



THIRD EDITION

*Images
of the
Past*

T. Douglas Price
Gary M. Feinman

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IMAGES OF THE PAST

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The Field Museum



Mayfield Publishing Company

Mountain View, California

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FOR ANNE BIRGITTE GEBAUER AND LINDA NICHOLAS

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PREFACE

Images of the Past is an introduction to prehistoric archaeology that aims to capture the excitement and visual splendor of archaeology while at the same time providing insight into current research methods, interpretations, and theories in the field.

A number of introductory books on the subject of archaeology already exist, of course. Such volumes generally take one of two directions; they offer either a comprehensive survey of world prehistory or a primer on method and theory. Surveys of world archaeology summarize what archaeologists have learned, but they often tend to be rather dry encyclopedias of information on the many places and times that people have lived in the past. That vast body of data is formidable to the beginning student. Primers on method and theory, on the other hand, are compilations of the history, techniques, concepts, and principles of archaeology: how to search for archaeological remains, how excavations are done, how to determine the age of prehistoric materials, who Louis Leakey was, and the like.

We assume that most beginning students of archaeology want to know what archaeologists have learned about the past. We believe that a combination of what has been discovered and how archaeologists learn about the past will prove to be of most value. For this reason we are taking a new tack in this book. Rather than try to cover all of archaeology, we have chosen to emphasize certain discoveries that have produced major insights into prehistory. Our focus is on more than eighty archaeological sites from a variety of times and places around the world. These sites, then, are signposts through the past. Before that journey begins, however, some background to the methods and principles of archaeology is provided in Chapter 1.

The journey itself begins with the evidence for the first humans, some 4 million years ago, and we conclude with the stirrings of written history in the Old World and the European conquest of the New World. This survey of world prehistory is organized along chronological or geographical lines in ten chapters. Chapters 2 through 6 are in chronological order, from the earliest human remains several million years ago to the beginnings of farming around 10,000 years ago. These chapters follow the expansion of the human spe-

cies from its original home in Africa into Asia, Europe, and eventually Australia and the Americas. Chapter 6 covers the beginnings of agriculture in the Old and New Worlds.

Chapters 7 through 11 are concerned with the rise of large, complex societies and early states. This second half of the text has a geographic focus, with chapters on North America, Middle America, South America, Old World states, and Europe. Within each of these chapters, we have generally followed the sequence of development through time, from earlier to later. Although the earliest state societies arose in the Old World, we have arranged the chapters from the New World to the Old in order to emphasize and compare the rise of states in both areas. This arrangement of the chapters is intended to enhance comprehension of major processes such as the origins and spread of agriculture and the rise of more complex societies.

Each chapter contains an introduction and summary. The introductions provide an overview of the time period and developments that are discussed in each chapter. They also offer continuity between the sections and contain essential maps and chronological charts for the chapters. The summaries vary in content—some provide a summation, others introduce new information and concepts, others are theoretical, and yet others are more comparative. Examples of discussions included in the summaries are the behavioral correlates of cold climate adaptations, the origins of language, and the nature of cultural complexity. The introductions and summaries should be read with some care, for they provide the glue that binds the site descriptions together.

Interspersed among the site descriptions are highlighted sections that cover some of the how and why of archaeology: essential methods, debates about archaeological interpretation, or simply certain spectacular finds. In these sections, we illustrate some of the more interesting questions archaeologists ask about the past and show various new methods employed to decipher the archaeological record.

Because prehistory is a very visual subject, we have included more than 500 illustrations. It is essential to see and study the maps, plans, artifacts, and places that comprise the archaeological record. The basic framework of archaeology is the location of prehistoric materials in time and

space. For this reason there is a series of coordinated maps and time lines to show readers where these sites and materials fit in terms of geography and chronology. In addition, we've included a number of color photographs in a separate section of the text to provide some impression of the captivating beauty of the past.

Throughout the text we provide a number of learning aids to help students better understand the material that is presented. Following difficult site names, we have included a pronunciation guide in parentheses. Technical terms and important concepts in archaeology are indicated in bold type; these words can be found in a glossary at the end of the book. Where appropriate, we have tried to provide some sense of the size of areas and structures from archaeological sites with reference to modern features such as city blocks, football fields, and the like. A list of general suggested readings appears at the end of each chapter, while more detailed lists of references are found at the end of the book. Specific citations were not used in the text for the sake of continuity, but references for the information can be found under the name of the individual associated with the work in the references at the back of the book. Finally, an appendix offers some English–metric measure conversions and equivalents to help make sizes more concrete.

An important note on dates in this edition: The age of archaeological materials is given in two ways in this book. Dates greater than 10,000 years ago are described in years before the present (B.P.) or in millions of years ago (m.y.a.). Dates younger than 10,000 years ago are given in calendar years before Christ, B.C. or *anno Domini* (“in the year of the Lord”), A.D. These dates for the last 10,000 years have been corrected, or calibrated, for an error in radiocarbon dating. Another term used for more recent periods of time is millennium, 1000 years. The millennia before Christ run in reverse—for example, the first millennium goes from 1 B.C. to 1000 B.C.

Finally, about the creation of this book. We began this project because we were generally dissatisfied with the texts available for introductory archaeology. We divided up the writing according to our own areas of knowledge and activity. Doug Price is interested in prehistoric foragers and the transition to agriculture; Gary Feinman is concerned with the rise of complex societies and the organization of states. Price works primarily in the Old World with stone tools and hunter-gatherers; Feinman does fieldwork largely in Mexico and China. We hope that our interest in and enthusiasm for archaeology carry over to you in this book and that you enjoy these *Images of the Past*.

WHAT'S NEW IN THIS EDITION

Because of the many helpful comments and suggestions we have received, we have been able to revise this text in accor-

dance with both new discoveries in archaeology and the interests of our readers. The pace of discovery and insight in modern archaeology is such that each year there are dramatic changes in our understanding of the past. We hope to keep *Images of the Past* as up-to-date as a book about the past can be.

Revisions to the third edition have included substantial changes in organization and additions to the volume as well as updating of the contents. A new first chapter has been added on the principles of archaeology, providing an in-depth summary of the basic methods, questions, and goals of archaeology. This chapter covers the essentials of fieldwork to provide students with a sense of how archaeologists obtain basic information. It also includes an introduction to the important questions that archaeologists seek to answer about the past along with the basic frameworks of investigation that guide their studies. The chapter is heavily illustrated with photographs of fieldwork and illustrations of principles in archaeology, creating a method and theory primer.

The remaining chapters have been revised and updated, and new illustrations and information have been added. Our intent has been to provide the latest information available on human prehistory so that students can understand the context of new discoveries as they are discussed in the mass media. Our revisions have also been aimed at the suggestions and requests of students and professors for additional information on specific times and places. For example, we have added three new sites, including another complex civilization in Africa, illustrated by the important center of Jenné-jeno in Mali, with its fabulous architecture. The first city, Çatalhöyük in Turkey, dating to more than 7000 years ago, is profiled in this edition, along with a discussion of the ongoing excavations taking place there. The site of Abu Hureyra along the Euphrates River in northern Syria is one of the earliest known settlements of the first farmers. New radiocarbon dates from this site reveal that rye may be the earliest domesticated crop anywhere, beginning almost 11,000 years ago.

Specific revisions include an updating on the latest fossil finds in “The Dawn of Humanity,” in Chapter 2. The area of fossil hominid finds and the classification of our early ancestors change with each new discovery. Charts, dates, and species names have been revised in accordance with current views. Chapter 3, on *Homo erectus*, details the latest finds of skulls and tools. Chapter 4, on the rise of *Homo sapiens*, reviews recent debates on the origins of language. The section on ancient DNA has been rewritten, and illustrations of cellular DNA and the genetic map of human expansion have been added. New genetic information on the relationship between Neanderthals and modern humans in Europe has been included. The end of the Pleistocene, 10,000 years ago, marks a major turning point in human prehistory. That is also the time we switch from a dating framework of years before present (B.P.) to the use of calendar years B.C. and A.D.

With this edition, radiocarbon dates younger than 10,000 years ago have been calibrated as calendar years so that dates are more accurate and easier to comprehend.

Chapter 6, on the origins of agriculture, has been revised with the most recent dates for early agriculture around the world and new sites added. The latest evidence from sites like Abu Hureyra, Hallam Çemi, and Çatalhöyük has been added to the text. Chapter 7, on North American Indians, has been updated throughout, and new illustrations document the majesty of these native cultures. Chapters 8, 9, and 10, on civilizations around the world, have new photos and minor changes in the text. One of the new sites, Jenné-jeno, appears in Chapter 10 on Old World civilizations. Chapter 11, on prehistoric Europe, has also been revised according to the new radiocarbon calibrations, and it now includes the latest information on the Iceman and Stonehenge.

New references have been added to the bibliographies for the individual chapters and to the summary list of references as well.

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Any project like this one is the culmination of the efforts and contributions of a multitude of individuals and institutions. We want to thank the many individuals who have helped with this book in a number of different ways from reviewing the text, providing new data, supplying photographs, helping us locate a variety of materials, and general support. We have done our very best to contact the copyright holders of the original work included herein and to secure their permission to reprint their material; if we have overlooked anyone, we offer our sincere apologies.

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The Leakey family at work in Olduvai Gorge.

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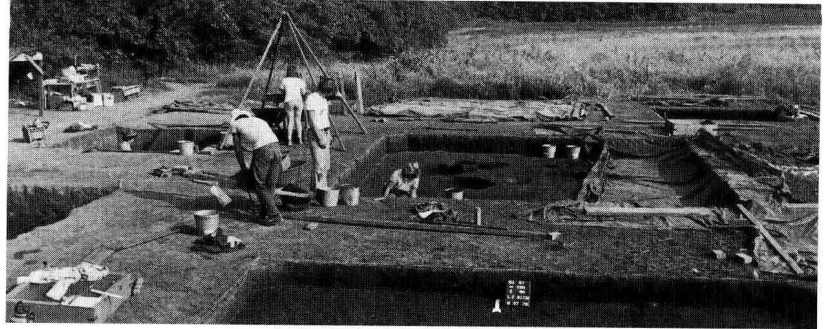
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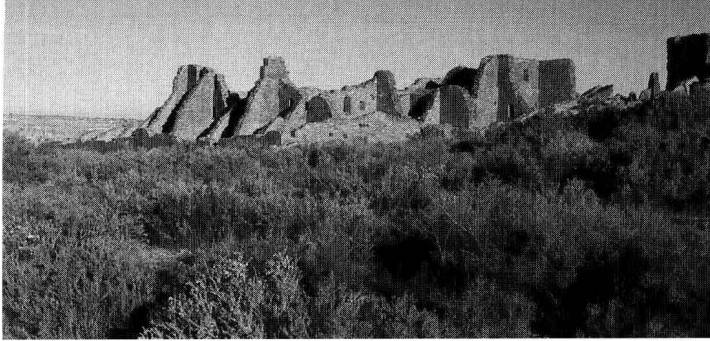
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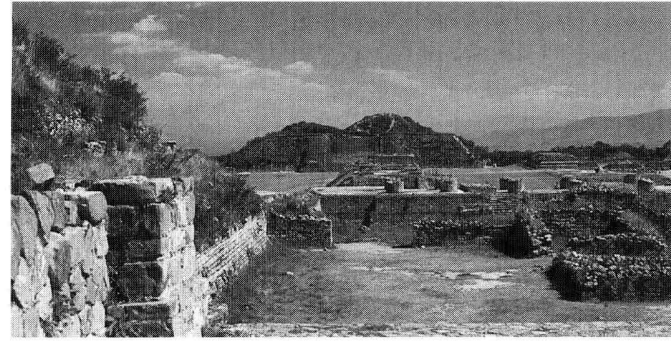
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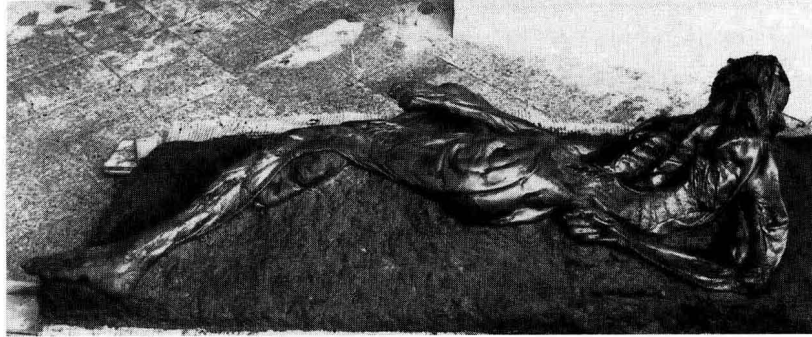
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1

PRINCIPLES OF ARCHAEOLOGY

INTRODUCTION

I *mages of the Past* is about archaeology, covering almost 5 million years and much of the planet. But it is simply not possible to describe all of human prehistory in a single volume such as this; that would be like trying to see all the attractions in Washington, D. C., in 10 minutes. Because we can visit only some of the more interesting places, we have chosen a series of important archaeological sites that have substantially increased our understanding of the past.

We hope the pathway through the past that begins in the following pages provides you with a sense of what archaeologists know about our global past and how they have come to know it. The trail that runs through this volume and ties the past to the present involves major trends in our development as a technological species—growth, diversification, and specialization. Growth is seen in the increasing number of people on the planet and in the greater complexity of human organizations, diversity in the variable roles and social relationships that exist in society and in the kinds of environments our species inhabits. Increasing specialization is witnessed in the tools and techniques used to obtain food and manufacture objects. The story of our human past, then, is the story of these changes through time as we evolved from small, local groups of people living close to nature to large nation-states involved in global trade, warfare, and politics.

Archaeology is the study of our human past, combining the themes of time and change. These themes—change in our biology and change in our behavior through time—are also the focus of this book. Archaeology is the closest thing we have to a time machine, taking us backward through the mists of the ages. The fog becomes thicker the farther back we go, and the windows of our time machine become more obscured. In Chapter 2, we go as far back as humans can go, some 4–5 million years ago, when we took our first steps in Africa. Subsequent chapters trace the achievements of our ancestors as we expanded out of Africa, developed new technologies for coping with cold climates, crafted more complex tools and imagined art, domesticated plants and animals, moved into cities, and created written languages. But first, in this chapter, we present a foundation for comprehending the human past. That foundation requires some understanding of change through time in terms of both biology and culture, along with the basic methods and principles of archaeology.

A site is found. Intensive surface collections are made in order to pick up artifacts that may help date the site. One archaeologist holds a stadia rod to measure the elevation.



FUNDAMENTALS OF ARCHAEOLOGY

Archaeologists study past human culture, from the time of our early ancestors to the historical present. The information about the past comes from artifacts and sites. **Artifacts** are the objects and materials that people in the past made and used. **Sites** are accumulations of such artifacts, representing the places where people lived or carried out certain activities. The process of discovery, analysis, and interpretation of artifacts and sites is the basic means through which archaeologists learn about the past and also the subject of the following pages in this chapter.

The Discovery of Archaeological Sites

Much of the information gathering for archaeological studies requires **fieldwork** that is intended to locate artifacts and sites. Artifacts and sites are found either on the surface or beneath the ground. **Surveys** are used to discover artifacts on the ground, and **excavations** are used to expose buried materials. These are the primary discovery techniques of field archaeology.

The discovery of archaeological sites depends in part on what is already known about an area in terms of its landscape, environment, and history. Prior to beginning fieldwork, archaeologists check the relevant written material on the time period and place of interest. This research reveals the present state of knowledge, indicates what is not known, as well as what is, and helps establish directions for further research. Such library research is also essential to ensure that investigations similar to those planned have not already been completed.

The next step is to visit the local historical society or other archaeological institutions such as museums or university departments where records of the area are maintained. Such institutions generally keep an archive of information on the location



An air photograph of an effigy mound in southern Wisconsin, approximately 800 years old. The mound has been outlined in white.

and contents of known archaeological and historical sites. Study of these archives indicates what types of sites are already known and perhaps their size and the general content of artifacts. This information can provide an initial list of sites in the area and their locations on maps.

Maps are one of the most important tools of fieldwork. Topographic maps (showing the shape of the land surface with contour or elevation lines) are available for most areas. In the United States, the U.S. Geological Survey compiles and distributes these maps. Such maps contain a great deal of information about longitude and latitude, elevation, slope, and the location of water, roads, towns, and other features and are a primary tool in fieldwork.

Air photographs also can provide information on the location of archaeological sites. Old foundations or prehistoric agricultural fields, overgrown with vegetation and almost hidden on the surface, may appear in air photographs. When prehistoric structures were originally abandoned, the depressions often filled with rich topsoil, which provides better growth condition for vegetation. In fields of wheat, for example, such different soil conditions might result in a distinctive pattern showing the outlines of houses or whole villages. In many parts of the world, such patterns are best observed from low-flying planes during a dry period in the early summer.

The next step in discovering the past involves fieldwork. An archaeological survey is a systematic search of the landscape for artifacts and sites. It is not always possible to make a complete survey of the entire area under investigation. Roads, forests, other vegetation, or construction often cover substantial parts of the landscape. It may be possible to thoroughly survey only a portion of the entire area, but that portion should be representative of the larger region under investigation. The larger the proportion of the research area that can be surveyed the better.

The basic type of archaeological field survey involves systematic field walking. Field crews walk up and down cultivated fields and exposed surfaces. The intervals between the walks are determined by the size of the sites that may be in the area and the nature of the ground cover.

When an artifact is found, it is put in a bag and the location of the find is recorded. The surrounding area should be searched carefully by walking back and forth at close intervals. It is important to determine whether the object is a single,

isolated find or whether there are more artifacts. Surveyors also look for unusual discolorations on the surface that might indicate features like fireplaces or pits. If there is a site, it is important to establish the area covered by artifacts to determine the size of the site and to obtain an estimate of the density of artifacts.

Information must be recorded about each find. These field notes should include information on (1) the location, site number, map number, which field, position in the field; (2) what archaeological material was found, such as types and number of artifacts, fire-cracked stones, charcoal, and so on; and (3) observations about the site, which might include discolorations in the soil that could indicate cultural layers or pits, the presence of mounds, stone foundations or walls, nearby streams or other sources of water, and other pertinent environmental information.

Archaeological remains are often buried beneath the sediments that have accumulated since their deposition. Objects found on the surface often have been brought up from deeper layers through agricultural or animal activities. Such materials usually provide only a partial indication of the information that can be obtained from a buried site.

Once buried sites have been located by survey and mapped, other kinds of fieldwork can be undertaken to learn more about them. Boring into the ground with an auger or corer brings up a column of soil showing the sequence of layers and samples of sediments at the site. Small test pits, perhaps 1 × 1 meter in size, dug into the ground can provide similar information and might be necessary to determine or confirm if a buried site is present. A number of corings and/or test pits often are made, following a regular pattern over the surface of the site. Soil samples should be collected from all parts of the site and at different depths.

Physical and chemical analysis of soil samples may provide information about the origins of the deposits, the water content and fertility of the soil, the amount of organic material, and the basic chemistry of the soil. These studies may provide further information on environmental and human activities involved in the formation and burial of the site.

Phosphate analysis of the sediments from a site may reveal traces of human activities. Phosphate is found in bone, feces, urine, and other organic matters that accumulate in and around human habitation. Phosphate appears as a strong blue color in the soil sample when hydrochloric and ascorbic acid are added. Areas with higher concentrations of phosphate show up as stronger blue colors in such analyses. Phosphate testing may supplement surface surveys in areas where vegetation prevents observations of the surface or where cultural layers are deeply buried under the topsoil. Within a known habitation area, these tests may be used to determine the extent of the site and detect special areas such as house floors.

Other objects in the soil also are informative. Materials found in soil samples often include pieces of wood and plants, seeds, fragments of insects, mollusk shells, hair, or chips of bone or stone. Such items provide information on the formation of the layers, the local environment, and the nature of past human activities. For example, if small chips that result from the manufacture of arrowheads and other stone tools are present in borings and test pits, it is likely that tools were made or used in the vicinity and that other buried artifacts may be present.

Geophysical prospecting can be used to detect disturbances in the subsoil and the presence of prehistoric features. These methods include measurements of magnetic variations in the ground, the electrical conductivity (resistivity) of the soil, and the use of ground-penetrating radar.

In sum, prehistoric sites are found through a combination of archival research and fieldwork. Archival research provides information on what is already known about an area. Fieldwork often results in the discovery of the unknown. When new sites are discovered, surface survey, testing, boring, and several geophysical methods are available to determine the size and possible contents of the prehistoric deposit. However, once a site is discovered and defined from the surface, excavations are often necessary to expose what lies beneath.



A georadar unit is walked across the site. Subsurface anomalies such as walls and fireplaces may appear in the images from the instrument.



This excavation began with the removal of the plow layer by shoveling and screening the earth to expose the intact soil beneath.

Archaeological Excavation

Excavation is the technique that archaeologists use to uncover buried remains from the past. Buried materials usually are more abundant and better preserved than those found on the surface. In excavations, accurate information can be observed on the arrangement and relationships of structures, artifacts, plant and animal remains, and other materials. Thus, excavation often is essential to obtain more information about the past.

Excavations are conducted to answer specific questions that the archaeologist would like to answer. For example, who lived at the site, what did they eat, what did they do, where did they get raw materials for making tools and equipment, what kinds of relations did they have with their neighbors, how was their society organized and structured, how did they understand the world around them?

The Excavation Director The direction of an excavation requires a variety of skills and knowledge for planning the field season, raising money to pay for the work, supervising and training a crew of volunteers or students, recording the information from the site with drawings and photographs, and measuring and mapping the location of all finds, samples, and features. The investigator must monitor progress in the field laboratory as well, where finds are washed, sorted, cataloged, and bagged for storage. Some knowledge of preservation techniques is necessary to conserve fragile objects.

Excavations require reams of drawings, recordings, and other paperwork. The director must keep an excavation log or diary, recording the course of the excavations, the work schedule, the number of people working, accounts of expenses, dimensions and positioning of excavation areas, layout of the measuring system, and all the finds. There must be recording systems for all measurements, for observations and interpretations, and for all drawings, photos, and samples.

The Field Crew Archaeology is the science of the past, but it is also a social experience in the present. Excavation is a labor-intensive undertaking, and the field crew is