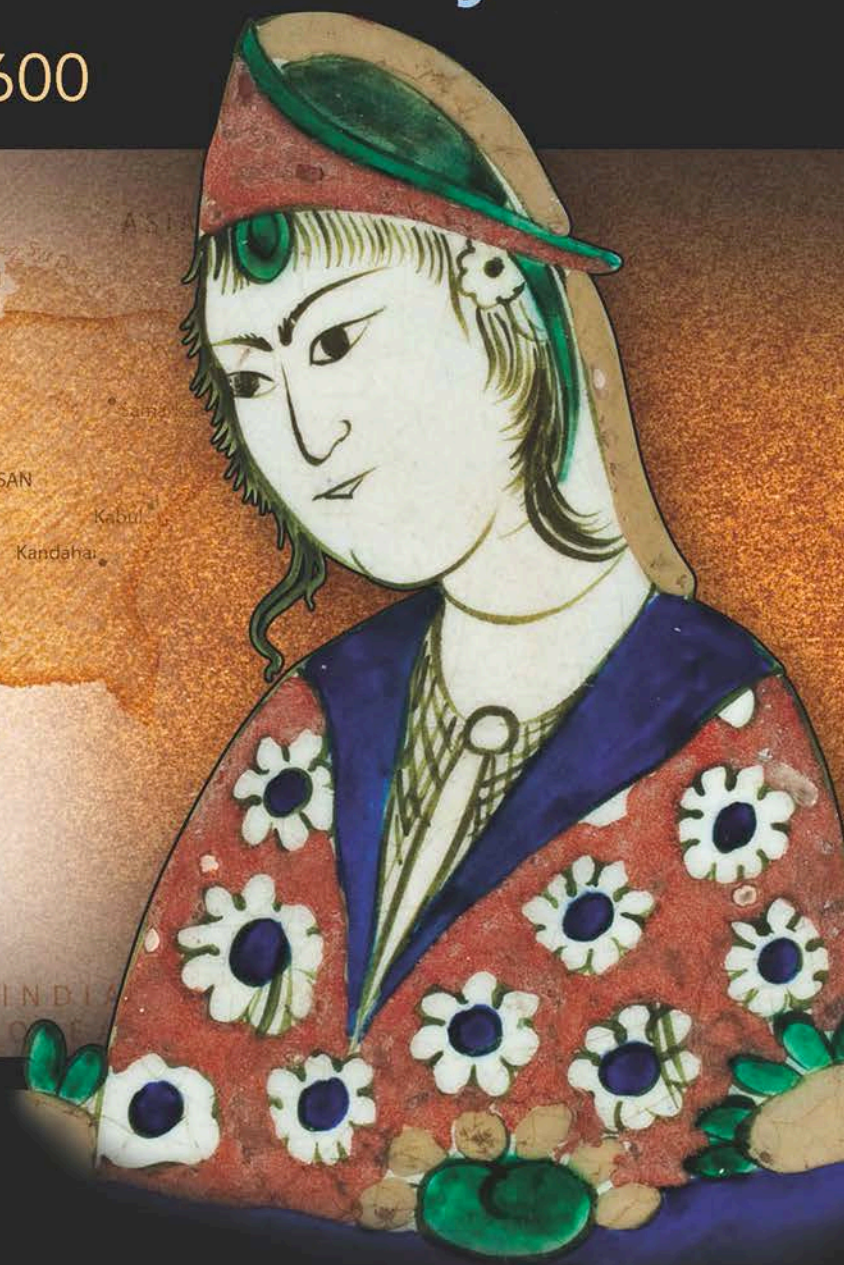
VOYAGES in World History

Third Edition

Volume 1: To 1600



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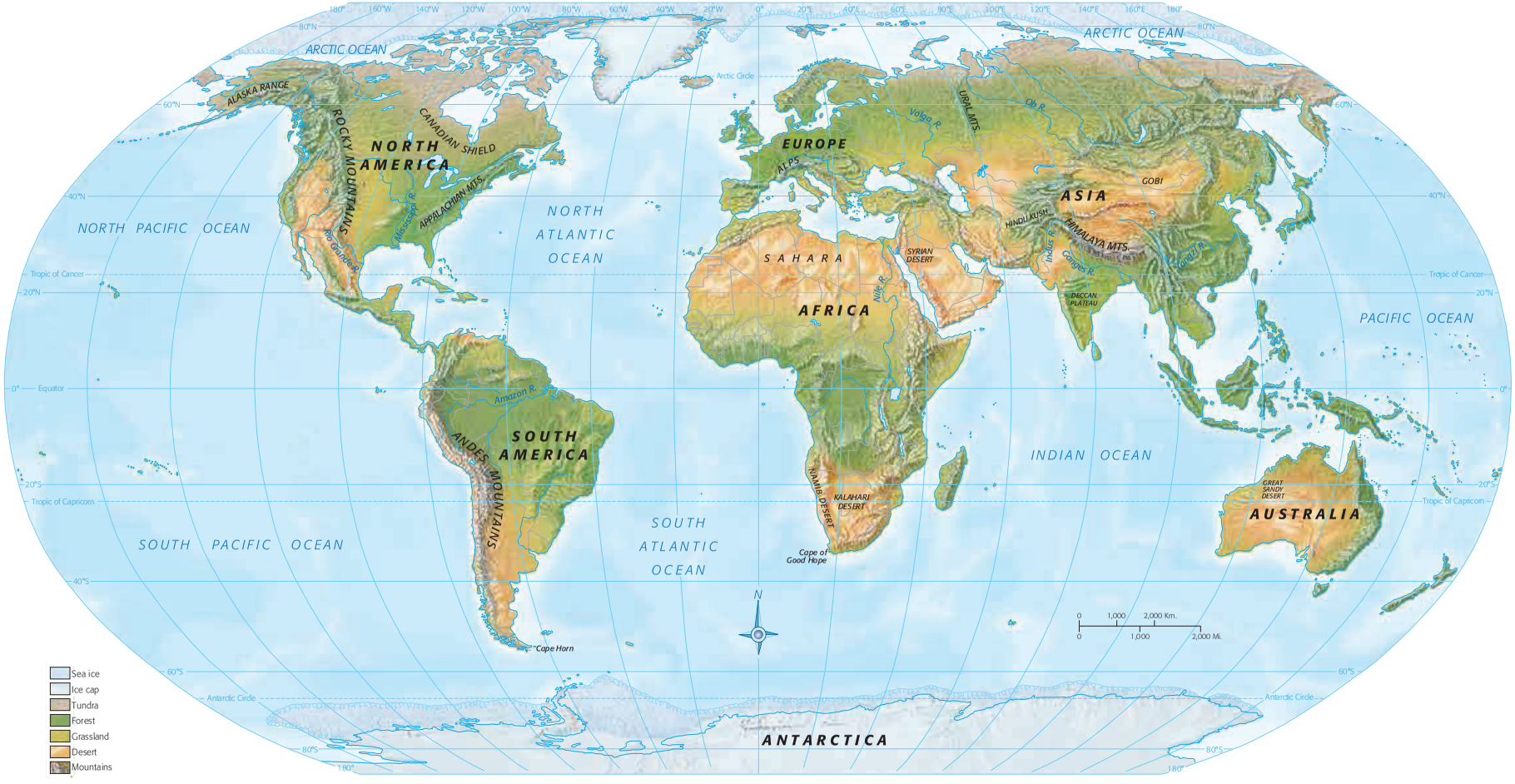

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VOYAGES
in World History

VOYAGES
in World History

Volume 1: To 1600

Third Edition

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Voyages in World History **Volume 1: To 1600, Third Edition**
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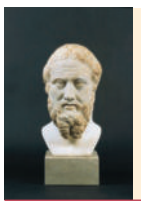

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MAPS

VISUAL EVIDENCE IN PRIMARY SOURCES

MOVEMENT OF IDEAS THROUGH PRIMARY SOURCES

WORLD HISTORY IN TODAY'S WORLD

Preface

What makes this book different from other world history textbooks?

- Each chapter opens with a narrative about a traveler, whose real-life story is woven throughout the chapter. The *interactive map activity*, available through MindTap™, continues the story of the traveler online, allowing students to click on each important location the traveler visited to learn more about the historical, cultural, and political significance of the journey.
- Shorter than most world history textbooks, this survey still covers all of the major topics required in a world history course, as well as others we have found to be of interest to our students.
- The book's theme of movement highlights cultural contact and discovery and is reinforced in each chapter through the opening map, highlighting a specific traveler's journey, as well as through the unique chapter features, including *Movement of Ideas Through Primary Sources* and *Visual Evidence in Primary Sources*, which teach analytical skills and provoke critical thinking by inviting students to compare viewpoints.
- Brief *Context & Connections* inserts within the chapter text provide specific linkages and comparisons with other regions and periods, and the broader chapter-ending *Context and Connections* essay helps students understand the connections among different regions and periods, as well as global effects and trends.
- A robust digital support package includes numerous ways for students to further engage with the main themes of the text. The interactive environment of MindTap™ helps students exercise their critical thinking skills through a variety of activities and in a variety of formats.
- A beautiful, engaging design features an on-page glossary, a pronunciation guide, and chapter-opening focus questions. These tools help students grasp and retain the main ideas of the chapters.

This world history textbook will, we hope, be enjoyable for students to read and for instructors to teach. We have focused on thirty-two different people and the journeys they took, starting forty thousand years ago with Mungo Man in Australia (Chapter 1) and concluding in the twenty-first century with Chinese artist Ai Weiwei. Each of the thirty-two chapters introduces multiple focus points. First, the traveler's narrative introduces the home society and the civilizations visited, demonstrating our theme of the movement of people, ideas, trade goods, and artistic motifs and the results of these contacts. We introduce other evidence, often drawn from primary sources (marked in the running text with italics), to help students reason like historians. Each chapter also covers changes in political structure, the spread of world religions, and prevailing social structure and gender relations. Other important topics include cultural components and the effects of technology and environment.

The chapter-opening narratives enhance the scope and depth of the topics covered. The travelers take us to Tang China with the Japanese Buddhist monk Ennin, to Africa and South Asia with the hajj pilgrim Ibn Battuta, to Peru with the cross-dressing soldier and adventurer Catalina de Erauso, across the Atlantic with the African Olaudah Equiano, and to Europe during the Industrial Revolution with the Russian anarchist Mikhail Bakunin. Their vivid accounts are important sources about these long-ago events that shaped our world. Almost all of these travel accounts are available in English translation, listed in the suggested readings at the end of each chapter. Students new to world history, or to history in general, will find it easier, we hope, to focus on the experience of thirty-two individuals before focusing on the broader trends in their societies and their place in world history.

Instead of presenting a canned list of dates, each chapter covers the important topics at a sensible and careful pace, without compromising coverage or historical rigor. Students compare the traveler's perceptions with alternative sources, and so awaken their interest in the larger developments. Our goal was to select the most compelling topics and engaging illustrations from the entire record of human civilization and to present them in a clear flowing narrative in order to counter the view of history as an interminable compendium of geographical place, names, and facts.

We have chosen a range of travelers, both male and female, from all over the world. These individuals help cast our world history in a truly global format, avoiding the Eurocentrism that prompted the introduction of world history courses in the first place. Some travelers were well born and well educated, while others were not.

Our goal in focusing on the experience of individual travelers is to help make students enthusiastic about world history, while achieving the right balance between the traveler's experience and the course material. We measure our success by all the encouragement we have received both from instructors who teach the course and from students.

We aspire to answer many of the unmet needs of professors and students in world history. Because our book is not encyclopedic, and because each chapter begins with a narrative of a trip, our book is more readable than its competitors, which strain for all-inclusive coverage. They pack so many names and facts into their text that they leave little time to introduce beginning students to historical method, which we do explicitly at the start of Chapter 2 and continue to do in subsequent chapters. Because our book gives students a chance to read primary sources in depth, particularly in the Movement of Ideas Through Primary Sources feature, instructors can spend class time teaching students how to reason historically—not just imparting the details of a given national history. Each chapter includes focus questions that make it easier for instructors new to world history to facilitate interactive learning.

Our approach particularly suits the needs of young professors who have been trained in only one geographic area of history. Our book does not presuppose that instructors already have broad familiarity with the history of each important world civilization.

Theme and Approach

Our theme of movement and contact is key to world history because world historians focus on connections among the different societies of the past. The movement of people, whether in voluntary migrations or forced slavery, has been one of the most fruitful topics for world historians, as are the experiences of individual travelers. Their reactions to the people they met on their journeys reveal much about their home societies as well as about the societies they visited.

Our focus on individual travelers illustrates the increasing ease of contact among different civilizations with the passage of time. This theme highlights the developments that resulted from improved communications, travel among different places, the movement of trade goods, and the mixing of peoples. Such developments include the movement of world religions, mass migrations, and the spread of diseases like the plague. *Voyages* shows how travel has changed over time—how the distance covered by travelers has increased at the same time that the duration of trips has decreased. As a result, more and more people have been able to go to societies distant from their own.

Voyages and its integrated online components examine the different reasons for travel over the centuries. While some people were captured in battle and forced to go to new places, others visited different societies to teach or to learn the beliefs of a new religion like Buddhism, Christianity, or Islam. This theme, of necessity, addresses questions about the environment: How far and over what terrain did early man travel? How did sailors learn to use monsoon winds to their advantage? What were the effects of technological breakthroughs like steamships, trains, and airplanes—and the use of fossil fuels to power them? Because students can link the experiences of individual travelers to this theme, movement provides the memorable organizing principle for the book, a principle reinforced in the interactive online journeys offered by the *interactive map activity* on MindTap.

Having a single theme allows us to provide broad coverage of the most important topics in world history. Students who use this book will learn how empires and nations grew in power or influence, and how their ways of organizing their governments differed. Students need not commit long lists of rulers' names to memory; instead they focus on those leaders who created innovative political structures. This focus fits well with travel, since the different travelers were able to make certain journeys because of the political situation at the time. For example, William of Rubruck was able to travel across all of Eurasia because of the unification brought by the Mongol empire, while the size and strength of the Ottoman empire facilitated Evliya

Çelebi's travels to Vienna and Egypt and across Southwest Asia.

Many rulers patronized religions to increase their control over the people they ruled, allowing a smooth introduction to the teachings of the major world religions. Volume 1 introduces the major religions and explains how originally regional religions moved across political borders to become world religions. Volume 2 provides context for today's complex interplay of religion and politics and the complex cultural outcomes that occurred when religions expanded into new world regions. The final two chapters analyze the renewed contemporary focus on religion, as seen in the rise of fundamentalist movements in various parts of the world. Our focus on travelers offers an opportunity to explore their involvement with religion, and *Voyages'* close attention to the religious traditions of diverse societies, often related through the travelers' tales, will give students a familiarity with the primary religious traditions of the world.

The topic of gender is an important one in world history, and throughout, *Voyages* devotes extensive space to the experience of women. Although in many societies literacy among women was severely limited, especially in the premodern era, we have included as many women travelers as possible. In addition, extensive coverage of gender and comparison across chapters of women's experiences in different societies allow students to grasp the experience of ordinary women.

Features

We see the features of this book as an opportunity to help students better understand the main text and to expand that understanding as they explore the integrated online features. Here, we describe the features in the printed book. Details about online features are found in the Ancillaries section on the next page.

Chapter Opening Introduction and Map

The beginning of each chapter should capture the student's attention at the outset. The opening section provides a biographical sketch for the chapter's traveler, a portrait, and a passage from his or her writings (or, if not available, a passage about the individual). A map illustrates the route of the traveler using imaginative graphics.

Movement of Ideas Through Primary Sources

This feature offers an introduction, an extensive excerpt from one or more primary sources, and discussion questions. The chosen passages emphasize the movement of ideas, often by contrasting different perspectives on an idea or a religious teaching. The feature aims to develop the core historical skill of analyzing original sources. Topics include "*The Analects* and the Qin Emperor's Stone Texts," "The Five Pillars of Islam," as described in the Hadith of Gabriel and by a contemporary Chinese encyclopedia, and an Iranian narrative of political and commercial competition in early modern Southeast Asia, "Iranians and Europeans at the Court of Siam."

Visual Evidence in Primary Sources

The goal of this feature is to train students to examine an artifact, a work of art, or a photograph and to glean historical information from the find or artwork. A close-up photograph of a recently discovered Chinese terracotta wrestler, for example, shows students how the figure differs from the famous terracotta warriors, and they are asked as well to compare the Chinese wrestler with a Greek example in a later chapter. Portraits of George Washington and Napoleon Bonaparte lead students to analyze the symbolism they contain and how the portraits serve as representations of political power. Discussion questions help students analyze the evidence as they examine the source.

World History in Today's World

This brief feature picks an element of modern life with roots in the period under study. We chose topics interesting to students (for example, "Recreating the World's Oldest Beer" and "From 'Shell Shock' to Post-Traumatic Stress Disorder"), and we highlight their relationship to the past. This feature should provide material to trigger discussion and help instructors explain why world history matters, since students often have little sense that the past has anything to do with their own lives.

Changes in the Third Edition

Every chapter of this new edition has been carefully checked and revised for readability and clarity of language. In every chapter, topics and subtopics

have been added or elaborated on, and recent scholarship has been incorporated throughout the text. Some highlights of specific changes in the second edition follow.

- A new feature has been added: roughly eight to ten Context & Connections inserts within the running text of each chapter. These inserts relate to the surrounding text and describe developments or comparisons that link to other regions and periods to help show students how world history interrelates across time and space. The Context & Connections inserts often include key terms from other chapters, which are highlighted in color with their chapter reference to help emphasize recurring themes and ideas. These inserts complement, but are distinct from, the end-of-chapter Context and Connections essays.
- A total of ten Visual Evidence in Primary Sources and seven Movement of Ideas Through Primary Sources features have been replaced or significantly changed.
- Approximately 30 percent of the illustrations have been replaced with new images, with an eye toward visual interest and engagement.
- A new section at the start of Chapter 2—"Complex Societies and the Discipline of History"—introduces students to historical method and the nature of sources.
- Chapter 4's new traveler, China's Grand Historian Sima Qian, lived during the Han dynasty and wrote a record from the legendary past to 100 B.C.E., after the Qin dynasty (221–207 B.C.E.) unified the empire for the first time.
- Chapter 7 has a new traveler, Egeria, a Spanish pilgrim who from 381 to 384 traveled from the Roman empire's western edge to Jerusalem, Egypt, and Constantinople. Chapter 8 explicitly compares her experience with that of the Japanese Buddhist pilgrim Ennin, and Chapter 9 contrasts their pilgrimages with the hajj of Islam.
- Chapter 12 includes a new section, "The Changing Lives of Women in China's Commercial Revolution," which further illustrates the life of women in Song China.
- In Chapter 14, a new historical analysis of the fall of Constantinople will help students understand the global nature of world history.
- Chapter 15's new traveler is Bernardino de Sahagún, a Franciscan friar who compiled the *General History of the Things of New Spain*, also known as the Florentine Codex, by interviewing the native Nahua people of central Mexico in their own language and recording their answers in Nahuatl with a Spanish summary.
- In Chapter 17, the first main section has been refocused to concentrate on the Ottoman and Safavid empires and their relations. In addition, the chapter's concluding Context and Connections essay now analyzes early modern developments in light of recent scholarship on the role of climate change.
- The new traveler in Chapter 20, Rammohun Roy, a prominent Indian reformer and figure in the Bengal Renaissance, offers an Indian's perspective on the transition from Mughal to British rule.
- Coverage of Mexico from 1910 through Carranza has been moved from Chapter 27 to Chapter 25, providing enhanced continuity in the coverage of Mexican history.
- Chapter 27 has a new traveler, the anarchist and feminist Emma Goldman, who brings to the narrative a broader critique of the Bolshevik system in Russia and an in-depth look at a radical view of women's issues in the early twentieth century.
- The survey of contemporary global affairs in Chapter 32 has been thoroughly updated and also includes greater emphasis on women's leadership.

Ancillaries

Instructor Resources

MindTap™

MindTap for *Voyages in World History*, Third Edition is a personalized, online digital learning platform providing students with an immersive learning experience that builds critical thinking skills. Through a carefully designed chapter-based learning path, MindTap allows students to easily identify the chapter's learning objectives, improve their writing skills by completing unit-level essay assessments, read short and manageable sections from the e-book, and test their content knowledge with a chapter test that employs Aplia™ questions (see Chapter Test description on the next page).

- *Setting the Scene:* Each chapter of the MindTap begins with a brief video that introduces the

chapter's major themes in a compelling, visual way that encourages students to think critically about the subject matter.

- *Interactive Traveler Map:* A unique interactive map activity expands upon each chapter's story of the traveler, allowing students to follow along the journey and click on each stop to learn more about where the traveler went and why it was historically significant. Opening learning objectives, posed as questions, help students focus on what to take away from each unique traveler experience, and place the journey in the context of the chapter's overarching lesson.
- *Review Activities:* Reading comprehension assignments were designed to cover the content of each major heading within the chapter.
- *Chapter Test:* Each chapter within MindTap ends with a summative chapter test. It covers each chapter's learning objectives and is built using Aplia critical thinking questions. All chapter tests include at least one map-based activity. Aplia provides automatically graded critical thinking assignments with detailed, immediate explanations on every question. Students can also choose to see another set of related questions if they did not earn all available points in their first attempt and want more practice.
- *Reflection Activity:* Every chapter ends with an assignable, gradable reflection activity, intended as a brief writing assignment through which students can apply a theme or idea they've just studied.
- *Unit Activities:* Chapters in MindTap are organized into multi-chapter units. Each unit includes a brief set of higher-stakes activities for instructors to assign, designed to assess students on their writing and critical thinking skills and their ability to engage larger themes, concepts, and material across multiple chapters.
- *Classroom Activities:* MindTap includes a brief list of in-class activity ideas for instructors. These are designed to increase student collaboration, engagement, and understanding of selected topics or themes. These activities, including class debate scenarios and primary source discussion guides, can enrich the classroom experience for both instructors and students.

MindTap also includes a variety of other tools that will make history more engaging for students:

- *The Instructor's Resource Center* provides a large collection of searchable, curated readings intended for use in World History. Individual readings may be assigned to students along with a brief assessment to enhance their learning experience.
- *ReadSpeaker* reads the text out loud to students in a voice they can customize.
- *Note-taking and highlighting* are organized in a central location that can be synced with EverNote on any mobile device a student may have access to.
- *Questia* allows professors to search a database of thousands of peer-reviewed journals, newspapers, magazines, and full-length books—all assets can be added to any relevant chapter in MindTap.
- *Kaltura* allows instructors to insert inline video and audio into the MindTap platform.
- *ConnectYard* allows instructors to create digital "yards" and communicate with students based upon their preferred social media sites—without "friending" students.

Instructor Companion Website

This website is an all-in-one resource for class preparation, presentation, and testing for instructors. Accessible through Cengage.com/login with your faculty account, you will find an Instructor's Manual, PowerPoint presentations (descriptions below), and test bank files (please see the Cognero® description below).

Instructor's Manual: For each chapter, this manual contains: chapter outlines and summaries, lecture suggestions, suggested research topics, map exercises, discussion questions for primary source documents, and suggested readings and resources.

PowerPoint® Lecture Tools: These presentations are ready-to-use, visual outlines of each chapter. They are easily customized for your lectures. There are presentations of only lectures or only images, as well as combined lecture and image presentations. Also available is a per-chapter JPEG library of images and maps.

Cengage Learning Testing, Powered by Cognero®: The test bank for *Voyages in World History*, Third Edition is accessible through Cengage.com/login with your faculty account. This test bank contains multiple-choice and essay questions for each chapter.

Cognero® is a flexible, online system that allows you to author, edit, and manage test bank content for *Voyages in World History*, Third Edition. Create multiple test versions instantly and deliver through your LMS from your classroom, or wherever you may be, with no special installs or downloads required.

The following format types are available for download from the Instructor Companion Website: Blackboard, Angel, Moodle, Canvas, and Desire-2Learn. You can import these files directly into your LMS to edit, manage questions, and create tests. The test bank is also available in PDF format from the Instructor Companion Website.

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Student Resources

MindTap™
The learning path for *Voyages in World History*, Third Edition MindTap incorporates a set of resources designed to help students develop their own historical skills. These include interactive, auto-gradable tutorials for map skills, essay writing, and critical thinking. They also include a set of resources developed to aid students with their research skills, primary and secondary source analysis, and knowledge and confidence around proper citations.

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Writing for College History, 1e [ISBN: 9780618306039] Prepared by Robert M. Frakes, Clarion University. This brief handbook for survey courses in American history, Western civilization/European history, and world civilization guides students through the various types of writing assignments they encounter in a history class. Providing examples of student writing and candid assessments of student work, this text focuses on the rules and conventions of writing for the college history course.

The History Handbook, 2e [ISBN: 9780495906766] Prepared by Carol Berkin of Baruch College, City University of New York and Betty Anderson of Boston University. This book teaches students both basic and history-specific study skills such as how to read primary sources, research historical topics, and correctly cite sources. Substantially less expensive than comparable skill-building texts, *The History Handbook* also offers tips for Internet research and evaluating online sources.

Doing History: Research and Writing in the Digital Age, 2e [ISBN: 9781133587880] Prepared by Michael J. Galgano, J. Chris Arndt, and Raymond M. Hyser of James Madison University. Whether you're starting down the path as a history major or simply looking for a straightforward and systematic guide to writing a successful paper, you'll find this text to be an indispensable handbook to historical research. This text's "soup to nuts" approach to researching and writing about history addresses every step of the process, from locating your sources and gathering information, to writing clearly and making proper use of various citation styles to avoid plagiarism.

You'll also learn how to make the most of every tool available to you—especially the technology that helps you conduct the process efficiently and effectively.

The Modern Researcher, 6e [ISBN: 9780495318705]
Prepared by Jacques Barzun and Henry F. Graff of Columbia University. This classic introduction to the techniques of research and the art of expression is used widely in history courses but is also appropriate for writing and research methods courses in other departments. Barzun and Graff thoroughly cover every aspect of research, from the selection of a topic through the gathering, analysis, writing, revision, and publication of findings, presenting the process not as a set of rules but through actual cases that put the subtleties of research in a useful context. Part One covers the principles and methods of research; Part Two covers writing, speaking, and getting one's work published.

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In recognition of his father's precious gift of curiosity, Ken dedicates this book to the memory of James Gavin Curtis.

About the Authors

Valerie Hansen

Valerie Hansen teaches Chinese and world history at Yale University, where she is professor of history. Her main research goal is to draw on nontraditional sources to capture the experience of ordinary people. In particular, she is interested in how sources buried in the ground, whether intentionally or unintentionally, supplement the detailed official record of China's past. Her books include *The Open Empire: A History of China to 1600* (2000) and *The Silk Road*: *A New History* (2012). In the past decade, she has spent three years in China: 2005–2006 in Shanghai on a Fulbright grant, and 2008–2009 and 2011–2012 teaching at Yale's joint undergraduate program with Peking University. She is currently working on a book about the world in the year 1000 and the many unexpected connections that tied different regions together for the first time.

Kenneth R. Curtis

Kenneth R. Curtis received his Ph.D. from the University of Wisconsin-Madison in African and Comparative World History. His research focuses on colonial to postcolonial transitions in East Africa, with a particular focus on the coffee economy of Tanzania. He is professor of History at California State University Long Beach, where he has taught world history at the introductory level, in special courses designed for future middle and high school teachers, and in graduate seminars. He has worked to advance the teaching of world history at the collegiate and secondary levels in collaboration with the World History Association, the California History/Social Science Project, and the College Board's Advanced Placement World History program.

Note on Spelling

Students taking world history will encounter new names of people, terms, and places from languages that use either different alphabets or no alphabet at all (like Chinese) and that have multiple variant spellings in English. As a rule, we have opted to give names in the native language of whom we are writing about, not in other languages.

Our goal has been to avoid confusing the reader, even if specific decisions may not make sense to expert readers. To help readers, we provide a pronunciation guide on the first appearance of any term or name whose pronunciation is not obvious from the spelling. A few explanations for specific regions follow.

The Americas

Only after 1492 with the arrival of Columbus and his men did outsiders label the original residents of the Americas as a single group. For this reason, any word for the inhabitants of North and South America is inaccurate. We try to refer to individual peoples whenever possible. When speaking in general terms, we use the word *Amerindian* because it has no pejorative overtones and is not confusing.

Many place names in Spanish-speaking regions have a form in both Spanish and in the language of the indigenous peoples; whenever possible we have opted for the indigenous word. For example, we write about the *Tiwanaku* culture in the Andes, not *Tiahuanaco*. In some cases, we choose the more familiar term, such as *Inca* and *Cuzco*, rather than the less familiar spellings *Inka* and *Cusco*. We retain the accents for modern place names.

East Asia

For Chinese, we have used the pinyin system of romanization. However, on the first appearance of a name, we alert readers to nonstandard spellings, such as Chiang Kai-shek and Sun Yat-sen, that have already entered English.

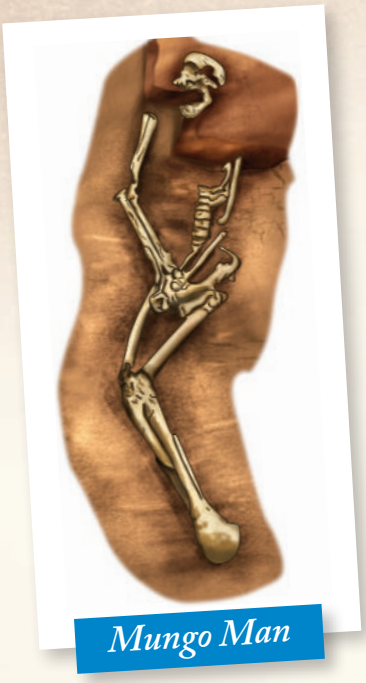
For other Asian languages, we have used the most common romanization systems (McCune-Reischauer for Korean, Hepburn for Japanese). Because we prefer to use the names that people called themselves, we use *Chinggis Khan* for the ruler of the Mongols (not *Genghis Khan*, which is Persian) and the Turkish *Timur the Lame* (rather than *Tamerlane*, his English name).

West Asia and North Africa

Many romanization systems for Arabic and related languages like Ottoman Turkish or Persian use an apostrophe to indicate specific consonants (*ain* and *hamza*). Because it is difficult for a native speaker of English to hear these differences, we have omitted these apostrophes. For this reason, we use *Quran* (not *Qur'an*).

VOYAGES
in World History

1 The Peopling of the World, to 4000 B.C.E.

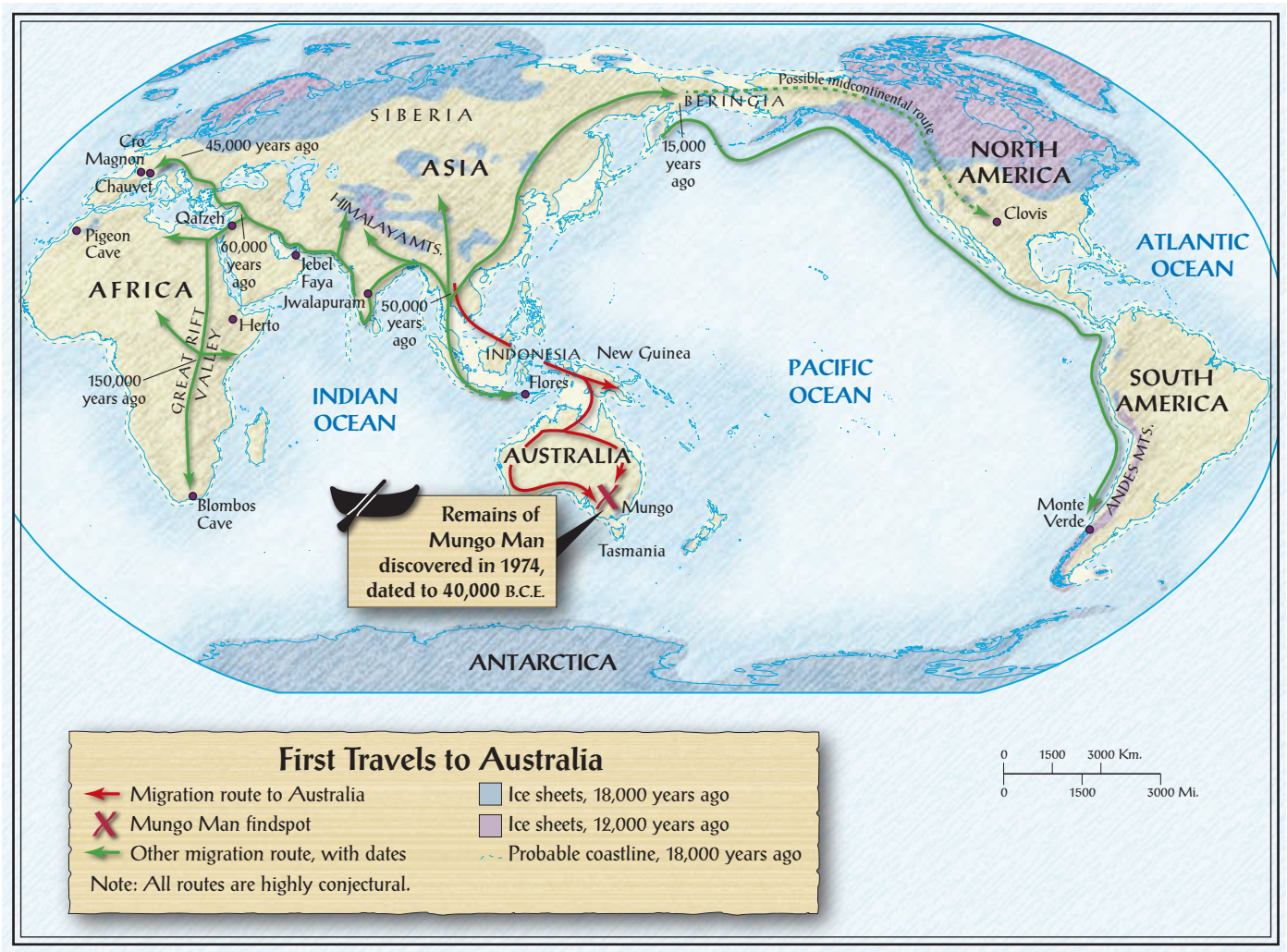


Mungo Man

From the earliest moments of human history, our ancestors were on the move. Archaeologists continue to debate when the earliest anatomically modern humans moved out of Africa and how they populated the rest of the world. One of the most distant places our ancient forebears reached—probably around 50,000 years ago—was Australia. In 1974, a team of archaeologists from Australia National University discovered the remains of a male near Mungo (muhn-GO) Lake in the southeastern Australian state of New South Wales. He is known as **Mungo Man**; Mungo Woman is the cremated remains of a female that the team's lead archaeologist, J. M. Bowler, found at the site several years earlier. Here, Bowler describes the moment he spotted Mungo Man's skull sticking out of the ground:

*Prolonged and heavy rains during 1973 had swept across the eroded dune surface, uncovering a new crop of archaeologic and other prehistoric finds. At a point some 500 m [1,600 ft] east of the Lake Mungo I cremation/burial site [of Mungo Woman] the late afternoon sun was highlighting a small white object protruding through the sandy surface. … Closer examination revealed the object to be the exposed left side of a carbonate-encrusted human cranium. The central area of exposed bone protruded some 2–3 cm above the eroded surface. Much of the bone was coated with a thin layer of calcrete which was pinkish in color, a feature not known from carbonate of similar age elsewhere. …**

*J. M. Bowler and A. G. Thorne, "Human Remains from Lake Mungo: Discovery and Excavation of Lake Mungo III," in *The Origin of the Australians*, ed. R. L. Kirk and A. G. Thorne (Atlantic Highlands, N.J.: Humanities Press Inc., 1976), p. 128.



Even on that first day, Professor Bowler noticed that the soil around the burial had a pinkish tinge, which turned out to be the remains of **ocher** (OH-kerh), a reddish-brown mineral element ancient peoples used to color the soil. The site dates to 40,000 B.C.E., some 10,000 years after Australia was first settled. (As is common among world historians, this book uses B.C.E. [Before Common Era] for dates prior to the year 1 of the first century, and C.E. [Common Era] for dates from the year 1 forward. Older books use B.C. [Before Christ] and A.D. [Anno Domini, In the Year of Our Lord].) The peopling of Australia marked an important phase in the history of humankind: people had advanced to the point where they could plan into the future. They could construct boats or rafts to take them across the 60 miles (100 km) of water separating Australia from the Eurasian landmass at the time.

By 200,000 B.C.E., anatomically modern people had fully developed in Africa. Starting between 80,000 and 60,000 B.C.E., our ancestors arrived in Asia. They later

Mungo Man

Remains of a male found near Mungo Lake in the southeastern Australian state of New South Wales, dated to about 40,000 B.C.E.

ocher

A reddish-brown iron-based pigment that ancient peoples used to color the soil and to decorate cave walls.

reached Australia and Europe at the same time. The Western Hemisphere was settled much later.

Since none of these early peoples could read and write, no documents survive. But archaeological evidence, including cave paintings and ancient tools, makes it possible to reconstruct the early history of humanity. In addition, new information derived from genetic material called deoxyribonucleic acid (DNA) has allowed scientists to reconstruct the peopling of the world with unprecedented accuracy.

FOCUS QUESTIONS

- When did anatomically modern humans arise in Africa, and when did they first behave in recognizably human ways?
- How and when did the first humans settle Asia, Australia, Europe, and the Americas?
- How and where did humans begin to cultivate plants? How did agriculture's impact vary around the world?

The First Anatomically Modern Humans in Africa, ca. 200,000 B.C.E.

Homo sapiens sapiens
Biological term for modern human beings belonging to the genus *Homo*, species *sapiens*, and subspecies *sapiens*.

hominins
Term referring to all humans and their ancestors but not to chimpanzees, gorillas, or orangutans.

When the species ***Homo sapiens sapiens*** (HO-mo SAY-pee-uhnz SAY-pee-uhnz), anatomically modern humans, first appeared in central and southern Africa some 200,000 years ago, they lived side by side with other animals and other **hominins**, a general term referring to humans and their ancestors. But in important respects, they were totally different from their neighbors, for they learned to change their environment with radically new tools and skills. Their departure from Africa, their first art works, their hunting prowess, and their trade networks are all signs of recognizably human behavior. One fascinating puzzle remains to be solved: If they were anatomically the same as modern humans, why did they only start to behave in recognizably human ways after 50,000 B.C.E.? Early analysts wondered if leaving Africa somehow forced our ancestors to behave differently, but a series of discoveries in recent years, particularly in South Africa, provide evidence of modern behaviors long before 50,000 B.C.E.

Predecessors to the First Anatomically Modern Humans

Because ancient human remains are rare, in 1997 paleontologists (pay-lee-on-TAHL-oh-gists), scientists who study life in the distant past, were extremely pleased to excavate three skulls dating to 160,000 B.C.E. at the Herto site of Ethiopia. Compared to those of later modern humans, the skulls found at the Herto site are slightly larger, the faces are longer, and the brows more pronounced. The Herto skulls (from two adults and one child) represent either the earliest modern humans or their immediate predecessors and thus decisively demonstrate that the *Homo sapiens sapiens* species

arose first in Africa. Concluding that all modern people are descended from this group, one of the excavating archaeologists commented: "*In this sense, we are all African.*"*

Scientists use the concept of **evolution** to explain how all life forms, including modern humans, have come into being. In the nineteenth century, Charles Darwin proposed that natural selection is the mechanism underlying evolutionary change. He realized that variations exist within a species and that certain variations increase an individual's chances of survival. We know that genetic mutations, or permanent, transmissible changes to genetic material, cause DNA to change, and so all variations, beneficial or not, are passed along to offspring. Because those individuals within a population who possess beneficial traits—perhaps a bigger brain or more upright posture—are more likely to survive, they will have more offspring. And because traits are inherited, these offspring will also possess the beneficial traits. Individuals lacking those traits will have few or no offspring. As new mutations occur within a population, its characteristics will change and a new species can develop from an earlier one, typically over many thousands or even millions of years. The species closest to modern human beings today is the chimpanzee, whose cells contain nuclei with DNA that overlaps with 98.4 percent of human DNA. But humans and chimpanzees have developed separately for some seven million years.

evolution
Model proposed by Charles Darwin to explain the development of new species through genetic mutation and natural selection.

Biologists use four different subcategories when classifying animals: family, genus (JEAN-uhs, the Latin word for "group" or "class"), species, and subspecies. Members of the primate family, modern humans belong to the genus *Homo* ("person" in Latin), the species *sapiens* ("wise" or "intelligent" in Latin), and the subspecies *sapiens*, so the correct term for modern people is *Homo sapiens sapiens*. Members of the same species can reproduce, while members of two different species cannot. Since modern humans are now the only living subspecies in the *Homo sapiens* species, scholars often abbreviate the name to *Homo sapiens*. Here, we will continue to say *Homo sapiens sapiens* because we are discussing periods when other subspecies were alive.

The Herto site was on the edge of a shallow, freshwater lake that was home to crocodiles, fish, and hippopotamuses, and buffalo lived on the land. The site's residents used stone tools to remove flesh from the hippopotamus, and the only child's skull had tool marks as well, an indication that flesh had been removed from it. Some scientists have speculated that the Herto residents practiced cannibalism, but it is just as likely that they left marks on the skull as part of the ritual preparation of the dead.

Anatomically Modern Humans

The finds at Herto indicate that, sometime around 200,000 years ago, anatomically modern humans appeared in Africa. Their build, the size of their brains, and their physical appearance were very similar to ours.

Analysis of genetic material has provided crucial information that supplements what we can learn by analyzing archaeologically excavated remains. When

*J. N. Wilford, "In Ancient Skulls from Ethiopia, Familiar Faces," *New York Times*, June 12, 2003, pp. A1, A8.

a man and a woman have a child, most of their DNA recombines to form a new sequence unique to their baby, but some DNA passes directly from the mother to the child in mitochondrial DNA, or mtDNA. By analyzing mtDNA, geneticists have identified a single female ancestor, known as **mitochondrial Eve**, whom all living humans have in common. Mitochondrial Eve lived in West Africa near modern Tanzania. Eve may not have been the first anatomically modern female; she was the first anatomically modern female whose daughters gave birth to daughters, and so on through the generations, allowing her mtDNA to pass to every person alive today. The total number of anatomically modern humans alive during Eve's lifetime was surprisingly small: about 10,000 or 20,000 people. That number seems to have held steady for more than 100,000 years, until the development of agriculture (discussed later in this chapter) made it possible to support a larger population.

mitochondrial Eve
The first female ancestor shared by all living humans, who was identified by analysis of mitochondrial DNA.

The Beginnings of Modern Human Behavior

Scientists debate when these members of our species first began to act like modern humans. The ability to plan ahead is the most important indicator of human behavior, and additional clues lie in the ability to modify tools to improve them, the existence of trade networks, the practice of making art, the ritual of burying the dead, and the ability to speak. Early *Homo sapiens sapiens* had larynxes, but they did not begin to speak until sometime between 100,000 and 50,000 B.C.E. We cannot know precisely when because the act of speaking produces no lasting evidence in the archaeological record. Instead, paleontologists have identified certain human activities, such as organizing hunting parties to trap large game, as sufficiently complex to require speech. Speech may have begun because of a genetic mutation; scientists have identified a single gene on the Y chromosome (*FOXP2*) that only men carry. This finding suggests that women would have had to learn language by interacting with men, but many skeptical scientists await further confirmation of the language gene's existence.

Our forebears may have begun to leave Africa around 100,000 B.C.E., perhaps even earlier. In 2011, archaeologists found tools at the Jebel Faya site in modern United Arab Emirates that date to about 125,000 B.C.E. and resemble those made in Africa by anatomically modern humans. But the tools are so simple that scientists cannot be certain that modern humans made them. Because water levels differed at this time, only 3 miles (5 km) of water separated the Arabian peninsula from Africa. Some scientists doubt that any modern humans left Africa before 50,000 B.C.E., the date of the first conclusive evidence of humans outside Africa.

Several sites in South Africa have produced evidence of distinctly human behavior dating to around 75,000 B.C.E. Animal remains at the sites indicate that anatomically modern humans had developed spears and arrows sufficiently powerful to kill local antelope and seals. The Pinnacle Point site, outside Cape Town, has produced small stone blades that ancient humans attached to wooden arrow shafts. These remained in use for over 11,000 years, demonstrating that generations of humans passed the blade-making technology down to their children, a possible sign that the blade makers could speak and certain evidence that they had greater cognitive powers than earlier hominins.

Even more revealing, the humans living on the site of Blombos Cave, also in South Africa, showed a capacity for symbolic thinking, as evidenced in the production of red ocher art objects. (See the feature "Visual Evidence in Primary Sources: The First Art Objects in the World.")

How Modern Humans Populated Asia, Australia, and Europe

To be able to migrate out of Africa and displace existing populations in Asia and Europe, modern humans had to behave differently from their forebears. Long-distance migration required forward planning and most likely speech. As the modern humans left Africa, they modified existing tools to suit new environments, and they devised boats or rafts to cross bodies of water. After crossing into Asia between 80,000 and 60,000 years ago, they proceeded to modern Indonesia, Papua New Guinea, and Australia, which they reached 50,000 years ago, the same time that they reached Europe. Europe was colder than Asia, and it was inhabited by Neanderthals, whom the modern humans displaced by 40,000 years ago. They traveled to the Americas last, reaching there by at least 14,000 B.C.E., if not earlier.

The Settling of Asia, 80,000–60,000 B.C.E.

Many archaeologists propose that the peoples living near the coast of Africa, near Djibouti and Somalia, crossed a land bridge to the Arabian peninsula (water levels were lower then) and continued to hug the coast of the Indian Ocean, eating shellfish and tropical fruit as they made their way south. The first humans to leave Africa probably did so without realizing they were leaving one landmass and going to another: they simply followed the coastline in search of food. It is most likely that multiple generations traveled short distances and kept on moving into new environments.

The earliest concrete archaeological evidence of the migration from Africa to Asia comes from Jwalapuram, India, where tools—but no human remains—dating to 74,000 B.C.E. have been found. The 215 stone tools and a piece of ocher are nearly identical to those found in Africa, an important clue to the origins of the travelers. Pieces of a human skull, found at Tam Pa Ling, Laos, and dating to 61,000–44,000 B.C.E., suggest a possible route from Southeast Asia to Australia, confirmed by a recent study of aboriginal peoples living in Australia, whose DNA suggested that the first wave of settlers arrived around 50,000 B.C.E. from New Guinea and the Philippines. These were Mungo Man's forebears.

The Settling of Australia, ca. 50,000 B.C.E.

The farthest *Homo sapiens sapiens* traveled from Africa was to Australia. One of the most isolated places on earth, Australia provides a rich environment for animals, such as kangaroos, that are found nowhere else in the world. No animals from Eurasia, except for rodents and modern humans, managed to reach Australia.

Although oceans then lay about 250 feet (76 m) below modern levels, the body of water dividing Australia from the Greater Southeast Asian landmass was

The First Art Objects in the World

One site in Africa—Blombos Cave in South Africa—has produced some of the earliest art objects in the world. The Blombos Cave site, on the coast about 186 miles (300 km) east of Cape Town, dates to 100,000 B.C.E. and was occupied for long periods after that.

The occupants of Blombos Cave fished and hunted and made sets of fine bone tools, all of the same size. First they cut bone with stone tools and then polished it with leather and abrasive powder. They also mixed ocher with animal fat and some charcoal in two abalone shells (shown opposite) to make the earliest known paint and the earliest known container for human use in the world.* What did they use the ocher for? To color the earth? As a type of makeup? To make cave paintings? Whatever its use, it was entirely decorative, evidence of an early human desire to make something beautiful. The paint box also demonstrates the ability to plan ahead since early artists placed the ocher and tools for applying it in the shells for whenever they were needed.

The Blombos also produced nineteen snail shells, about the size of a kernel of corn, each with a hole through it (opposite, bottom). Traces of wear at the ends of the shells indicate that they were originally strung together to make a strand of beads, worn perhaps on the wrist or at the neck. The beads also show traces of ocher. The beads, archaeologists speculate, may have functioned at Blombos as they do among the Ju/'hoansi people who live in the Kalahari Desert in Botswana and who are sometimes called Bushmen. Speakers of a language with many click sounds, the Ju/'hoansi present ostrich shell beads to other groups with whom they hope to form alliances.

The scientist who discovered these shells argued convincingly that these are very early signs of human creativity. A recent discovery suggests that they may be more than that. In 2007, archaeologists excavating the Pigeon Cave site in Morocco found similar shells dated between 91,000 and 74,000 years ago. These beads also have holes, abrasion marks at the ends where they were strung together, and traces of ocher. They are not from exactly the same species of snail as those from Blombos Cave, but the two species of snail look identical to the naked eye (one can see the differences between them only with a microscope). Other undated finds of similar shells in Israel and Algeria suggest that a trading network that spanned Africa and Israel may have existed as early as 82,000 years ago.

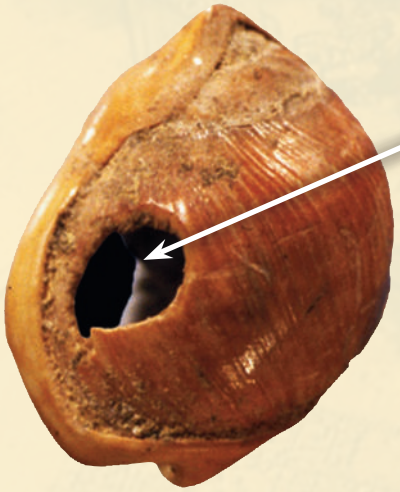
The shell tool kit, the bone tools, and the beads from Blombos reveal that their makers were able to produce beautiful objects because they had extra time and energy after meeting basic subsistence needs. These early objects clearly display the artistic impulses of their makers and suggest that *Homo sapiens sapiens* engaged in the recognizably human activity of making art objects as early as 75,000 B.C.E. and possibly even before.

*John Noble Wilford, "In African Cave, Signs of an Ancient Paint Factory," *New York Times*, October 13, 2011.

This abalone shell contains a lump of ocher, the red mineral possibly used as a pigment for cave paintings.

Image courtesy of Prof Christopher Henshilwood

This abalone shell contained tools made from quartzite chips and different types of animal bone used to prepare and apply the paint. ***Which evidence from the archaeological record (including, but not limited to, the objects shown here) do you find most convincing as the earliest indication of people becoming recognizably human? Why?***



This shell bead (notice the hole) was found in Blombos Cave, some 186 miles (300 km) from Cape Town, where the cave's occupants hunted and fished around 75,000 B.C.E. The reddish tinge to the shell is from ocher, suggesting that the bead either was deliberately colored or came into contact with the skin of someone who was wearing ocher makeup. (Prof Christopher Henshilwood, University of Bergen, Norway)

at least 60 miles (100 km) across. So these humans must have constructed rafts or boats, a process requiring complex skills such as cutting timber and lashing pieces of wood together. These ancient travelers probably first made boats for fishing, which they did with nets, and then used the boats to travel longer distances. Although these changes took place gradually, it took only a single generation to travel all the way from Southeast Asia to Australia. No evidence of the means of transportation survives, but it seems most likely that our ancestors traveled by canoe or dugout boat, hugging the shore whenever possible. Those who settled in Australia may have been blown off course in a storm and landed there unintentionally. In Chapter 5, we will learn about the settlement of the Americas; there, too, scientists suppose that early humans traveled down the west coast of the Americas all the way to Chile in similar boats. Yet no watercraft from this time have been found, possibly because any remains have disintegrated.

Once they reached Australia, the early settlers did not stay on the coast but moved inland rapidly, reaching the site of Mungo, in southeast Australia, by 50,000 years ago. There, J. M. Bowler found the grave of Mungo Man near an ancient campsite marked by hearths. The living arranged the body of Mungo Man carefully, positioning his hands over his crotch. Mungo Man was buried in a grave colored by reddish ocher, the same mineral element used to make the ocher implement at Blombos Cave. Bowler explained, "*Small lumps of ochre were recovered but it is likely the bulk of the ochre was scattered over the cadaver as a powder.*"*

The living, then, deliberately colored the soil around the grave. Burials, which began as early as 100,000 B.C.E., are another important indicator of human behavior because they suggest the presence of religious beliefs. The defining characteristic of **religion** is the belief in a divine power or powers that control or influence the environment and people's lives. The most reliable evidence is a written text demonstrating religious beliefs, but early humans did not write. They did, however, bury their dead, most likely because they believed in an afterlife, a major component of many religious belief systems.

religion
Belief system that holds that divine powers control the environment and people's futures.

Nearby was a woman (Mungo Woman), whose burnt remains constitute the earliest known example of human cremation. The bones of Mungo Woman underwent a multistep process: the living burned her bones, crushed them, burned them a second time, and then buried them—possibly because they wanted to ensure that her spirit never returned to bother the living. Or perhaps they cremated the dead in the hope that their souls could proceed safely to the next world. Like the residents of Blombos, those of the Mungo site also wore and traded shell beads, and they established long-distance trade networks linking Australia with Tasmania and New Guinea.

The Settling of Europe, 50,000–25,000 B.C.E.

Homo sapiens sapiens were sufficiently versatile that they could adjust to new, even cold, habitats, and their improved hunting skills allowed them to move to new places. Early humans followed two routes into Europe: one went around the Mediterranean Sea, and the other followed the Danube River into eastern Europe. Starting around 50,000 B.C.E., the humans living in

*J. M. Bowler and A. G. Thorne, "Human Remains from Lake Mungo: Discovery and Excavation of Lake Mungo III," in *The Origin of the Australians*, ed. R. L. Kirk and A. G. Thorne (Atlantic Highlands, N.J.: Humanities Press Inc., 1976), p. 129.

Europe began to organize hunts of migrating animals in the fall to provide meat during the winter. They continued to refine the advanced hunting technologies of their African forebears, who had formed large, organized hunting parties that killed big game with sharp-pointed spears. In addition to hunting, the migrants also gathered wild plants.

The earliest *Homo sapiens sapiens* found so far in Europe are called Cro Magnon (CROW MAG-nahn), after the site, dating to around 38,000 B.C.E., where their remains were first located in southwest France. Their practices show that they were better able to think about the future than earlier hunting groups. Cro Magnon bands traveled to rivers and coasts to catch fish. As they moved in search of more game and fish, they built new types of houses and developed better clothes. One of their most important innovations was the bone needle, which they used to sew snug-fitting fur clothing to protect them from the cold winters of Europe.

An Ancient Artist at the Chauvet Caves of France Traces of charcoal from the battling woolly rhinoceros (*lower right*) have been dated to about 30,000 B.C.E., making this one of the earliest cave paintings found anywhere in the world. The panel also portrays the same horse in four different poses, rare sketches done by an individual artist. Many of the paintings in the Chauvet caves display this artist's distinctive style. (AP Images/Jean Clottes)

The Worship of Goddesses?

What were the religious beliefs of the residents of Europe between 26,000 and 23,000 B.C.E.? Over twenty female figurines have been found at sites in Austria, Italy, Ukraine, Malta, the Czech Republic, and most often France. Made from mammoth ivory tusk, soapstone, and clay, the figurines range in size from 2 inches (5 cm) to a foot (30 cm) tall. The wide distribution of the figurines poses an interesting problem: Did different groups learn independently to make similar objects, or did one group first craft a model, which was then diffused to other places? Modern archaeologists require striking similarities before they can be persuaded of diffusion. It seems likely in this case that people in different places crafted women according to their own conceptions and that diffusion did not take place.

Some of the women are shown with extremely wide hips and pendulous breasts. Almost none have feet. They may have been placed upright in dirt or on a post. Their facial features remain vague, a suggestion that they are not portraits of particular individuals. Some appear to be pregnant, others not. Some have pubic hair, and one, from Monpazier, France, has an explicitly rendered vulva.

Some have suggested that the figurines are fertility icons made by men or women who hoped to have children. Others propose that the images are self-portraits because no mirrors existed at this early time. If women portrayed their own bodies as they looked to themselves, they would have shown themselves with pendulous breasts and wide hips. Still other archaeologists take these figurines as a sign of a matriarchal society, in which women served as leaders, or a matrilineal society, in which people traced descent through their mother (as opposed to a patriarchal society, in which descent is traced through the father). Since most of these figurines were found in the nineteenth century and were taken to museums or private collections, we do not know their original archaeological context and cannot conclude more about their function.

The one exception is a cave site at Laussel in the Dordogne region of France, where five different pictures were carved onto the cave walls and could not be easily removed. One picture, Woman with a Horn, was carved into the face of a block of stone. This rendering has the large breasts and wide hips of the smaller freestanding figurines, but her right hand is unusual in that it holds a horn, perhaps from a bison.

The Laussel cave had other relief carvings of a similar woman, a younger man in profile, a deer, and a horse. One relief showing a woman on top and another figure below has been interpreted alternatively as two people copulating or a woman giving birth to a child. Several vulvas and phalluses were shown in the same cave. The conjunction of these different images strongly suggests that the Woman with a Horn was worshiped, along with the other carvings and statues of body parts, probably to facilitate conception or easy childbirth.

› How do archaeologists determine if an idea or motif diffused from one place to another or developed independently? Do you agree that diffusion did not take place in the crafting of women? What type of striking similarity would persuade you that diffusion did occur?

Woman with a Horn, Laussel Cave, Dordogne River Valley, France. An Ancient Pregnancy? Standing 17.5 inches (44 cm) high, this block of stone, along with five others, came from a rock shelter occupied by people between 25,000 and 21,000 B.C.E. Similar carvings of women with wide hips and pendulous breasts have been found throughout the Dordogne River Valley region in France, but only this woman holds a horn, which might be from a bison. Interpreting the markings on the horn as calendrical records (perhaps of moon sightings), some analysts propose that her hand on her stomach indicates that she may be pregnant. (Musée d'Aquitaine, Bordeaux, Italy/Erich Lessing/Art Resource, NY)

The Cro Magnon also produced the extraordinary cave paintings of Chauvet (SHOW-vay) in southern France (dated to 30,000 B.C.E.), which show the different animals they hunted: mammoths (various types of extinct elephants), lions, and rhinoceroses. Some paintings are decorated with patterns of dots or human handprints. Other cave sites, such as the well-known Lascaux (las-KOH) (15,000 B.C.E.) site in southwestern France, show horses, bison, and wild goats, suggesting that ancient hunters targeted different animals during different seasons. (See also the feature "Movement of Ideas Through Primary Sources: The Worship of Goddesses?")

Coexisting with Neanderthals

When they entered Europe some 60,000 years ago, the *Homo sapiens sapiens* encountered groups of premodern humans called **Neanderthals** (nee-AHN-dehr-talls) who had been living in Europe for over 100,000 years and who were descended from earlier hominins. Named for the site in West Germany where their remains were first found, Neanderthals were shaped differently from modern humans: their skulls were longer, their faces protruded more, and their bones were bigger and heavier. Neanderthals belonged to a different species: *Homo neanderthalensis*.

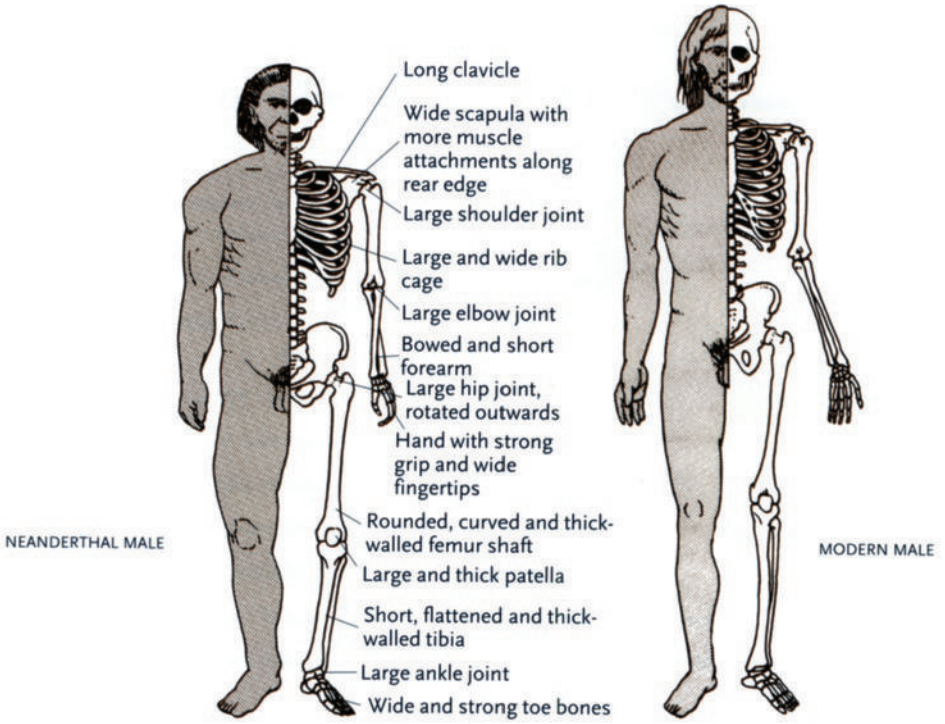
Neanderthals
Group of premodern humans who lived between 100,000 and 25,000 B.C.E. in western Asia and Europe, eventually replaced by *Homo sapiens sapiens*.

Contrary to the classification of Neanderthals as a separate species, meaning that they did not mate with *Homo sapiens sapiens*, recent DNA evidence from modern humans suggests that Neanderthals and *Homo sapiens sapiens* did mate. The human genome is composed of 20,000–25,000 genes in DNA; it holds all the instructions contained in our genes that determine growth from the first cell to a fully developed newborn and beyond. The mapping of the human genome has revealed that the DNA of humans living in Eurasia, but not in Africa, contains 1–4 percent Neanderthal DNA, suggesting that humans mated with Neanderthals only after they left Africa. Many of these genes, which relate to skin and hair, may have helped humans adjust to the colder living conditions in Europe.

● **CONTEXT&CONNECTIONS** Modern scientists believe that comparing the DNA of *Homo sapiens sapiens* with that of the Neanderthals will make it possible to distinguish which chromosomes are in active use and which are simply part of our genetic legacy. They are also making progress in reconstructing the genomes of humans who died long ago; in 2014, one team announced that they had successfully read the DNA from a single thighbone of a man who died 45,000 years ago. ●

Neanderthal tools included long stone flakes, which they chipped off large stone cores. They painted themselves and their dwellings. They buried the dead and decorated their graves with clumps of pigment such as ocher. The Neanderthals used fire to cook large animals that they killed. In addition to meat, they ate fish and possibly mushrooms, and they cleaned their teeth with toothpicks. The tartar on some Neanderthal teeth shows that they ingested vegetable matter, too, most likely in the stomachs of herbivores they hunted and killed. (Modern Inuit peoples "regarded this [stomach contents] as a special treat," explains Chris Stringer of London's Natural History Museum.*)

*Z. Zorich, "Neanderthal Smorgasbord," *Archaeology* 67 (Jan/Feb 2014): 16.



Neanderthal Versus Modern Human Note the differences between a Neanderthal male and modern human male. The Neanderthal's stocky build was better suited to Europe's colder climate. (copyright Thames & Hudson)

● **CONTEXT&CONNECTIONS** The dog was domesticated sometime after the Neanderthals died out, between 30,000 and 18,000 years ago. Previously scientists believed that dogs broke off from wolves and became a separate species in East Asia, but as they study ancient DNA samples from canines recovered archaeologically, they are refining their techniques. They can now pinpoint the emergence of the dog to Europe. And where earlier analysts saw the domestication of the dog as related to the emergence of agriculture, they now realize that it predated that shift by thousands of years. The first wolves to be tamed joined the humans because it was easier to get meat by hunting with human bands than it was on their own. Some even propose, though they are partially joking, that the early dogs domesticated the humans (and not the other way round) because the humans helped the dogs more than the dogs helped the humans. ●

Neanderthal skeletons display massive injuries that resulted from hunting large game using short spears with small blades. Most died around the age of forty. Whatever the activity, anatomically modern humans performed the same task at a higher level than Neanderthals: their graves were more elaborate, their tools more finely worked, and their art more complex. Humans could also protect themselves better because they developed longer spears that they could throw. By 40,000 years ago, the Neanderthals had died out, leaving only *Homo sapiens sapiens* in Europe.

Indeed, most experts thought that by 40,000 years ago, *Homo sapiens sapiens* was the only human species on earth, since all other species, including the Neanderthals, had died out. But a discovery announced in October 2004 forced everyone to reconsider this view.

Archaeologists working on the island of Flores in western Indonesia announced that they had discovered bones from a previously unknown human species they called *Homo floresiensis* (HO-mo flor-ehs-ee-EHN-suhs; "Human from Flores"). The remains date from 38,000 to 12,000 B.C.E. The most complete skeleton, intact except for missing arms, came from a female who stood only 42 inches (106 cm) tall.

The excavating archaeologists propose that the new species was a descendant of the hominins who were the predecessors of *Homo sapiens*. Because other pygmy animals, such as pygmy elephants, developed on the island, these scientists suggest that the process of island dwarfing could also have produced smaller-than-usual hominins. The island is currently home to a group of human pygmies, who could be the descendants of the earlier population.*

Yet some scientists have loudly voiced their skepticism, largely because the stone tools found at the site are much more sophisticated than any associated with earlier hominins. They suggest, instead, that the skeleton may be that of a small *Homo sapiens sapiens* afflicted with a disorder called microcephaly (my-cro-SEPH-uh-lee) that results in a shrunken brain and other deformities. This controversial find shows how a single discovery can prompt radical revision of the scientific consensus on human evolution. Even if *Homo floresiensis* gains recognition as a new hominin species, it died out by 12,000 B.C.E., leaving *Homo sapiens sapiens* as the sole surviving human species on the planet.

The Settling of the Americas, ca. 14,000–12,000 B.C.E.

Homo sapiens sapiens reached the Americas much later than they did any other landmass. The earliest confirmed human occupation in the Western Hemisphere dates to about 12,000 B.C.E., some 40,000 years after the settling of the Eurasian landmass and Australia. Accordingly, all human remains found so far in the Americas belong to the *Homo sapiens sapiens* species. Scholars are not certain which routes the early settlers took, when they came, or if they traveled over land or by water.

One theory is that humans reached America on a land bridge from Siberia to Alaska: **Beringia** (bear-in-JEE-uh). Today Beringia is covered by a shallow 50-mile-wide (80-km-wide) stretch of the Bering Sea. As the earth experienced different periods of extended coldness and glaciation, called Ice Ages, the ocean level declined and the ancient Beringia land bridge emerged, measuring over 600 miles (1,000 km) from north to south. What are now islands of the Bering Sea then stood as giant peaks on the Beringia landmass.

Beringia
Landmass now submerged below water that connected the tip of Siberia with the northeastern corner of Alaska.

● **CONTEXT&CONNECTIONS** The early humans may have stayed on Beringia for thousands of years; this would explain the long time gap between the settlement of Eurasia and the Americas. ●

*J. N. Wilford, "Report Reignites Feud over 'Little People' as Separate Species," *New York Times*, August 22, 2006, p. F2.

The first migrations to the Americas may have occurred in 14,000 B.C.E. or even earlier, and they certainly took place by about 12,000 B.C.E., when ice still covered most of Beringia. Much of North America also lay under sheets of ice over 10,000 feet (3,000 m) thick. Some scientists believe that an ice-free corridor between ice masses allowed movement through today's Canada. Others hypothesize that the ancient settlers hugged the coast, traveling in boats covered by animal skins stretched tight over a wooden pole frame. Boats would have allowed them to proceed down the coast from Beringia to South America, disembarking and pitching temporary camps where no ice had formed.

Monte Verde, Chile: How the First Americans Lived, 12,000 B.C.E.

Monte Verde, Chile
Earliest site in the Americas, where evidence of human occupation has been found dating to 12,000 B.C.E.

The best evidence for this first wave of migration comes from far down the west coast of the Americas, from a settlement called **Monte Verde, Chile**, which lies only 9 miles (14 km) away from the Pacific coast, south of the 40th parallel. Forming a bony spine running along the western edge of the Americas, the Rocky Mountains and the Andes Mountains formed a barrier that kept the first settlers in the coastal zones west of the mountain chain.

● **CONTEXT&CONNECTIONS** Early humans probably traveled down the west coast of North and South America in small boats, probably not too different from those used by early humans to go to Australia. ●

Monte Verde is the most important ancient site in the Americas for several reasons. First, without a doubt it contains very early remains. Lying under a layer of peat, it also preserves organic materials like wood, skin, and plants that almost never survive. Finally, and most important, professional archaeologists have scrupulously recorded which items were found at each level, following the key principle of **stratigraphy**—that, at an undisturbed site, any remains found under one layer are earlier than anything from above that layer.

stratigraphy
Archaeological principle that, at an undisturbed site, material from upper layers must be more recent than that from lower layers.

Monte Verde's undisturbed state made it an excellent place from which to collect samples for carbon-14 testing. **Carbon-14** is an isotope of carbon present at a fixed percentage in a living organism. Because this percentage declines after death, one can determine the approximate age of an archaeological sample by analyzing the percentage of carbon-14 in it. Carbon-14 dates always include a plus/minus range because they are not completely accurate: the farther back in time one goes, the less accurate the dating is. (This book gives only one date for ease of presentation.) Carbon-14 analysis of evidence from Monte Verde gave an approximate date of 12,000 B.C.E. for the lowest level definitely occupied by humans.

Carbon-14
Isotope of carbon whose presence in organic material can be used to determine the approximate age of archaeological samples.

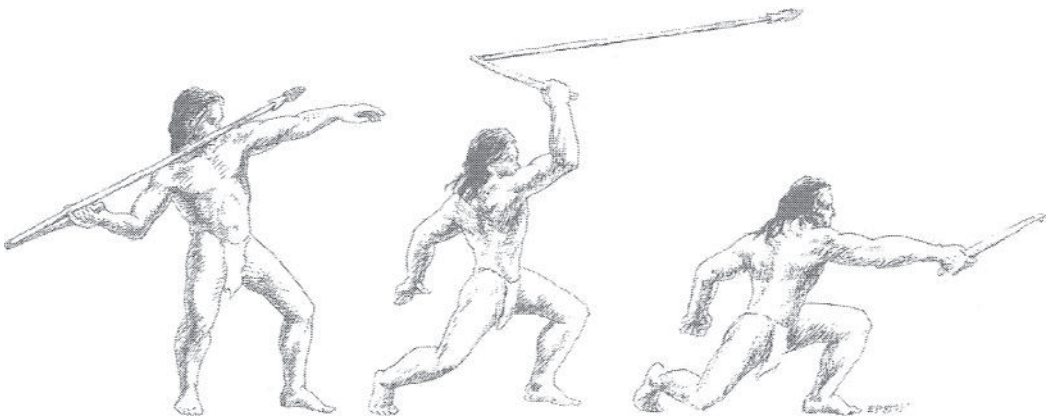
Although no human remains have been found at Monte Verde so far, the footprints of a child or a young teenager were preserved on the top of a level dated to 12,000 B.C.E. This finding provides indisputable evidence of human occupation. The twenty to thirty residents of Monte Verde lived in a structure about 22 yards (20 m) long that was covered with animal skins; the floor was also covered with skins. The residents used poles to divide the structure into smaller sections, probably for family groups, and heated these sections with fires in clay hearths. There they prepared food that they had gathered: wild berries, fruits, and wild potato tubers. An even lower layer with stone tools has been dated to approximately 31,000 B.C.E., but the evidence for human occupation is less convincing than the human footprints from the higher level. If people lived at the site at this

time, then the Americas may have been settled much earlier than the 14,000 B.C.E. date that is widely accepted today.

A separate building, shaped like a wishbone, stood about 100 feet (30 m) away from the large structure. The residents hardened the floor of this building by mixing sand, gravel, and animal fat to make a place where they could clean bones, produce tools, and finish animal hides. Healers may have treated the ill in this building, too, since the floor contained traces of eighteen different plants, some chewed and then spit out, as though they had been used as medicine.

The unusual preservation of wood at Monte Verde means that we know exactly which tools the first Americans used. The site's residents mounted stone flakes onto wooden sticks, called hafts. They also had a small number of more finely worked spear points. Interestingly, Monte Verde's residents used many round stones, which they could have easily gathered on the beach, for slings or bolos. A bolo consists of a long string made of hide with stones tied at both ends. Holding one end, early humans swung the other end around their heads at high speed and then released the string. If on target, the spinning bolo wrapped itself around the neck of a bird or other animal and killed it. The residents of Monte Verde hunted mastodon, a relative of the modern elephant that became extinct about 9000 B.C.E. They also foraged along the coast for shellfish, which could be eaten raw. In the initial stages of migration, the settlers found a coastal environment much more hospitable than an inland one because they could forage for many different types of food at the beach. Hunting parties could leave for long periods to pursue mastodon and other large game, confident that those left behind had ample food supplies.

● **CONTEXT&CONNECTIONS** The main weapon used to kill large game at Monte Verde and other early sites was the atlatl (AHT-latt-uhl), a word from the Nahuatl (NAH-waht) language spoken in central Mexico. The atlatl was a powerful weapon, capable of piercing thick animal hide, and was used for thousands of years. ●



A Powerful Ancient Weapon: The Atlatl The residents of the Monte Verde site used the atlatl spear-thrower to kill game. The atlatl had two parts, a long handle with a cup or hook at the end, and a spear tipped with a sharp stone point. The handle served as an extension of the human arm, so that the spear could be thrown farther with much greater force.
(Illustration by Eric Parrish from Dixon, James E., *Bones, Boats and Bisons: Archaeology and the First Colonization of Western North America*, first edition, Albuquerque, NM, University of New Mexico Press, 1999, page 153, figure 6-1)

The Rise of Clovis and Other Regional Traditions, 11,000 B.C.E.

By 11,000 B.C.E., small bands of people had settled all of the Americas. They used a new weapon in addition to the atlatl: wooden sticks with sharp slivers of rock, called microblades, attached to the shaft. Studies of different sites have determined that while the people in these regions shared many traits in common, different technological traditions also existed in different North American regions. Each left behind distinct artifacts (usually a spear point of a certain type).

Like the residents of Monte Verde, these later peoples combined hunting with the gathering of wild fruits and seeds. They lived in an area stretching from Oregon to Texas, with heavy concentration in the Great Plains, and hunted a wide variety of game using atlatl tipped with stone spear points. Archaeologists call these characteristic spear points the **Clovis technological complex**, named for Clovis, New Mexico, where the first such spear points were found. It is difficult to estimate the number of residents at a given location, but some of the Clovis sites are larger than earlier sites, suggesting that as many as sixty people may have lived together in a single band.

Clovis technological complex
The characteristic stone spear points that were in use around 11,000 B.C.E. across much of modern-day America.

The Clovis spear points impress all viewers with their beauty: their makers chose glassy rocks of striking colors to craft finely worked stone points. Foraging bands covered large stretches of territory, collecting different types of stone and carrying them far from their areas of origin. The Clovis peoples buried some of these collections in earth colored by ocher, the same mineral used by the ancient peoples of South Africa and Australia. (See the feature "World History in Today's World: The Unquenchable Demand for Ivory.")

● **CONTEXT&CONNECTIONS** Archaeologists working at later Clovis sites throughout the Great Plains have also found a different type of stone blade lodged in bison bones. It seems that, as mammoth and mastodon became extinct, the residents shifted to hunting bison. ●

The migrations to the Americas ended when the world's climate warmed quickly at the end of the Wisconsin Ice Age. After 8300 B.C.E., the sea level rose, so that by 7000 B.C.E. most of Beringia lay under water once again. The only regions of the world that had not yet been settled were the islands of the Pacific (see Chapter 5). After 7000 B.C.E., the ancestors of modern Amerindians dispersed over North and South America, where they lived in almost total isolation from the rest of the world until after 1492.

The Emergence of Agriculture, 9400–3000 B.C.E.

agriculture
The planting of seeds and harvesting of crops using domesticated animals.

The development of **agriculture**, when people planted the first seeds and harvested the resulting crops using domesticated animals to help with their work, marked a crucial breakthrough in the history of humankind. Before it, all ancient peoples were hunters and gatherers, constantly in motion, whether following herds of wild animals or gathering wild berries and plants. Over thousands of years, early peoples in different parts of the globe experimented first by gathering certain plants and planting their seeds, which anthropologists refer to as cultivation, and raising and killing selected animals, a process called domestication.

Eventually some of these peoples began to plant seeds in specific locations and to raise tame animals that could help them harvest their crops. Only when

The Unquenchable Demand for Ivory

In 1989, because Africa's population of elephants was dwindling dangerously quickly, the Convention on International Trade in Endangered Species banned all trade in ivory. Although poaching continues in some countries, the ban has largely succeeded in protecting Africa's elephant population, and, as a result, South Africa and its neighboring countries face the unprecedented situation of having too many elephants. As the elephant and human populations both increase, elephants trample villages and crops growing in the fields. The problem of elephant overpopulation is so severe that the Botswana government has even permitted the hunting of elephants to resume.

Despite the ban, the demand for ivory, mostly from China, continues to grow. The newly rich, many prospering from China's booming economy, often purchase large pieces of ivory, such as a single tusk, with detailed art scenes engraved on them. These objects can cost more than a million dollars, a price that includes several years of carving by high-level craftsmen. Their trade is over one thousand years old.

Where do the Chinese obtain this ivory? Sometimes ivory that has been obtained without killing elephants comes on the market. For example, when an elderly elephant dies, its tusks can be removed, and some African governments sell authorized stockpiles of legal ivory.

Global warming has produced another source of ivory far to the north of Africa, in the Sakha region of Siberia, in the Russian arctic. This region used to be covered in ice, but in recent years some of the permafrost has begun to melt, exposing the frozen carcasses of mammoths that roamed the region over ten thousand years ago, with the last dying out about four thousand years ago. Often their tusks stick out of the ice before the rest of their body, and the men involved in the trade can earn more than $60,000 for a single tusk, which can weigh 150 pounds, or just under 70 kg. Although experts can distinguish between the two types of ivory, mammoth ivory can be used for all the same purposes as elephant ivory. The sale of mammoth tusks is also illegal, and Russian border guards in helicopters do patrol the area, confiscating illegally obtained tusks. Armed with snowmobiles, GPS devices, and satellite phones, the mammoth tusk hunters have the advantage, and the number of tusks recovered from the permafrost is bound to increase in coming years as the demand for ivory shows no signs of flagging.

Source: Brook Larmer, "Of Mammoths and Men," *National Geographic* April (2013): 44–63.

a society committed to both processes did it become an agricultural society. Many others continued to forage for all their food. For example, in the spring, hunter-gatherers in New Guinea planted the seeds of a particularly desirable crop, such as bananas, and then moved on, returning in the fall to harvest the ripened fruit. This is cultivation but not agriculture, because they did not raise crops or animals full time.

For those who adopted agriculture, the cultivation of crops caused a dramatic increase in human populations, who first lived in small farming villages and then in towns. Archaeologists have found evidence of cultivation that arose independently in at least nine places, all at different times: western Asia, the east African highlands, China's Yangzi River Valley, Pakistan's Indus River Valley, Southeast Asia, New Guinea, central Mexico, the Andes, and sub-Saharan Africa (see Table 1.1 and Map 1.1). The crops grown in each place had a strong, lasting influence on that society's diet; even today Chinese people eat rice and wheat products, while corn remains important in Mexico. The ancient peoples also domesticated animals with very different results. The main meat source for people living in the Andes was the domesticated guinea pig (they did not eat llama), while the residents of New Guinea and Mexico followed a predominantly vegetarian diet.