READING 1

Candice Goucher, Charles LeGuin, and Linda Walton, *In the Balance: Themes in World History* (Boston: McGraw-Hill, 1998), selections from chapter 1, "World History and Human History."

Abstract: This essay considers the origins and early migrations of the human species, as well as the sources of evidence upon which they rely. Archaeological evidence strongly indicates that humans originated in Africa. From there, ancient oral traditions and scientific evidence has demonstrated that they eventually migrated to every habitable portion of the globe. In every new land, humans adapted to the environment in specific ways—ways that eventually led to the development of different cultures around the world.

Scene 1. The First Hadar Field Season: The Knee Joint. Location: National Science Foundation research tents camped in the center of the Afar desert overlooking the dry beds of the Awash River, Ethiopia, 1975. Action: A young paleoanthropologist, Donald Johanson, on his first expedition wonders what will happen if he fails to find the fossils he had written about in his grant application.

> I did my share of sweating, and hoping, and dogged surveying. I kept wondering how I was going to explain that start-up costs had been big. I had had to buy all those tents. I had had to put up $10,000 for a Land-Rover… Out in the deposits, I realized every day that all my money would be gone by the end of the year, whisked away on one spin of the wheel. Would I ever have a chance at another? Would it have been prudent to have started smaller, to have planned on a field force of four or five scientists instead of eleven?
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> Those thoughts so preoccupied me that when I was out surveying late one afternoon I idly kicked at what looked like a hippo rib sticking up in the sand. It came loose and revealed itself, not as a hippo rib but as a proximal tibia—the upper end of the shinbone—of a small primate.
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> A monkey, I thought, and decided to collect it. I marked the spot in my notebook and gave it a locality number. As I was writing that down, I noticed another piece of bone a few yards away. This was a distal femur—the lower end of a thighbone—also very small. It was split up the middle so that only one of its condyles, or bony bumps that fitted into the shinbone to make a knee joint, was attached. Lying in the sand next to it was the other condyle. I fitted the two together and then tried to join them to the shinbone. They were the same size and the same color. All three fitted perfectly. A rare find.
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> As I studied it, I realized that I had joined the femur and the tibia at an angle. I had not done it deliberately. They had gone together that way naturally; that was the way they had to go. Then I remembered that a monkey's tibia and femur joined in

> a straight line. Almost against my will I began to picture in my mind the skeleton of a human being, and recall the outward slant from knee to thigh that was peculiar to upright walkers.
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> I tried to refit the bones together to bring them into line. They would not go. It dawned on me that this was a hominid fossil.

The team went on to find nearly forty percent of the skeleton, the remains of a single female individual of a new species, *Australopithecus afarensis*. The camp rocked with excitement as its members began to realize how significant the finds of an upright walking three-million-year-old female hominid were. As they celebrated, a Beatles tape played on a cassette recorder: "Lucy in the Sky with Diamonds." In their exuberance, they affectionately called the fossil "Lucy."

This and other discoveries like it have provided evidence of human origins, evidence that has required a reconstruction of our understanding of the most distant human past.

Introduction

History can be briefly described as the study of peoples and their experiences and achievements in time. The task of the historian is to attempt to reconstruct, re-create, and explain past human experiences by using suitable evidence, critical thinking, and informed imagination. Historians are aided in their job by the knowledge and insights of other social and behavioral sciences, such as anthropology, psychology, sociology, political science, and economics.

Types of Historical Evidence: Oral Traditions and Archaeology

Historians rely primarily on two sources of knowledge about the very distant past: oral tradition and archaeology. Each type of historical evidence provides different knowledge of the past, and each answers different historical questions. Oral tradition is the means by which knowledge—fact and myth—was passed on until it was written down. Even in literate societies, in which history was in written form, oral traditions also existed. Archaeology, in contrast, is the scientific study of the material remains of past human life and activities: fossil relics, artifacts, monuments. Archaeology provides physical evidence of material culture, while oral sources provide insight into the nonmaterial world of ideas, values, and beliefs. Archaeological and oral sources generally provide evidence from different periods of time, although in some instances the two kinds of historical sources may provide different perspectives on the same past. Archaeological investigation may present evidence from millions of years before the present or from the most recent historical past. Oral traditions, some of which ultimately come to be written

down, are more ephemeral, extending across a single lifetime or as far back as no more than the past 10,000 years or so of remembered human experience.

Both archaeological and oral sources have been regarded as legitimate historical sources for centuries. Archaeologists and historians who use the techniques of archaeology provide evidence that is often essential for the reconstruction of past societies and their peoples in many parts of the globe. Indeed, much written history, particularly that dealing with the beginnings of the human story, is based on archaeology and oral tradition. The Bible provides an unusual example of an integrated relationship among archaeological, oral, and written accounts. The written text of the Bible is a compilation of oral evidence: remembrances and accounts collected over a considerable period of time. This fundamental document of the Judeo-Christian tradition and modern interpretations of it are the documentary bases against which biblical archaeologists measure, arrange, and date the artifacts they excavate. Historians of this period have used both archaeology and oral tradition, subjecting the two kinds of evidence to methods of verification, analysis, and interpretation.

World Prehistory

Most of the human past belongs to the time period traditionally labeled prehistoric, literally "before written history." Ninety-nine percent of the shared story of our evolving humanity has happened outside the framework of written, or even remembered, history. The study of prehistory was shaped by attempts to identify centers, or "cradles," of humanity as beginning points of a linear evolutionary story. From prehistoric beginnings physical and technological adaptations were perceived to lead toward the happy ending of the human story: human survival and civilization.

Processes of Human Development in Prehistory

Recent prehistorians, working from a global rather than a Eurocentric view of human origins, have begun to shift from a preoccupation with the linear, progressive narrative of what happened to the questions of *how* and *why* changes came about at different times and in different places. It is the processes rather than the results of human development that concern prehistorians today. There are two processes involved in the biological evolution of the species into anatomically modern humans: adaptation and exaptation. Adaptation involves intentional adjustment to new circumstances. For example, individuals with physical equipment such as strong, well-controlled hands and psychological abilities that enable them to understand the making and use of tools external to their bodies intentionally adjust to new situations and are thus better able to survive and pass on their skills. Exaptation is the result of chance occurrences and unintentional

change. Exaptations may be co-opted for long-term use, though they were not designed for that purpose. For example, essential human characteristics such as a large brain or bipedalism (walking upright on two feet) did not necessarily come about as conscious or intentional reactions to changing environments; they may have been accidental occurrences that unexpectedly proved to be useful. At some turning points in evolutionary history, humans made the best of exaptive, or chance, features that then became sources of future development. The concept of exaptation–human development as a result of chance–provides an alternative to the conventional adaptative view, which suggests that successful intentional adjustment to change results in a superior, progressive, linear pattern of human evolution. Taking the role of chance in shaping human behavior in all its landscapes into consideration helps avoid ranking or judging evolving human history and is particularly suitable to the study of world history.

Human Ancestors

The picture of human ancestors drawn in the early twentieth century by those who deal with life in past geological periods (paleontologists) looked very different from how it looks today (see Table 1.1). Based largely on undated circumstantial evidence, the focus of prehistory was on European ancestors, some of whom, it turns out, emerged late in the evolution of the species. The popular prehistoric person was imagined as brutish and male. Such a view of prehistoric ancestors reveals more about the society that produced and accepted them than about prehistory. Nineteenth-century European history was as gender-bound as it was culture-bound; thus the prevailing image was one of prehistoric males making stone tools and fire, prehistoric women being dragged to caves by the men and reproducing the (evolving) species.

Cave Paintings

Some of the most popular notions about prehistoric communities were reinforced by the discovery in 1940 of the Lascaux Caves in France, on whose walls were found the conscious artistic achievement of prehistoric artists, remarkable images of bison, deer, and horses, animals important to the fully erect *Homo sapiens* who painted them. To Europeans who wanted to think of themselves as the descendants of these artists, the paintings discovered at Lascaux revealed an expressive, sensitive prehistoric inner life. Europeans romanticized what they saw: the animal images at Lascaux have been interpreted as aiding prehistoric hunters in the efforts to secure food. More recently, cave paintings discovered at Apollo Cave in South Africa, Jinmium in Australia, and Vallon-Pont-d'Arc in France have provided deeper insights into the lives of our human ancestors. Some of these images may be associated with the most basic of human experiences: life and death. Around the world, prehistoric artists depicted childbirth, hunting, and ritual

experience. The common subject matter and variety of artistic styles remind the historian of the universal themes of continuity and change reaching back to the most distant human past.

Table 1.1 A Guide to the Prehistory of World Colonization. Four Major Migrations Are Identified (B.P. = Before Present)

Time Period	Migration
5 million–1 million B.P.	**Early hominids:** Apiths (Australopithecines), early *Homo* (sub-Saharan Africa)
1 million–200,000 B.P.	**Early migrants:** Homo erectus, "archaic" *Homo sapiens*
200,000–60,000 B.P.	Early Neanderthals, anatomically modern humans (Africa, mid-latitude Asia, and Europe)
60,000–40,000 B.P.	**Transition Phase/later migrants:** Classic Neanderthals, "archaic" *Homo sapiens* Anatomically modern humans (continental Eurasia)
40,000–10,000 B.P.	**Moderns:** Anatomically modern humans (Australia, Eastern Siberia, Pacific margins, Japan, Americas, unglaciated mountain chains)
12,000 B.C.E.–C.E. 1500	(Arctic, Indian Ocean, deep Pacific, tropical rain forests, great sand deserts)
C.E. 1500–present	(Central and southern Atlantic Ocean)
Unoccupied	(Antarctica)

African Origins

Archaeological discoveries on the African continent were central to transforming European assumptions about prehistoric beginnings. Scientists had been searching the African continent for fossils since 1871, when Charles Darwin first proposed that people and apes had a common ancestor. Early European prehistory tended to focus on European evidence, although in the 1920s, the view that the earliest human ancestors (hominids) had arisen in Asia was accepted. After the 1960s, research in eastern and southern Africa began to alter the priority given to European and Asian prehistory.

"Lucy"

At Hadar, Ethiopia, archaeologists identified what may have been a new branch on the evolutionary tree, a species called *Australopithecus afarensis*, who lived more than 3 million years ago and more than a million years before any other hominid lineage. This classification was used to develop a model for the possible descent of the species *Homo* (humans or their ancestors) from some form of *Australopithecus*. It pushed back human origins and human

history to 4.6 million years ago. The evidence points clearly to the fact that the early *Australopithecus* hominids were descended from African mammals. The genetically nearest ancestors of hominids were those of the chimpanzees and gorillas.

Reconstruction of Human Evolution

Today the reconstruction of human evolution is selected from many and extraordinary sets of evidence. At the Rift Valley site near Lake Turkana in Tanzania, a team of paleontologists found complete upper and lower jaws, teeth, skull fragments, arm bones and a leg bone that pushed the emergence of bipedalism back to at least 4 million years ago. The species has been named *Australopithecus anamensis* (*anam* is the Turkana word for "lake"). At another archaeological site in Tanzania known as Laetoli, a set of hominid footprints was preserved in a cement of volcanic dust and rain nearly 3.5 million years ago. These footprints are evidence of the movements of hominids walking upright on two legs on a rainy day. Paleontology records only selected chapters in our biological evolution, such as the major adaptation of bipedalism. Other important chapters in prehistory, such as the development of omnivorous behavior (consuming both animals and plants) or the emergence of culture (distinct patterns or styles of behavior), are less well documented because such evidence is less tangible and permanent.

Olduvai Gorge

One major site of hominid research in Africa has been the Great Rift Valley, including Olduvai Gorge in Tanzania, investigated over two generations by a family of scientists: Louis Leakey (1903–1972), Mary Leakey (1913–1996), his British wife, their son, Richard, and their daughter-in-law, Maeve. In the sand, gravel, and other detrital material deposited by running water in the Olduvai Gorge, the Leakeys discovered stone tools and other evidence relating to human activity that date from about 3 million years ago. Numerous significant paleontological finds have subsequently been revealed at Olduvai and in Ethiopia and Kenya, including the skull of *Homo habilis*, one of the oldest and reasonably complete skulls attributed to this species (dating to about 1.8 million years ago) and only slightly older than the earliest *Homo erectus* species in East Africa. The stone tools excavated at Olduvai Gorge by the Leakeys and others provide the longest chain of evidence of tool use, beginning about 2 million years ago and continuing to several thousand years before the present. Australopithecines have also been found recently in Chad in Central Africa, and they may have roamed across West Africa, too.

Africa: Birthplace of the Human Species

Evidence strongly indicates, then, that the African continent was the birthplace of the human species. Africa is rich with evidence of the oldest

genetic human relatives: paleontological evidence for early human ancestors (hominids); the oldest footprints of upright, two-legged hominids; remains of a variety of scientifically dated fossil species; and the oldest evidence of human behavior—the first use of fire and the first stone tools—are all found in Africa. By contrast, evidence of human ancestors elsewhere dates from much later. For example, the earliest fossils and stone tools in China date to 1.78 million to 1.96 million years old; the teeth look like those of early *Homo* members found in Africa. Evidence of *Homo erectus*, the first human ancestor that walked upright, dates from more than a million years later in Europe than in Africa. Our species, the anatomically modern *Homo sapiens*, seems to have appeared first in Africa and subsequently in other parts of the world, though this is not as clearly delineated as the story of the *Homo erectus* migration out of Africa. It is thought by some that *Homo sapiens* may have appeared as recently as 100,000 years ago; and, to date, many archaeological sites in Africa have revealed evidence of human cultural evolution from living sites, tool manufacture and use, and ritual and artistic expression, including the oldest evidence yet discovered in the world. These findings reveal much about the process by which patterns of distinctly human behavior emerged.

The Environment's Impact on Evolution

Why Africa? Why does the earliest evidence of human ancestors appear to have emerged in Africa? Some theories take into account the importance of the changing environment. In Africa and elsewhere, the period before the emergence of hominids saw glaciers moving to cover lower latitudes. The consequent destruction and fragmentation of the forest had important consequences for African environments. Another theory suggests that about 10 million years ago, toward the end of the geological age known as the Miocene, the environment between the African, West Asian, and European landmasses deteriorated as a result of the rapid formation of huge salt deposits. Following this change, between 5 and 6 million years ago the massive East African savannas were formed. Today these savanna grasslands comprise about 65 percent of all African vegetation. They extend over the continent for 13,000 kilometers (8080 miles) from Senegal in West Africa toward southern Africa.

Isolated by oceans and deserts, the African savanna provided an ideal environment for the appearance of many animal species, including humans, and for about 3 million years Africa was apparently the breeding ground for the evolution of large mammals, just as Southeast Asia, where tectonic instability (earthquakes) threatened animal populations, was the site of the evolution of large numbers of plant species. In Africa, characteristic fauna (animal life), such as chimpanzees and gorillas, moved out of the savanna grasslands into forests. It now appears that the earliest hominids learned to

walk upright in the relative safety of the forests. While their cousins were able to maintain themselves in the African forest, hominids were not, and their development was the result of adaptation to the changing conditions in the savanna.

Global Colonization

The most significant event of world prehistory is the colonization of the planet: humans are the only animals to have achieved near-global distribution. According to one prehistorian, "humans went everywhere in prehistory, because humans have purpose." Understanding the process of global colonization raises the questions of how and where humans emerged as a species and how and why humans moved across the earth's landscapes to eventually occupy all environments found on this planet.

Human Migration

Between about 1 and 2 million years ago, the first global migration of hominids is believed to have taken place. This migration carried African hominids to other continents: to Europe, parts of Asia, and beyond. Why these earliest migrants left Africa to colonize the world is a complex, important question. The answer is likely to be found in a web of interrelated factors centered around human behavior, specifically behavior selected to reduce risk and increase the individuals' fitness for survival. Calculated migration must have resulted from information sharing, alliance building, memory, and the ability to negotiate—all skills that necessarily accompanied increasingly complex social and cultural groups. The increasing complexity of existence inevitably led hominids out of Africa, resulting in a global distribution of diverse human groups. Increasing population may have prodded the migration of some groups. Armed with the attributes of culture, the distinctive, complex patterns of behavior shared by human groups, humans eventually adapted to and conquered virtually all global environments.

Whatever the nature of human origins, whenever or wherever human societies and cultures first appeared, the peopling of our globe has been a product of migration from place to place. Given the small numbers of people and the vast distances they traversed, and considering their technologically limited modes of transportation, the movement of people around the globe seems miraculous. It was undertaken entirely by people who walked, and who gathered and hunted food, across and between increasingly diverse and difficult environments.

Interaction Between People and Environments

The examples of global colonization described below depended on interactions between people and between people and their environments.

Gradually, sometime during the Middle Stone Age (perhaps 100,000 to 200,000 years ago), distinct patterns of interaction among humans and between them and the landscapes in which they lived emerged. Because the distinctive physical and social environments to which humans adapted were themselves constantly changing, cultures too continually changed. That early humans acquired technological and social skills can be inferred from widespread evidence of their material culture—stone tools and utensils, carved figurines, rock and cave art, and the like, dating from about 40,000 years ago—which has been found in most parts of the globe.

Language and Communication

Humans also developed language, the highest level of communication skill and one still regarded as unique to humans. As they spread around the globe, our human ancestors developed efficient and various languages as the means of remembering and transmitting information within shared social contexts. Exactly how or when languages emerged remains obscure, but when they did, language and the ability to reason and abstract separated humans from their hominid ancestors, and both reinforced the uniqueness of the species and confirmed its humanity. All human languages, no matter how diverse or singular, are similar in being capable of expressing the needs, desires, and history of their speakers. Few would disagree that the ability to communicate verbally is at the core of the behaviors and increasingly complex social structures of human beings.

Linguistic, fossil, and paleontological evidence, along with oral tradition, have all helped create a broader and more accurate view of world prehistory, one freed of the traditional European perception of history as a ladder of progress. Archaeological evidence has been particularly useful both in establishing a firm basis for human origins and in measuring the ongoing story of our evolving humanity, the extent of prehistoric group behavior, and the origins of both cooperation and conflict. The development of language unquestionably furthered the social and technological evolution of humans and facilitated systems of reciprocity and social exchange. For example, the division of labor in food production and the exchange and transportation of goods and products were greatly expedited by speech. Being able to assign different tasks to different individuals furthered cooperation and fueled the processes of social and cultural evolution.

Human Origins: Out of Africa

The path out of East Africa leads across North Africa, through the Nile corridor, and across the Red Sea, or across the Indian Ocean and the strait of Bab el Mandeb to the Arabian peninsula and beyond to Eurasia. Most of this interconnected landmass of the so-called Old World, the continental area

encompassing Africa, Europe, and Asia, received migrants from East Africa by about 1.5 million years ago. Very early Stone Age sites in Algeria, Morocco, and Israel are inconclusively dated, but two Eurasian *Homo erectus* sites, one in Israel and one in the Caucasus Mountains of Central Asia, are accurately dated to about 1.6 million years ago. Elsewhere, on the Deccan Plateau of the Indian subcontinent, locally produced stone hand axes dating to about the same time have been found, while in Central Asia, locally manufactured pebble tools attest to human occupation after 750,000 years ago. Although archaeological evidence of early human habitation in tropical parts of Asia has not been discovered, it is possible that hominids there would have used perishable material such as bamboo rather than stone for their tools, thus making it much more difficult for archaeologists to locate sites.

East and Southeast Asia

The most prominent hominid remains found in East Asia are those of the *Homo erectus* "Peking Man," discovered in the cave complex at Zhoukoudian near Beijing in north China around 1920 and dated to as early as half a million years ago. Associated archaeological remains indicate that Peking Man (and Woman) ate the meat of wild animals, knew how to make fire to cook food and provide heat, and used stone tools. More recently discovered and still controversial evidence from another north China site has been claimed by some to be as old as 1.7 million years. If this date is correct, it would support an East Asian transition to anatomically modern human species chronologically parallel to that in Africa. However, even more recent finds from south-central China appear to come from a toolmaking member of *Homo* similar to those found in Africa. These finds are dated to about 2 million years ago.

In Southeast Asia, skulls that have been found around the Solo River and at Sangiran in Java are roughly no older than 730,000 years. Their relation to other Asian and African hominids remains obscure, in part due to geographical distance and limited evidence. Though the dating of East and Southeast Asian discoveries is subject to adjustment—recently many have been redated at half the age initially claimed — they indicate the possibility of other evolutionary models than the African route to *Homo erectus*.

Europe

The pattern of migration to Europe probably began with the spread of *Homo erectus* from Africa a half-million years ago, considerably later than the migration to Asia. Thanks to the slow retreat of the glaciers, the environment of Europe 1.5 million years ago was less inviting to the African migrants than that of Asia. The settlement of Europe by African migrants is supported by fossil evidence found in Africa, West Asia, and Europe. As the glaciers

retreated around 500,000 years ago, Europe became more attractive to emigrants. As the climate improved, so did the food supplies: animal life underwent significant changes, and new species of deer, bovid, rhino, and horse appeared as more favorable foraging conditions emerged. The earliest, most widely distributed European hominid remains are not those of *Homo erectus* but those of the more recent Neanderthal, a name derived from discoveries made at a site in the Neanderthal Valley in modern Germany. Other Late Stone Age peoples, including the anatomically modern *Homo sapiens*, appear to have moved into Europe from West Asia during the earliest retreat of what is called the Wurm glaciation, about 35,000 years ago. These migrants, called Cro-Magnon after a site in the Dordogne Valley in France, eventually displaced earlier ones. However, for more than 15,000 years after modern *Homo sapiens* appeared in Europe, the northern parts of the continent remained unoccupied because of its uncertain climate and unpredictable food resources. At present there is no definite evidence to prove that speciation, the creation of modern *Homo sapiens* from the stock of *Homo erectus*, took place in many different sites in Europe or Asia as well as Africa, or whether a second wave of migration out of Africa accounts for the appearance of anatomically modern humans elsewhere.

Stone Tools

Even the evidence of stone tools fails to solve the mystery of human origins. If one had examined the evidence of stone technology worldwide about 500,000 years ago, tool types would have appeared very similar. By about 50,000 years ago, distinctive differences had appeared: regional specialization in toolmaking reflected cultural evolution and the occupation of different environments requiring different tools. On the basis of available evidence and its chronological pattern, the soundest judgment seems to be that continuous migration from the African continent peopled the adjacent landmass of West Asia and there created an ancient crossroads of cultural interaction. Scattered temporary settlements of Stone Age hominid culture appeared in West Asia as they did in most of the habitable world. Evidence of human societies in West Asia dating to about 35,000 B.C.E. is well established. Since there is no evidence of a significant migration of new peoples into West Asia between 1.5 million years ago and 35,000 B.C.E., the people who settled there were probably descendants of the early migrants from Africa. After about 10,000 years ago, their descendants gathered, and later planted, wild grain and were soon building the first West Asian cities.

Long after the first global migration of hominids from Africa to West Asia, beginning about 5000 years ago, the continuity of cultural style suggests the endurance of a population made up of only two or three language groups related to African languages. The development of West Asian culture and

social structures was a product of slow change from within rather than an influx of new people coming from without.

Demographic Changes

As prehistoric cultures evolved, peoples moved into previously uninhabited areas. It is likely that human population increases were largely responsible for these migrations. The influence of demographic changes, increases or decreases in population size or characteristics, interacted with other aspects of ecology, including cultural and environmental changes, to encourage people to move. Population pressures on scarce or limited resources forced people into ever more restrictive environments that in turn required adaptive strategies. Deserts and arid lands could be colonized by early humans with effective tools, food storage, and social cooperation.

We have already seen that the earliest African migrations extended the achievements of human evolution to other parts of the globe. Since these migrations, more than a million years ago, Africa has never been isolated. Not all migration was permanent, and descendants of early migrants sometimes returned to Africa, resulting in an interchange of peoples, products, and ideas between Africa, West Asia, and the lands bordering the Mediterranean. The Indian Ocean coast of East Africa was another entry point for peoples and their cultures, creatures, and crops. East Africans themselves also ventured on voyages across the Indian Ocean to the Indian subcontinent and ultimately beyond, to China.

Bantu Migration

Among the most historically significant of intra-African migrations was the so-called Bantu expansion, actually a series of population movements from the eastern Nigeria-Cameroon region of West Africa and spreading southward. Possibly beginning more than 7000 years ago, the Bantu expansion involved speakers of related languages that now make up the populations of the southern half of the African continent. This largest and longest of recent African migrations also accounts for the shared cultural and political patterns that have helped to mitigate that continent's environmental and cultural diversity. The movement of Bantu speakers, like the spread of Asian peoples into the Pacific, may initially have been the result of dramatic climatic fluctuation. Both the Bantu and Asian migrations have been documented by archaeological and linguistic evidence, including the similar styles of and decoration on excavated pottery and the shared vocabulary of distant peoples.

Celtic Migration

The Late Stone Age migration of the Celtic people who inhabited the trans-Alpine area north of the Mediterranean basin and west of the Urals was one of the most widespread movements of peoples in Europe. Better

conditions and the lure of other cultures drew the Celts south to the Mediterranean and West Asia and west toward the Atlantic and the British Isles, where they settled during the first millennium B.C.E.

The End of the Ice Age

The recession of glaciation permitted migration and settlement from West Asia to Europe, and by the time the ice age ended (ca. 10,000 B.C.E.) distinctive societies and cultures had evolved there. The end of the ice age was of similar significance in East Asia, where it allowed early humans to develop a more complex array of subsistence strategies that included hunting, fishing, gathering, and the use of diversified and specialized tools. For these and other early migrations, historians have only the most general chronological outlines for thousands of people over generations.

Human Ancestors in China

The direct ancestors of the modern Chinese were probably the descendants of the Upper Cave populations at Zhoukoudian, whose remains can be dated to between 12,000 and 20,000 years ago. Although the Upper Cave site appears to have been used for burial purposes rather than habitation, remains found in the Upper Cave indicate that Zhoukoudian people were *Homo sapiens* who hunted in the woods, fished the lakes, and made abundant bone and shell artifacts. Marine shells found in this site suggest either extensive trade connections or long-distance seasonal migrations. Human skeletal remains in the caves include an adult male over sixty, a relatively young male adult, two young adult females, one adolescent, and two children. One view holds that these were members of a single family who may have died violently (according to skullcap injuries) and were buried in the Upper Cave, where the surrounding earth was covered with red hematite, suggesting that a funeral rite took place. The physical similarities between these people and the Koreans and Japanese connect them with populations who migrated into the Korean peninsula and the Japanese archipelago much later. The original settlement of Japan, however, might not have involved a sea crossing. Stone tools discovered in Japanese settlements may date from around 40,000 B.C.E., when the Japanese islands of Hokkaido, Honshu, and Kyushu were fused and joined to Sakhalin Island and the Asian mainland.

What all these migrations have in common is the evidence each provides for the extraordinary success story of early human populations. From East Africa to other continents, human populations steadily increased in number and human groups increased in size and complexity. Expanding populations sent new migrants into the next valley or across the sea to the next port, to occupy virtually every conceivable environmental niche on this planet. Population increase has been the single most critical factor shaping the human story.

Migration by Sea and Land Bridges

The peopling of the landmasses we now call Africa and Eurasia was largely accomplished on foot across land, over hundreds of centuries, and by hundreds of generations. Some migrations to other parts of Asia, the Pacific, and the Americas required long-distance travel across water, either by boats or across the temporary land bridges that appeared in various parts of the world during the glacial lowering of the world's sea levels, approximately 50,000 years ago. For some parts of the world—Australia and New Guinea, for example—both land bridges and boats would have been necessary for successful human migrations.

The Americas

It is generally recognized that the earliest inhabitants of the Americas were immigrants from Asia, though the picture of migration to the Americas is less clear than elsewhere. Biological evidence from blood types and dental patterns indicates that the nearest relatives of the earliest Americans are found in northeast Asia. Disagreement over dating has resulted in debate about who exactly the immigrants were and how and when they arrived. It has long been hypothesized that people came from Eurasia (Siberia) to the northernmost reaches of North America. Pebble tools discovered at a Siberian site only tentatively dated to between 1.5 and 2 million years ago suggest hominid inhabitants in Asia at that date, far earlier than the appearance of humans in Beringia, the area of the connecting bridge between Asia and North America. There is also a lack of evidence south of the ice sheet in the Americas. Consequently, informed opinion places migration from Eurasia across Beringia to the Americas during the period between 12,000 and 35,000 years ago.

The most noncontroversial dates for the peopling of the Americas, 11,000 to 11,500 years ago, are based on evidence of human habitation far to the south of Beringia, at a Clovis, New Mexico, site. There are possibly earlier sites of human habitation which may date back as far as 19,000 years ago in North America and to 33,000 years ago in South America. Though all the dates are controversial, widely accepted evidence indicates that the Americas were most likely inhabited by humans around 12,000 years ago. This dating is supported by the widespread evidence in the eastern Arctic regions of Greenland, Canada, and the former Soviet Union. Colonization of the Arctic took place as ice sheets retreated at the end of what is known as the Wisconsin glaciation about 10,000 years ago.

Theories of Settlement

The Beringian theory of the arrival of Eurasians in the Americas holds that at the time of the migration to the Americas, Siberia, and central Alaska were connected by a land bridge across what is now the Bering Sea. Having

crossed this bridge into the Americas, people found that there were two great fluctuating ice sheets, one covering the area around and south from Hudson Bay, another flowing down the Rockies. Between the two was an ice-free corridor, a route south roughly from the Yukon down through Montana, which humans and animals took as they occupied what had been a land without people.

Another theory of settlement of the Americas is that the Eurasian migrants might have sailed south along an ice-free Pacific Coast. The close connection of the culture of Pacific Coast peoples with marine resources might lend credence to the idea that migration to the Americas was by sea. Important adaptive strategies were developed by Pacific Coast peoples to utilize marine resources: specialized harpoons have been discovered that, with seaworthy canoes, allowed Pacific Coast peoples to kill sea mammals. Some historians have gone as far as suggesting that migration from Asia to the Americas was entirely by boat, across the Pacific Ocean. Similar theories of migration to the Americas across the Atlantic from Africa have also been proposed. None has found general acceptance.

Pacific Island Settlement

Human settlement of the Pacific island world, Australia, and New Guinea may have begun as early as 50,000 years ago, although recently excavated Australian rock-shelter sites may testify to human presence there earlier than 60,000 years ago. This was a period of fluctuating glaciation when the sea level was temporarily low. Even so, as much as 50 kilometers (31 miles) of open sea would have had to be crossed to reach Australia, since at no time in the last 3 million years was there a complete land bridge between the Asian and Australian continents. Whether humans arrived as castaways, adrift on logs or other vegetation, or on boats or canoes deliberately constructed for intended voyages, they would have found themselves isolated once the glaciers retreated and the sea returned to its former levels. Along with the human inhabitants of Australia, the fauna and flora were also isolated, each to evolve in ways unique to its isolated environment: kangaroos, for example, are one product of the separation and isolated evolution of species. Recent dating of discoveries of rock engravings, red ochre, and stone artifacts at a site called Jinmium in northwestern Australia may push back the dates of the earliest migrations to between 75,000 and 116,000 years ago, suggesting to some researchers that the first artists were not modern humans at all but rather an earlier, archaic species of Homo sapiens. Perhaps art may not be a defining characteristic of human behavior.

Though scattered Early Stone Age sites have been found across much of Australia and New Guinea, full-scale and continuous occupation of these difficult environments began as a result of later migrations during the last

glacial age, around 12,000 B.C.E., when Indonesia, Malaya, and Borneo were once again attached to one another and to the Asian mainland. Bands of gathering and hunting people moved steadily eastward and southward. From Indonesia, some crossed by canoe or raft to the continent of New Guinea—Australia—Tasmania. The presence of these new migrants can be documented by linguists, who have studied the distribution and relatedness of Australian Aboriginal languages. Both the expansion of land created by the lowering sea levels and the eventual restriction of lands as the sea rose again effected demographic changes and the movement of peoples.

Southeast Asia

A more recent migration of people culturally related to the Southeast Asian mainland has been dated to 7000 years ago. This Late Stone Age migration is divided into four distinct groups, and it is clear that people from both the islands and the mainland of Southeast Asia participated. Were they pushed south by the cold of the extended glaciers or by other northern peoples fleeing harsh environmental changes? Were they propelled by the pressures of expanding populations? The evidence is insufficient to provide an answer. As was the case for most coastal and island settlements, early sites dating to the period of actual migration have been destroyed by the changing sea level.

The Melting of Glaciers

By about 3500 B.C.E., the glaciers melted for the last time, and the oceans rose to their present level. The previous land bridges were submerged, and today's archipelagos and islands were created. Until recently it was thought that not long afterward, another wave of migrants, mainland Malays, moved by canoe into Indonesia, the Philippines, Melanesia, and finally Micronesia. There only the easternmost Pacific island world of Polynesia remained unpeopled, to be settled between 1000 B.C.E. and 1300 C.E. These late dates have recently been questioned by archaeological finds dated to about 30,000 B.C.E. in Melanesia, on the islands of New Britain and New Ireland, and in the East China Sea on Okinawa.

The crossing and settling of the Pacific were no more extraordinary than crossing the ice and drifting snow of Beringia to reach the Americas. Both movements are impressive evidence of the wide range of potential human response to environmental change. The final settlement of Polynesia testifies to this flexibility: Polynesians moved from an equatorial tropical zone that had no winter to the cool, seasonal world of New Zealand and eventually to the semitropics of the Hawaiian Islands. Thousands of miles separated these colonies, and a thousand years or more separated their initial settlements. Each colony developed different material cultures in response to different environments. Yet today, as a result of continuous migration, all the Polynesian settlements share related languages and systems of belief.

Summary

History begins with the attempts of humans to understand their beginnings. The earliest attempts at history were origin stories, and they were produced in the language of metaphor and myth, a language that has its own historical truth. We know about them because they have been passed down orally from generation to generation and, in modern times, collected and recorded. Initially, professional historians were skeptical of such sources, but in recent years they have become accepted evidence for understanding and reconstructing the distant past. Historians have also accepted the evidence of such sciences as archaeology and paleontology. By broadening their sources, historians have come closer to understanding both the variety and the commonality of world prehistory. This chapter is based on the assumption that the earliest record of our shared human past is global and that evidence of it existed long before writing. Nonwritten sources of evidence—both oral testimony and "bones and stones"—along with methods from other disciplinary fields such as archaeology and literature have been increasingly and effectively used by historians to reconstruct a past that existed before writing. To suggest that history begins with written records denies that oral cultures and preliterate peoples have any history at all. Every society has its own way of presenting its unique historical vision, the shape of which may vary from generation to generation and which can be known through a variety of historical evidence: archaeological, oral, and written.

The questions of who our ancestors were and where they originated may never be answered with absolute finality, but the understanding of what happened as humans evolved from hominid ancestors and how they spread out around the world becomes clearer and clearer as more material evidence is discovered. The reaction of humans to one another and to the places in which they lived produced a variety of distinctive cultures around the world, and the remains of these cultures provide increasingly solid evidence of early human experiences.