Chapter One

The Rise of a Global Commodity

Half a millennium ago, in a dozen small villages along the Pacific coast of what is today called Mexico, people spent their days growing maize, beans, squash, and chiles. There, between the Río Santiago to the north and the Río Balsas to the south, they fished, gathered oysters and clams, and collected honey and beeswax. Alongside this subsistence agriculture and the modest crafts they produced by hand—small painted ceramic vessels decorated with geometric motifs were their most renowned creation—these men and women also grew a plant that sprouted small tufted white bolls. The plant was inedible. It was also the most valuable thing they grew. They called it *texcaltli* cotton.

The cotton plant thrived among the maize, and each fall, after they harvested their food crops, the villagers plucked the soft wads of fiber from the pyramidal shaped, waist-high plants, gathering the numerous bolls in baskets or sacks, then carrying them to their mud-and-wattle huts. There they painstakingly removed the many seeds by hand, then beat the cotton on a palm mat to make it smooth, before combing out
the fibers into strands several inches long. Using a thin wooden spindle fitted with a ceramic disk and a spinning bowl to support the spindle as it twirled, they twisted the strands together into fine white thread. Then they created cloth on a backstrap loom, a simple tool consisting of two sticks attached by the warp threads; one stick was hung from a tree, the other on the weaver herself, who stretched the warp with the weight of her own body and then wove the contrasting thread (the weft) in and out between the warps in an unending dance. The result was a cloth as strong as it was supple. They dyed the cloth with indigo and cochineal, creating a rich variety of blue-blacks and crimsons. Some of the cloth they wore themselves, sewn into shirts, skirts, and trousers. The rest they sent to Teotihuacán as part of an annual tribute owed to their distant Aztec rulers. In 1518 alone, the people of these twelve coastal villages provided the emperor Moctezuma II with eight hundred bales of raw cotton (each weighing 115 pounds), thirty-two hundred colored cotton cloths, and forty-eight hundred large white cloths, the product of thousands of hours of backbreaking and highly skilled labor.¹

For hundreds of years both before and after, similar scenes unfolded across vast stretches of the world's inhabited land. From Gujarat to Sulawesi, along the banks of the Upper Volta to the Rio Grande, from the valleys of Nubia to the plains of Yucatán, people on three continents had grown cotton in their fields, and then manufactured cotton textiles in the houses next door, just as their ancestors had done for generations prior. The plant is stubborn, seemingly able to thrive with little help from farmers, given the right natural conditions. It grows in a wide range of environments thanks to its "morphological plasticity," that is, in the words of plant scientists, its ability to "adapt to diverse growing conditions by shortening, lengthening, or even interrupting its effective bloom period."²

The many peoples who grew cotton remained for thousands of years unaware that their efforts were being replicated by other peoples around the globe, all of whom lived in a geographic band roughly from 32–35 degrees south to 37 degrees north. These areas offered a climate suitable for the growing of cotton. As a subtropical plant, it needs temperatures not dipping below 50 degrees Fahrenheit during its growth period and usually remaining above 60 degrees. Cotton, we now know, thrives in areas in which no frost occurs for around 200 days, and in which it rains from twenty to twenty-five inches a year, concentrated in the middle of the growing period, a common climate zone that explains its abundance across multiple continents. Seeds are put in trenches about three feet apart and then covered with soil. It takes from 160 to 200 days for the cotton to mature.³

By themselves or through encounters with other peoples, each of these cotton cultivators had discovered that the fluffy white fiber that quelled out of the cotton boll was superbly suited to the production of thread. This thread in turn could be woven into a cloth that was easy to wash, pleasant against the skin, and effective as protection from the sun's burning rays—and to some degree from the cold. As early as a thousand years ago, the production of cotton textiles in Asia, Africa, and the Americas was the world's largest manufacturing industry; sophisticated trade networks, mostly local but a few regional, connected growers, spinners, weavers, and consumers.

The history of clothing is difficult to reconstruct, because most cloth has not survived the ravages of time. We know that ever since Homo sapiens moved from the African savanna into colder climes, about one hundred thousand years ago, they had to protect themselves from the elements. The spotty archaeological record that we have tells us that humans first used furs and skins to clothe themselves. There is evidence that they spun and wove flax as early as thirty thousand years ago. Such cloth production expanded significantly about twelve thousand years ago, once humans settled down and began to engage in agriculture and animal husbandry. Then men and women began to experiment more widely with different fibers to spin and to weave cloth for protection against the cold and the sun.³

The methods for transforming plants into cloth were invented independently in various parts of the world. In Europe, people began to weave various grasses and also linen during the Neolithic Era, starting about twelve thousand years ago. About eight thousand years later, during the Bronze Age, they also began to harvest wool from animals. In the Middle East and North Africa, for seven millennia before the Common Era, societies spun and wove various kinds of wool and flax as well. Over the same millennia, Chinese peasants and artisans manufactured clothing from ramie and silk. As societies became more stratified, cloth emerged as an important marker of social rank.³

In this world of linen, wool, ramie, and silk, cotton's importance gradually grew. About five thousand years ago, on the Indian subconti-
nent, people, as far as we know, first discovered the possibility of making thread out of cotton fibers. Almost simultaneously, people living on the coast of what today is Peru, ignorant of developments in South Asia, followed suit. A few thousand years later, societies in eastern Africa developed techniques for the spinning and weaving of cotton as well. In each of these regions cotton quickly became the dominant fiber for the spinning of thread; its properties for most uses clearly superior to those of flax and ramie and other fibers. For these first millennia of the plant's cultivation, the production of cotton goods rarely expanded beyond cotton's natural growing zone, but all who encountered it saw it as a remarkable material for the production of clothing: soft, durable, and light, easy to dye and easy to clean.

Evidence of cotton's essential role in early societies can be found in the foundational myths and sacred texts of many peoples. In Hindu scripture, cotton appears frequently and prominently. Vishnu, Hindus believe, wove “the rays of the sun into a garment for himself.” People across West Africa attributed their spinning skills to Ananse, a spider deity. In North America, a Hopi spider goddess was believed to spin and weave cotton. The Navajo believed that Begochiddi, one of the four sons of Ray of Sunlight and Daylight, had created and planted cotton after making the mountains and insects. According to a Navajo belief, “When a baby girl is born to your tribe you shall go and find a spider web . . . and rub it on the baby's hand and arm. Thus, when she grows up she will weave, and her fingers and arms will not tire from the weaving.” In China, according to a 1697 text from the late Ming dynasty, clothing, including cotton, distinguished humans from beasts, and among humans it “distinguished between the rulers and the ruled.” Moreover, the idea of fate as either spun or woven was central to many diverse cultures, including those, not surprisingly, in which cotton played a dominant role.

Modern plant scientists have looked beyond cotton as a gift of the gods, but are no less impressed. Biologists think cotton plants have grown on earth for 10 to 20 million years. Four genetically different species of cotton have developed since—the Mesoamerican *G. hirsutum*, the South American *G. barbadense*, the African *G. herbaceum*, and the Asian *G. arboreum*. These four species, in turn, have sprouted hundreds of further variations, of which only a few would come to dominate commercial cotton production. Today, more than 90 percent of the world's cotton crop is *G. hirsutum* cultivars, also known as American upland. Human domestication has changed the plant even further. Over a five-thousand-year period, according to one expert, our forebears transformed it “from undisciplined perennial shrubs and small trees with small impermeable seeds sparsely covered by coarse, poorly differentiated seed hairs, to short, compact, annualized plants with copious amounts of long, white lint borne on large seeds that germinate readily.” Cotton growers carefully experimented with the plant, gradually forging it into something that supported their growing need for cloth. They adapted the plant to particular environmental niches, transported it over long distances, spread its reach, and increased its diversity. As with so many other pieces of the natural world, human cultivation radically accelerated and altered the biological history of cotton—a capacity that would quicken during the nineteenth century and become of great importance to the empire of cotton.

Farmers in the Indus valley were the first to spin and weave cotton. In 1929, archaeologists recovered fragments of cotton textiles at Mohenjo-Daro, in what is now Pakistan, dating to between 3250 and 2750 BCE. Cotton seeds found at nearby Mehrgarh have been dated to 5000 BCE. Literary references further point to the ancient nature of the subcontinent’s cotton industry. The Vedic scriptures, composed between 1500 and 1200 BCE, allude to cotton spinning and weaving. The very first reports by foreign travelers to South Asia similarly mention cotton: The ancient Greek historian Herodotus (484–425 BCE) was familiar with India’s fine cotton clothing, observing in 445 BCE that in the subcontinent “wild trees bear fleeces for their fruit surpassing those of the sheep in beauty and excellence, and the natives cloth themselves in cloths made therefrom.”

From the earliest time until well into the nineteenth century—that is, for several millennia—the people of the Indian subcontinent were the world’s leading cotton manufacturers. Peasants in what are today India, Pakistan, and Bangladesh cultivated small quantities of cotton alongside their food crops. They spun and wove cotton for their own use and for sale in local and regional markets. Most regions within South Asia produced all the textiles they consumed well into the nineteenth century. They harvested the crop by hand, employed a roller gin to remove the seeds, removed dirt and knots with the help of a bow (a wooden tool with string attached that vibrates if struck with a piece of wood), spun the fiber on a distaff (a tool holding the unspun cotton) and a spindle into thread, and wove this thread into fabric using looms hung between trees.

The quality of the top tier of Indian cotton fabrics was legendary: In
the thirteenth century, the European traveler Marco Polo elaborated on Herodotus's observations of nearly nine hundred years earlier, noting on the coast of Coromandel "the finest and most beautiful cottons that are to be found in any part of the world." Six hundred years later, Edward Baines, a newspaper proprietor and cotton expert from Leeds, reported the best Indian cloth was of "almost incredible perfection... Some of their muslins might be thought the work of fairies, or of insects, rather than of men." They were, in effect, "webs of woven wind."10

The subcontinent, however, was far from alone. Cotton was plentiful and cotton cloth ubiquitous in the Americas, long before Europeans arrived in the New World. In a four-thousand-mile arc through Mesoamerica and the Caribbean to South America, cotton was the most important manufacturing industry. Perhaps the oldest center of cotton manufacture was located in present-day Peru. There, archaeologists have excavated cotton fishing nets dated to 2,400 BCE and textile fragments from 1600–1500 BCE. When Francisco Pizarro attacked the Inca Empire in 1532, he marveled at the quality and quantity of cotton fabrics he saw. At the Inca city of Cajamarca, the conquistadores found stores filled with huge quantities of cotton textiles "far superior to any they had seen, for fineness of texture, and the skill with which the various colors were blended."11

Several thousand miles to the north and a decade earlier, Europeans were just as surprised when they penetrated the Aztec Empire and encountered extraordinary cottons. In addition to gold and other treasure, Hernán Cortés sent to Charles V cotton cloth brilliantly dyed with indigo and cochineal. The Mesoamerican cotton industry, like its South American counterpart, had a long history. Cotton was planted throughout what is today central Mexico as early as 3400 BCE, and the earliest thread found in archaeological excavations has been dated to between 1200 and 1500 BCE. Cotton use by the Mayas has been documented as early as 632 BCE, and in the lowlands of modern-day Veracruz, a cotton industry probably emerged between 100 BCE and 300 CE. As the wearing of cotton spread from elites to commoners, production increased, especially with the rise of the Aztecs' military and economic empire after 1350. And as more people wore cotton, its processing became ever more important. Techniques in weaving and dying all became more and more refined, not least to display social difference through distinctive clothing.12

Indigenous production continued after the conquest of Central America by Spanish colonists in the sixteenth century. One late-seventeenth-century colonial Spanish administrator, Don Juan de Villlagutierrez Soto-Mayor, praised the Indian women of the former realm of the Maya who "spin cotton and weave their cloths with energy and ability, giving them perfect colors." In addition to clothing, cotton was used for religious offerings, as gifts, a medium of exchange, for decorative hangings, for wrapping mummies, as armor, and even for medicinal uses. An estimated 116 million pounds of cotton were produced annually in pre-Columbian Mexico, equaling the cotton crop of the United States in 1816. As the rulers of Teotihuacan expanded the reach of their power, they drew tribute and trade from cotton-growing and -manufacturing regions. Places within the Aztec Empire that were particularly prominent growers of cotton had Nahua names that meant "on the cotton temple," "in the river of cotton," and "on the hill of cotton."13

Mexico and Peru were the centers of the pre-Columbian cotton industry, but the production of cotton textiles also spread to other parts of the continent. In what is today Brazil, cotton fibers gathered from wild plants were used to manufacture cloth. In what later became the southwestern United States, Native Americans became avid cotton producers, especially the Navajos and Hopi, perhaps as early as 300 BCE. Knowledge about cotton had traveled up the west coast of Mexico from Central America. When Spanish settlers came into contact with Indians north of the Rio Grande, they noticed that "the Indians spin cotton and weave cloth" and that they "wear Campeche-type cotton blankets for they have large cotton fields." For some Native Americans, cotton also had important religious uses: The Hopi utilized it to symbolize clouds in ceremonies in which they prayed for rain, and placed it over the faces of the dead "with the idea of making the spiritual body light, like a cloud." In the Caribbean, as well, cotton growing was widespread. Indeed, one of the reasons why Christopher Columbus believed that he had reached India was that he encountered great quantities of cotton in the Caribbean; he recounted islands "full of... cotton."14

Cotton growing and manufacturing also has a long history in Africa. It was probably first cultivated by Nubians in what today is eastern Sudan. Some claim that the fiber was cultivated, spun, and woven there as early as 5000 BCE, though archaeological finds at Meroë, a former city on the east bank of the Nile, confirm the presence of cotton textiles only for the
years between 500 BCE and 300 CE. From Sudan, cotton spread north to Egypt. While cotton textiles played no significant role in ancient Egyptian civilizations, we know that cotton seed was used as animal fodder as early as 2600–2400 BCE, and depictions on the Karnak Temple in Luxor show cotton bushes. Yet cotton cultivation and the manufacturing of cotton textiles only took off in Egypt between 332 BCE and 395 CE. In 70 CE, Pliny the Elder observed that “the upper part of Egypt, in the vicinity of Arabia, produces a shrub, known by some as gossypium. The shrub is small, and bears a fruit similar in appearance to a nut with a beard, and containing in the inside a silky substance, the down of which is spun into threads. There is no tissue known that is superior to those made from this thread, either for whiteness, softness, or dressing...” After 800 CE, the spread of cotton, and its attendant production, accelerated further on the wings of Islam.15

Knowledge about how to grow and process cotton then traveled to western Africa. How exactly cotton came there is still unclear, but it is possible that itinerant weavers and merchants brought it from East Africa sometime around the beginning of the Common Era. With the arrival of Islam in the eighth century CE, the cotton industry expanded significantly, as Islamic teachers taught girls to spin and boys to weave, while advocating a previously unimagined modesty of dress to peoples whose environmental conditions demanded little clothing. Excavations have found cotton cloth dated to the tenth century. Literary sources and archaeological finds testify to cotton spinning and weaving in West Africa in the late eleventh century, by which time it had spread as far south as present-day Togo. By the early fifteenth century, Leo Africanus reported on the “great abundance” of cotton in the “kingdom of Meli” and the wealth of cotton merchants in the “kingdom of Tombuto,” meaning the great West African empires of Mali and Timbuktu.16

The domestication, spinning, and weaving of cotton, to the best of our knowledge, evolved independently in these three regions of the world.17 From South Asia, Central America, and eastern Africa, however, knowledge spread rapidly along existing trade and migration routes—from Mesoamerica to the north, for example, and from East Africa to the west. Central to these movements of the cotton industry was India. From there, cotton growing and manufacturing skills moved west, east, and south, placing Asia at the center of the global cotton industry, where it would remain until well into the nineteenth century, and return again in the late twentieth century. India’s location, and skill with cotton, was most consequential to the plant’s prominent role in our world, since a group of Europeans, clothed no doubt in fur, wool, and linen, was most impressed when they stumbled more than two thousand years ago upon these wondrous new fabrics arriving from a mythical “East.”

But prior to its discovery by Europeans, cotton was busy altering the lives of others. Cotton moved westward, from India via Turkestan into the Middle East and later into the Mediterranean. Even before the Common Era, we have evidence of cotton being grown in Persia, Mesopotamia, and Palestine. Cotton clothing dated to around 1100 BCE was found in Nineveh (in present-day Iraq), and an Assyrian cylinder dated to the seventh century BCE speaks of a tree that bears wool. A few hundred years later, during the first centuries of the Common Era, Anatolian peasants had taken up cotton cultivation. Just as in Africa, the spread of Islam played a major role in transmitting the skills to grow, spin, and weave cotton across the Middle East, as religious demands for modesty made cotton an “ordinary article of clothing.” Ninth- and tenth-century Iran saw a “cotton boom” to supply urban markets, especially at Baghdad. In the thirteenth century, Marco Polo encountered cotton and cotton cloth everywhere from Armenia to Persia, and the “abundance” of cotton across Asia became a major motif of his reporting.18

Just as cotton cultivation moved farther west, the knowledge of cotton also spread from India east through Asia, and especially into China. While China eventually became one of the most significant producers of cotton and cotton textiles worldwide, and is the center of the world’s cotton industry today, the plant is not indigenous there. Indeed, the Chinese word for cotton and cotton fiber is borrowed from Sanskrit and other Indian languages.19 By 200 BCE, cotton was known in China, but for the next millennium it did not spread much beyond the southwestern border regions where it had originally been introduced.

Cotton became a major presence in the Chinese countryside during the Yuan dynasty (1271–1368). During those years, it effectively replaced ramie, which, with silk, had traditionally served the Chinese as a fiber for making cloth. By 1433, Chinese subjects could pay taxes in cotton, which enabled the state to clothe its soldiers and officials in the fiber. As we will see, the connection between the crop and taxation was one of many
instances of political authorities taking an interest in the cotton industry. During the expansionary Ming dynasty (1368–1644), cotton production spread throughout China's new conquests. At the end of the Ming, the Chinese produced an estimated 20 million cotton cloth bales annually. A geographical division of labor had emerged in which northern farmers shipped raw cotton south to the lower Yangtze, where farmers used it, along with their own homegrown cotton, to manufacture textiles, some of which they sold back to the north. So vibrant was this interregional trade that cotton cloth accounted for one-fourth of the empire's commerce. By the seventeenth century, nearly all Chinese men, women, and children wore cotton clothing. Not surprisingly, when China's population doubled over the course of the eighteenth century, to 400 million people, its cotton industry became the second largest in the world after India's, growing an estimated 1.5 billion pounds of cotton in 1750, roughly equal to U.S. production as its planters ramped up production in the decade prior to the Civil War.20

Indian cotton technology also spread into Southeast Asia. As production skills advanced, cotton cloth emerged as the region's most valuable manufactured product after foodstuffs. Buddhist monks brought it to Java sometime between the third and fifth centuries CE. Much later, between 1525 and 1550, cotton cultivation expanded into Japan. By the seventeenth century it had become an important commercial crop there, as small farmers grew cotton to earn extra income for tax payments, often in rotation with rice.21 With cotton's arrival in Japan, the original Indian cotton culture had now spread over most of Asia.

Fashioned by African, American, and Asian peasants, spinners, weavers, and merchants over at least five millennia, this cotton world was vibrant and expanding. Despite its diversity across three continents, the centers of this huge manufacturing industry had many things in common. Most important, cotton growing and manufacturing almost always remained small-scale and focused on households. While some growers sold their raw cotton into markets, including long-distance markets, and many rulers forced cultivators to part with some of their crop as tribute, no growers depended on their cotton crops alone; instead they diversified their economic opportunities, hoping to lessen risk to the best of their ability. In a large swath of Africa, and parts of South Asia and Central America, such patterns persisted until well into the twentieth century.

For millennia, then, households planted cotton in a delicate equilibrium with other crops. Families grew cotton alongside their food crops, balancing their own and their community's need for food and fiber with their rulers' demands for tribute. In Veracruz, for example, double cropping of food grains and cotton was common, providing subsistence both for those who grew cotton and those who spun and wove. In the Yucatán, Mayan peasants grew cotton in fields that also produced maize and beans. In West Africa, cotton was "interplanted with food crops," such as sorghum, in present-day Ivory Coast, or with yams, as in the area that is now Togo. In Gujarat, "the [cotton] shrubs are planted between the rows of rice." In the cotton-growing areas of Central Asia, peasants grew the fiber alongside not only rice, but also wheat and millet, and in Korea alongside beans. No significant cotton monoculture emerged before the eighteenth century, and yet when that monoculture appeared so too did the hunger for ever more land and labor.22

Like cotton growing, cotton manufacturing throughout the world began in households, and, with few exceptions, stayed there until the nineteenth century. In areas controlled by the Aztecs, for example, all cotton manufacturing was organized within households. In Africa as well, "in many cases the production of cotton goods was purely a family industry, each social unit being entirely self-sufficient." We have similar testimony for India, China, Southeast Asia, Central Asia, and the Ottoman Empire. Household production enabled a family to produce the cloth they needed, but it also allowed production for markets. Since labor needs in most agricultural societies varied enormously by the season, and since picked cotton could be stored for months, peasants could focus on textile production intermittently and seasonally, during slack times. This was especially the case for women, whose activities focused on the house, with some of their labor available for the homebound production of yarn and cloth.23

In every society a definite gender division of labor emerged, with a particularly strong association between women and textile production. Indeed, there was a premodern saying in China that "men till the soil and women weave." Except among the Navajo, Hopi, and some peoples in Southeast Asia, women throughout the world have had a virtual monopoly on spinning. Because spinning can be done intermittently, and enables a simultaneous commitment to other activities, such as watching young children and cooking, women's roles within households usually led them to be in charge of spinning as well. So close was the
association of women and cloth production that in some cultures women were buried with their spinning tools. With weaving, on the other hand, no such stark gender divisions emerged. While men tended to dominate the weaving industry in places such as India and southeast Africa, there were many cultures in which women wove as well, such as in Southeast Asia, China, and North and West Africa. Yet even in societies in which both women and men wove, they usually specialized in different designs, produced distinct qualities, and worked on different types of looms. This gendered division of labor was reproduced in the emerging factory system as well, making gender relations in the household an important factor in the emergence of factory production.

Embedded within households and their particular strategies for survival, this premodern cotton industry was also characterized by slow technological change in ginning, spinning, or weaving. As late as the eighteenth century, a woman in Southeast Asia, for example, needed a month to spin a pound of cotton and another month to weave a piece of cloth ten yards long. This enormous time requirement was partly the result of what economists call “low opportunity costs” for the labor that went into spinning and weaving, and partly of a world in which rulers taxed their subjects’ production to the maximum extent possible. Moreover, since many households were self-sufficient in textiles, markets were of a limited scale, again reducing incentives to improve production techniques.

Yet slow technological change was also related to constraints on the supply of raw materials. In most regions of the world, raw cotton could not be transported efficiently very far. Beasts of burden or humans sometimes carried raw cotton over relatively short distances. In the Aztec Empire, raw cotton was transported into highland areas to be manufactured, at distances of perhaps a hundred miles. More efficient and common was the waterborne cotton trade. In the second millennium CE, for example, observers reported hundreds if not thousands of boats floating cotton down the Yangtze to the region of Jiangnan. Gujarati and central Indian cotton was similarly shipped on the Ganges and along the coast to South India and Bengal. Nonetheless, until the nineteenth century the overwhelming bulk of raw cotton was spun and woven within a few miles from where it was grown.

So many people in so many parts of the world grew cotton, spun it, and wove it into fabrics that it was very likely the world’s most important manufacturing industry. And while household production for household consumption would remain until the nineteenth century its most important sector, there was significant change before the Industrial Revolution of the 1780s. Most importantly, cotton goods—partly because they were so labor-intensive to produce—became an important store of value and a medium of exchange. Rulers everywhere demanded cotton cloth as tribute or taxes, and indeed it might be said that cotton was present at the birth of political economy as such. Among the Aztecs, for example, it was the most important medium for tribute payments. In China, beginning in the fifteenth century, households were required to pay some of their taxes in cotton cloth. And in Africa the payment of tribute in cloth was common. Practical as a means to pay taxes, cotton cloth was also used as currency in China, throughout Africa, in Southeast Asia, and in Mesoamerica. Cloth was an ideal medium of exchange because unlike raw cotton it could be easily transported over long distances, was not perishable, and was valuable. Nearly everywhere in the premodern world, a piece of cotton cloth could buy needed things: food, manufactured goods, even protection.

Cotton’s use as proto-money illuminates the fact that not all cotton textiles, with their favorable ratio of value to weight, were used in the immediate vicinity of their production. Indeed, the cotton centers that had emerged separately in the Americas, Africa, and Asia all developed increasingly sophisticated networks of trade, connecting growers, manufacturers, and consumers over long, eventually even transcontinental distances. In Iran, the ninth- and tenth-century cotton industry led to significant urbanization, drawing raw cotton from the surrounding countryside, spinning, weaving, and tailoring it to sell into long-distance markets, especially in what is today Iraq. In precolonial Burkina Faso one author finds that “cotton was at the center of trade.” Gujarati cotton cloth, as early as the fourth century BCE, came to play a very significant role in the trade between the various lands bordered by the Indian Ocean, and large quantities were sold along the East African coast, to be traded far into the African hinterland. In all of these exchanges, traders, especially if far removed from the polities they originated from, had to adjust to local tastes, and had to offer their products at prices attractive to local consumers.

In Mesoamerica, cloth was traded over many hundreds of miles, including to neighboring states, as, for example, when merchants brought
cloak from Teotitlán (in modern-day Oaxaca) to Guatemala. In the Southwest of what is now the United States, yarn and cloth were also important trade items. Cotton goods have been found in excavations far from regions in which cotton could grow. Since the thirteenth century, Chinese merchants imported cotton yarn and cloth to supplement domestic production from as far away as Vietnam, Luzon, and Java. In similar ways, African merchants traded cotton textiles over long distances, as for example when they exchanged Malinese cotton cloth for salt brought in by desert nomads. Ottoman cotton textiles found their way to places as distant as western Europe, while cotton goods were already being imported into Japan in the thirteenth century.99

India, at the center of this increasingly global reach, traded with the Roman Empire, Southeast Asia, China, the Arab world, North Africa, and East Africa. Indian cottons crisscrossed South Asia on the backs of people and bullocks. They crossed the seas in Arab dhows, traversed the great Arabian Desert to Aleppo on the backs of camels, moved down the Nile to the great cotton mart of Cairo, and filled the bottoms of junks on their way to Java. Already in the sixth century BCE Indian cotton was traded to Egypt, as merchants brought Indian cotton to Red Sea and Persian Gulf ports. Greek merchants then took it from Egypt and also Persia to Europe. Roman merchants eventually participated in this trade as well, making cotton a coveted luxury good among the imperial elites. Throughout eastern Africa, Indian cottons were an important presence as well. And throughout the Arab world and Europe, India remained a major supplier until the nineteenth century, with Gujarati merchants, among others, unloading huge quantities of cloth. As an Ottoman official complained in 1647, “So much cash treasury goes for Indian merchandise that... the world’s wealth accumulates in India.”99

Indian cloth also traded eastwards into other parts of Asia. Merchants sold it in the marts of China in very ancient times. Huge quantities of Indian cloth also found their way to Southeast Asia to clothe the local elite. Imports to Malacca in the early sixteenth century, it has been estimated, filled the holds of fifteen ships that arrived annually from Gujarat, Coromandel, and Bengal. So dominant was Indian cloth on world markets that around 1503 the Italian merchant Lodovico de Varthema observed about the Gujarati port town of Cambay, “This city supplies all Persia, Tartary, Turkey, Syria, Barbary, i.e., Arabia Felix, Africa, Ethiopia, India and a multitude of inhabited islands, with silk and cotton stuff.” The Sanskrit word for cotton goods (karpai) entered into Hebrew, Greek, Latin, Persian, Arabic, Armenian, Malay, Uigur, Mongolian, and Chinese. Even the names of particular fabrics became global brand names—chintz and jackenot, for example, are corruptions of terms in Indian languages that eventually came to describe a particular style throughout the world. Beginning in the seventeenth century, Indian cottons, in fact, were what historian Beverly Lemire has called the “first global consumer commodity.”100

As demand grew, cotton took its first tentative steps out of the home. During the second millennium CE, production in cotton workshops became more common, especially in Asia. Professional weavers emerged in India; they focused on supplying the long-distance trade, providing rulers and wealthy merchants both at home and abroad with cotton cloth. In Dhaka, weavers labored under tight supervision to produce muslins for the Mughal court, “forced to work only for the Government which paid them ill and kept them in a sort of captivity.” Workshops containing more than one loom are also reported to have been located in Alamkonda, in modern-day Andhra Pradesh, as early as the fifteenth century. In contrast to the subsistence weavers, the long-distance tradesmen were geographically concentrated: Bengal was known for its fine muslin, the Coromandel coast for its chintzes and calicoes, and Surat for its strong but inexpensive fabrics of every kind. Though weavers could occupy very different positions within India’s caste system, in some parts of the subcontinent they found themselves in the upper reaches of social hierarchies, prosperous enough to be among the leading donors to local temples. Groups of full-time cotton manufacturers emerged in other parts of the world as well: In fourteenth-century Ming China, for example, higher-quality textiles were worked up in “urban loom houses,” which collectively employed many thousands of workers. In the Ottoman city of Tokat, highly skilled weavers produced significant quantities of cotton textiles. Baghdad, Mosul, and Basra, among other cities in the Islamic world, had large cotton workshops, and indeed the word muslin for fine cottons derives from Musul, the Kurdish name for Mosul. In Bamako, the capital of present-day Mali, up to six hundred weavers plied their trade, while in Kano, the “Manchester of West Africa,” a large weaving industry arose, supplying the people of the Sahara with cloth. In Timbuktu, already in the 1390s twenty-six cotton-producing workshops plied their trade, each with fifty or more workers. In Osaka as well, thou-
sands of workers wove cotton textiles; workshops spread throughout the region employing thirty to forty thousand people by the early eighteenth century.32

As the workshop became more common, so too did a new type of weaver: an individual, usually male, who produced specifically for sale in a market. Yet even as workshops emerged, this specialized production for markets typically took place in the countryside, not towns, and in homes, not workshops. What set these rural market producers apart from those who produced for subsistence only was their reliance on an emerging force in global commerce: putting-out networks held together by merchant capital. In these networks, which would form the nucleus of nineteenth-century mechanized cotton production, spinners and weavers worked up cotton thread and cloth for urban merchants who would collect the products of the spinners and weavers and then sell them on distant markets. The particular ways merchant capitalists and producers related to one another varied widely. On the Indian subcontinent, for example, rural weavers relied on merchants for the capital needed to purchase sufficient yarn, and for the food they needed to subsist while weaving; yet these weavers generally owned their own tools, worked without supervision, and enjoyed some control over the disposal of their products. In other parts of the world, rural weavers enjoyed considerably less power. In the Ottoman Empire, for example, merchants advanced cotton and yarn to peasants, who spun and wove it, then returned the product to the merchants for a small profit. Unlike weavers in India, they did not have any control over disposal of the product. In China merchants also enjoyed great control over production. “They bought up raw cotton, put it out at local markets for peasant women to spin and to weave, had the cloth dyed and calendared in town or city workshops and then exported it all over China for sale.” Merchants, in fact, controlled every stage of production, foreshadowing their central role in the nineteenth-century construction of a globe-spanning empire of cotton.33

With expanding markets, cotton technology changed as well. While the basic principles of cotton processing were quite similar throughout the world, and productivity was dramatically lower before the invention of the novel gins, spinning machines, and looms of the late eighteenth and early nineteenth centuries, there were some significant innovations. In Mesoamerica, for example, spinning was improved by the introduction of ‘specially formed ceramic spindle whorls.” After 1200 CE, Mesoamer-
significant expansion of output for markets. They did so, however, largely without exploding older social structures, without altering production as it had been organized for centuries. The household, and the technology associated with it, remained at their center. This premodern world was safe behind two bulkheads: first, the markets for finished goods, which were growing but, compared to the world after 1780, only at a modest pace, and second, the great obstacles to sourcing raw cotton across long distances. A great countervailing force would be needed to break through those ancient constraints.

For a very long time, in this remarkably diverse, fabulously vibrant, and economically important world of cotton, Europe was nowhere to be found. Europeans had remained marginal to networks of cotton growing, manufacturing, and consumption. Even after they began importing small quantities of cotton cloth during Greek and Roman times, they remained of little importance to the global cotton industry as a whole. People dressed, as they had since the Bronze Age, in clothing made from flax and wool. As Mahatma Gandhi put it, while India supplied Europe with cottons, Europeans themselves "were submerged in barbarism, ignorance and a state of wilderness."[36]

Cotton, quite simply, was exotic to Europe. The fiber grew in faraway lands, and many Europeans reportedly imagined cotton as a mixture of a plant and an animal—a "vegetable lamb." Stories circulated in medieval Europe about little sheep growing on plants, and bending down at night to drink water; other fables told of sheep attached to the ground by low stems.[37]

Cotton's first serious incursion into Europe, as in West Africa, was the result of the spread of Islam. By 950 CE, cotton was manufactured in such Islamic cities as Seville, Córdoba, Granada, and Barcelona, as well as Sicily; some of those textiles were exported to the rest of Europe. During the twelfth century, the Seville botanist Abu Zacaria Ibn el Awam published a treatise on agriculture that included a detailed description of how to cultivate cotton.[38] So tight was the association between Islam and cotton that most western European languages borrowed their words for the fiber from the Arabic quṣūn. French coton, English cotton, Spanish algodón, Portuguese algodão, Dutch katoen, and Italian cotone all derive from the Arabic root. (The German Baumwolle and the Czech bavlna—translated roughly as "tree wool"—are the exceptions that prove the rule.) While the Christian Reconquista of Iberia in the first half of the second millennium seriously contracted the region's cotton production, the centuries-long exposure to Arab technology and culture left behind a familiarity with and appreciation for cotton textiles in large areas of Europe.

By the twelfth century, small pockets of Europe—particularly northern Italy—returned to the world of cotton production, and this time to stay. While Europe's climate was largely unsuited for cotton growing, the Crusaders had extended European power into the Arab world, and thereby into areas where cotton grew naturally.[39] The first endeavors to manufacture cotton were modest, but the beginning of a trend that would alter the continent's history, and the world's economy.

The first center of a non-Islamic cotton industry in Europe emerged in northern Italy, in cities such as Milan, Arezzo, Bologna, Venice, and Verona. The industry grew quickly, starting in the late twelfth century, and came to play a vital role in these urban economies. In Milan, for example, by 1450 the cotton industry employed a full six thousand workers making fustians, fabrics using both cotton and linen.[40] These north-
ern Italianseven became the dominant producers in Europe, and they retained
their position for about three centuries. Cotton manufacturing blossomed in northern Italy for two reasons. First, these cities looked back on a long history of still vibrant wool production, which had left them with skilled workers, capital-rich merchants, and expertise in long-distance trade. Once entrepreneurs decided to engage in cotton manufacturing, they could draw on those resources. They advanced raw cotton to women in the surrounding countryside to have it spun. They contracted with urban artisans, organized in guilds, to weave the yarn. They branded and standardized their goods, and drew upon their long-distance trade networks to export goods to foreign markets throughout the Mediterranean, the Middle East, Germany, Austria, Bohemia, and Hungary.

Second, northern Italy had easy access to raw cotton. Indeed, the northern Italian industry was from the beginning entirely dependent on eastern Mediterranean cotton from such places as western Anatolia and what today is Syria. Already in the eleventh century, cotton yarn and cotton cloth had been imported into the ports of Venice, Genoa, and Pisa, giving people a taste for cottons. Raw cotton imports followed in the wake of the Crusades, with the first such trade documented for the year 1125.

As improvements in shipping allowed for the cheaper transportation of bulk commodities, Venice became Europe’s first cotton entrepôt, the Liverpool of the twelfth century. Some traders became dedicated cotton merchants, buying low-grade raw cotton from Anatolia, while procuring better-quality fiber from Syria. This supply was supplemented by Genoese imports from Anatolia, Sicily, and Egypt. But despite importing large quantities, European merchants had little if any impact on the specific ways in which raw cotton was grown in the Levant: They bought cotton from local merchants, loaded it on their ships, and transported it across the sea. Nevertheless, Venice’s ability to insert itself into and eventually dominate Mediterranean trade was crucial to the success of the northern Italian cotton industry. Moreover, it was a harbinger of the wedge that European states and capitalists would later drive into the heart of the ancient cotton centers.

Not only did the Mediterranean networks give Italian manufacturers relatively easy access to raw cotton, but they also provided them with access to “Eastern” technologies. Northern Italian entrepreneurs appropriated technologies from the Islamic world—some of which had in turn come from India and China. The twelfth century witnessed a “massive infusion of outside technology into the European textile industry”—most importantly the spinning wheel. Before the spinning wheel was introduced into Europe in the middle of the thirteenth century, Europeans, like Americans and Africans, had spun with hand spindles. It was a slow process: A skilled spinner produced about 120 meters of thread per hour. At that rate, it took about eleven hours to spin enough yarn for one blouse. The spinning wheel increased the output of European spinners tremendously, tripling productivity. Thus the availability of a new material—cotton—led to the embrace of the new manufacturing technique, which is why in medieval Europe the spinning wheel was also called the “cotton wheel.” If less dramatic than the spinning wheel, improvement also came to weaving with the horizontal treadle loom. First used in Europe in the eleventh century, it enabled the weaver to change the sheds—the device that separates some of the warp threads to allow the shuttle to pass through—with his feet, freeing the hands to insert the weft, and thus allowing for the production of finer-quality textiles. It came to Europe from India or China via the Islamic world.

The growth of the northern Italian cotton industry rested principally on its access to raw cotton and manufacturing technology from the Islamic world. Yet these linkages and dependencies would become Italy’s principal vulnerabilities; the industry remained distant from the sources of raw materials, and lacked control over the growing of cotton. Northern Italy’s industry eventually suffered both from the strengthening of the Islamic cotton industry and the marginalization of its own trade networks with the Islamic world.

Yet even before the disruption of these crucial networks, the Italian industry faced another challenge: the rise of nimble competitors north of the Alps, in the cities of southern Germany. They drew, like their Italian counterparts, on cotton from the Levant. But while Italian manufacturers faced high taxes, high wages, well-organized urban weavers, and guild restrictions, German producers enjoyed the advantage of the more tractable German countryside, where they gained access to cheap labor. By the early fifteenth century, German manufacturers had used this cost differential not only to capture many of the Italian export markets, including eastern and northern Europe, Spain, the Baltic region, the Netherlands, and England, but to make inroads even into the Italian market itself.
One such enterprising manufacturer arrived in the southern German town of Augsburg in 1367. The young weaver Hans Fugger at first tried to sell his father’s cotton fabrics, but in due course set up as a master weaver himself. In the next decades, he expanded his investments, eventually employing a hundred weavers in Augsburg to supply the long-distance trade. By the time of his death, he was among the fifty wealthiest citizens of Augsburg, and had laid the foundation for the rise of one of the wealthiest merchant and banking families of medieval Europe.49

Hans Fugger furthered the rapid establishment of a dynamic cotton industry in southern Germany in the span of just one generation. Between 1363 and 1383, the output of German weavers effectively supplanted Lombardy lustians on European markets. Fugger and others like him succeeded because they had access to skilled textile workers, capital, and trade networks. With its long history of linen production, southern Germany had powerful long-distance traders with sufficient capital to fund a new industry. But these traders also had access to cheap labor, northern European markets, and the ability to enforce regulations guaranteeing the quality of their products. As a result, cities such as Ulm, Augsburg, Memmingen, and Nuremberg became major centers of lustian production. The industry eventually spread east along the Danube and south to Switzerland.49

The control of a rural workforce was crucial. In Ulm, for example, one of the most important manufacturing centers, only about two thousand people were busy with cotton production in the city itself, while eighteen thousand workers labored on cottons in the hinterland. Indeed, most of the weaving was done in the countryside, not the city, as merchants provided money, raw materials, and even tools to spinners and weavers—another putting-out network like the ones that characterized the Indian countryside. This organization of production was much more flexible than urban production, since no guilds regulated it and since rural weavers continued to have access to their own land and thus grew their own food.49

With the emergence of a cotton industry in northern Italy and southern Germany, small regions of Europe for the first time became a minor part of the global cotton economy. Yet within Europe, the industry was not yet particularly prominent. Europeans still largely dressed in linen and woolens, not cottons. And hardly any European cotton goods were consumed outside the continent itself. Moreover, after the early sixteenth century, the Venice-dependent European industry declined, as the Thirty Years War disrupted the industry and trade shifted away from the Mediterranean and toward the Atlantic. In the sixteenth century, indeed, Venice lost control over the Mediterranean trade to a strengthened Ottoman Empire, which was encouraging domestic industries and restricted the export of raw cotton. When Ottoman troops consolidated their hold on the realm in the 1560s, the effects were felt in distant German cotton textile towns. The rise of the Ottoman Empire, a powerful state capable of controlling raw and manufactured cotton flows, ruined the northern Italian and German cotton industries. To make matters worse for the once dominant Venetians, by the end of the sixteenth century British ships called ever more frequently in ports such as Izmir (Ottoman Smyrna); in 1589 the sultan granted the English merchants far-reaching trading privileges.51

Some shrewd observers surely noted that the first European cotton producers, both the northern Italians and the southern Germans, failed
at least in part because they had not subjugated those people who supplied them with cotton. It was a lesson that would not be forgotten. As the sixteenth century came to a close, an entirely new cotton industry arose that focused on the Atlantic, not the Mediterranean. Europeans took for granted that only the projection of state power would ensure success in these new trade zones.52

Chapter Two

Building War Capitalism

Capturing global cotton networks: the British East India Company “factory” in Costimbazar, West Bengal, c. 1793

Though impressive, the emergence of cotton production in twelfth-century northern Italy, and later in fifteenth-century southern Germany, did not seem world-altering. In each instance, boom was followed by bust. And the larger cotton industry, already well established on three continents, continued to hum along as it had for centuries. World production still centered on India and China, and intercontinental trade was still dominated by the products of Indian weavers. No significant technological or organizational departures characterized the European industry: Asian producers remained at the cutting edge of textile technology. To be sure, Europe’s new manufacturing endeavors produced an unprecedented quantity of cotton cloth for that continent, spread a taste for cotton fabrics, and established widespread knowledge about the principles of cotton manufacturing—all factors that eventually became