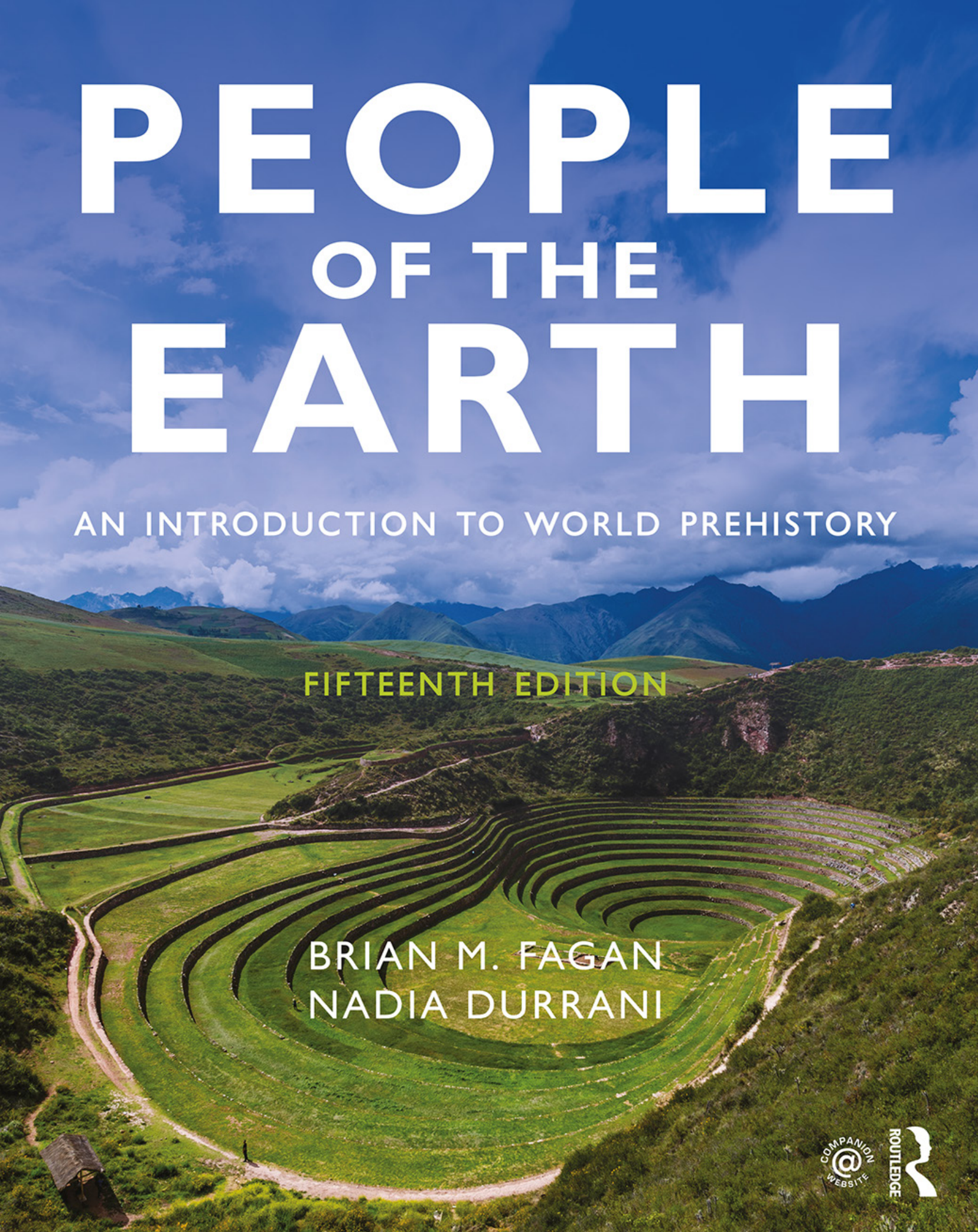
PEOPLE OF THE EARTH

AN INTRODUCTION TO WORLD PREHISTORY

FIFTEENTH EDITION



BRIAN M. FAGAN
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PEOPLE OF THE EARTH

People of the Earth is a narrative account of the prehistory of humankind from our origins over 3 million years ago to the first pre-industrial civilizations, beginning about 5,000 years ago. This is a global prehistory, which covers prehistoric times in every corner of the world, in a jargon-free style for newcomers to archaeology. Many world histories begin with the first civilizations. This book starts at the beginning of human history and summarizes the latest research into such major topics as human origins, the emergence and spread of modern humans, the first farming, and the origins of civilization.

People of the Earth is unique in its even balance of the human past, in its readily accessible style, and its flowing narrative that carries the reader through the long sweep of our past. The book is highly illustrated, and features boxes and sidebars describing key dating methods and important archaeological sites.

This classic world prehistory sets the standard for books on the subject and is the most widely used prehistory textbook in the world. It is aimed at introductory students in archaeology and anthropology taking survey courses on the prehistoric past, as well as more advanced readers. It will also appeal to students of human responses to climatic and environmental change.

Brian M. Fagan is one of the world's leading writers in the field of archaeology and an internationally recognized authority on world prehistory. He studied archaeology and anthropology at Pembroke College, Cambridge University, and then spent seven years working in sub-Saharan Africa. Now Professor Emeritus, from 1967 to 2003 he was Professor of Anthropology at the University of California, Santa Barbara.

Among his scholarly achievements, Professor Fagan was General Editor of the *Oxford Companion to Archaeology* and has written seven best-selling textbooks. He received the Society for American Archaeology's first Public Education Award for his indefatigable efforts on behalf of archaeology and education.

Nadia Durrani has contributed to a wide range of archaeological publications and is the former editor of Britain's two best-selling archaeological magazines, *Current World Archaeology* and *Current Archaeology*. Over the years she has authored and edited countless articles and books, including co-editing several textbooks with Brian.

Her background is in Arabian archaeology and, following a degree in archaeology and anthropology from Cambridge University, she took a PhD in South West Arabian archaeology from University College London. Nadia remains actively involved in Arabian studies and is on the board of the British Foundation for the Study of Arabia. She is also a founding member of the Great War Archaeology Group, and a Fellow of the Society of Antiquaries.

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Brian M. Fagan and Nadia Durrani

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To

All the hundreds of archaeologists and students who have read and used this book in its various editions and sent us their comments and criticisms. This is the only way we can thank them all and expose them for what they are: honest and unmerciful critics. We are deeply grateful.

And, as usual, thanks to Brian's cats who disapprove of authors in general and of our writing efforts in particular.

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About the Authors

Brian Fagan is one of the world's leading writers in the field of archaeology and an internationally recognized authority on world prehistory. He studied archaeology and anthropology at Pembroke College, Cambridge University, and then spent seven years in sub-Saharan Africa working in museums and in monuments conservation and excavating early farming sites in Zambia and East Africa. He was one of the pioneers of multidisciplinary African history in the 1960s. Now Professor Emeritus, from 1967 to 2003 he was Professor of Anthropology at the University of California, Santa Barbara.

Professor Fagan has written seven best-selling textbooks—*Ancient Lives: An Introduction to Archaeology and Prehistory*; *In the Beginning*; *Archaeology: A Brief Introduction*; *World Prehistory*; *Ancient Civilizations* (with Chris Scarre); *A Brief History of Archaeology*; and this volume—which are used around the world. His general books include *The Rape of the Nile*, a classic history of Egyptology; *The Adventure of Archaeology*; *Ancient North America*; *The Little Ice Age*; *The Long Summer*; *Chaco Canyon*; *Fish on Friday*; *The Great Warming*; and *Elixir: A History of Humankind and Water*. He was also General Editor of the *Oxford Companion to Archaeology*. In addition, he has published several scholarly monographs on African archaeology and numerous specialized articles in national and international journals. He was the recipient of the Society for American Archaeology's first Public Education Award for his indefatigable efforts on behalf of archaeology and education.

Brian Fagan's other interests include cycling, sailing, kayaking, and good food. He lives in Santa Barbara with his wife and daughter, three cats (who supervise his writing), and last but not least, a minimum of seven rabbits.

Nadia Durrani is an archaeologist and writer. She contributes to a wide range of archaeological publications and is the former editor of Britain's two best-selling archaeological magazines, *Current World Archaeology* and *Current Archaeology*. Over the years she has authored and edited countless articles on archaeology from every corner of the globe. Nadia has also co-edited several textbooks with Brian, contributed to dozens of other books, and written two—*The Tihamah Coastal Plain of South-West Arabia*; and *In Search of the Zeppelin War: The Archaeology of the First Blitz* (with Neil Faulkner).

Her background is in Arabian archaeology and, following a degree in archaeology and anthropology from Cambridge University, she took a PhD in South West Arabian archaeology from University College London (2001). Nadia remains actively involved in Arabian studies and is on the board of the British Foundation for the Study of Arabia. She is also a founding member of the Great War Archaeology Group, and a Fellow of the Society of Antiquaries. She lives in London with her husband and young son.

Preface

Golden pharaohs, lost cities, grinning human skeletons—archaeology is the stuff of romance and legend. Many people still think of archaeologists as adventurers and treasure hunters, like Indiana Jones of Hollywood movie fame seeking the elusive Crystal Skull. This enduring image goes back to the late nineteenth century, when archaeologists like Austin Henry Layard of Nineveh fame could still find lost civilizations and excavate three royal palaces in a week. Today, no archaeologists behave like Indiana Jones. They are scientists, not adventurers, as comfortable in an air-conditioned laboratory as they are on a remote excavation.

The development of scientific archaeology from its Victorian beginnings ranked among the greatest triumphs of twentieth-century science. Archaeology has changed our perceptions of ourselves in profound ways, giving us a better understanding of our biological and cultural diversity. Welcome to the fascinating world of archaeology!

New to This Edition

- Chapter 1 introduces world prehistory and presents new insights on the human past, including the latest theoretical advances.
- Chapters 2–6 have been completely reorganized and rewritten. They reflect new thinking and discoveries that alter our perceptions of the archaic world and human origins.
- Chapter 4 now covers the origins of anatomically modern humans, *Homo sapiens*, previously summarized in Chapter 3.
- Chapter 6 presents the latest evidence on the first settlement of the Americas. New sites and innovative hypotheses enliven the long debates on the subject.
- Chapter 7 includes new information on changes in hunter-gatherer societies at the end of the Ice Age, especially in Southwest Asia.
- Chapter 9 has been completely rewritten and updated to include the exciting discoveries of recent years that are changing our ideas on early farming in Southwest Asia profoundly, including climate change.
- Chapters 11–13 have been updated with new information and recent discoveries.
- Chapter 14 has been updated to include the latest theories on the origins of states and civilizations.
- Chapters 15–20 now reflect the latest discoveries on such topics as Stonehenge and the Shang civilization.
- Chapters 21 and 22 on Native American civilizations have been revised throughout to keep up with a new torrent of finds and fresh perceptions.
- Science and Site boxes throughout the text cover key concepts like radiocarbon dating, and present important new discoveries (and some older well-known ones) in more detail. Many are newly written for this edition. Examples include the spectacular Grotte de Chauvet cave paintings in France and the Lords of Sipán from coastal Peru, two of the most important archaeological discoveries of the twentieth century.
- There are major changes in the illustrations throughout the book.

This fifteenth edition of *People of the Earth* comes at a time when new discoveries and archaeological methodologies are deeply affecting our understanding of the human past. This edition continues an over 40-year tradition of clear, jargon-free writing for the beginning student, the incorporation of the latest scholarship, and an accessible (five-part) organization of the story of world prehistory. This is a straightforward narrative, written by two authors (not the work of multiple scholars), which gives the book a coherence often lacking in edited volumes. The basic objective is a simple one: to provide an interesting journey through the 7-million-year-old landscape of the human past. At the same time, the book attempts to achieve geographic balance, giving equal time to both well-trodden and less well-known parts of the world. Any world prehistory that does otherwise is presenting a skewed picture of the human past. *People of the Earth* is an adventure in archaeology. We hope you enjoy your sojourn in its pages.

Writing a straightforward narrative of human prehistory is a mammoth task, especially at a time when a torrent of new literature about archaeological discoveries around the world is revolutionizing our knowledge of the remote past. We are well beyond the point where only two authors can possibly hope to keep up with every new find and intellectual development in world archaeology, but we have done our best, while trying to keep the narrative as simple and uncluttered as possible, without undue emphasis on individual sites or human societies.

This narrative of world prehistory is divided into five parts. Part I (Chapters 2 and 3) discusses human beginnings—what is sometimes called "archaic world," the human past from the earliest times up to the appearance of *Homo sapiens*, ourselves. Here we cover important new discoveries, including the current work at Jebel Irhoud in Morocco which is pushing back the date of the earliest known *H. sapiens* by over 100,000 years, as well as fascinating sites such as Boxgrove in southern England. We also continue to take account of new theoretical advances in cognitive, or "post-processual," archaeology, especially of the emerging synthesis of evolutionary psychology and archaeology. Part II (Chapters 4 to 7) discusses what we call the "Great Diaspora," the spread of anatomically modern humans throughout the world during and immediately after the late Ice Age. We go from Southwest Asia to South and East Asia, also Southeast Asia, tracing some of the earliest forays of modern humans, culminating in the settlement of Australia and the southwestern Pacific islands, before returning to tropical Africa Then we follow moderns as they colonize Europe and Eurasia, and ultimately the Americas, a logical order preferred by many users. Part II includes coverage of the new AMS radiocarbon chronology for first settlement, made possible by extended calibration curves. "After the Ice," which follows, leads into the chapters on the first farmers.

Part III describes the origins of food production, with Chapter 8 devoted to the theoretical background and the following five chapters discussing the earliest farming in different areas of the world. New discussions in this edition include the increasing impact of refined AMS chronologies, genetic fingerprinting of potentially domesticable animals and plants, and a fresh generation of research into the origins of rice cultivation. Important new perceptions of the Mississippian and other, more complex farming societies in eastern North America also receive extended treatment.

Parts IV and V cover the early civilizations of the Old World and the Americas, with Chapter 14 describing the major theories of the origins and collapse of states. The ferment of theorizing has diminished somewhat in recent years as fieldworkers wrestle to document their theories with new data from the field. At the same time, a new emphasis on ideology and the archaeology of the intangible is throwing fresh light on preindustrial civilization. There is expanded coverage of the origins of Egyptian civilization, as well as of South and Southeast Asian states. Maya archaeology has been revolutionized in recent years by the decipherment of ancient glyphs and by our new understandings of the turbulent political history of Maya states. We take account of some of these advances here, but, alas, do not have space for extended coverage.

As always, the book is designed for easy accessibility and effective learning. *People of the Earth* is free of distracting features that draw the reader away from the main narrative. High-interest chapter-opening vignettes, which describe a moment of discovery or reconstruct life in the past, grab the student's interest from the outset. Chronological tables at the beginning of most chapters, as well as chapter summaries at the end of each chapter, also add to the effectiveness of the book as a learning tool.

Other pedagogical features include the following:

- Special timeline columns at the opening of each part of the book. By means of varied color, each timeline tells at a glance which period the part covers, as well as which periods have already been covered and are yet to be covered in the text.
- Expanded picture captions that augment the visual information.
- Double-page spreads that provide up-to-date overviews of major themes and developments in human prehistory.

Support for Instructors and Students

Please visit the companion website at www.routledge.com/cw/fagan

A Note on the World Wide Web

The World Wide Web is an important medium of communication for archaeologists. Some of the more important sites offer links to other useful locations, as listed below. First off, we recommend you visit the virtual library for archaeology worldwide at ArchNet: http://archnet.asu.edu.

This site is both geographically and subject matter based, covering everything from the archaeology of Australia to method and theory and site tours. There are also listings of academic departments, museums, and other archaeological organizations, even of journals. ArchNet is an extraordinary resource; it does not claim to be comprehensive but, nonetheless, covers a huge range of topics. The European equivalent is ARGE, the Archaeological Resource Guide for Europe: www.let.rug.nl/arge/. This site also lists areas and subjects, and is multilingual. Both ArchNet and ARGE have links to virtually any subfield of archaeology you are looking for.

Many departments of anthropology and archaeology and dozens of excavations and sites have websites, which you can access through ArchNet. For example, for information on archaeology in Southwest Asia and the eastern Mediterranean, go to www.argonet.co.uk/.

When seeking out information, it is worth remembering that the official websites of projects, museums, and universities are typically excellent sources of data, whereas those authored by interested members of the public, and indeed nonspecialist journalists, should be read with caution. Happy surfing!

Acknowledgments

This fifteenth edition has benefited greatly from the willing comments of many colleagues—alas, too many to name individually. However, we would like to send our special thanks to Professors Robert Foley (Cambridge University) and Paul Pettitt (Durham University), and also to Rob's doctoral student, Laura van Holstein. Thank you all three for giving us your time and careful feedback on a number of the early chapters. We appreciate it very much.

In addition, we would like to thank the following archaeologists for their reviews: Amanuel Beyin, Michael Harrower, Susan Johnston, Keir Strickland, and Frederick H. Smith. We are grateful for their frank comments. We also want to thank the many instructors and users who have contacted us to correct errors, provide references, or make other useful suggestions.

Lastly, our thanks to the editorial and production staff at Routledge. Without them, this revision would never have been completed. As always, we would be most grateful for criticisms, comments, or details of new work, sent to us at venbed@gmail.com.

Brian Fagan
Nadia Durrani

Authors' Note

Conventions for Dates and Measurements

The following conventions are used for dates in this book:

B.P.	Years before present. In general, years before 40,000 B.P. are given in years before present, whereas dates after 12,000 B.P. are invariably expressed as B.C./A.D., unless the context is obvious.
Ma	Million years ago.
B.C./A.D.	To avoid confusion, we use the common B.C./A.D. Another common convention is B.C.E./C.E. (Before the Common Era/Common Era), which is not used in this book.
"Present"	By scientific convention, "present" is A.D. 1950.

For clarity, all radiocarbon and potassium-argon dates are quoted here without their statistical errors. However, readers should be aware that such calculations exist for every chronometric date in this book.

All measurements are given in metric, with miles, yards, feet, and inch equivalents, as this is now common scientific convention.

Calibration of Radiocarbon Dates

The calibration of radiocarbon dates has now reached a high degree of refinement, as scientists develop ever more accurate time scales for the past 15,000 years, using tree-ring, coral, and ice-core data. It should be stressed that these calibrations are provisional, statistically based, and subject to modification, especially before 7000 B.C.

Introducing World Prehistory

1

CHAPTER OUTLINE

The two men paused in front of the doorway that bore the seals of the long-dead pharaoh. They had waited six long years, from 1917 to 1922, for this moment. Silently, Howard Carter pried a hole through the ancient plaster. Hot air rushed out of the small cavity and massaged his face. Carter shone a flashlight through the hole and peered into the tomb. Gold objects swam in front of his eyes, and he was struck dumb with amazement.

Lord Carnarvon moved impatiently behind him as Carter remained silent.
"Can you see anything?" he asked, hoarse with excitement.
"Yes, wonderful things," whispered Carter as he stepped back from the doorway.

They soon broke down the door. In a daze of wonderment, Carter and Carnarvon wandered through the antechamber of Tutankhamun's tomb. They fingered golden funerary beds, admired beautifully inlaid chests, and examined the pharaoh's chariots stacked against the wall. Gold was everywhere—on wooden statues, inlaid on thrones and boxes, in jewelry, even on children's stools (Reeves, 1990). Soon Tutankhamun was known as the golden pharaoh, and archaeology as the domain of buried treasure and royal sepulchers (Figure 1.1).

The White House, Canyon de Chelly, Arizona, c. A.D. 1200.

FIGURE 1.1 Howard Carter works on the pharaoh Tutankhamun's sarcophagus, 1922. Photography by Egyptian Expedition, The Metropolitan Museum of Art.

Gold, silver, lost civilizations, unsolved mysteries, grinning skeletons—all are part of the romantic world of archaeology in most people's minds. Archaeologists seem like adventurers, digging into pyramids and finding long-forgotten inscriptions in remote places. Like Indiana Jones of movie fame, we seem to be students of sunken continents and great migrations, experts on epic journeys and powerful civilizations. A century ago, many archaeologists were indeed adventurers. Even as late as the 1870s, you could go out digging in Southwest Asia and find a long-lost civilization. German businessman turned archaeologist Heinrich Schliemann was convinced that Homer's Troy had existed. Armed with a copy of the *Iliad*, he went to Turkey and cut great trenches into the ancient mounds at Hissarlik in northwest Turkey. Schliemann found the remains of nine cities stratified one atop the other and announced that the seventh was Homer's Troy (Traill, 1995). His discoveries caused an international sensation. So did Frenchman Emil de Sarzec when he unearthed Sumer in desolate southern Mesopotamia, a civilization that soon turned out to be one of the earliest in the world and the society where the Flood legend in Genesis probably originated (Fagan and Durrani, 2016) (Figure 1.2).

Today, however, the excitement of the detective story has replaced the fascination of great adventure. Fictional detectives take a handful of clues and solve apparently insoluble murders. Archaeologists take a multitude of small and apparently trivial archaeological finds and use them to answer basic questions about past human behavior.

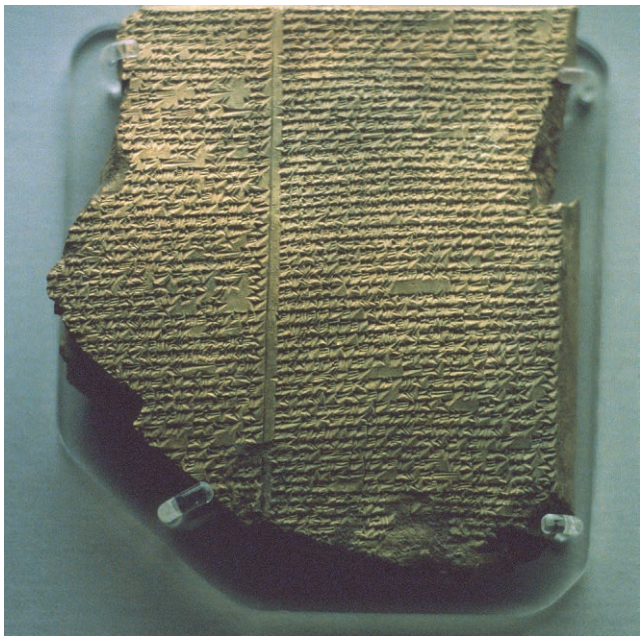

FIGURE 1.2 The famous "Flood Tablet" from the Assyrian king Assurbanipal's library at Nineveh. The tablet, found by epigrapher George Smith in 1873, records the story of a flood that bears a remarkable resemblance to the one described in Genesis. This was a copy of a much earlier Sumerian legend which dates from long before the writing down of the Old Testament. Copyright The British Museum.

The twentieth century saw archaeology turn from a casual treasure hunt into a complex and demanding science (Fagan, 1985, 2005b). There have been dramatic discoveries by the dozens: Tutankhamun's tomb in 1922; the royal cemetery at Ur in Iraq in 1928; the spectacular early human fossils discovered by the Leakey family in East Africa during the last quarter of the century; and the magnificent royal burials in China and Peru in the 1980s and 1990s. Although these finds have stirred the popular imagination, archaeologists have been engaged in a less conspicuous but just as fascinating adventure of discovery—through over 3 million years of the human past.

People of the Earth takes you on a journey through these 3 million years, from the origins of the first humans through the evolution of modern humanity—ourselves—to the last 5,000 years, when literate civilizations appeared on earth. This is a book about the prehistory of humankind.

Archaeology and Prehistory

Contrary to popular belief, archaeologists do not study dinosaurs, for ancient fossil animals are the scholarly province of paleontologists. Archaeologists are anthropologists. **Anthropology** is the biological and cultural study of all humanity, ancient and modern. Cultural (or social) anthropologists are typically concerned with living societies, whereas archaeologists usually study the human cultures and societies of the past. (No attempt is made to describe the basic principles, methods, and theoretical approaches of archaeology in this book. For information, the reader should consult one of the following widely available college texts: Fagan and Durrani, 2018; Renfrew and Bahn, 2016; Sharer and Ashmore, 2013; Thomas and Kelly, 2017.)

A British archaeologist once described archaeology as "the science of rubbish," a somewhat apt description, for archaeologists do indeed spend much of their time delving into the garbage heaps and **middens** of long-vanished human societies. **Archaeology** is the study of past human behavior based on surviving material finds. These material remains come in many forms: as crude or finely made stone artifacts tens of thousands, even millions, of years old; as durable pot fragments from

FIGURE 1.3 Excavated prehistoric houses at Skara Brae, Orkney Islands, Scotland, occupied c. 3000 B.C.

clay vessels used by early farmers; as house foundations; as seeds and broken food bones; in the form of cave paintings; and, when preservation conditions permit, as wooden artifacts, textiles, or human corpses. All these finds constitute the **archaeological record**, the archives of the past, which can be made up of surviving finds resulting from ancient human behavior. Reconstructing this behavior from such fragmentary records requires great scientific skill, insight, and creativity. Imagine trying to reconstruct twentieth-century life from a handful of artifacts, including two broken plates, a spark plug, a computer keyboard, three cow bones, and an aluminum beer can tab, and you will realize the challenge facing students of the remote past (Figure 1.3).

We use the word *remote* deliberately. Though some archaeologists deal with sites from the last (and even this) century, most of the archaeological research described in this book deals with biological and cultural developments thousands of years back in the past, with long-vanished environments and societies that lived on earth when it was very different. Few people realize just how much the world has changed during the past 3 million years, and especially during the past 780,000 years, when the constant climatic fluctuations of the Ice Age have kept global climate in a state of transition from extreme cold to warmer conditions (see Chapters 2 to 4). Only 15,000 years ago, the world was in the grip of a major glacial episode that covered much of northern Europe and North America with vast ice sheets, lowered sea levels everywhere by about 91 m (300 feet), and resulted in open, treeless plains from western France to Siberia. England was part of the European continent; Siberia was joined to Alaska; and Borneo was part of mainland Southeast Asia. The human inhabitants of this late Ice Age world lived on a planet unimaginably different from our own, which makes it doubly hard for us to reconstruct and explain their societies.

For the past 5,000 years, humans have used writing as a means of recording business transactions, making inventories of commodities, and measuring the passage of time (Robinson, 2015). From these simple records developed far more sophisticated writings: primordial epics and poems; king lists; histories and literature itself; written archives preserved on clay tablets and papyrus reed documents or as inscriptions on stone and eventually on parchment and paper. Such archives are the realm of historians, scholars who study the written records of the past.

History is very different from archaeology. Although eclectic in their interests, historians work with documents. These may be chronicles of individual deeds, or of great kings and lords anxious to trumpet their triumphs or justify their doings. They also study more prosaic archives: the records of royal palaces and governments, the day-to-day transactions of officialdom, to gain wider perspectives on every aspect of society from religious beliefs to food supplies, trade, and social interactions.

In contrast, archaeology is, most of the time, entirely anonymous. Its chronologies are not the years, even hours and minutes, found in history books but are much larger chunks of time, rarely shorter than

a half century or a generation. The archaeologist's past is usually without written records to fill in vital gaps. Even when documents are available to amplify historical records on, say, the Egypt of Pharaoh Rameses II or the rituals celebrated by a Maya lord, archaeology brings a unique quality to the past. Only a few people in ancient societies were literate, so the scope of written records is immediately limited. But archaeologists study artifacts and food remains, a dispassionate record of all ancient human behavior, whether that of a monarch or an anonymous sea captain and his crew wrecked on the cliffs of southern Turkey. By excavating the humble dwellings of common folk or the middens of imposing palaces, also studying burials and human remains, among other finds, archaeologists add new dimensions to the study of even societies that are well documented with written records of all kinds (see the Site box—The Amesbury Archer).

Archaeologists make a clear distinction between two major types of archaeology:

- **Text-aided archaeology** is archaeology practiced with the aid of historical documents. Many of the civilizations described in Parts IV and V of this book involve specialist archaeologists, such as Assyriologists, Egyptologists, or Mayanists, who have at least some expertise in ancient scripts. Text-aided archaeology is confined to societies that have flourished during the past 5,000 years and sometimes provides fascinating insights into the people of the past. At the Roman frontier settlement at Vindolanda by Hadrian's Wall in northern England, slivers of bark paper dating to A.D. 95 to 105 have preserved intimate details of life on the wall. We learn that only 265 men, including 1 centurion, were at Vindolanda itself and "fit and well." The rest were serving elsewhere. Store inventories reveal allocations to soldiers and punishments. Occasionally, the correspondence takes a more personal note. "Why have you not written back to me for such a long time about our parents?" laments a soldier named Chrautius to an old messmate in distant London. "I have sent you . . . woolen socks . . . two pairs of sandals and two pairs of underpants," writes a friend of a Vindolanda officer, who was thankful for the gift. There are even fragments of school tablets, one a copy of a passage from Virgil's *Aeneid*, with the notation in another hand: "sloppy work" (Birley, 2009).
- **Prehistoric archaeology** is the archaeology of ancient societies that were nonliterate. The term *période anti-historique* was coined by French archaeologist Paul Tournal in 1833 for the period of human history extending back before the time of written documents (Grayson, 1983). In time, this phrase shrank to **prehistory**, and it now encompasses the enormous span of human cultural evolution that extends back at least 3.3 million years.

People of the Earth is about both prehistoric and text-aided archaeology. We draw on archaeology, geological evidence, linguistic and biological data, oral traditions, historical records, and many other sources of information about 3 million years of the human past, sometimes called **world prehistory**. Some people, notably Native Americans, object to the word *prehistoric*. They feel it implies racial inferiority and expresses the belief that people without written documents have no worthwhile history. These objections are part of a wider debate about the ownership of the past and about archaeology's role in modern society (see the section "Who Needs the Past?" in this chapter).

Prehistory and *prehistoric* are convenient, and long-established, scientific terms without any pejorative implications. Although it is true that a century ago many scholars classified human societies in racist terms, those days are long gone. Modern archaeologists study both literate and nonliterate societies and how they changed without making any value judgments as to their superiority or inferiority to the archaeologists' own society. Their concern is the broad sweep of the human past, for scientific archaeology is a unique way of studying culture change in human societies over enormously long periods of time. From about 3000 B.C., written records and oral histories provide useful perspectives on the past. But in most areas of the world, these sources have but a limited chronological span. And earlier than that, the past is a blank, featureless landscape that can be filled in only by archaeological research.

The Beginnings of World Prehistory

Until the mid-nineteenth century, most Westerners believed that the Old Testament recorded the study of human origins. God created the world and humanity in six days and rested on the seventh. Under Christian dogma of the day, the stories of Adam and Eve, and of Noah's Ark, were the literal historical truth. The seventeenth-century Irish Archbishop James Ussher went even further and used the genealogies in the Bible to calculate the date of the creation—the night preceding October 23, 4004 B.C. His calculations allowed about 6,000 years for all human history.

New geological, anthropological, and archaeological discoveries soon began to cast doubt on biblical chronologies. Geological observations presented evidence of gradual change over long periods of time through natural processes such as flooding and erosion, what became known as the doctrine of

SITE > The Amesbury Archer <

Archaeologists rarely discover individuals, but, when they do, thanks to twenty-first-century medical science and high technology, they can learn much about an individual's life. By the time the study is completed, archaeologists know more about the person's medical history than the person himself did. Witness the discovery of a Bronze Age archer burial in southern England 4,500 years ago.

The so-called Amesbury Archer was buried in about 2470 B.C., 4.8 km (3 miles) from Stonehenge in southern England (Figure 1.4). Aged 35 to 45 when he died, he lay on his left side with bent legs and his head facing north. He had suffered from an abscess in his jaw and had had a serious accident a few years before his death that ripped off his left kneecap. Consequently, he walked with a straight foot, which swung out to his left, and suffered from a bone infection that caused him constant pain. His collar and shoulder bones were relatively small and gracile, with no signs of the uneven alignment of the arm muscles that would have resulted from the frequent use of a bow. Osteologically, if he ever was an archer, then that was no longer his main role. Who was he then?

FIGURE 1.4 An artist's impression of the Amesbury Archer, buried near Stonehenge, England, c. 2740 B.C. Jane Brayne and Wessex Archaeology

His strong pronator muscle attachments may suggest that he was engaged in the fabrication of items that required strong wrist control and forceful movement. Some of the artifacts recovered from his grave—such as the copper knife that lay partially under his torso—hint that he was (perhaps among other things) a metalworker. Metalworking had only just appeared in Britain and his knowledge must have made people regard him as something of a magical alchemist.

Another grave lay close by, and was found to contain the skeleton of a man between 25 and 30 years old. Modern archaeological science, some of it unimaginable even a generation ago, tells us much more about the two men. For example, a detailed study of their bones found the same unusual bone structure in the foot—a heel bone with a joint with one of the upper tarsal bones in the foot itself—strongly suggests the two men were relatives.

Oxygen isotope analysis of the Amesbury Archer's teeth provided startling clues as to his homeland. The oxygen isotope ratio of the water one drinks depends on the source of the water; the distance from the coast; and the altitude, latitude, and local temperature of the rainfall. Drinking water in warmer climates has more heavy isotopes than that from colder environments. By comparing the isotope ratios of ancient teeth with those from modern drinking water samples, scientists can discover where the people lived. In the case of the Amesbury Archer, the oxygen isotope data from his teeth show that he spent his youth in a colder climate than that of southern Britain—likely the Swiss Alps. In contrast, the younger man had a lighter oxygen isotope ratio in his wisdom teeth, as if he spent his late teens in central England or northeast Scotland.

The archer is proof that people traveled long distances at this early time, far more than was hitherto suspected. We should not be surprised at this, for trade routes crisscrossed Europe at the time, carrying both exotic objects and commodities such as gold ornaments and shiny Baltic amber and foodstuffs and all kinds of artifacts. His metalworking skills may account for his wide travels and probably explain why he lived and died close to an important ritual center like Stonehenge.

uniformitarianism. The bones of long-extinct animals such as the ancestors of the elephant and the hippopotamus came from European river gravels, some from the same strata as carefully chipped stone axes of obvious human manufacture. If one accepted these observations, then humans were on earth long before 4004 B.C. Two major scientific developments produced critical evidence for the antiquity of humankind. The first was the publication of Charles Darwin's theory of evolution and natural selection in his *On the Origin of Species* in 1859. The second was definitive proof of the contemporaneity of humans and extinct animals, documented conclusively by finds in gravels of the Somme River in northern France in the same year, three years after the discovery of the beetle-browed Neanderthal skull in Germany, the first archaic-looking human ancestor. By the late nineteenth century, the antiquity of humankind was widely accepted, creating a framework for human existence that extended back tens of thousands of years into an unknown past. All archaeological research is ultimately based on this framework.

Science Dating the Past

How do archaeologists date the past? Prehistoric chronologies cover long periods of time—millennia or centuries in most cases. Some idea of the scale of prehistoric time can be gained by piling up 100 quarters. If the whole pile represents the entire time that humans and their culture have been on earth, the length of time covered by historical records would be considerably less than the thickness of one quarter.

Archaeologists are constantly experimenting with new methods of dating the past (Fagan and Durrani, 2018; Renfrew and Bahn, 2016). However, five major chronological methods date the 2.6 million years of the human past (Table 1.1):

1. *Historical records* (present day to c. 3000 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 Southwest Asia c. 3000 B.C. and much later in many other parts of the world.
2. *Dendrochronology (tree-ring dating)* (present day to 8000 B.C.). The annual growth rings of long-lived trees such as sequoias, bristlecone pines, and European oaks, whose wood was used for beams, posts, and other purposes by ancient people, can be used to date sites in some areas such as the southwestern United States, the Mediterranean, and western Europe. Originally used on southwestern pueblos, **dendrochronology**, or tree-ring dating, using sequences of growth rings, is also used to calibrate radiocarbon dates and is a useful source of information on ancient climatic change.
3. *Radiocarbon dating* (c. A.D. 1500 to 40,000 years ago). Radiocarbon dating is based on the measurement of the decay rates of carbon-14 atoms in organic samples like charcoal, shell, wood, hair, and other materials. When combined with accelerator mass spectrometry, it can produce dates from tiny samples, which are then calibrated, if possible, against tree-ring dates to provide a date in calendar years. Radiocarbon chronologies date most of prehistory after about 40,000 years ago, well after modern humans appeared in Africa for the first time (see box—Radiocarbon Dating, in Chapter 3).
4. *OSL (Optical stimulated luminescence)* (present day to c. 400,000 years ago and earlier) measures the age of deposits surrounding artifacts since they were last exposed to the sun. Not universally accepted as accurate.
5. *Potassium-argon dating* (250,000 years ago to the origins of life). **Potassium-argon dating** is a chronological method, used to date early prehistory, which measures the decay rate of potassium-40 atoms in volcanic rocks (see box—Potassium-Argon Dating, in Chapter 2). This method is an excellent way of dating East African hominin fossils, many of which are found in volcanic levels.

Other dating methods include obsidian hydration, paleomagnetic dating, thermoluminescence, and uranium-thorium dating. Optically stimulated luminescence (OSL) measures the age of deposits surrounding artifacts, by measuring when they were last exposed to the sun. It has been used to date the earliest human settlement of Australia. However, none of these methods is of universal application.

For generations, archaeology was largely a phenomenon of European and North American scholarship (Bahn, 1996). The first archaeologists were amateurs, often men and women with private means. Even 50 years ago, the community of professional archaeologists throughout the world was no more than a few thousand people, many of them trained in Europe or the United States. The spread of archaeological research into other parts of the world began in the 1920s and 1930s, as Belgian, British, and French colonial governments established museums and research institutes in their colonies. Sub-Saharan Africa saw much archaeological research between the 1930s and 1950s, conducted by a handful of prehistoric archaeologists like Louis and Mary Leakey and J. Desmond Clark. In the Americas, the Carnegie Institution of Washington, D.C., was active in Maya archaeology for many years; and other academic institutions, like Harvard University, organized expeditions to Southeast Asia, China, the Andes, and other archaeologically little-known regions. But right up to the late 1950s, most archaeology was decidedly provincial, focusing on relatively few areas of the world.

World prehistory developed from two major changes in archaeology. The first was the development of **radiocarbon** (^{14}**C**) **dating** by University of Chicago physicists Willard Libby and J. R. Arnold in 1949. For the first time, archaeologists had at their disposal a dating method of potential global application that enabled them not only to date sites in all corners of the world but also to compare the chronology of, say, the first agriculture in Southwest Asia with that in the Americas (see box—Radiocarbon Dating, in Chapter 3). Until then, no one could make easy, direct chronological comparisons between widely separated regions, neither was there a way of measuring the rate of culture change through time. Within 15 years of Libby and Arnold's remarkable discovery, radiocarbon dates from hundreds of sites allowed the construction of the first reliable global chronologies (see Science box—Dating the Past).

The second change resulted from an explosion in the number of professional archaeologists during the 1950s and 1960s. This rapid expansion resulted from increased funding for higher education after World War II and from the establishment of many more archaeological organizations outside the narrow confines of Europe and North America.

TABLE 1.1
Dating methods

Date	Method	Major Events
Modern times (after A.D. 1)	Historical documents; imported objects most useful	European settlement of New World; Roman Empire
4500 B.C.	Dendrochronology	Origins of cities
	Radiocarbon dating (organic materials)	Origins of agriculture
	OSL	First Americans
70,000 B.P.		*Homo sapiens neanderthalensis*
		Homo sapiens
500,000 B.P.	Potassium-argon dating (volcanic materials)	*Homo erectus/Homo ergaster*
		Homo
		Australopithecus
5,000,000 B.P.	Uranium series dating	

Note: These conventions are used in the tables throughout this book:

——— A continuous line means the chronology is firmly established.

——→ A line terminating in an arrow means the time span continues beyond the arrow.

——| A line terminating with a horizontal bar means the limit of chronology is firmly established.

- - - - - A broken line means the chronology is doubtful.

? A question mark beside the name of a site means its date is not firmly established.

For years, Cambridge University had trained archaeologists and anthropologists, many of whom went into the British colonial service. From the late 1950s, Cambridge actively encouraged its archaeological graduates to emigrate to tropical Africa, Australia, the Pacific, and other archaeologically little-known parts of the world. These researchers took with them a new, multidisciplinary approach to archaeology, one that stressed environmental change and the importance of explaining as well as describing the past. Since the 1960s, **cultural resource management (CRM)** has assumed increasing importance in many countries, especially Canada and the United States, with a resulting explosion in the number of archaeologists. Archaeological activity has expanded greatly in many other nations too. In 1959, for example, there were just nine professional archaeologists in the whole of sub-Saharan Africa. In 2011, there were about 100 in South Africa alone.

In 1977, the Cambridge archaeologist Grahame Clark published his classic *World Prehistory*, the first global synthesis of archaeology, which took full account of radiocarbon chronology and archaeological research. This groundbreaking volume became a modern classic and helped turn archaeology intellectually from a somewhat provincial discipline into the global enterprise it is today. All subsequent attempts to synthesize world prehistory, of which *People of the Earth* is one, have built on Grahame Clark's pioneering work.

Today, archaeological expeditions are at work in every corner of the world and in every imaginable environment: in the remote wilds of Siberia, in tropical rain forests along the Amazon River in South America, on Easter Island in the Pacific, in the depths of the arid Sahara, and under the world's oceans. The heaviest concentrations of research are still in Europe, Southwest Asia, and North America, but knowledge is accumulating rapidly in areas like Africa and Asia, from which the most spectacular discoveries of the twenty-first century will come (Figure 1.5).

FIGURE 1.5 An overgrown doorway at the Ta Prohm temple, Cambodia, built by the Khmer ruler Jayavarman VII, c. 1186 B.C., and dedicated to the ruler's mother. The most spectacular archaeological discoveries of the twenty-first century will most likely come from outside Europe, Southwest Asia, and North America, where the heaviest concentration of research has been carried out.

Who Needs the Past?

"There is not yet one person, one animal, bird, fish, crab, tree, rock, hollow, canyon, meadow, forest. Only the sky alone is there; the face of the earth is not clear. Only the sea alone is pooled under all the sky; there is nothing whatsoever gathered together . . . Whatever is that might be is simply not there: only the pooled water, only the calm sea, kept at rest under the sky" (Tedlock, 1996: 64).

The Maya *Popol Vuh*, a book of counsel sometimes called the Maya Bible, tells the story of the creation and recounts the deeds of gods and kings in a brilliant celebration of the Quiché Maya past. The impact of its creation myth is as powerful as that in the book of Genesis. All societies have an interest in the past. It is always around them, haunting, mystifying, tantalizing, with potential lessons for the present and future. The past is important because social life unfolds through time, embedded within a framework of cultural expectations and values. In the high Arctic, Inuit preserve their traditional attitudes, skills, and coping mechanisms in one of the harshest environments on earth. They do this by incorporating the lessons of the past into the present (Anawak, 1994). In many societies, the ancestors are the guardians of the land, which symbolizes present, past, and future. Westerners have an intense scientific interest in the past, partly born of curiosity but also out of a need for historical identity. There are many reasons to attempt to preserve an accurate record of the past, and no people, least of all archaeologists, should assume that they are uniquely privileged in their interest in the remains of that past (Layton, 1994).

Archaeology is, however, unique in its ability to study developments in the human past over enormously long periods of time. The American archaeologist Robert Kelly (2016) has written of four major turning points in our past known from archaeology, and sometimes other sources, with the last two being the emergence of agriculture and animal domestication, then cities and civilization. These turning points are what world prehistory is about, a chronicle of over 3 million years of the human experience. Kelly then looks to the future to describe a "Fifth Beginning" that has its roots in European expansionism and the Industrial Revolution, but which is leading to a globalized economic, political, and social order that depends on cooperation. Today, for the first time, he suggests, human evolution is in our hands: we need to take charge of our own future, and for this we have the past, in all its rich diversity, to educate us. We humans have the capacity to change the world, to release the best in us and restrain the worst. An understanding of the long span of human prehistory is part of the toolkit for changing the world.

We all share an interest in the past, but we think of it, and use it, in different ways, just as we have different perspectives on time.

Cyclical and Linear Time

Archaeologists tend to claim that only they are qualified to reconstruct the early human past. Although it is true that archaeology is the only method Western science has of studying culture change through time, that fact does not give archaeologists unique authority over the past. In many societies, the past is a valued cultural commodity in ways that are fundamentally different from those of the archaeologist. The transmission of knowledge about the past lies in the hands of respected elders, who take pains to preserve the accuracy of oral traditions. Such traditions are of vital importance and are carefully controlled, for they define and preserve a group's identity from one generation to the next. The past is vested not in science but in household, community, kin groups, and territory. Among the Yolngu Aborigines of Australia's Northern Territory, for example, only the oldest clan members are repositories for the most important historical knowledge (Williams and Mununggurr, 1994).

As both Australian Aborigines and Native Americans have pointed out, Western science and its perspectives on the past are fundamentally incompatible with those of other societies. This incompatibility revolves around the notion of linear time. Westerners think of the passage of the human past along a straight, if branching, highway of time. The great nineteenth-century German statesman Otto von Bismarck called this the "stream of time" upon which all human societies ride for a while. The analogy is apt if you think of time in a linear fashion, as archaeologists do. They use a variety of chronological methods to date the long millennia of human prehistory (see Science box—Dating the Past) and provide the chronological framework for world prehistory (Fagan and Durrani, 2018).

FIGURE 1.6 Art as history. A brass plaque from Benin City, West Africa, showing a heavily armed *oba* (king) with his attendants. These artifacts, which served as important historical records of royal reigns and genealogy, were stored in the royal palace.

An unfolding linear past is not the only way of conceptualizing ancient times. Many non-Western societies, ancient and modern, think of time as a cyclical phenomenon, or sometimes as a combination of the linear and the cyclical. The cyclical perspective stems from the passage of seasons and of heavenly bodies and from the close relationships between foragers and village farmers and their natural environments. It is also based on the eternal verities of human life: fertility and birth, life, growth, and death. The endlessly repeating seasons of planting and harvest, of game movements or salmon runs, and of ripening wild foods have governed human existence in deeply significant ways. The ancient Maya developed an elaborate cyclical calendar of interlocking secular and religious cycles to measure the passage of the seasons and to regulate religious ceremonies (see Chapter 21).

But we should not assume that societies with a cyclical view of time did not have linear chronologies as well. The celebrated Maya "Long Count" was a linear sacred calendar that formed an integral part of the close relationship between Maya rulers and the cosmos. The ancient Egyptians developed a linear chronology for administrative purposes. But, in general, societies develop linear chronologies only when they need them. For example, Western societies use linear time to regulate times of prayer, to control the working day, and to schedule airline flights. It is hard to generalize, but societies with centralized political systems tend to use the reigns of chiefs or kings as signposts along a linear time scale. For instance, the history of the rulers of the state of Benin in West Africa shows a significant shift in the interpretation of time. Before the fourteenth century A.D., Benin history is essentially mythological, with inaccurate chronology and a variable number of kings. But with the founding of the Yoruba dynasty, the deeds and reigns of every *oba* (king) are remembered in detail with chronological accuracy right down to modern times (Ben-Amos, 1980) (Figure 1.6).

Robert Layton (1994) points out that many non-Western societies do not perceive themselves as living in a changeless world. They make a fundamental distinction between the recent past, which lies within living memory, and the more remote past, which came before it. For instance, the Australian Aborigine groups living in northeast Queensland distinguish among *kuma*, the span of events witnessed by living people; *anthantnama*, a long time ago; and *yilamu*, the period of the creation. Furthermore, the existence of culture change in the past has also been accepted by many societies, among them the Hindus, whose traditions of history speak of early people who lived without domesticated animals and plants, and the Hazda hunter-gatherers of East Africa, who speak of their homeland's first inhabitants as being giants without fire or tools. These paradigms of the past take many forms, with mythic creators