

# Biologie

The study of history is the study of the past. Knowledge of the past gives us perspective on our societies today. It shows different ways in which people have identified problems and tried to resolve them, as well as important common impulses in the human experience. History can inform through its variety, remind us of some human constants, and provide a common vocabulary and examples that aid in mutual communication.

The study of history is also the study of change. Historians analyze major changes in the human experience over time and examine the ways in which those changes connect the past to the present. They try to distinguish between superficial and fundamental change, as well as between sudden and gradual change. They explain why change occurs and what impact it has. Finally, they pinpoint continuities from the past along with innovations. History, in other words, is a study of human society in context.

World history has become a subject in its own right. It involves the study of historical events in a global context. It does not attempt to sum up everything that has happened in the past. World history focuses on two principal subjects: the evolution of leading societies and the interaction among different peoples around the globe.

## The Emergence of World History

Serious attempts to do with world history are relatively recent. Many historians have attempted to locate the evolution of their own societies in the context of developments in a larger "known world": Herodotus, though particularly interested in the origins of Greek culture, wrote also of developments around the Mediterranean; Ibn Khaldun wrote of what he knew about developments in Africa and Europe as well as in the Muslim world. But not until the 20th century, with an increase in international contacts and a vastly expanded knowledge of the historical patterns of major societies, did a full world history become possible. In the West, world history depended on a growing realization that the world could not be understood simply as a mirror reflecting the West's greater glory or as a stage for Western-dominated power politics. This had-to-be realization continues to meet some resistance. Nevertheless, historians in several societies have attempted to develop an international approach to the subject that includes, but goes beyond, merely establishing a context for the emergence of their own civilizations.

Our understanding of world history has been increasingly shaped by two processes that define historical inquiry: detective work and debate. Historians are steadily uncovering new data not just about particular societies but about "less-known" contexts. Looking at a variety of records and artifacts, for example, they learn how an 8th-century battle between Arab and Chinese forces in Central Asia brought Chinese prisoners who knew how to make paper to the Middle East, where their talents were quickly put to work. And they argue about world history frameworks:

how central European actions should be in the world history of the past 500 years, and whether a standard process of modernization is useful or distorting in measuring developments in modern Turkey or China. Through debate come advances in how world history is understood and conceptualized, just as the detective work advances the factual base.

## What Civilization Means

Humans have always shown a tendency to operate in groups that provide a framework for economic activities, governance, and cultural forms such as belief systems, styles, or societies, but quite small. Hunting-and-gathering bands often numbered no more than 60 people. World history usually focuses on somewhat larger societies, with more extensive economic relationships (at least for trade) and cultures.

One vital kind of grouping is called civilization. The idea of civilization as a type of human society is central to most world history, though it also generates debate and though historians are now agreed that it is not the only kind of grouping that warrants attention. Civilizations, unlike some other societies, generate surplus beyond basic survival needs. This in turn promotes a variety of specialized occupations and heightened social differentiation, as well as regional and long-distance trading networks. Surplus production also spurs the growth of cities and the development of formal states, with some bureaucracies, in contrast to more informal methods of governing. Most civilizations have also developed systems of writing.

Civilizations are not necessarily better than other kinds of societies. Nomadic groups have often demonstrated great civility in technology and social relationships, and some were more vigorous than settled civilizations in promoting global contacts. Moreover, there is disagreement about exactly what defines a civilization—for example, what about cases like the Incas where there was no writing?

Used carefully, however, the idea of civilization as a form of human social organization, and an unusually extensive one, has merit. Along with agriculture (which developed earlier), civilizations have given humans groups the capacity to fundamentally reshape their environments and to dominate most other living creatures. The history of civilizations embraces most of the people who have ever lived: their literature, formal scientific discoveries, art, music, architecture, and inventions; their most elaborate social, political, and economic systems; their brutality and destruction caused by conflict; their exploitation of other species; and their degradation of the environment—a result of changes in technology and the organization of work.

The study of civilizations always involves more, however, than case-by-case detail. World history makes sense only if civilizations are compared, rather than treated separately. Equally important, civilizations (and other societies) developed important mutual contacts, which could have wide impact in reshaping several societies at the same time. And civilizations responded to still wider forces, like migration, disease, or missionary activity, that could reshape the frameworks within which they operated. Civilizations in these wider contexts as they changed through internal dynamics, mutual interactions, and responses to broader forces form the basic patterns of world history for the past 5000 years.

# PART I // From Hunting and Gathering to Civilizations, 2.5 Million-10,000 B.C.E.: Origins

Chapter 1 From Human Prehistory to the Early Civilizations

## OVERVIEW

The earliest known, fully human species lived in east Africa about 2.5 million years ago. Gradually humans developed a more erect stance and greater brain capacity. Early humans lived by hunting and gathering. Because hunting-and-gathering economies require a great deal of space—on average about 2.5 square miles per person—populations remained small, and people lived in small groups. Even a modest population increase in a hunting-and-gathering group required part of the group to migrate in search of new game.

Tens of thousands of years ago, the most advanced of the human species, *Homo sapiens sapiens*, migrated from Africa into the Middle East, then into Europe, Asia, Australia, and the Americas. Early humans developed tools, first using stones, sticks, and other natural weapons from stone, bone, and wood. Agriculture began at different times in different places, from about 10,000 years ago onward. It developed independently in at least three regions and perhaps more. The map shows the early centers of food production. Gradually, agriculture spread widely, though not universally, from these initial centers.

The development of agriculture was a radical change in humans' way of life. By providing a dependable source of food, it allowed people to live in larger groups. Later on, technology advanced with the discovery of metalworking, which in turn

increased agricultural production. Increased production freed some members of the society to perform other kinds of work. This in turn encouraged a further series of organizational changes we call civilization.

Early civilizations arose in five different sites, four of them along the fertile shores of great rivers. At least three and possibly all five of these early civilizations arose entirely independently of each other. The map of early civilizations makes another point clear: large parts of the world were not involved in these developments. Early world history focuses on agricultural civilizations, but it must also pay attention to regions that developed different kinds of economies and different organizational structures.

Hunting-and-gathering societies offered an intriguing mix of features. Not surprisingly, material life could be meager. The food supply could be precarious, which was one reason for frequent movement and migration, as when the supply of game ran low. On the other hand, average workdays were short, leaving a good bit of time for rest, ritual, and play. Warfare was limited. Hunting bands might confront one another, but conflict involved more bluster than bloodshed—more serious wars developed only when societies became more advanced. Men and women both had important though separate economic tasks, and overall social inequality was usually limited. Here, too, more complex societies would bring changes that were not necessarily improvements.

### Big Concepts

Each of the key phases of the long period of early human history (2.5 million S.C.E. to 1000 S.C.E.) can be characterized by a central topic or Big Concept. The first of these is the development of human hunting skills and the adaptation of those skills to the shifting geography and climate of the Ice Age and the patterns of human migration. The second Big Concept is the rise of agriculture and the changes in technology associated with the Neolithic revolution (9000 and 4000 S.C.E.). These changes set in motion the agricultural phase of the human experience that lasted until just a few centuries ago. The final Big Concept is the appearance of increasingly distinctive human societies through agriculture or nomadic pastoralism and the earlier contacts among these early societies, particularly after 3500 S.C.E. when larger and more formally organized societies often with early cities as well, emerged and began to develop more consistent patterns of interregional trade.

### TRIGGERS FOR CHANGE

The key story in the long early phases of human history focuses on adaptation to environments, and particularly the search for adequate food supplies. Humans still react to their environment, but the process was more visible in earlier periods, when human ability to control aspects of the environment was less well developed. The early changes in human history—evolutionary development, more advanced toolmaking, and the extensive migrations all—occurred within the context of a hunting-and-gathering economy.

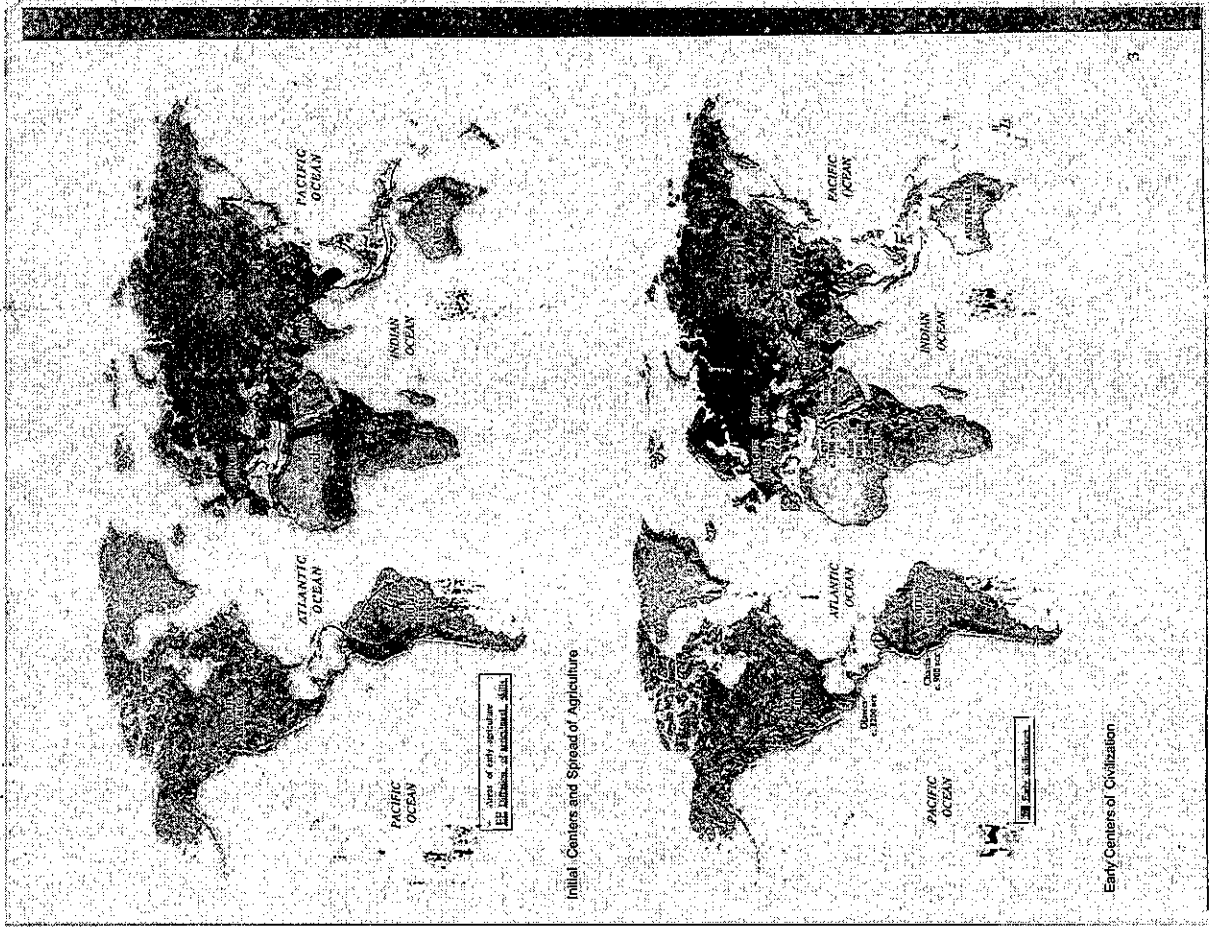
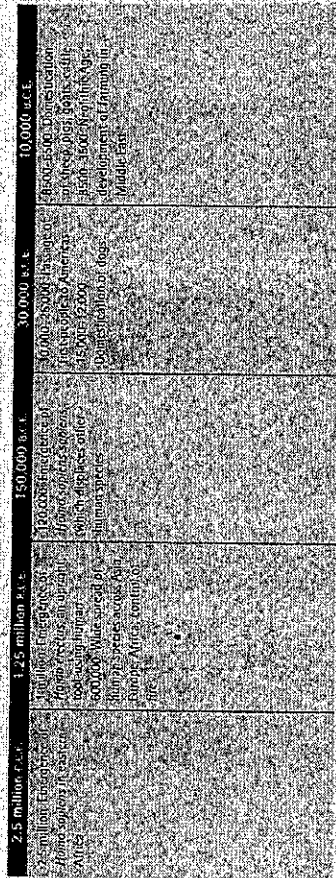
About ten thousand years ago, in the Black Sea region, hunting became less productive. With the end of the Ice Age, climate changes may have reduced big game animals in the region. Perhaps a human population increase led to excessive hunting, depleting the supply of animals. Hunting groups sometimes deliberately kill off too much game, far more than needed, with the unintended consequence of producing a food crisis. Whatever the causes of the shortage, people were forced to look for new sources of food. Women, as gatherers, had undoubtedly become aware of the possibility of deliberately planting seeds and harvesting grain. Thus the rise of agriculture was under way.

Even the advent of new social organizations associated with civilization involved efforts at greater environmental control. Early civilizations provided social structures that could coordinate projects like irrigation. The early civilizations also emerged after the invention of new kinds of tools. The wheel and metal tools, initially of bronze, could increase agricultural production and transport. But they also depended on some new manufacturing skills. Greater specialization and greater productivity alike encouraged the kind of organization that early civilization involved. New technology helped shape another new stage in world history.

### THE BIG CHANGES

Agriculture offered a very different set of opportunities and problems than hunting-and-gathering, and these had far-reaching consequences. Agriculture al-

INITIAL CENTERS AND SPREAD OF AGRICULTURE  
EARLY CENTERS OF CIVILIZATION



Initial Centers and Spread of Agriculture

Early Centers of Civilization



high. Childhood began to be defined in terms of work. Even young children had obligations. And by the time they were teenagers, their families depended on their labor. This was a dramatic redefinition of childhood, even as children became more numerous in the population at large.

Civilization, as an organizational form, had less impact on children, but it added its own changes. Most civilizations developed written language, though only a minority could afford the time to learn to write. As a result, the vast majority of children worked, but an elite minority were sent to school. Also, civilizations used codes of law and other prescriptions to emphasize the duties of children to their families. All agricultural civilizations emphasized the authority of parents over children and children's obligation to obey their parents. In this way, civilizations tried to instill in children a willingness to work for the benefit of their families. Some law codes, as in early Judaism, allowed parents to kill disobedient children. An early Chinese saying stated simply:

"No parent is ever wrong." Children could be loved and could flourish, but there was a distinctive tone of strict discipline and obedience in agricultural civilizations that bolstered the necessity of children's labor.

Stradi wonders that some hunting-and-gathering or herding groups, when they encountered civilizations, were shocked at how rigorously children were handed. Many American Indians were appalled by the harsh physical discipline European immigrants dealt out to their children. Here was an example of agriculture's profound impact on daily life.

Chapter 1 describes the development of agriculture, and the ways in which it changed the lives of early humans. It then describes how farming led in fertile river valleys to the development of civilization. It also notes the limits of these developments—the many regions that continued living by hunting and gathering as well as the different trajectory that was followed by societies whose people lived by herding animals rather than by farming. It

# From Human Prehistory to the Early Civilizations

Human Life in the Era of Hunters and Gatherers  
The Neolithic Revolution

VISUALIZING THE PAST: Mesopotamia in Maps  
DOCUMENT: Awan Poetry in Praise of a War Horse

The Heritages of the River Valley Civilizations  
THINKING HISTORICALLY: The Idea of Civilization in World Historical Perspective

GLOBE-CONNECTIONS: The Early Civilizations and the World

One day, about 10,000 years ago, in a rock shelter near the Pecos River, an early human inhabitant of what is today West Texas resented the blunt stabs of a yucca plant; into one of several holes worn into a fire-staining stick and, holding the stick upright, perched it between her hands as depicted in the artist's reconstruction on the next page. After much effort on the part of the young woman, as shown here, the friction between the spinning stick and the stick produced wisps of smoke that spouted their glowing embers. The woman used the embers to set fire to a small pile of dried yucca leaves that she had gathered nearby. Yucca leaves have thin, brittle stalks, which, when dry, catch fire readily. Carefully tended, the leaves could be used to light a steady fire that provided not only warmth, but the means for cooking a meal. And, importantly, stalks, fire-sticks, and leaves could easily be carried by migratory groups of early humans.

Several yucca-based fire-starters, like some including bows used in the place of hands to turn the yucca stalk, have been found across the American Southwest. Thesa Neolithic (New Stone Age) kits send us a number of messages about early world history. Most obviously, early men and women were tool users. They not only deliberately selected branches, stones, and other natural objects from the environment, they crafted them into weapons, utensils, and tools that could be used to fend off animals and human enemies, hunt, trap, fish, prepare food, and con-

struct shelters. This capacity to fashion tools distinguishes human beings from all other animals. Although a number of other animals, including apes, are tool users, only human beings consigned their tools. By this time, humans had begun how to make and use fire for thousands of years another discovery unique to humans. The use of fire for cooking allowed early humans to eat a wider variety of foods, particularly animal protein.

The toolmakers of the American Southwest lived far from eastern Africa, where human beings first evolved. Just decades ago, it was believed that the first humans migrated from non-east Asia into what is now Alaska only 12,000 years ago. Vastly improved archaeological techniques have recently revealed that the crossings had been made at least as early as 25,000 B.C.E. and that the migrants spread out quickly, probably traveling both overland and by boat along the Pacific Coast from Alaska to Chile.

Finally, we know our early ancestors could talk. Human beings had developed what some call the "speech gene" about 70,000 years earlier, vastly improving the species' capacity to communicate beyond the sounds and gestures common to a number of animal groups. Verbal humans were what we sometimes call "primates," but they had already experienced a number of fundamental changes and, in some places, they were poised to introduce some more. (1)

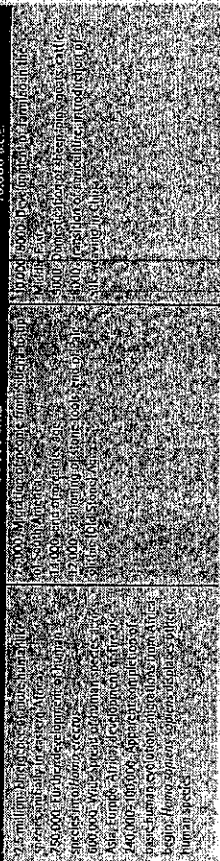
The creation of fire-sticks and other tools, including weapons, proved critical to the survival of early humans and to the development of ever larger communities and eventually whole societies. In the chapter that follows we will trace the successive stages of the early material and social development of the human species. We will explore the technological and organizational innovations that made it possible for what became the great majority of humans to move from tiny bands of wandering hunters and gatherers to sedentary village dwellers and then the builders of walled cities with populations in the thousands. More than any other factor, these transformations were made possible by the development of agriculture that increased and made more secure the supply of food by which more and more humans could be sustained.

The domestication of animals and the shift to agriculture was accompanied by major changes in the roles and relationships between men and women and patterns of childrearing. They also led

2.5 Million B.C.E.

Transition Phase

10,000 B.C.E.



Distinctive features of the human species account for considerable achievement as well. Like other primates, but unlike most other mammals, people can manipulate objects fairly readily because of the grip provided by an opposable thumb on each hand. Compared to other primates, human beings have a relatively high and regular sexual drive, which aids reproduction. Being omnivores, they are not dependent exclusively on plants or animals for food, which helps explain why they can live in so many different climates and settings. The unusual variety of their facial expressions aids communication and enhances social life. The distinctive human brain and a facility for elaborate speech are even more important, much of human history depends on the knowledge, inventions, and social contracts that resulted from these assets. Features of this sort explain why many human cultures, including the Western culture that many Americans share, promote a firm separation between human and animal, seeing in our own species a power and rationality and possibly a spark of the divine that "lower" creatures lack.

Although the rise of humankind has been impressively rapid, its early stages can also be viewed as painfully long and slow. Most of the two million-plus years during which our species has existed are described by the term Paleolithic (Old Stone) Age. Throughout this long time span, which runs until about 10,000 years ago, human beings hunted only simple food items, mainly through employing suitably shaped rocks and sticks for hunting and warfare. Fire was tamed about 250,000 years ago. The nature of the species also gradually changed during the Paleolithic, with emphasis on more erect stature and growing brain capacity. Archeological evidence, remnants of tools from early settlements, also indicates some increases in average size. A less agile species, whose larger brain and erect stance allowed better tool use, emerged between 500,000 and 200,000 years ago; it is called, appropriately enough, *Homo erectus*. Several species of *Homo erectus* developed and spread in Africa, then to Asia and Europe, reaching a population size of perhaps 1.5 million 100,000 years ago.

### Late Paleolithic Developments

Considerable evidence suggests that more advanced types of humans killed off or displaced many competitors over time, which explains why there is only one basic human type throughout the world today, rather than a number of other similar human species, as among monkeys and apes. There was also a certain amount of intermarriage. The latest human breed, *Homo sapiens sapiens*, of which all humans in the world today are descendants, originated about 200,000 years ago, also in Africa. The success of this subspecies means that no major changes in the basic human physique or brain size have occurred since its advent.

Even after the appearance of *Homo sapiens sapiens*, human life faced important constraints. People who hunted food and gathered nuts and berries could not support large numbers or elaborate societies. Most hunting groups were small, and they had to remain widely for food. Two people required at least one square mile for survival. Population growth was slow partly because women bore children for several years to finish their own fertility. On the other hand, people did not have to work very hard for several years to finish their own fertility. On the other hand, people did not have to work very hard for several years to finish their own fertility. On the other hand, people did not have to work very hard for several years to finish their own fertility.

Paleolithic Age: The Old Stone Age ending in 12,000 B.C.E. is defined by use of crude stone tools and hunting, not planting, for subsistence.

Human progress: The Neolithic revolution that 12,000 B.C.E. marked the end of the Paleolithic period.

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The Neolithic



Figure 1.1 Crouching on the wall to shelter the first part of a Neolithic European dried-up animal, a bison, which was used for fire-staining. The animal is from the cave of Lascaux in France.

to increasing social stratification, new forms of political organization, increasingly elaborate means of artistic expression, and more lethal ways of waging war. During these millennia, of transition farming communities occupied only small pockets of the earth's land area and only rarely ventured out on the sea or large rivers. Pastoral peoples who depended on herds of domesticated animals for their livelihood occupied a far greater share of the space where there was a human presence. An uneasy balance between the peoples who followed these two main adaptations to the diverse ecosystems in which humans proved able to survive was a dominant feature of the history of the species and the planet until five or six centuries ago.

### Human Life in the Era of Hunters and Gatherers

The human species has accomplished a great deal in a relatively short period of time. There are significant disagreements over how long an essentially human species is distinct from other primates, but a figure of 2 or 2.5 million years seems acceptable. This is approximately 1/4000 of the time the earth has existed. That is, if one thinks of the whole history of the earth to date as a 24-hour day, the human species began at about 5 minutes before midnight. Human beings have existed for less than 5 percent of the time mammals of any sort have lived. Yet in this brief span of time, the human species has spread to every landmass (with the exception of the polar regions) and, for better or worse, has taken control of the destinies of countless other species.

To be sure, human beings have come down to us as a species, compared to other existing models. They are unusually aggressive against their own kind. While some of the great apes, notably chimpanzees, engage in periodic wars, these conflicts can hardly rival human violence. Human beings are dependent, for a long period, which requires some special child-care arrangements and often has limited the activities of many adult women. Certain ailments, such as back problems resulting from an upright stature, also burden the species. And, insofar as we know, the human species is alone in its awareness of the inevitability of death—a knowledge that imparts some unique fears and tensions.

Neolithic Age		Metal Age	
5000 B.C.E.	4000 B.C.E.	3000 B.C.E.	2000 B.C.E.
6000 First evidence of agriculture	4000 Tenshoan culture in China	3500 First evidence of agriculture in the Middle East	2000 Indian culture in the Indian subcontinent
5500 First evidence of writing in Mesopotamia	4000-3000 First evidence of the wheel	3000 First evidence of writing in China	2000 First evidence of writing in the Middle East
3000 First evidence of the wheel	3000 First evidence of the wheel	2000 First evidence of writing in the Middle East	1500 First evidence of writing in China
3000 First evidence of the wheel	3000 First evidence of the wheel	2000 First evidence of writing in the Middle East	1500 First evidence of writing in China
3000 First evidence of the wheel	3000 First evidence of the wheel	2000 First evidence of writing in the Middle East	1500 First evidence of writing in China



Figure 1.2 In Lascaux, France's 1940s, four bison happened upon a lone hunter who (like) with hundreds of complex and beautiful Stone Age paintings for the one, most of the paintings are of animals, some of which were struck by the hunter. They were painted by the same hand as the other paintings in the cave, but they remain a powerful reminder of the application of localized primitive people.

The first people moved out of Africa about 75,000 years ago, human remains (Peking man, Java man) dating from 600,000 and 350,000 years ago. Humans inhabited Britain 250,000 years ago. They first crossed to Australia 69,000 years ago, followed by another group 20,000 years later. These combined to form the continent's aboriginal population. Dates of the migration from Asia to the Americas are under debate. Most scholars now believe that humans crossed what was then a land bridge from Siberia to Alaska about 30,000 years ago, with several subsequent migration waves until warmer climates and rising ocean levels eliminated the land bridge by 8,000 B.C.E.

The Christian calendar, which dates from the birth of Christ (BCE) and the year 1 (CE), was developed by the monk Dionysius Exiguus in the 5th century. The year 1 is the year of the birth of Christ, which is believed to have occurred on December 25. The year 1 is the year of the birth of Christ, which is believed to have occurred on December 25. The year 1 is the year of the birth of Christ, which is believed to have occurred on December 25.



Map 1.1 The Spread of Human Populations, c. 60,000 B.C.E. to the Present. From earliest sapiens first emerged in a single area in East Africa and then migrated over long periods of time north to the Mediterranean and Europe east to Asia, and then ultimately across the seas to the Americas and Oceania.

Many of the new arrivals quickly spread out, reaching the tip of the South American continent possibly within a mere thousand years. Settlers from China reached Taiwan, the Philippines, and Indonesia by 14,000 to 15,000 years ago.

In addition, soon after this time roughly 14,000 years ago the last great ice age ended, which did wonders for living conditions over much of the Northern Hemisphere. Human development began to accelerate. In the Mesolithic (Middle Stone) Age, a span of several thousand years, from about 12,000 to 8,000 B.C.E., human ability to fashion stone tools and other implements improved greatly. People learned to sharpen and shape stones to make better weapons and cutting edges. Animal bones were used to make needles and other precise tools. People built log rafts and dugouts, which improved fishing and manufactured pots and baskets for food storage. Mesolithic people domesticated more animals, such as cows, which again improved food supply. Population growth accelerated, which also resulted in more conflicts and wars. Neolithic from this period show frequent bone breaks and skull fractures caused by weapons.

In time, better tool use, somewhat more elaborate social organization, and still more population pressures led people in many parts of the world to the final Stone Age—the Neolithic (New Stone) Age (Map 1.1). From Neolithic people, in turn, came several more dramatic developments that changed the nature of human existence—the invention of agriculture, the creation of cities, and other forerunners of civilization, which ended the Stone Age altogether throughout much of the world.

### The Neolithic Revolution

Agriculture generated a supply of important changes in human cultures. Human achievements during the various ages of stone are both fascinating and fundamental, and some points are likely debated. Our knowledge of Stone Age society is of course limited, although archeologists have been creative in their interpretations of tool remains and other evidence, such as cave paintings and burial sites. Still, Stone Age people produced in various parts of the world. What people accomplished during this long period of prehistory remains essential to human life today: our ability to make

Map 1.1 The Stone Age, from the beginning of the Neolithic Revolution (c. 10,000 B.C.E.) to the end of the Neolithic Revolution (c. 8,000 B.C.E.). The Neolithic Revolution, or the Neolithic Revolution, was the transition from hunting and gathering to agriculture.

The Neolithic Revolution, or the Neolithic Revolution, was the transition from hunting and gathering to agriculture.

and manipulate roots thus depend directly on what our Stone Age ancestors learned about physical matter.

However, it was the invention of agriculture that most clearly moved the human species toward more elaborate social and cultural patterns of the sort that people today would find recognizable. With agriculture, human beings were able to settle in one spot and focus on particular economic, political, and religious goals and activities. Agriculture also spawned a great increase in the sheer number of people in the world—from about 6 to 8 million across the earth's surface during early Neolithic times, to about 100 million some 2000 years later.

The initial development of agriculture—that is, the deliberate planting of grains for later harvest—was probably triggered by two results of the ice age's end. First, population increases, stemming from improved climate, prompted people to search for new and more reliable sources of food. Second, the end of the ice age saw the retreat of certain big game animals, such as mastodons. Human hunters had to turn to smaller game, such as deer and wild bear, in many forested areas. Hunting's overall yield declined. Here was the basis for new interest in other sources of food. There is evidence that by 9000 B.C.E. in certain parts of the world, people were becoming increasingly dependent on regular harvests of wild grains, berries, and nuts. This undoubtedly set the stage for the deliberate planting of seeds (probably accidental to begin with) and the improvement of key grains through the selection of seeds from the best plants.

As farming evolved, new animals were also domesticated. Particularly in the Middle East and parts of Asia, by 9000 B.C.E. pigs, sheep, goats, and cattle were being raised. Farmers used these animals for meat and skins and soon discovered dairying as well. These results not only contributed to the development of agriculture but also served as the basis for nomadic herding societies.

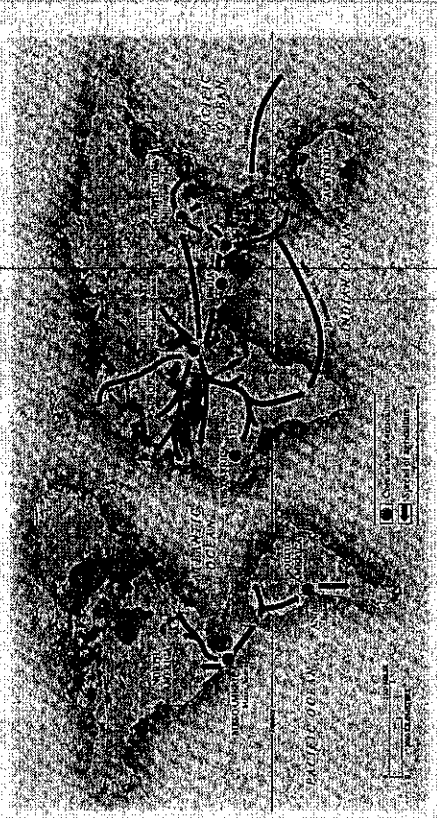
#### The Geography of Early Agriculture

Farming was initially developed in the Middle East, in an arc of territory running from present-day Turkey to Iraq and Israel. This was a very fertile area, more fertile in those days than at present. Grains such as barley and wild wheat were abundant. At the same time, this area was not heavily forested, and animals were in short supply, presenting a challenge to hunters. In the Middle East, the development of agriculture may have begun as early as 10,000 B.C.E. and it gained ground rapidly after 8000 B.C.E. Gradually during the Neolithic centuries, knowledge of agriculture spread to other centers, including parts of India, north Africa, and Europe. Agriculture also developed independently, for example, with the rise of rice cultivation in southeast Asia, from which it spread to China. Thus, within a few thousand years agriculture had spread to the parts of the world that would produce the first human civilizations (Map 12). We will see that agriculture spread later to much of Africa south of the Mediterranean coast, reaching west Africa by 2000 B.C.E., although here too there were additional developments with an emphasis on local grains and also root crops such as yams. Agriculture had to be reinvented separately in the Americas, based on corn cultivation, where it was also a slightly later development (about 5000 B.C.E.).

Many scholars have termed the development of agriculture a Neolithic revolution. The term is obviously misleading in one sense: agriculture was no sudden transformation, even in the Middle East, where the new system had its roots. Learning the new agricultural methods was difficult, and many peoples long combined a bit of agriculture with considerable reliance on the older systems of hunting and gathering. A "revolution" that took over a thousand years, and then several thousand more, to spread to key population centers in Asia, Europe, and Africa, is hardly dramatic by modern standards.

#### Patterns of Change

The concept of revolution is, however, appropriate in demonstrating the magnitude of change involved. Early agriculture could support far more people per square mile than hunting ever could; it also allowed people to settle more permanently in one area. The system was nonetheless not easy. Agriculture required more regular work, at least of men, than hunting did. Hunting groups today, such as the pygmies of the Kalahari Desert in southwest Africa, work an average of 2.2 hours a day, alternating long, inactive bouts with periods of idleness. As much as agriculture was demanding, it



Map 12 The Spread of Agriculture. Agriculture appears to have spread in ways similar to human rather than African dispersal. And in important cases, particularly in the Americas, a wide range of local crops were known. In only some parts of the world, until Columbus's voyage in the late-15th century brought together the civilizations of the Americas and Afro-Eurasia.

was also reinvented. Agriculture supported larger populations, and with better food supplies and a more settled existence agricultural peoples could afford to build houses and villages. Domesticated animals provided not only hides but also wool for more varied clothing.

We know next to nothing of the debates that must have raged when people were first confronted with agriculture, but it is not hard to imagine that many would have found the way life too complicated, too difficult, or too unexciting. Most evidence suggests that gathering-and-hunting peoples resisted agriculture as long as they could. Gradually, of course, agriculture did gain ground. Its success was hard to deny. And as hunters started new land from forests, they automatically drove out or converted many hunters. Disease played a role: settled agricultural societies suffered from peoples' lack of resistance and often died when agriculturalists who had developed immunity to these illnesses carried them into their areas.

Not all the peoples of the world came to embrace the slowly spreading wave of agriculture, at least not until very recently. Important small societies in southern Africa, Australia, the islands of southeast Asia, and even ancient Japan were isolated for so long that Jews of this era's economic system simply did not reach them. The light-skinned hunting tribes of northern Japan flourished until about a hundred years ago; Northern Europeans and Southerners Africans converted to agriculture earlier, about 2000 years ago, but well after the Neolithic revolution had transformed other parts of their continents. Agriculture was isolated in the Americas as early as 5000 B.C.E. and developed vigorously in Central America and the northern part of South America. However, most Indian tribes in North America continued a hunting-and-gathering existence; sometimes combined with limited agriculture, until recent centuries. Finally, the peoples of the vast plains of central Asia long resisted a complete conversion to agriculture, in part because of a harsh climate; herding, rather than growing, became the basic socioeconomic system of this part of the world. From this area would come waves of tough, nomadic invaders whose role in linking major civilizations was a vital force in world history until a few centuries ago.



The Spread of Agriculture

Neolithic revolution: The invention of wheat, rapid domestication and change in human migration patterns led to the development of agriculture. 8000-5000 B.C.E.

Herding and gathering: The original human economy, primarily confined by subsistence, grew more complex and less mobile for people, food, and herds.

### Further Technological Change

Development possibilities among people who became agriculturalists were more obvious than those among smaller populations who remained or simply did not know of the system. Agriculture set the basis for more rapid change in human societies. Greater wealth and larger populations freed some people for other specializations, from which new ideas or techniques might spring. Agriculture is self-dependent on control over nature that could be facilitated by newly developed techniques and objects. For example, during the Neolithic period, farming people needed storage facilities for grains and seeds, which prompted the development of basket-making and pottery. The first pottery vessel came into existence around 6000 B.C.E., and this, in turn, encouraged faster and higher quality pottery production. Agricultural needs also encouraged certain kinds of science, supporting the human inclination to learn more about weather or flooding.

Much of what we think of as human history involves the doings of agricultural societies—societies that is, in which most people are farmers and in which the production of food is the central economic activity. Neolithic groups, like the nomadic herders in central Asia, made their own mark, but their greatest influence usually occurred in interactions with agricultural peoples. Many societies remain largely agricultural today. The big time span we have thus far considered, including the Neolithic revolution itself, is all incidentally prehistoric—involved with human patterns before the invention of writing allowed the kinds of reconstructing history that prefer. In fact, since we now know how to use surviving tools and burial sites as records, the prehistoric-historic distinction means less than it once did. The preagricultural-agricultural distinction is more recent. Early soon after the development of agriculture—although not admittedly, right away—significant human change began to occur in decades and centuries, rather than in the sizeable blocks of time, several thousand years or more, that describe preagricultural peoples.

Indeed, one basic change took place fairly soon after the introduction of agriculture, and, again, societies in the Middle East served as its birthplace: The discovery of metal tools dates back to about 4000 B.C.E. Copper was the first metal, with which people learned how to work, although a more resilient metal, bronze, soon entered the picture. In fact, the next basic stage of human existence was the Bronze Age. By about 3000 B.C.E., metalworking had become so commonplace, in the Middle East that the use of stone tools (neolithic), and the long stone ages were over at first-although, of course, an essentially Neolithic technology persisted in many parts of the world, even among some agricultural peoples.

Metalworking was extremely useful to agricultural or herding societies. Metal hoes and other tools allowed farmers to work the ground more efficiently. Metal weapons were obviously superior to those made from stone and wood. Agricultural peoples had the resources to free up a small number of individuals as toolmakers, who would specialize in this activity and exchange their products with farmers for food. Specialization, of this sort, did not, however, guarantee rapid rates of invention. Indeed, many specialized artisans seemed very conservative, eager to preserve methods that had been inherited. But specialization did improve the conditions or climate for discovery and the invention of metalworking was a key result. Like agriculture, knowledge of metals gradually fanned out to other parts of Asia and to Africa and so on.

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hunting peoples moved in relatively small groups, or tribes, each containing anywhere from 40 to 90 individuals, and they could not settle in a single spot without the game running out. With agriculture, these constraints changed. To be sure, some agricultural peoples did move around. A system called slash and burn agriculture existed in many parts of the world, including portions of the American South, until about 150 years ago. Here, people would burn off trees in an area, farm intensively for a few years, and then the soil was depleted, and they would move on to another site every 20–30 years. Herding peoples also moved in tribal bands, with strong kinship ties. The rise of domestic herding economies was a vital development in Central Asia, the Middle East, the Sudan, and elsewhere.

### Settled Societies

The major agricultural regions, however, involved more permanent settlements. There were advantages to staying put: houses could be built to last, wells built to bring up water, and other "expensive" improvements afforded because they would serve many generations. In the Middle East, China, and parts of Africa and India, a key incentive to stability was the need for irrigation devices to channel river water to the fields. This same need helps explain why agriculture generated communities, and not a series of isolated farms. Small groups simply could not regulate a river's flow or build and maintain irrigation ditches and canals. Irrigation and defense encouraged villages groupings of several hundred people—as the characteristic pattern of residence in almost all agricultural societies from Neolithic days until our own century. Neolithic settlements spread widely in agricultural societies. New ones continued to be founded as agriculture spread to regions such as northern Europe, as late as 1500 B.C.E. (Figure 1.3)

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This block, which was used as a hammer, is made of a hard stone. It is one of the many tools that were used by Neolithic peoples. The block is shown in a close-up view, highlighting its texture and shape.

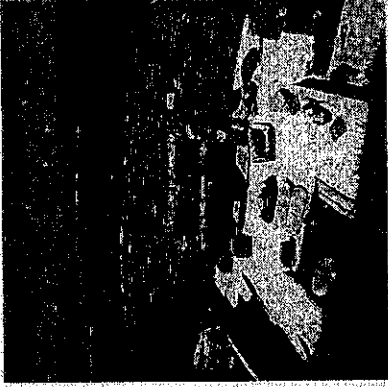


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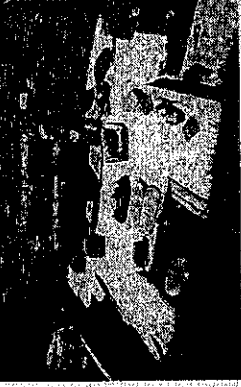


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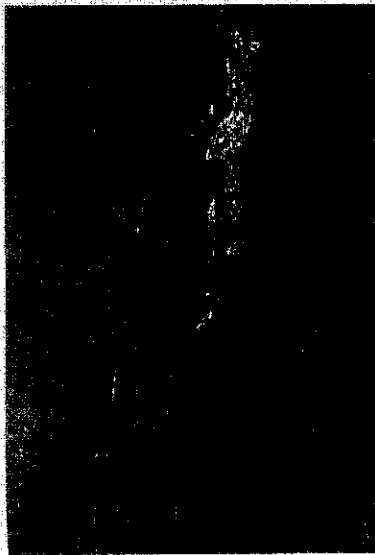


Figure 1.4 This site's remains include the ancient settlement at Catal Hüyük, in what is now southern Turkey. Movement within the settlement was mainly across the roofs and terraces of the huts. Because each dwelling had a substantial opening for food, the settlement was often the target of attacks by outsiders. As the painting shows, the bones were piled together to provide protection from such attacks; when the outside entrance was barricaded, the complex was transformed into a fortress.

### Defining Civilization

Unlike an agricultural society, which can be rather precisely defined, civilization is a more subjective construct. Some scholars prefer to define civilizations only as societies with enough economic surpluses to form divisions of labor and a social hierarchy involving significant inequalities. This is a very inclusive definition, and under it most agricultural societies and even some groups like North American Indians who combined farming with hunting would be thrown in. Others, however, press the concept of civilization further, arguing, for example, that a clear difference between civilizations and other societies (whether hunting or agricultural) involves the emergence of formal political organizations, or states, as opposed to dependence on family or tribal ties. Most civilizations produce political units capable of ruling large regions, and some characteristically produce huge kingdoms or empires.

The word *civilization* itself comes from the Latin term for city, and in truth most civilizations do depend on the existence of significant cities. In agricultural civilizations, most people do not live in cities. But cities are crucial because they amass wealth and power, and they allow the rapid exchange of ideas among relatively large numbers of people, thereby encouraging intellectual thought and artistic expression. Cities also promote specialization in manufacturing and trade and encourage the emergence of centers of political power.

Most civilizations developed writing, starting with the emergence of cuneiform (koo-NAH-uh-form) (writing based on wedge-like characters) in the Middle East around 3000 B.C.E. Societies that employ writing can organize more elaborate political structures because of their ability to send messages and keep records. They can tax more efficiently and make contracts and treaties. Societies with writing also generate more explicit intellectual climates because of their ability to record data and build on past written wisdom. (One of the early written records from the Middle East is a recipe for making beer—a science of a sort.) Some experts argue that the very fact of becoming literate changes the way people think, encouraging them to consider the world as a place that can be understood by organized human inquiry, or "rationality," and less by a host of spiritual beliefs. In all agricultural civilizations that are in all human history until less than 200 years ago—only a minority

civilization. Societies distinguished by evidence on their political, economic, and cultural complexity are referred to as civilizations.

cuneiform: koo-NAH-uh-form. A form of writing developed by the Sumerians using a wedge-shaped stylus on clay tablets.

of people was literate, and usually that was a small minority. Nonetheless, the existence of writing did make a difference in such societies.

Since civilizations employ writing and are by definition unusually well organized, it is not surprising that almost all recorded history is about what has happened to civilized societies. We simply know the most about such societies, and we often are particularly impressed by what they produce in the way of great art or powerful ideas. It is also true that civilizations tend to be far more populous than nomadic or hunting-gathering societies. Therefore, the history of civilization generally covers the history of most people.

But the history of civilization does not include everybody. Few hunting or nomadic peoples could generate a civilization—they lacked the stability and resources, and, with the exception of a limited number of signs and symbols, they never developed writing, unless it came from the outside. Furthermore, some agricultural people did not develop a full civilization, if our definition of civilization goes beyond the simple acquisition of economic surplus to formal states, cities, and writing. Farmers of west Africa, fully agricultural and capable of impressive art, have long lacked writing; major cities or more than loose regional government.

People in civilizations, particularly during the long centuries when they were surrounded by nomadic peoples, characteristically looked down on any society lacking in civilization. The ancient Greeks coined the word *barbarian* to describe such societies; they were prone to regard all non-Greeks as barbarians. As a result, scholars like this, it is easy to think of much human history as divided between civilizations and primitive nomads.

Such a distinction is inexact, however, and it does not follow from the real historical meaning of civilization. In the first place, like agriculture, civilization brings losses as well as gains. As civilization moved toward civilization, distinctions based on social class and wealth increased. Civilizations often have firmer class or caste divisions, including slavery, than do "simpler" societies. They also often promote greater separation between the rulers and ruled, monarchs and subjects. Frequently, they are quite wealthy, and there is greater inequality between rich and poor than in hunter-gatherer societies. With civilization, more fully patriarchal societies emerged. In cities, male superiority was even clearer than in agriculture, as men did most of the manufacturing and government. It is not a synonym for "good."

By the same token, nomadic or hunter-gatherer societies may be exceptionally well regulated, with complex and imaginative cultures. Many such societies, in fact, have more regulations in part, because they depend on rules transmitted by word of mouth than civilized societies. Some of the societies most eager to express anger and aggression to human dealings, such as Zuni Indians in the American Southwest, are based at least in part on hunting and gathering. Although some hunting-gathering societies treat old people cruelly, others display more respect and veneration toward elders than most civilizations do. Many nomadic societies may be shocked by the doings of civilized peoples. For example, American Indians were appalled at the insistence of European settlers on spanking their children, a behavior they regarded as vicious and unnecessary. A fascinating, although probably unanswerable, question involves determining whether or not the civilization form has left more or less good in its wake.

It is also important to note that many nomadic peoples contributed greatly to world history. While many remaining hunting-and-gathering peoples became increasingly isolated, except in parts of the Americas, nomadic herding economies continued to flourish in many places. They depended on the domestication of animals and on key technological improvements, for example in riding equipment and weaponry, precisely because they traveled widely. Nomadic peoples could play vital roles in world trade and in developing contacts among more settled areas. Nomadic groups in central Asia would play particularly great roles in world history, but groups in the Middle East and Africa were significant as well.

Despite the importance of alternatives, it remains true that the development of civilization most obviously outlined the process of technological change and political organization. Civilizations also generated the largest populations and the most elaborate artistic and intellectual forms. It is in this context that the term has real meaning, and in which it legitimately commands the attention of most historians.

Civilizations also increased human impact on the environment. For example, the first center of copper production in Europe, along the Danube valley led to such deforestation that the fuel supply was destroyed, and the industry collapsed after about 3000 B.C.E. The extensive agriculture

nomads. Cattle and sheep-herding practices were commonly referred to as "barbarian" by civi-



enforce its duties; it also provided a court system in the interests of justice. Kings were originally military leaders during times of war, and the function of defense and war, including leadership of a trained army, remained vital in Sumerian politics. Kings and the noble class, along with the priest-hood, controlled considerable land, which was worked by slaves. This began a tradition of slavery that would mark Middle-Eastern societies. Warfare remained vital to ensure supplies of slaves taken as prisoners during combat. At the same time, slavery was a variable size of existence, and many slaves were able to earn money and even buy their freedom.

The Sumerians added to their region's agricultural prosperity not only by using wheeled carts but also by learning about fertilizers and by adopting silver as a means of exchange for buying and selling an early form of money. However, the region was also hard to defend and proved a constant temptation to outside invaders from Sumerian times to the present. The Sumerians themselves fell in a people called the Akkadians, who continued much of Sumerian culture. Another period of decline was followed by conquest by the Babylonians, who created their own empire and thus helped bring civilization to other parts of the Middle East. It was under Babylonian rule that the king Hammurabi introduced the most famous early code of law, boasting of his purpose: "to promote the welfare of the people, I, Hammurabi, the descent, god-fearing prince, cause justice to prevail in the land, by destroying the wicked and the evil, that the strong might not oppress the weak." Hammurabi's code established rules of procedure for courts of law and regulated property rights and the status of family members, setting harsh punishments for crimes.

For many centuries during and after the heyday of Babylon, peace and civilization in the Middle East were troubled by the invasions of hunting and herding groups. Indo-European peoples pressed in from the north, starting about 2100 B.C.E. in the Middle East itself; invasions by Scythic peoples from the south were more important, and Semitic peoples and languages increasingly dominated the region. The new arrivals adopted the culture of the conquered peoples as their own, so the key features of the civilization persisted. But large political units declined in favor of smaller city-states or regional kingdoms, particularly during the centuries of greatest turmoil, between 1200 and 900 B.C.E. Thereafter, new invaders, first the Assyrians and then the Persians, created large new empires in the Middle East.

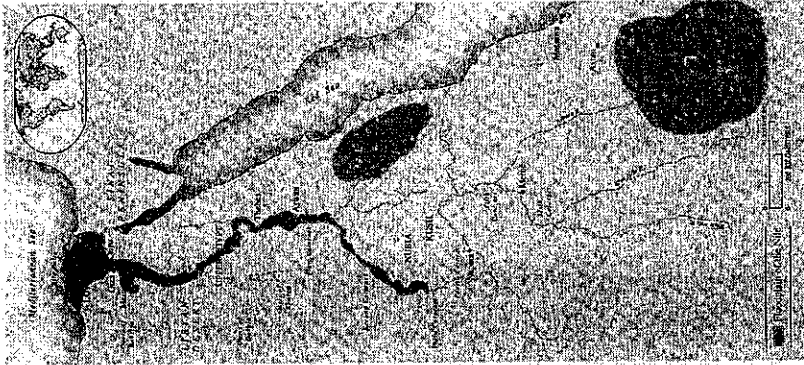
### Egyptian Civilization

A second center of civilization sprang up in northern Africa, along the Nile River. Egyptian civilization, formed by 5000 B.C.E., benefited from the trade and technological influence of Mesopotamia, but it produced a quite different society and culture. Less open to invasion, Egypt retained a unified state throughout most of its history. The king, or pharaoh, possessed immense power. The Egyptian economy was more fully government-directed than its Mesopotamian counterpart, which had a more independent business class. Government control may have been necessary because of the complexity of coordinating irrigation along the Nile. If successful, it resulted in godlike status for the pharaohs, who built splendid tombs for themselves the pyramids—from 2700 B.C.E. onward. During periods of weak rule and occasional invasions, Egyptian society suffered a decline, but revivals kept the framework of Egyptian civilization intact until after 1000 B.C.E. (Map 1.5). At key points, Egyptian influence spread up the Nile to the area now known as the Sudan, with an impact on the later development of African culture. The kingdom of Kush interacted with Egypt and invaded it at some point.

Neither Egyptian society nor the Egyptian alphabet was as elaborate as to Mesopotamian equal, although mathematics was more advanced in this civilization. Egyptian art was exceptionally lively; cheerful and colorful

Kush. An African state that developed along the upper reaches of the Nile, c. 1000 B.C.E., conquered Egypt and ruled it for several centuries.

Hammurabi  
Law Code



Map 1.5 Egypt, Kush, and Mesopotamia. Kush, an African state that developed along the upper reaches of the Nile, c. 1000 B.C.E., conquered Egypt and ruled it for several centuries.



Figure 1.5 This aerial view depicts a stretch of the Nile River valley in Egypt, showing the river and the surrounding land. The Nile River is the central feature, flowing north towards the Mediterranean Sea. The surrounding land is a mix of cultivated fields and natural vegetation.



Along with Mesopotamian, major urban centers of the Egyptian civilization, but not as densely populated as Mesopotamia.

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peoples decorated not only the banks where the hordes where the hordes in an arid climate made people want to be surrounded by aspects of beauty, but also palaces and furnishings. Egyptian architectural forms were also quite influential, not only in Egypt but in other parts of the Mediterranean and well. Egyptian mathematics produced the idea of a day divided into 24 hours, and there are Egyptian influenced the development of the Minoan and Mycenaean cultures (Figure 1.3).

### Indian and Chinese River Valley Civilizations

River valley civilizations developed in two other centers. A prosperous urban civilization emerged along the Indus River by 2500 B.C.E., supporting several large cities, including Harappa and Mohenjo-daro (moh-HAY-doh-DAR-oh), whose names even had Mesopotamian, but they developed their own distinctive alphabet and artistic forms. Influenced by Indo-Europeans, however, plus natural calamities, resulted in such destruction, that it makes it hard to speak with confidence about either the nature of this culture or its subsequent influence on India. Harappan writing, for example, has yet to be deciphered. It remains true that civilization never had to be fully reinvented in India. The Indo-European migrants combined their religious and political ideas with those that had taken root in the early cities. In recent times, Indian pride in their early civilized history has become an important part of their national identity.

### The Great Cities of the Indus Valley

Though hundreds of miles apart, Harappa, Mohenjo-daro, and other urban centers were remarkably similar in layout and construction. Both were built on a square grid pattern that was divided into 120-130 precisely measured segments. Each city was surrounded by walls, which extended a mile from east to west and one-half mile from north to south. The buildings and the city walls were usually made of standardized kiln-fired bricks. Careful construction in such a massive scale might have meant an effective central government that could organize and supervise the daily tasks of large numbers of laborers.

The existence of a strong ruling class is also indicated by the presence of large, well fortified citadels in each capital city. These citadels may have served as warehouses for the cities' populations in times of attack and as community centers in times of peace. The citadel at Mohenjo-daro included a large public building that may have been a palace. Both citadels contained what are believed to have been audience and assembly halls or places of worship, as well as public bathing tanks. The elaborately decorated bath at Mohenjo-daro was surrounded by a cloister which opened onto many small rooms that may have housed priests. Large granaries near each of the citadels suggest that the state stored grain for ceremonial purposes, times of shortage, and possibly the regulation of grain production and sale.

The great cities and many towns of the Harappan complex were supported by a rather advanced agricultural system based on the cultivation of wheat, rice, and possibly rice. Cotton was widely cultivated, and numerous domesticated animals were raised. It is likely that irrigation systems were built to catch and control waters from the monsoon and the rivers, and that fish caught in the rivers were a dietary staple. Local goods were carried by riverboat and ox carts, reproduced in clay models. The cities of Harappa were major trading centers, trade from China and precious jewels from what later became Burma have been unearthed at various Indus sites. Stone seals produced in the Indus region, such as those shown in Figure 1.5, have been found in the urban ruins of other ancient civilizations such as Sumer in Mesopotamia. In addition to realistic depictions of animals and human figures, the seals contain a complex writing system that no one has ever deciphered. The fact that Harappan merchants used large numbers of the seals to ensure that crates and urns were not opened during transport suggests that trade was highly developed in the Indus valley civilization.

Despite these advances, Harappan peoples appear to have been conservative and highly resistant to innovations introduced from the outside. They cast tools and weapons in bronze,

### Aryan Poetry in Praise of a War Horse

The following early Vedic hymn, exalts in the power of a great Aryan war horse.

Rushing to glory to the capture of herds,  
Sweeping down as a fiery falcon,  
Happy as a bridegroom making a gladland,  
Sweeping the dust and clanking on the bit,  
And the chariot's speed and faithful,  
His body obedient to his driver in battle,  
Sweeping on through the-mud,  
Slings up the dust to fall on his foes.

And at his deep neigh, like the thunder of heaven,  
The foe-men tremble in fear,  
For his flight frights thousands, and none can resist him,  
So terrible is his charge.

**QUESTIONS** in various lights in various Vedic hymns, their battles and their attitudes toward the manliness, heroism and attitudes toward death.

but most of their implements were inferior to those of Mesopotamian peoples, with whom they had contact. Their weapons were even more primitive and would have left them vulnerable to invasions by peoples more adept at warfare.

Harappan society appears to have been dominated by a powerful priestly class, which ruled from the citadel of each capital. The priests would have derived this control from their role as intermediaries between the Harappan populace and a number of gods and goddesses, who controlled fertility. Representations of mother goddesses appear to have been objects of worship for the common people, whereas a horned god was apparently favored by the priests and upper classes. The presence of these figures in Sumner and other urban sites in the Persian Gulf region suggests that large quantities of various commodities were traded in the region spanning Mesopotamia and the Indus River valley.

It is likely that a combination of factors led to Harappa's demise. There is evidence of severe flooding at Mohenjo Daro and other sites. Short-term natural disasters, including severe earthquakes, may have compounded the adverse effects of long-term climatic changes. Shifts in the monsoon pattern and changes in temperature may have begun the process of desertification that eventually transformed the region into the arid steppe that it has been for most of prehistoric history. Rapid changes in pottery types suggest sudden waves of migrants into the region. It is possible that the Harappans were too weak militarily to prevent these incoming peoples from settling down over their towns and cities. In many cases these centers of urban life had already been abandoned in response to natural calamities, particularly flooding. A marked decline in the quality of building and iron planning suggests that the priestly elite may have lost control over the artisans and laborers.

Some of the migrants were bands of Aryan leaders who entered the Indus region over an extended period of time rather than in militant waves, but the Aryan pastoralists may have eventually destroyed or neglected the dikes and canals on which the agrarian life of the Harappan peoples had once depended. Cattle raising would then have replaced crop cultivation, further undermining the economic basis of the civilization. That there was a good deal of violent conflict in this transition cannot be ruled out. Groups of skeletons with smashed skulls or in postures of flight from floods or foreign invaders have been found on the steppes at some sites. These environments and changes and related administrative decline may have combined with the effect of nomadic migrations to undermine south Asia's first civilization.

### Early Civilization in China

Civilization along the Yellow River in China developed in considerable isolation, although some overland trading contact with India and the Middle East did develop. Huang, the civilization was the subject of much later Chinese legend, which praised the godlike kings of early civilization, starting with the mythic ancestor of the Chinese, Pao Yu. The Chinese had an unusually elaborate concept of their remote origins, and they began early to record ancestral pantheon history of their early kings. What is clear is the following: First, an organized state existed that carefully regulated irrigation in the fertile but flood-prone river valley. Second, by about 2000 BCE, the Chinese had produced an advanced technology and developed an elaborate intellectual life. They had learned how

Ancient China



Yellow River, the heart of the Harappan civilization, developed a technology unparalleled in Asia.



Figure 1.6 This elaborately decorated vessel from the Shang era, with its animal-shaped legs, shows the sophisticated artistic expression achieved very early in Chinese history. It dates from around 1200 BCE, a time when the Shang dynasty was at its height. The vessel is made of bronze and is decorated with a variety of motifs, including a dragon and a bird. It is a fine example of the Shang bronze art.

The Shang Kingdom



Shang, the Chinese dynasty to which archaeologists have attributed the earliest bronze vessels, flourished from 1600 BCE to 1046 BCE.

to fire bones and were skilled in pottery; they used bronze well and by 1000 BCE had introduced iron, which they soon learned to work with coal. Their writing progressed from scratches of lines on bone to the invention of ideographic symbols. Science, particularly astronomy, arose early. Chinese art emphasized delicate designs, and the Chinese claim an early interest in plasticity (Figure 1.6).

By 1500 BCE, one of the cultures in the north China, the Shang, conquered most of the other tribes and established a kingdom that would lay the foundations of Chinese civilization. Until recent decades we knew little more about the Shang than about their Xia predecessors. But extensive excavation of Shang sites at Anyang (also called Yinxu) (Figure 1.6) and elsewhere have given us insight into many aspects of Shang culture and society. In some respects they were very much like the Aryans, the Shang were conquering northern India during this same period. Like the Aryans, the Shang were warlike nomads. They fought on horseback and from chariots with deadly bronze weapons. Non-Shang subject peoples provided the foot soldiers that made up the bulk of their armies. Like those of Aryan India and Hittite Greece, Shang battles were wild clashes between massed soldiers that hinged on hand-to-hand combat between a few champions on each side. But unlike the Aryans and Hittite Greeks, the Shang warriors were ruled by strong kings, who drew on their vessels' energies and military prowess to build an extensive empire.

The Shang monarch was seen as the intermediary between the spirits being Shangdi (shang+di), and ordinary mortals. His kingdom was viewed as the center of the world, and he claimed dominion over all humankind. Shang rulers directed the affairs of state and bore ritual responsibilities for the fertility of their kingdom and the well-being of their subjects. In the springtime, they participated in special ceremonies that included a symbolic mating with female fertility spirits. In times of drought and famine, Shang rulers, or perhaps designated surrogates, were obliged to perform ritual dances in the nude. The dances presumably the surrogate was "laid bare" alive to placate the spirits whose anger had caused the natural calamities.

Shang monarchs were served by a sizeable bureaucracy in the capital city of Anyang and the surrounding areas. But most of the present and ancient populations of the kingdom were governed by royal retainers, subordinate leaders serving the king and great lords, and usually housed in them by personal ties. These officials were recruited from the former ruling families and the aristocratic classes of the many subordinate states. The vassals depended on the produce and labor of the commoners in these areas to support their families and military forces. In return, for grants of control over varying numbers of peasants, warrior aristocrats collected tribute (usually in the form of agricultural products), which went to support the monarch and his court. They supplied soldiers for the king's armies in times of war, and they kept the peace and administered justice among the peasants and townspeople.

Like the elites of many early civilizations, the Shang rulers and nobility were preoccupied with rituals, oracles, and sacrifices. In addition, to the fertility functions of the ruler, the entire elite was involved in pursuing spirits to provide good crops and large harvests. Shang artists expressed from heaven its peak in the commonly carried and expertly cast bronze vessels that were used to make these offerings. Offerings included fine grain, incense, wine, and animals, but Shang records also tell of water festivals at which ritual contests were waged between rival boats, each attempting to sink the other. These added the being craft favored when it came, and they were offered up to the deities responsible for fertility and good harvests.

Concern for abundant harvest and victory in war led the Shang elite to put great stock in the prediction of shamans, or priests, who served as oracles, people who could prophesy the future. Much of Shang artistic expression went into producing the ritual objects used by the oracles. Warriors also to go into battle, officials embarking on long journeys, or families negotiating marriage alliances routinely consulted these oracles to ensure that their efforts would turn out well. This reliance on the shamans strongly influenced beliefs and behavior in the Shang era.

The actual procedures followed by the shamans who practiced over these rituals gave rise to perhaps the single most important element in Chinese culture-writing. Since pre-Shang times, Chinese oracles had based their predictions on readings taken from animal bones of tortoise shells. A bone or shell was drilled with a hole and heated with a red-hot iron poker. The bone or shell cracked, and the patterns of the cracks were interpreted by a shaman, or priest. Over time, the process evolved of inscribing the bones and shells with painted designs that became part of the patterns

Shamans or priests in Chinese society had a role in predicting the future. The patterns of cracks in the bones and shells were used to predict the future.





gaining force as a larger region; although, as we have seen in the Middle East, smaller identities persisted. However, individual civilizations had only sporadic contact with each other. They and their leading institutions and cultural forms developed separately. Thus, four distinct centers of civilization developed (five, if the emerging Olmec culture in Mexico is included), each with widely varied patterns, from styles of writing to beliefs about nature.

The early civilizations shared important features, including cities, trade, and writing, that belied them from the common basic definition of civilization in the first phase. They also frequently developed some mutual relationships, although the Huanghe culture in China is one example of a civilization that flourished in relative isolation. Egypt and Mesopotamia, in particular, had recurrent contacts through trade and war. But the values or belief systems of each civilization, and their manifestation in political and business styles, were not so easily disseminated. Even relatively close neighbors, such as Egypt and Mesopotamia, developed radically different political attitudes, beliefs about death, and artistic styles. Civilization and considerable diversity that coexisted hand in hand.

### Global Connections

#### The Early Civilizations and the World

Mesopotamia and Egypt presented two different approaches to relationships outside the home region. Mesopotamia was flat, with few natural barriers to recurrent invasion from the north. Perhaps for this reason, Mesopotamian leaders thought in terms of expansion. Many conquering empires expanded their territory, though within the Middle East. Many traders pushed outward, dealing either with merchants to the east or sending expeditions into the Mediterranean and beyond, and also to India. The Middle East's role as active agent in wider contact was clearly being established. Egypt, though not isolated, was more self-contained. There was important trade and interaction along the Nile to the south, which brought mutual influences with the peoples of Kush and Ethiopia. Trade and influence also linked Egypt to Mediterranean islands like Crete, south of Greece. A few interactions, finally, occurred with Mesopotamia. But most Egyptians, including the leaders, thought of Egypt as its own world. There was less need or desire to claim wider horizons. Correspondingly, ancient Egypt played less of a role as intermediary among regions than did Mesopotamia.

River valley civilization in China had fewer far-reaching contacts than its counterpart in Mesopotamia. Ultimately, however, contacts with China would shape developments in Japan, Korea, and Vietnam. Already in the river valley period, the Chinese were advancing new technologies, for example in the manufacture of silk, which would have wide influence on later interregional trade. Chinese irrigation systems became increasingly sophisticated, involving engineering principles that would gain wider scope later on. Hanappan society interacted widely with Mesopotamia, but it creeds little evidence of significant influence. The decline of Sumerian civilization also limited the civilization's impact on later developments in world history. Hanappan civilization proved much more vulnerable to natural disasters and climate change, particularly in contrast to China. Comparison of the early civilizations emphasizes quite different patterns of scope and legacy.

## PART I

### Retrospective

# From Hunting and Gathering to Civilizations, 2.5 million-1000 B.C.E.: Origins

#### Contacts and Their Limits

No regular pattern of contacts among the major civilization centers developed during the long early phases of human history. Even at the end of the period of the river valley civilizations, no such pattern existed. To be sure, separate developments did not prevent many similar features.

In broad outline, early civilizations developed in many of the same locations, as they introduced formal governments, writing systems, and significant changes. Agriculture generated similar tendencies to establish patrilineal family structures, but these similarities occurred spontaneously, the result of similar needs, not because they learned extensively from one another. And of course the specifics varied considerably—the system of government and the gender relations in Egypt, for example, differed from those in Mesopotamia.

Three kinds of contacts did exist during the early phases of human history. Their results were significant, though they were somewhat sporadic. First, local or long-distance trade could bring knowledge of new developments or products. People in one region could learn about innovations in the region next door. Local exchanges of products or symbolic gifts—the latter designed to help keep the peace—served as conduits. Through this kind of interaction, diffusion occurred. This was the mechanism through which knowledge of agriculture gradually spread from the areas where it was first developed to neighboring regions, and ultimately over whole subcontinents. Knowledge of new technologies, like metallurgy, spread the same way. So did knowledge

of new foodstuffs: some crops original to southeast Asia, for example, reached Africa by 1000 C.E. and became staples.

This kind of diffusion was the most important contact in early human history. We do not always know the precise processes involved. For example, an Indian Ocean trade system existed by 1000 C.E. involving timber and perfumes; this led to a southeast Asian migration to the island of Madagascar. But we know almost nothing about the specifics of the system. It is also true that some trade contacts, like the Phoenician voyages to southern England to get tin, did not seem to produce wider diffusion of products or technologies.

A second kind of contact resulted from migration and invasion. We have seen that this combination occurred frequently in the Middle East, leading to changes in language but also the spread of new technologies. The wheat was almost certainly invented in central Asia, then brought by a migrant group to the Middle East. Migrations and invasions could be extremely disruptive, as when the Indo-Europeans moved into India, doing great violence to local populations. But they could also bring new knowledge to immigrants and local populations alike.

A third kind of contact involved direct trade, diplomatic relations, and military activity between two major early civilization centers. While Mesopotamia and Egypt developed separately for the most part, there were periods of invasion from one or another, some trade and some cultural exchanges. Tablets have been found, for example, whose text was written in

both cuneiform and hieroglyphics, showing a need for direct translations. Egyptians and Mesopotamians both interacted with parts of Greece, including the island of Crete, which was therefore able to borrow from both societies. Some trade (though no military contact) probably occurred between Mesopotamia and the Indus valley. Early civilizations in China and the Americas were more fully isolated.

Contacts brought fundamental changes to the people involved, even in these early periods. Diffusion, particularly, was responsible for basic shifts in economic and therefore social systems. Most contact was sporadic, however, and did not lead to elaborate exchanges of religious or scientific ideas or political institutions. Here, the emphasis on separate patterns of development remains valid.