Traditions and Encounters, Chapter 1, pp. 17-26

Read the textbook pages and handwrite the answers to the questions and vocabulary on the accompanying Reading Guide.
Cave painting from Lascaux in southern France, perhaps intended to help hunters gain control over the spirits of large game animals.

to exercise sympathetic magic—to gain control over subjects (in this case, game animals) by capturing their spirits (by way of accurate representations of their physical forms). Although not universally accepted, this interpretation accounts reasonably well for a great deal of the evidence and has won widespread support among scholars.

Whatever the explanation for prehistoric art, the production of the works themselves represented conscious and purposeful activity of a high order. Early artists compounded pigments and manufactured tools. They made paints from minerals, plants, blood, saliva, water, animal fat, and other available ingredients. They used mortar and pestle for grinding pigments and mixing paints, which they applied with moss, frayed twigs and branches, or primitive brushes fabricated from hair. The simplicity and power of their representations have left deep impressions on modern critics ever since the early twentieth century, when their works became widely known. The display of prehistoric artistic talent clearly testifies once again to the remarkable intellectual power of the human species.

The Neolithic Era and the Transition to Agriculture

A few societies of hunting and gathering peoples inhabit the contemporary world, although most of them do not thrive because agricultural and industrial societies have taken over environments best suited to a foraging economy. Demographers estimate the current number of hunters and gatherers to be about thirty thousand, a tiny fraction of the world’s human population of more than six billion. The vast majority of the world’s peoples, however, have crossed an economic threshold of immense significance. When human beings brought plants under cultivation and animals under domestication, they dramatically altered the natural world and steered human societies in new directions.
The Origins of Agriculture

The term *neolithic era* means “new stone age,” as opposed to the old stone age of paleolithic times. Archaeologists first used the term *neolithic* because of refinements in tool-making techniques: they found polished stone tools in neolithic sites, rather than the chipped implements characteristic of paleolithic sites. Gradually, however, archaeologists became aware that something more fundamental than tool production distinguished the neolithic from the paleolithic era. Polished stone tools occurred in sites where peoples relied on cultivation, rather than foraging, for their subsistence. Today the term *neolithic era* refers to the early stages of agricultural society, from about twelve thousand to six thousand years ago.

Because they depended on the bounty of nature, foraging peoples faced serious risks. Drought, famine, disease, floods, extreme temperatures, and other natural disasters could annihilate entire communities. Even in good times, many hunting and gathering peoples had to limit their populations so as not to exceed the capacity of their lands to support them. They most likely resorted routinely to infanticide to control their numbers.

Neolithic peoples sought to ensure themselves of more regular food supplies by encouraging the growth of edible crops and bringing wild animals into dependence on human keepers. Many scholars believe that women most likely began the systematic care of plants. As the principal gatherers in foraging communities, women became familiar with the life cycles of plants and noticed the effects of sunshine, rain, and temperature on vegetation. Hoping for larger and more reliable supplies of food, women in neolithic societies probably began to nurture plants instead of simply collecting available foods in the wild. Meanwhile, instead of just stalking game with the intention of killing it for meat, neolithic men began to capture animals and domesticate them by providing for their needs and supervising their breeding. Over a period of decades and centuries, those practices gradually led to the formation of agricultural economies.

By suggesting that agriculture brought about an immediate transformation of human society, the popular term *agricultural revolution* is somewhat misleading.
The establishment of an agricultural economy was not an event that took place at a given date but, rather, a process that unfolded over many centuries, as human beings gradually learned how to cultivate crops and keep animals. It would be more appropriate to speak of an *agricultural transition*—leading from paleolithic experiments with cultivation to early agricultural societies in the neolithic era—rather than an agricultural revolution.

Agriculture—including both the cultivation of crops and the domestication of animals—emerged independently in several different parts of the world. The earliest evidence of agricultural activity discovered so far dates to the era after 9000 B.C.E., when peoples of southwest Asia (modern-day Iraq, Syria, and Turkey) cultivated wheat and barley while domesticating sheep, goats, pigs, and cattle. Between 9000 and 7000 B.C.E., African peoples inhabiting the southeastern margin of the Sahara desert (modern-day Sudan) domesticated cattle, sheep, and goats while cultivating sorghum. Between 8000 and 6000 B.C.E., peoples of sub-Saharan west Africa (in the vicinity of modern Nigeria) also began independently to cultivate yams, okra, and black-eyed peas. In east Asia, residents of the Yangzi River valley began to cultivate rice as early as 6500 B.C.E., and their neighbors to the north in the Yellow River valley raised crops of millet and soybeans after 5500 B.C.E. East Asia peoples also kept pigs and chickens from an early date, perhaps 6000 B.C.E., and they later added water buffaloes to their domesticated stock. In southeast Asia the cultivation of taro, yams, coconut, breadfruit, bananas, and citrus fruits, including oranges, lemons, limes, tangerines, and grapefruit, dates from probably 3000 B.C.E. or earlier.

Peoples of the western hemisphere also turned independently to agriculture. Inhabitants of Mesoamerica (central Mexico) cultivated maize (corn) as early as 4000 B.C.E., and they later added a range of additional food crops, including beans, peppers, squashes, and tomatoes. Residents of the central Andean region of South America (modern Peru) cultivated potatoes after 3000 B.C.E., and they later added maize and beans to their diets. It is possible that the Amazon River valley was yet another site of independently invented agriculture, this one centering on the cultivation of manioc, sweet potatoes, and peanuts.

Domesticated animals were much less prominent in the Americas than in the eastern
Origins and early spread of agriculture. After 9000 B.C.E. peoples in several parts of the world began to cultivate plants and domesticate animals that were native to their regions. Agriculture and animal husbandry spread quickly to neighboring territories and eventually also to distant lands.

Mesoamerica
Food crops: maize, beans, peppers, squashes, tomatoes

Amazon River Valley
Food crops: manioc, sweet potatoes, peanuts

Andean South America
Food crops: potatoes, sweet potatoes
Domesticated animals: llamas, alpacas, guinea pigs

West Africa
Food crops: yams, okra, black-eyed peas

The Early Spread of Agriculture

hemi-sphere. Paleolithic peoples had hunted many large species to extinction: mammoths, mastodons, and horses had all disappeared from the Americas by 7000 B.C.E. (The horses that have figured so prominently in the modern history of the Americas all descended from animals introduced to the western hemisphere during the past five hundred years.) With the exception of llamas, alpacas, and guinea pigs of the Andean regions, most other American animals were not well suited to domestication.

Once established, agriculture spread rapidly, partly because of the methods of early cultivators. One of the earliest techniques, known as slash-and-burn cultivation, involved frequent movement on the part of farmers. To prepare a field for cultivation, a
community would slash the bark on a stand of trees in a forest and later burn the dead trees to the ground. The resulting weed-free patch was extremely fertile and produced abundant harvests. After a few years, however, weeds invaded the field, and the soil lost its original fertility. The community then moved to another forest region and repeated the procedure. Migrations of slash-and-burn cultivators helped spread agriculture throughout both eastern and western hemispheres. By 6000 B.C.E., for example, agriculture had spread from its southwest Asian homeland to the eastern shores of the Mediterranean and the Balkan region of eastern Europe, and by 4000 B.C.E. it had spread farther to western Europe north of the Mediterranean.
While agriculture radiated out from its various hearths, foods originally cultivated in only one region also spread widely, as merchants, migrants, or other travelers carried knowledge of those foods to agricultural lands that previously had relied on different crops. Wheat, for example, spread from its original homeland in southwest Asia to Iran and northern India after 5000 B.C.E. and farther to northern China perhaps by 3000 B.C.E. Meanwhile, rice spread from southern China to southeast Asia by 3000 B.C.E. and to the Ganges River valley in India by 1500 B.C.E. African sorghum reached India by 2000 B.C.E., while southeast Asian bananas took root in tropical lands throughout the Indian Ocean basin. In the western hemisphere, maize spread from Mesoamerica to the southwestern part of the United States by 1200 B.C.E. and farther to the eastern woodlands region of North America by 100 B.C.E.

Agriculture involved long hours of hard physical labor—clearing land, preparing fields, planting seeds, pulling weeds, and harvesting crops. Indeed, agriculture probably required more work than paleolithic foraging: anthropologists calculate that modern hunting and gathering peoples spend about four hours per day in providing themselves with food and other necessities, devoting the remainder of their time to rest, leisure, and social activities. Yet agriculture had its own appeal in that it made possible the production of abundant food supplies. Thus agriculture spread widely, eventually influencing the lives and experience of almost all human beings.

**Early Agricultural Society**

In the wake of agriculture came a series of social and cultural changes that transformed human history. Perhaps the most important change associated with early agriculture was a population explosion. Spread thinly across the earth in paleolithic times, the human species multiplied prodigiously after agriculture increased the supply of food. Historians estimate that before agriculture, about 10,000 B.C.E., the earth’s human population was about four million. By 5000 B.C.E., when agriculture had appeared in a few world regions, human population had risen to about five million. Estimates for later dates demonstrate eloquently the speed with which, thanks to agriculture, human numbers increased:

<table>
<thead>
<tr>
<th>Year</th>
<th>Human Population</th>
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<tbody>
<tr>
<td>3000 B.C.E.</td>
<td>14 million</td>
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<tr>
<td>2000 B.C.E.</td>
<td>27 million</td>
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<tr>
<td>1000 B.C.E.</td>
<td>50 million</td>
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<tr>
<td>500 B.C.E.</td>
<td>100 million</td>
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Their agricultural economy and rapidly increasing numbers encouraged neolithic peoples to adopt new forms of social organization. Because they devoted their time to cultivation rather than foraging, neolithic peoples did not continue the migratory life of their paleolithic predecessors but, rather, settled near their fields in permanent villages. One of the earliest known neolithic villages was Jericho, site of a freshwater oasis north of the Dead Sea in present-day Israel, which came into existence before 8000 B.C.E. Even in its early days, Jericho may have had two thousand residents—a vast crowd compared with a paleolithic hunting band. The residents farmed mostly wheat and barley with the aid of water from the oasis. During the earliest days of the settlement, they kept no domesticated animals, but they added meat to their diet by hunting local game animals. They also engaged in a limited amount of trade, particularly in salt and obsidian, a hard, volcanic glass from which ancient peoples fashioned knives and blades. About 7000 B.C.E., the residents surrounded their circular mud huts
with a formidable wall and moat—a sure sign that the wealth concentrated at Jericho had begun to attract the interest of human predators.

The concentration of large numbers of people in villages encouraged specialization of labor. Most people in neolithic villages cultivated crops or kept animals. Many also continued to hunt and forage for wild plants. But a surplus of food enabled some individuals to concentrate their time and talents on enterprises that had nothing to do with the production of food. The rapid development of specialized labor is apparent from excavations carried out at one of the best-known neolithic settlements, Çatal Hüyük. Located in south-central Anatolia (modern-day Turkey), Çatal Hüyük was occupied continuously from 7250 to 5400 B.C.E., when residents abandoned the site. Originally a small and nondistinguished neolithic village, Çatal Hüyük grew into a bustling town, accommodating about five thousand inhabitants. Archaeologists have uncovered evidence that residents manufactured pots, baskets, textiles, leather, stone and metal tools, wood carvings, carpets, beads, and jewelry among other products. Çatal Hüyük became a prominent village partly because of its close proximity to large obsidian deposits. The village probably was a center of production and trade in obsidian tools: archaeologists have discovered obsidian that originated near Çatal Hüyük at sites throughout much of the eastern Mediterranean region.

Three early craft industries—pottery, metallurgy, and textile production—illustrate the potential of specialized labor in neolithic times. Neolithic craftsmen were not always the original inventors of the technologies behind those industries: the Jomon society of central Japan produced the world’s first known pottery, for example, about 10,000 B.C.E. But neolithic craftsmen expanded dramatically on existing practices and supplemented them with new techniques to fashion natural products into useful items. Their enterprises reflected the conditions of early agricultural society: either the craft industries provided tools and utensils needed by cultivators, or they made use of cultivators’ and herdsmen’s products in new ways.

The earliest of the three craft industries to emerge was pottery. Paleolithic hunters and gatherers had no use for pots. They did not store food for long periods of time, and in any case lugging heavy clay pots around as they moved from one site to another would have been inconvenient. A food-producing society, however, needs containers to store surplus foods. By about 7000 B.C.E. neolithic villagers in several parts of the world had discovered processes that transformed malleable clay into fire-hardened, waterproof pottery capable of storing dry or liquid products. Soon thereafter, neolithic craftsmen discovered that they could etch designs into their clay that fire would harden into permanent decorations and furthermore that they could color their products with glazes. As a result, pottery became a medium of artistic expression as well as a source of practical utensils.

Metallurgy soon joined pottery as a neolithic industry. The earliest metal that humans worked with systematically was copper. In many regions of the world, copper occurs
naturally in relatively pure and easily malleable form. By hammering the cold metal it was possible to turn it into jewelry and simple tools. By 6000 B.C.E., though, neolithic villagers had discovered that they could use heat to extract copper from its ores and that when heated to high temperatures, copper became much more workable. By 5000 B.C.E., they had raised temperatures in their furnaces high enough to melt copper and pour it into molds. With the technology of smelting and casting copper, neolithic communities were able to make not only jewelry and decorative items but also tools such as knives, axes, hoes, and weapons. Moreover, copper metallurgy served as a technological foundation on which later neolithic craftsmen developed expertise in the working of gold, bronze, iron, and other metals.

Because natural fibers decay more easily than pottery or copper, the dating of textile production is not certain, but fragments of textiles survive from as early as 6000 B.C.E. As soon as they began to raise crops and keep animals, neolithic peoples experimented with techniques of selective breeding. Before long they had bred strains of plants and animals that provided long, lustrous, easily worked fibers. They then developed technologies for spinning the fibers into threads and weaving the threads into cloth. The invention of textiles was probably the work of women, who were able to spin thread and weave fabrics at home while nursing and watching over small children. Textile production quickly became one of the most important enterprises in agricultural society.

The concentration of people into permanent settlements and the increasing specialization of labor provided the first opportunity for individuals to accumulate considerable wealth. Individuals could trade surplus food or manufactured products for goods, jewelry, and other valuable items. The institutionalization of privately owned landed property—which occurred at an uncertain date after the introduction of agriculture—enhanced the significance of accumulated wealth. Because land was (and remains) the ultimate source of wealth in any agricultural society, ownership of land carried enormous economic power. When especially successful individuals managed to consolidate wealth in their families’ hands and kept it there for several generations, clearly defined social classes emerged. Already at Çatal Hüyük, for example, differences in wealth and social status are clear from the quality of interior decorations in houses and the value of goods buried with individuals from different social classes.

**Neolithic Culture**

Quite apart from its social effects, agriculture left its mark on the cultural dimension of the human experience. Because their lives and communities depended on the successful cultivation of crops, neolithic farmers closely observed the natural world around them and noted the conditions that favored successful harvests. In other words, they developed a kind of early applied science. From experience accumulated over the generations, they acquired an impressive working knowledge of the earth and its rhythms. Agricultural peoples had to learn when changes of season would take place: survival depended on the ability to predict when they could reasonably expect sunshine, rain, warmth, and freezing temperatures. They learned to associate the seasons with the different positions of the sun, moon, and stars. As a result, they accumulated a store of knowledge concerning relationships between the heavens and the earth, and they made the first steps toward the elaboration of a calendar, which would enable them to predict with tolerable accuracy the kind of weather they could expect at various times of the year.

The workings of the natural world also influenced neolithic religion. Paleolithic communities had already honored, and perhaps even worshiped, Venus figurines in
hopes of ensuring fertility. Neolithic religion reflected the same interest in fertility, but it celebrated particularly the rhythms that governed agricultural society—birth, growth, death, and regeneration. Archaeologists have unearthed thousands of neolithic representations of gods and goddesses in the form of clay figurines, drawings on pots and vases, decorations on tools, and ritual objects.

The neolithic gods included not only the life-bearing, Venus-type figures of paleolithic times but also deities associated with the cycle of life, death, and regeneration. A pregnant goddess of vegetation, for example, represented neolithic hopes for fertility in the fields. Sometimes neolithic worshipers associated these goddesses with animals such as frogs or butterflies that dramatically changed form during the course of their lives, just as seeds of grain sprouted, flourished, died, and produced new seed for another agricultural cycle. Meanwhile, young male gods associated with bulls and goats represented the energy and virility that participates in the creation of life.

Some deities were associated with death: many neolithic goddesses possessed the power to bring about decay and destruction. Yet physical death was not an absolute end. The procreative capacities of gods and goddesses resulted in the births of infant deities who represented the regeneration of life—freshly sprouted crops, replenished stocks of domestic animals, and infant human beings to inaugurate a new biological cycle. Thus neolithic religious thought clearly reflected the natural world of early agricultural society.

*The Origins of Urban Life*

Within four thousand years of its introduction, agriculture had dramatically transformed the face of the earth. Human beings multiplied prodigiously, congregated in densely populated quarters, placed the surrounding lands under cultivation, and domesticated several species of animals. Besides altering the physical appearance of the earth, agriculture also transformed the lives of human beings. Even a modest neolithic village dwarfed a paleolithic band of a few dozen hunters and gatherers. In larger villages and towns, such as Jericho and Çatal Hüyük, with their populations of several thousand people, their specialized labor, and their craft industries, social relationships became more complex than would have been conceivable during paleolithic times. Gradually, dense populations, specialized labor, and complex social relations gave rise to an altogether new form of social organization—the city.

Like the transition from foraging to agricultural society, the development of cities and complex societies organized around urban centers was a gradual process rather than a well-defined event. Because of favorable location, some neolithic villages and towns attracted more people and grew larger than others. Over time, some of those settlements evolved into cities. What distinguished early cities from their predecessors, the neolithic villages and towns?

Even in their early days, cities differed from neolithic villages and towns in two principal ways. In the first, cities were larger and more complex than neolithic villages and towns. Çatal Hüyük featured an impressive variety of specialized crafts and industries. With progressively larger populations, cities fostered more intense specialization than any of their predecessors among the neolithic villages and towns. Thus it was in cities that large classes of professionals emerged—individuals who devoted all their time to efforts other than the production of food. Professional craft workers refined existing technologies, invented new ones, and raised levels of quality and production. Professional managers also appeared—governors, administrators, military strategists, tax collectors, and the like—whose services were necessary to the survival of the community. Cities also gave rise to professional cultural specialists such as priests, who
maintained their communities’ traditions, transmitted their values, organized public rituals, and sought to discover meaning in human existence.

In the second, whereas neolithic villages and towns served the needs of their inhabitants and immediate neighbors, cities decisively influenced the political, economic, and cultural life of large regions. Cities established marketplaces that attracted buyers and sellers from distant parts. Brisk trade, conducted over increasingly longer distances, promoted economic integration on a much larger scale than was possible in neolithic times. To ensure adequate food supplies for their large populations, cities also extended their claims to authority over their hinterlands, thus becoming centers of political and military control as well as economic influence. In time, too, the building of temples and schools in neighboring regions enabled the cities to extend their cultural traditions and values to surrounding areas.

The earliest known cities grew out of agricultural villages and towns in the valleys of the Tigris and Euphrates rivers in modern-day Iraq. These communities crossed the urban threshold during the period about 4000 to 3500 B.C.E. and soon dominated their regions. During the following centuries cities appeared in several other parts of the world, including Egypt, northern India, northern China, central Mexico, and the central Andean region of South America. Cities became the focal points of public affairs—the sites from which leaders guided human fortunes, supervised neighboring regions, and organized the world’s earliest complex societies.

In many ways the world of prehistoric human beings seems remote and even alien. Yet the evolution of the human species and the development of human society during the paleolithic and neolithic eras have profoundly influenced the lives of all the world’s peoples during the past six millennia. Paleolithic peoples enjoyed levels of intelligence that far exceeded those of other animals, and they invented tools and languages that enabled them to flourish in all regions of the world. Indeed, they thrived so well that they threatened their sources of food. Their neolithic descendants began to cultivate food to sustain their communities, and the agricultural societies that they built transformed the world. Human population rose dramatically, and human groups congregated in villages, towns, and eventually cities. There they engaged in specialized labor and launched industries that produced pottery, metal goods, and textiles as well as tools and decorative items. Thus intelligence, language, reflective thought, agriculture, urban settlements, and craft industries all figure in the legacy that prehistoric human beings left for their descendants.