global warming?

Lecture Fourteen
The First Farmers

Scope: Lecture Fourteen tells the story of the first farmers in the world. We begin by describing the environmental changes in southwestern Asia after the Ice Age, which fostered shifts in plant and animal populations in the region. This was the environment of the Natufians (see Lecture Thirteen). Next, we describe the impact of the cold Younger Dryas episode, which brought intense drought and triggered major changes in hunter-gatherer life ways, including the deliberate cultivation of wild grasses. The next two segments of the lecture describe the early farming settlements at Abu Hureyra, Syria, and Jericho, Jordan, which chronicle the sudden, dramatic changeover from hunting and collecting to farming. Finally, we discuss the intensive, selective hunting of herd animals, which was a prelude to the domestication of goats and sheep.

Outline

I. As we saw in Lecture Thirteen, the climate in southwestern Asia warmed up considerably at the end of the Ice Age, after 15,000 B.C. Forest expanded rapidly, there was more rainfall than today, and many areas were rich in animal and plant foods.

- **A.** The eastern Mediterranean coast lay at the junction of Mediterranean, continental, and monsoon-influenced climates. This combination nurtured a unique and ever-changing set of ecotones—places where ecological zones meet. These were the places where human populations were densest.
- **B.** The early Holocene climate varied constantly from continental to Mediterranean. With warmer temperatures came more forest cover and increasing summer aridity. At the same time, the plant cover was more diverse, with many more wild cereal grasses, harvested in spring.
- **C.** These climatic circumstances were extremely favorable to hunter-gatherers, such as the Natufians (Lecture Thirteen), who relied on a combination of game and plant foods. In many places, they may have unconsciously contributed to the diversification of grasses by deliberately firing the vegetation in the dry season. This process encouraged new growth for game to graze on.

II. The Younger Dryas of about 11,000 B.C. brought an abrupt change to cooler, very dry conditions, with marked contrasts in the seasons. This shift required major adjustments by hunter-gatherer groups.

- **A.** Many groups responded by developing much more effective grain-storage technology and by exploiting wild cereal grasses as much as possible, grinding them to make meal. Very often, these groups moved into more sedentary settlements.
- **B.** All this was an adjustment to a world with less surface water and months on end when game and plant foods were in short supply. Some groups congregated around lakes or major rivers, where they experimented with the deliberate planting of wild grasses.
- **C.** The Natufians had harvested cereal grasses on hillsides and in fertile valleys, while exploiting gazelle and other game on the lowlands. This pattern of specialized hunting and gathering was widespread in southwestern Asia by 11,000 B.C.
- **D.** For example, the inhabitants of the Abu Hureyra mound in Syria's Euphrates Valley hunted gazelle to the exclusion of almost any other game. They also lived off about half a dozen staple grasses but knew of at least 200 others for eating, medical, and ritual purposes. To a considerable extent, they were managing and tending their environment well before they domesticated plants.
- **E.** When they started experimenting with the planting of wild grasses, the harvesters imposed entirely new selective pressures on cultivated stands of wild grasses.
  1. They first cultivated wild wheat and barley, which in its native state, grew in dense stands. One could harvest the plants by tapping them with one's hands. The brittle hinge that joined seed and stalk would break off easily.
  2. Selection for a tougher rachis began the moment people started harvesting grasses with flint-bladed sickles or uprooting entire plants. Computer simulations suggest the changeover occurred with remarkable speed, perhaps in less than a century.

3. The changeover was so rapid that one archaeological level may well contain wild seeds, while the one above it, after the changeover, contains domesticated grasses.

III. This set of selective pressures developed first in a small region of southwestern Asia called the Levantine Corridor, running from the Damascus area of Syria into the lower Jordan Valley and across to the Euphrates River Valley.

A. The corridor had reliable water supplies and a relatively high water table, which enabled foragers to shift wild grains from their natural habitats into well-watered areas near streams and lakes.

B. The earliest farming settlements in the world occur in the Levantine Corridor.

IV. Two major archaeological sites document this all-important transition in human life and give us a general impression of the changeover.

A. Abu Hureyra mound, located on an ecotone in the Euphrates Valley, began in 10,500 B.C. as a small village settlement of a few families. The families lived in semi-subterranean houses with simple reed roofs supported by wooden uprights.

1. The climate was warmer and wetter than today. The inhabitants harvested oak and pistachios in fall, as well as wild einkorn and rye. They also killed hundreds of Persian gazelles as they migrated through the valley each spring. With such a favorable location, the village grew to as many as 400 people.
2. Thousands of small seeds, recovered by sophisticated flotation methods, document the effects of increasingly dry years. At first, the people relied heavily on acorns and pistachios. As the droughts intensified, the forests retreated from near the site, and the people turned to wild einkorn and rye and other grasses.
3. Eventually, even more arid conditions and, perhaps, depletion of firewood supplies caused the abandonment of the village.

B. Suddenly, in about 10,000 B.C., a new village rose on the same site, this time of mud-brick houses with flat roofs and courtyards. Now the people were cultivating einkorn, lentils, and rye. The new economy was so successful that the village grew rapidly in size.

1. By 8,500 B.C., the settlement covered nearly 30 acres atop low mounds of earlier occupation debris. Suddenly, in a generation or so, gazelle hunting gave way to herds of goats and sheep.
2. Now Abu Hureyra was a farming village, a closely knit community of rectangular, one-story mud-brick houses joined by narrow lanes and courtyards.
3. Abu Hureyra flourished until its final abandonment in about 6,500 B.C.

V. Jericho in the Jordan Valley is one of the great cities of antiquity, famed as a biblical city captured by Joshua in the Old Testament. The modern city lies atop a deep occupation mound and some of the earliest farming settlements in the world, investigated by British archaeologist Kathleen Kenyon in the 1950s.

A. Underneath extensive Iron Age and Bronze Age occupation layers, Kenyon unearthed two much earlier farming settlements with substantial houses. The earliest of these, dating to earlier than 9,000 B.C., was a cluster of beehive-shaped huts. The closely packed dwellings nested inside a rock-cut ditch nearly 9 feet deep and a well-built stone wall complete with a tower.

B. The fortifications of this large village, which covered nearly 10 acres, are a mystery. They were either built for defense—Jericho lies astride a strategic route from the coast to the desert—or, perhaps, as flood control works.

C. At the very base of Jericho lies a small settlement by the permanent spring that was the anchor of Jericho throughout its ancient history, dating to about 10,000 B.C.

VI. Cereal agriculture was widespread in southwestern Asia by 9,000 B.C. The earliest farmers and their immediate predecessors were also efficient hunters of young gazelles and other animals in their prime. This pattern of animal exploitation had begun much earlier during the late Ice Age.

A. Gregarious, highly social animals, such as wild goats and wild sheep, tended to follow herd leaders. They tolerate feeding and breeding in a confined environment. Hunters often fed off the same herd for a long time and, eventually, may have grasped the notion of controlling the movements of key members of the herd, who would be followed by others.

B. Once the experience of restricting game movements had suggested a new way of life, people may have experimented with different species. As part of domestication, people increased their mutual dependence.

C. The process of animal domestication was prolonged and began before 9,000 B.C. Goat and sheep herding took hold over a wide area of western Asia after 8,000 B.C.

VII. In Lecture Fifteen, we discuss some of the factors that contributed to the origins of agriculture and some of the major consequences of this fundamental shift in human life ways.

Essential Reading:

Bruce Smith, *The Emergence of Agriculture*, chapter 4.

Brian Fagan, *People of the Earth*, chapter 8.

Supplementary Reading:

Kathleen Kenyon, *Digging up Jericho*.

Andrew Moore, *Village on the Euphrates*.

Questions to Consider:

1. What part did environmental factors play in the beginnings of farming in southwestern Asia?

2. Why was the changeover from plant collecting to cultivation so rapid?

Lecture Fifteen
Why Farming?

Scope: Lecture Fifteen examines the causes and consequences of the change from hunting and gathering to food production. First, we explore some of the major theories surrounding the beginnings of agriculture and the major factors that contributed to the changeover. In the second part of the lecture, we discuss some of the consequences of food production for human society and human history. Finally, we examine the evidence for early farming societies in other parts of southwestern Asia and the Nile Valley.

Outline

I. The first nineteenth-century theories about the origins of food production focused on the notion of a solitary genius who "invented" agriculture. In fact, any collecting group knows that plants germinate, then grow; therefore, more likely, farming began as part of a much more complex process over many generations. Modern theories of the origins of food production focus on these processes.

- **A.** The most well known of the early theories was that of the prehistorian Vere Gordon Childe, who believed that there was an Agricultural Revolution, a major economic shift, that took place in southwestern Asia during a period of prolonged drought after the Ice Age.
  - **1.** This drought caused a coming together of animals, humans, and plants in fertile oases, which led to domestication and economies based on more reliable food supplies.
  - **2.** Childe's Agricultural Revolution was too simple a formulation. Modern theories are based on the notion that people are culturally receptive to new ways of obtaining food.
- **B.** Modern theories take into account the reality that many post-Ice Age hunter-gatherer societies were preadapted to food production and carefully managed their food supplies.
  - **1.** Population pressure from growing local numbers, greater social complexity, and food shortages were all important factors in the changeover, as was the complex interplay between short-term climate change and food supplies.
  - **2.** Ecological theories focus on such ecological factors as long variability in food resources and the interactive effects of human exploitation. Proponents of ecological theories talk of "opportunities" for the introduction of agriculture, when people used certain foods—such as wild wheat—more intensively until they domesticated them.
- **C.** No one theory of the origins of food production embraces all regions of the world. Much depended on local cultural and environmental challenges. Everywhere, the key element was human decision making in the face of selective pressures.

II. The consequences of food production were momentous for human history. Once established, the new economies brought major changes in their wake, all of which had profound effects on the shape of human society.

- **A.** Agriculture anchored people to their fields and caused them to live in permanent settlements for long periods of time.
  - **1.** Such permanent residence, far more lasting than in even the most sedentary hunter-gatherer societies, changed the dynamics of human life profoundly.
  - **2.** Living cheek-by-jowl with others meant that communities had to develop ways of resolving conflicts of all kinds, especially those surrounding the ownership and inheritance of land.
- **B.** The human relationship to the land, the source of food, changed profoundly. Even in the earliest farming villages, there are signs of a complex relationship between the living and the ancestors, those who have gone before.
  - **1.** The ancestors were perceived as the guardians of the land. These relationships are reflected in well-documented ancestor cults at Jericho and elsewhere.
  - **2.** Food surpluses produced by the farmers played an increasingly important role in shaping social organization.
- **C.** The endless cycle of the changing seasons bore much resemblance to the stages of human life—birth, youth, adulthood, old age, and death. Fertility of the soil, and of human life, began to play an important

role in household and community life, manifested in earth and fertility goddesses. Figurines of such deities now appear in some archaeological sites.

D. In earlier times, human technology had, for the most part, been light and portable, a reflection of a mobile life way. Now people settled in the same place for long periods of time. They developed heavier artifacts, such as grindstones and mortars for processing food, storage vessels, and durable houses of mud brick, timber, and thatch, designed to last for generations.

1. The technology of storage became all-important, as did the development of baked clay vessels for cooking and water carrying, as well as more elaborate implements of tillage, such as hoes, axes with ground and polished edges for tree felling, and eventually, plows.

2. The new technologies created a growing demand for fine tool-making stone and other exotic materials and objects.

E. Trade became an increasingly important activity in human life, well documented from as early as 8,000 B.C. by the trade in obsidian (volcanic glass) for ornament and stone-tool manufacture.

F. Finally, the role of women became better defined, as they assumed major responsibility not only for planting and harvesting crops but also for processing grain.

III. The new agricultural economies spread like wildfire after 9,000 B.C. Within 2,000 years, there was considerable variation in farming culture throughout southwestern Asia, not only in the Levantine Corridor, but also in the Zagros highlands of Iran, in parts of Mesopotamia, and Turkey.

A. From 10,000 to about 6,000 B.C., agriculture developed in all these areas, and sheep and goats were domesticated. People still relied heavily on wild plant foods and game.

B. After 6,000 B.C., more productive cereal grains came into use, and the domestication of cattle and pigs added to a fully agricultural and stock-raising economy that was to persist into historical times in much more elaborate forms.

C. These millennia were times of profound social change, with the first appearance of some social ranking, even in small village societies. This is reflected in the careful preservation of ancestral skulls at Jericho and other sites, with their features sometimes plastered in clay.

IV. Along the Nile Valley, rising sea levels after the Ice Age created a lush environment for hunter-gatherers, who exploited both plants and fish intensively. Unfortunately, thousands of years of Nile floods have buried most settlements of the time under fine river silt.

A. Generations of scholars argued that agriculture was introduced to the Nile from southwestern Asia in about 8,000 B.C., but it is entirely possible that food production began independently there.

B. As drought intensified in the Sahara and during the Younger Dryas, hunter-gatherer communities may have responded by turning to domesticated plants and animals as a safety net that protected them against an unpredictable environment.

C. The earliest dated farming settlements along the Nile are as late as 4,300 B.C., by which time large villages were flourishing in the Nile Delta and elsewhere along the river. These communities provided the ultimate foundation for the chiefdoms that coalesced into ancient Egyptian civilization in 3,100 B.C.

V. Farming began early in what is now Turkey; agriculture, domesticated pigs, and obsidian trade were well established by 9,500 B.C. at such sites as Hallan Çemi Tepesi in eastern Turkey.

A. By 7,000 B.C., well-established, large farming villages existed in central Turkey, on the Anatolian plateau. The Haçilar village was one such settlement, first occupied in about 8,000 B.C., a community of small round houses, each with its own ovens.

B. The most complex settlement was Çatalhöyük, also on the Anatolian plateau. This large village covered 32 acres, a community of flat-topped sun-dried brick houses entered from their roofs, with the outer walls serving as defense walls.

1. The village was rebuilt at least twelve times after 7,000 B.C. and is remarkable for its shrines, with sculpted ox heads, wall paintings, and relief models of bulls and rams.

2. Çatalhöyük's prosperity came from its control of local obsidian trade, mined from quarries in the nearby mountains.

C. This important settlement was unusually large but was illustrative of the much more complex agricultural economies that flourished over most of Southwest Asia by 6,000 B.C.

VI. Lecture Sixteen tells the story of how farming spread from western Asia into Europe after 6,000 B.C.

Essential Reading:

Bruce Smith, *The Emergence of Agriculture*, chapters 1–4.

Brian Fagan, *People of the Earth*, chapters 8–9 and 11 (Egypt only).

Supplementary Reading:

Kathleen Kenyon, *Digging up Jericho*.

Andrew Moore, *Village on the Euphrates*.

Questions to Consider:

1. What are some of the major factors that played a role in the shift from hunting and gathering to food production?
2. What do you consider to be the most important consequence of the changeover to food production?

Lecture Sixteen
The First European Farmers

Scope: Lecture Sixteen describes the first European farmers and their settlement of a heavily forested land. We begin by describing a Europe sparsely inhabited by Mesolithic hunter-gatherers, with the densest populations along the Baltic Sea and in the Iron Gates area of the Danube Valley. Then, we show how farming spread into south Europe from western Asia between 6,000 and 7,000 B.C. We explain how the sudden formation of the Black Sea may have triggered the first farming settlement of the Danube River Valley. Next, we describe the Bandkeramik farmers, who spread across temperate Europe from southeast to northwest. Finally, we discuss the communal burial customs and ancestor worship that were a central part of early European farming culture.

Outline

I. In the 1850s, a drought in Switzerland shrank the lakes dramatically. Veritable forests of wooden pilings set in mud appeared along the shore. Swiss physician Ferdinand Keller dug around the piles at Obermeilen on Lake Zurich. The mud had preserved hundreds of perishable artifacts, such as stone axes complete with wooden handles, thousands of animal bones, and fruit and nuts—all the debris of an abandoned prehistoric farming village. The Swiss lake villages were the first evidence of early farming in Europe. They are now known to be fairly late in the history of European farming, which began as early as 6,000 B.C.

- **A.** Between 8,000 and 4,000 B.C., Mesolithic hunter-gatherers inhabited the forests, lake shores, and coastlines of Europe. As we saw in Lecture Thirteen, population densities were low, with some denser concentrations of hunter-gatherers in more complex societies along the shores of the Baltic Sea. The Danube River's Iron Gates region was also another well-populated area.
- **B.** In both these regions, more sedentary life ways took hold, involving intensive fishing, fowling, and plant collecting. As we stressed in Lecture Thirteen, these societies were preadapted in many respects to food production.
- **C.** In 6,000 B.C., much of Europe was covered with dense mixed-oak forest, of which very little survives today. This forest coverage kept population densities low and contributed to a later settlement by farmers than might have been the case had the country been more open.

II. Everyone agrees that agriculture and domesticated animals spread into Southeast Europe from Turkey and the rest of Southwest Asia across the Dardanelles. The development of food production in this region unfolded in three stages.

- **A.** First, steadily warmer climatic conditions in the early Holocene favored more plant growth. These plants included wild einkorn and barley that grew in dense stands. Enough grain could be harvested in a few days to support a family for a year, but most groups still relied on game and other plant foods.
- **B.** As the climate warmed, forests colonized hitherto more open areas. Harvests of wild cereal grasses diminished. The human inhabitants of the region now ring-barked trees or burned down forest to clear space for grasses to grow and to attract grazing game animals. Everyone lived in small, temporary camps, a settlement pattern common to all of southern Europe Mesolithic societies.
- **C.** By 7,000 B.C. or thereabouts, domesticated grasses were in use on the fertile soils of Southeast Europe. Farmers cultivating emmer wheat and barley, with herds of cattle, goats, and sheep, had settled in northern Greece by that date. Within a few centuries, agricultural settlements were well established further north, in what is now Bulgaria.
- **D.** This was a more temperate area, with heavier soils and year-round rainfall, requiring different farming methods than those long used in western Asia.
  1. Here, timber and thatch replaced mud-brick architecture; effective axes and adzes with ground-stone blades were needed to clear forest growth.
  2. Many of these methods, adapted for cooler and wetter environments, may have been developed in Southeast Asia.

III. In about 6,200 B.C., four centuries of much cooler, drier conditions may have caused widespread drought across Southeast Europe. Now, farming settlements concentrated near lakes, rivers, and seacoasts.

A. At the time, the Black Sea was an enormous freshwater lake, known to geologists as the Euxine Lake. A natural earthen barrier separated the lake from the rising Mediterranean at the mouth of the Bosphorus Valley.

B. Around 5,550 B.C., cascading seawater breached the berm and flowed into the lake nearly 500 feet below. Within a few months, the Black Sea became a brackish ocean, part of the Mediterranean. Thousands of square miles of fertile agricultural land, and the settlements on them, vanished under the rising ocean.

1. The resulting disruptions to human life must have been enormous and brought farmers into the Danube Basin, where they cultivated light soils on the edge of the primordial forest.

2. This cataclysm may have been an important catalyst for the movement of farming communities into hitherto forested and almost deserted temperate Europe.

IV. About 5,500 B.C., farming based on the cultivation of spring-sown crops and cattle herding developed during a period of wetter conditions over enormous areas of continental Europe.

A. For the most part, the farmers settled on lighter soils formed from fine glacial dust blown southward from Scandinavian ice sheets during the late Ice Age.

1. They were slash-and-burn cultivators, who cleared woodland plots, fired them, planted their crops, then moved on in a few years to new farmland.

2. As a result, farming communities spread rapidly across Europe from southeast to northwest, taking up the lighter soils and grazing cattle on riverside meadows and in forest clearings.

B. The process of expansion unfolded in stops and starts, with the first of these Bandkeramik farmers (so named after their distinctive linear-decorated clay vessels) appearing in the Middle Danube Valley by 5,300 B.C.

C. The farmers migrated along river valleys, living in hamlets of individual long houses, set about 100 yards apart. Each long house sheltered both animals and humans, was made of timber and thatch, and was between 18 and 46 feet long. Each community's farming territory was very small, on the order of about 500 acres.

1. About 40 to 50 people lived in each village, rotating their crops so that they could stay in the same place as long as possible. As the population expanded, families would move out to found new settlements, which gradually filled in the large gaps between the original villages.

2. Within four or five centuries of first settlement, population densities in parts of Germany rose from 1 per 400 square miles to about 1 per 50 square miles. There was soon intensive competition for land in more densely populated areas.

D. By 4,800 B.C., Bandkeramik people were living in the Netherlands and as far east as the Dneiper River in the Ukraine, where mammoth hunters once dwelt.

V. The Bandkeramik expansion resulted in constant interactions between much older Mesolithic hunter-gatherer bands and the newly settled farmers.

A. Mesolithic groups were well aware of agriculture and animal herding but incorporated only some aspects of farming culture into their lives, because agriculture was far harder work. Many of them may soon have taken up goat and sheep herding, because these animals provided a reliable food source during the winter months.

B. A complex process of migration, interaction, and assimilation resulted in the eventual spread of farming among all ancient hunter-gather communities and, finally, into Scandinavian societies along Baltic shores as late as 3,500 B.C.

VI. Bandkeramik settlement was limited to carefully selected lighter soils and to communities that settled in the same place for long periods of time, where each household fed itself, but kin groups cooperated on large projects, such as clearing forest or building long houses.

A. The graves of Bandkeramik women were often richly decorated, suggesting that the people who lived in long houses, commonly associated in modern societies with kin groups, traced their descent through the female line. Women may have had high status in Bandkeramik society, even if political power and social authority resided in the hands of older men, who controlled cattle ownership and trade.

B. By 4,500 B.C., farming settlement became more clustered, with much more closely defined territories identified by different pottery styles. This was a time when communal burial came into fashion.

C. Communal burial places were associated with the lineages that owned them; sepulchers where the ancestors resided were often placed on ridges and at other strategic locations where they marked territorial boundaries.

D. The ancestors were guardians of the land. They lay under large burial mounds, often fashioned from huge boulders (sites known as *megaliths*). Their burial places became important power symbols among societies that traded and interacted with one another constantly.

VII. Between 2,800 and 2,400 B.C., communal burial gave way to individual sepulchers for prominent elders in Central and Eastern Europe, powerful chieftains who developed in later Bronze and Iron Age European societies. This was a time when ancient European societies came into increasing contact with the changing Mediterranean world to the south.

VIII. In Lecture Seventeen, we visit the first farmers of East Asia and discuss the first human settlement of the offshore Pacific Islands.

Essential Reading:

Graeme Barker, *Prehistoric Farming in Europe*.

Brian Fagan, *People of the Earth*, chapter 10.

Supplementary Reading:

I. J. Thorpe, *The Origins of Agriculture in Europe*.

Alistair Whittle, *Europe in the Neolithic*.

Questions to Consider:

1. What role do you think the flooding of the Euxine Lake played in the first farming settlement of temperate Europe?
2. What was the importance of communal burial to ancient European farming societies?

Lecture Seventeen
Farming in Asia and Settling the Pacific

Scope: Lecture Seventeen discusses the origins of food production in Asia and the first colonization of the offshore Pacific islands. We start with the beginnings of rice cultivation in southern China, thought to have taken place in the Yangtze Valley before 7,000 B.C. Next, we analyze the first evidence for farming in northern China's Huangho Valley, where millet was cultivated by 6,000 B.C. By 5,000 B.C., agriculture was established over much of East Asia. The second half of the lecture describes the beginnings of rice and root agriculture in mainland and island Southeast Asia. We stress that root crops, such as taro and yams, were essential for the colonization of the offshore Pacific islands. Finally, we trace the rise of the Lapita cultural complex in the southwestern Pacific and the development of double-hulled canoes and indigenous navigational methods, which allowed the settlement of Tahiti, Haw'aii, Easter Island, and New Zealand during the past 2,000 years.

Outline

I. Rice was the staple of ancient agriculture over an enormous area of southern and southeast Asia and southern China. Today, it accounts for 21 percent of all the calories consumed by humankind. Unfortunately, we still know little about the origins of this most important of domesticated crops.

- **A.** Botanists believe that wild rice and Asian millet radiated from ancient ancestors around the eastern borders of the Himalaya Mountains at the end of the Ice Age.
- **B.** The first form of rice to be domesticated may have been a shallow-water form, which thrived in alluvial swamps, where there was plenty of water to stimulate rice growth.
- **C.** Perhaps domestication occurred under seasonal flooding conditions, which would have made field preparation less burdensome.
- **D.** The first rice cultivation probably originated among people living off wild rice stands in low-lying, seasonally flooded areas. It may have resulted from climatic change, population growth, or some other source of stress.

II. The earliest known rice-farming sites are known from the Middle and Lower Yangtze River region of southern China, where more humid conditions before 6,000 B.C. supported extensive wetlands and, probably, wild rice.

- **A.** Agriculture developed in China along two great river systems, those of the Yangtze in the south and the Huangho in the north. Southern Chinese farmers depended on rice; those in the north, on millet and other cereals.
- **B.** Between 7,200 and 5,500 B.C., during a period of warming climate, some wild rice collectors in the Yangtze Valley turned to deliberate cultivation, presumably to increase food supplies.
  - **1.** The Pengdoushan site in the Middle Yangtze was a community of rice farmers between 6,500 and 5,800 B.C. This was a substantial settlement with large houses, occupied at a time when rice agriculture was spreading rapidly through southern China.
  - **2.** By 5,000 B.C., rice agriculture sustained hundreds of thousands of southern Chinese. We can track its spread by the widespread distribution of large farming villages where potters made cord-decorated vessels.
  - **3.** By 3,000 B.C., much more sophisticated agricultural societies flourished throughout southern China, practicing intensive agriculture, including irrigation, and headed by wealthy individuals.

III. The second great center of Chinese agriculture lies 400 miles north, in the Huangho River Valley. At the end of the Ice Age, wild plant foods, including wild millet, assumed great importance in this region, where the climate was warmer and moister than today.

- **A.** Although some communities may have experimented with growing millet as early as 12,000 B.C., the first certain signs of agriculture and sedentary settlement appear in about 6,500 B.C.
- **B.** The glacial windblown dust of the north formed easily tillable soils, which could be cultivated with digging sticks. Either a long period of experimentation with wild plants took place, or agriculture was introduced from southern China.

C. The Yangshao farming culture flourished over much of the Huangho River basin as early as 4,800 B.C., an area as large as the early agricultural centers in Egypt or Mesopotamia.
  1. Each Yangshao village was a self-sufficient community, usually built on a river terrace, high enough to avoid flooding and to allow maximal use of fertile floodplain soils.
  2. Yangshao developed over many centuries, By 3,200 B.C., the moment when urban civilization appeared in distant Mesopotamia, Yangshao boasted of a characteristic and thoroughly Chinese culture.

D. This society had its own naturalistic art style and expert potters who made cooking pots for steaming food, the basis of much Chinese cuisine to this day.

E. Some elements of the Chinese language may have their roots in Yangshao speech, too.

F. Many regional farming cultures developed throughout China after 4,000 B.C., among them, the so-called Longshanoid cultures of northern China (named after the Longshan site).
  1. Longshanoid societies relied in part on irrigation and on rice, now introduced to the north.
  2. These much more elaborate and wealthier farming cultures were one of the foundations of Chinese civilization (see Lecture Twenty-Eight).

IV. The date when rice agriculture first arrived in mainland and island Southeast Asia is unknown, but it may have been as early as 3,000 B.C. A broadly homogeneous rice-growing culture developed over a wide area, with extensive trading networks linking islands and mainland.

A. By 7,000 B.C., New Guinea islanders were probably cultivating root crops—taro and yams—on a small scale. Between 5,000 and 2,000 B.C., taro and yam agriculture became well established, resulting in major changes in the natural vegetation and the creation of an artificial garden environment.

B. The development of root agriculture in New Guinea and its spread to the islands of the Bismarck Archipelago close offshore had momentous consequences for the settlement of the offshore islands of the Melanesia and Polynesia. The more remote Pacific islands were biologically impoverished and could be settled only by people bringing agriculture with them, along with ample supplies of easily stored foods, such as taro and yams.

C. As early as 1,600 B.C., the widespread maritime Lapita cultural complex flourished in the southwestern Pacific. Its highly distinctive stamp-decorated pottery occurs over an enormous area.
  1. The Lapita complex may have developed out of indigenous roots in the Bismarck Archipelago area, then spread widely as a result of extensive canoe trading in obsidian and other exotic objects throughout the islands of Southeast Asia and deep into the Pacific, eventually as far east as Fiji, Tonga, and Samoa.
  2. The great period of Lapita activity was about the time of Christ.
  3. The Lapita people developed the oceangoing double-hulled canoe, which enabled them to maintain trade networks far out into Polynesia.

D. Here, ocean voyages involve much longer distances of 600 miles or more, which required sophisticated indigenous navigation methods. These navigational skills survive to this day and were based on the movements of the heavenly bodies and close observation of natural phenomena.
  1. Indigenous Pacific navigators were perfectly capable of long offshore voyages, making successful landfalls and returning to their starting points.
  2. The colonization of Micronesia and eastern Polynesia took place within the past 2,000 years, some 1,300 to 1,600 years after the first settlement of western Polynesia.

V. The Polynesians may have originated in the Fiji area, then settled the more remote islands—the Marquesas by A.D. 500 and the Society Islands by A.D. 800. The first canoes arrived in Haw'aii by about A.D. 600 and on Easter Island, the most remote landmass of all, a century later.

A. The human settlement of Polynesia took about 2,500 years, ending with the colonization of New Zealand from the Society Islands, perhaps as late as A.D. 1000.

B. With the colonization of Polynesia, the great diaspora of *Homo sapiens sapiens* ended.

C. In Lecture Eighteen, we end our exploration of the origins of agriculture with the story of maize in the Americas.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 12.

Patrick Kirsch, *On the Road of the Winds.*

Supplementary Reading:

Ben Finney, *Voyage of Rediscovery*.

Geoffrey Irwin, *The Prehistoric Exploration and Colonization of the Pacific*.

Questions to Consider:

1. What were the basic differences between early farming in southern and northern China?
2. What were the preconditions for colonization of the offshore islands of Polynesia during the past 2,000 years?

Lecture Eighteen
The Story of Maize

Scope: Lecture Eighteen takes us to the Americas and tells the story of the origins of food production in the New World. We begin with a discussion of the major crops and animals domesticated in the Americas and describe the three major centers of plant domestication. Next, we describe the archaeological evidence for the domestication of maize from its wild ancestor, teosinte. We examine the archaeological evidence for early maize cultivation in Mesoamerica, as early as 5,000 B.C., if not earlier. Next, we trace the spread of maize into the Andes region, where other crops, such as potatoes, were domesticated as early as 2,000 B.C. The final part of the lecture analyzes what we know about the spread of maize and bean agriculture into the North American Southwest and eastern woodlands. In the latter area, maize and bean farming transformed the landscape and helped foster the rise of North America's powerful Mississippian chiefdoms. (We describe both the Pueblo societies of the Southwest and the Mississippian chiefdoms in Lecture Thirty-One in Section VI of the course.)

Outline

I. The native Americans domesticated an impressive range of indigenous plants, some of which—maize, potatoes, and tobacco—were rapidly adopted by farmers on other continents after European contact.

- **A.** The most important of these crops was Indian corn, properly called maize, the only significant wild grass in the New World to be domesticated. Root crops were another substantial food source, especially in South America. Many other plants, such as amaranth, beans, chilis, and sunflowers, were also important.
- **B.** The ancient native Americans had new domesticated animals, including the alpaca and llama of the Andes and the dog, turkey, and muscovy duck.
- **C.** Most experts now agree that there were two or three centers of plant domestication in the Americas: Mesoamerica for maize, beans, squash, and sweet potatoes; the central Andes highlands for root crops; and the lowland tropics between Columbia, Panama, and Peru for squashes and other tropical plants. In later times, four major farming areas developed: tropical South America, the Andean area, Mesoamerica, and eastern North America.
- **D.** Tropical food production in the Americas may have begun in small-scale household gardens in forest villages in Panama as early as the ninth millennium B.C. This small-scale horticulture of wild plants developed eventually into full slash-and-burn agriculture, a process that did not spread widely in the Panama region until between 5,000 and 4,000 B.C.

II. The first domesticated plants may have been squashes and bottle gourds, both of which were in use in highland Mesoamerica by 8,000 B.C.

- **A.** The classic triumvirate of American crops was maize, squash, and beans. Of these, maize was the staff of life for people living between Canada to Argentina and Chile, from sea level to high in the Andes, in rainforests and on arid lands.
- **B.** Intense debate surrounds the ancestry of maize, whose wild ancestor was teosinte, a grass that grows naturally over much of Mesoamerica.
- **C.** The process of domesticating maize may have begun as an unintentional consequence of harvesting teosinte. Gathering the wild grass may have created selective pressure for more harvestable forms of teosinte, which shrunk the spikes of the wild grass into bunches. This form of the grass became established by campsites and on abandoned middens. In time, the people began weeding, then deliberately planting the modified teosinte, which was easier to harvest. Soon, the grass's reproductive strategy became dependent on human intervention, and maize was domesticated.
- **D.** Maize may have been domesticated in the Mexican lowlands by 5,000 B.C., but the best archaeological evidence for early corn agriculture comes from Mexico's Tehuacán Valley. The hunter-gatherer groups living in this arid valley placed increasing emphasis on plant collecting after 8,000 B.C. By about 4,500 B.C., at least 90 percent of the Tehuacano diet was wild grasses, or cacti and maguey. So many grasses were needed that some form of cultivation of native plants must have been essential by this time.

1. The earliest small maize cobs in the valley appear at about 3,600 B.C., but domestication of easily stored crops, such as maize, beans, and squash, may have occurred earlier. The earliest Tehuacano maize cobs were smaller than modern-day ones, less than 2 inches long.
2. This primitive form of eight-rowed maize, called *maiz de ocho* and represented in the Tehuacán Valley, was the common ancestral corn, which spread thousands of miles from its original homeland after 3,000 B.C.

III. As maize was tamed in Mesoamerica, other crops were domesticated in the Andes, among them, a grain named quinoa and the potato, both by 2,000 B.C., probably earlier. By the time of Spanish contact in the fifteenth century A.D., the Andeans used hundreds of potato varieties. Maize first appeared on the Peruvian coast from the north as early as 1,800 B.C. It was to become one of the staples of lowland Andean civilization (see Lecture Thirty-Four).

A. In 10,000 B.C., a scattered population of desert hunter-gatherer groups inhabited the North American Southwest. Their life way, based on small game and plant foods, survived with little change for thousands of years.

B. Between about 2,500 and 100 B.C., the southwestern climate was relatively stable, perhaps somewhat wetter than today. However, it was an environment in which hunting and gathering were high-risk occupations, because rainfall was so unpredictable. Population densities were low, but there may have been occasional food shortages. Domesticated plants, such as maize and beans, had the advantage of being predictable and easily stored.

C. The first Mesoamerican crops to cross the Rio Grande were maize, beans, and squash, all probably cultivated in northern Mexico for a while by farmers who had sporadic contact with hunter-gatherers to the north.

1. The opportunity to cultivate crops was probably there long before anyone thought to grow them.
2. A combination of slowly rising population and food shortages may have caused the adoption of low-yielding forms of maize.

D. The maize that entered the Southwest was the Chapalote form, a small popcorn of great genetic diversity, which arrived between 2,000 and 1,500 B.C. It was soon crossbred with indigenous wild teosinte to produce a more productive hybrid maize.

1. At first, maize was a casual supplement to the traditional diet. Then, *maiz de ocho*, with its larger, more productive kernels, appeared—a large-kerneled corn adapted to short growing seasons and diverse harsh environments.
2. After 500 B.C., southwestern farmers combined maize with beans, the latter helping return vital nitrogen to the soil when underplanted with maize. This enabled the farmer to maintain the fertility of the soil longer.
3. The combination of maize and beans led to a much greater dependence on agriculture in southwestern life at a time when populations were rising and people were settling in more permanent village settlements.

E. Between A.D. 300 and 500, another complex of tropical plants, including pigweed and cotton, arrived in the Southwest. These crops required more irrigation and warmer conditions and were confined to the southern areas of the Southwest.

F. As life became more sedentary, people invested more in agriculture, which provided protection from shortages of wild food. The gradual cultural changes of the first millennium A.D. culminated in the great Pueblo cultures of the Southwest, described in Lecture Thirty-One.

IV. After 10,000 B.C., the Archaic hunter-gatherer societies of eastern North America became increasingly diverse, many of them settled in fertile river valleys, by estuaries, and on lake shores.

A. As populations rose slowly, territories became more confined and some plant foods were in shorter supply. More complex social organization and better storage technology helped alleviate shortages. But, inevitably, many groups turned to the deliberate cultivation of local plants to increase natural supplies.

B. Goosefoot, marsh elder, gourds, and sunflowers were cultivated in many places as early as 2,500 B.C., but cultivation was a supplement to the hunter-gatherer diet for many centuries, at a time when social changes included elaborate burial rituals and huge earthworks, described in Lecture Thirty-One.

C. Maize and bean agriculture spread across the southern plains into the Midwest and Southeast between A.D. 450 and 800. This new, more demanding farming required intensive labor and resulted in the transformation of both the landscape and society.

D. These developments culminated in the appearance of the elaborate Mississippian chiefdoms, described in Lecture Thirty-One.

V. Lecture Eighteen ends Section III of the course, a discussion of the origins of food production. In Section IV, we describe the world's earliest civilizations.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 13.

Bruce Smith, *The Emergence of Agriculture*, chapters 7–8.

Supplementary Reading:

Brian Fagan, *Ancient North America*, chapters 14, 16–17 (read selectively).

Questions to Consider:

1. Why do you think that ancient native Americans domesticated only a limited range of animals?

2. What were the advantages of maize cultivation to southwestern hunter-gatherers?

Section IV: Eastern Mediterranean Civilizations

Lecture Nineteen
The Origins of States and Civilization

Scope: Section IV surveys the world's first civilizations, which first appeared in southwestern Asia about 5,000 years ago. Lecture Nineteen begins by defining civilization and discussing the common characteristics of preindustrial civilizations (states). Next, we analyze the major early theories surrounding the origin of states, which invoked single causes for their appearance. Finally, we survey current thinking, which assumes that many factors were involved in the creation of preindustrial states, both ecological changes and the all-important roles played by individuals and groups. We argue that a unique period of social inequality and cultural change in the eastern Mediterranean region about 5,000 years ago allowed individuals of exceptional ability to forge the first civilizations out of smaller chiefdoms.

Outline

I. Five thousand years ago, the world's first literate civilizations appeared in southwestern Asia—in Mesopotamia and along the Nile River. Their appearance was a major turning point in the human past. Section IV of this course describes the earliest civilizations in Mesopotamia, Egypt, and the eastern Mediterranean, spanning a period from the fourth millennium B.C. to about 1,200 B.C.

- **A.** The term *civilization* implies "civility," a measure of decency in individual behavior. Such definitions reflect value judgments or ethnocentrism because what may be "civilized" behavior in one civilization may be antisocial or baffling in another.
  - **1.** Today, archaeologists use the term *civilization* as shorthand for urbanized, state-level societies.
  - **2.** The civilizations described in this course are also commonly referred to as preindustrial civilizations, because they relied on manual labor rather than fossil fuels, such as coal.
- **B.** There are many variations between individual preindustrial civilizations, but the following features are common to all of them:
  - **1.** Societies based on cities, with large, complex social organizations, themselves in much larger territories than in earlier times.
  - **2.** Economies based on the centralized accumulation of capital and social status through tribute and taxation. This type of economy allowed the support of hundreds, often thousands, of non-food producers, such as artisans, bureaucrats, and priests.
  - **3.** Advances toward formal record-keeping, science, and mathematics, as well as some form of written script or a close alternative, such as the Inka knotted string.
  - **4.** Impressive public buildings and monumental architecture, such as palaces and temples.
  - **5.** Some form of all-embracing state religion and ideology, in which the ruler played a leading role, often as a living god.

II. Archaeological research into early civilizations concentrates on the origin and development of both state-organized societies (civilizations) and the city. The earliest cities assumed many forms, from the compact walled settlement of early Mesopotamia to the Maya ceremonial center, with a core population around its precincts and a scattered rural population in the surrounding hinterland.

- **A.** Definitions of cities abound, but the most common, and arbitrary, one defines their lower limit of population at about 5,000 people. The density of population is much higher than that in small settlements, a defining characteristic.
- **B.** Cities are also characterized by specialization and interdependence between the city and its rural hinterland. The city was a central place in the region, providing services for the smaller settlements around it. Most early cities had major marketplaces, where agricultural produce was sold or exchanged.
- **C.** Cities had a level of organizational complexity far greater than that of a village or town. They were centralized institutions, almost invariably with major public and ceremonial buildings around a central precinct. Their institutions preserved law and order, regulated trade, and maintained security, often behind imposing city walls.

D. Like cities, states were strongly centralized institutions. One can liken them to a pyramid, with a tiny elite and a solitary ruler at the pinnacle and a huge mass of commoners at the base.

III. The origin of states has generated a huge theoretical literature, which effectively began with the writings of Vere Gordon Childe of Agricultural Revolution fame in the 1930s (see Lecture Fifteen).

A. The Victorians, following the Greeks and Romans, believed that Egypt was the cradle of human civilization. The discovery of Sumerian civilization in the late nineteenth century showed that civilization's origins were more complex.

B. In the 1920s, University of Chicago Egyptologist James Breasted coined the enduring phrase "the Fertile Crescent," a curve of territory that encompassed the Nile and Jordan Valleys, the highlands of Iran, and lowland Mesopotamia. Breasted described the Fertile Crescent as the cradle of civilization.

C. Childe wrote of an Urban Revolution, in which metallurgy, the formation of cities and more intensive agriculture, and specialist artisans played leading roles.

1. Ultimately, Childe argued, a class-based society came into being, based on economic classes rather than the traditional ties of kin.

2. Writing, more effective long-distance transportation, and a state religion were all essential ingredients of a preindustrial civilization.

D. The Urban Revolution theory was popular for many years but is now seen as too simplistic, because many of the features that Childe identified were, in fact, characteristic of earlier societies, as well.

E. All scholars now agree that three elements of the Urban Revolution hypothesis were of great importance—large food surpluses, diversified farming economies, and irrigation agriculture.

IV. The next generation of theories revolved around simple ecological explanations.

A. Some focused on the ecological potential of river flood plains, which were fertile enough to produce huge food surpluses to feed growing populations.

B. Others pointed to the ecological diversity of local environments, which allowed the earliest civilizations to rely not just on one food source, but also on foods from different closely neighboring ecological zones. For example, the highland Andean states of South America relied heavily on their lowland neighbors for fish meal, cotton, and other resources. Such diversity provided protection against crop failure and famine.

C. Irrigation agriculture has the potential to support much denser populations. Scholars of the 1920s to 1950s argued that some early civilizations, such as those of Egypt and Mesopotamia, were "hydraulic" societies controlled by massive bureaucracies. More recent research has shown that large-scale irrigation works were, in fact, a product of later stages of these and other civilizations.

D. In recent years, both the massive expansion of trade and warfare have been involved as primary causes of state formation. In fact, more detailed research has shown that the intensification of both trade and war was a consequence, rather than a cause of, statehood.

V. The world's first states came into being during periods of major social and economic change. This means that simple, one-cause explanations of civilization, such as irrigation, are inadequate. Recent theories of the origin of states invoke multiple, and often intricate, causes.

A. Many experts see the early civilizations as very complicated "living systems," with many interacting components, or subsystems, contributing to cultural change, as the emerging state's "cultural system" interacted with the complex ecological system of which it was part.

B. Ecologically based theories argue for a significant role for climatic and environmental change. For example, the rising waters of the Persian Gulf after the Ice Age may have created favorable environments in lower Mesopotamia for much larger settlements and more intensive agriculture (see Lecture Twenty).

C. Ecological theories tend to be somewhat impersonal, because they deal with general processes of cultural and social change. In recent years, scholars have paid more attention to the actions of individuals and groups in creating civilizations.

D. The combination of economic control over the sources and distribution of food and wealth, the development and maintenance of the stratified social system and its ideology, and the ability to maintain control by force were vital in early states. The interplay among these three sources of power led to the development of new society-wide institutions: supreme rulers and the state.

VI. There was no one moment when civilization came into being, because society continued to evolve after states appeared. Preindustrial states functioned in a milieu of constant change and frequent disputation, which is why some collapsed and others survived for centuries and millennia.

A. The world's first civilizations developed in distinctive political environments, in dynamic crucibles of competing chiefdoms, where, eventually, one chiefdom achieved dominance over the others, which became provinces of a larger political unit. This can be clearly seen in the long process of unifying ancient Egypt into a single kingdom (see Lecture Twenty-One).

B. In the final analysis, it is people and groups who are responsible for cultural and political change. Such seminal people as the first Egyptian pharaoh, Horus Aha, were the agents that brought civilizations into being, but unfortunately, we know the names of few of them.

C. Aggressive individuals of great ambition and ability have always existed in human societies. However, the widespread conditions of social inequality and chiefly competition, which developed in some parts of the eastern Mediterranean world about 5,000 years ago, proved to be a unique catalyst for such men and women to turn from powerful tribal chiefs into authoritarian kings, soon supported by compelling new ideologies developed from earlier and less complex worldviews.

VII. Lecture Twenty describes the emergence of civilization in Mesopotamia, perhaps the region where the first states of all flourished.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 14.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 2.

Supplementary Reading:

Charles Redman, *The Rise of Civilization*.

Questions to Consider:

1. Are ecological factors important in the beginnings of states?

2. What role do you think born leaders with charismatic personalities played in the origins of civilizations?

Lecture Twenty
Sumerian Civilization

Scope: Lecture Twenty describes early Mesopotamian civilization between the Tigris and Euphrates Rivers. First, we explore the farming societies, which used irrigation to grow crops along the rivers and in the southern delta. Then, we describe the 'Ubaid culture and the first towns and cities to develop in the south. We show how the temple was the focus of emerging Sumerian society, while long-distance trade mushroomed in the fourth millennium B.C. We describe some of the innovations that contributed to the rapid development of Sumerian cities. Then, we analyze the salient features of Sumerian civilization, with its small, competing city-states, ending with a brief survey of Akkadian and Sumerian efforts to forge much larger empires, a trend that defined the long-term characteristics of Mesopotamian civilization.

Outline

I. Mesopotamia, Greek for "the land between the rivers," was thought by the Victorians to be the biblical Garden of Eden. Today, it is far from paradise, a land of sand, swamp, and dry mud flats with long hot summers and harsh winters. But, with irrigation, the fertile alluvial soils of the Euphrates and Tigris delta yielded bountiful crops for thousands of years, until the rising salinity of the soil caused crop yields to plummet.

A. Farming was established by at least 8,000 B.C. in northern Iraq. Two thousand years later, village farmers practiced simple irrigation agriculture by diverting spring flood waters across their fields, then draining it away to prevent salt buildup.

B. The earliest known farming communities in the southern delta date to before 5,800 B.C., living on the fertile alluvium caused by the drowning of the Tigris-Euphrates estuary by the rising Persian Gulf after the Ice Age. All traces of earlier inhabitants are buried under many feet of silt.

C. These farming villages coalesced into clusters of smaller hamlets encircling larger towns, with perhaps as many as 3,000 inhabitants.

1. These 'Ubaid people grew barley and dates and herded cattle, sheep, and goats.

2. 'Ubaid agriculture depended on simple irrigation, on canals built by communal effort and careful organization by local leaders. Within a few centuries, some 'Ubaid settlements reached considerable size, the mud houses clustered around small ceremonial centers.

D. By 4,700 B.C., the rapidly growing town of Eridu boasted a mud-brick temple. Within two centuries, the temple had achieved much greater elaboration, and as many as 5,000 people were living close by.

E. Between 4,600 and 3,800 B.C., another town, Uruk, grew rapidly. A temple-mound, or ziggurat, towered over the growing community, standing over the foundations of earlier, more humble shrines.

1. As early as 3,500 B.C., Uruk was ruled by a secular and religious leader, known as an *en*. He presided over the temple and over an emerging small kingdom that enjoyed far-flung trading connections with the Iranian highlands and areas far to the west.

2. Uruk soon became a city, with a lattice of satellite villages extending out at least 6 miles, each with its own irrigation system. The city depended on the villages for food and other commodities; the villages depended on the city for protection against outsiders.

3. Uruk and other growing cities developed their own governments, with a well-defined hierarchy of rulers and priests, landowners and bureaucrats, traders and farmers.

4. This system, whatever its local variations, handed out rewards and inflicted punishment, organized and regulated society, and made policy decisions for its citizens.

5. The countryside became the hinterland of the city and, later, the city-state so characteristic of Mesopotamian civilization.

F. By 3,400 B.C., the first signs of writing appeared, perhaps developing from an informal system of clay tokens, which had been in use to regulate trade for thousands of years.

1. At first, simple pictographic and, later, wedge-shaped cuneiform symbols were used purely for record-keeping purposes—to record inventories and commercial transactions or the contents of temple storerooms.

2. Over the next thousand years, Sumerian writing developed into a major vehicle for communication, as well as creating the world's first literature.

G. Copper metallurgy first appears in the south at about this time, at first as a highly valued prestige material for shiny ornaments. More than a thousand years passed before metalsmiths learned to alloy copper with lead or tin to make bronze, a much tougher metal, which soon came into use for agricultural implements and weapons.

II. Sumerian civilization developed in Mesopotamia after 3,100 B.C., the culmination of centuries of rapid economic, social, and political elaboration.

A. It emerged at a time when even moderate-sized towns maintained trading and other connections to people considerable distances away. Uruk itself acquired obsidian, metals, wood, seashells, and other exotic materials from as far away as the eastern Mediterranean.

B. During the fourth millennium B.C., a rapidly evolving "world system" linked Southwest Asian societies from eastern Iran and the Indus Valley in Pakistan to Mesopotamia, Anatolia, the Nile, and the Mediterranean coast. This was, in a sense, the world's first global economy.

C. Sumerian civilization was born of the growing interdependence of city-states in Mesopotamia. Each of them small in area, they competed, fought, and traded with one another constantly, in a volatile political environment. An intricate and ever-changing patchwork of alliances linked city to city and ruler to ruler.

III. Mesopotamia was not unique, because cities were also developing in other areas of Southwest Asia, as far afield as the Indus Valley in modern-day Pakistan and the Iranian plateau.

A. The volume of long-distance trade increased dramatically, much of it carried by donkey caravans and by ships plying the great rivers. Inevitably, as society became more complex, city rulers became more secular and the priesthood became a specialized occupation.

B. Sumerian civilization was a world of constant bickering and shifting alliances. Such city-states as Ur had periods of great political strength and prosperity when they dominated their neighbors. Just as swiftly, they would tumble into obscurity. There was no permanent political unity, just constant warfare, waged by the world's first standing armies.

C. Some Sumerian cities nurtured powerful rulers, such as the wealthy individuals buried in the celebrated royal burials at the ancient city of Ur, excavated by British archaeologist Leonard Woolley in the 1930s. One tomb contained the remains of fifty-nine people who had drunk poison so that they could accompany the deceased—courtiers, soldiers, and serving women.

IV. Inevitably, the ambitions of some of these rulers extended far beyond Mesopotamia. They sought to control the lucrative overland trade routes, which crossed the desert to the eastern Mediterranean coast.

A. In 2,500 B.C., Akkadian cities to the north of Sumerian country were competing with their southern neighbors for power and wealth. In 2,334 B.C., King Sargon of Agade, south of Babylon, extended his domains by trade and military campaigns to include both Sumer and northern Mesopotamia.

B. Political chaos followed a severe drought in the north. The Akkadian kingdom collapsed, and King Ur-Nammu of Ur took control of Sumer and Akkad in 2,112 B.C.

C. Unlike Sargon, Ur-Nammu and his successors of the third Ur royal dynasty were expert administrators and diplomats. Their great empire flourished for 120 years. They established the persistent traditions of Mesopotamian civilization—a combination of trade, conquest, ruthless administration, and tribute to forge large, poorly integrated, and highly volatile empires that spanned the world between the Mediterranean and the Persian Gulf.

D. After 1,990 B.C., Sumerian civilization gave way to Babylonian, then Assyrian expansion, by which time Mesopotamia was part of a much larger world.

E. Part of this new commercial and political world was Egypt, the subject of Lectures Twenty-One and Twenty-Two.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 15.

Samuel Kramer, *The Sumerians*.

Supplementary Reading:

Harriet Crawford, *Sumer and the Sumerians*.

Nicolas Postgate, *Early Mesopotamia: Economy and Society at the Dawn of History*.

Questions to Consider:

1. What role did interconnectedness play in the rise of Sumerian civilization?
2. What were the basic ingredients of Sumerian civilization?

Lecture Twenty-One
Ancient Egyptian Civilization to the Old Kingdom

Scope: Lecture Twenty-One surveys the beginnings of ancient Egyptian civilization, which developed at about the same time as the Sumerian city-states. First, we describe the competing kingdoms that flourished along the Nile after 4,000 B.C. and highlight how the kingdom of Nekhen, then the kingdom of This, became dominant in Upper Egypt. We also discuss the important symbolic meaning of unification. Next, we discuss the consolidation of the new state, culminating in the pharaoh Djoser's dramatic move toward pyramid burial. Then, we describe the wave of pyramid building by Old Kingdom rulers, which culminated in the magnificent Pyramids of Giza. Finally, we explore the Old Kingdom court and the foreign policy of the pharaoh, before recounting its collapse in about 2,180 B.C.

Outline

I. By 5,000 B.C., small farming villages flourished along the Nile, from the First Cataract at Aswan to the Nile Delta. Two thousand years later, a patchwork of small kingdoms had become a unified state. From the earliest days of agriculture, Egypt had comprised two worlds: Upper Egypt, a narrow floodplain that extended from the First Cataract to modern Cairo, and Lower Egypt, which encompassed the broader valley downstream and the flat Delta.

- **A.** The geography of the Nile Valley meant that Egypt was a linear land, linked by the river. By 4,000 B.C., many small kingdoms had sprung up along the river, trading and competing with one another in an endless game of political Monopoly. Inevitably, some of these chiefdoms became more powerful than others.
- **B.** In 3,500 B.C., the pre-Dynastic kingdoms were the main players in Upper Egypt: Nagada, Nekhen, and This, the latter near Abydos, the traditional Egyptian gateway to the underworld.
  - **1.** Each of these kingdoms was centered on a growing town of rectangular mud-brick dwellings, set in the midst of intensively cultivated riverside fields, watered by the Nile's annual inundation.
  - **2.** Nekhen, downstream of modern-day Luxor, achieved dominance after 3,400 B.C., gaining considerable prosperity from trading its well-made Plum Red pottery. It was also an important religious center of the falcon god Horus.
- **C.** The Upper Egyptian kingdoms traded with other polities in the Delta, as well as with distant Mesopotamia. Trade along the river and to other lands became so complex that writing and record keeping came into being, in the form of simple hieroglyphs (Greek for "sacred writing").
- **D.** Writing was probably first developed in Mesopotamia, but Egyptian priests, probably the first scribes, developed their own script, which was easier to write with a pen on papyrus-reed paper than on clay.

II. The centuries-long process of unification was a combination of diplomacy and conquest. It was the culmination of local social and political developments resulting from centuries of change.

- **A.** During the fourth millennium, the larger villages and towns became the focal points of different territories that were eventually to become the Egyptian state's provinces, or *nomes*.
- **B.** Lower and Upper Egypt were eventually unified by a series of shadowy rulers of This, with names such as Scorpion and Narma, in about 3,100 B.C. We know almost nothing about them except that they conquered Nekhen and were skilled traders and warriors.
- **C.** The Egyptians themselves cloaked unification in mythic terms.
  - **1.** Each pharaoh ruled as Horus, a manifestation of the god of heavenly power and the skies. The falcon-headed god symbolized good order.
  - **2.** His antagonist was the snout creature Seth, the epitome of chaos and disorder.
  - **3.** The conflict between Horus and Seth symbolized the struggle between the forces of order and anarchy.
  - **4.** The two gods fought over the right to inherit the kingdom. But Geb, the deity of earth and lord of the gods, reconciled them in an act that symbolized the triumph of order over chaos.
- **D.** From unification onward, Egyptian belief and ideology was based on the notion of stable and wise government by pious kings, who presided over a harmonious, unified Two Lands.

III. The first pharaoh of a truly unified Egypt was King Horus-Aha. In about 3,000 B.C., he moved the royal capital from Abydos to Memphis, city of the creator god Ptah. He and his successors consolidated their domains from a patchwork of small kingdoms into a single political entity. They ruled like gods, the descendants of much earlier desert tribal shamans, who fended off the forces of evil: foreign invaders, famine, and other disasters.

A. The earliest kings were buried at Abydos in subterranean mud-brick tombs close to the ancient entry to the underworld, with a mortuary enclosure above ground. A low symbolic earthen mound lay inside the enclosure, a depiction of the primordial earthen mound, which had formed at the time of creation. Nearby lay wooden boats, funerary craft designed to carry the dead kings symbolically across the heavens, just as the sun-god Re journeyed across the heavens from sunrise to sunset.

B. For four centuries, the so-called Archaic Period, the pharaohs wrestled with the problems of consolidating their domains. They used propaganda, proclaiming that they maintained order in the presence of a supreme divine force, the power of the sun.

C. The pharaohs cast themselves as herdsman and protector of the people, as warriors and builders. In chants and hymns, on temple walls, and in public ceremonies, the message was repeated again and again—the pharaoh is divine and infallible; he is eternity.

D. In about 2,630 B.C., the pharaoh Djoser came to the throne and ruled for nineteen years.

1. His vizier, Imhotep, was High Priest of Memphis and an architect. He designed a new royal burial place for his monarch—a stepped pyramid depicting the primordial earthen mound, which was also a stairway to heaven, the realm of the sun god.

2. Djoser was buried under the pyramid, which formed part of a mortuary complex, an elaborate setting for the display of kingship and of the ruler himself.

E. Djoser's reign immediately preceded the Old Kingdom period of Egyptian history, which lasted from 2,575 to 2,180 B.C.

IV. Djoser's successors embarked on an orgy of pyramid construction, which culminated in the Pyramids of Giza, erected by three generations of kings between 2,575 and 2,494 B.C.

A. By the time construction began at Giza, the Egyptians had mastered the perfect pyramid angle, 51 degrees, 50 minutes, 35 seconds. Pharaoh Khufu, said to be a despotic monarch, commissioned his Great Pyramid in 2,575 B.C. It stands 481 feet above the Giza Plateau and covers more than 13 acres.

1. Not to be outdone, Khufu's son Khafre built his pyramid complex immediately to the north. His successor, Menkaure, erected his smaller version a short distance away.

2. The entire pyramid complex included mortuary temples, boat pits, causeways, and a large settlement and cemetery for the thousands of workers who labored on the pyramids.

B. The pharaohs built their pyramids both as religious and secular acts.

1. Theologically, the pyramids were structures where life and light, death and darkness met, symbolic sunrays that served as a ladder to enable the ruler to join Re in the heavens.

2. Pyramid building was also a way of bonding the villagers who labored on the royal tombs to the pharaoh, the service of the god, and the state. Pyramid building helped define the power of the pharaoh.

3. As many as 20,000 to 30,000 people labored on the pyramids during the flood months of summer when agriculture came to a standstill. All were fed by the state.

V. Little is known about the Old Kingdom pharaohs, except for their reputations as authoritarian rulers. They presided over a society in which ranks and titles were all important.

A. Theirs was a rarified life of formal protocol and ceremony in a court rife with tensions and rivalries between the king and his powerful provincial governors. The question of the succession always hung over the court's head, at a time when life expectancy was short and high infant mortality rates were a reality.

B. The court was riven by powerful factions and presided over a pyramidal society with a tiny, privileged elite of nobles at the top; followed by high officials and priests; then lesser functionaries and artisans; and at the bottom of the pyramid, the vast mass of the commoners. The pharaoh and his court lived off the monotonous, grinding labor of the commoner.

VI. The Giza pyramids were the architectural highlight of the Old Kingdom. Thereafter, pyramid construction tapered off, perhaps because of the expense. The administration of government ceased to resemble a family business run by high nobles. The business of running the state passed to trusted commoners.

A. The king spent much time presiding over his ambitious provincial governors and maintaining overseas trade beyond Egypt's frontiers.

B. Much of Egypt's trade was with timber-rich Byblos on the eastern Mediterranean coast. The cedar trade was a royal monopoly. Here, too, the pharaoh's agents acquired goods from Mesopotamian city-states.

C. To the south, successive kings sent expeditions to acquire slaves, ivory, and other tropical goods from Nubia, known to them as the "Land of the Bowmen" because Nubians were skilled archers who often served in Egyptian armies.

VII. The last Old Kingdom pharaoh was Pepi II, who came to the throne in about 2,278 B.C. and reigned for more than six decades. His reign began well but was beset with misfortune. In about 2,258, King Sargon of Babylon sacked Byblos and destroyed a major source of royal wealth—the timber trade. The weakened monarch had to buy off rebellious provincial governors.

A. A series of poor floods in about 2,180 B.C. brought famine and chaos to the Nile. The central government collapsed soon after Pepi's death and the kingdom dissolved into a series of competing kingdoms headed by warlords. The pharaoh was unable to stave off famine and was proven fallible.

B. More than a century was to pass before Egypt was once again reunited, an event described in Lecture Twenty-Two.

Essential Reading:

Cyril Aldred, *The Egyptians*.

Brian Fagan and Kenneth Garrett, *Egypt of the Pharaohs*, sections 1–2.

Supplementary Reading:

Ian Shaw, ed., *The Oxford History of Ancient Egypt*, chapters 1–5.

Questions to Consider:

1. Why were symbolic explanations of Egyptian unification so important?

2. Why did the pharaohs go to such effort to build enormous pyramids?

Lecture Twenty-Two
Ancient Egypt: Middle and New Kingdoms

Scope: Lecture Twenty-Two continues the story of ancient Egyptian kingdoms after the end of the Old Kingdom in about 2,180 B.C. First, we describe the reunification of Egypt by Mentuhotep and the changed role of the pharaoh during the Middle Kingdom. Then, we briefly analyze the significance of Hyksos rule of Lower Egypt at the end of the Middle Kingdom. The third part of the lecture summarizes the events of the New Kingdom, the period when Egypt became a great military and imperial power. We describe the controversies over the heretic pharaoh Akhenaten and the restoration of Egypt's power by the great Nineteenth-Dynasty Ramesid kings and analyze Egyptian foreign policy of the day. Finally, we discuss the end of the New Kingdom and the reasons for the decline of pharaonic rule after 1,000 B.C.

Outline

I. In Lecture Twenty-One, we saw how a series of catastrophic droughts contributed to the collapse of Old Kingdom Egypt in about 2,180 B.C. The fighting and rivalries between local leaders in Upper Egypt intensified as the droughts weakened and the floods returned to normal.

- **A.** By 1,975 B.C., the rulers of Thebes had conquered their neighbors and ruled over a kingdom that extended from the First Cataract to the Asyut area of the Middle Nile. They were openly proclaiming themselves the "Sons of Re" and kings of Upper and Lower Egypt.
- **B.** A ruler named Mentuhotep II assumed the throne of Thebes in 1,975 B.C. An expert politician and warrior, he subdued both Upper and Lower Egypt in a series of bloody campaigns.
  - **1.** The Middle Kingdom pharaohs who followed him were mostly energetic rulers, who extended Egypt's trading contacts throughout Southwest Asia. They also conquered the desert chiefs of Nubia south of the First Cataract.
  - **2.** The Middle Kingdom pharaohs were somewhat less despotic. They behaved more like shepherds of the people, did much to expand agricultural production, and built enormous state-run storage facilities.
  - **3.** As part of their expansion of agricultural activity, they tried to create a much more centralized bureaucratic state, running against the ancient roots of people living in cities to their home villages in the countryside.
- **C.** Trade with eastern Mediterranean countries expanded dramatically as the pharaohs mined copper and gold in the Sinai and, once again, imported cedar from Lebanon. Egyptian merchants maintained regular contacts with distant lands, such as Crete and the Aegean islands.

II. The Middle Kingdom lasted until 1,640 B.C.; then, another period of economic and political disorder descended on the Nile. Lower Egypt came under the rule of Hyksos chieftains from Southwest Asia, who ruled from the town of Avaris.

- **A.** Egypt was once again effectively two kingdoms, with Upper Egypt still ruled from Thebes far upstream, a situation that endured for just over a century.
- **B.** The Hyksos brought new ideas to a conservative country, among them, more sophisticated bronze technology, stronger bows, new forms of weaponry, and the war chariot.

III. After 1,530 B.C., a series of Theban rulers fought and won a war against the Hyksos and once again ruled over a unified Egyptian state. The chief unifier was the pharaoh Ahmose, who effectively turned Egypt into a military civilization.

- **A.** Ahmose set the tone for the New Kingdom, which lasted until 1,070 B.C. He and his successors turned Egypt into a major imperial power in the eastern Mediterranean; the kingdom's sheer wealth in gold enabled it to dominate its neighbors by force and with diplomatic bribery.
- **B.** Egypt became a major power in the shifting sands of Southwest Asian politics, competing with two great states: Mitanni, to the east of the Euphrates River, and the Hatti, the Hittite empire in what is now Turkey. Each wanted to control the lucrative trade networks of the eastern Mediterranean.

C. The pharaohs financed their expanding domains with Nubian gold, obtained from what was now a conquered Nubia that was becoming rapidly more Egyptianized. At the same time, they expanded their trade routes in the Red Sea, to the "Land of Punt," which was rich in exotic spices.

IV. Waset, the Egyptian name for the city of Thebes, was now the "Estate of Amun," the all-powerful sun god, whose temples at Karnak and Luxor were mainly built during the Eighteenth Dynasty (1,550 to 1,307 B.C.).

A. Amun-Re was the "king of the gods," a solar deity portrayed in human form, the divine father figure who conceived kings, then protected them in life and death.

B. The "Estate of Amun" extended to the western bank of the Nile, where, after 1,505 B.C., the pharaohs were buried not under pyramids, but in rock-cut tombs in the Valley of the Kings.

C. Amun was all-powerful in New Kingdom Egypt until the pharaoh Akhenaten came to the throne in 1,353 B.C. The new king was a religious extremist, who seems to have considered himself and his family as the sole intermediaries between the people and the sun god.

1. Akhenaten ordered the temples of Amun closed and the ancient religion abolished in favor of the worship of the sun's disk, Aten.

2. He moved his capital downstream to el-Amarna, where he reigned for seventeen years.

D. Religious fanatic, madman, or heretic, history's judgment of Akhenaten has rarely been favorable. Immediately on his death, the worship of Amun was restored and Akhenaten's capital was abandoned.

V. Akhenaten's successors, among them the young Tutankhamun, immortal because of his undisturbed tomb discovered in 1922, presided over a troubled kingdom. A series of short-lived kings did all they could to restore the state to its ancient glory.

A. The Rameside pharaohs of the Nineteenth Dynasty (1,307 to 1,196 B.C.) were brilliantly successful as imperial kings. They continued the policies of diplomacy and conquest of their predecessors and restored order to the state.

B. Seti I became pharaoh in 1,290 B.C. A competent military man, he secured Egypt's Asian frontiers and engaged in public works on a massive scale. His twenty-five-year-old son, Ramses II, reigned for sixty-six years, living into his nineties. During his reign, Egypt achieved enormous power and wealth, in large part because of Nubian gold.

C. Diplomatic tablets, written in cuneiform, the diplomatic script of the day, and stored in Amarna's archives, tell of Egypt's constant cat-and-mouse diplomacy with its rivals, offering bribes in gold, chances for diplomatic marriages, and lavish gifts.

D. As long as Egypt had gold, it remained a powerful political presence in the eastern Mediterranean world.

VI. The New Kingdom pharaohs conquered Nubia, took control of its lucrative trade routes, and effectively turned it into a colony. A high official, the "King's Son of Kush," was based at Thebes and administered Nubia along Egyptian lines.

A. An Egyptianized Nubian nobility arose over the centuries, and the worship of Amun spread far to the south. Nubia's gold mines were worked under harsh conditions by prisoners of war, slaves, and convicts.

B. Egypt never again achieved the heights it had enjoyed under Ramses II. The last of the great New Kingdom pharaohs was Ramses III, who came to the throne in 1,187 B.C., at a time of intensifying political troubles beyond Egypt's frontiers.

C. Ramses III spent most of his time protecting Egypt from incursions from desert Libyan nomads and from "Sea Peoples," seamen, professional warriors, and other wanderers who lived from hand-to-mouth on the fringes of the eastern Mediterranean states.

1. In 1,200 B.C., a savage drought wreaked havoc in the Hittite empire.

2. The Sea Peoples turned in desperation on Egypt, but were driven off by Ramses III's army.

D. With Ramses III's death in 1,151 B.C., the country entered a long period of unrest, especially on its frontiers. By 1100, Egypt was once again effectively two countries.

VII. The fabled wealth of the Egyptians faded into history. The pharaohs' diplomatic clout evaporated with their wealth. A thousand years before Christ, the great pharaohs were but a distant memory.

A. After 1,070 B.C., Egypt gradually became a cockpit for various foreign conquerors and even came under Nubian rule for a period in the late eighth century B.C.

B. After a long period of Greek influence and rule, the land of the pharaohs became a province of the Roman Empire in 30 B.C.

C. Lecture Twenty-Three takes us across the late Mediterranean world of Egypt's heyday to the Minoan civilization of Crete.

Essential Reading:

Brian Fagan and Kenneth Garrett, *Egypt of the Pharaohs*, sections 3–5.

Ian Shaw, ed., *The Oxford History of Ancient Egypt*, chapters 6–15.

Supplementary Reading:

Nicholas Reeves, *The Complete Tutankhamun*.

Questions to Consider:

1. What were two major differences between Old and Middle and New Kingdom Egypt?

2. Why was gold so important to the ancient Egyptian kings?

Lecture Twenty-Three
The Minoan Civilization of Crete

Scope: Lecture Twenty-Three takes us to the other end of the eastern Mediterranean world and describes the Minoan civilization of Crete. First, we look at the beginnings of maritime trading and village farming in the Aegean area and the first agricultural settlement at Knossos on Crete. Then, we explore the Palace of Minos at Knossos and the development of Minoan civilization. We survey the far-flung international trade that was the lifeblood of Minoan society. Next, we analyze the distinctive Minoan religious beliefs, which were very different from those of other early civilizations. Finally, we describe the great Santorini eruption of the seventeenth century B.C. and the end of the Minoan civilization two centuries later, as Crete became part of the Greek world.

Outline

I. When Ramses II ruled Egypt in the thirteenth century B.C., he presided over one of the great imperial powers of the eastern Mediterranean world. It was a world built on trade by land and sea, and its tentacles extended from Mesopotamia to the Levant, into Turkey and to the Nile Valley, as far west as Greece and the Aegean Sea, and ultimately, even further, to Italy, North Africa, and beyond.

A. Seafaring vessels plied the waters of the Aegean as early as 4,000 B.C., as long-distance trade networks between the islands and the Greek mainland and further afield expanded rapidly.

1. After 2,500 B.C., many villages and small towns were founded on the Cyclades islands of the Aegean, throughout Crete, and on the Ionian Islands of western Greece.

2. The islands were ideal for farming both olives and vines, as well as some cereal crops. A flourishing trade in olive oil and wine developed rapidly, connecting the islands with a much wider world.

3. The Aegean also became an important metallurgical center, much of the ore coming from as far away as copper-rich Cyprus and Anatolia.

B. The beginnings of town life on the islands promoted considerable cultural diversity throughout the Aegean, a diversity fostered by constant trading activity and by a trend toward greater political and social complexity.

C. Aegean society achieved its greatest complexity on Crete, while mainland Greek society lagged for many centuries, with only sporadic connections offshore.

II. Crete's Minoan civilization was first described by British archaeologist John Evans in 1900, when he embarked on large-scale excavations at the Palace of Minos at Knossos. He named the civilization after the legendary King Minos of Crete, who was said to keep the Minotaur, half-human, half-beast, in a maze under his palace. Evans was struck by the mazelike quality of Knossos and believed Minos had at least some basis in historical truth.

A. Knossos was first settled by village farmers in about 6,100 B.C., at about the same time as Çatalhöyük was occupied in Turkey (see Lecture Fifteen). The Knossos farmers lived in rectangular houses of sun-dried brick in a settlement that soon covered a considerable area.

1. By 3,730 B.C., signs of long-distance trade abound, in the form of exotic imports, such as stone bowls.

2. The first palace appeared at Knossos in about 2,100 B.C., a large structure with many rooms grouped around a rectangular courtyard. Similar buildings occur at other Cretan settlements at about the same time. Each was probably the administrative center of a small part of the island.

3. Knossos soon became the major center of emerging Minoan civilization. The palace was an impressive structure, built over several acres, with the old central court as the center of the complex. A second court lay to the west, the entire design radiating from the central court.

4. The palace was built of rubble faced with ashlar and reinforced with timber tie rods against earthquakes. Despite these precautions, the first palace was destroyed by an earthquake in about 1,700 B.C.

B. The later palace was a much more elaborate structure of the same basic construction, but with an upper story and beautifully plastered and painted walls covered with scenes of ceremonies, gods, animals, and

bulls. Depictions of human figures are mainly religious or ceremonial, including gifts being brought to a goddess and a famous scene of dancers leaping over a prancing bull.

1. Many of the ground-floor rooms were storage compartments for such commodities as grain, beans, and olive oil. The palace was both an important storage place and a major distribution center for the trade and tribute on which Minoan civilization depended.
2. On the west side of the court were a series of religious chambers, among them, a throne room complete with gypsum throne, with residential quarters on the other side of the building.

C. Knossos was the principal palace among a network of palaces that controlled autonomous areas of the island, surrounded by a crowded town that covered 185 acres.

D. There were numerous towns and villages throughout the island, many of them with two-story buildings. The village of Akrotiri on the island of Santorini, 77 miles north of Crete, has survived under many feet of volcanic ash. The two-story houses of the village still stand.

III. Minoan civilization depended on international trade. The Minoans were expert sailors and kept in close contact with surrounding lands. Their skippers plied the seaways of the eastern Mediterranean, coasting from port to port in heavily laden sailing vessels (see Lecture Twenty-Four).

A. Minoan commerce depended on basic commodities—olive oil, timber, and wine, exchanged for metal ores from Cyprus, mainland Greece, Turkey, and elsewhere—for ivory and other exotic goods and materials.

B. The pharaohs were important customers for timber. Cretan visitors appear in Egyptian wall paintings, while the Hyksos palace at Avaris in the Delta bore Cretan murals, obviously painted by a Minoan artist. (For Hyksos, see Lecture Twenty-Two.)

C. Minoan traders worked the entire Aegean, but to what extent Crete controlled the islands politically is a matter for debate. There was certainly strong Minoan influence on the closest islands, such as Santorini.

IV. Minoan civilization reached its apogee between 1,700 and 1,450 B.C., at a time when Crete was self-supporting in food and basic raw materials. By this time, Minoan ships carried commodities from all over the eastern Mediterranean world, from as far away as central Europe and north Africa.

A. Such a high volume of trade mandated some form of record-keeping system. The Minoans used three scripts, inscribed on clay tablets.

1. The earliest script came into use around 2,000 B.C. and was hieroglyphic.
2. It is still undeciphered, as its successor, Linear A, which appears to set down lists of commodities, offerings to the gods, and perhaps, taxes paid.
3. The third script, Linear B, has been partially deciphered and was written in an early form of Greek used by the Mycenaeans (see Lecture Twenty-Four).

B. Minoan religious practices differed sharply from those of the Egyptians, Sumerians, and other early civilizations. They were centered on caves and palaces, where people offered sacrifices to individuals who metamorphosed themselves into deities.

1. There were no supreme Minoan rulers or divine kings in the sense of an Egyptian pharaoh or an Assyrian despot, all conquering in war. The palaces were the backbone of religious life.
2. One theory has it that the Cretan nobility had a vested interest in portraying themselves in divine forms, to the point that the imagery of gods and rulers fused into one. Thus, the so-called throne room at Knossos was a chamber where a ruler accepted offerings in his or her role as a deity. Some Minoan gods and goddesses appear on the walls of the palace.
3. The Minoans also worshipped on hilltops or in caves, where shrines were visited at certain seasons of the year or at times of need. Their religious beliefs may have included occasional human sacrifice.

V. In about 1,628 B.C.—the date is much debated—a huge volcanic eruption on Santorini, north of Crete, blew the center of the island into space. A huge cloud of volcanic ash fell on central and eastern Crete; high tidal waves lashed its shores. Prevailing northwest winds carried the ash far over the eastern Mediterranean. This cataclysm must have damaged Minoan civilization, but the palaces continued to thrive until about 1,450 B.C., when the second Knossos palace was destroyed.

A. Subsequently, a new administration appeared at Knossos, using Greek-based Linear B script, the language used by the Mycenaeans from the mainland. At about this time, the Mycenaeans either conquered or took control of Crete and overthrew Minoan civilization.

B. From this time on, Crete became part of the Greek world and its great civilization vanished into obscurity, remembered only in Homer's epics as the land of Minos.

C. We describe Mycenaean civilization in Lecture Twenty-Four.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 19, middle section.

Peter Warren, *The Aegean Civilizations*.

Supplementary Reading:

Oliver Dickinson, *The Aegean Bronze Age*.

Questions to Consider:

1. What was the economic basis for the prosperity of Minoan civilization?
2. What was the difference between Minoan religious beliefs and those of other early civilizations in the eastern Mediterranean world?

Lecture Twenty-Four
The Eastern Mediterranean World

Scope: This lecture describes Mycenaean and Hittite civilization and the world of international trade that developed in the eastern Mediterranean in the late second millennium B.C. First, we survey Mycenaean civilization, with its palaces and small states, a society of warriors and traders that took over where the Minoan civilization once flourished. From Greece, we move to the eastern Mediterranean, where the Hittites vied with Egypt and Mitanni for control of the lucrative trade routs of the Levant. Then, we describe the remarkable finds from the Uluburun shipwreck, which contained a rich cargo from nine different areas. Finally, we discuss the collapse of the eastern Mediterranean world in A.D. 1200, which effectively ended the era of the earliest civilizations in the region.

Outline

I. The German archaeologist Heinrich Schliemann of Troy fame was the first to excavate at the citadel of Mycenae in southern Greece. His 1876–1877 excavations yielded spectacular chiefly burials with golden masks inside a circular area in the fortifications. Schliemann claimed that the burials were those of King Agamemnon and other Homeric heroes, but we now know that he had unearthed a much earlier society, that of the Mycenaean civilization, which flourished about 300 years earlier than the time described in Homer's epics.

- **A.** The precipitous landscape of mainland Greece makes it ideal terrain for the development of small autonomous states. Mountains break the terrain into small, fertile valleys, which formed the foci of separate states.
- **B.** These kingdoms first became visible around 2,000 B.C., with the expansion of long-distance trade in the Aegean and throughout the eastern Mediterranean. Much mainland trade was with areas to the north, at the edge of Europe. Soon, rich grave goods proclaimed the presence of a small rich elite.
- **C.** Full Mycenaean civilization developed around 1,600 B.C., while Minoan civilization was at its height. The Mycenaeans owed much to the Minoans, including their writing system, Linear B, which developed out of earlier Cretan scripts.

II. Mycenaean rulers based themselves on imposing citadels, the major ones being Mycenae, Pylos, and Tiryns. Mycenae and Tiryns were remarkable for their massive fortifications, built of large, carefully fitted boulders, and for their imposing gateway defenses. In contrast, Pylos, on the west coast, was apparently unfortified, as if the region was more peaceful than the Aegean coast and hinterland.

- **A.** The need for defense seems to have escalated in the thirteenth century, when the defenses at both Mycenae and Tiryns were expanded significantly.
- **B.** Mycenaean palaces were centered around a central hall with a raised hearth, known as a *megaron*. The most well preserved palace, at Pylos, was lavishly decorated with wall friezes and may have had a second story of mud brick.
- **C.** The palaces were administrative centers of small kingdoms, with storerooms for agricultural produce and luxury manufactures. The rulers also acquired wealth from taxes imposed on surrounding rural communities.
  1. Linear B tablets include references to bronze weapons and vessels, female textile workers, and metalworkers and perfume making, as if the palaces were also major craft centers. Thus, the ruler controlled production, living in considerable luxury; there are references in the Pylos tablets to ebony chairs inlaid with ivory and gold.
  2. The Mycenaeans were expert engineers who built a network of paved roads with bridges and culverts around Mycenae, as well as large dams for storing water and canals to divert winter floodwaters.
  3. Mycenaean civilization is remarkable for the prominence of weapons of war, such as shields, spears, and swords, as well as chariots, which may have served as mobile archery platforms.
- **D.** Like the Minoans, the Mycenaeans were aggressive traders who maintained a large fleet of merchant vessels. We know this because of discoveries of Mycenaean painted vessels in locales as far distant from Greece as Egypt, the Levant, and Cyprus.

1. Many of these vessels had small painted containers that once held perfumed oils. Analysis of the constituents of the pottery clays shows that most of the pots come from the Plain of Argos in southern Greece, close to Mycenae.
2. Mycenaean ships traveled regularly to the eastern Mediterranean, but also to Sicily, southern Italy, and Sardinia, even as far as Malta and, perhaps, southern Spain. In Sardinia, the objective was copper, but most Mycenaean trade was within the Aegean Sea and included many slaves.

III. In about 1,200 B.C., Mycenaean civilization collapsed and the great palaces were abandoned. New fortifications were built at Mycenae and Tiryns; Pylos was burned. International trade contracted at a time of economic and political change, when even Egypt was attacked by the Sea Peoples.

IV. The Hittite civilization of Anatolia rose to prominence in the eastern Mediterranean after 1,650 B.C. and extended its power into the Levant, where its armies competed with those of Mitanni, east of the Euphrates River, and Egypt. Eventually, the Egyptians and Hittites divided the Levant between them until the collapse of Hittite society at the hands of invaders from the north in about 1,200 B.C.

A. Mycenaean civilization was part of this ever more complex eastern Mediterranean world, where distant lands were linked by seaborne trade routes over many centuries.

B. We know of this maritime world as a result of fortunate archaeological discoveries of Bronze Age shipwrecks.

V. In 1,310 B.C. (the date is known from tree-ring dates of the ship's timbers), a heavily laden merchant ship sank off the Uluburun peninsula in southern Turkey, taking a rich cargo with her.

A. The ship came from the Levant, perhaps being of Canaanite or Syrian origin. She carried over 350 copper ingots, each weighing about 60 pounds, a load of ten tons sufficient to equip a small army with weapons and armor. The copper has been sourced to Cyprus, while tin ingots aboard came from Turkey.

B. There were dozens of blue glass ingots made in the city of Tyre in the Levant on their way to Egypt. A ton of resin traveled in two-handled jars, used, Egyptian records tell us, as incense in rituals along the Nile.
1. The cargo also included hardwood, Baltic amber from northern Europe, much prized for its magical properties; elephant tusks; tortoise shells; even large jars containing stacked Canaanite and Mycenaean pottery.
2. The Uluburun ship's cargo contained items from tropical Africa, Egypt, the eastern Mediterranean coast, the Greek mainland and Aegean, Cyprus, and even copper from Sardinia. It is a dramatic reflection of the international nature of eastern Mediterranean trade in Mycenaean times.

C. It is hardly surprising that the great powers of the day competed savagely for control of the eastern Mediterranean shore, which lay at the heart of an international maze of land-based and seaborne trade routes.

VI. This international trade was still expanding when Hittite and Mycenaean civilization collapsed in about 1,200 B.C. It played a major part in the spread of iron tools and weapons and ironworking technology across the eastern Mediterranean.

A. Iron was first smelted in the middle of the second millennium B.C., perhaps in the highlands immediately south of the Black Sea.
1. The new metal had many advantages; its sharp, tough edges were invaluable for weapons and for farming and woodworking.
2. Iron ore was plentiful, too, unlike the tin used to alloy bronze. Iron soon became commonplace over a wide area of Europe and Southwest Asia, but it was some time before domestic implements, such as axes and hoes, were made with the new technology.

B. After 1,200 B.C., repeated migrations of foreigners flowed into Anatolia from the northwest, disrupting life in the Hittite empire and in Greece. Rebellious vassals of the Hittites, such as the strategic trading city of Ugarit on the Levant, threw off the Hittite yoke.

C. The eastern Mediterranean world collapsed in chaos as the great powers fell apart, were seriously weakened, or withdrew into themselves. Eventually, economic recovery came in the hands of the Phoenicians, consummate traders whose ships traveled the length and breadth of the Mediterranean.

D. This was a new world, of the Assyrians and the Persians, of classical Greece, the Etruscans, and eventually, Rome, when the Mediterranean was linked from one end to the other by highly intricate mercantile ties that drew both Europe and North Africa into a long-civilized universe. This also was the milieu from which Western civilization emerged.

VII. Section V describes the Asian civilizations that developed during the heyday of the early Mediterranean states.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 19, middle section.

Peter Warren, *The Aegean Civilizations*.

J. G. MacQueen, *The Hittites*.

Lord William Taylour, *The Mycenaeans*.

Supplementary Reading:

Oliver Dickinson, *The Aegean Bronze Age*.

Questions to Consider:

1. What was the role of palaces in Mycenaean civilization?

2. What does the archaeology of shipwrecks contribute to our knowledge of the Mycenaean world?

Cultural Terms and Archaeological Sites

Abu Hureyra, Syria: A hunter-gatherer and early farming settlement in the Euphrates Valley, c. 10,500 to 6,500 B.C.

Acheulian: An early stone technology widely used over Africa and much of the Old World, dates from about 1.9 mya to 250,000 years before present. Named after the town of St. Acheul in northern France.

Adena culture, Ohio: A culture famous for its elaborate mortuary customs and earthworks, c. 500 B.C. to A.D. 400.

Adulis, Ethiopia: Red Sea port of the Aksum civilization, first millennium A.D.

Agricultural Revolution: A term devised by Vere Gordon Childe to describe the transition from hunting and gathering to food production. Now outmoded.

'Ain Ghazal, Jordan: Early farming community that yielded ancestral figurines, c. 7,000 B.C.

Akkad, Iraq: Mesopotamian kingdom that flourished c. 2,334 to 2,112 B.C.

Akrotiri, Greece: A Minoan village destroyed and buried by volcanic ash, c. 1,628 B.C.—the date is controversial.

Aksum, Ethiopia: A highland state in Northeast Africa that traded with both the Mediterranean and Indian Ocean worlds, first millennium A.D.

Altamira, Spain: Late Ice Age cave in northern Spain famous for bison paintings, c. 14, 000 years old.

Amun: Ancient Egyptian sun god.

Ancestral Pueblo tradition: Formerly called the Anasazi tradition, Ancestral Pueblo culture flourished in the Southwest from c. A.D. 1 to 1300.

Angkor: The geographic hub of Khmer civilization in the Tonle Sap region of Cambodia.

Angkor Thom, Cambodia: Capital of Khmer King Jayavarman VII, A.D. 1181.

Angkor Wat, Cambodia: Palace/temple of King Suryavarman II, A.D. 1117.

Anyang, China: Last major capital of the Shang civilization after 1,400 B.C.

Anyang phase: The final phase of Shang civilization, 300 to 1,027 B.C.

Archaic: Hunter-gatherer cultures in the Americas that developed out of Paleo-Indian societies but were increasingly focused on smaller animals and many plant foods.

Avaris, Egypt: A Delta city in Lower Egypt that was the capital of the Hyksos kings, c. 1,650 B.C., and important during the New Kingdom. Avaris was in direct contact with the Minoan civilization of Crete.

Awash, Ethiopia: A region of Ethiopia where *Ardipithecus ramidus* was found, dating to 4.2 to 4 mya.

Bandkeramik tradition: The first farming culture of temperate Europe, c. 5,500 B.C. and later. Named after the linear decoration on their pottery.

Beringia: Geologist's term for the late Ice Age landmass that once comprised northeast Siberia, Alaska, and the Bering Strait.

Boxgrove, England: A hunting site of *Homo erectus* where extensive butchering took place. c. 500,000 to 475,000 B.P.

Cahokia, Illinois: A major center of Mississippian culture, c. A.D. 1050 to 1250.

Calakmul, Guatemala: A Maya center that flourished from the first century A.D. to 820.

Çatalhöyük, Turkey: A major farming town in central Turkey that controlled widespread obsidian trade. Famous for its shrines, c. 7,000 to 6,000 B.C.

Cerro Blanco, Peru: The capital of the Moche state, c. A.D. 600.

Chaco Canyon, New Mexico: A major center of Ancestral Pueblo culture, c. A.D. 490 to 1130. So widespread was its influence that archaeologists often refer to the Chaco phenomenon.

Chan Chan, Peru: The Chimu capital, c. A.D. 1375 to 1475.

Changan, China: Royal capital of the Han Dynasty, first century B.C.

Chauvet, Grotte de, France: Painted Cro-Magnon cave in southeastern France, dating to 31,000 to 24,000 years ago.

Chavín, Peru: An art tradition and set of spiritual beliefs that spread widely through the lowland and highland Andean region, 900 to 200 B.C.

Chavín de Huántar, Peru: The site where the Chavín tradition was first developed. A major pilgrimage center in the first millenium B.C.

Chimor: The Chimu state, north coast of Peru, c. A.D. 1375 to 1475.

Clovis, North America: Paleo-Indian cultural tradition dating to 13,700 to 13,200 years ago.

Copán, Honduras: An important Maya city-state, A.D. 435 to 800.

Coxcatlán Cave, Mexico: A cave in Mexico's Tehuacán Valley that yielded maize dating to c. 2,500 B.C.

Cro-Magnon: A term commonly used to refer to the late Ice Age inhabitants of Central and Western Europe. From c. 40,000 years to the end of the Ice Age.

Cuzco, Peru: Inka royal capital, c. A.D. 1200 to 1533.

Danger Cave, Utah: A cave in the Great Basin with a long history of human occupation going back to as early as 11,500 years ago and lasting into the last 2,000 years.

Dmansi, Georgia: Location that yielded two *Homo erectus* skulls from river gravels, dated to c. 1.7 mya.

Dolní Vestonice, Czech Republic: Late Ice Age hunter-gatherer camps, c. 24,000 years old.

East Gravettian Complex: A late Ice Age hunter-gatherer tradition comprising many different societies in Eastern Europe, c. 25,000 to 10,000 years ago. Named after the La Gravette rock shelter in western France.

East Turkana, Kenya: General location where many early hominid fossils have been found.

El-Amarna, Egypt: Capital of the New Kingdom pharaoh Akhenaten, c. 1,350 B.C.

El Mirador, Guatemala: A huge pre-Classic Maya center , 150 B.C. to A.D. 50.

El Paraíso, Peru: A ceremonial center on the north coast, c. 1,800 B.C.

Eridu, Iraq: Sumerian city, said to have been the home of the god Enlil. Fourth to second millennia B.C.

Erligang phase: Middle phase of Shang civilization, 1,760 to 1,300 B.C.

Erlitou phase: Early phase of Shang civilization, associated with the Xia Dynasty, 2,000 to 1,760 B.C.

Fertile Crescent: Term coined by Egyptologist Henry Breasted to describe a half moon of territory from the Nile Valley to Mesopotamia where the first civilizations developed.

Funan, Southeast Asia: Chinese term for a region in the Mekong Delta area, first millennium A.D.

Gran Dolina, Spain: Site of *Homo erectus* remains dating to about 800,000 years ago.

Great Zimbabwe, Zimbabwe: A major cattle state in southern Africa, c. A.D. 1000 to 1500, and an elaborate complex of stone buildings.

Haçilar, Turkey: A farming settlement of 8,000 B.C. in central Turkey, occupied at least seven times.

Hadar, Ethiopia: Site of the first discovery of *Australopithecus afarensis*, "Lucy," dating to about 3.18 mya.

Hallan Çemi Tepesi, Turkey: Early farming village in eastern Turkey dating to about 8,500 B.C.

Harappa, Pakistan: Major city of the Harappan civilization, which is named after it. Heyday c. 2,000 to 1,700 B.C.

Hogup Cave, Utah: A long-occupied cave in the Great Basin, used as early as 11,500 years ago and occupied sporadically into modern times.

Hohokam tradition: A southwestern tradition from the southern Arizona desert, c. A.D. 500 to 1450.

Holocene: The period of geological time from the end of the Ice Age until today. From the Greek *holos*, "recent."

Hopewell tradition: A widespread religious cult and mortuary practices, as well as exchange network, in eastern North America, c. A.D. 1 to 400.

Huaca Florida, Peru: A ceremonial complex on the north coast, dating to c. 1,700 B.C.

Huitzilopochtli: Aztec god of the sun.

Hyksos, Egypt: A dynasty of kings who ruled Lower Egypt, c. 1,630 B.C.

Jericho, Jordan: Famous biblical city that was also one of the earliest farming communities in the world, c. 10,000 B.C.

Kilu rock shelter, Solomon Islands: A Stone Age site occupied 28,000 years ago, evidence of early Pacific navigation.

Kilwa Island, Tanzania: Major transshipment town of the East African coast, early second millennium A.D.

Klasies River Cave, South Africa: Stone Age cave occupied by modern humans c. 100 to 70,000 years ago and later.

Knossos, Crete: Major palace of the Minoan civilization that began as a farming village. Heyday 2,100 to 1,450 B.C.

Koobi Fora, Kenya: An early hominid butchering site dating to c. 2.5 mya. Also a general location where several early *Homo* fossils have been found.

Koster, Illinois: A stratified site in the Illinois Valley that yielded traces of human occupation as early as 11,500 years ago, with major Archaic settlement between 8,500 and 7,000 years ago.

La Chapelle aux Saints, France: A Neanderthal burial found at this site became the stereotype of the Neanderthals as clumsy, shambling brutes. The idea was later disproved because the La Chapelle skeleton was crippled with arthritis.

Laetoli, Tanzania: A 3.59-million-year-old site with hominid footprints, crucial evidence for early posture and locomotion.

La Madeleine, France: Cro-Magnon rock shelter in southwestern France occupied from before 18,000 years ago to the end of the Ice Age. Type site of the Magdalenian culture.

La Mouthe, France: Painted cave in southwestern France, dating to c. 15,000 years ago.

Lapita cultural complex, southwestern Pacific: A widespread maritime culture that traded widely over the Southeast Asian islands and western Pacific about the time of Christ.

La Venta, Mexico: A major center of the Olmec culture, 800 to 400 B.C.

Le Moustier, France: A cave site near Les Eyzies, France, the type site of the Mousterian culture.

Longshanoid cultures, China: A highly varied set of sophisticated farming cultures found over much of northern China, dating to c. 3,000 B.C. and earlier. Named after a prehistoric village called Longshan.

Magadha, India: Major northern city of the Mauryan civilization, third to second centuries B.C.

Magdalenian: See La Madeleine, France.

Mauer, Germany: Site where a 500,000-year-old jaw of *Homo erectus* was found.

Mauryan civilization, India: A Buddhist civilization based on the Ganges Valley, India, at the height of its power in 269 to 185 B.C.

Meadowcroft rock shelter, Pennsylvania: A cave that shows human settlement perhaps as early as 14,000 years ago.

Meluhha: Sumerian term for the Indus valley region, c. 2,600 B.C.

Meroe, Sudan: Trading city and ironworking center on the Nile River near present-day Khartoum, c. 350 B.C. to A.D. 300.

Mesa Verde, Colorado: A major center of Ancestral Pueblo culture, c. A.D. 1130 to 1299.

Mesoamerica: That area of Central America in which civilizations flourished in ancient times. Encompasses both highlands and lowlands.

Mesolithic: A term used to describe Stone Age cultures in Europe immediately after the end of the Ice Age. From the Greek *mesos*, "middle," and *lithos*, "stone."

Mesopotamia: Greek: "the land between the rivers," the delta between the Euphrates and Tigris Rivers in southern Iraq.

Mezhirich, Ukraine: Late Ice Age settlement of big-game hunters, famous for its mammoth bone dwellings, c. 14,000 years old.

Minos: A legendary king of Crete, said to have kept the Minotaur, half-bull, half-human, in his palace. The Minoan civilization is named after him.

Mississippian culture: An elaborate series of chiefdoms that flourished in the southern and southeastern United States in the late first and early second millennium B.C.

Mitanni, Syria: An important state immediately east of the Euphrates River, c. 1,400 B.C.

Mogollon tradition: A southwestern cultural tradition from New Mexico, c. 300 B.C. to A.D. 1000.

Mohenjodaro, Pakistan: Major city of the Harappan civilization, at its height c. 2,000 to 1,700 B.C.

Monte Albán, Mexico: City and ceremonial center in the Valley of Oaxaca in the mid-first millennium A.D.

Monte Verde, Chile: Paleo-Indian site dated to 13,800 to 14,000 years ago.

Moundville, Alabama: A major Mississippian center, c. A.D. 1100.

Mousterian: The technology and culture used by the Neanderthals, c. 100,000 to 30,000 years ago.

Mycenae, Greece: Mycenaean citadel famous for its royal graves. c. 1,450 B.C.

Nakbe, Guatemala: Pre-Classic Maya center, c. 650 to 300 B.C.

Natufian culture: A hunter-gatherer society in southwestern Asia that boasted of permanent settlements and more elaborate social organization, c. 11,000 to 9,500 B.C.

Nubia: The desert lands upstream of the First Cataract of the Nile. Greek: "Land of the Blacks." Known to the Egyptians as the "Land of the Bowmen" because many Nubians were expert archers.

Obermeilen, Switzerland: A waterlogged farming settlement dating to c. 4,000 B.C.

Oldowan: A generic name for the earliest stone technology ever made, c. 2.5 to 2 mya ago. Named after Olduvai Gorge.

Olduvai Gorge, Tanzania: A gorge famous for its early hominid meat caches, fossils, and stone tools. Dates from about 2 mya to 100,000 years before present.

Olsen-Chubbock, Colorado: A Paleo-Indian bison kill site, c. 6,500 B.C.

Palenque, Mexico: A Maya city-state and ceremonial center, before A.D. 431 to 800.

Paleo-Indian: A term commonly used in the Americas to describe the first cultural traditions, 14,000 to 10,000 years ago.

Pavlov, Czech Republic: Late Ice Age encampment, c. 24,000 years ago.

Pengtoushan, China: An early farming village in the Yangtze Valley, southern China, dating to 6,500 to 5,800 B.C.

Pylos, Greece: Mycenaean palace in eastern Greece, c. 1,450 B.C.

Qafzeh Cave, Israel: A cave containing modern human remains dating to 90,000 to 100,000 years ago.

Quetzalcoatl: Ancient Mesoamerican god, the "Feathered Serpent," a serpent with eagle's feathers and claws.

Sahul: Geological name for the sunken landmass that once joined New Guinea and Australia.

San Lorenzo, Mexico: Early Olmec center, dating to about 1,500 B.C.

Santorini (Thera), Greece: An Aegean island decimated by a major volcanic eruption in about 1,628 B.C.—the date is controversial.

Schoningen, Germany: A coal mine site that yielded 400,000-year-old wooden spears.

Sechin Alto, Peru: Ceremonial center in the Casma Valley, north coast, c. 1,400 B.C.

Shiva: Hindu god, "Lord of the Beasts."

Sima de los Huesos, Spain: A cave complex that yielded the remains of thirty to fifty humans, anatomically more advanced than *Homo erectus* and ancestors of later archaic Europeans.

Sipán, Peru: Site of warrior priest burials of the Moche civilization, c. A.D. 400.

Solo, Indonesia: Location of the first *Homo erectus* fossils, dating to c. 700,000 years ago, found by Eugene Dubois.

Sunda: Geological term for the now-sunken continent that was off Southeast Asia.

Ta Proehm, Cambodia: Temple built by King Jayavarman VII in honor of his mother, c. A.D. 1185.

Tawantinsuyu: The Inka empire, the "Land of the Four Quarters."

Tehuacán Valley, Mexico: A dry valley that yielded the earliest archaeological evidence for maize agriculture, before 3,500 B.C.

Tenochtitlán, Mexico: Capital of the Aztec civilization, A.D. 1325 to 1521.

Teotihuacán, Mexico: A city-state in the Mexican highlands, 200 B.C. to A.D. 650.

Thunderbird, Virginia: An important Paleo-Indian base camp area in the Shenandoah River Valley, used repeatedly from 11,500 to 8,500 years ago.

Tikal, Guatemala: A major Maya city-state and center that began as a village, c. 600 B.C. Tikal's ruling dynasty was founded in A.D. 219 and ruled for 600 years.

Tiryns, Greece: Mycenaean citadel and palace, c. 1,450 B.C.

Tiwanaku, Bolivia: Ceremonial center and state near Lake Titicaca, c. A.D. 450 to 1100.

Tlaloc: Mesoamerican god of rain.

Tlatilco, Mexico: A large village in the Valley of Mexico after 1,300 B.C.

Torralba (also Ambrona), Spain: An elephant butchery site of about 300,000 years ago, of either hunted animals or scavenged carcasses.

Tula, Mexico: Capital of the Toltec civilization, A.D. 900 to 1200.

Uaxactun, Guatemala: A Maya center conquered by Tikal, A.D. 378.

'Ubaid culture, Iraq: Early farming culture in southern Mesopotamia, c. 6,000 B.C.

Ubeidiya, Israel: Site that yielded crude stone tools and fragments of human remains, dated to c. 1.4 mya.

Ugarit, Syria: Important trading city on the eastern Mediterranean coast in the first and second millennia B.C.

Uluburun, Turkey: Site of a shipwreck of 1,310 B.C. that contained cargo from all over the eastern Mediterranean world.

Ur, Iraq: Biblical Ur-of-the-Chaldees, an ancient Sumerian city occupied as a village as early as 5,700 B.C. and in its heyday during the second and third millennia B.C.

Urban Revolution: Term coined by Vere Gordon Childe to describe the transition to urban civilization. Now outmoded.

Uruk, Iraq: One of the oldest cities in the world; came to prominence before 3,400 B.C.

Veda: A Rigveda hymn from South Asia.

Waset, Egypt: The ancient Egyptian name for Thebes, now Luxor, in Upper Egypt.

Xianyang, China: Royal capital of Emperor Qin Shihuangdi, first emperor of a unified China, third century B.C.

Yangshao culture, China: An early farming culture in northern China's Huangho Valley dating to about 4,800 to 3,200 B.C.

Yanxiadu, China: Royal capital of the Eastern Zhou Dynasty, eighth century B.C.

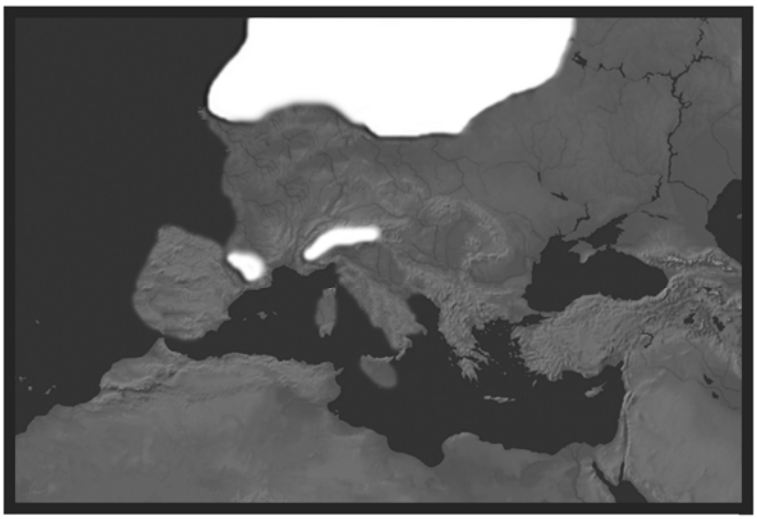
Younger Dryas event: Named after a polar flower, the Younger Dryas event was a 1,000-year-long period of intense cold and near-reversion to glacial conditions that began in about 11,000 B.C.

Zhan'gou: "Warring States" period of the Eastern Zhou Dynasty in China, 458 to 221 B.C.

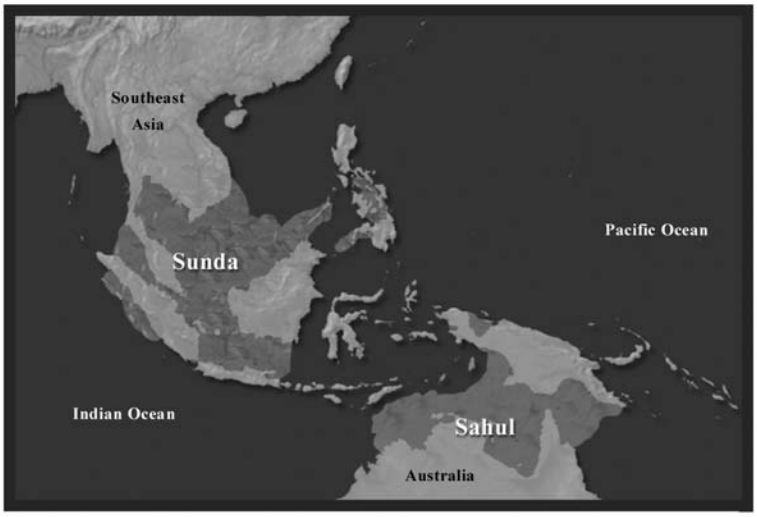
Zhengzhou, China: Shang city dating to about 1,600 B.C.

Zhenla, Cambodia: Chinese term for the Tonle Sap area where Khmer civilization flourished, late first millennium A.D.

Zhoukoudian, China: A deep cave near Beijing, famous for its *Homo* erectus fossils, c. 460,000 to 230,000 years ago.



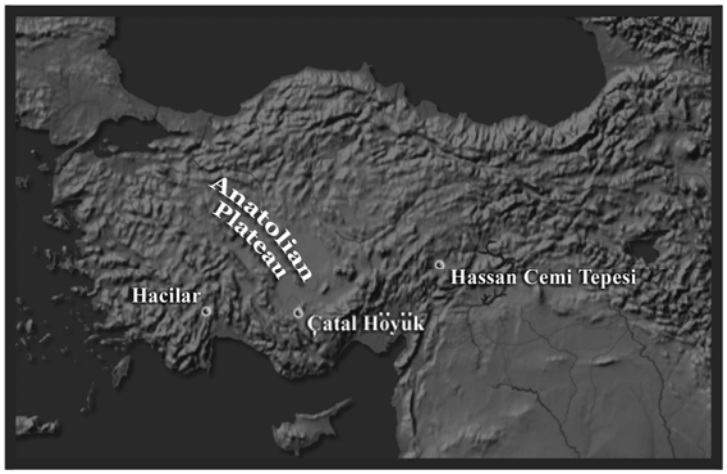
Europe during the last ice age



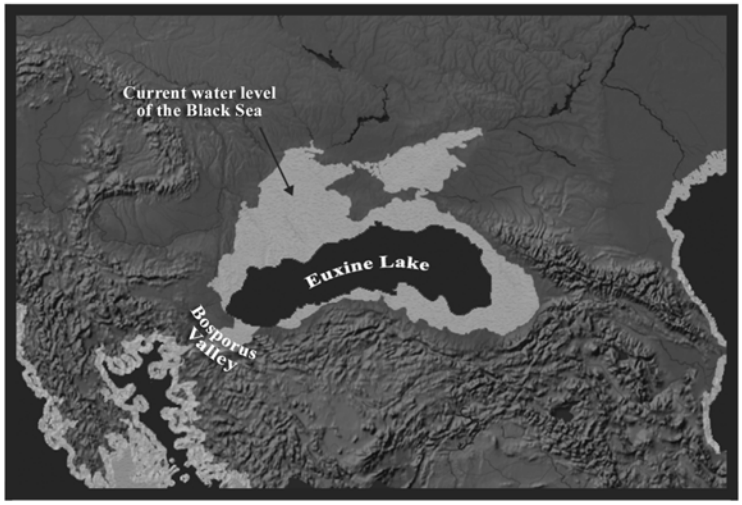
Sunda and Sahul
(with modern land masses projected in gray)

Beringia
(with modern land masses projected in gray)

Prehistoric sites on the Eastern Mediterranean Coast



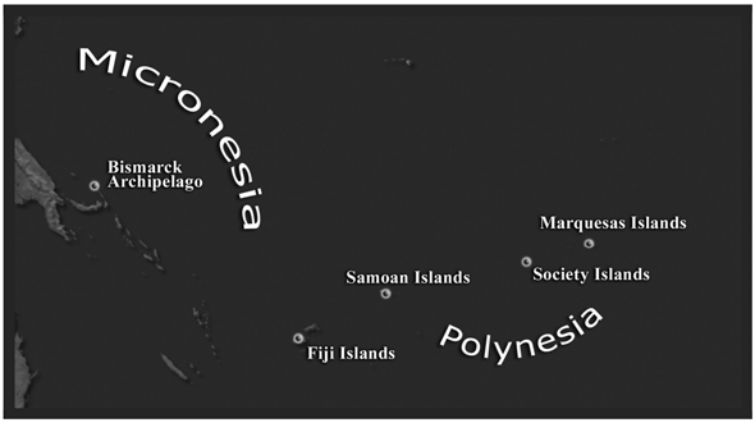
Prehistoric sites on the Anatolian Peninsula



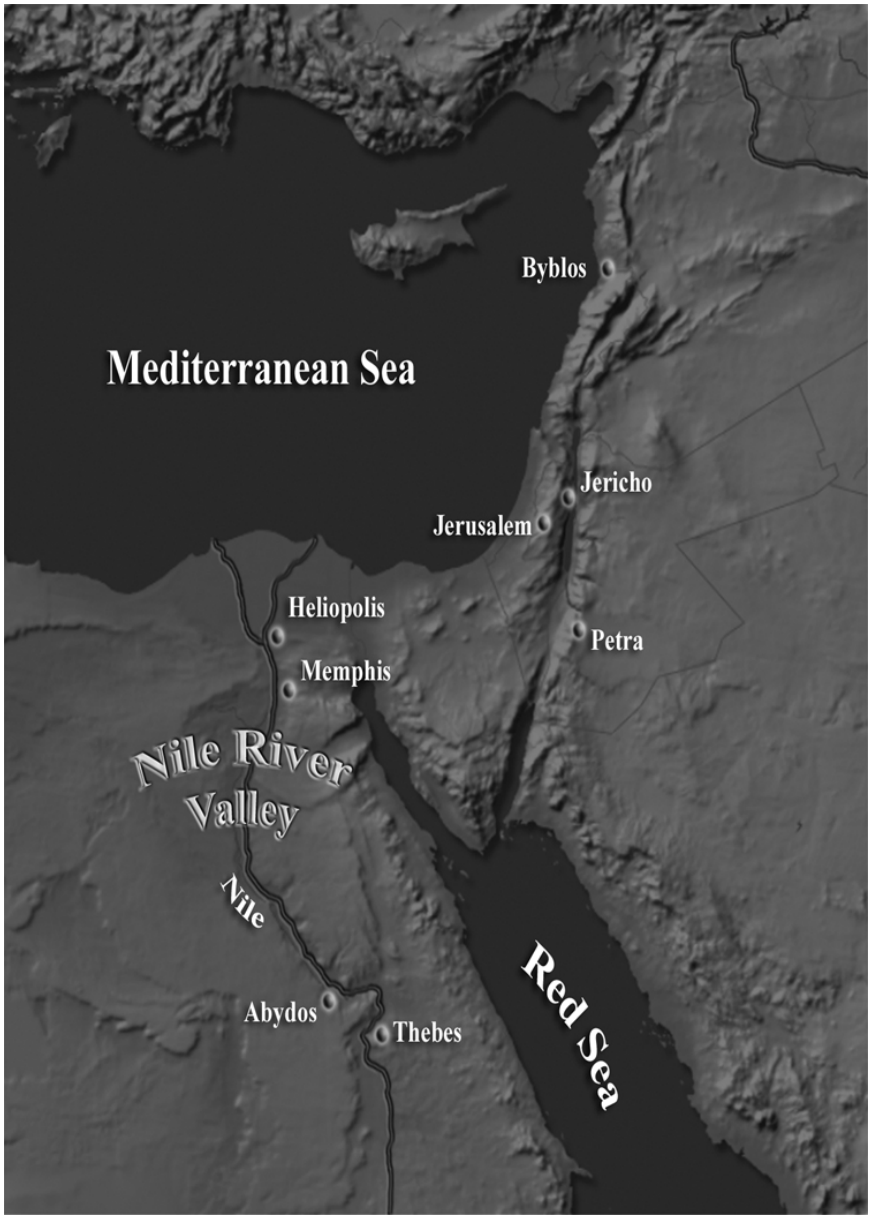
The Freshwater Euxine Lake

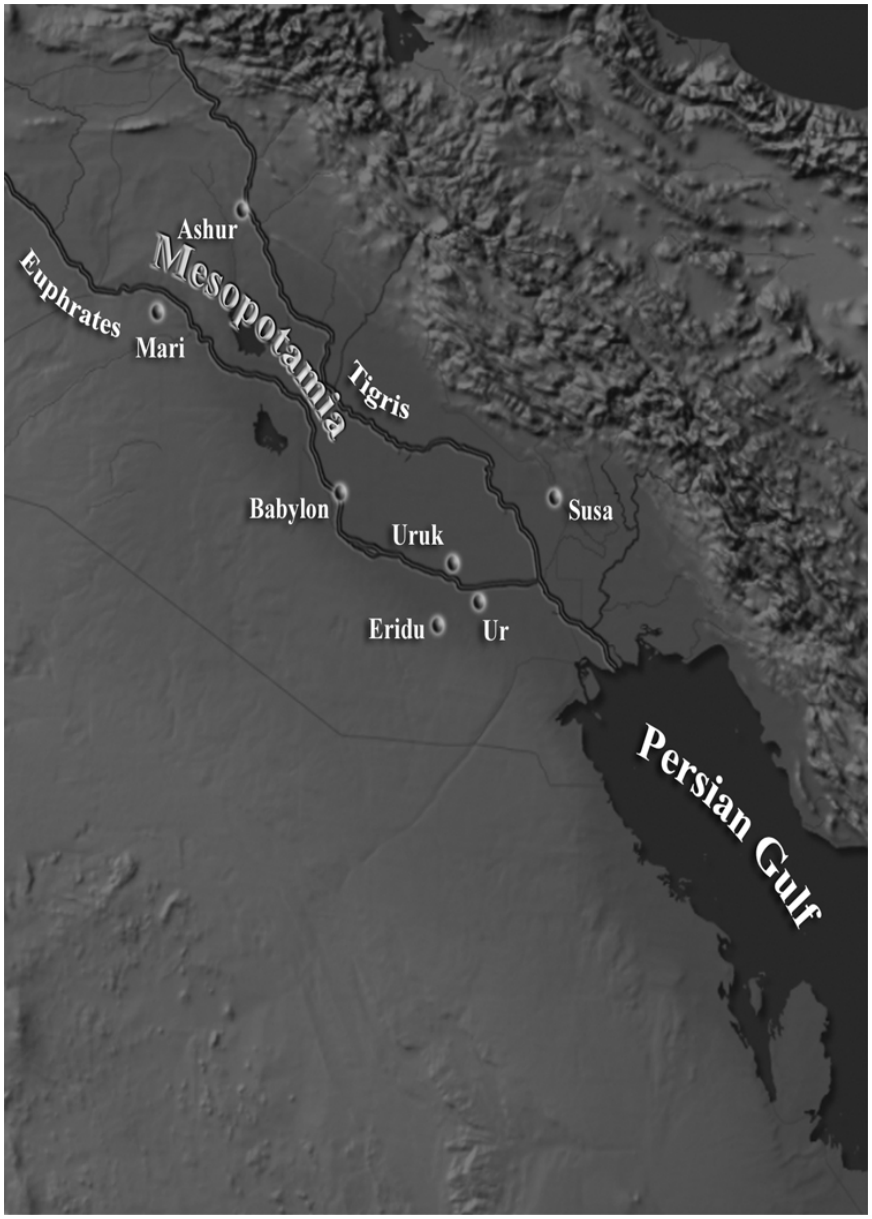
(with the current water levels of the Black Sea superimposed in white)

Prehistoric areas in China

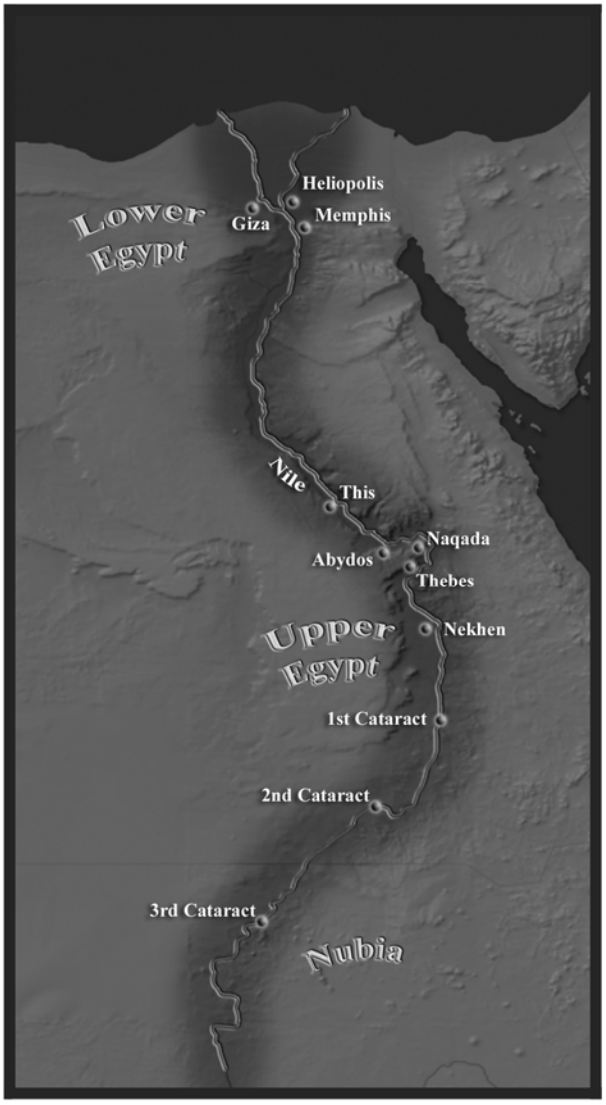


Prehistoric sites in the Pacific





Components of an early trade system in Eurasia



Ancient Egyptian Civilization

Prehistoric Greek Sites

Human Prehistory and the First Civilizations

Part III

Professor Brian M. Fagan

THE TEACHING COMPANY ®

Brian M. Fagan

Professor of Anthropology, University of California, Santa Barbara

Brian Fagan was born in England and educated at Pembroke College, Cambridge, where he graduated with a B.A. in archaeology and anthropology in 1959. He received his M.A. in 1962 and his Ph.D. in 1964. After obtaining his B.A., he worked as Keeper of Prehistory at the Livingstone Museum, in what was then Northern Rhodesia (now Zambia), from 1959 to 1965. During these years, he excavated a Stone Age camp and numerous farming villages dating to the past 2,000 years, becoming one of the pioneers of multidisciplinary African history.

After a year as Director of the Bantu Studies Project of the British Institute for Eastern Africa in Nairobi, Kenya, and a year as Visiting Associate Professor of Anthropology at the University of Illinois, Urbana, Professor Fagan became Professor of Anthropology at the University of California, Santa Barbara, in 1967. He has remained there ever since. He has also been a Visiting Professor at Whittier College and the University of Cape Town, South Africa.

Professor Fagan was a Guggenheim Fellow in 1973 and has received numerous awards, among them the Public Service Award of the Society of Professional Archaeologists and the Public Education Award of the Society for American Archaeology. He received a Distinguished Teaching Award from the University of California, Santa Barbara, in 2000.

Dr. Fagan's numerous books include *People of the Earth* and *In the Beginning*, two widely used university and college textbooks in archaeology and prehistory. His other works include *The Rape of the Nile*, *The Adventure of Archaeology*, *Time Detectives*, and *The Little Ice Age*. He also edited *The Oxford Companion to Archaeology*. He is currently working on a book on climate change and human society over the past 14,000 years.

Professor Fagan is married and has two daughters. His other interests include bicycling, kayaking, sailing, and sharing civilized dinner parties.

Table of Contents

Human Prehistory and the First Civilizations
Part III

Human Prehistory and the First Civilizations

Scope:

Human Prehistory and the First Civilizations is a thirty-six-lecture narrative covering human prehistory from our beginnings more than 2.5 million years ago up to and beyond the advent of the world's first preindustrial civilizations. The lectures are, above all, a narrative, but they also provide critical examinations of the key controversies and issues surrounding such important topics as the first human settlement of the Americas and the origins of agriculture. Glossaries of technical terms and major cultural entities and sites are found at the end of this guide, as is a timeline of major events during prehistoric times.

The course is divided into three parts of twelve lectures each; these three parts are further subdivided into two halves each, making a total of six groups of lectures, or sections. The first third of the course covers prehistory from human origins to the end of the Ice Age. The second third surveys the beginning of agriculture and animal domestication, as well as the world's earliest civilizations in the eastern Mediterranean. In the final twelve lectures, we examine the earliest states in Asia and the interconnected world of the past 3,000 years, ending with the sophisticated chiefdoms and civilizations of ancient native America.

Section I, "Beginnings" (Lectures One through Six), surveys the archaic world of the first humans. The first lecture sets the stage for the course, provides an introduction to world prehistory, and lays out the plan for the lectures. Lecture Two describes our remote ancestry among non-human primates and brings the evolutionary story in East Africa up to the moment when the first toolmaker, *Homo habilis*, appears. Lecture Three discusses the controversies surrounding our earliest ancestors and reconstructs their ape-like life way. Lecture Four explores the world of *Homo erectus*, the evolutionary descendant of the first toolmaker, who spread out of Africa as early as 1.8 million years ago. In Lectures Five and Six, we focus on the first human settlement of Europe as early as 800,000 years before present and visit the bitterly cold Ice Age world of the Neanderthals.

Section II, "Modern Humans" (Lectures Seven through Twelve), tells the story of the great diaspora of anatomically modern humans in the late Ice Age. Lecture Seven discusses the controversies surrounding modern human origins. Did we evolve in Africa or simultaneously in many parts of the Old World? We conclude that Africa was our most likely homeland. Lecture Eight describes how modern humans spread out of tropical Africa into Southwest Asia about 100,000 years ago and gives an overall portrait of the diaspora. Lectures Nine and Ten follow *Homo sapiens sapiens* north into Europe after 45,000 years ago. We explore the world of the Cro-Magnon hunter-gatherers of Western Europe, some of the first artists in the world, then venture out onto the frigid open plains of the Ukraine and Eurasia, where big-game hunters flourished, despite nine-month winters. Lecture Eleven dissects the ongoing controversies over the first human settlement of the Americas, bringing together archaeological, genetic, and linguistic evidence. Finally, Lecture Twelve surveys the Paleo-Indian cultures that developed in North America after first settlement.

Section III, "Farmers and Herders" (Lectures Thirteen to Eighteen), describes perhaps the most important development in all human prehistory, the beginnings of agriculture and animal domestication. Lecture Thirteen describes the rapid environmental changes after the Ice Age that transformed the hunter-gatherer world. These changes preadapted many groups for more sedentary living. In Lecture Fourteen, we visit the earliest farming settlements in the world by the Euphrates and Jordan Rivers, which document the changeover in about 10,000 B.C. Lecture Fifteen discusses the many theories put forward to explain why the changeover took place, as well as the consequences of food production, which were more important than its development. Lecture Sixteen tells of a huge natural cataclysm of about 5,800 B.C., which may have accelerated the spread of farmers into a thickly forested Europe. Lecture Seventeen takes us to Asia, where we discuss the origins of rice, one of the world's major staples, and show how easily stored root crops were a factor in the settlement of the offshore islands of the Pacific. Finally, Lecture Eighteen surveys what we know about early agriculture in the Americas, where there were several centers of plant domestication.

Section IV, "Eastern Mediterranean Civilizations" (Lectures Nineteen to Twenty-Four), describes early civilizations in an increasingly complex eastern Mediterranean world. Lecture Nineteen is a general discussion of the many theories that account for the appearance of urban civilization and the overall attributes of preindustrial civilizations. Lecture Twenty describes Sumerian civilization in the Mesopotamia and the intricate patchwork of city-states between the Tigris and Euphrates Rivers. Ancient Egypt is the subject of Lectures Twenty-One and Twenty-Two,

perhaps the most well known early civilization. Lecture Twenty-One surveys the beginnings of ancient Egypt and the Old Kingdom, with its spectacular pyramids. Lecture Twenty-Two carries the story through the Middle and New Kingdoms, when Egypt became a great imperial power. Lectures Twenty-Three and Twenty-Four cross to the other extreme of the eastern Mediterranean world to discuss civilizations in contact with Egypt. We explore the Minoan civilization of Crete in Lecture Twenty-Three and the Mycenaeans and Hittites in Lecture Twenty-Four. This lecture also discusses the Uluburun shipwreck from southern Turkey, a unique sealed capsule of international trade from 3,000 years ago.

Section V, "Africans and Asians" (Lectures Twenty-Five to Thirty), describes the ancient world around the Indian Ocean and far beyond, which became increasingly interconnected. Lecture Twenty-Five analyzes the beginnings of South Asian civilization and the mysterious Harappan civilization of the Indus, which traded with Mesopotamia. Lecture Twenty-Six resumes the story of South Asian civilization after the collapse of the Harappan and shows how Mauryan rulers on the Ganges encouraged trading much farther afield. Lecture Twenty-Seven examines the phenomenon of the monsoon winds, which revolutionized maritime trading among Africa, India, and Southeast Asia. It also describes Meroe, Aksum, and the coastal civilization of East Africa. Two lectures trace the beginnings of Chinese civilization. Lecture Twenty-Nine describes the Shang civilization and the three dynasties of the north—Xia, Shang, and Zhou. Lecture Thirty recounts the history of the Zhou Dynasties and describes the unification of China and the Han Dynasty, with its contacts with Southeast Asia and India. Lecture Thirty takes us to the flamboyant world of the Khmer civilizations of Southeast Asia, which created the largest religious building in the world.

Section VI, "Ancient Americans" (Lectures Thirty-One to Thirty-Six), describes some of the sophisticated chiefdoms and civilizations that developed in the Americas over the past 3,500 years. Lecture Thirty-One surveys the Pueblo cultures of the North American Southwest and the Mississippian culture of the South and Southeast, the most elaborate society to develop in the north, where short growing seasons prevented state formation. Lectures Thirty-Two and Thirty-Three explore Mesoamerican civilization. Lecture Thirty-Two describes the primordial Olmec culture of the lowlands and the spectacular Ancient Maya civilization. Lecture Thirty-Three moves to the highlands, where we visit the city-states of Monte Albán in the Valley of Oaxaca and Teotihuacán near the Valley of Mexico. We also describe the rise of Aztec civilization. The next two lectures take us to the Andes. Lecture Thirty-Four surveys the beginnings of Andean civilization on the arid north coast of Peru, culminating in the Moche civilization of the first millennium A.D. Lecture Thirty-Five continues the story in the southern highlands, with the rise of Tiwanaku near Lake Titicaca, the Chimu civilization of the coast, and the huge Inka empire. Finally, Lecture Thirty-Six describes the closing centuries of prehistoric times during the European age of discovery and summarizes the main issues and themes of the course.

Section V: Africans and Asians

Lecture Twenty-Five
The Harappan Civilization of South Asia

Scope: Section V describes the early civilizations of South, Southeast, and East Asia. This lecture takes us to South Asia, where we outline the beginnings of the Harappan civilization of the Indus Valley before 2,500 B.C. Second, we explain how maritime trade with Mesopotamia was one of the catalysts that led to the development of Harappan cities and civilization. Then, we analyze a civilization that controlled a huge area and was very different from those of Egypt or Mesopotamia. We describe the cities of Harappa and Mohenjodaro and analyze the ancient religious beliefs that may have been ancestral to Hinduism. Finally, we attribute the collapse of Harappan civilization in about 1,700 B.C. to a combination of environmental and other factors.

Outline

I. Section V of this course surveys the complex world of African and Asian kingdoms and states, many of them linked together by long-distance trading routes, especially after the Christian era. This lecture takes us back to earlier times, to the rise of the Harappan civilization in Pakistan's Indus Valley after 2,600 B.C.

- **A.** South Asia developed its own distinctive civilizations, marked by their ability to assimilate ideas from outside. These distinctive societies came in part from geography—natural barriers formed by mountains, oceans, and tropical rainforest to the east.
- **B.** The Indus River valley was the cradle of South Asian civilization. Its huge alluvial flood plain provided soft, easily turned soils for subsistence agriculture, which began before 6,000 B.C.
- **C.** Agriculture and domesticated animals were probably introduced from the west at an unknown date given that trade routes extended far to the north and west even before farming began.

II. Within two millennia, dozens of village farming societies flourished throughout the Indus plain, many of them boasting fortifications, even planned streets. The summer floods of the Indus fertilized the soil, cultivated with extensive irrigation canals and flood works, with human settlements built above the highest flood level.

- **A.** Between 3,000 and 1,500 B.C., the natural tree and grass cover on the Indus Plain vanished in the face of expanding agriculture, goat herding, and wholesale woodburning for charcoal and to bake bricks. Much of the plain was denuded of natural vegetation, with disastrous consequences for erosion control.
- **B.** Violent, unchecked flooding resulted. The Indus people responded with sophisticated flood works and extensive irrigation canals.
- **C.** Human settlement was dense along the Indus River and on the banks of the nearby Saraswati River. But survival in these harsh environments required intense cooperation at the community level. Kin leaders, chieftains, and priests played leading roles in such efforts, as a new urban civilization developed.

III. During the early third millennium B.C., there was a period of explosive growth on the Indus plain. Villages became towns, then cities. A major shift in trading patterns brought the people of the Indus in direct contact with the Persian Gulf and Mesopotamian civilization.

- **A.** After 2,600 B.C., the Sumerians obtained ivory, metals, oils, and furniture by sea, from a land they called Meluhha, probably the Indus Valley region. By 2,350 B.C., there are even records of Meluhhan villages near the Sumerian city of Lagash in southern Mesopotamia and elsewhere.
- **B.** This was a highly organized trade, conducted by full-time merchants, that had a major impact on the growth of Indus civilization. As it expanded, the new Indus cities became part of a huge trading network that linked the eastern Mediterranean, parts of Eurasia, and western and southern Asia with loose and ever-changing economic ties.

IV. By 2,500 B.C., the Indus people had mastered the basic irrigation and flood control problems of their capricious environment. The Harappan civilization, named after the city of Harappa, developed and flourished over an enormous area of just under half a million square miles, a region considerably larger than modern Pakistan.

A. It would be a mistake to think of this vast area as the center of a homogeneous civilization. The core area covered some 300,000 square miles, but many regional variations existed of Harappan civilization, and most of the inhabitants still lived in agricultural villages.

B. Like the Sumerians, the Harappans adopted the city as a way of operating and controlling their society. There were at least five major Harappan cities, of which Harappa and Mohenjodaro are the most well known, built on artificial mounds erected at enormous cost above river flood level.

V. Mohenjodaro, the largest Harappan city, is six times the size of Harappa and was rebuilt at least nine times. Between 40,000 and 50,000 people may have lived at Mohenjodaro; about 23,500, at Harappa.

A. A high citadel rises at the west end of each city, dominating the street grid and many standardized brick houses below. Mohenjodaro's citadel rises 40 feet above the plain and is protected by massive flood embankments and a perimeter wall.

B. The public buildings on the summit include a pillared hall, perhaps where the ruler gave audience to petitioners and visiting officials. There were no elaborate temples or fine palaces, merely a ceremonial bath lined with bitumen and surrounded by a colonnade. Ceremonial bathing was an important part of late South Indian rituals.

C. The citadels looked down on a complex of at least partially planned streets. The more spacious dwellings, perhaps those of nobility, merchants, and high officials, were built around courtyards, some with two or even three stories. Rows of one-story tenements housed thousands of commoners close to the bazaar and artisans' workshops.

VI. We still know little about the Harappans. We do not know the names of the rulers who presided over their cities, nor do we understand the intricate links between the cities and lesser settlements. Of the five major Harappan cities, only three were the size of Sumerian Uruk in Mesopotamia. While the Sumerians were predominantly urban dwellers, crowded into densely inhabited cities, the Harappans were mainly village farmers, dwelling in settlements that interacted constantly with their neighbors.

A. Everything points to some form of stratified society and centralized government, but the Harappan rulers never boasted of their conquests and deeds on palace and temple walls. They seem to have lived unostentatious lives marked by a lack of lavish public display.

B. One reason we know so little about the Harappans is that their script has never been deciphered. There are at least 400 pictographic symbols, but we do not know what language they depict. We do know from computer analyses that the script was a mixture of sounds and concepts, just like Egyptian hieroglyphs. Some short inscriptions designate the names of individuals and their ranks. Others served as religious sayings or as tags on merchandise.

C. The Harappans were a society of farmers, merchants, seafarers, and menial workers, with only a tiny elite at the pinnacle of society. In this, they were no different from other preindustrial civilizations.

VII. Harappan beliefs reflected their unpredictable and often violent environment, with its extremes of heat and fast-moving floods. Like the Mesopotamians, they seem to have believed that humans lived to serve the gods, who caused crops to grow and soils to be fertile.

A. The primordial roots of later Indian religion may have lain in age-old fertility cults that provided assurance that life would continue, that fertility would be renewed.

1. Minute seal impressions and clay figurines from Harappan sites depict a female deity with conspicuous breasts and sexual organs, who may have embodied earth and life-giving nature for the Indus people.

2. A seal from Mohenjodaro bears a three-headed figure who sits in the yogic posture and wears a horned headdress. He is surrounded by a tiger, an elephant, and other animals. Some Harappan experts think that this god may be the forerunner of the Hindu god Shiva in his role as Lord of the Beasts.

B. If the evidence of figurines and seals is to be believed, the symbolism of Harappan religion bears considerable similarity to that of modern Hinduism.

VIII. Harappan civilization reached its peak after 2,000 B.C. By 1,700, the time of Middle Kingdom Egypt and the Minoan civilization, the Harappan cities were in decline and soon abandoned. Their populations dispersed into small communities; the volume of trade declined dramatically, except, perhaps, in metals.

A. The reasons for this collapse are little understood but may be connected to major flooding and a disruption of farming along the Saraswati River, when the river dried up.

B. Other changes soon followed. By 1,500 B.C., rice was being grown in the Ganges Valley to the east, where wheat and barley would not grow. The center of gravity of South Asian civilization shifted to the Ganges many centuries after the collapse of Harappan urban society.

Essential Reading:

Brian Fagan, *People of the Earth*, chapter 17.

Jane McIntosh, *A Peaceful Realm*.

Supplementary Reading:

Mortimer Wheeler, *The Indus Civilization*.

Questions to Consider:

1. What was one important catalyst for the development of Harappan civilization?

2. What do we know about Harappan religion, and how did their rulers differ from those of the Sumerians?

Lecture Twenty-Six
South and Southeast Asia

Scope: Lecture Twenty-Six continues the story of South Asian civilization after the collapse of Harappan civilization in about 1,700 B.C. First, we describe the Vedic period, when a wave of cultural change and, perhaps, population movements swept South Asia from the northwest. We evaluate the controversies over the origin of the Indo-Aryan (Sanskritic) languages. Next, we describe how iron technology and rice agriculture caused the center of civilization to move to the Ganges plain, as foreign conquerors descended on India. We show how conflicting religious doctrines of Brahmanism and Buddhism were part of the crucible that formed Mauryan civilization between the fourth and second centuries B.C. We also show how Buddhism encouraged foreign trade with Southeast Asia and a much wider world. Finally, we describe the discovery of the monsoon wind cycle in the first century B.C., which created a vast world of interconnectedness across the Indian Ocean and beyond.

Outline

I. During the centuries after the collapse of Harappan civilization, a long process of population movements, assimilation of outsiders with local culture, and acculturation continued in South Asia for a thousand years.

- **A.** These centuries are sometimes called the Vedic period, a time when Indo-Aryan-speaking peoples spread into what is now India and Pakistan. This event is described in the *Samhita*, a compilation of the hymns, or Vedas, of the Rigveda.
- **B.** Many of these hymns were composed earlier, then passed from one generation to the next over many centuries. They tell of heroes and conquests, of battles and military campaigns.
- **C.** To what extent the *Samhita* reflects historical reality is much debated. One school of thought believes that there were many migrations into South Asia, where the migrants intermarried with local groups, giving birth to the Indo-Aryan, or Sanskritic, languages spoken throughout South Asia today.
  - **1.** Other scholars believe that there was no invention, that the Indo-Aryan languages developed indigenously in South Asia and were present many centuries earlier.
  - **2.** Whatever the historical reality, the period between 1,700 and 800 B.C. was a time of major cultural change and technological innovation.

II. By 800 B.C., an indigenous iron technology flourished throughout South Asia. Iron tools accelerated rice production in the Ganges River valley. Two centuries later, sixteen major kingdoms were centered on cities on the Ganges plain.

- **A.** This was also a period of major religious controversy, as well as economic growth. Brahmanism, a form of Hinduism that placed great emphasis on ritual and sacrifice, was the dominant religion at first.
- **B.** Philosophers of the sixth century B.C., such as Buddha and Makhali Gosala, challenged Brahmanism with revolutionary doctrines that militated against sacrifice. Buddhism, with its teachings of personal spiritual development, spread rapidly, becoming the dominant religion in the north within five centuries.
- **C.** These developments unfolded against a background of foreign conquest by outsiders, eyeing the fabled riches of South Asia.
  - **1.** In 516 B.C., King Darius of Persia invaded the northwest and incorporated the Indus Valley briefly into the Persian empire.
  - **2.** Alexander the Great brought Greek culture as far as the Indus two centuries later, but his death at an early age brought a major political vacuum in its wake.

III. The great ruler Chandragupta Maurya of Magadha took advantage of the political turmoil and carved out the Mauryan empire in the third century B.C. At its height, under the rulership of Chandragupta's grandson Asoka, the Mauryan empire extended from Nepal in the north deep into India's Deccan in the south.

- **A.** Between 269 and 232 B.C., Asoka sought to unify his diverse kingdom with a well-defined moral and ethical code based on Buddhist principles.
- **B.** The Mauryan empire was built not only on Buddhist philosophy but also on teachings that the prosperity of Buddhism was closely connected to the dealings of prosperous merchants.

C. Magadha and other northern Mauryan cities prospered greatly from trade with northwestern lands—Afghanistan, Iran, and beyond. Far to the east, the port of Tamluk at the mouth of the Ganges River was a window to a new and expanding world across the Bay of Bengal to Southeast Asia.

D. The older religion, Brahamanism, had placed severe restraints on foreign voyages, partly on what can only be called racist grounds. Asoka and his priests encouraged expanded trade and travel along sea routes that extended not only into Southeast Asia but also far to the west. The trade continued and expanded after the decline of the Mauryan empire in 185 B.C.

IV. In A.D. 70, the Roman emperor Vespasian prohibited the export of metals from the Roman Empire. This development turned Indian merchants' eyes to the southeast and to ways of circumventing Roman trade routes. In this, they were helped by the seasonal cycles of the monsoon winds.

A. In the reign of the Roman emperor Nero (A.D. 54 to 68), there was a huge annual trade deficit between Rome and India. Rome's taste for luxuries fueled the trade, which had roots in much more ancient commerce.

B. The incense trade in frankincense and myrrh, for which there was an insatiable demand in Egypt, had long linked the Nile and Red Sea with the "incense states" of southern Arabia. Since Sumerian times, merchant ships had coasted along age-old inshore routes, sailing from Arabia into the Persian Gulf and on to the Indian coast.

C. The coastal routes were like desert tracks, sailed by lateen-rigged vessels that could sail against the northeast monsoon along the Arabian coast for days, then turn into the Persian Gulf or round the corner to India.

D. Sometime in the first millennium B.C., Indian skippers mastered the secrets of the monsoon winds.

1. Through the summer months, from June to September, they blow across the Indian Ocean from the southwest. In November, they reverse and blow from the northeast.

2. From India, too, it was possible to ride the monsoons across the Bay of Bengal to Southeast Asia, where Indian merchants came in touch with Chinese traders and an entirely different commercial world.

E. At first, the Arabians and Indians kept their navigational secret to themselves, until an Indian ship was wrecked and its skipper brought to Alexandria, Egypt. In about 115 B.C., the first Greek skippers used the monsoon to cross to India. Instead of coasting, they ventured offshore and sailed directly to India on the wings of the southwestern monsoon.

F. The new routing strategies made the Indian Ocean, known at the time as the Erythraean ("Red") Sea, the center of a huge mercantile world. In the east, the trade routes extended to southeastern Asia and, indirectly, to China. The monsoons linked the ivory-rich East African coast with India and the Red Sea with South Asia and helped forge a web of interconnectedness in new and lasting economic relationships.

V. The Indian Ocean routes brought South and Southeast Asia, as well as China, in contact with the Western world.

A. The unchanging cycles of the monsoon winds were the southern equivalent of the ancient Silk Road across Central Asia.

B. As we shall see in Lecture Twenty-Seven, this web of interconnectedness helped create new civilizations and bring otherwise remote peoples into the spider's web of a much wider world.

Essential Reading:

Chris Scarre and Brian Fagan, *Ancient Civilizations*, Part V Introduction and chapter 5.

Supplementary Reading:

Raymond Allchin, *The Archaeology of Early Historic South Asia*.

Questions to Consider:

1. Why was Buddhism so important to the Mauryan empire?

2. What was the significance of the discovery of the monsoon wind cycle to the story of civilization?

Lecture Twenty-Seven
Africa: A World of Interconnectedness

Scope: Lecture Twenty-Seven continues the theme of interconnectedness and explores the contributions of tropical Africa to the Indian Ocean world. We begin with the revolution in desert travel caused by the camel and the rise of Meroe in the Sudan. Then, we discuss the Aksum state in highland Ethiopia, which dominated Red Sea trade in the mid-first millennium A.D. In the third part of the lecture, we visit the stone towns of the East African coast, where a distinctive African and Islamic civilization was engaged in the monsoon trade. Finally, we follow the source of the African gold and ivory trade far inland to the highland plateau of southern Africa and explore Great Zimbabwe and the cattle kingdom of which it was part.

Outline

I. In the eighth and seventh centuries B.C., Nubian lords ruled briefly over Egypt before being conquered by the Assyrians in 667 B.C. They retreated far into their desert homeland. By 350 B.C., their successors resided at the city of Meroe, downstream of modern-day Khartoum in the Sudan.

- **A.** After 500 B.C., the camel had revolutionized desert travel between southern Arabia and the eastern Mediterranean world.
  - **1.** Camels are ideal for crossing deserts because their padded feet travel easily on soft sand, they store fat in their humps, and they conserve water efficiently.
  - **2.** Once efficient load-carrying saddles were developed, the camel replaced the wheeled cart over enormous areas of the desert world.
  - **3.** As a result of camel trade, the Red Sea became the crossroads between Asia and Africa and between India and the Mediterranean world.
- **B.** Meroe prospered off the camel trade. It was a trading city, an important ironworking center, and a major terminus of the camel caravan trade between the Sahara and the Red Sea, as well as with Nile trade routes.
- **C.** Meroe's greatest prosperity was in the first century A.D., after which trading activity shifted further south in the Red Sea region. In about A.D. 330, King Ezana II of Aksum in the Ethiopian highlands conquered Meroe, which passed into obscurity.

II. Aksum lay at a strategic location close to the mouth of the Red Sea and controlled an enormous volume of trade through its port, Adulis. Ideas flowed freely across the Red Sea between Africa and Arabia. Aksum was another gateway to African products, such as gold and ivory, a state ruled by a hereditary elite that controlled both agriculture and trading activity.

- **A.** The powerful monarchs of Aksum maintained overland trade routes with Aswan in Egypt, a thirty-day journey northward, as well as with the Red Sea, eight days away.
  - **1.** They resided in imposing palaces built of timber-reinforced masonry, which were of local design but also owed something to Roman and Arabian influence.
  - **2.** Aksum's monarchs were buried in imposing sepulchers topped by tall masonry columns as much as 108 feet high, carved to represent multistory buildings.
- **B.** For seven centuries after the death of Christ, Aksum was a gateway to tropical Africa for a rapidly changing Mediterranean world. The state's connections extended as far as Rome and Byzantium, to Syria, Armenia, the shores of the Persian Gulf, and to India.
- **C.** Aksum was a symbol of a new, much more international world that in later Islamic hands was to transform Africa and Indian Ocean lands. It lay at the center of a web of trade routes that linked the Mediterranean, India, and Africa.
- **D.** Aksum's rulers adopted Christianity in the fourth century, challenged an expanding Islam in the eighth century, but went into decline by the tenth, as Islam grew stronger and erratic rainfall caused the population to disperse.

III. In A.D. 70, an anonymous Egyptian-Greek skipper compiled *The Periplus of the Erythraean Sea*, a set of sailing directions to the Indian Ocean. The manual describes the monsoon ports and the east coast of Africa, where ivory; rhinoceros horn, a much-prized aphrodisiac; tortoise shell; and mangrove poles were to be found.

A. For centuries, the East African coast lay on the edge of the Indian Ocean world, visited by occasional traders, but as the monsoon trade intensified, East Africa was drawn into the expanding web of interconnectedness. By the tenth century, Islam and Islamic merchants from Arabia had reached the coast.

1. Soon, small stone-built towns clustered at strategic bays. Lamu in northern Kenya was one such port. So was Mombasa, also in Kenya, and the southern port of Kilwa Island off the Tanzanian coast, where an important sultan dwelt.

2. Kilwa was an important transshipment point for many centuries, where gold, ivory, and slaves were sent north and east to Arabia and India in heavily laden *dhows*.

B. For more than 800 years, a distinctive cosmopolitan coastal civilization blended African and Islamic culture in towns controlled by prominent merchant families. Behind them lay the vast, little visited African interior, from which gold, ivory, and copper came, brought to the coast by intermediaries.

C. The East African trade generated enormous profits, because African ivory was much in demand in India, being softer to carve than that of the Indian elephant. More prosaic commodities, such as mangrove poles from coastal swamps, were also staples of the trade.

D. In exchange, the coastal merchants sent cheap Indian cloth and glass beads, seashells collected by the thousand from local beaches, and other baubles to the interior, goods worth a fraction of the value of the exports. But some of these imports had enormous prestige value in the far African interior as symbols of chiefly authority.

E. Much of Kilwa's gold and ivory trade came from the south, from Sofala, close to the mouth of the Zambezi River. The great river served as a conduit to the interior, to the sources of gold and ivory that lay on the interior plateau, hundreds of miles inland.

F. These highlands were important cattle country, inhabited by Shona-speaking farmers and herders, whose ancestors had lived there for centuries before the arrival of the first outsiders from the coast in search of gold and ivory.

IV. By A.D. 1000, as Islam was spreading to East Africa, a series of cattle kingdoms came into being on the plateau between the Limpopo and Zambezi Rivers. The largest of these was centered on a low hill and a valley, which brought moisture and cool winds from the distant Indian Ocean. The hill became an important center for rainmaking ceremonies and ancestor cults.

A. Over the next four centuries, powerful chiefs made their headquarters there, erecting stone enclosures atop the hill and in the valley below. The site became known as *dzimba hoye*, "venerated stones," a Shona expression meaning chiefs' houses or graves, whence Zimbabwe, or Great Zimbabwe.

B. Great Zimbabwe prospered both as a religious center and as a focus of the coastal gold and ivory trade between about A.D. 1100 and 1450.

1. Zimbabwe's Great Enclosure was a secluded place, with its massive stone wall of easily quarried granite more than 800 feet long and 32 feet high. This was the residence of the chief, who dwelt in a large mud-and-thatch dwelling inside.

2. The stone-walled enclosures atop the nearby hill were important cult centers for both rainmaking and ancestor worship.

C. By the fifteenth century, Great Zimbabwe was the most prosperous of some ten chiefdoms that flourished on the plateau. Each controlled a territory about 100 miles across, sufficient land to allow both shifting cultivation and large-scale grazing of sizable cattle herds. At Zimbabwe's height, as many as 18,000 people may have lived in its vicinity.

D. Zimbabwe's chiefs measured their wealth not only in cattle but in imported goods, such as Chinese porcelain, glass beads, seashells, and of course, gold and ivory.

E. Given that they lived in an environment of unpredictable rainfall, endemic cattle diseases, and only moderately fertile soils, long-distance trade may have been a prudent risk-management strategy for chiefs who were accustomed to raise armies and enforce tribute assessments over a wide area.

F. Zimbabwe was abandoned in about A.D. 1500, just as the first Portuguese caravels explored the East African coast.

V. At the other end of the continent, West Africans had been major players in the Saharan gold trade since at least the end of the first millennium A.D. In Christopher Columbus's time, it is said that at least two-thirds of Europe's gold came from the kingdom of Mali in sub-Saharan West Africa.

A. West Africa was drawn increasingly into the European orbit after the Portuguese rounded the bulge of Africa in the 1430s. In 1488, they were round the Cape of Good Hope and, by 1497-1498, had landed at Mozambique and Mombasa and crossed to Goa in India on the monsoon winds.

B. During the next four centuries, Africans were drawn increasingly into a much wider economic world, fueled by insatiable demands for raw materials and slaves. As they had been in earlier times, African rulers were aggressive in seizing new opportunities and in acquiring wealth and political prestige. In this, they were merely acting like their predecessors, pioneers in a world of interconnectedness.

C. We pursue this theme of interconnectedness further in Lecture Twenty-Eight, but first, we must describe the origins of Chinese civilization.

Essential Reading:

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 12.

Brian Fagan, *People of the Earth*, chapter 16.

Supplementary Reading:

Roland Oliver, *The African Experience*.

Questions to Consider:

1. What was the importance of Meroe and Aksum? How did the camel affect their prosperity?

2. What motives did African leaders have to become engaged in foreign trade?

Lecture Twenty-Eight
The Origins of Chinese Civilization

Scope: This lecture describes the origins of civilization in northern China, a development that unfolded in about 2,000 B.C. First, we describe the increasingly complex Longshanoid cultures that developed over a wide area of northern China after 3,000 B.C. Then, we describe the three dynasties of early Chinese history—Xia, Shang, and Zhou—represented by the Shang culture in the archaeological record. Next, we explore Shang urban clusters and the culture of the elite, separated from commoners by a vast social chasm. Finally, we evaluate the role of the rulers as ritual specialists, their divination practices, and the precise nature of the realms over which they presided. We conclude that the Shang was one of many states forming at the same time in northern China.

Outline

I. In Lecture Seventeen, we described the increasingly sophisticated farming societies that came into being throughout China after 3,000 B.C. These Longshanoid cultures were regional societies that were in regular contact with one another.

- **A.** Longshanoid societies were dominated by small emerging elites, who competed vigorously with one another for economic and political power and prestige.
  - **1.** Although the cultures were, of course, very different, the process was somewhat akin to that along the Nile before the unification of Egypt, when a complex game of political and economic Monopoly played out between competing states.
  - **2.** As the competition and interaction intensified, Longshanoid culture became more homogeneous over a large area of northern China.
- **B.** For the first time, earthen fortifications surrounded Longshanoid settlements. The walls were made of layers of rammed earth laid between parallel lines of timber shuttering. The layers were then compacted by workers using long poles until the wall reached the desired height. The labor involved was enormous, the area enclosed ranging from 2 to 42 acres.
  - **1.** These were warlike times, reflected by decapitated victims that were thrown into dry wells and the skulls of human sacrifices under the earthen platforms that supported the houses of the elite.
  - **2.** The Longshanoid elite displayed their power and wealth in other ways, too. Their potters made a highly distinctive form of glossy black pottery using a potter's wheel.
  - **3.** These vessels were fired in kilns that could achieve temperatures of around 1,200 degrees centigrade, hot enough to smelt and cast copper. Copper and bronze vessels soon became an all-important mark of elite status in Longshanoid society.
- **C.** Longshanoid lords also adopted scapulomancy, the practice of divination by applying heated implements to animal shoulder blades and tortoise shells. But it was not until later that the questions asked of the diviners and their replies were inscribed on the shoulder blades.
- **D.** In nearly every respect, the institutions and economic practices of Longshanoid societies foreshadowed the Shang civilization, which appeared in northern China before 2,000 B.C.
- **E.** Longshanoid cultures were a regional tradition, one of many such traditions that emerged developed in China before civilization developed. They are, however, the most well known.

II. Chinese historians of the Han period (206 B.C. to A.D. 220; see Lecture Twenty-Nine) traced the main events of early Chinese history. The scheme they came up with was a sequence of three major dynasties in the north: Xia, Shang, and Zhou, leading to the accession of the first emperor of a unified China, Qin Shihuangdi, in 256 B.C.

- **A.** Traditional Chinese history begins with three shadowy mythological ancestors—Fu Xi, the common ancestor; Shen Nong, the first planter of crops; and Zhu Rong, the inventor of fire. Five equally mythical rulers follow before the beginning of Chinese history proper, with the Xia, the first of the three dynasties.
- **B.** We know almost nothing about Xia, except that a study of place names associates the dynasty with Henan province in the middle valley of the Huangho River. We also know that an eclipse took place in the reign of the fourth Xia emperor in 1,876 B.C.

C. Both the Xia and Shang Dynasties belong in archaeological terms within a single archaeological culture, the term Shang being interchangeable between the archaeological culture and the historical dynasty.

D. Shang *culture* began in about 2,000 B.C. and ended with the overthrow of the last Shang ruler in 1,027 B.C.

E. The same culture divides into three broad phases:

1. The Erlitou phase (2,000 to 1,760 B.C.) coincides with the Xia Dynasty but is technically early Shang civilization,

2. The Erligang phase (1,760 to 1,300 B.C.) marks the first part of the Shang Dynasty, whose leaders overthrew their Xia predecessor in the eighteenth century B.C.

3. The Anyang phase (1,300 to 1,027 B.C.) began with the move of the royal capital to the city of Anyang, an enormous site extending nearly 4 miles along the Huan River.

III. From the very beginning, both Xia and Shang rulers lived apart from the common people, most of whom lived clustered around royal compounds or in rural villages. Some Chinese historians refer to a "green circle" of farming villages that surrounded royal centers. From the very beginning, a vast social chasm separated elite from commoner.

A. Shang cities were much larger than Longshanoid enclosures, some fortified areas enclosing as much as 800 acres. At Zhengzhou, an immense compound with rammed-earth walls extending 4.5 miles and more than 30 feet high in places separated the royal precincts from a halo of sites around the main compound—bronze workshops, cemeteries, pottery kilns, and commoners' dwellings.

1. Anyang, the first Shang city to be excavated, was even larger but without the huge enclosure wall at Zhengzhou. A ritual center covered 2.5 acres, part palace and part temple, surrounded by cemeteries for elite and commoners and all manner of artisans' workshops and farming villages.

2. It is probably more accurate to refer to Shang cities as "urban clusters," because they were far more dispersed than later compact Chinese cities.

B. Anyang is famous for its royal tombs, found in a cemetery of 1,200 burials.

1. The thirteen royal sepulchers stand out because of their size and contents. Eight of them were cruciform shaped with a wooden burial chamber in the center of the pit, richly decorated and lacquered.

2. Their royal owners were buried with magnificent carved jades, fine bronzes, weapons, and many clay vessels. One boasted of fifty-nine decapitated sacrificial victims, laid out in eleven rows. In death, as in life, the Shang elite were surrounded by the bodies of people sacrificed in honor of their ancestors—as many as 600 under one house alone.

IV. The Shang rulers were themselves ritual specialists, probably the sole intermediaries between the people and the ancestors and gods. Most rituals unfolded within the royal precincts, among them, divinations and ancestor worship, which involved human sacrifice.

A. The rulers used animal shoulder blades to pose questions to the ancestors, who in turn, interceded with the gods.

1. Tens of thousands of these inscribed bones have survived; the divinations were interpretations of the cracks made in the bone by a heated implement. The cracks were the divine responses.

2. Both the questions and the answers were inscribed on the shoulder blade. An expert priest could control the direction of cracks and use them as a powerful means of giving advice.

B. The Shang also used a writing system of short inscriptions so effective that it endured in much modified form to become the foundation of modern Chinese scripts.

C. The Shang state, centered on the ruler and the royal lineage, was essential a feudal organization. Local lords swore loyalty to the Shang king but sometimes were at war with each other. Some oracle bones refer to an inner "capital" and an outer "domain."

V. The Shang realm in political terms was obviously smaller than the area of cultural influence, with the area of effective political control extending far to the south at times and over lesser areas at others.

A. As in other preindustrial civilizations, the periphery of the kingdom changed constantly, often being under the control of semiautonomous lords. Warfare was constant, most of it on foot. Chariots were introduced from the west in about 1,300 B.C. and were used by the elite but not on the battlefield.

B. Shang civilization was glitteringly wealthy, especially famous then, and now, for its superb bronze metalwork—ritual vessels made with intricately fitted clay molds. This sophisticated method contrasts with the simple casting and hammering methods used in the west. The shapes, decoration, and uses of Shang bronze vessels were ritually prescribed. They were used at banquets honoring the ancestors.

C. Shang was the most important early civilization in China, but it covered only a small area of northeastern China, surrounded by other still-unknown small states that came into being at about the same time.

D. In 1,027 B.C., the last Shang ruler was overthrown by a rival state to the west, the Zhou. We describe the next millennium of Chinese civilization in Lecture Twenty-Nine.

Essential Reading:

Gina Barnes, *China, Korea, and Japan*, chapters 8–9.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 6.

Supplementary Reading:

Kwang-Chih Chang, *Shang Civilization*.

Questions to Consider:

1. What does Chinese history tell us about the origins of Chinese civilization?
2. What was the role of Shang rulers in religious life?

Lecture Twenty-Nine
China: Zhou to the Han

Scope: Lecture Twenty-Nine continues the story of Chinese civilization, beginning with the collapse of the Shang Dynasty in 1,027 B.C. The first part describes the Western and Eastern Zhou periods, the growth of densely populated cities, and the endemic warfare. Next, we review the Warring States period of the late first millennium B.C., which culminated in the unification of China under Emperor Qin Shihuangdi in 221 B.C. We show how the lavish outliers of his tomb reveal much about his methods of waging war. Finally, we summarize the achievements of the Han Dynasty, which brought China into contact with the West via the ancient Silk Road and with India by connecting to the ancient monsoon wind routes of Southeast Asia.

Outline

I. In Lecture Twenty-Eight, we saw how urban clusters and states first developed in northern China during the time of the Xia and Shang Dynasties (2,000 B.C. to 1,027 B.C.). Archaeologically, the material remains of these dynasties are grouped under the generic label of the Shang civilization.

A. The rival Zhou Dynasty overthrew the last Shang ruler in 1,027 B.C. During the next two and a half centuries, the so-called Western Zhou period, the centralized government imposed by the Shang disintegrated as subject kingdoms pulled themselves away from central authority.

B. The ensuing Eastern Zhou period, which began in 770 B.C., when the rulers of the day moved their capital eastward, witnessed dramatic changes in Chinese society. For the first time, crowded cities in the classic sense appeared, ironworking technology came into widespread use, and trade expanded exponentially, to the point that coinage was invented to standardize transactions and values.

1. In the eighth century B.C., cities still covered large areas, with the residences of the elite defended by rammed-earth walls. Relatively few people lived behind these walls.

2. Three centuries later, the character of urban settlement had changed completely. Cities were no longer clusters of compounds, workshops, and rural villages. They were densely occupied, with thousands of inhabitants.

3. The largest city, Yanxiadu, may have housed as many as 316,000 people and covered about 7.5 square miles.

C. Such large cities were also the royal centers, the elite living in palace areas within, or close to, the cities. In Shang times, such compounds had been entirely separate. Now, there were more separate enclosures within the cities, as if royal power was somewhat weakened.

D. Eastern Zhou cities were centers of government, as well as trade and manufacturing. Iron foundries abounded after the fifth century B.C., their products sold to the surrounding rural population in large urban markets. These were true cities, with complex relationships of interdependency with surrounding rural populations.

II. Iron metallurgy developed independently in China, considerably later than in the West, and was widespread by 500 B.C. Chinese artisans had long been producing bronze vessels with a high iron content, and the new metal gradually came into use.

A. Whereas Western smiths smelted iron without adding carbon, which was then forged by repeated hammering and heating, the Chinese added extra carbon to the iron during smelting. This lowered the melting point of the iron and yielded not a spongy bloom but molten ore. This they could cast into finished products in the same way as bronze.

1. Within a couple of centuries, the smiths had found ways of regulating the amount of carbon taken up by the iron, thereby creating a mild steel, far superior to anything in the West until the late Middle Ages.

2. Iron was cheaper to produce than bronze and was soon used to produce enormous numbers of agricultural tools. This enabled the Eastern Zhou to expand agricultural production in a time of rising populations, with the help of huge iron refineries built near major forests.

B. The invention of coinage as early as the seventh century B.C. stimulated trade throughout China. It also made it easier for rulers to collect revenues from their domains.

III. At the time, there was no centralized state, merely a hodgepodge of more than 130 separate states. Inevitably, wars broke out to consolidate these tiny kingdoms. Between 770 and 458 B.C., the wars were small scale, as much concerned with the prestige associated with chariots deployed on the battlefield as anything else.

A. By the fifth century, there were 22 states instead of 130. Now the effects of population growth and mass-produced iron weaponry gave birth to armies with tens of thousands of heavily armed men.

1. Cavalry and massed infantry ruled the day. Chariots were an anachronism.

2. The crossbow, a Chinese invention, came into use, a weapon capable of propelling an arrow faster and more powerfully than a conventional bow and a boon to a besieged city's defenders.

B. This Zhan'guo, or "Warring States," period lasted for more than two centuries, from 458 to 221 B.C. Military campaigns never ceased, as small states frantically built defensive walls around their territories, at massive expense, to protect them. By 300 B.C., only four major states survived: Qin, Zhao, Han, and Chu.

C. In 260 B.C., the ruler of Qin defeated his greatest rival, Zhao, and slaughtered some 400,000 prisoners in the process. His successor completed the conquest of all his rivals. In 221 B.C., he declared himself Qin Shuihuangdi, "First Emperor," of a united China.

IV. Shihuangdi was a formidable warrior with a mighty army but also an expert administrative reformer. His reforms broke with the tradition of allowing conquered lords to maintain their lands and divided China into provinces of roughly equal size. The governors answered only to the emperor. He created an imperial government, going so far as to order all local histories of earlier times destroyed.

A. Like other great empire builders, Shihuangdi was concerned with efficient communication. He built five major trunk roads of rammed earth from his capital at Xianyang, the longest, to the southwest, extending more than 4,500 miles to Yunnan.

B. Shihuangdi is also famous for building a Great Wall, to fence off nomads from the arid steppes. This rammed-earth fortification, not the wall seen by tourists today, extended more than 3,000 miles, from the boundaries of Korea to the arid Ordos desert in the west.

C. Shihuangdi's ruthlessly efficient rule centralized power as never before.

1. The megalomaniac, paranoid emperor died in 210 B.C. He was buried in a huge sepulcher under a 164-foot-high earthen mound east of the modern city of Xian.

2. The sepulcher has never been excavated but is said to contain a map of China with the major rivers flowing in mercury. Booby-trapped crossbows were installed to kill looters. The artisans who built the tomb were executed to preserve its secrets.

D. The writings of later Chinese historians described these details, which were thought to be fiction until a vast terracotta regiment came to light in four huge pits dug to the east of the tomb, a symbolic guardian for the emperor.

1. The largest pit contained 3,210 life-size terracotta statues of Qin soldiers. The soldiers are arranged in eleven columns, each depicted in full armor and carrying bronze-tipped spears. Cavalry and crossbowmen, even a command and control unit, came from other pits.

2. The terracotta regiment is a priceless source of information on the armies that kept Qin in power.

E. Qin's dynasty did not survive long after his death. A rebel army sacked his capital in 206 B.C. A new dynasty, the Han, took control and ruled China for four centuries.

V. The Han emperors took over the administrative apparatus set up by their predecessor. They were efficient administrators who presided over a vast empire, mainly comprising peasant farmers living in the countryside. A census, organized by the government in A.D. 2, estimated that about 12 million households lived in Han domains, about 58 million people.

A. The Han capital, Changan, was across from Shihuangdi's destroyed city. The rectangular grid pattern of the city encompassed 3.7 by 4.7 miles, with rammed-earth walls 52 feet thick at the base and protected by a moat. Inside the walls lay palaces, shrines, markets, workshops, and residential quarters.

B. Changan was a crowded city that gave the Han rulers constant concerns about feeding their subjects. Despite massive efforts, they were never able to control the flooding of the Huangho River, which could cause widespread famine.

C. During the Han period, southern China came into prominence with its high agricultural productivity and abundant iron ore deposits. The Han made many industries, as well as coinage and state monopolies, among them, iron working, a logical way to control weaponry and the danger of rebellion.

D. The Emperor Wu Di (141 to 87 B.C.) waged massive campaigns against warrior nomads in the north. He extended Shihuangdi's Great Wall to the west as far as the Tarim Basin and established guard towers along it.

VI. The expansion of the Great Wall provided a protected corridor to the west into Central Asia. This was the first leg of the celebrated Silk Road, which passed silk and other luxuries overland to the West.

A. Few merchants made the entire journey. Rather, goods were passed from trader to trader along the way. Both goods and ideas flowed into China along this ancient route, among them, Buddhism, which arrived from India in the first century A.D.

B. Wu Di also campaigned in the south, against Vietnamese kingdoms. He and his successors maintained commercial and diplomatic ties with the states of Southeast Asia. Han ships traveled as far as India, bringing China into the orbit of the monsoon wind networks of the Indian Ocean.

C. Until A.D. 200, Han China was an active partner in an expanding international world. But in that year, the dynasty fell and China was fragmented once again.

D. By this time, new states in Southeast Asia were rising to prominence astride the trade routes that had linked China with the West. We describe these in Lecture Thirty.

Essential Reading:

Gina Barnes, *China, Korea, and Japan*, chapters 9–12.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 14.

Supplementary Reading:

Wang Zhongshu, *Han Civilization*.

Questions to Consider:

1. What was the significance of iron technology to Zhou and Han society, and how did it differ from that in the West?
2. How did Emperor Qin Shihuangdi and the Han rulers consolidate their rule over a unified China?

Lecture Thirty
Southeast Asian Civilizations

Scope: Lecture Thirty concludes Section V with a description of the spectacular Khmer state of Southeast Asia. First, we trace the origin of Southeast Asian civilization from its indigenous roots and assess the impact of Chinese and Indian outsiders on state formation. Then, we describe the rise of divine kingship from Indian roots and the uniquely centripetal Khmer civilization, which developed in the late first millennium A.D. We visit Angkor Wat and Angkor Thom, the two greatest royal monuments built by the Khmer kings. Finally, we analyze the weaknesses of Khmer civilization, where a strong king at the center preserved the boundaries, while a weak ruler would lose possessions at the edges.

Outline

I. As we saw in Lecture Seventeen, rice was the staple crop for much of Southeast Asia. Three major river systems were fertile enclaves, inundating their floodplains each year with shallow water, where long-stalked, fast-maturing rice could be grown. The middle Thailand and Chao Phraya delta, the Mekong and Tonle Sap plains, and the Red River and other plains of Vietnam each nurtured complex societies for many centuries, also acting as major communication arteries and trade routes. In this lecture, we focus on the Mekong and Tonle Sap.

- **A.** Rice was domesticated by at least 5,000 B.C. For at least 4,000 years, autonomous and egalitarian rice-farming societies flourished throughout Southeast Asia. They traded widely with one another and began to use bronze technology after 2,000 B.C.
- **B.** After 600 B.C., iron technology arrived in the region, at a time of major cultural and social change. It is uncertain whether this was introduced from India or China.
- **C.** For the first time, larger communities appear, which became important centers for craft production. The appearance of these larger settlements may have also coincided with the introduction of wet rice cultivation in waterlogged fields and the advent of plowing and double-cropping, which greatly increased agricultural surpluses.
- **D.** As time went on, leaders of more highly ranked lineages assumed control of larger centers, controlling food surpluses and agricultural production, supporting artisans, and acquiring wealth. The most complex societies developed in river floodplain areas, where populations grew rapidly and trade expanded.

II. By the time of Christ, some Southeast Asian societies had become highly centralized, governed by an aristocratic class that ruled by virtue of their spiritual relationship with the ancestors. Rank and ancestry were closely related, just as they were among the Ancient Maya of Mesoamerica (see Lecture Thirty-Two).

- **A.** By about A.D. 1, the maritime trade networks of Southeast Asia were part of a much larger commercial world. Indian trade pottery has been found as far east as Bali, 2,700 miles away. Chinese ships regularly visited Indian ports.
- **B.** Southeast Asia was a vital link in the chain of trading ports that linked China to India and India to the Roman Empire. With the encouragement of foreign trade by Asoka and other Mauryan rulers (see Lecture Twenty-Six), contacts between India and Southeast Asia accelerated in the late first millennium B.C.
- **C.** Inevitably, Southeast Asian chieftains learned new ideas, fresh ways of looking at the world. In time, they became familiar with the Brahman and Buddhist concepts of divine kingship.

III. Divine kingship revolutionized social and political organization in Southeast Asia. Everything depended on the divine lord at the center of the state, whose diplomatic and military abilities were all important. Many experts think of early Southeast Asian states as circles, like concertinas, that expanded and contracted as different polities interacted with one another. The spiritual and personal qualities of each ruler determined, in the large part, the fate of his kingdom.

- **A.** Such kingdoms flourished in riverine and lowland areas, especially in the Tonle Sap and Lower Mekong. The Chinese called the Lower Mekong area Funan, “the port of a thousand rivers,” a delta region where bronze, gold, silver, and spices could be obtained.

B. Chinese sources tell of a swampy land that was transformed by organized drainage into an agricultural powerhouse, a transportation hub for boat trade over a wide area. Each major settlement was connected to the ocean by canals and fortified with great earthworks and moats teeming with crocodiles.

C. Funan prospered greatly from the third to the sixth centuries A.D., but the political situation in the delta was always volatile. By the sixth century, the center of economic and political gravity had shifted inland to the Tonle Sap, called by the Chinese Zhenla.

IV. The Tonle Sap, with its annual floods, rich rice fields, and superabundance of fish, had long supported small kingdoms. Constant warfare and diplomatic activity led eventually to the appearance of larger states. By this time, Hinduism was well established in the region. Devotion to the Hindu creator Siva became a mechanism for justifying divine kingship.

A. Everything depended on individual ability, with all the lords of the Tonle Sap sharing one ambition—to rule over as large a kingdom as possible. Earlier rulers were unable to cement together such a domain.

1. In A.D. 802, a dynamic Khmer monarch named Jayavarman II conquered his competitors and set up his new territories as tribute kingdoms. At the same time, he merged the cult of the ancestors with that of Siva to consolidate his state.

2. Jayavarman's subjects worshipped him as a god. All the resources of an increasingly centralized government preserved the cult of the god-king. Everyone subordinated individual ambitions to perpetuate the existence of the king on earth and his identity with the god in this life and the next.

3. Jayavarman II ruled for 45 years, the first leader of three dynasties of Khmer rulers who presided over a volatile state that reached the height of its prosperity between A.D. 900 and 1200.

B. The Khmer king was the *varman*, the "protector," and his noble priests were the instruments of political power. The noble families presided over a bureaucracy of patronage that supervised every aspect of Khmer life, controlling labor forces and food surpluses raised by carefully controlled agriculture and tribute.

C. The most important ritual was the custom of building a magnificent temple to house the royal *linga* (the phallic emblem of creative power). The thirty rulers who followed Jayavarman II built massive shrines on mounds in an area named Angkor, the hub of the Khmer universe.

V. This cult reached its height when King Suryavarman II built the temple of Angkor Wat in A.D. 1117. Angkor Wat is the largest religious building in the world, dwarfing even the largest Sumerian ziggurat.

A. Every detail of the temple reproduced the heavenly world in a terrestrial mode.

1. The highest tower represented the cosmic mountain, Meru, where the gods lived. The remaining four towers depict Meru's lesser peaks. The enclosure wall depicts the mountains at the edge of the world; the surrounding moat portrays the ocean beyond.

2. During his lifetime, Suryavarman used the temple as a palace. When he died, his remains were buried in the central tower so that his soul entered the divine image and made contact with the royal ancestors. He became as one with Vishnu, the master of the universe.

B. Angkor Wat severely taxed the resources of the kingdom at a time of vicious strife with neighboring kingdoms. This did not deter later rulers from lavish expenditures.

1. In 1181, King Jayavarman VII, who was a Buddhist, started building a huge new capital at Angkor Thom nearby. A dark and forbidding 8-mile wall surrounds the capital, with its grand plaza where ceremonies, contests, and vast military reviews were staged.

2. As many as a million people lived in or near Angkor Thom. The statistics from the temples speak for themselves. Jayavarman dedicated the Ta Prohm temple close by to his mother in the image of Buddha's mother. An inscription records that 306,372 people from 13,500 villages worked for the shrine, consuming 38,000 tons of rice annually.

C. All this stupendous construction was designed to make merit for the king and his rich followers. His projects created a totally centripetal religious utopia in which every product, every person's labor embellished the hub of the universe and the kings who enjoyed it.

VI. The ruler's power depended on the granting of favors, on his successful patronizing of the major aristocratic families. There was no stable bureaucracy with appointed officials to run the state.

A. A Khmer king's hold on power depended on his ability to control the center, the Angkor. A strong monarch, such as Jayavarman VII, commanded the loyalty of the aristocrats who ruled the outlying

boundaries of the kingdom. But a weak central government encouraged the periphery to break off from the center.

B. In 1430–1431, a Thai army from the west besieged Angkor, and the magnificent Khmer kingdom dissolved quickly.

C. By this time, the strategic trade routes to India had come under Islamic control. Melaka, in present-day Malaysia, became an important port in the international spice trade. The new religion preached a message of religious egalitarianism in the face of centuries of divine rule based on Indian notions of kingship. Within a century, the Khmer world was just a memory.

D. The Khmer state is a classic example of how able individuals can control the destiny of a powerful state. They may control the center but may lose the periphery if those ruling it detect signs of weakness. This was one of the classic problems with native American states, described in Section VI of the course, which begins with the next lecture.

Essential Reading:

Charles Higham, *The Civilization of Angkor*.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 13.

Supplementary Reading:

Charles Higham, *The Archaeology of Mainland Southeast Asia*.

Questions to Consider:

1. What was the influence of Chinese and Indian traders on the origins of Southeast Asian civilization?

2. Why did Khmer monarchs create such a centripetal civilization, and what were its weaknesses?

Section VI: Ancient Americans

Lecture Thirty-One
Pueblos and Moundbuilders in North America

Scope: Section VI describes the sophisticated chiefdoms and states of the pre-Columbian Americas. In Lecture Thirty-One, we examine some of the chiefdoms that developed in the North American Southwest and in the Eastern woodlands of what is now the United States. We begin by describing the origin of the Pueblo societies of the Southwest, with deep indigenous roots in the remote past. We visit Chaco Canyon and Mesa Verde, two great centers of ancestral Pueblo societies about a thousand years ago, and show how interdependence and drought were two key factors in ancient southwestern life. After briefly describing the Hohokam tradition of the southern Arizona desert, we follow maize and beans into the Eastern woodlands, where elaborate burial rituals and earthwork construction have been practiced for many centuries. Finally, we describe the Mississippian tradition, the apogee of chiefdoms in ancient North America, which flourished about a thousand years ago.

Outline

I. As European explorers, missionaries, and settlers fanned out over the Americas, they encountered a staggering array of native American societies—tiny bands of hunter-gatherers foraging over vast territories in desert lands; others living off salmon fisheries or in tropical rainforests; subsistence farmers cultivating every kind of temperate and tropical environment imaginable.

- **A.** Europeans also came in contact with far more elaborate North America societies—communities of farmers dwelling in large, mud-brick pueblos in the Southwest, elaborate chiefdoms with sophisticated religious beliefs and burial customs in the South and Southeast.
- **B.** The same diversity extended into Central and South America, where magnificent civilizations dazzled Spanish conquistadors but soon vanished in the face of epidemic diseases and aggressive conquest. Section VI of this course describes some of these societies.

II. In Lecture Eighteen, we told of the story of plant domestication in the Americas and described maize, beans, and a wide variety of other native plants as the staples of late native American societies. Maize and bean agriculture spread northward from Central America into the Southwest and was well established in this arid and demanding region by the time of Christ.

- **A.** By 300 B.C., many centuries of experimentation had resulted in much more productive crops and a greater dependency on farming in the Southwest. The cultural changes of these years included more permanent settlement, but it was not until A.D. 600 to 800 that permanent villages appeared in any numbers.
- **B.** These were the centuries when the three great cultural traditions of the ancient Southwest came into being: Ancestral Pueblo (sometimes called the Anasazi), Hohokam, and Mogollon, the latter a mountain tradition that became part of the Ancestral Pueblo tradition after 1150.
- **C.** These communities were far from self-sufficient and relied on one another for both utilitarian commodities, such as pots, and luxuries, such as turquoise and copper bells, passed from hand to hand over enormous distances. The trade was apparently highly organized.
- **D.** Until about A.D. 700, people in the northern Southwest lived in oval or round pithouses, dug partially into the ground, then roofed with mud-covered timber frameworks. The next three centuries saw a change from pithouses to settlements of multiroom dwellings and storerooms. Eventually, the rooms were abutted on to one another to form pueblos, a relatively thermally efficient way of living above ground.

III. Between A.D. 750 and 900, village settlement expanded greatly throughout the northern Southwest, especially on the Colorado Plateau. The Ancestral Pueblo societies that resulted congregated in pueblos of considerable size, often shaped in small arcs to make the rooms equidistant from the subterranean *kivas*, sacred rooms, in the middle of the settlement.

- **A.** The largest and most spectacular pueblos developed in densely populated areas, such as Chaco Canyon, New Mexico, and Mesa Verde, Colorado.

1. Chaco Canyon, with its dramatic cliffs, was the center of a flowering of Ancestral Pueblo culture between A.D. 900 and 1100. The Canyon is famous for its "great houses," such as Pueblo Bonito, which were important ritual and trading centers. Because Chaco's soils could not support more than about 2,500 people, it may have been a place where food was stored and large numbers of people congregated for major ceremonies.
2. Chaco's influence extended over an enormous area, some 25,000 square miles of the San Juan Basin.

B. A prolonged drought and environmental degradation caused Chaco to collapse after A.D. 1130, when the focus of Ancestral Pueblo settlement moved north, with major population centers in the Moctezuma Valley and the Mesa Verde region. Between A.D. 1200 and 1300, people moved from dispersed hamlets into crowded pueblos, such as the Cliff Palace at Mesa Verde, which had 220 rooms and 23 kivas.

C. After 1300, the entire San Juan drainage was abandoned as a result of drought. The Ancestral Pueblo dispersed toward the south and southeast into the lands of the Hopi and Zuni, where their descendants live to this day.

IV. In the southern deserts, the Hohokam flourished as desert farmers from A.D. 300 to 1500.

A. For many centuries, their ceremonial life and trading activity centered around Snaketown near the Gila River in Arizona. The Hohokam traded with other parts of the Southwest, obtained seashells from the Pacific, and acquired tropical bird feathers and other luxuries from Mexico. Their cultural heirs are the O'odham people of today.

B. Southwestern Pueblo society developed into theocracies, a form of government that regulated religious and secular affairs through both individuals, such as chiefs, and king groups or associations (secret societies) that cut across kin lines. These mechanisms fostered a sense of community and allowed for communal works, such as irrigation.

V. Maize and bean agriculture spread across the southern plains into the Eastern woodlands of North America during the first millennium A.D. Long before this, local river valley populations in some areas had increased to the point that group mobility was restricted and people cultivated some native plants. We find, too, the first signs of social ranking and an increasing preoccupation with ancestors, burial, and life after death.

A. Between 500 B.C. and A.D. 400, elaborate mortuary cults flourished over a wide area of the Eastern woodlands, marked by a frenzy of earthwork and burial mound construction. The Adena culture of the Ohio Valley was the first to build ceremonial enclosures and burial mounds for important kin leaders.

B. The Hopewell tradition of 200 B.C. to A.D. 400 was an elaboration of Adena, marked by burial practices and elaborate ceremonial exchanges between important individuals.
1. The Midwest now experienced an efflorescence of artistic expertise and long-distance trade in such exotica as obsidian from Yellowstone, native copper from the Great Lakes region, and mica from southern Appalachia.
2. All this trade and ceremonial burial was lavished on a few people. Hopewell settlements were small villages, but their earthworks and complex mortuary customs hint at a pervasive religious ideology, reflected in art styles and burial practices used from New York State as far afield as Louisiana, Illinois, and Wisconsin.

C. After A.D. 400, the center of religious and political power shifted southward, as the Hopewell tradition declined. These were the centuries when maize and bean agriculture came into widespread use, adding new and vital staples to the diet. The new crops came into use as growing populations and, perhaps, the insatiable demands of a small but powerful elite were causing social stress.

VI. Within a few centuries, river valley landscapes were transformed as maize cultivation replaced fishing, fowling, and wild plants as the major food source. Significant political and social changes soon followed as the Mississippian tradition appeared over a wide area of the South and Southeast.

A. Regional Mississippian societies developed in river valleys and interacted constantly with one another. Their major centers lay in fertile river bottomlands with lakes and swamps. Some groups lived in dispersed homesteads, while others lived in compact villages, some so large they might be called small towns. Thousands of farmers lived near major centers, such as Cahokia, on the Mississippi near modern-day St. Louis.

B. Cahokia flourished on a rich floodplain area known today as the American Bottom. The great mounds and plaza of its ceremonial precincts dominated the countryside for miles. Monk's Mound at the center of the town and the eastern end of the plaza rises 102 feet above the floodplain and covers 16 acres. A thatched temple once stood on the summit.

1. The entire complex of mounds, plazas, temples, warehouses, and homes of the elite covered more than 200 acres. The central precincts depicted the ancient cosmos of the Eastern woodlands, divided into four segments and oriented toward the cardinal points.

2. Cahokia lay at a strategic point near the Missouri and Mississippi confluence, in a region where northern and southern trade routes met. The ruling families of Cahokia, adept traders, achieved enormous political and spiritual power within a few generations, perhaps by virtue of their supernatural abilities as mediators between the spiritual and living worlds.

C. The Cahokia chiefdom presided over a tiny territory by, say, Maya or Sumerian standards. Politically volatile and based on religious beliefs rooted in ancestor worship and the agricultural cycle, its power and prosperity, like that of the Khmer states, depended completely on the authority, charisma, and ability of a handful of leaders. Inevitably, Cahokia finally collapsed, in about A.D. 1250, when other chiefdoms to the south and east rose to prominence.

VII. Another major center developed to the south, at Moundville, Alabama. However, Mississippian society was never an integrated whole, but a mosaic of chiefdoms large and small, ruled by leaders who lived somewhat aloof from their subjects.

A. The Mississippian chiefdoms were past the height of their powers when the first Spanish conquistadors reached the great river in the sixteenth century. But numerous chiefdoms still flourished in the South and Southeast at European contact.

B. Would they have ever achieved the elaboration of Mesoamerican or Andean civilizations? Most experts believe that the growing season for maize and beans was too short to support the intensive agriculture or high population densities of preindustrial civilizations, like those of highland and lowland Mesoamerica, described in Lectures Thirty-Two and Thirty-Three.

Essential Reading:

Brian Fagan, *Ancient North America*, chapters 14–15, 18–20.

George Milner, *The Cahokia Chiefdom.*

Stephen Plog, *Ancient Peoples of the American Southwest*, chapters 4–8.

Supplementary Reading:

Linda Cordell, *The Prehistory of the Southwest*, chapters 8–12.

Thomas Emerson, *Cahokia and the Archaeology of Power*.

Questions to Consider:

1. What do you think was the rationale behind Chaco Canyon's far-flung network of roads, outlying settlements, and trade routes?

2. Why did the Mississippian tradition never achieve a large degree of political and social integration and become a full-fledged state?

Lecture Thirty-Two
Ancient Maya Civilization

Scope: We describe Mesoamerican civilization in two lectures. Lecture Thirty-Two discusses lowland states, and Lecture Thirty-Three examines civilization in the highlands. In this lecture, we begin by describing the ancient roots of lowland civilization in the Olmec cultures of the gulf lowlands. We examine the distinctive institutions, art styles, and religious beliefs that were the Olmec legacy to Mesoamerican civilization. Next, we analyze the origin of Ancient Maya civilization and the institution of Maya kingship, which was central to this society. We describe the first great centers at Nakbe and El Mirador, then Classic Maya civilization, with its competing city-states and dynasties of powerful rulers. We concentrate on the major polities and show how Maya society came under severe stress in the late first millennium A.D. Finally, we discuss the causes of the Classic Maya collapse in A.D. 900.

Outline

I. The origins of Mesoamerican civilization date to the remote past, to a time when maize and bean farmers flourished over a wide area of the highlands and lowlands of Central America.

- **A.** The Mesoamerican highlands are defined by two great mountain chains that run down the coastlines of Central America until they reach the east-west volcanic chain, the Mesa Central, which forms the central plateau. The inland basin of the Valley of Mexico, with its five lakes, was the heart of the highlands; for thousands of years, the center of economic and political life.
- **B.** The low-lying limestone peninsula of the Yucatán, with its dense tropical forest, forms the heart of the Mesoamerican lowlands, also defined by the low-lying, hot Veracruz and Tabasco coastal plains and the heavily forested coastal strip along the Gulf of Honduras.

II. By 2,000 B.C., sedentary farming villages were common throughout Mesoamerica. The farmers of the tropical lowlands used slash-and-burn agriculture to cultivate soils of only low to moderate fertility. In swampy locations, they also developed small areas of raised fields, the predecessors of more extensive field systems in later, Maya times.

- **A.** The very diversity of the Mesoamerican environment made everyone dependent on neighbors near and far living in different surroundings. From the earliest times, trade networks linked the lowlands and highlands in an interdependency that was a persistent theme of Mesoamerican civilization.
- **B.** By the middle of the second millennium B.C., the egalitarian societies of earlier times were giving way to more elaborate cultures in which ritual and social ranking played an increasingly important part. Control of trade in exotic items and knowledge of distant lands were vital to an emerging ideology of chieftainship—just as they were in other regions. These developments took hold in many areas of highlands and lowlands, but the most famous of these early societies was the Olmec.

III. The Olmec occupied a revered place in the legend and lore of later Mesoamerican civilizations. Maya priests recognized the profound cultural legacy they owed to these ancestral Mesoamericans. So did the Aztecs of the highlands, whose rain god, Tlaloc, may have originated among the primordial deities of the Olmec.

- **A.** Earlier generations of scholars thought of the Olmec as a "mother civilization" for Mesoamerica, the ancestor of all later civilizations in the region.
- **B.** Today, we know that the Olmec was a series of chiefdoms along the Veracruz and Tabasco coasts that may have also exercised influence over adjacent areas.
- **C.** Olmec society flourished in a time when art motifs, religious symbols, and ritual beliefs were shared among chiefdoms in many regions as a result of trading activity and contacts between kin leaders. Olmec art and artifacts have been found over an area twenty times that of the core Olmec region, even in pre-Maya burials under the great Maya city of Copán in Honduras.

IV. Olmec peoples lived along the Mexican south Gulf Coast between about 1,500 and 500 B.C. in a low-lying, tropical homeland rich in animals and plant foods. The birds, fish, and land animals of the forest formed an

important part of a remarkably sophisticated art style, which was to leave a permanent imprint on Mesoamerican life. Both the beliefs and the art that depicted them had ancient indigenous roots.

A. By 1,250 B.C., the people of San Lorenzo lived on an earthen platform set in the midst of swampy terrain. Soon, their leaders erected platforms and plazas around their platform. A century later, they were erecting monumental portraits of themselves.

B. Another Olmec site, La Venta near the Gulf Coast, rose on an island in a swamp in A.D. 800, with mounds as a rectangular plaza. Huge sculptures depict rulers with expressions of contempt, while throne-like stone blocks show seated figures, perhaps rulers, and jaguars. These sculptures show us that the institution of kingship arose among the Maya, known to us from distinctive art styles centered on a half-jaguar, half-human figure.

C. Jaguars symbolized rain, fertility, and the power of shamans in ancient native American society. The Olmec grafted the ancient ideology of the jaguar on to new ideas of kingship, whereby the king was a shaman-ruler with awesome supernatural powers. Powerful shamanistic rituals and public ceremonies of bloodletting and human sacrifice were dominant themes in all Mesoamerican civilization.

V. Ancient Maya civilization originated among humble village communities in the densely forested lowlands sometime during the second millennium B.C. Over the centuries, some Maya communities came under the rule of important kin leaders, who controlled trade and ritual life.

A. During the first millennium B.C., Maya society rapidly developed into a series of city-states. Two early ceremonial centers rose at Nakbe and El Mirador, the former reaching the height of its importance between 650 and 300 B.C., a sacred place of pyramids and platforms adorned with carvings of the Maya god Celestial Bird and with signs of emerging Maya kingship.

B. El Mirador enjoyed better water supplies than Nakbe and was only 8.5 miles away. As Nakbe faded, El Mirador grew into a city covering 6 square miles with a huge complex of pyramids, temples, and plazas, the largest pyramid rising more than 210 feet. Between 150 B.C. and A.D. 50, El Mirador was the most powerful of all Maya city-states, but it collapsed suddenly, a rapid decline typical of volatile Maya civilization.

C. The institution of kingship was at the heart of Maya civilization. Maya rulers linked their deeds to those of the gods and ancestors. Society was embedded in a matrix of sacred space and time. Both a secular and religious calendar, along with an elaborate script, helped define kingship and civilization itself.

VI. El Mirador collapsed in about A.D. 300. Tikal and nearby Uaxactun stepped into the political and economic vacuum, beginning the Classic Period of Maya civilization (A.D. 300 to 900).

A. Tikal began as a small village in 600 B.C. By the second century A.D., more than 40,000 people lived in or around the urban core with its elaborate complex of more than 100 buildings.

B. The Great Plaza with its plastered surface was once the setting for public ceremonies conducted on the surrounding pyramids—sacred mountains topped by small temples, whose doorways were gateways to the other world.

1. Tikal's ruling dynasty was founded in A.D. 219. Thirty-nine rulers inherited Tikal's throne over more than 600 years.

2. In A.D. 378, Lord Great Jaguar Paw defeated Uaxactun and dismantled Tikal's rival. The kingdom prospered, reaching its height in the sixth century, when its territory covered nearly 1,000 square miles.

VII. Classic Maya civilization was a maze of competing city-states that went through endless cycles of rise, fall, and collapse. Inevitably, there was expansion on the margins of such polities as Tikal, where new states rose and fell as the core prospered. Such volatility was not unique to the Maya. It was an enduring feature of Mesoamerican civilization generally.

A. Other Maya city-states also achieved great prominence, among them, Calakmul in the southern lowlands, a major center linked to its subordinate towns and centers by raised roads through the surrounding swamplands.

B. Palenque in the foothills of the Sierra of Chiapas is famous for its architecture and for the Lord Pacal ("Shield"), who reigned for sixty-seven years in the seventh and eighth centuries. He was buried under the

magnificent Temple of the Inscriptions in the heart of a pyramid, adorned in a superb jade mask. His sarcophagus lid recorded his genealogy and divine ancestors.

C. Copán, in modern-day Honduras, boasted of an elaborate complex of enclosed courtyards, pyramids, and temples, where successive rulers built their architectural statements atop those of their predecessors. Between 435 and 800, a powerful dynasty ruled the city and the surrounding hinterland.

VIII. By the eighth century, Copán and other Maya city-states were in trouble. The largest cities were top heavy with an expanding nobility, whose insatiable demands for labor, food, and prestigious objects put severe stress on the rural population.

A. Everywhere in the southern lowlands, Maya farming was in trouble. Promiscuous slash-and-burn agriculture had stripped tropical soils and allowed heavy rainfall to erode the exposed soil. The Maya had turned to hillside terracing and swamp gardens to feed a rapidly rising population, but there were more people than the land could support.

B. Maya civilization had reached its peak by A.D. 600, when rainfall was plentiful. A series of prolonged droughts in the ninth century recorded in lakebed deposits decimated agricultural production at a time of intense, even frenzied competition and warfare between neighboring states.

C. In A.D. 900, Classic Maya civilization collapsed in the southern lowlands. The great centers were abandoned, public buildings and inscriptions were no longer built and prepared, and populations declined rapidly. Maya civilization continued to flourish in the northern Yucatán until Spanish contact in the sixteenth century.

IX. Maya civilization was never a large territorial state, like those of the Egyptians or Mauryans.

A. Maya lords lacked the organization and military logistics, as well as the communications, to control wide areas and garrison conquered cities. The diplomatic and military landscape ebbed and flowed with the generations, in shifting sands of competition, diplomacy, arranged marriages, and vicious warfare.

B. Like all Mesoamerican civilizations, the Ancient Maya lived on a stressful tightrope, where frenzied competition, prestige, and warfare took priority over long-term economic stability.

C. As we will see in Lecture Thirty-Three, the same chronic instability ruled on the highlands, as well.

Essential Reading:

Michael Coe, *The Maya*.

Linda Schele and David Freidel, *A Forest of Kings*.

Supplementary Reading:

Jeremy A. Sabloff, *The Cities of Ancient Mexico*.

Questions to Consider:

1. What institutions did the Olmec bring to Mesoamerican civilization?

2. What were the Achilles heels of Ancient Maya civilization?

Lecture Thirty-Three
Highland Mesoamerican Civilization

Scope: Lecture Thirty-Three moves to the Mesoamerican highlands, where civilizations also developed in the first millennium B.C. We begin in the Valley of Oaxaca and trace the development of the state of Monte Albán from growing village settlements in the early Christian era. Next, we describe the great city of Teotihuacán, which dominated the Valley of Mexico from A.D. 200 to 650. We describe how its markets attracted merchants from highlands and lowlands and the importance of the city as a place of pilgrimage. Then, we examine the political vacuum after Teotihuacán's fall and the brief rule of the Toltecs. Finally, we tell the story of the Aztecs, who rose from obscurity to become masters of Mesoamerica in two dizzying centuries, only to fall before Spanish conquistadors, who ended ancient Mesoamerican civilization.

Outline

I. In the previous lecture, we stressed how Mesoamerican societies were interdependent, flourishing, as they did, in a wide diversity of environments. The appearance of larger settlements at higher elevations, such as the Valley of Oaxaca and the Basin of Mexico, was closely connected to the development of long-distance trade with the lowlands—in obsidian, tropical bird feathers, and the sharp spines from stingrays used for ceremonial bloodletting.

A. The warm, semi-arid Valley of Oaxaca is the homeland of the modern-day Zapotec people, a place where, in the past, water could be found close to the surface. By 2,000 B.C., the valley supported numerous small farming villages.

1. As local populations rose, larger communities appeared and trading with the lowlands expanded rapidly, especially with the Olmec.

2. Olmec pottery and other ritual objects appear between 1,150 and 650 B.C.

3. By this time, many parts of highland and lowland Mesoamerica were linked by common religious beliefs, even if local deities and cults varied considerably.

4. In 400 B.C., there were at least seven small chiefdoms in the Valley of Oaxaca. One of these, Monte Albán, soon assumed dominance.

B. By this time, the Oaxaca elite may have aspired to the status of chiefs in the lowlands. The iconography of the jaguar and of a serpent with eagle's claws and feathers now linked people in highlands and lowlands alike.

C. Larger centers also appeared elsewhere in the highlands at this time. Tlatilco, in the Valley of Mexico, began life as a large village in 1,300 B.C. but soon became a small town close to a lakeshore. Some Tlatilco art has strong Olmec influences, as the institutions of a nascent civilization spread far and wide.

D. By 50 B.C., some centers had acquired considerable size and complexity, establishing a basic pattern that was to endure for centuries—large centers ruled by a small elite that served as commercial and spiritual locales. These dominated a rural population living in lesser communities scattered through the surrounding countryside.

II. Two major city-states dominated the Mesoamerican highlands in the early first millennium A.D., at the time when Classic Maya civilization reached its peak in the lowlands.

A. Monte Albán in the Valley of Oaxaca was a small village in 900 B.C., built on a hill overlooking the valley. The settlement grew rapidly and became a major city by A.D. 150. The population rose to about 30,000 people between A.D. 500 to 700, when the city was at the height of its prosperity.

B. The village eventually became an elaborate complex of palaces, plazas, and temples atop the now artificially flattened hilltop. The city straddled three hills, with at least fifteen residential subdivisions, each with their own plazas.

C. The paved main plaza of A.D. 500 to 725 was 975 feet long and 450 feet across, bounded at each end with platform mounds. The rulers and their families lived in a complex of buildings on the north platform, which was the formal setting for meetings with high officials and emissaries from other states.

D. Monte Albán coexisted peacefully with another expanding state, Teotihuacán, on the edge of the Valley of Mexico. In about 750 B.C., the plaza was abandoned and the city went into decline, for reasons that are unknown.

III. In 100 B.C., two powerful chiefdoms vied for power in the Valley of Mexico, Cuicuilco in the west and Teotihuacán in the east. A major volcanic eruption destroyed Cuicuilco without warning, leaving its rival master of the valley and adjacent central highlands.

A. In 200 B.C., Teotihuacán was a large village. Over the next eight centuries, the village became an enormous city, laid out according to a master plan adhered to over many generations. The city was a vast symbolic landscape of artificial mountains (pyramids), foothills (lesser mounds), caves, and open spaces that replicated the spiritual world. The grid plan of the city was bisected by the 3-mile Street of the Dead on a north-south axis.

B. Between A.D. 1 and 100, the colossal Pyramid of the Sun rose on the east side of the Street of the Dead. Two hundred feet high, with 700-foot sides, its immense staircase and five stages dominate the nearby plaza and buildings. A natural lava cave lies under the pyramid, a symbolic entrance to the underworld.

1. The huge complex of pyramids and plazas, which also includes the Pyramid of the Moon, was intended to dwarf the individual. Even today, it overwhelms with its sheer size.

2. Two miles southward, the Street of the Dead intersects with an east-west avenue, dividing the city into four quadrants. A huge square enclosure, the Ciudadela, stands at the intersection, complete with the Temple of the Feathered Serpent, Quetzalcoatl. At least 200 people were sacrificed in the foundations of a temple, the façade of which depicts the moment of creation.

3. Teotihuacán covered at least 8 square miles and teemed with artisans and traders from all over the Mesoamerican world. There were even foreign enclaves for visitors from Oaxaca and Veracruz. The city was an important place of pilgrimage, a marketplace for the Valley of Mexico, with uneasy alliances with peoples living at greater distances.

4. Teotihuacán's inhabitants lived in wards based on kin ties and more commercial considerations, controlled by a small elite. The names of its rulers are unknown, but they clearly had shamanistic roles and were considered gods.

C. In 650, the great city was burned down and the state collapsed. The causes are unknown, but rapid development may have led to serious internal weaknesses. By 700, much of the formerly urban population of more than 120,000 people had dispersed into rural communities. But Teotihuacán left an enduring spiritual legacy. The Aztec rulers of later times believed that their world had been created atop the Pyramid of the Sun.

IV. The collapse of Teotihuacán left a political vacuum in the Valley of Mexico. War and violence became endemic as a dizzying array of small kingdoms vied for dominance.

A. In about A.D. 900, the Toltecs, immigrants from the northwest, settled at Tula, south of the Valley of Mexico, where they built a ceremonial center for the Feathered Serpent, Quetzalcoatl.

B. The militaristic Toltecs were a powerful political force in Mesoamerica for a short time, extending their influence as far as the northern Yucatán. But Tula was overthrown in 1200, leaving another vacuum in the Valley of Mexico.

V. Several semi-nomadic Chichimeca groups settled in the valley after the fall of Tula, among them, an obscure group, the Mexica, or Aztecs. After years of harassment by their neighbors, they founded a small village named Tenochtitlán in the swamps of Lake Texcoco in 1325. Two centuries later, Tenochtitlán was the largest city in the Americas.

A. At first, the Aztecs lived peaceably with their neighbors. Tenochtitlán became an important market center. By skilled diplomacy, arranged marriages, and discreet military alliances, the Aztecs made themselves a powerful political force. In the early fifteenth century, they embarked on ruthless campaigns of long-term military and economic conquest. Soon, they controlled a loosely connected network of states and cities across highlands and lowlands.

B. By the 1420s, this network was fast becoming an empire, under the leadership of several gifted rulers and a general named Tlacaelel, who was their adviser. The Aztecs reinvented themselves as imperial conquerors, under the protection of the sun god Huitzilopochtli. Tlacaelel and his rulers created a vast tribute-gathering

machine, backed by ruthless military force. By 1500, more than 5 million people lived under Aztec rule, from northern Mexico to Guatemala, the Pacific to the Gulf of Mexico.

C. The Aztec empire was far from a monolithic state but a mosaic of ever-shifting alliances controlled by a tiny group of rulers. Everything was run for the benefit of the elite, backed by an efficient tribute- and tax-gathering machine, the threat of military force, and pervasive religious ideology. Every conquered city and kingdom was assessed tribute in products or raw materials.

D. Everything emanated from, or came to, Tenochtitlán, a dazzling, highly organized city of more than 220,000 people. Large residential precincts and thousands of acres of swamp gardens surrounded the central precincts, the hub of the Aztec world. A great plaza dominated by the temples of Huitzilopochtli and the rain god Tlaloc formed these precincts, from which four causeways emanated, dividing the Aztec world into four quarters. More than 60,000 people are said to have attended the market daily.

VI. Aztec society was moving ever closer to a rigidly stratified class system, with a despotic monarch, nobles, merchants, and warriors forming distinct segments of society. It was a society preoccupied with war and prestige and with placating the sun god with the sacrifice of human victims' hearts.

A. The empire was an uneasy patchwork, which soon fell apart in the face of Spanish conquistador Hernan Cortés and a few hundred adventurers. Cortés arrived at Tenochtitlán in 1519. Two years later, the great city and the Aztec domains had collapsed. Mesoamerican civilization passed into historical oblivion.

B. In Lecture Thirty-Four, we travel to South America to examine the beginnings of Andean civilization.

Essential Reading:

Joyce Marcus and Kent Flannery, *Zapotec Civilization*.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 16.

Richard Townsend, *The Aztecs*.

Supplementary Reading:

Inga Clendinnen, *The Aztecs.*

Michael Coe, *Mexico*.

Questions to Consider:

1. What was the purpose of building such stupendous pyramids and public buildings at Teotihuacán?

2. In your view, what was the greatest weakness of Aztec civilization?

Lecture Thirty-Four
The Origins of Andean Civilization

Scope: Lecture Thirty-Four describes the beginnings of Andean civilization in South America. We begin by defining the two poles of Andean civilization, one on Peru's north coast and the other in the south-central Andes. Then, we survey the theory that coastal civilization originated in part because of the rich Pacific fisheries, which produced huge food surpluses. Next, we describe the early ceremonial centers erected by scattered rural communities. We analyze the Chavín art style and religious beliefs, which spread widely on the coast and in the highlands between 900 and 200 B.C. Finally, we describe the flamboyant Moche state of the north coast, which flourished from 200 B.C. to A.D. 600 before being weakened and destroyed by a series of natural disasters.

Outline

I. In A.D. 1500, the vast Inka empire, known as Tawantinsuyu, the "Land of the Four Quarters," extended from high in the Andes mountains, through dry highland plains, to foothills, tropical rain forest, and coastal deserts, some of the direst terrain on earth. Millions of people lived under Inka rule, the inheritors of a tradition of civilization that extended back more than 3,000 years. The next two lectures survey Andean civilization. Lecture Thirty-Four discusses the origins of Andean civilization. In Lecture Thirty-Five we examine Inka civilization and its predecessors.

- **A.** Over many centuries, two poles of Andean civilization developed. The one was centered along the north coast of modern-day Peru; the other, in the south-central Andes mountains. Only the Inka succeeded in unifying them into a single empire, but societies in both poles interacted and traded with one another constantly.
- **B.** The northern pole was centered on the virtually rainless coastal desert, where more than forty rivers and streams, fueled by mountain runoff, dissect the arid terrain. Human populations settled in these valleys, most notably in the Chicama-Moche area and in the Lambayeque region. The Pacific coast enjoyed rich fisheries, caused by cold water upwelling from the depths of the ocean close offshore.
- **C.** The southern pole embraced the *altiplano*, the high-altitude grasslands around Lake Titicaca. The *puna* grasslands of this region supported large herds of alpacas and llamas.
- **D.** Andean civilization developed along many pathways, creating a highly varied mosaic of kingdoms, states, and empires that shared many common religious beliefs.

II. The north coast is arid, demanding terrain, yet it was here that the first Andean civilizations developed. Cultivation of any sort required mountain runoff and expert irrigation to distribute and conserve precious water. But the richest fishery in the Americas lay close offshore, yielding millions of small schooling fish, such as anchovies. The harvest from the fisheries supported thousands of people along the coast.

- **A.** Archaeologist Michael Moseley believes that the unique maritime resources of the Pacific coast provided sufficient food surpluses to free time and people to erect large monuments and temples and to support a growing number of people who were neither farmers nor fishers. Anchovy harvests alone were sufficient to support more people than lived along the coast in ancient times.
- **B.** This "maritime foundations" hypothesis has been criticized for its emphasis on fishing alone and for not taking account of the El Niño, which can decimate the fishery. But Moseley's hypothesis has merit, especially given that farming communities in the highlands needed fish meal and seaweed, as well as salt, to complement their carbohydrate diet and to combat goiter. By the same token, root crops, such as potatoes, could not be grown on the coast.
- **C.** The focus on marine resources led to the formation of densely concentrated populations in major river valleys. Their leaders were able to organize large labor forces to build ceremonial centers and to create the irrigation works needed to allow intensive cultivation of river valley soils. A combination of a maritime diet, maize agriculture (see Lecture Eighteen), and trade provided the impetus for major changes in coastal society.

III. After 1,800 B.C., a series of competing kingdoms developed along the north and central coast, concentrated in river valleys where irrigation was possible. Sedentary villages housed several hundred people apiece and were home to skilled weavers, the start of a long Andean tradition.

A. This initial period of Andean civilization saw an elaboration of ritual life and the appearance of new forms of religious architecture. At El Paraíso on the Chillón River, a huge U-shaped ceremonial site, built in 1,800 B.C., comprised at least six huge buildings of plastered boulders painted in brilliant hues.

B. Huaca Florida on the Río Rímac, 8 miles inland from El Paraíso and built a century later, was even larger, with an adobe and boulder platform 840 feet long and 180 feet wide, towering 100 feet above the densely irrigated land that once surrounded it.

C. These structures were built not by city dwellers, but by people from many surrounding communities. By now, the focus of settlement had moved from the coast inland, at a time when irrigation was coming into use. Michael Moseley believes that irrigation required a major reorganization of labor and that this coincided with new artistic traditions and religious architecture.

D. The ritual manipulation of smoke and water was a way of bridging the stratified layers of air, earth, and bodies of water—the Andean cosmos. The vast open courts of coastal U-shaped ceremonial complexes may have housed sacred orchards and gardens irrigated with specially manipulated water supplies.

E. As irrigation assumed greater importance, growing communities turned from informally organized land reclamation to highly structured irrigation works controlled by a central authority with powerful religious connections.

F. Sechin Alto in the Casma Valley was built in 1,400 B.C., a huge U-shaped ceremonial complex with sunken courts, plazas, and flanking mounds. What kingdoms controlled these vast early shrines is still a mystery.

IV. The Andean equivalent to the Mesoamerican Olmec is the distinctive Chavín art style, which spread over an enormous area of lowlands and highlands in about 900 B.C.

A. Chavín de Huántar in the Andean foothills was the home of this elaborate, well-developed iconography, a terraced shrine with a truncated pyramid, a hollow honeycomb of passageways and rooms.

1. The center was a place of mediation with the heavens and the underworld, where shamans mediated between the living and the supernatural. Using music and elaborate costumes, the shamans appeared as jaguars, eagles, and other animals.

2. Water thundering through tunnels and channels replicated the link among rain-giving mountains, the temple, and layers of the cosmos.

B. Between about 850 and 200 B.C., Chavín de Huántar was an important place of pilgrimage, with a sizeable population. But it never became a full-fledged state and collapsed, leaving only its religious ideas to endure.

V. A series of wealthy states flourished along the north coast after 200 B.C. The longest lasting and most powerful of these was the Moche state, which endured for 800 years. Its major centers and irrigation works lie in the Chicama and Moche Valleys, making up a multi-valley state, with loose ties far down the coast.

A. Most of what we know about the Moche comes from the spectacular burials of the warrior-priests who ruled them.

1. The Lords of Sipán, a major center in the Lambayeque Valley, were buried in their full regalia in about A.D. 400.

2. They wore magnificent gold funerary masks, a crescent-shaped headdress, and elaborate body ornaments in gold and silver, which reflected the polarity of the world as represented by sun and moon.

B. The warrior-priests also appear on finely painted Moche pots, where they preside over sacrifices of prisoners of war in their full regalia.

1. The warrior-priest and others would drink the blood of the victim while his corpse was dismembered.

2. Like Aztec and Maya rulers, the Moche warrior-priests were well aware of the impact of theatrical ceremony and public appearances, where they would glitter in the bright sun like gods.

C. The wealth of Moche society was concentrated in very few families, a nobility who ruled from ceremonial centers at strategic locations in the river valleys.

1. They supported expert artisans in clay, who left us memorable portraits of both rulers and common folk—fisherfolk, shamans, women giving birth, and many others.
2. The Moche were also expert metal workers in gold and silver, fully capable of alloying gold, silver, and copper.

D. The greatest efforts of the Moche were devoted not to irrigation agriculture but to the erection of vast adobe platforms and temples. Their greatest center lay at Cerro Blanco, near the modern city of Trujillo, two huge adobe platforms for palaces and temples overlooking the irrigation works of the nearby valley.

VI. For all its wealth and power, Moche civilization was vulnerable, both to drought and to the ravages of El Niño events. Ice cores from glaciers high in the Andes reveal that a major drought cycle descended on the mountains and lowlands from A.D. 564 to 594, which may have reduced crop yields by at least 20 percent.

A. Sometime between 650 and 700, a great earthquake stuck the Andes, blocking irrigation canals and choking rivers with landslides. The silt washed into the Pacific and washed ashore, only to be blown to land to form huge sand dunes. The Moche probably lost thousands of acres of irrigated land, another blow to agricultural production.

B. A powerful El Niño devastated the coastal fisheries in about 600, also bringing 100-year rains that swept away generations of irrigation works in a few hours. The Moche capital was partially flooded, repaired, then overwhelmed by inexorable sand dunes.

C. The great lords abandoned their capital and moved northward close to where the rivers debouched from the foothills and water supplies could be maximized. Only half a century later, another El Niño descended on the Moche state and the civilization collapsed.

D. As Moche civilization came into being, a separate tradition of small kingdoms and states was developing at the southern pole of Andean civilization, near Lake Titicaca. We describe the later stages of Andean civilization in Lecture Thirty-Five.

Essential Reading:

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 17.

Michael Moseley, *The Inca and their Ancestors*, chapters 6–7.

Supplementary Reading:

Walter Alva and Christopher Donnan, *Royal Tombs of Sipán*.

Questions to Consider:

1. Why was fishing so important to the rise of Andean civilization?
2. What was the great vulnerability of Moche civilization?

Lecture Thirty-Five
The Inka and Their Predecessors

Scope: Lecture Thirty-Five continues our exploration of Andean civilization. We begin in the highlands, where the Tiwanaku state comes into prominence among earlier, smaller kingdoms in the early first millennium A.D. This civilization, with its pervasive religious beliefs, collapses in about A.D. 1000, to be followed by Chimor, on Peru's north coast, which is described in the second section of the lecture. Expert irrigation farmers and metalworkers, the Chimu were conquered by the Inka, whose rise to imperial conquerors and huge empire, Tawantinsuyu, forms the later part of this lecture. We describe the structure of the empire and the Inka passion for organization, as well as the institutions that fueled the endless Inka conquests. Finally, we analyze the weaknesses in the great empire, which collapsed in the face of a small party of Spanish adventurers in 1532.

Outline

I. As Chavín de Huantar rose to prominence in the northern highlands, small kingdoms appeared for the first time in the area around Lake Titicaca that was to form the southern pole of Andean civilization. At the same time, more intensive alpaca and llama herding and agriculture transformed the plains landscape.

A. By 1,200 B.C., these polities had developed widespread trading connections that extended as far as the north coast. By the same time, too, woven textiles and irrigation agriculture from the Lake Titicaca area spread to the southern coast of what is now Peru.

B. By A.D. 450, Tiwanaku, at the southern end of Lake Titicaca, was becoming a major population center, as well as an economic and religious focal point for the region. Much of its prosperity came from trade around the southern shores of the lake.

C. Tiwanaku also became a major religious center, with a great sunken court and large earthen platform, the Akapana. During heavy rain, water would gush out of the sunken court at the summit and fill a large moat surrounding the ceremonial precincts.

1. The precinct may have been a symbolic island, where Tiwanaku's rulers would appear dressed as gods, birds, or animals on ceremonial occasions.

2. Like Chavín, Tiwanaku developed a striking art style, which reflected a powerful sacred iconography. The motifs include eagles and jaguars, along with anthropomorphic gods. One of them may be Viracocha, the ancient Andean sun god.

D. Tiwanaku carved out an empire in the south-central Andes in the time-tried manner of carefully controlled trade, conquests, and colonization. The state endured a long time by Andean standards but collapsed in the eleventh century, when, as ice cores tell us, a severe drought affected the Tiwanaku homeland. Many of Tiwanaku's institutions endured, albeit in modified form, in Inka imperial practices four centuries later.

II. As Tiwanaku and other neighboring highland kingdoms collapsed, the north coast again rose into prominence. New states arose in Moche's place, only to be decimated by El Niño flooding and political disruption. The Chimu now became the dominant force on the coast, forging a multi-valley state that controlled twelve river valleys with at least 125,000 cultivable acres, all farmed by hand.

A. Chimor's rulers undertook ambitious conquests to form their kingdom, accompanying war with large-scale irrigation schemes involving reservoirs and inter-valley canals. By A.D. 1470, they controlled more than 620 miles of coastline and two-thirds of all irrigated land along the Peruvian coast.

B. The focus of the Chimu state was the city of Chan Chan at the mouth of the Moche River. The city covered some 8 square miles, with nine royal enclosures laid out in a broken rectangle at the center.

1. Each adobe compound was built by *mit'a* labor, a compulsory work tax performed by every commoner. Each had its own water supply and lavishly decorated royal residences, the walls providing both privacy and shelter from the ocean winds. Here, the rulers lived in seclusion, and here, they were buried.

2. Some 6,000 nobles dwelt in smaller compounds, while more than 26,000 artisans and their families, many of them metalworkers and weavers, lived in small houses on the western side of Chan Chan.

III. In many respects, Chimor anticipated the Inka empire. Because its rulers were well aware of the need for efficient communications, they constructed roadways that connected one river valley with the next, some of them as wide as 80 feet across. All revenues and tribute passed along the roads, as did newly conquered peoples being resettled in areas far from their homelands. This draconian measure was so successful that the Inka adopted it.

A. Chimu artisans were famous for their gold and silver metalwork, pottery, and textiles. Chimor's wealth attracted aggressive neighbors, because this seemingly dazzling state was vulnerable to attack from outside, by armies who sought control of water supplies and irrigation works. The state was also vulnerable to flood and especially drought, at a time when rising salt levels in the soil were reducing agricultural productivity.

B. Between 1462 and 1470, the Chimu ruler Minchancamon fought constantly with Inka armies. Some years later, the Inka prevailed and Chimor became part of their expanding empire. Thousands of Chimu artisans were resettled in Cuzco, the Inka capital, to serve new masters.

IV. The rise of the Inka of the highlands from total obscurity to imperial fame is a rags-to-riches story eerily similar to that of the Aztecs.

A. At the time of Tiwanaku's collapse, the Inka were one of many small farming societies in the highlands headed by petty war leaders. At the beginning of the fifteenth century, an Inka leader named Viracocha Inka turned himself from a tribal raider into a conqueror. He soon presided over a small kingdom; proclaimed that he was a living god; and created a new religious cult, that of Inti, a celestial divine ancestor associated with the sun.

B. Around 1438, a brilliant warrior, Cusi Inka Yupanqui, became the Inka ruler. He assumed the name Pachakuti ("He who remakes the world") and set about transforming the Inka state.

C. Pachakuti reworked ancient Andean ancestor rituals and fostered a new cult of the royal mummies. At his death, a ruler was mummified but continued to live in his palace and to own all his possessions. The deceased's mummy attended great ceremonies, while his followers ate and talked with him. This symbolism was vitally important to ensure the continuity of Inka life and the relationship among royal ancestors, the living leader, and Inti.

D. Pachakuti also instituted a law of split inheritance.

1. Under this custom, the dead Inka retained all his land and possessions. The new ruler acquired prestige, the title, and little else. He had to acquire his own wealth and land to live in royal splendor and to support his mummy.

2. Because the early rulers owned all the land near Cuzco, the Inka capital, each new Supreme Inka had to acquire royal estates by aggressive conquest. Ruler after ruler expanded the Inka domains.

V. By 1493, the Inka Topa Yupanqui had extended the empire into Ecuador, Bolivia, and Chile. His armies also conquered Chimor, where water supplies were already under Inka control. By the time of Spanish contact, Inka domains extended far into Ecuador in the north and were expanding into the rain forests on the eastern side of the Andes.

A. Inka rulers were far more than conquerors. They were brilliant propagandists, reminding everyone that they were gods and that everyone's welfare depended on them. They were careful to reward bravery in battle and to bring economic advantage to those they conquered.

B. The Inka succeeded because they combined benefits, economic incentives, rewards, and justifications with a powerful ideology. Above all, they were consummate administrators, who presided over an empire of remarkable cultural and environmental diversity without written records, just a system of knotted strings.

VI. Tawantinsuyu, the "Land of the Four Quarters," radiated out from the center of the world at Cuzco, high in the Andes. Laid out on a cruciform plan, Cuzco was centered around a central plaza bisected by two rivers.

A. Just south stood the Coriancha, the Temple of the Sun, six buildings of one room with gold-covered walls surrounding a central courtyard. A closely fitted masonry wall surrounded the entire complex, which boasted of a garden of golden plants in front of a shrine with a golden image of the sun.

B. Inka architects were master builders. They dragged granite blocks to the capital, then trimmed them with river cobbles to fit perfectly with their neighbors and create earthquake-proof walls.

C. Such efficiency was typical of an empire divided into four large provinces and run using carefully modified institutions, such as *mit'a* labor, adopted from earlier states.

D. The essence of effective government of distant lands was efficient communications, combined with a passion for organization. The Inka created en elaborate road system, linking ancient roadways like those of the Chimu with other systems and building rest houses at regular intervals. Thus, they could move armies, dispatch messengers, and send llama caravans with trade goods the length and breadth of Tawantinsuyu.

E. Inka passion for organization impinged on everyone's lives. They divided society into twelve age divisions for census and tax assessment, with adulthood lasting as long as one could complete a day's work.

F. Inka scribes used the *quipu*, a knotted string, to keep accurate inventories of everything from the resources of conquered lands to the contents of village storehouses. The *quipu* was a powerful instrument for ensuring social conformity.

VII. By the early sixteenth century, Tawantinsuyu was in trouble. The need for continuous expansion fueled by split inheritance and the sheer size of the empire was causing horrendous logistical problems.

A. Civil war was raging when Spanish adventurer Francisco Pizarro landed in Tawantinsuyu in 1532. Pizarro captured the Supreme Inca, Atahuallpa, by treachery and murdered him. A year later, he and his men were masters of the greatest of all native American empires.

B. In Lecture Thirty-Six, we discuss the end of prehistory and the main themes of this course.

Essential Reading:

Michael Moseley, *The Inca and Their Ancestors*, chapters 1–4.

Chris Scarre and Brian Fagan, *Ancient Civilizations*, chapter 18.

Supplementary Reading:

John Hemming, *The Conquest of the Inca*.

Questions to Consider:

1. What were the fundamental tactics used by Andeans to forge states and empires?
2. What were the fatal weaknesses of Tawantinsuyu and why was it destined to collapse even if the Spanish had not arrived?

Lecture Thirty-Six
Epilogue

Scope: The first part of the last lecture discusses the end of human prehistory during the European Age of Discovery, from the fifteenth century A.D. onward, for in some parts of the world, prehistoric times ended in the twentieth century. We then summarize the four major chapters of human prehistory—the archaic world, the appearance and spread of modern humans, food production, and the development of states—that provided the framework for the narrative in this course. Finally, we discuss the importance of an understanding of human prehistory in today's world, including the contributions that it makes to our comprehension of diversity, of the ways we are similar and different.

Outline

I. The final chapter of human prehistory began with the age of Western exploration, with the rounding of the Cape of Good Hope and the European discovery of the Americas. For five centuries, an increasingly elaborate and industrialized Western civilization clashed with a multitude of non-Western societies in all parts of the world.

A. This "clash of cultures," as it is sometimes called, witnessed the inexorable destruction of hundreds of subsistence-level societies. As we know from Aztec accounts of the Spanish Conquest and from oral traditions recorded in other parts of the world, at first, the people often thought that the strange visitors were gods. All too soon and wherever they appeared, the strangers proved not to be deities, but to be only too human—aggressive, warlike, and acquisitive.

1. At first, the contacts were fleeting. But soon Europeans came in larger numbers, to trade for furs, refit their ships, or convert the heathen. In many places, a flood of colonists soon followed the first visitors, in search of farming land and new homes.

2. Almost inevitably, the indigenous population, direct descendants of once-flourishing prehistoric societies, lost their land, which had been vested in the same kin groups for centuries. Within a few generations, they were either assimilated into the newcomers' society, where they almost always lived on the margins, or preserved a shadow of their former life on remote, marginal lands.

B. The insatiable maw of industrial civilization, run by fossil fuels, completed the process of destruction, fostering unending demands for raw materials of all kinds. The mass population movements of the nineteenth and twentieth centuries had catastrophic effects on the last remaining societies with direct ancestry in the prehistoric world.

C. Today, there are no parts of the world where human societies are untouched by industrial civilization, even if there are some groups deep in the Amazon rain forest and in New Guinea that have not had sustained contact with the wider world. Human prehistory ended in the twentieth century.

II. This course has told the story of 2.5 million years of human prehistory, from our origins among the primates in tropical Africa before the Ice Age to the European Age of Discovery. The prehistory of humankind can be divided into four broad chapters, which often overlap:

A. *Archaic humanity*. The prehistory of the archaic world was the longest period of all, lasting over 2.2 million years. It began with human origins more than 2.5 million years ago and with the appearance of the first tool-making hominids in sub-Saharan Africa.

1. It continued with the evolution of *Homo erectus*, the dispersal of archaic humans out of Africa into Asia, and the development of fire about 2 million years ago.

2. Over the next 1.5 million years, humanity evolved slowly in many parts of the Old World. This culminated in the appearance of archaic *Homo sapiens* in Asia and of the Neanderthals in Europe about 100,000 years ago.

B. *Modern Humans*. The appearance of anatomically modern humans, ourselves, in sub-Saharan Africa between 200,000 and 150,000 years ago remains one of the great controversies in human prehistory.

1. We concluded that an African origin was most likely and traced the spread of *Homo sapiens sapiens* across the Sahara Desert into Southwest Asia, then into Europe and all parts of the Old World, except

the offshore Pacific, by the end of the Ice Age some 15,000 years ago. At some still unknown date near the end of the Ice Age, small numbers of modern humans also spread into the Americas.

2. This much shorter chapter, marked by greater elaboration of human society and the first art, began about 200,000 to 150,000 years ago and ended about 15,000 years before present.

C. *Food Production*. Twelve thousand years ago, a defining chapter in human history began, when hunter-gatherers in Southwest Asia turned from foraging to cereal cultivation and animal herding. Food production also developed in other areas, such as East Asia, somewhat later.

1. The new economies spread rapidly in the Old World within a few thousand years. Maize cultivation began in Central America at least 7,000 years ago. The importance of food production lies not so much in its invention as in its consequences—permanent villages, new relationships to the land, more complex social and religious institutions, and higher, more densely packed populations.
2. By the time of Christ, subsistence farming was practiced everywhere in the world where it was practicable or where there was a need for it.

D. *State Formation*. The shortest chapter of prehistory began about 5,000 years ago in Southwest Asia and some 3,000 years ago in the Americas. This was the period of the preindustrial civilizations, of divine rulers and strongly centralized governments, of teeming cities, writing, and metallurgy.

1. This was also the period when some lasting human conditions came into being—chronic social inequality, rural and urban poverty, endemic warfare, despotism, and slavery.
2. In a real sense, we live with the legacy of the preindustrial world and grapple with the same fundamental economic, political, and social problems as did our remote predecessors.

III. Prehistory is no intellectual curiosity, to be studied by archaeologists alone or to be the subject of museum displays of spectacular artifacts. The story of humankind before writing is of vital and engaging importance to all humanity.

A. Human prehistory is the story of humanity as a whole, wherever they live. It is a compelling chronicle, not only of our ultimate origins among the apes, but of the remarkable biological and cultural diversity of humankind.

B. Prehistory reminds us not that we are different from one another, but that we are all quite similar to one another. After all, we are all from a common African origin, a mere 100,000 years ago. Prehistory is a celebration of human diversity.

C. From the beginnings of our existence, humans have existed against a backdrop of constant climatic and environmental change. Some of these shifts lasted for millennia; others, for centuries; many more, for a few months or even weeks.

1. The chronicle of prehistory shows us just how vulnerable we are to the sudden twists and turns of global climate—to drought and flood, earthquake and fire.
2. Prehistory is a lesson in increasing environmental vulnerability through time, a vulnerability to the forces of nature even more acute today, with chronic overbuilding of coastal plains and many more people on earth than ever before.
3. Two and a half million years of human prehistory provide us with a fascinating perspective on the potential dangers of anthropogenic global warming.

D. The earliest historical records anywhere go back about 5,000 years—in Egypt and Mesopotamia. But it was many centuries before these records became true historical chronicles. In many parts of the world, written records did not exist until the arrival of European explorers and colonists. In parts of Africa, for example, archaeology and oral histories (which have limited chronological depth) are the only records of the recent and more remote past.

E. Human prehistory is the unwritten history of numerous societies throughout the non-Western world, apart from being an extension of history much further into the past in such areas as Europe with longer historical records. As such, it is a priceless record of humankind.

F. We learn some important lessons about humanity from prehistory, which come from thousands of archaeological sites, from artifacts, food remains, and all the panoply of modern archaeological research:

1. We are all descended from African roots and share a common humanity that unites us more than divides us.

2. There are numerous solutions to living successfully in the world. Not all human societies became farmers or herders. By no means all farming chiefdoms developed greater and greater elaboration and became full-fledged urban civilizations. Civilization was not necessarily a panacea to the evils of an increasingly crowded world, a solution for food shortages or predatory neighbors.

IV. But the greatest lesson we learn is that prehistory was not a matter of artifacts and changing technologies, of villages and cities, or gold trade or mother goddesses. It is a story of human beings, as individuals, as man and wife, as families, groups, communities, or special interests, going about their daily business, making decisions, and living out their lives in the expectation that they would survive.

A. This humanity, this decision making, is the essential fabric of our past and is why it is important for us to understand the lessons of both the recent and the more remote past.

B. The nineteenth-century German statesman Otto von Bismarck once remarked that humanity was afloat on a stream of time and that our skill in navigating the stream was the critical factor in shaping history. The same stream of time ran strongly throughout prehistory. We are what we are because our ancestors navigated its turbulent waters with aplomb and skill.

Essential Reading:

Brian Fagan, *Clash of Cultures*.

Supplementary Reading:

Eric Wolf, *Europe and the People without History*.

Questions to Consider:

1. Why is it important to have an understanding of human prehistory?
2. What is the importance of climate change in prehistory?

Bibliography

Essential Reading

Aldred, Cyril. *The Egyptians*. 2nd ed. London and New York: Thames and Hudson, 1998. The best short summary of ancient Egypt available.

Bahn, Paul, and Jean Vertut. *Images of the Ice Age*. New York: Viking., 1988. A magnificently illustrated account of Cro-Magnon art for a general audience.

Barker, Graeme. *Prehistoric Farming in Europe*. Cambridge: Cambridge University Press, 1985. A detailed account for students of early farming societies in Europe.

Barnes, Gina L. *China, Korea, and Japan*. London and New York: Thames and Hudson, 1992. Barnes has written a clear synthesis of the roots of East Asian civilization.

Coe, Michael. *The Maya*. 6th ed. London and New York: Thames and Hudson, 1999. This is *the* popular account of the Maya for students and a general audience alike. Superb illustrations.

Dillehay, Tom. *First Settlement of America: A New Prehistory*. New York: Basic Books, 2000. An excellent, quite technical book on the first Americans. Main focus is South America.

Fagan, Brian M. *The Great Journey.* London and New York: Thames and Hudson, 1987. A popular book on the first Americans. Somewhat outdated, but still basically correct.

———. *The Journey from Eden*. London and New York: Thames and Hudson, 1990. A popular account of the origins of modern humans, which is still relatively up-to-date on the great diaspora.

———. *Clash of Cultures*. 2nd ed. Walnut Creek, CA: AltaMira Press, 1998. A simple account of contacts between Westerners and non-Westerners, A.D. 1430 to 1900.

———. *Ancient North America*. 3rd ed. London and New York: Thames and Hudson, 2000. A synthesis of North American prehistory aimed mainly at students and interested lay people. A fairly technical read. Lavishly illustrated.

———. *People of the Earth*. 10th ed. Upper Saddle River, NJ: Prentice Hall, 2001. A prehistory of humankind aimed at the college market. The most comprehensive available. Said to be understandable by the lay person—although I am biased!

———. *In the Beginning: An Introduction to Archaeology*. 10th ed. Upper Saddle River, NJ: Prentice Hall, 2001. A comprehensive introduction to archaeological method and theory for college students; jargon-free for beginners.

———. *Archaeology: A Brief Introduction*. 8th ed. Upper Saddle River, NJ: Prentice Hall, 2002. A brief paperback summary of the principles of archaeology for beginners.

Fagan, Brian M., and Kenneth Garrett. *Egypt of the Pharaohs.* Washington, DC: National Geographic Society, 2001. A straightforward narrative of ancient Egypt for the general reader. Lavish illustrations.

Foley, Robert. *Humans before Humanity*. Oxford: Blackwell, 1995. An ecological approach to human origins; elegantly argued and convincing.

Gamble, Clive. *The Palaeolithic Societies of Europe*. Cambridge: Cambridge University Press, 1999. The definitive account of the first settlement of Europe. Strong on the social aspects of prehistory. Technical, but readable.

Higham, Charles. *The Civilization of Angkor*. Berkeley: University of California Press, 2001. The best account of Khmer civilization available, based on archaeology and history.

Johanson, Don, and Maitland Edey. *Lucy.* New York: Simon and Schuster, 1981. A lively account of the discovery of *Australopithecus afarensis*. For a popular audience.

Kenyon, Kathleen. *Digging up Jericho.* New York: Frederick Praeger, 1957. A readable story of the discovery of the earliest settlements at Jericho.

Kirch, Patrick. *On the Road of the Winds*. Berkeley: University of California Press, 2000. An up-to-date account of Pacific settlement by a leading authority.

Kramer, Samuel. *The Sumerians*. Chicago: University of Chicago Press, 1963. Kramer's book is a wonderful essay on Sumerian civilization that draws on tablet records. Eminently readable.

Lewin, Roger. *The Origins of Modern Humans*. New York: Scientific American Library, 1993. A quick once-over on modern human origins with a strong evolutionary background. Well illustrated.

———. *Principles of Human Evolution*. Rev. ed. Cambridge, MA: Blackwell, 1998. The best college textbook on human evolution and readable to boot.

MacQueen, J. G. *The Hittites*. 3rd ed. London and New York: Thames and Hudson, 1996. An excellent summary of Hittite civilization. Well illustrated.

Marcus, Joyce, and Kent Flannery. *Zapotec Civilization*. London and New York: Thames and Hudson, 1996. The only synthesis of the origins of Zapotec civilization. Excellent on Monte Albán.

McIntosh, Jane R. *A Peaceful Realm.* Boulder, CO: Westview Press, 2002. A beautifully written, up-to-date account of the Harappan civilization. The most accessible source on the subject.

Milner, George. *The Cahokia Kingdom.* Washington, DC: Smithsonian Institution Press, 1998. A wonderful introduction to one of North America's most spectacular archaeological sites.

Mithen, Steven. *The Prehistory of the Mind*. London and New York: Thames and Hudson, 1996. A masterly and provocative essay on the evolution of the mind; written for a general audience.

Moore, Andrew. *Village on the Euphrates*. New York: Oxford University Press, 2000. Quite simply the most thorough scientific monograph on an early farming village ever published. Highly technical, but well written and fascinating.

Plog, Stephen. *Ancient Peoples of the American Southwest.* London and New York: Thames and Hudson, 1997. A straightforward account of southwestern archaeology for near beginners.

Renfrew, Colin, and Paul Bahn. *Archaeology*. 3rd ed. London and New York: Thames and Hudson, 2000. The most comprehensive college textbook on archaeological methods on the market. Lavishly illustrated.

Schele, Linda, and David Freidel. *A Forest of Kings*. New York: William Morrow, 1990. A complex and evocative account of Maya civilization written using archaeology and deciphered scripts. Controversial but well worth reading.

Smith, Bruce D. *The Emergence of Agriculture*. New York: Scientific American Library, 1995. Readable and authoritative, this is the best account of the subject in print.

Stringer, Chris, and Clive Gamble. *The Search for the Neanderthals*. London and New York: Thames and Hudson, 1993. A comprehensive, popular account of the Neanderthals of exceptional quality. Well illustrated.

Stringer, Chris, and R. McKie. *African Exodus*. New York: Henry Holt, 1998 (reprint). An excellent popular essay on modern human origins.

Taylour, Lord William. *The Mycenaeans*. 2nd ed. London and New York: Thames and Hudson, 1990. The best general account of the Mycenaeans currently available. Well illustrated.

Townsend, Richard F. *The Aztecs*. Thames and Hudson: London and New York, 1992. An excellent popular account of Aztec civilization, with numerous illustrations.

Trinkhaus, Erik, and Pat Shipman. *The Neanderthals: Changing the Image of Mankind.* New York: Alfred Knopf, 1992. Another excellent account of what we know about the Neanderthals.

Warren, Peter. *The Aegean Civilizations*. Oxford: Phaidon, 1989. A well-illustrated general account of Minoan and Mycenaean civilization.

White, Randall. *Dark Caves, Bright Images*. New York: American Museum of Natural History, 1986. A popular account of Cro-Magnon culture and art, originally written for a museum exhibit. Lavishly illustrated.

Supplementary Reading

Allchin, Raymond. *The Archaeology of Early Historic South Asia*. Cambridge: Cambridge University Press, 1982. Allchin's somewhat technical account is the standard work, if outdated in places.

Bense, Judith A. *Archaeology of the Southeastern United States*. San Diego: Academic Press, 1994. A straightforward summary of the subject.

Bordes, François. *The Old Stone Age*. New York: McGraw Hill, 1968. A simple account of Stone Age cultures and their technology; excellent on prepared cores and blades. Out of print, but readily available in libraries.

Chang, Kwang-Chi. *Shang Civilization*. New Haven, CT: Yale University Press, 1980. Chang's study of the Shang is a classic but is clearly written and reasonably intelligible for the general reader.

Clendinnen, Inga. *The Aztecs: An Interpretation*. Cambridge: Cambridge University Press, 1991. A marvelous essay on the Aztecs with special reference to the Spanish Conquest. Eloquent, intellectually challenging, scholarly.

Coe, Michael. *Mexico*. 2nd ed. London and New York: Thames and Hudson, 1994. A popular account of Mexican archaeology that covers much of Mesoamerica.

Cordell, Linda. *Archaeology of the Southwest*. 2nd ed. San Diego, CA: Academic Press, 1997. A general account of the Southwest that is aimed at a student and more technically inclined audience. Full of interesting ideas.

Crawford, Harriet. *Sumer and the Sumerians*. Cambridge: Cambridge University Press, 1991. A serious study of Sumerian civilization but full of useful detail.

Dickinson, Oliver. *The Aegean Bronze Age*. Cambridge: Cambridge University Press, 1994. A technical account of the subject aimed at advanced students and specialists, Dickinson's work is valuable for detailed study.

Emerson, Thomas. *Cahokia and the Archaeology of Power*. Tuscaloosa, AL: University of Alabama Press, 1997. A technical work, but an excellent example of how archaeologists are thinking about the Mississippian culture.

Fiedel, Stuart. *Prehistory of the Americas*. 2nd ed. Cambridge: Cambridge University Press, 1992. A general account of the subject, intelligently argued.

Finney, Ben. *Voyage of Rediscovery*. Berkeley: University of California Press, 1994. A popular account of recent research into indigenous Pacific navigation and of modern-day voyages in canoe replicas. Simply fascinating.

Gamble, Clive. *Timewalkers*. Stroud, England: Alan Sutton, 1993. A semi-popular account of early human migrations.

Hemming, John. *The Conquest of the Incas*. New York: Harcourt Brace Jovanovich, 1970. The classic story of the Spanish Conquest of the Inka told in vivid prose.

Henry, Donald O. *From Foraging to Agriculture.* Philadelphia: University of Pennsylvania Press, 1989. Excellent description of the Natufian culture. For the more technical reader.

Higham, Charles. *The Archaeology of Mainland Southeast Asia*. Cambridge: Cambridge University Press, 1989. A technical synthesis of this area; comprehensive, although aimed at students and specialists. The best summary available.

Hoffecker, John F. *Desolate Landscapes*. New Brunswick, NJ: Rutgers University Press, 2002. An up-to-date synthesis of Ice Age societies in Eastern Europe; aimed at students but quite readable.

Irwin, Geoffrey. *The Prehistoric Exploration and Colonization of the Pacific*. Cambridge: Cambridge University Press, 1992. An engrossing scholarly analysis of the navigational realities behind the first settlement of the Pacific. Written by a scholar and practical sailor.

Klein, Richard. *The Human Career*. 2nd ed. Chicago: University of Chicago Press, 1999. A thorough and scholarly analysis of human evolution from both biological and cultural standpoints. A reliable if somewhat technical source.

Lewin, Roger. *Bones of Contention*. New York: Simon and Schuster, 1987. A popular account of some of the squabbles over human evolution. Very entertaining on the personalities.

Oliver, Roland. *The African Experience*. 2nd ed. Madison, WI: University of Wisconsin Press, 2000 . A popular essay on African history that summarizes the high points and major controversies.

Postgate, Nicholas. *Early Mesopotamia: Economy and Society at the Dawn of History.* London: Kegan Paul, 1993. An excellent synthesis, much of it based on Postgate's own work.

Redman, Charles L. *The Rise of Civilization: From Early Farmers to Urban Society in the Ancient Near East*. San Francisco: W.H. Freeman, 1978. Redman's account of the rise of civilizations is aimed at college students but is invaluable for the general reader.

Reeves, Nicholas. *The Complete Tutankhamun*. London and New York: Thames and Hudson, 1990. Everything you ever wanted to know about the boy pharaoh and his tomb, and then some more. Complete with superb illustrations.

Roberts, Mark, and Simon Parfitt. *A Middle Pleistocene Hominid Site at Eartham Quarry, Boxgrove, West Sussex.* London: English Heritage, 1999. A popular account of a major *Homo erectus* site.

Sabloff, Jeremy A. *The Cities of Ancient Mexico*. London and New York: Thames and Hudson, 1989. A straightforward account of the major Maya sites for the general reader.

Shaw, Ian, ed. *The Oxford History of Ancient Egypt*. New York: Oxford University Press, 2000. A fascinating edited history of Egypt, with chapters by experts.

Stanford, Craig B. *The Hunting Apes*. Princeton, NJ: Princeton University Press, 1999. An extended essay on meat and human evolution. Fascinating, closely argued, and convincing.

Struever, Stuart, and E. Holton. *Koster: Americans in Search of the Prehistoric Past*. New York: Anchor Press, 1979. A vivid popular telling of the Koster excavations.

Thorpe, I. J. *The Origins of Agriculture in Europe*. London: Routledge, 1999. Another general account of early European farming aimed at a serious archaeological audience.

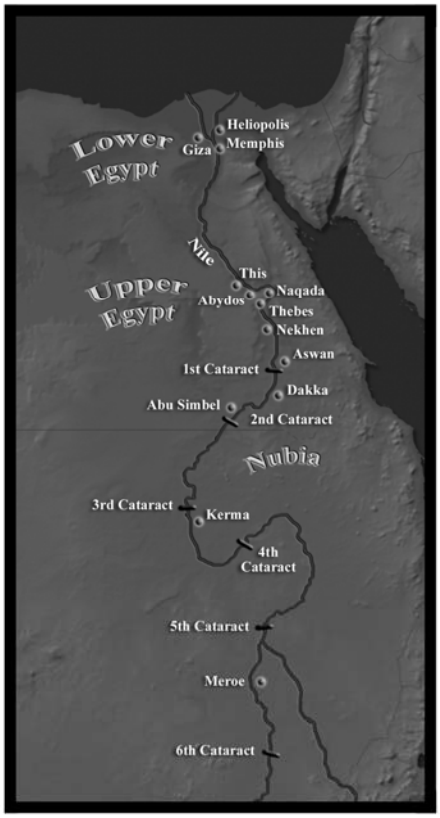
Wang, Zhongshu. *Han Civilization*. New Haven, CT: Yale University Press, 1982. An excellent scholarly account of this important period in Chinese history.

Wheeler, Mortimer. *The Indus Civilization*. 2nd ed. Cambridge: Cambridge University Press, 1963. Outdated but excellent on the Harappa and Mohenjodaro excavations. Wheeler was opinionated; so is this book!

Whittle, Alistair. *Europe in the Neolithic: The Creation of New Worlds.* Cambridge: Cambridge University Press, 1996. A closely argued synthesis that requires some background knowledge.

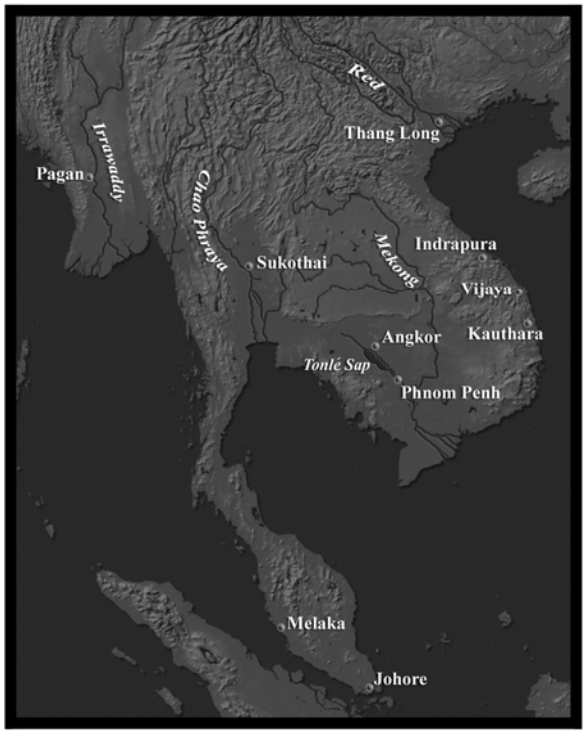
Wolf, Eric. *Europe and the People without History*. Berkeley, CA: University of California Press, 1984. A masterly account of non-Western societies and global interconnectedness by an anthropologist with impressive credentials. A hard read but worth it.

The East African Coast

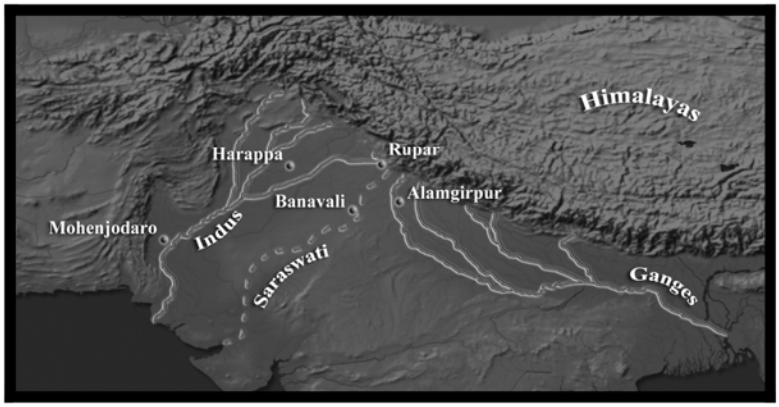


Egypt and Nubia

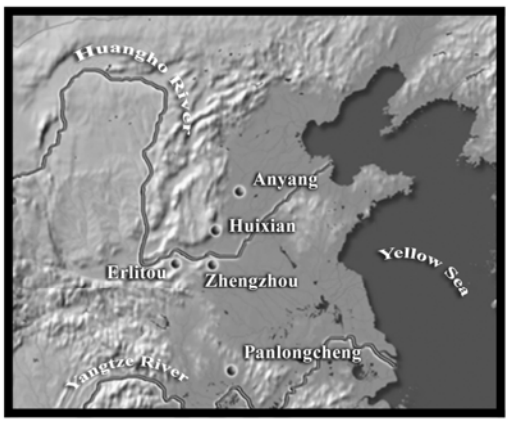
The Chimu State (c. 1470)



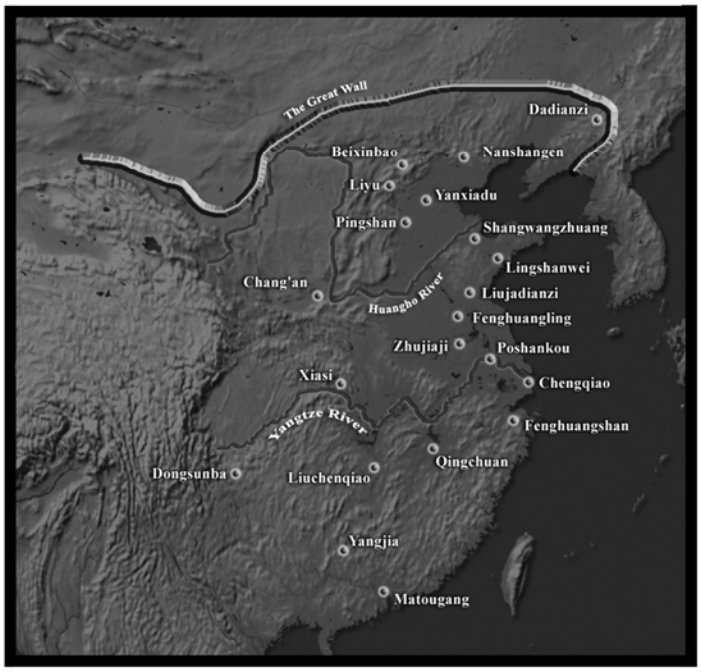
Southeast Asia



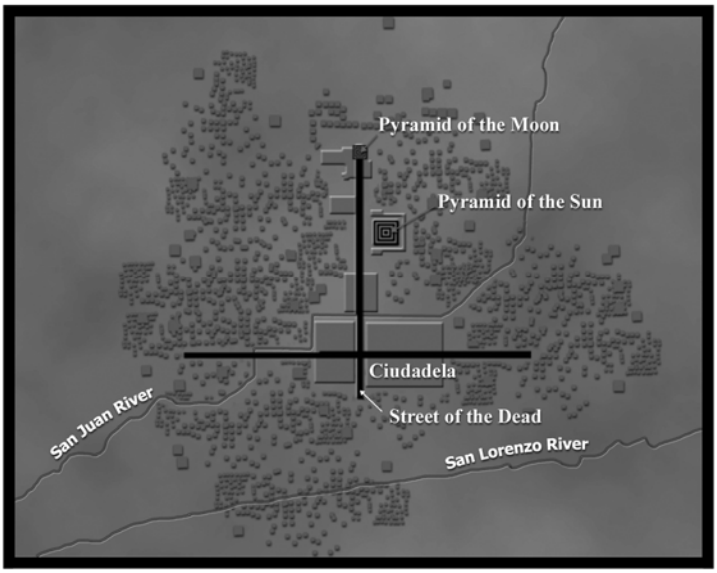
Civilizations on the Indian Subcontinent



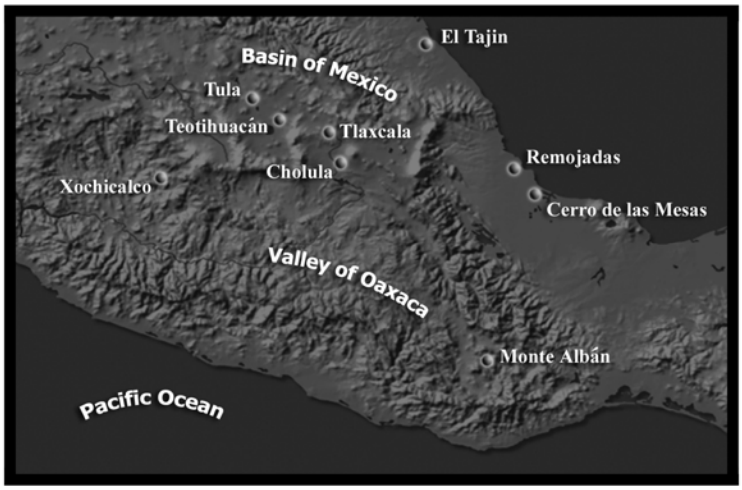
Cities associated with the origins of Chinese Civilization



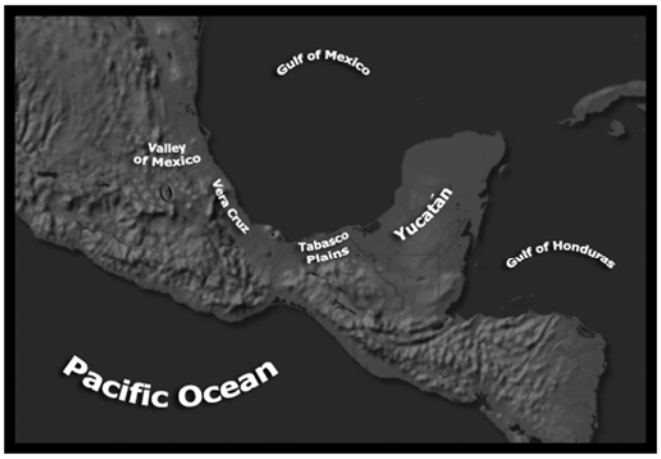
Cities associated with the Zhou and Han Dynasties of Chinese Civilization



Plan of the city of Teotihuacán



Highland Mesoamerica



Geographic areas important to early Mesoamerican civilization

Maya Civilization

Andean Civilization