
1

Work Before Industrialization

The way we earn a living today is vastly different from what was done for most of human existence. Taking into account the full sweep of human history and prehistory, our working world of offices, factories, shops, and farms represents a radical departure from the ways our ancestors earned a living. For hundreds of thousands of years, humans were able to survive through the application of their skills and intelligence, and little else. Then, about ten thousand years ago, humanity took up a radically different mode of existence through the development of sedentary agriculture. Life, work, and the relationship between the two were dramatically altered, and not always for the better.

For centuries thereafter, the working lives of people throughout the world were broadly similar, as the labor required to bring in a crop took precedence over most other activities. But while life and work appeared to have settled into seemingly endless routines, technological and cultural changes were slowly creating the conditions for another revolution that would bring great changes to the working lives of men and women.

The Oldest and Longest Lasting Mode of Life and Work

The assignment of a date for the emergence of the first humans depends on the definition of *human*. The first hominids that occupy the genus *Homo* evolved from their ape-like predecessors more than two million years ago, but it was not until somewhere between 200,000 and 100,000 years ago that anatomically modern *Homo sapiens* appeared on the scene. However their emergence is reckoned, humans gained their livelihood through the same basic activities: gathering and hunting. Given the present state of archeological knowledge, not much can be said of how early humans went about gaining their livelihood, but the typical means of survival centered on some combination of gathering plants, fruits, insects, grubs, and reptiles; hunting animals large and small; and even scavenging animal carcasses.

Simple though these tasks may seem, they often required the development and use of tools and techniques not found anywhere else in the animal world. Human evolution proceeded in close conjunction with the invention and use of tools, which enhanced the survival prospects of individuals who were the most technically proficient. Throughout human evolution, tool use, manual dexterity, and brain development interacted in a mutually reinforcing manner.¹ Endowed with superior dexterity and brain power, early humans were able to make specialized stone tools, and by the late Paleolithic period, their manufactured artifacts included bows and arrows, spear throwers, scrapers, awls and needles, and even musical instruments.

These products may have been simple and crude, but producing them required considerable skill. The fashioning of a stone hand axe in Paleolithic times required proper procedures, beginning with the selection of stones from which flakes could be knocked off by percussion. Separating flakes from the selected stone was not simply a matter of randomly whacking it with another stone; production of a useful stone tool required well-aimed blows delivered with the right amount of force and at the proper angle.² Although the overall technological assemblage of early humans may not have been impressive, some of the techniques they used were of a high order. Many of us would be hard-pressed to duplicate the skills that our “primitive” ancestors demonstrated.

Important as stone tools and other artifacts were, the most important shaper of human life and work was the ability of people to communicate with one another. Collectively hunting down large animals must have called for a considerable amount of verbal and nonverbal communication, as did passing along essential knowledge about the physical environment and the techniques for making particular kinds of tools. Prehistoric but anatomically modern humans also were distinguished by their artistic creations, many of which may have related to the task of hunting large animals. Some cave paintings depict game animals pierced by spears or darts, which may represent the hope that portraying them in this way would contribute to a successful hunt. We know virtually nothing about religious beliefs of early humans and their ways of understanding the world, but it would be a mistake to arrogantly dismiss them as “primitive” and leave it at that. For tens of millennia, human life and work did not exhibit the material progress that we associate with the modern world, but prehistoric people were certainly not deficient in knowledge and skills, and in some ways, their capabilities exceeded ours.

Gathering-and-Hunting Societies in the Modern World

As recently as a century ago, societies based on gathering and hunting could be found in the Arctic, as well as in a few parts of Australia and Africa,

the Amazon Basin, and New Guinea—although many of them had added horticulture to their working repertoires. Today, societies of this sort are close to extinct; well under 0.001 percent of the world's people are engaged in gathering and hunting as the primary basis of their subsistence.³ These few remaining examples of societies based on gathering and hunting have been extensively studied by cultural anthropologists.⁴ Their languages, technologies, religions, and kinship structures have their own distinctive features, but commonalities can be found in some aspects of their lives, giving us insights into what life and work might have been like for the vast bulk of human existence.

One group that has been extensively studied is the San of southern Africa's southwestern Kalahari Desert. Sometimes referred to as Bushmen, their ancestors have lived in this part of the world for an estimated 30,000 years. Research on one grouping, the !Kung San (the exclamation point indicates a clicking sound that is an integral part of their language), has provided some important clues regarding the activities pursued in gathering-and-hunting societies.

At first glance, the environment in which the !Kung San live seems harsh in the extreme. As the name implies, the Kalahari Desert is arid, but it is also home to a wide variety of plants and animals. The !Kung San take full advantage of what nature has provided; 85 species of plants are incorporated into their diet, of which 23 are regularly consumed.⁵ Of particular importance is the mongongo nut, which provides an abundant source of plant protein. Animal protein is obtained by using poisoned arrows to bring down antelope and other game animals. This latter activity may be more exciting than gathering wild plants and trapping small animals, but it is not the major source of food for the !Kung San. Much more significant are the products of gathering; in terms of calories contributed to the diet, gathering is 2.4 times more productive than hunting. It is for this reason that the term *gathering and hunting*, instead of the more conventional *hunting and gathering*, has been used in this chapter.

The tendency of outside observers to emphasize hunting over gathering reflects a key feature of economic organization in !Kung San groups, as well as other gatherer-hunter societies. Hunting is largely done by men, whereas gathering is for the most part women's work. Here we see, as we shall see many more times in this book, a gender-based division of labor. Tasks are not apportioned in accordance with aptitude or interest but are determined by what sociologists call *ascribed characteristics*, attributes that cannot be acquired or changed but simply reflect an accident of birth, in this case whether one was born female or male. As we shall see, some key attributes of a job, such as pay and prestige, may have less to do with the intrinsic qualities of a job than with the gender of the majority of the people doing the work. Although gathering contributes the most to the group's survival, it tends to be downgraded in importance—at least in the outside world—because women do it.

Photo 1.1 !Kung San group

SOURCE: ©Peter Johnson/CORBIS.

A gender-based division of labor has little objective basis in today's economy and society, but in the case of gatherers and hunters, division of labor is strongly influenced by biological differences. For women, the demands of pregnancy and nursing, which may go on for 20 years or more, limit the mobility necessary for hunting far-ranging game. Moreover, women on average are not as strong as men, although their endurance is on par with or better than that of men. Still, one shouldn't generalize on the basis of this situation; biological differences are rarely a basis for gender-based divisions of labor in societies where gathering and hunting is not the dominant mode of survival. As we shall see in later chapters, gender-based occupational differences of the sort common in modern societies have little to do with innate biological differences and are better explained in terms of culture, prejudices, and power relationships.

The Working Lives of Gatherer-Hunters

Given the difficult environments and simple technologies of many gatherer-hunters, it seems reasonable to assume that they live on the thin edge of starvation and that they are engaged in an unremitting struggle for mere survival. In reality, people in many gatherer-hunter societies devote remarkably little time to meeting their subsistence needs. As the research of

anthropologist Richard Lee has indicated, each week, the !Kung San devote an average of only 12 to 19 hours per person to gathering and hunting. Much more of their time is taken up by socializing with one another and engaging in dances that sometimes put them into a quasi-religious trance. After considering their daily lives, another anthropologist concluded that the !Kung San might best be described as members of “the original affluent society.”⁶

People living in modern societies measure affluence in terms of money and possessions, but for the !Kung San, affluence lies in the ability to enjoy abundant leisure. And it is their limited interest in material possessions that allows them to devote more of their waking hours to socializing and dancing than to gathering and hunting. This lack of interest in material goods does not stem from a conscious choice to pursue an ascetic mode of life but is the natural result of the inability to stay in one place for an extended period of time. In most instances, a gathering-and-hunting mode of life is necessarily nomadic due to the periodic depletion of the local environment. Everything the !Kung San own has to be carried from one waterhole to another every few weeks, making material goods a burden rather than essential components of the good life.

Infants and young children are another “burden” that has to be carried from one place to another, usually by the women. Consequently, women have a strong personal interest in limiting their fertility by spacing births so that they usually have only one small child to carry as they go from place to place. Stretching out the times between pregnancies is accomplished by prolonged lactation, as women are much less likely to conceive when they are frequently nursing. Less benign means of limiting population size may also be employed; abortion and infanticide often occur in many gathering-and-hunting societies.⁷ Natural attrition also keeps population in check. Among the Hadza of Tanzania for example, 25 percent of infants die before their first birthday, and about half are gone before reaching the age of 15.⁸ Unpleasant or repugnant though these practices may be, they help prevent population growth from outstripping the carrying capacity of the !Kung San’s territory, which might result in famines and other unfortunate consequences of overpopulation.

Although gatherer-hunters seem to have been generally successful at keeping their population in balance with their natural environments, individual members of gatherer-hunter groups may occasionally be unable to support themselves due to illness, infirmity, or misfortune. With no accumulated resources to fall back on, they are dependent on other members of the group to help them in times of need. Since everybody is potentially vulnerable, these societies are usually characterized by a social ethos that requires food and other vital commodities to be shared within the group. Sharing is not motivated by altruism; helping someone in a time of need is a kind of insurance policy that allows individuals to benefit from others’ success should they find themselves in difficult circumstances at some future time.

Before ending this section on the !Kung San and other gatherer-hunters, it is appropriate to ask whether the gathering and hunting they do can even be called “work.” In today’s world, most of us distinguish the time when we work from other temporal spaces in our lives, some of which is labeled as “leisure.” It is not so certain that gatherer-hunters make such a distinction. More likely is a frame of mind that looks on gathering-and-hunting activities as integral parts of life that are often done as a group activity, which itself can be a source of pleasurable interaction. People who gained their livelihood through gathering and hunting would probably be puzzled if you were to ask them if they liked or disliked the work they did.

Although the merger of life and work may be appealing, the lives of the !Kung San and other gatherer-hunters should not be romanticized. Most of us would find it very difficult to accept isolation from the outside world and the absence of the material goods and services we have come to depend on. And even in the homeland of the !Kung San, the mode of life based on gathering and hunting is disappearing as some of its few remaining practitioners are evicted from their ancestral lands and others are drawn into a world of cash wages and consumer purchases.⁹ But, if nothing else, an examination of the lives of the !Kung San and other gatherer-hunters yields an important insight: if wants are kept in check, unremitting work is not essential to human existence.

The Agricultural Revolution

For millions of years, humans and their proximate ancestors were able to maintain themselves by gathering and hunting. Human life took a radically different turn around 12,000 to 10,000 years ago in several parts of the world when the deliberate cultivation of plants began to displace gathering and hunting as the prime means of subsistence. Although this transformation has been dubbed the Agricultural Revolution, change came gradually and incrementally as people combined rudimentary farming with traditional means of obtaining food. The causes of this transition are still being debated, but it seems reasonable to assume that some combination of population growth and environmental change motivated people to become sedentary agriculturalists.¹⁰ In particular, in places where people depended on hunting for a major part of their food supply, the warming of the Earth’s climate at the end of the Pleistocene era around 10,000 years ago may have affected the population size and migratory patterns of game animals, but it is possible that over-hunting by increasingly skillful humans also led to the demise of these animals. More positively, a warmer climate helped stimulate crop production and extended the area that could be brought under cultivation.

The initial stage in the cultivation of plants was horticulture, the form of agriculture that uses some kind of hoe to turn the soil, which aerates the soil, brings nutrients closer to the surface, and holds down the spread of weeds.

Horticulturalists often made use of a technique that has been given the graphic label “slash and burn.” In this form of cultivation, trees are girdled or chopped down and then set on fire. This opens up land for cultivation, and at the same time, the ashes add useful nutrients to the soil. But this process can go on for only a few years before the soil is exhausted. Cultivated land then has to be abandoned for a number of years to allow the return of native plants and trees, at which point the process can be started anew.

Simple though its techniques are, horticulture provides much more food per unit of land than gathering and hunting does. This means that an agrarian economy can support far more people on a given area of land than a nomadic gathering-and-hunting economy can. According to one calculation, the maintenance of a single member of a gathering-and-hunting society requires about 10 square kilometers, an area that might support 20 or more horticulturalists.¹¹ This disparity is reflected in the size of the respective societies; the average grouping of gatherer-hunters contained 40 people, while horticultural communities might have as many as 5,000 members.¹²

The ability to support much larger numbers of people might be reckoned as a major advantage of this form of productive activity, and at first, the transition to agriculture did not offset this advantage by exacting a greater demand for human labor. Slash-and-burn cultivation typically requires 500 to 1,000 person-hours per year of labor, about on par with the time put in by the !Kung San as they engaged in gathering and hunting.¹³ But labor demands escalate when the same soil has to be tilled year after year. Lacking the long fallow periods made possible by slash-and-burn agriculture, the soil has to be systematically replenished through the application of fertilizers, weeds have to be controlled, and the soil requires some preparation prior to sowing.

Work requirements were further increased when farmers began to irrigate their crops instead of depending on the vagaries of rainfall. Preindustrial irrigated agriculture absorbed a great deal of labor needed for the construction and maintenance of dams, weirs, reservoirs, channels, and human-powered devices for moving the water to where it was needed. The payoff came in the form of much greater crop production per acre and the ability to feed significantly larger numbers of people. In extreme cases, such as that of China in the early 20th century, preindustrial irrigated agriculture could support as many as 6,000 people per square mile.¹⁴ But the downside to higher production was much more work. The labor-intensive nature of preindustrial irrigated agriculture can be seen in contemporary Java, where in 1970, the operation of an average-sized farm required nearly 300 person-days of work per year.¹⁵ Not coincidentally, Java is one of the most densely populated places on Earth, and in the absence of modern inputs such as chemical fertilizers and powered farm implements, the only way to feed large numbers of people has been through the application of a great deal of human labor.

Preindustrial agriculture reached a high level of development in terms of the ability to support large populations. It also made possible the development of more complex cultures. The greater productivity of agriculture

released some members of the population from the daily task of securing food, allowing them to work as priests, artists, craftsmen, and government officials. But for the great majority of the population, a large portion of daily life was taken up by the demands of plowing, sowing, weeding, irrigating, fertilizing, and harvesting—all the while confirming the Biblical injunction that “in the sweat of thy face thou shall eat bread.”¹⁶

Agricultural Labor and Cultural Change

While agriculture radically changed the size and density of populations, it retained the gender-based division of labor typical of gathering-and-hunting societies. Most forms of farming were characterized by a distinction between “men’s work” and “women’s work.” In horticulture, the chief task for men was to clear the land. After this was done, women performed the more time-consuming tasks of planting, weeding, and harvesting.¹⁷ As with economies based on gathering and hunting, economies that rested on horticulture were much more dependent on the labor of women than on the productive activities of men. Men, however, took on a larger role when horticulture gave way to agriculture. The primary distinction between horticulture and agriculture is found in the latter’s use of a crucial piece of farm equipment: the plow. A plow turns the soil far more effectively than a hoe or digging stick can, and its effectiveness can be augmented by hitching it to a draft animal. Draft animals also have the added benefit of being sources of fertilizer. Why men are more involved in agricultural tasks than in horticultural ones is not altogether clear, although the increased physical requirements for maneuvering a heavy plow were certainly part of it.¹⁸ In some societies, a gender-based division of farm tasks also was observed in paddy rice cultivation; the rice seedlings were often transplanted by women because it was believed that their fertility would transfer to the new crops.

The combination of the plow and the use of draft animals increased crop harvests substantially, while at the same time allowing humans to stay in one place for an indefinite period of time. This combination of higher crop yields and permanent residence served as the basis for a much higher level of occupational specialization. Freed from the need to be directly involved with raising their own food, men and women could be employed in a variety of occupational specialties. Food surpluses also provided the economic foundation for the emergence of towns and cities where these specialists had a permanent base for plying their trades. Sustained by the labors of peasant farmers, cities became the basis of what we call “civilization”—a word derived from *civitas*, the Latin word for city.

The availability of a surplus of food and other goods also stimulated another activity with far less beneficial consequences for humanity: warfare. Urbanization stimulated warfare because towns and cities offered greatly increased opportunities for plunder. At the same time, economic surpluses

could be used to feed and equip large armies, either for defense or for conquests of their own. Further enhancing the capacity to pillage, destroy, and conquer was the development of new materials such as bronze and then iron, which skilled artisans formed into more effective arms and armor. Stoked by food surpluses and new weaponry, warfare expanded in scale and scope, and organized violence became much more common than it had been in gathering-and-hunting societies. Some wars were defensive in nature, but wars of conquest were often waged for the land and the slaves that they promised.

The expansion of warfare powerfully reinforced gender-based division of labor. It may be true that men have greater innate proclivities to aggression and warfare than women do, but as a practical matter, the demands of pregnancy, lactation, and the care of infants and children make women less suitable for prolonged combat. The transition from gathering and hunting to sedentary farming may also have made warfare a more attractive activity for large numbers of men. Raising crops was a tedious, routine activity when compared with hunting; for men who no longer pursued and killed game on a regular basis, combat may have provided an alternative source of excitement while giving them the opportunity to demonstrate their skill and valor. Women warriors were not unknown, but as with hunting, the greater physical strength of men, coupled with their freedom from the demands of pregnancy, lactation, and long-term child care, made warfare the ultimate kind of men's work.

Whatever its ultimate causes, warfare was a key concern of another product of the agricultural revolution: the state. Much larger and more complex than the forms of governance found in gathering-and-hunting bands, the agrarian state contained a multiplicity of roles and offices. Initially governing towns or small cities and their outlying environs, a few agrarian states evolved into vast empires exercising dominion over tens of millions of people, as was the case in ancient Rome and dynastic China.

The governance of these states required some kind of record keeping, if for no other reason than to ensure that subjects were paying their taxes. The rise of agricultural societies was, therefore, often accompanied by the invention and use of some form of writing, along with the appearance of a new occupational specialty: the scribe. Since governance was usually fused with religion, scribes were usually members of a priestly class, a conjunction that can be seen in the common origin and linguistic connection of the English words *clerk*, *cleric*, and *clergy*.

Writing was a key component of a new occupational role associated with the rise of powerful, expansionary states: the bureaucrat. Bureaucratic organization is a topic that will come up on numerous occasions in this book in a variety of contexts. In agrarian states, the duties and responsibilities of bureaucracies were limited, being largely confined to overseeing public works projects, maintaining order, and—inevitably—collecting taxes. Bureaucratic roles are far more diffuse today, but even long ago, the key characteristics typical of modern bureaucracies were evident: written records, specialized skills, established rules and procedures, and hierarchical authority.

Artisan Work

While a considerable amount of the economic surplus made possible by improved agricultural production was absorbed by military campaigns and the conspicuous consumption of the ruling elite, some of it was also used to support productive activities that benefited the population as a whole. On average, it can be reckoned that about 3 percent to 5 percent of the population of advanced preindustrial agricultural societies worked as potters, smiths, spinners and weavers, brewers, and other specialized artisans. Although they were employed in a diversity of tasks, artisans had several things in common; most important were the acquisition and development of specific skills, along with the possession of a fair amount of physical strength and endurance. Power was usually derived from human and animal muscles, although there are instances of the use of water and wind power. In regard to the former, the *Domesday Book* tallied more than 5,000 water wheels in 11th-century England.¹⁹ Water power was used to run simple machinery for such processes as grinding grain, polishing metals, fulling cloth (i.e., increasing its density by pressing or beating it after it had been woven), sawing wood, making mash for beer, and operating forge hammers and bellows for blast furnaces.²⁰ Wind was more episodic and less commonly used, but in some places, notably the Low Countries (present-day Netherlands and Belgium), windmills made an essential contribution to agriculture by powering pumps that drained water from reclaimed land.

Whatever the source of power, the vast majority of craft enterprises were small in scale, typically containing no more than a dozen workers, and usually not even that many. Some specialization might be found in the larger enterprises; a few pottery workshops in ancient Rome employed one or more workers to mix clay, shape the bodies or the handles of urns, paint them, or operate the kilns.²¹ More examples of specialization could be found in other crafts, but these were exceptions to the rule. Artisan work was by and large a small-scale activity involving family members and a few apprentices.

Although the independent artisan produced the bulk of manufactured items, during the Middle Ages, an alternate form of work organization known as the putting-out system emerged in the Flemish wool industry and then spread to England, Italy, and southern Germany. Entrepreneurial merchants bought unprocessed wool that was turned over to peasants and other small-time artisans who were responsible for the carding, spinning, and weaving that turned the wool into rough cloth. The merchant purchased the cloth, which was then dyed and finished by other workers. Cloth production often was incorporated into a well-developed pattern of international trade, where wool was supplied by English sheep, rough cloth was manufactured in Flanders, and the final finishing was done by Italian craftsmen.²²

This system, which survived in parts of eastern Europe into early modern times, exhibited some elements of capitalism; that is, there was a clear separation between the individuals who supplied the materials, and sometimes

the tools used to transform them, and the workers who had little more than their labor power to offer. The putting-out system did have advantages for both groups; it allowed farm families to earn an income at home at times when there wasn't much to do in the fields or any other work to be had, while at the same time providing cheap labor for nascent capitalists. All in all, it seems to have primarily benefited the merchants, who usually were in a position to sell wool at a high price and buy cloth at a low one. Moreover, many workers found it necessary to borrow money from the merchant, using their spinning wheels and looms as collateral. A default, which was not uncommon, resulted in loss of a key source of the worker's livelihood, and with it came further subordination to the merchant.²³ As one economic historian summed up the situation, the worker, "gradually deprived of all rights of ownership over the instruments of production, had in the end only his labor to sell and his wages to live on."²⁴

This economic relationship did not always tilt in the merchants' favor. Workers sometimes could get the upper hand by selling the materials provided by the merchant, buying an inferior substitute, and pocketing the difference. In general, the lack of supervision allowed workers to cut corners whenever possible, and the seasonal nature of the work could result in imbalances between supply and demand. From our vantage point, the putting-out system can be seen as occupying an intermediary position between craft work done in the shops of independent artisans and factory-based industrial production. This latter phase came about as a key part of a revolution in production that will be explored in Chapter 3. Many things contributed to this revolution, not the least of which being the topic of the next section: new attitudes regarding time and its proper use.

Photo 1.2 A cabinetmaker and his family: French manuscript illumination, 15th century. The woman also is at work as she uses a distaff to spin thread.



SOURCE: The Granger Collection/New York.

Time and Work

Humans have always been aware of the passing of time, and many of life's activities have been geared to particular periods of time. Gatherers and hunters always have been attuned to seasonal cycles of plants and animals, just as agriculturalists have been keenly aware of the proper times for sowing, reaping, and other farm operations. But what is absent in these observances is division of time into artificial units such as months, weeks, hours, and minutes. This followed from the nature of their productive activities. For traditional gatherer-hunters, agriculturalists, and artisans, there was no need for precise scheduling. For the most part, attitudes regarding time and work were quite relaxed. There were episodes of maximum effort and long work-days, as when a harvest had to be brought in before it spoiled in the fields, but a leisurely approach toward getting the work done was also common. Agricultural work was characterized by slack periods where there wasn't much to do, and the working schedules of artisans and merchants usually had a considerable degree of flexibility. As Gideon Sjoberg has noted of work patterns in preindustrial cities,

Merchants and handicraft workers generally do not adhere to any fixed schedule. Shopkeepers open and close their shops as they see fit. They may open one morning at nine, the next at ten, and so on. The lunch hour is likely to be longer on some days than on others. Ambulatory merchants likewise are apt to keep rather irregular schedules.²⁵

Much less evident in the many centuries antedating industrialism and fully developed capitalism was a desire to improve one's material existence or social position through unremitting effort. Jacques LeGoff's summation of the medieval mentality can be taken as typical of many traditional cultures:

On the whole, labor time was still the time of an economy dominated by agrarian rhythms, free of haste, careless of exactitude, unconcerned by productivity—and of a society created in the image of the economy, *sober and modest*, without enormous appetites, undemanding, and incapable of quantitative efforts.²⁶

Why attitudes toward work and time began to change is still a matter of some debate. Part of the reason lies, not surprisingly, simply in the invention of artificial timepieces. People always have been able to perceive the passage of time by observing natural phenomena—sunrise and sunset, the changing of the seasons, and the migration of birds and other creatures. But there was little need for more precise measures because people did not need to coordinate their activities with individuals outside their family or small tribe.

Warfare was the great exception, but standing armies were not typical of most societies, and most of the armies that were mustered to wage war were temporary aggregations not noted for their cohesion and discipline.

In the civilian realm, the need to get everyone on the same time schedule became evident during the Middle Ages, when large numbers of men and women aggregated in monasteries and convents. Instead of pursuing salvation as a solitary activity, monks and nuns exercised their religious duties in a collective setting. This, in turn, required the scheduling of religious activities. For the monastic followers of St. Benedict, eight specific times of the day were set aside for prayer, beginning with *lauds* at dawn and ending with *the rosary* in the evening.²⁷ But not all of a monk's or nun's time was given over to prayer; collective physical labor also was an integral part of monastic life—in fact, *ora et labora* (“pray and work”) was the motto of the Dominican order. As with prayers, work was performed according to a fixed schedule.

The passage of time was initially measured by means of sundials, hourglasses, candles, and devices that used a falling water level. Mechanical clocks first appeared in China toward the end of the 11th century, but it wasn't until the end of the 14th century that they made their appearance in Europe—although the custom of noting the passage of the hours by ringing bells had already been established in some towns.²⁸ Mechanical clocks were used to demarcate working hours soon after their invention and diffusion. One example could be found in the French city of Amiens, where Philip VI allowed the city to issue an ordinance

concerning the time when the workers of said city and its suburbs should go each morning to work, when they should eat and when to return to work after eating; and also in the evening, when they should quit work for the day; and that by the issuance of said ordinance, they might ring a bell which has been installed in the belfry of said city, which differs from the other bells.²⁹

The exact scheduling of work was also driven by the appearance of the new mechanical technologies that transformed work, the economy, and the people who worked in it. The introduction of machinery and mechanized operations required the close coordination of work activities, and this could be done only through exact, clock-driven schedules. In the end, time became a kind of commodity, something that was not to be “wasted” or “spent” unwisely. The unscheduled, unhurried pace that typified the lives of gatherers and hunters, farmers, and preindustrial artisans gave way to a working environment governed by the relentless passage of hours, minutes, and seconds.

Protestantism and the Rise of Capitalism

Important as it was, the invention of the clock takes us only so far in explaining why Europeans took such an interest in the effective use of time.

Of equal or greater importance were the changes in values and behaviors brought on by the religious, political, and cultural upheavals collectively known as the Protestant Reformation. Beginning with Martin Luther's challenge to the Christian establishment in 1517, Protestantism rapidly fragmented into many sects and churches, each one energized by its own particular vision of proper Christian life and thought. One of the most important of these originated with Jean Calvin (1509–1564), a French-Swiss theologian who made belief in predestination the centerpiece of his theology. According to this doctrine, an omnipotent God had determined whether an individual was destined for an afterlife of eternal bliss in heaven or perpetual torment in hell. Given the stark prospect of heaven or hell and the belief that nothing could be done to change God's judgment, Calvin's followers must have experienced great anxiety concerning their personal fate. Fortunately, they had one important clue about their ultimate destination: their material success in this life, which indicated that they were a member of God's elect. This belief represented a sharp reversal of established doctrine, as amassing wealth had been viewed with great suspicion by traditional Christians, who were familiar with the condemnation of rich individuals in many New Testament passages, such as Jesus' admonition that "it is easier for a camel to pass through the eye of a needle than it is for a rich man to enter into the kingdom of God."³⁰ Even early Protestant reformers such as Luther himself remained deeply suspicious of wealth and its acquisition.³¹

Calvinist theology accepted and even glorified the accumulation of wealth, but it had to be acquired the right way, through hard work and frugality. Wealth was not to be expended in dissolute, luxurious living. An ascetic lifestyle was supposed to prevail, and profits were to be plowed back into productive enterprises. Inspired by the coupling of work with religious belief, the Calvinist businessman was more than a mere money-grubber; work took on the qualities of a religious "calling" or vocation. To work hard and prosper was to serve God, while material success provided an indication that death would not be followed by eternal damnation.

Calvinist Protestants also were distinguished by their attitudes regarding time. Like monetary wealth, time was not to be wasted in frivolous pursuits but to be "invested" in the sort of activities that contributed to one's material success. After all, as the old adage had it, "time is money." Many other sayings and phrases conveyed the idea of time as a commodity. Time was to be "saved" and not "wasted," while one could metaphorically "buy time" or "live on borrowed time."

This description of the historical connection between Protestantism and an ethos favorable to capitalist development was first articulated by Max Weber in *The Protestant Ethic and the Spirit of Capitalism*, which appeared in the early 20th century.³² In the years that followed, Weber's formulation has been as controversial as it has been influential.³³ Evidence in support of the thesis can be found by looking at a map of Europe: the countries where capitalism first flourished and economic growth was most rapid were predominantly

Protestant—England and Scotland, the Netherlands, and the Protestant regions of France and Germany. Conversely, traditional economic organization and slow growth were evident in Italy, Spain, and other Catholic lands.

The geographical association of Protestantism with capitalism cannot be taken as proof of a direct connection between the two; important as theological differences were, Europe was divided by more than religious beliefs. Weber's thesis centers on the mental states of Catholics and Protestants, and for it to be convincing, we need strong evidence that ordinary members of the two religions had fundamentally different conceptions of the connection between economic life and religious belief. Specifically, what is needed is a deep insight into the minds of people in order to ascertain the sources of their economic behavior. This is difficult enough with people who are alive today, and it is obviously much more problematic in the case of individuals who have been dead for centuries. More than a hundred years after its publication, *The Protestant Ethic and the Spirit of Capitalism* continues to be a source of both inspiration and controversy.³⁴ It may very well be right about the connection between Protestant beliefs and the propensity to work hard, save money, and use time effectively, but in the end, its central thesis is difficult, perhaps impossible, to prove conclusively.

In explaining the connection between Protestantism and capitalism, it may be argued that less attention should be paid to religious doctrines and more emphasis placed on the medium through which these doctrines were disseminated. The Protestant Reformation began a few decades after the invention of printing with moveable type, a technological innovation that greatly lowered the cost of producing books and other printed materials. A great amount of early printed material involved religious subjects: Bibles, theological works, hymnbooks, prayer books, and tracts intended for mass distribution. The availability of inexpensive printed works gave a strong boost to literacy, a capability that in the past had been largely confined to the clergy. The combination of widespread literacy and inexpensive printed works gave a major impetus to the rise of Protestantism. Martin Luther was well aware of this when he characterized printing as "God's highest and extremist act of grace, whereby the business of the Gospel is driven forward."³⁵ A defining feature of Protestant religious practice was regular reading of the Bible, which often stimulated divergent interpretations of the word of God, and the resultant fission of Protestant Christianity into myriad churches and sects.

Although it may have been pursued out of religious motivations, literacy had great value for the conduct of business. A literate person had the ability to understand and enter into contracts, keep accurate financial accounts, and learn about new techniques and business practices, to name a few. All these contributed substantially to the success of Protestant businesses and helped propel the economic dominance of Protestant lands. In the final analysis, then, the greater economic success of Protestants probably owed more to higher rates of literacy than to religiously inspired attitudes regarding life, work, and salvation.

The 16th and 17th centuries in Europe were times of great social and cultural changes, and it is not surprising that work and economic life were profoundly affected by the conflicts, wars, and other upheavals that characterized the era. Meanwhile, momentum was slowly building for another massive set of changes that also profoundly affected life and work. This transformation came to be known as the Industrial Revolution, and as we shall see in Chapter 3, it marked as great a transformation as the one that replaced gathering and hunting with sedentary agriculture. A crucial part of this revolution was the introduction of new ways of organizing work. In order to get some perspective on this organizational revolution, it is useful to first consider the ways in which work was organized prior to industrialization, as will be done in the next chapter.

FOR DISCUSSION

1. How would you fare if you suddenly found yourself in the middle of the Kalahari Desert? Would any of your modern-era skills be of use? How would you develop the skills you need in order to survive in this environment?
2. The transition from gathering and hunting to sedentary agriculture made possible a significant increase in the human population and the development of settled communities. At the same time, the widespread adoption of agriculture resulted in more physical toil. Can this transition, therefore, be characterized as "progress"? What standards should be used when making this assessment?
3. This chapter invokes the physical differences of men and women as a prime cause of gender-based division of labor in preindustrial societies. Do you agree? To what extent are physical differences a significant source of gender-based occupational differentiation today?
4. Have you ever had a job that required you to record your hours on a time clock? Have you held a job where everything was rigidly scheduled? What was work like under these circumstances? Could less time-intensive modes of work have been possible for these kinds of jobs?
5. Although adherents to virtually all the world's religions can be found in the United States, the claim has been made that American culture has been influenced by Protestant Christianity more than by any other religious tradition. Do you agree? Are key elements of the Protestant Ethic still operational in the United States today?

Notes

1. Frank R. Wilson, *The Hand: How Its Use Shapes the Brain, Language, and Human Culture* (New York: Pantheon, 1998), 124–52.
2. Robert F. G. Spier, *From the Hand of Man: Primitive and Preindustrial Technologies* (Boston: Houghton Mifflin, 1970), 53–6.

3. Patrick Nolan and Gerhard Lenski, *Human Societies: An Introduction to Macrosociology* (Boulder, CO: Paradigm, 2004), 79.
4. Richard B. Lee and Richard Daly, eds., *The Cambridge Encyclopedia of Hunters and Gatherers* (Cambridge, UK: Cambridge University Press, 1999).
5. Richard B. Lee, "What Hunters Do for a Living, or How to Make Out on Scarce Resources," in *Man the Hunter*, eds. Richard B. Lee and Irven DeVore (Chicago: Aldine-Atherton, 1968), 30–48.
6. Marshall Sahlins, *Stone Age Economics* (New York: Aldine, 1972), 1–39.
7. Nolan and Lenski, *Human Societies*, 88.
8. Michael Finkel, "The Hadza," *National Geographic* (December 2009)
9. Robyn Dixon, "The Tug of Deep Roots," *Los Angeles Times*, January 3, 2005.
10. T. Douglas Price and Anne Birgitte Gebauer, eds., *Last Hunters, First Farmers: New Perspectives on the Prehistoric Transition to Agriculture* (Santa Fe, NM: School of American Research Press, 1995).
11. Nolan and Lenski, *Human Societies*, 116.
12. Ibid.
13. Robert McN. Netting, *Cultural Ecology* (Menlo Park, CA: Cummings, 1977), 62.
14. R. H. Tawney, *Land and Labor in China* (London: Allen & Unwin, 1932), 24.
15. Francesca Bray, *The Rice Economies: Technology and Development in Asian Societies* (Berkeley: University of California Press, 1986), 116, 149.
16. Genesis 3:19.
17. Lenski and Nolan, *Human Societies*, 112.
18. Murlu M. Sinha, "Family," in *Encyclopedia of Science, Technology, and Ethics*, ed. Carl Mitcham (Detroit: Macmillan Reference, 2005), 248.
19. On the history of the water wheel, see Terry S. Reynolds, *Stronger Than a Hundred Men: A History of the Vertical Water Wheel* (Baltimore: Johns Hopkins University Press, 1983).
20. Frances and Joseph Gies, *Cathedral, Forge, and Waterwheel: Technology and Invention in the Middle Ages* (New York: HarperCollins, 1994), 113–5, 200–2.
21. Melvin Kranzberg and Joseph Gies, *By the Sweat of Thy Brow: Work in the Western World* (New York: Putnam, 1975), 43.
22. Ibid., 68–70.
23. Paul Mantoux, *The Industrial Revolution in the Eighteenth Century* (New York: Harper & Row, 1961), 64–5.
24. Ibid., 65.
25. Gideon Sjoberg, *The Preindustrial City: Past and Present* (New York: Free Press, 1960), 209.
26. Jacques LeGoff, *Time, Work, and Culture in the Middle Ages* (Chicago: University of Chicago Press, 1980), 44. Author's emphasis.
27. The Community of St. Benedict, "Liturgy and Prayer Hours," <http://www.communityofsaintbenedict.com/liturgy-and-prayer-hours> (accessed September 9, 2011).
28. On the history of timekeeping, see David S. Landes, *Revolution in Time: Clocks and the Making of the Modern World* (Cambridge, MA: Harvard University Press, 1983).
29. LeGoff, *Time*, 45–6.
30. Matthew 19:24.

31. R. H. Tawney, *Religion and the Rise of Capitalism* (1926; repr., New York: New American Library, 1954), 72–91.
32. Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Stephen Kalberg (1905; repr. Los Angeles: Roxbury, 2002).
33. Gordon Marshall, *In Search of the Spirit of Capitalism: An Essay on Max Weber's Protestant Ethic Thesis* (London: Hutchinson, 1982).
34. See William H. Swatos Jr. and Lutz Kaelber, eds., *The Protestant Ethic Turns 100: Essays on the Centenary of the Weber Thesis* (Boulder, CO: Paradigm, 2005).
35. Quoted in Elizabeth Eisenstein, *The Printing Revolution in Early Modern Europe* (New York: Cambridge University Press, 1984), 147.