CHAPTER V

Living Standards

Risk and Security in Material Life

1 Standard of Living and Quality of Life

Quality and Standard of Material Life

A history of the nineteenth century cannot omit the material level of human existence, and we shall bring together the little that research can tell us about this at a *general* level. First, a distinction needs to be drawn between "standard of living" and "quality of life": the former is a category from social history, the latter from historical anthropology.[1] Quality of life includes the subjective impression of well-being—indeed, of happiness. Happiness is bound up with individuals or small groups; its quality cannot be measured and is difficult to compare. Even today it is nearly impossible to decide whether people in society A are more content with their lives than people in society B. As for the past, it is scarcely ever possible to reconstruct such appreciations. Furthermore, we need to differentiate between poverty and misery. Many societies in the past were poor in market goods yet enabled people to live a happy life; they based themselves not only on the market but also on community economics and the economics of nature. Personal or collective unhappiness affected not so much those without property as those who lacked *access*—to a community, to reliable protection, to land or forest.

"Standard of living" is a touch more palpable than "quality of life." But it involves a tension between the "hard" economic magnitude of income and the "soft" criterion of the utility that an individual or group derives from its income.[2] Recently it has been suggested that "standard of living" should be defined in terms of the capacity to master short sharp crises, such as a sudden drop in income due to unemployment, higher prices, or the death of a family breadwinner. Those who manage to pull through such crises and to plan their lives long into the future may be said to have a high standard of living. More specifically, under premodern conditions this was mainly a question of the strategies that individuals and groups applied to avoid an early death, and of their degree of success in doing so.[3]

Economists are rather more robust than social historians in their approach to the history of living standards. They attempt to measure the income of distinct economies (which in the late modern age are mostly national economies) and divide them according to their population level. In this way we obtain the famous per capita GDP (gross domestic product). A second question that economic historians like to ask concerns the ability of economies to save, hence to preserve values for the future, and perhaps also to invest part of what is saved so that it creates values in turn. However, there is no univocal positive correlation between statistical economic growth and the actually experienced standard of living. Growth of any degree, even high, does not necessarily translate into a better life. For a number of European countries, it has been shown that real wages moved downward in the early modern age, yet the material wealth of their societies increased overall; a massive long-term polarization must have occurred, whereby the rich grew richer and the poor poorer.[4] So, there is by no means a direct correlation between income and other aspects of an improved quality of life. When Japanese incomes gradually rose in the nineteenth century, growing numbers of consumers could afford the more expensive (and prestigious) polished white rice. But this created a problem since the vitamins present in rice husks were now lacking. Even members of the emperor's family died of beriberi, the vitamin B1 deficiency disease that is a risk associated with prosperity. The same link is observable between sugar consumption and poor dental health. History does not provide enough evidence that economic prosperity automatically translates into a higher biological quality of life.

The Geography of Income

However uncertain the income levels in the age before global economic statistics, the most plausible quantifications must serve as the basis for discussion (see table 5, which draws on Angus Maddison's work).

For want of statistical data, Maddison's estimates can be used only with considerable qualification. In particular it has been objected that they set Asia's economic performance too low. They are inherently "impossible," even if Maddison has attempted, by also making broad use of qualitative sources, to create an approximate impression that roughly reflects the true proportions. Nevertheless, if we take his figures as an at least plausible account of the relations of magnitude and accept that the GDP estimates have some degree of validity, then the following points stand out:

- Between 1820 and 1913, the richest and poorest regions in the world moved wide apart in their material living standards. The difference was 3:1 or perhaps 4:1 in 1820 but had climbed to at least 8:1 by 1913.[5] Even if such figures are not trusted, it is indisputable that the prosperity and income gap in the world increased considerably during this period, probably more than in any other epoch, though in the context of an overall rise in global

Table 5: Estimated per Capita Gross Domestic Product in Selected Countries, 1820 to 1913 (in 1990 $)

	1820	1870	1913	Factor 1870–1913
Europe				
Great Britain	1,700	3,200	4,900	1.5
Netherlands	1,800	2,700	4,000	1.5
France	1,200	1,900	3,600	1.9
Germany	1,000	1,800	3,600	2.0
Spain	1,000	1,400	2,300	1.6
Americas, Australasia				
Australia	—	3,600	5,700	1.6
USA	1,200	2,400	5,300	2.2
Argentina	—	1,300	3,800	2.9
Mexico	760	670	1,700	2.5
Asia				
Japan	670	740	1,400	1.9
Thailand (Siam)	—	700	830	1.2
Vietnam	540	520	750	1.4
India	530	530	670	1.3
China	600	530	552	1.04
Africa				
South Africa	—	1,600	—	—
Egypt	—	700	—	—
Gold Coast (Ghana)	—	—	700	—

Source: Maddison: *World Economy*, pp. 185, 195, 215, 224 (rounded up or down; factor calculated).

wealth. Only after 1950 did this trend subside, and even then there was a stable group of "ultra-poor" countries that benefited from neither industrialization nor the export of raw materials.[6]

- Alongside the industrial heartlands of northern and western Europe, the countries that Maddison calls "Western offshoots" (the neo-European settler societies of North America, Australasia, and the River Plate) achieved the highest income growth.
- The United States and Australia overtook the European frontrunners *before* the First World War, but the differences within the group of "developed"

countries were much smaller than those that divided them from the rest of the world.[7]

- The formation of a statistical "third world," consisting of countries that made little progress from their low starting point, was already a feature of the nineteenth century, especially its last few decades.
- There was one exception in Asia and one in Africa: Japan began to industrialize in the 1880s, and around the same time South Africa discovered the largest gold deposits in the world.
- In many countries it is possible to identify an approximate turning point, when average prosperity, and therefore consumption potential, began to increase markedly. This point came in the second quarter of the nineteenth century for Britain and France, around midcentury for Germany and Sweden, in the 1880s for Japan, after 1900 for Brazil, and sometime after 1950 for India, China, and (South) Korea.[8]

2 Life Expectancy and "*Homo hygienicus*"

The limited value of Maddison's income estimates for the question of living standards becomes apparent when we look through his chapter on life expectancy. Here the "poverty" of Asia in comparison with Europe is not clearly reflected in the average length of human life, which is in turn a fairly reliable indicator of health. The lives of Japanese, the healthiest people in Asia, were scarcely shorter than those of Western Europeans, despite their lower per capita income. In fact, most people had the same life span everywhere in the early modern age. Before 1800 only small elites such as the English nobility or the Genevan bourgeoisie attained a male life expectancy above forty years. In Asia the figure was somewhat lower, but not dramatically so. In the case of the Manchurian Qing nobility, life expectancy hovered around thirty-seven years for those born in 1800 or thereabouts and thirty-two years for the generation born around 1830—a deterioration that mirrored the general trend of Chinese society.[9] As to Western Europe, life expectancy at birth averaged thirty-six years in 1820, with a peak in Sweden and a trough in Spain, while the corresponding figure for Japan was thirty-four years. By 1900 it had risen to forty-six to forty-eight years in Western Europe and the United States; Japan was almost level at forty-four years, with the rest of Asia behind it.[10] Considering that Japan's economy was then at least a generation behind those of the United States and the advanced European countries, we can see that, under conditions of *early* industrialization, it managed to achieve health standards that were elsewhere characteristic of *high* industrialization. However much weight one attaches to income estimates, the fact is that the notional average Japanese in 1800 led a more frugal existence than a "typical" Western European, without having a significantly shorter life expectancy. A hundred years later, after societies in both parts of the world had multiplied their

wealth, the differential had not noticeably shrunk. Probably, though, national wealth was more evenly distributed in Japan, and the Japanese—who *today* have the highest life expectancy in the world—were unusually healthy. In the seventeenth and eighteenth centuries, they had diets, house-building techniques, dress habits, and public and private hygienic customs that reduced their susceptibility to disease, and they were exceptionally resource effective.[11] The Japanese were "poorer" than Western Europeans, but it cannot be said that their lives were therefore "worse."

Gaining Lifetime

In 1800 the average life expectancy at birth for the world population was at most thirty years; only exceptionally did it rise to thirty-five or a little higher. More than a half of all people died before reaching adulthood. Few enjoyed a life after work: either at the end of the day or in retirement following years of occupational activity. Death typically came as a result of infections: it came more swiftly than it does today, when protracted degenerative disease is the main cause of death in the rich countries.[12] By the year 2000, amid fast-increasing world population totals, the average life expectancy had risen to sixty-seven years, with a much greater leveling both within and between societies than in the case of incomes. In other words, people's ages increased faster than their material riches.

This "democratization" of a long life is one of the most important experiences of modern history. But there are exceptions to the rule. In the poorest countries of sub-Saharan Africa, many of which have also been hit hardest by AIDS, the average life expectancy for young adults aged twenty (*not* for the newly born) is today lower than it was in preindustrial England, China, and Japan or than it was in the Stone Age.[13] Why the human life span "exploded" in the nineteenth century is a controversial question: the decisive factor is variously considered to have been advances in medicine and sanitation, better nourishment, or new public health measures. Some experts adopt multicausal models in which all these elements play a role.

A reasonably precise dating of the processes that led to this life expectancy revolution is of great interest for any characterization of the nineteenth century. Robert W. Fogel has concluded from what is known to us today that the decisive leap occurred in "the West" (by which he means Western Europe, North America, and Japan) in the first half of the calendrical *twentieth* century, beginning with the period from 1890 to 1920.[14] There was by no means a constantly rising trend throughout the nineteenth century. During the early industrial age in Britain (c. 1780–1850), life expectancy initially went into decline and deviated from the high levels that England had first reached in the age of Shakespeare;[15] only after 1850 did wages catch up and overtake prices, and average life spans gradually began to increase.[16] In Germany, where industrialization began only around 1820, discussions were taking place a few years later about what would soon become known as "pauperism"—a new and disastrous mass impoverishment,

affecting town and country alike.[17] This process, similar to that which England had undergone previously, may be attributed to two causes. *First*, the quantity and above all the quality of food did not keep pace with the physical demands of early-industrial factory labor, so that, according to Robert Fogel, the growth of real incomes registered in the statistics must be reduced by as much as 40 percent before it can be converted into physical well-being.[18] In the early nineteenth century, the United States was alone among "Western" societies in guaranteeing its citizens more than the minimum degree of nourishment. *Second*, the fast-growing cities, which brought in people from far and wide, were a breeding ground for health risks. Closely packed housing, without the necessary hygienic provisions, allowed deadly pathogens to spread, the most deaths resulting not from concentrated epidemics but from "normal" diseases present in everyday surroundings. This was essentially true of all European societies that entered the phase of industrialization. And it was true only of the cities. Life in the country was healthy in comparison—a differential that closed in northwest Europe only around the turn of the twentieth century.[19]

The worldwide trend for the increase in longevity, which began in Europe, North America, and Japan around 1890, manifested itself elsewhere at different times.

- Latin America's great advance came between 1930 and 1960.
- The Soviet Union caught up between 1945 and 1965 (but its successor states fell back dramatically in the 1990s).
- China pursued a successful health policy under the Communist regime, and its life expectancy soared from less than thirty years before 1949 to nearly seventy in 1980.[20]
- A number of African countries made advances in the two decades following independence, from approximately 1960 to 1980.
- Japan experienced a new surge between 1947 and 1980.[21]

Clean Water

Many of the foundations for the gains of the twentieth century were laid in the nineteenth. But it took time for them to spread more widely. Two especially important impetuses were new knowledge about disease prevention and the development of public health care. With regard to the latter, governments began to realize the need for a systematic policy sometime after 1850. In Western Europe, their range of measures to control and separate the sick and potential disease-carriers (e.g., the kind of port quarantines long practiced in the Mediterranean and the Black Sea[22]) were now expanded through infrastructural investment to remove the breeding grounds of disease. For the first time, mass health care was not entrusted to private philanthropists and religious institutions alone but was declared to be a task of the state. The "environmentalist" theories of the age showed that a start should be made with the clearance of

urban garbage and wastewater and the provision of clean drinking water. England, the world leader in this "sanitary movement," had already begun in the 1830s to develop the basic principles and to take various pioneering initiatives. Thus, the collateral damage of the Industrial Revolution did not go unnoticed. Other countries followed suit—most comprehensively the United States, but soon also in continental Europe.[23]

The first step was civic and governmental initiatives to improve the water supply. The emergence of anything like a water policy presupposed recognition of water as a public good; water rights had to be defined, and public and private claims separated from each other. It was a long and complicated process to work out all the legal provisions for the ownership and use of water, including its industrial use. Even in centralized France this was not completed until 1964, and in many parts of the world it is still going on. For the creation of a modern water supply, not only political will and legal requirements but also an appropriate technology were necessary. In 1842, in one of the city's grandest festivals, New York celebrated the inauguration of a system of aqueducts, pipes, and reservoirs that supplied public wells, private households, and the fire brigade.[24] The value of clean water became especially apparent after an English doctor, John Snow, established in 1849 that cholera was not transmitted in the air or by bodily contact but was a water-borne disease. It took more than fifty years, however, for his findings to become generally accepted. The fact that London's water supply was in the hands of several private corporations stood in the way of change. In 1866 cholera entered the city once again along the pipes of one of these firms, claiming more than 4,000 lives in the East End alone. Water quality improved after that, however, and private wells gradually disappeared from the scene. Cholera and typhus epidemics were no longer seen in London after 1866.[25]

The importance of local scientific opinion is demonstrated by the example of Munich, where the doctor and pharmacist Max von Pettenkofer was the great authority in matters of hygiene. Like John Snow, he reacted to the threat from cholera, a second epidemic of which struck the city in 1854. But in his view, to prevent the spread of the disease, the main task was to ensure that the subsoil was kept pure and that the disposal of organic refuse was improved. Since he had ruled out poor drinking water as the cause, improvement of the water supply was pursued much less energetically than in London. Only in 1874 did Munich begin to draw up plans for its modernization, but there was still opposition to the contaminated-water theory even after the outbreak of a third cholera epidemic. In 1881, the city finally pressed ahead with the construction of new water installations.[26] Pettenkofer's error must have been costly to the capital of the Kingdom of Bavaria.

Munich, despite Pettenkofer's advice, also delayed the upgrading of its wastewater disposal until the 1880s. London had earlier been successful in developing a sewage system—a second prerequisite for the elimination of water-borne diseases such as typhoid, dysentery, and cholera from the British metropolis. It was

known there that a clean water supply and a proper drainage system were twin sanitary requirements. This was not self-evident, though, and Napoleon had treated Parisians to public wells and aqueducts without concerning himself with other improvements. In London a Metropolitan Board of Works was founded in 1855—the first authority with powers covering the whole city. At first, its work was impeded by confusion over precise areas of responsibility and by resistance from supporters of a radical free-market liberalism. Then came the "Great Stink." Back in 1800 it had still been possible to fish for salmon in the Thames near London, and a few years later Lord Byron had enjoyed swimming in it. But in June 1858 such a stench rose from the river that the House of Commons, having tried coating protective curtains with chloride of lime, eventually had to suspend its sessions. The honorable members of Parliament were in a panic, realizing as they did that the exhalations of Old Father Thames were not only unpleasant but dangerous to the health. The chief engineer of the Metropolitan Board of Works, Sir Joseph Bazalgette, one of the pioneering modernizers of Europe's largest city, was commissioned to build a mostly underground system of sewers. Rumors that typhoid fever had caused the death of Queen Victoria's beloved forty-two-year-old consort Prince Albert, in December 1861, underlined the urgency of remedial action.[27]

By 1868 a total of 1,300 miles of sewers had been laid, of which eighty-two miles consisted of huge tunnels containing a total of 318 million bricks: one of the largest and most expensive public investments of the nineteenth century. Also part of this were the installations along the embankment, which included an underground railroad as well as all the pipes and cables of a modern capital city. The building work beneath London aroused great public enthusiasm.[28] The technology used for this monument of modernity was curiously preindustrial, if one leaves aside the magnificent Florentine or Moorish pumping stations equipped with steam engines. Brick-lined sewers and glazed ceramic pipes were nothing new; the movement of the water was simply down to their angle of incline. Technically speaking, the Victorian drainage system could have been built at any time in the previous hundred years. It was all a question of perception, political will, and a new attitude to dirt.[29] Whether the much-praised new installations really met all the requirements is another matter. When a pleasure steamer collided with a barge in September 1878 close to the effluent from the London sewers, there was a flurry of official speculation as to how many of the numerous casualties drowned in the Thames and how many were poisoned by its water.[30]

No comprehensive studies yet exist about urban hygiene on other continents. For the time being, we have to make do with a few impressions. Muslim West Asia was repeatedly praised by travelers for the high quality of its urban water supply; no report from Isfahan before its sacking by Afghans in 1722 failed to mention this point. Indeed, it was frequently remarked that nothing comparable was to be found in Europe. Western eyewitnesses condemned the barbarism of the Russians' destruction of Tatar water pipes, after their annexation of the

Crimea in the early 1780s. And in 1872 a German traveler to Syria, otherwise little impressed by the Levant, was still amazed that in Damascus, a city with 150,000 inhabitants, "every street, every mosque, every public and private house, and every garden" were provided "to overflowing" with channels and "fountains."[31] The origins of water modernization in Bombay lay not so much in public health considerations as in the inadequacy of supply for a fast-growing large city. After vigorous resistance from Indian notables, who not incorrectly feared higher taxes, a municipal water supply came on stream here in 1859, earlier than in many European cities. It also provided water for the booming cotton industry in the West Indian metropolis, and reduced the danger that owners of private cisterns would exploit periods of drought for their own profit.[32] In Calcutta a sewage system was opened in 1865 and water-filtering installations in 1869.[33] The first Chinese to encounter tap water were imperial emissaries on ocean steamers of the 1860s. Shanghai, where the quality of water had previously been better than in many large European cities of the time, acquired a modern waterworks and piping system in 1883; it was financed by private investors and initially served only prosperous Europeans and a few wealthy Chinese in the International Settlement, a colonial-style enclave governed by foreigners. The owners of the water plant tried to increase its operational radius and by no means wished to deprive the Chinese of clean water out of "colonial" motives. But the Chinese population remained skeptical: they had survived for generations, more or less, on water from the Huangpu River. Also the guilds representing more than three thousand water carriers protested against the new competition.[34]

Decline and Revival of Public Health

At first the age of modernity was an unhealthy one. In the first five or six decades of the nineteenth century, industrialization meant poverty, hardship, cultural decline, and reduced physical well-being for the working population of English cities. The country paid a price for having begun to industrialize before modern sanitary principles were understood and solutions attempted. Many people nevertheless weighed the risks of city living and accepted them of their own free will. The big cities and the new factory towns were unhealthier than the countryside—and they remained so throughout the century,[35] but the wages that could be earned in them were higher. The work discipline in factories was stricter, yet many preferred to escape the tight control of country squires and clergymen, and to have the freedom to found independent clubs and church communities.[36] The level of health declined in the United States too—historians like to use body size as the indicator—during the early phase of industrialization (c. 1820–50) that followed unusually favorable conditions at the beginning of the century. In Germany there were sharp oscillations in the standard of living, but with a long-term upward trend. A similar tendency was apparent in the Netherlands and Sweden, two countries that did not industrialize for a long time but experienced similar economic development centered on trade, finance, and modern agriculture.[37] In

France, the onset of industrialization in the 1820s was generally associated with clear and constant improvements in every area. This was an exceptional case, in which a second-generation industrializer (unlike the United States in the same period) did not have to contend with major losses in physical well-being. Two complementary reasons have been suggested for this: first, that France urbanized much more slowly than England, thereby avoiding the health risks of overcrowded slums; and second, that the urban population ate more meat in France than in England (the opposite had still been true in the eighteenth century) and therefore developed a higher resistance to disease. Furthermore, the French Revolution had helped to foster a slightly greater equality of income distribution. That, too, seems always to be a factor promoting good health.[38]

In general, late developers had to bear lower biological costs. As soon as new knowledge about epidemics and ways of combating them became available, big cities shed their "excess mortality" and became healthier places to live in than the countryside. It has been possible to demonstrate this for Germany as well as for colonies such as India, where Calcutta, Bombay, and Madras, for example, acquired at least some of the sanitary improvements of British cities. In both cases the new trend began in the 1870s.[39] The spread of medical and hygienic knowledge and of sewer and water supply technology was, at least in Europe, a "transnational" process; innovations took only a few years to pass across frontiers. For example, a modern water supply was being constructed by British firms in Berlin from 1853 and in Warsaw from 1880. Britain pioneered legislation on public health but took quite a long time to implement it. Germany, on the other hand, the industrial latecomer, swiftly adopted new sanitary measures, even before adequate legal provision had been made for them. Here the authorities applied their traditional right to intervene. The high administrative competence of Prussian governments proved to be an advantage, whereas in England powerful middle-class ratepayers were reluctant to take on extra costs, and weak municipal authorities were for a long time unable to stand up to them.[40]

The introduction of health systems had a profound impact all around the world. The new turn was palpable even in countries where indigenous arts of healing were well tried and recognized and enjoyed the confidence of the majority of the population. Traditional medicine—in Africa or Latin America, for instance—was strongly individualist, in the sense that it was bound up with the virtues and capacities of particular charismatic healers. There were three prerequisites for the introduction of public health systems: (1) a new definition of the tasks of the state and the will to commit resources to them; (2) the presence of biomedical knowledge, including its practical implications; and (3) an expectation on the part of citizens that the state should concern itself with health matters.

Intellectually the microbe theory developed by Louis Pasteur, which gained acceptance throughout Europe from the 1880s on, gave a scientific foundation to the observations of practical men such as John Snow, raising policies to promote public hygiene above the party-political fray. The earliest initiatives, though

"well meant," rested on shaky premises and did not lead to generalizable conclusions. Only the theory of microbes established cleanliness as the highest priority, making *Homo hygienicus* the creation of bacteriology. Scientists such as Pasteur and Robert Koch became cultural heroes of the age. Disease was detached from its familiar ecological, social, political, and religious contexts, and health was proclaimed to be a supreme value. The middle classes, and more and more people from other strata of society, internalized this attitude.[41] Improved sanitation probably played a greater role in reducing mortality in Europe and North America than elsewhere in the world, where attempts are still being made to achieve comparable results with simpler and cheaper technology. The universality of ends was not matched by a universalization of means. The influence of the West, then, was differentiated.

Major public investment in hospital coverage became worldwide only in the twentieth century. The Allgemeine Krankenhaus in Vienna, founded in 1784 on the orders of Emperor Joseph II, was the first great modern hospital. In Britain the eighteenth century was the breakthrough age: hospitals were to be found by 1800 in all the large cities of England and Scotland, with a whole series of specialist centers already operating in London. Britain was the world pioneer; things took considerably longer to develop in the United States. All these early hospitals were private foundations—unlike in continental Europe.[42] In the German Reich, a growing number of hospitals were built after 1870, with the result that there was a surplus of beds on the eve of the First World War. The hospitals of the late nineteenth century were rather different from the care institutions of the early modern age. Geared to the new knowledge of hygiene, they mainly served the purposes of short-term medical treatment, the training of doctors, and the development of the art and science of medicine. The importance of these tasks increased with the advance of specialization (in Germany from the 1880s onward).[43] So long as there was a fear of epidemic outbreaks, it was a major task of hospitals to care for patients with acute illnesses—but for a long time no one could be sure that they increased rather than lowered the chances of survival.[44] The universalization of the Western-style clinic is a phenomenon of more recent times, closely bound up with new types of health funding.

The (Relatively) Healthy Slaves of Jamaica

The average state of health of a social group depends on numerous factors: adaptation to the local climate, quantity and quality of food, physical and mental stresses of work, risk-lowering behavior (such as personal hygiene), access to medical care, and so on. The information available for the nineteenth century allows a reasonably complete health profile to be drawn up for only a few groups, most of them in Europe. We still know little, for example, about the situation in the most populous country in the world, China. But there are exceptions to this rule. One is the slave population of the British Caribbean, between the end of the African trade in 1808 and the abolition of slavery in the British Empire

in 1833. During that period it would have been foolish for even an unscrupulous and sadistic plantation owner to work his slaves to death; black laborers had become a commodity that was no longer so easy to replace. Most planters employed European doctors, or Creoles who had studied medicine in England or Scotland. Medical stations were not a rare sight on the large plantations. Of course it was in the logic of the exploitative system to care quite well for young and strong slaves, while neglecting older ones or even driving them from the plantation. All in all, however, medical facilities for slaves were not much worse than for English industrial workers at that time. The main limits to health care—in Europe as in the Caribbean—lay in the defective state of knowledge, which in the early nineteenth century still had not identified the causes of many diseases, especially those prevalent in the tropics. Many slaves wisely refrained from placing their trust in European medicine, often preferring to consult black healers who practiced a folk medicine unavailable to the European industrial proletariat.[45]

3 Medical Fears and Prevention

Major Trends

A second factor that helped to lower mortality wherever theory found practical application was the new knowledge of disease prevention. Like the "demographic transition," an epidemiological transition made itself felt at different times in various parts of the world. Generally speaking, the chances of succumbing to a mass outbreak of disease—what demographers call a mortality crisis—decreased over the course of the nineteenth century. For northwestern Europe the following sequence has been described: In a first phase that began in 1600 and reached its peak between 1670 and 1750, diseases such as bubonic plague and typhus lost their importance. In a second phase deadly infectious diseases such as scarlet fever, diphtheria, and whooping cough receded. In a third phase that began around 1850, respiratory diseases apart from tuberculosis gradually declined in significance. Finally, the twentieth century saw the gradual emergence of the mortality profile that is familiar today in all European societies: heart and circulation disorders and cancer as the main causes of death.[46] For each region of the world, a particular balance sheet of old and new diseases might be drawn up.

Tuberculosis was among the afflictions of the epoch that was thought of as new. Since it was recognized as a uniform disease pattern only in the early nineteenth century, little that is precise can be said about its appearance in earlier times. It was undoubtedly more common than the historical documents suggest. We can be sure that it was endemic in various parts of Eurasia and North Africa, and probably also in the "pre-Columbian" Americas. But its spectacular spread in the nineteenth century made it a token of the age, not only in the new working-class suburbs but also in the drawing-rooms of high society. The

courtesan Marie Duplessis, immortalized as the "Dame aux Camélias" in Alexandre Dumas's eponymous novel (1848) and as Violetta in Giuseppe Verdi's opera *La Traviata* (1853), was one of its most famous victims. In the first half of the century, it doubled in frequency as a cause of death in France. It was still one of the great social calamities after the First World War, against which health policies fought with disappointing results. There were no drugs to treat it until 1944, and the truly effective ones became available only in 1966. Since tuberculosis was thought to be hereditary, it was often covered up in the families of the bourgeoisie. But silence was not possible in the case of prominent figures who succumbed to it—from John Keats (1821) to Frédéric Chopin (1849), from Robert Louis Stevenson (1894) to Anton Chekhov (1904) and Franz Kafka (1924).[47]

The cures that the rich began to seek in the 1880s, in a new archipelago of mountain sanatoriums, resulted in a special kind of international semipublic sphere. Here they were by themselves, but not alone, as they rested, ate healthily, shed the stresses of the big city, and willingly subjected themselves to the tyranny of the staff.[48] Thomas Mann's novel *The Magic Mountain* (1924), set in an Alpine sanatorium in the years before the First World War, depicts one of these characteristic institutions that sprang up even as far as Korea, where a fifth of the population was infected.[49] In Japan too, the number of tubercular patients rose dramatically after the turn of the century, to fall again only after 1919. Japanese scientists thoroughly studied new Western discoveries about the disease, but for that reason it sometimes took them a long time to act on them. Not until several decades after Robert Koch's simple and empirical identification of the tuberculosis bacillus (1882)—an effective vaccine followed in the 1890s—was the Japanese medical profession prepared to accept a clinical picture of it as a single infectious disease. But that was not the end of the story, since, as in Europe, there continued to be a divergence between popular and scientific perceptions. The majority of the Japanese population held on to the belief that "TB" was a hereditary disease that should be concealed as much as possible, whereas medical officials wanted to record as many cases as they could. Factory owners were also fond of the inheritance theory, since it relieved them of the need to improve conditions at the workplace. For the largest group of carriers in Japan were female workers in the silk and cotton industry, who subsequently spread the disease to their native villages.[50]

Some completely new diseases also appeared in the nineteenth century. One of these, first recorded among young people in Geneva in 1805, was meningitis, which in one out of two cases led to death within a few days. Soldiers on the move from one garrison to another seem to have been the most frequent carriers in France. Eventually the whole of France and Algeria were affected. At the peak of its virulence, between 1837 and 1857, the disease claimed several tens of thousands of lives, almost exclusively of people under the age of thirty. Poliomyelitis was another scourge of the nineteenth century. For a long time medical knowledge of it had been extremely vague, but in the last quarter of the century new

conditions in France and other European countries caused it to assume epidemic proportions. A vaccine did not become available until 1953. Polio has never been a disease of poverty attributable to unhygienic surroundings: indeed, it first appeared in countries such as Sweden that had the most developed hygiene in the world. Other illnesses were rife among clearly defined risk groups: for example, the dreadful and incurable distemper, in principle an equine disease, spread to consumers of infected horsemeat and to coachmen or soldiers who had to deal with horses professionally.

In terms of global history, the nineteenth century saw a tension develop between easier transmission of diseases and more successful campaigns against them. On the one hand, migration and modern means of transportation proved effective conduits for the global spread of infections. The Black Death of the fourteenth century had already gripped most of the known world, by no means only Europe, and killed a third of the population of Egypt.[51] Now epidemics spread much more quickly across regions. The worst by far was the global influenza pandemic of 1918, which struck even remote islands in the South Seas, and is estimated to have killed between 50 and 100 million people—more than the total number of deaths in the recently ended First World War. Especially hard hit were Italy, which lost 1 percent of its population, and Mexico, where the figure reached 4 percent.[52] On the other hand, advances in medicine and disease control made it possible to combat some of the greatest epidemics that history had yet seen, not eliminating them altogether but breaking their power. The chronologies and spatial patterns of this counteroffensive provide information about global processes. The nineteenth century was the first epoch in which worldwide campaigns were systematically waged against medical scourges. In order to be successful they had to combine adequate biomedical knowledge with the idea of a public health policy. Here are a few examples.

The Preventive War against Smallpox

The primal story, later repeated elsewhere in modified forms, was the war against smallpox. It began, at least in Europe, with the English country-doctor Edward Jenner's successful vaccination trials in 1796, but there had been a prehistory to the campaign outside Europe. China had been practicing inoculation or "variolation" since the late seventeenth century, and the practice was common in India and the Ottoman Empire too. In this method, pathogens from a smallpox patient were directly applied to the skin of a healthy person to trigger an immunizing reaction. At the beginning of the eighteenth century, Lady Mary Wortley Montagu, a diplomat's wife and well-known travel writer, observed this immunizing effect among both peasant women and the wealthy upper classes of Turkey, and she reported it to her learned friends in London. In fact, inoculation had many advocates in England, Germany, and France in the last third of the eighteenth century, but failure to isolate the subjects properly at the stage when they were highly infectious often resulted in an epidemic outbreak. Before

Edward Jenner, who discovered the protective effect for humans of the much weaker cowpox pathogen, no one had found a risk-free way of guarding whole populations against smallpox. In 1798, after two years of experiments, Jenner presented his pathbreaking results to the public. A safe and inexpensive alternative to inoculation had been found in the shape of vaccination.

It soon became clear that vaccination would wipe out the disease only if the entire population was compelled to undergo it. Countries with centralist traditions or modernizing authoritarian systems of rule were particularly quick to act. In 1800 Napoleon gave the go-ahead for the first vaccinations, and between 1808 and 1811 nearly 1.7 million people in France were immunized.[53] Egypt under Muhammad Ali made vaccination compulsory, at least on paper, as early as 1818; the pasha sent teams of French doctors into the villages to vaccinate children and to instruct barbers in the necessary techniques. But the most important breakthrough came with the creation of a permanent health service in 1842, covering both the capital and the provinces.[54] Things moved faster in Egypt than in Britain, where immunization became obligatory only in 1853 (more effectively in 1867)—until libertarian MPs opposed to any state compulsion managed to prevail on the issue in 1909, at a time when public debate was still raging in the United States about its advantages and disadvantages.[55]

Jenner's discovery soon traveled around the world, and Jenner himself received news about this from remote corners of the globe, including letters of gratitude from Thomas Jefferson and from the chief of the Five Nations in Upper Canada.[56] European ships, previously notorious as vehicles of disease, carried cowpox lymph to many overseas countries, in an early example of the global diffusion of knowledge and problem-solving strategies. How was the vaccine transported? The best method was via infected human agents, and for this it was necessary to have a group of nonimmune individuals (often taken from an orphanage). A member of the group was infected, then the lymph pus was passed on to the next member, and so on; this ensured that there would be at least one virulent case on board when the ship reached its destination.

In 1803 the Spanish king Charles IV, an admirer of Jenner's, sent out an expedition with vaccine material to all the Crown's colonies. On its way from Buenos Aires, Chile, and the Philippines it put into southern China, where vaccine had arrived almost simultaneously from Bombay. In 1805 doctors at the East India Company settlement in Canton began to work with the vaccine, and in the same year literature on the subject was translated into Chinese. In Japan news of Jenner's discovery arrived in 1803; more was learned in 1812 from a Russian medical treatise that a Japanese prisoner-of-war had brought home with him. But vaccine was still lacking. The first batch reached Japan from Dutch Batavia only in 1849—an astonishingly late date in comparison with other countries.[57]

One should be wary, however, of a linear success story. For a long time the need to keep immune protection up to date was not understood. Unsuitable human carriers passed on other pathogens together with the vaccine; and many

governments failed to recognize the importance of *mass* vaccination. All this gave rise to major unevenness. German soldiers who marched off to fight in France in 1870 had almost complete protection from a dual vaccine, whereas a large part of the French army had none. Around the same time smallpox was flaring up again in various parts of the country. The Franco-Prussian War thus took place in the midst of an epidemic crisis, and the asymmetry of protection contributed to the eventual French defeat. The French army lost eight times more soldiers than the German to smallpox, and as many as 200,000 civilians may have died of it in France between 1869 and 1871. Moreover, French prisoners-of-war carried the disease with them to Germany, where the general population was much less protected from it than soldiers. A severe epidemic in the years from 1871 to 1874 cost more than 180,000 people their lives.[58]

The degree of smallpox protection did not at all reflect the level of economic development. Impoverished Jamaica, for example, was free of smallpox decades before wealthy France; inoculation had been practiced there since the 1770s, and Jenner-style vaccination since the turn of the century, making the largest and earliest of the British "sugar islands" a model in this respect. The colonial authorities created a special Vaccine Establishment, and by the mid-1820s smallpox had disappeared from Jamaica, to be followed a few years later by most of the other British Caribbean islands ahead of most other parts of the world.[59] Ceylon, also an island under British control, would be smallpox-free by 1821 after a mass vaccination campaign. This was by no means the rule in Asia. In the giant subcontinent, outbreaks of smallpox occurred somewhere or other in every year of the century, the most dramatic being in 1883–84. In Kashmir vaccination only began in 1894. In Indochina, where the French colonial rulers showed less concern than the British did in India, smallpox proved especially stubborn.[60] In Taiwan, which the Japanese annexed as a colony in 1895, the authorities carried out an effective mass vaccination campaign, and by the end of the century the island was more or less clear of smallpox.[61] In Korea, the first Europeans who arrived in the formerly closed country in the 1880s found few people untouched by the disease; it had not been introduced to the peninsula from outside, and it was eventually eliminated under Japanese colonial rule in the second and third decades of the twentieth century.[62]

Although it was only in 1980 that the World Health Organization declared the world free of smallpox (the last natural case had occurred in Somalia in 1977), the breakthrough had been achieved in the nineteenth century. Where the disease lingered until the Second World War—and very rarely afterward—it was the result of government neglect, corrupt health administrations, or special epidemiological situations. The last epidemic in the West was recorded in 1901–3 in the United States. Sweden was the first country in the world to free itself even of endemic smallpox, in 1895. The disease was still deeply implanted in Africa and the Middle East on the eve of the First World War; only a small minority of those populations enjoyed vaccine protection.[63] The great advances in immunization occurred there in the twentieth century.

The problems that had to be solved before whole populations enjoyed immunity were in principle the same throughout the world: it was necessary to overcome opposition, in Britain as in Africa (where people distrusted the colonial authorities); governments had to make vaccination compulsory and to carry out checks; and high-grade vaccine had to be available in sufficient quantity. These were tasks that required complex organization, and they were not always fulfilled better in Europe than in Asia. Disciplined societies were the most successful, but even among them there were differences. Hesse and Bavaria were the first German states to introduce smallpox vaccination, under Napoleonic influence in 1807, but Prussia—which protected its army so well—otherwise put its trust in the commitment of local doctors.[64]

Western and Indigenous Medicine

Colonial regions seemed to have at least a theoretical advantage insofar as new vaccination techniques were made directly available to them. In Africa, Ethiopia—the only noncolonized country apart from Liberia on the eve of the First World War—was the last to introduce Jenner's methods. Elsewhere vaccine arrived early on, but for a long time it was restricted to the ruling circles. In Madagascar, for example, where smallpox victims had traditionally been buried alive, the king had the royal family vaccinated as early as 1818, but he could not effectively protect the whole island, a nodal point of the slave trade.[65] The procurement of vaccine from abroad was also a weak point in the otherwise successful reform policies of the kings of Siam. Only at the end of the century, later than in modest European colonies in Asia or the Caribbean, did government vaccination programs begin to get a grip in this independent country.[66] Colonies—at least those considered important—therefore had relatively good chances. The authorities understood that they could kill several birds with one stone: strengthening the labor capacity of the colonial population while also gaining a reputation as colonial benefactors and helping to protect the mother country from infection.[67]

What role did scientific knowledge play in this? Here, too, we need to pay attention to chronology. The important breakthroughs happened only after the middle of the century. From the late 1850s onward, Louis Pasteur and Robert Koch discovered that certain diseases were caused by microbes, and in a number of cases they developed medical therapies. The first post-Jenner vaccine, however, appeared only in 1881, when Pasteur isolated the anthrax bacillus; then Koch found an antitoxin against diphtheria in 1890.[68] Around 1900 medical science had only a few reliable drugs at its disposal—among them quinine, digitalis, and opium. Aspirin appeared on the market in July 1899. The twentieth century would be the great age of mass immunization against infectious diseases and of successes against bacterial illnesses with the help of sulfanomides and antibiotics. But one of the major achievements of the nineteenth century was a new insight into the underlying causes of inflammatory processes. From about 1880, the general use of antisepsis and disinfection reduced the incidence of mortality in

childbirth, but only in Western countries.[69] The main contribution to the overall quality of life was in disease prevention rather than treatment—a trend reversal that set in with the new century. The generation that grew up in the West after the Second World War was the first in history not to live beneath the Damoclean sword of infection. In the United States, for example, the risk of dying from an infectious disease was twenty times lower in 1980 than in 1900.

Even for Europe one should not overestimate the speed at which the new advances in medical practice took hold. On other continents, the spread of Western medicine came up against systems of indigenous knowledge and practice; where these did not exist in written form, as in Africa, they commanded little respect from either native or European representatives of modern medicine and were relegated to a trivial everyday level.[70] Things were different, however, where "great traditions" met up. In Japan, where European medicine had been known even in premodern times, it began to be practiced after the middle of the century. In the Meiji period it officially replaced the Chinese medicine that had previously been dominant. In March 1868, in one of its first decrees, the new Meiji government—which contained an unusually large number of politicians with a medical background—proclaimed that Western medicine should be the only compulsory element in the training of doctors in Japan. After 1870, with the help of numerous German doctors, medical education was completely reshaped in accordance with the German model. The "old" (that is, Chinese) medicine was supposed to wither away gradually. Anyone who wished to become a licensed doctor had to pass an examination in Western medicine, but traditional doctors put up resistance. In the treatment of the commonly seen beriberi, indigenous medicine proved itself superior, partly because the disease was not a major health risk in Europe. In practice the two systems continued to coexist in a complementary relationship. Around the turn of the century, two thirds of statistically recorded doctors in Japan belonged to the traditional Chinese school.[71]

A knowledge transfer in the opposite direction, from Asia to Europe, had already occurred in the early modern period. Jesuit missionaries collected Chinese medical texts and herbals. Publicly disseminated reports by individual Jesuits, and especially the account published in 1727 of the Westphalian doctor Engelbert Kaempfer's trip to Japan in 1692–94, meant that Asian practices such as acupuncture or moxibustion were made known in the West. A number of Western textbooks tried to make sense of Chinese healing theories. Yet East Asian medicine did not find large-scale application in the West until the second half of the twentieth century. Unorthodox medical knowledge scarcely gains acceptance by itself. It requires a measure of intellectual receptiveness, a body of healers able to apply the new methods, patients ready to accept them, and sometimes an institutional underpinning in something like a "health system." Even failing such tough requirements, East Asian techniques of healing never ceased to fascinate Western medical experts. The ups and downs of that fascination plot a curve of Western openness toward alternative traditions of knowledge.[72]

4 Mobile Perils, Old and New

The End of the Plague in the Mediterranean

Any epidemic disease poses specific challenges to a society. Each develops at its own speed and has its own victim profile and pattern of spatial distribution. Each also has its own "image," a special significance that people attach to it. And each has its own mode of transmission, a distinctive moment of infection. Bubonic plague, a disease carried by rat fleas that was more deeply engraved than any other in the European imagination, was an Asian phenomenon in the nineteenth century. It receded from western Europe after the great surge of 1663–79, which gripped England, northern France, the Low Countries, the Rhine Valley, and Austria. The penultimate outbreak was unleashed in 1720 by a French ship returning from plague-stricken Syria; more than 100,000 people died of the disease in Provence over the next two years.[73] The last major epidemic in Europe outside the Ottoman-ruled Balkans overwhelmed Hungary, Croatia, and Transylvania in 1738–42. Improved checks at major ports, as well as the Austrian military *cordon sanitaire* in the Balkans completed in the 1770s, shielded Europe from further plague imports from Asia.[74] France and the Habsburg Monarchy were Europe's frontline states and therefore had the most experience; the continent owes them a major debt of gratitude for keeping it free of plague in the late modern period. An additional factor was the transition everywhere in eighteenth-century European cities from wooden and half-timbered construction to stone architecture, which meant that rats, the main carrier of plague, lost some of their habitat.[75]

A new plague cycle began in Central Asia in the middle of the eighteenth century—the third, after those of the sixth through eighth and fourteen through seventeenth centuries. In the Ottoman Empire this new wave joined up with stable plague centers in Kurdistan and Mesopotamia. Istanbul was considered the kingdom of rats and a dangerous focus of infection, while Ottoman troops ensured that the disease was transmitted all over the empire. The plague traveled by ship from ports such as Istanbul, Smyrna, Salonica, and Acre, as well as by land along the great highways.[76] Bonaparte's troops became infected in 1799 during their advance from Egypt to Syria; their commander tried to raise morale with a staged visit to the plague house of Jaffa. Half of his army died of plague, dysentery, or malaria in the siege of Acre.[77] Subsequent outbreaks were reported from Istanbul (in 1812, with 150,000 deaths), Syria (in 1812), Belgrade (in 1814), and Sarajevo (on several occasions). Helmuth von Moltke, then a young Prussian military adviser to the sultan, witnessed an epidemic in Istanbul in 1836 in which 80,000 people lost their lives, and on his return journey he had to endure the usual ten-day "detention" at the Austrian *cordon*-frontier.[78] Moltke had observed the last fling of the plague. Within the space of twenty years—between 1824 and 1845—it rapidly disappeared from the Ottoman Empire, with the exception

of endemic areas in Kurdistan and Iraq. Tighter quarantines and new official health authorities played a key role in this, but the end of the plague in the Ottoman Empire, a turning point in the history of the disease, has not yet been fully explained. There remains an element of mystery.[79] Despite Europe's successful protective measures, it continued to live in the shadow of the plague until 1845, when the last outbreak was recorded in the eastern Mediterranean. It could not drop its guard any earlier.[80]

The New Plague from China

The last great wave of plague spread from southwestern China in 1892. It reached the southern metropolis of Canton in 1893 and the nearby British colony of Hong Kong in 1894, unleashing a panic reaction in the international public. Ships carried the pathogen to India in 1896, to Vietnam in 1898, and to the Philippines in 1899. By 1900, ports as far away as San Francisco and Glasgow were affected. In Cape Town one-half of those infected died in 1901: a total of 371 fatalities.[81] The most surprising exception was Australia, where the plague struck ports a number of times but never grew into an epidemic, because the authorities instinctively targeted rats with the utmost energy.[82] The pandemic continued to rage in the first decade of the new century—indeed, some medical historians argued that it burned itself out only around 1950. A later surge came in 1910, when a passenger ship carried the plague from Burma to Java, where it had never taken hold before; more than 215,000 Javanese died of it between 1911 and 1939. The long-term result was a major improvement in living conditions and health care in the colony.[83]

As in other epidemics of the age, experts set to work immediately on the spot. At first they were puzzled, because no one had been expecting the plague to reappear in Asia either. Japan had never been in contact with it. In India it was so little known that there had never even been a plague god (as there had in China). Soon British Hong Kong became the main focus of internationally competitive research: the worried government in Tokyo promptly sent the celebrated bacteriologist Kitasato Shibasaburō, who had been Robert Koch's assistant. Pasteur's Swiss disciple Alexandre Yersin hurried over from the Saigon branch of the Pasteur Institute. It was Yersin who in 1894 discovered both the plague pathogen and the essential role played by rats; soon afterward the flea was identified as the carrier.[84] Rats were now in for a hard time. The Hanoi city authorities paid 0.20 piasters for each one caught during the epidemic of 1903—a successful measure that also served as an incentive to private rat catchers.[85] In Japan isolated cases appeared in 1899, but they did not lead to an epidemic. The novelty of the disease there is shown by the lack of a term for it other than the phonetic loan word *pesuto*.[86]

Contrary to what was thought at the time, the turn-of-the-century pandemic did not appear out of the blue, nor did it burst out of the still mysterious "central Asia." The plague was already described in 1772 in Yunnan, a home of the yellow-breasted rat (*Rattus flavipectus*). It must have been present there for a long time,

but only the economic development of the region created the conditions for it to spread. The promotion of copper mining by the Qing Dynasty made the province a magnet for workers within a radius of several hundred kilometers. Between 1750 and 1800 a quarter of a million migrants turned the remote wilderness into a region of work camps and growing urban settlements. With mining came trade and transportation, and the demand for food stimulated rice production in neighboring Burma.[87] The plague could spread only as a result of this greatly increased movement, which at first was entirely confined to China—or, more precisely, southwestern China, since there was little integration of the province into a countrywide market. For a time the problem therefore remained within China—out of sight for Westerners. An economic depression in the first half of the century had a dampening effect, but then the Muslim revolts that shook southwestern China between 1856 and 1873 rekindled the disease. Rebel forces and their Qing adversaries were the main carriers. At the same time, the opium trade from the coastal ports bound the province more than ever before to extensive international networks. Detailed reports in local Chinese chronicles allow us to follow the course of the plague from district to district.

Chinese medicine was not unprepared. One school of thought emphasized the importance of personal hygiene, while another focused on environmental factors, both the natural and social, in ways strongly reminiscent of the "miasma" theories that were common in Europe until mid-century. Neither school, however, considered that the disease was transmitted by infection. Collective efforts to combat it concentrated on ritual exorcism, public displays of atonement, and other symbolic acts. As in early modern Europe and the Muslim world, the plague was seen as a divine visitation or punishment, and here, too, people swept the streets, cleaned wells, and burned the possessions of plague victims. The big difference with premodern Europe was that neither leading doctors nor state officials believed in infection as the cause, and therefore in isolation of those suffering from or exposed to the disease. The West had been the first to demonstrate the effectiveness of such methods in the quarantining of affected ports. In 1894 the colonial authorities in Hong Kong applied another strategy. On the assumption that the plague bred amid the squalor of poverty, they intervened forcefully to keep Chinese and Europeans apart and to raze a number of districts inhabited by the poor. This provoked vigorous, sometimes violent, protests from the Chinese—not only among "the poor" but also among philanthropically inclined dignitaries.

What this resistance expressed was not premodern "Asiatic" superstition but a rational view that ruthless methods were of little avail. Western medicine was equally unable to offer a cure for the disease, and despite Yersin's discovery the word had not yet got about that rats and fleas should be the target of attack. In 1910–11 the plague reappeared in Manchuria with greater virulence, transmitted from Mongolia rather than southwestern China, in the last major outbreak to be seen in East Asia. Chinese authorities and doctors managed to bring it under

control without foreign help, using Western-style quarantines and health checks. In 1894 the Cantonese authorities had done little to face up to the problem, but now perceptions had changed and the imperial government recognized the fight against the plague to be an important task. The late Qing state advertised its successes in public health as a patriotic achievement, which among other things forestalled any new intervention by foreigners against the country's "backwardness." China had dramatically narrowed its gap with Europe in the domain of plague control.

Nowhere was the plague more devastating than in India,[88] where it appeared with epidemic force in 1896, first of all in Bombay. Of the 13.2 million deaths from the disease recorded worldwide between 1894 and 1934, 12.5 million were in India. Hunger and plague were mutually reinforcing. The British authorities acted at least as harshly as they had in 1894 in Hong Kong, and more so than in previous epidemics of smallpox and cholera. Victims were locked up in camps or forced into special hospices, where the mortality rate was as high as 90 percent. Houses were searched for the dead and infected, travelers were subjected to physical examination, roofs and walls were removed to let in air and light, and huge quantities of disinfectant were sprayed around.[89] This heavy-handed approach was a result of international pressure to halt the spread of the disease and of a determination to prevent the complete breakdown of life in the big cities, but it also reflected the scientific self-confidence and image building of the medical profession. In any event, it proved as ineffectual in India as in Hong Kong. People ran away to escape the draconian measures and took the pathogen with them. The colonial authorities were flexible enough to correct their course in the end: whereas their main concern at first had been to protect the health of foreigners, they now—like the late Qing bureaucracy—took responsibility for the creation of a public health system.

The great fin-de-siècle Asian epidemic triggered a debate about how best to protect Europe. Earlier international health conferences that had been held since 1851 had been mainly concerned with cholera.[90] The one that gathered in Venice in 1897, with the participation of Chinese and Japanese experts, looked at measures to ward off the plague. Several European countries also sent health officials to study the situation in Bombay, and the health organization of the League of Nations—the precursor of today's World Health Organization—had its ultimate origins in these efforts at plague control.

The international outbreak of the plague that first became evident in the early 1890s was scarcely more "global" than other epidemics of the nineteenth century and less so than the Black Death of the fourteenth century (which was most probably a different disease). Most of the victims were recorded in India, China, and Indonesia (Dutch East Indies), with 7,000 deaths in Europe, 500 in the United States, and approximately 30,000 in Central and South America. The fact that it more or less spared the West was not due only to better medical provision in the "developed countries"; the contrast between "first" and "third" worlds, core and

periphery, does not exhaust the subject. The new epidemic would not have been possible without the development of extensive international networks, without the linkup of southwestern China with overseas markets. When the rate of spread accelerated, "modern" cities such as Hong Kong and Bombay, accessible by either ship or rail, became for a time the most dangerous places on earth. Low standards of hygiene plus more tightly meshed networking created the basic conditions of which the plague could take advantage.

The official reactions did not vary along an east-west axis; the microbiological revolution and laboratory-based medical science were still so new and unfamiliar in their applications to health policy that Western authorities were no cleverer than their Asian counterparts. In a city like San Francisco people shut their eyes to the peril, while in Honolulu, newly annexed by the United States, districts inhabited by Chinese and Japanese were burned to the ground in a scapegoating reflex.[91] In a number of countries, foreign minorities, often with skin of a different color, were treated as carriers of infectious diseases and subjected to more intense health checks. One of the most rational approaches was that of the moribund imperial state in China, which avoided the pointless excesses of the British in India.

The Blue Death from Asia

At the end of the nineteenth century, Europe was by no means an island secure from epidemic disease. Just when the plague was spreading like wildfire in Hong Kong, the German port of Hamburg was hit hard by an outbreak of cholera. No other disease threw Europe into such fear and panic in the nineteenth century: it was not a passing shock, here today and gone tomorrow, but a constant threat to the quality of life in large parts of the world. Although Robert Koch discovered the bacillus responsible for it on a trip to Calcutta funded by the German government in 1884, thereby dispelling old speculative theories about its cause, another twenty years would pass before it was understood that replacement of the water and salt lost by the patient constituted a simple, cheap, and effective treatment. Until then people suffering from cholera, in Europe and elsewhere, had to endure often quite pointless and brutal medical procedures. Those who escaped the attention of doctors tried to make do with household items such as camphor, garlic, vinegar fumes, or burning pitch.[92] In terms of medical knowledge, Europe before Koch had no decisive lead over China. The Shanghai doctor Wang Shixiong, in his "treatise on cholera" (*Huoluan lun* [1838; 2nd ed. 1862]), stressed the importance of clean drinking water quite independently of John Snow and other European or Anglo-Indian luminaries.[93] People in Europe were as helpless as elsewhere in the face of cholera; no "all clear" signal could be sounded at any time in the nineteenth century. Any disease has a distinctive chronology that differs according to location. This shows itself in the polarity of India and Europe. Over the centuries Europe had grown used to the *plague*, never ceasing to fear it yet gradually learning how to keep it in check. In India it was something

new in 1892; the only ones there who took countermeasures were Europeans. On the other hand, *cholera* came as an unpleasant surprise to both India and Europe in the nineteenth century. For decades European medicine was not much wiser than Indian when it came to explaining the disease and developing strategies to combat it.

Unlike dysentery, typhoid, or malaria, cholera is an itinerant disease; it travels from one continent to another and through village after village, it is borne on ships and in caravans. Like the plague, it came from Asia and was often described by people at the time as "Asiatic cholera." It therefore conjured up old fears of an invasion from the East, an Oriental menace. Its symptomatology underlined its horrifying nature: it appeared suddenly and could theoretically strike anyone, leading with plague-like probability (more than 50 percent of cases) to death in a time that might be as short as a few hours. Unlike smallpox, which causes a high fever, cholera is always described as a "cold" illness; unlike tuberculosis or "consumption," it is ill suited to any romanticism. Patients neither become delirious nor slip into a coma; they remain fully aware of what is happening to them. Diarrhea, vomiting, a bluing of the face and limbs: the symptoms resemble those of acute arsenic poisoning. Cholera, says the medical historian Christopher Hamlin, "was not a disease that a person lived with."[94]

The distribution of cholera can be clearly plotted.[95] European visitors to India drew a picture of the disease as long ago as the early sixteenth century. In 1814 it became more common in several parts of the country, and from 1817 there was a spectacular rise in the number of reported deaths in Bengal. With a speed unparalleled in people's experience, it then left the geographical confines of South Asia to become a global phenomenon. Medical historians identify a number of pandemics: six between 1817 and 1923, and a seventh after 1961. Their abrupt end is striking in each case. Cholera vanished as suddenly as it had appeared, and it might be another half-generation before it became visible again. In 1819 it arrived in Ceylon, and from there much-traveled shipping routes carried it west to Mauritius and East Africa and east to Southeast Asia and China. In 1820 it struck Siam and Batavia, and shortly afterward, moving simultaneously by sea via the Philippines and by land via Burma, it reached mainland China; by the following year it had moved two thousand kilometers north to Beijing. In 1821 it marched to Baghdad with an Iranian army and had already reached Zanzibar off the East African coast. In 1823, cases were reported in Syria, Egypt, and the shores of the Caspian Sea. Siberia was infected from China. It reached Orenburg in 1829, Kharkiv (Ukraine) and Moscow in September 1830, Warsaw and Riga in spring 1831.[96] Summer 1831 saw it reach Istanbul, Vienna, and Berlin; and in October it appeared in Hamburg, from which it spread to England and four months later to Edinburgh. In June 1832 it leaped across the Atlantic, probably in an immigrant ship from Ireland to Quebec, and by the twenty-third of the month it was in New York. In spring 1833 Havana lost 12 percent of its population. In Mexico City 15,000 people died in the space of a few weeks.

Later waves gave fresh vigor to local epidemics and added new localities to the list. Aggressive though this first wave certainly was, its devastating impact was later exceeded on several occasions. The third cholera pandemic (1841–62) raged during the Opium War in China, where British troops carried it from Bengal. In Paris, where the first attack occurred in 1832, as many as 19,000 people lost their lives in 1849. At the same time (1848–49) a million died of the disease in the Tsarist Empire.[97] Further outbreaks, each one weaker than the last, followed in Paris in 1854, 1865–66, 1873, 1884, and 1892. After 1910 France was free of cholera.[98] London had no more instances after 1866—doubtless because of the exemplary measures taken to improve sanitation. New York too escaped the epidemic of 1866 thanks to sensible preventive action, while other parts of the United States were severely affected. The last time that cholera invaded the country was in 1876.[99]

In the Crimean War (especially during the winter of 1854–55), the ravages of cholera among unprotected troops living in catastrophic hygienic conditions were the main impetus that led reformers such as Florence Nightingale—not only a ministering nurse but one of the great political and administrative talents of her age[100]—to call for radical changes in army health policy. Of the 155,000 British, French, Sardinian, and Ottoman soldiers who perished in the war, more than 95,000 succumbed to cholera and other diseases. In 1850 Mexico again suffered terribly, as did East Africa from 1865 to 1871; there were particularly severe outbreaks in Japan in 1861 and in China in 1862.[101] In Munich, an ill-famed hotbed of disease, the epidemic of 1854–55 was worse than that of 1836–37, and another major visitation would follow in 1873–74.[102] In Vienna cholera claimed nearly 3,000 lives during the world's fair of summer 1873. Hamburg was to some extent spared by the early pandemics, but in the 1892–93 outbreak (which was more severe than anywhere else in western Europe) more of its citizens died than in all previous ones combined. Since this happened at a time when statistical techniques had already made great advances, the records make it possible to analyze its social impact in greater detail than in the case of any other late-nineteenth-century public health crisis.[103] The Philippines suffered epidemics in 1882 and 1888; in 1902–4 (when vegetables from Hong Kong and Canton probably imported the bacillus) it saw as many as 200,000 deaths from cholera in a population weakened by the American war of conquest.[104] In Naples, three decades after the outbreak of 1884, cholera arrived again in 1910 from Russia (where it had claimed 101,000 lives), and US officials kept a close eye on the large numbers of Italian emigrants who were arriving at the time. Uniquely in the European history of the disease, the Italian authorities (under pressure from Neapolitan shipping interests) made a major effort to cover it up.[105]

The total number of people who died from cholera cannot be even approximately calculated. In India, probably the most seriously affected region, a figure of 15 million has been suggested for the period from 1817 to 1865 (when reasonably useful statistics began), with a further 23 million for 1865 through 1947.[106]

The suddenness of a cholera outbreak, which in one day can infect thousands of people in a large city by means of contaminated water, added to the drama. In 1831–32, and again in 1872–73, Hungary was hit harder than almost any other European country; its mortality rate in the 1870s was 4 percent higher than in the decades before and after. More generally, deaths from the disease varied from an upper limit of 6.6 per thousand in London to more than 40 per thousand in Stockholm or Saint Petersburg and 74 per thousand in Montreal (in 1832).[107]

The great pandemic of 1830–32, in which Georg Wilhelm Friedrich Hegel lost his life, made a particularly deep impression on people's minds in Europe. The speed with which it spread from Asia, suggestive of a Mongol-style microbial invasion, and the helplessness of its victims led to a veritable demonization of the "new plague." Among the rich it fueled fears of the lower classes as carriers of death, while among the poor it aroused fears that the authorities were poisoning them to solve the problem of unemployment. The "primitive Orient," to which the "civilized world" had felt so superior for decades, seemed to be providing proof of its continuing subversive power.[108] In Britain, France, and Germany, medical people tried to prepare for the future after the first disturbing reports came in from Russia, at a time when nothing was known about the likely extent or conduits of the disease or the efficacy of any countermeasures. The most precise descriptions of cholera came from British doctors in India, but these had received little or no attention in continental Europe.

Many sources tell of the first appearance of cholera in France and its social impact on the capital. The first cases, on 14 March 1832, afflicted doctors who had recently returned from Poland; cholera, unlike the plague, did not enter via Mediterranean ports but through the Rhineland or across the Channel. There were ninety deaths in March, but already 12,733 in April. Public places emptied, as anyone able to flee the city lost no time in doing so—a perennial type of response (the viceroy of Egypt in 1848 fled as far as Istanbul).[109] The problem of corpse disposal was almost insoluble. Rumors, reminiscent of a previous age, spread about the causes of the epidemic.[110] Revolts broke out, claiming at least 140 lives. On October 1 it was established that the outbreak had come to an end. As in all epidemics, the lower classes were hit disproportionately hard. The first waves of cholera rolled over societies that, in some cases, were passing through a stormy period of their political history. France had just experienced the Revolution of 1830 and had not yet adjusted to the new routines of the July Monarchy; the newly "emancipated" bourgeoisie was seeking fresh tasks for the state apparatus it had taken under its control. Cholera thus became a test for new forms of state regulation of civil life.[111]

Cholera appeared in India in 1817, at a point when the British had militarily defeated their strongest rival in the region, the Maratha Federation, and were moving to consolidate their own rule; the recent troop movements connected with this contributed to the spread of the bacillus. Moreover, India had just been opened up for the first time to Protestant missionaries. A link between

conquest and epidemic therefore suggested itself to ordinary Indians: there was a widespread view that the British, in violating Hindu taboos, had called down the wrath of the gods. So, in their different ways, both British officials and Indian peasants saw cholera as more than a health crisis but as a danger to "order" in general.[112] All through the century, the British authorities adopted a laissez-faire attitude to the disease. The kind of massive health measures taken in the 1890s to combat the plague never applied to cholera; there was scarcely any quarantine, isolation, or even a slight tightening of controls on Hindu pilgrim flows. The events of 1865 in Mecca, when pilgrims from Java introduced cholera and triggered a global domino effect that began in Egyptian ports, had confirmed that pilgrimages could be a factor in the spread of the disease.[113] So long as the nature of cholera was unexplained, doing nothing could seem as good as any other response. A doctrinaire liberalism and the penchant of the colonial state for cheap solutions thus bolstered the dominant medical opinion in both British India and London: that expensive health measures were not warranted, because there was no proof that cholera was infectious.

In continental Europe the main reflexes were those associated with earlier battles against the plague, so that sealing off affected areas seemed to be the most promising course of action. Russia, Austria, and Prussia established *cordons sanitaires* around themselves: the Tsarist Empire in Kazan against Asia, Prussia on the Polish frontier against everywhere to the east of it. Prussia alone deployed some 60,000 soldiers along a line of 200 kilometers, subjecting travelers to a rigorous quarantine and new cleansing measures, and even washing banknotes or fumigating letters they had on their person.[114] Here, too, there were medical authorities and lobbies that represented various theories concerning the transmission of cholera—by air, water, or direct contact. States such as Pettenkofer's Bavaria that did not share such views did not impose *cordons* or quarantines either. The effectiveness of such measures was, of course, called strongly into question by the almost unstoppable dynamic of the various outbreaks. Indeed, one wonders whether the ritual incantations to ward off evil spirits, which the king of Siam ordered to be chanted, were essentially less appropriate. Yet the whole of Europe, pulled this way and that by the competing theories, again gave itself over to a quarantine approach in the 1890s.[115] Quarantines remained a feature of international travel during the great age of the steamship: ports reassured passengers and merchants when they built functioning, but not too irksome, quarantine facilities. The rise of Beirut as "gateway to the Levant," for example, began in the 1830s with the opening of a modern sick bay and quarantine station.[116] Countries unable or unwilling to halt the flow of immigrants faced special problems, but they had to adopt protective measures even if a strict quarantine had proved early on to be of little use.[117]

Smallpox, plague, cholera, and yellow fever are mobile diseases suited to globalization, enemies of human beings with truly military properties: they attack, conquer, then withdraw. Sometimes physical defenses such as quarantines and

barriers remain the last hope. The growth of world trade and shipping in the nineteenth century increased the speed of transmission; humans and animals, but also goods, could become infected and disseminate deadly pathogens.[118] It should be added, however, that other, more localized epidemics also brought suffering and death.

In the nineteenth century the main one was typhoid or enteric fever, a good indicator of special historical problems. The classic description of this disease, which strikes an undernourished population living in conditions of "appalling misery," has come down to us from Rudolf Virchow, who in February and March 1848 was sent by the Prussian Ministry of Religious, Educational and Medical Affairs to Upper Silesia and sketched a powerful social panorama of one of the poorest regions in central Europe.[119] Industrialization and urbanization turned many large European cities into breeding grounds for typhoid. But it was also a soldier's disease, pointing to a failure to reform conditions in the army. It accompanied the Napoleonic armies, after they were infected by the waters of the Nile in 1798. It was especially grave during the Peninsular War in 1808, and even worse during the Russian campaign. In 1870–71 it was endemic in the Metz region during the Franco-Prussian War, and some of its worst ravages occurred in the Russian-Turkish war of 1877–78. At the turn of the century, a typhoid crisis could still bring the army medical service of any state to the brink of collapse.[120]

Finally, there was epidemic typhus, sometimes known as jail fever, quite devoid of glamour, or even of the frisson caused by the "democratic" horseman of the apocalypse who levels the highest and the lowest in society. It was a disease of poverty in a cold climate, the complete opposite of a tropical disease. Carried by lice, it tended to appear where poor sanitary conditions and fuel poverty meant that people living closely together did not change and wash their clothes often enough. Typhus, together with typhoid fever and dysentery, is a classic disease of war. Until the First World War it accompanied every modern conflict in Europe. The decimation of Napoleon's Grande Armée resulted more from dysentery and typhus than from the operations of all its other adversaries.

The Beginning of the End of the Medical Ancien Régime

In many respects, the medical history of the nineteenth century belongs to the ancien régime. There were still distinctive risk groups, the chief one being soldiers of every nation. The wars to conquer New Zealand were possibly the only ones in the century in which more European soldiers died in battle or from accidents than as a result of disease. The opposite extreme was the campaign in Madagascar in 1895, when some 6,000 French soldiers died of malaria and only 20 in military action.[121] A new era dawned outside Europe with the Russo-Japanese war of 1904–5, when the Japanese, thanks to meticulous vaccination and medical facilities, managed to keep their losses through disease to a quarter of the numbers killed in battle.[122] From a position of weakness, the emergent military state could hope for victory only if it carefully husbanded and deployed

its scarce resources in personnel and material. But the nineteenth century also witnessed the beginning of the end for the medical ancien régime—something that, despite all the jolts and discontinuities, should not be denied the name progress. This transition had, roughly speaking, three aspects, which may be arranged in sequence.

The first aspect covers the global retreat of smallpox in the face of Jenner-inspired vaccination and the prevention and treatment of malaria with alkaloids obtained and developed from cinchona bark. After 1840 or thereabouts, and especially after 1854, deaths from malaria began to decline at least among Europeans in the tropics—an essential for military conquests in southern latitudes.[123] These were the only two effective medical breakthroughs until the emergence of microbiology.

The second aspect was the rise of laboratory medicine, associated with the names of Louis Pasteur and Robert Koch, which was one of the great innovations of the age. After its first major successes in the 1870s, it established itself in the following decade as an independent field of science, although it took a while before preventive strategies or even mass treatments could be deployed against the various diseases whose causes were now identified. Moreover, the idea that medical research had to take place in the laboratory remained controversial for a long time for the Western public. Such doubts were often expressed in the form of opposition to experiments with animals ("vivisection").[124]

Between these two breakthroughs (the Jenner and Pasteur moments in medical history, as it were), an intermediary aspect or third phase involved a triumph for practice rather than for theory. It is associated more with the names of social reformers and medical-sanitary practitioners than with researchers bent over a microscope.[125] The movement for improved sanitation that began in mid-century in Western Europe and North America soon had at least a sporadic impact in many other parts of the world. Long before causalities had been scientifically established, experience showed that it was healthier to live in cities with clean water, proper sewers, and organized garbage disposal and street cleaning (which, unlike today, was mainly a question of removing organic matter such as ash and horse dung). Medical people knew this even before they were in a position to classify clean water bacteriologically.

This third aspect concerns a change in attitudes, which in principle was possible on various cultural foundations and did not depend on a correct understanding of the latest scientific theories from Europe. Societies that could find the will and resources to make their cities healthier and to care better for their soldiers gained a mortality dividend, enhanced their military capability, and raised their general energy level. Experiences in handling epidemic disease could translate into a changed international weight for the countries concerned. The global "hygiene revolution" was one of the great breakthroughs of the nineteenth century. It began after 1850 in western and northern Europe and has continued down to the present day. It was soon taken up in parts of India, later in east-central

Europe and Russia, and from the 1930s in countries such as Brazil, Iran, and Egypt.[126] It would be too simple to interpret this global process as a straightforward result of the Industrial Revolution, or even of the new scientific discoveries of the age. National income growth and new expertise did not *directly* translate into gains right across society in health, life expectancy, and the quality of life. There also had to be a certain normative change, so that epidemics were no longer seen as divine retribution or a consequence of evil individual or collective behavior; morality had to be taken out of the medical understanding of the world. As it became clear that epidemics responded to social intervention, support grew for state-run programs to construct public health systems. The decisive innovation, in which cities such as London and New York took the lead, was probably the creation of local health authorities under central control but with the leeway to respond to conditions in their area. People now expected clean tap water and regular collection of the garbage they had recently learned to fear and loathe. And consumers were ready to pay for facilities that were beneficial to their health.

In the nineteenth century, tropical diseases endemic in latitudes close to the equator were less successfully combated than some of the great scourges that affected Europe.[127] Nonurban environments were often more difficult and more costly than cities to keep clean, especially in tropical climes. The disparity was due to a number of factors: to the fairly limited reach of colonial medicine, which, despite many successes (e.g., in the fight against sleeping sickness), did not have the means to root out endemic diseases at the source; to the fact that neither the regions concerned nor the colonial tax system could meet the exceptionally high cost of removing contributory causes such as swamps (insect bites were definitely established as a conduit of infection only in 1879); and to a vicious circle of malnutrition and defective resistance to disease, which Europe and North America mostly escaped. There is much evidence that in the worldwide retreat of fatal diseases, the biological and economic pressures declined faster in the temperate zones of the earth than in the tropics. Climate does not explain economic performance directly or override social and political factors, but it should not be overlooked that the health burdens in tropical zones were and are greater than those in temperate latitudes. This has contributed to an environmental fatalism in hot countries that acts as a dampener on hopes of development.[128] Whether tropical medicine was a tool of medical imperialism is a question that does not admit of a single straightforward answer. In some respects (e.g., malaria) it gave Europeans and North Americans the medical assurance with which to conduct further conquests, but it did not do this in other respects (e.g., yellow fever). On the one hand, important medical discoveries were made in the colonies; on the other hand, experiments were conducted with new treatments and drugs that could not be tried out on Europeans. The main goal of colonial medicine and sanitary services was to improve living conditions for the colonizers. But in many colonies efforts were also made to raise the working

capacity of the colonized and to strengthen the legitimacy of colonial rule by means of reforms. Confronting potentially global scourges such as the plague in their non-European places of origin was a new approach that complemented the older strategies of protective shielding. The fight against disease was recognized in the nineteenth century as an international task. In the twentieth century it became one of the main areas of coordinated crisis control and prevention.

5 Natural Disasters

Apart from epidemics, there was no lack of other apocalyptic horsemen in the nineteenth century. Natural disasters seem to break into history from the outside; they are antihistorical free agents and independent variables. The most disturbing are those for which people are unprepared and against which human action is ineffectual. These include earthquakes. There is a history of earthquakes—as there is of spring floods or volcanic eruptions—but it can never be a history of progress. Only in the second half of the twentieth century did geology and meteorology, together with new measurement techniques, create some scope for disaster prophylaxis. Warnings are possible, and there is also a minimum, but nothing more than that, of preparation for the worst. Natural disasters are no peculiarity of the nineteenth century, but a portrait of the age would be incomplete without this ever-present menace to the routines of ordinary life. At times, certain spots of the earth were afflicted by a whole array of calamities. "In the first decade of the nineteenth century," reports a historian of Oceania, "Fiji experienced a total eclipse of the sun in 1803, the passage of a comet across the heavens in either 1805 or 1807, an epidemic of dysentery, a hurricane, and the inundation of many coastal areas as a result of either a tsunami or cyclonic storm waves."[129]

Earthquakes and Volcanoes

No event in nineteenth-century Europe had an impact on people's minds comparable to that of the Lisbon earthquake in 1755, whose horror still resounded thirty years later in the *terremoto* at the end of Joseph Haydn's *Seven Last Words of Christ on the Cross*. Heinrich von Kleist used a real case from 1647 as the basis for his novella *The Earthquake in Chile* (1807). But if any earthquake comes close to the one in Lisbon, it is the great tremor that shook San Francisco on 18 April 1906 at five o'clock in the morning. Many of the Victorian houses in the city collapsed, no thought having been given in their construction to the possibility that the earth would one day move. The social order itself was stretched to the limits as looters roamed the streets and the mayor called in the army to help. Fires blazed for several days and destroyed a large part of the city. Tens of thousands were rescued from the sea at the height of the crisis, in what was probably the largest maritime evacuation before Dunkirk in 1940. The most pessimistic estimates put the total loss of life at 3,000 and the number rendered

homeless at 225,000;[130] early concrete structures, which were more resilient than masonry, kept those figures from being even higher. The quake of 1906 was exceptional not because of the scale of the losses (far below the 100,000 deaths or more in Japan following the Kanto earthquake of 1923) but for a different reason: like the earthquake in 1891 on the main Japanese island of Honshu, which had left 7,300 dead, destroyed buildings with a mainly European design, and fueled criticism of exaggerated Westernization—it seemed to embody a new type of "national" disaster, in which nature attacked the nation at its weak point but at the same time gave it an opportunity to display solidarity and ingenuity in the work of relief and reconstruction. This was a general trend in response to natural disasters. In the 1870s, when huge swarms of Rocky Mountain locusts devastated large areas in the American Midwest, the creatures were declared a national enemy and the army was mobilized, under the leadership of an old Civil War general and Indian campaigner, to get aid through to small farmers. In the winter of 1874–75 two million food rations were distributed in the states of Colorado, Dakota, Iowa, Kansas, Minnesota, and Nebraska. It was one of the logistically most elaborate operations conducted by the government since the end of the Civil War in 1865.[131]

Volcanic events too are sudden and localized, but their effects may stretch over a wide geographical area. The eruption of Krakatau on August 27, 1883, in the Sunda Strait in what is now Indonesia, threw up an ash cloud that spread all around the world. A tsunami triggered by the eruption claimed approximately 36,000 lives along the coasts of Southeast Asia, and the already quite advanced instruments of the time measured seismic waves on every continent. A local natural disaster thus became a global scientific event.[132]

Back in April 1815 the eruption of Tambora on the small Indonesian island of Sumbawa, more powerful and more devastating in its consequences (117,000 killed in the area), had not yet caught the attention of the international public. A large part of the Indonesian archipelago was covered in darkness for three whole days; people heard the volcanic explosions at a distance of several hundred kilometers, often mistaking them for cannon fire, and troops were put on a war footing in Makassar and Jogjakarta. A thick deposit of ash and rock settled over the export-oriented island, which lost most of its forest and saw its rice fields along the coast flooded with seawater. The eruption reduced the height of Mount Tambora from 4,200 to 2,800 meters. Sumbawa became virtually uninhabitable. There was no medical care for the often seriously injured survivors; food supplies were destroyed and drinking water contaminated; the island became completely dependent on imports. This situation lasted for several months until the colonial authorities and the outside world realized the full extent of what had happened. There could be no talk of speedy emergency relief. The neighboring islands of Bali and Lombok were covered with twenty to thirty centimeters of ash, and there too, the destruction of the standing rice crop led to outbreaks of famine. Agriculture in Bali—which suffered 25,000 deaths—was still seriously

affected in 1821, but in the late 1820s the island began to reap the benefit of the fertile volcanic deposits. This was one of the reasons for the modern rise in its farm output.

The eruption of Tambora had global consequences. In many parts of Europe and North America, 1815 was the coldest and wettest year since records began, and 1816 went down in the annals as the "year without a summer." The impact was most severe in New England and western Canada. But Germany, France, the Netherlands, Britain, and Ireland also recorded abnormal weather conditions and poor harvests. For several more years particles in the stratosphere blocked the sun's rays, causing average temperatures to fall by three to four degrees Celsius. Nowhere did the crisis bite harder than in the southern Rhineland and Switzerland in the winter of 1816–17. Even the basic supply of imported grain broke down, since early frosts and harsh weather delayed shipments from Baltic ports. All of the old syndrome of food shortages, rising prices, and depressed demand for nonagrarian products established its hold. People flocked from crisis areas toward Russia and the Habsburg Empire, or via Dutch ports to the New World. Captains refused to accept penniless refugees, and many who were turned away had to make their way back home as beggars. The acute central European agrarian crisis of 1815–17 has often been seen as one of the last of "the old type," and quite a few historians have even thought that it destabilized European governments. Historians and climate researchers finally came to recognize in the twentieth century that it had been triggered by events in faraway Indonesia.[133]

Hydraulics

Water disasters lie at one extreme on the scale of events in which human activity is a contributory fact. They depend on the amount of periodic rainfall and snowmelt and are therefore difficult to predict even today, yet many societies learned early on to regulate the flow of water. Although few Asiatic societies can be said to have had a fully "hydraulic" character, it remains true that in many parts of the world, agriculture and other types of cultivation are possible only on the basis of irrigation and flood-defense technologies that go back a long way in time. The nineteenth century gave a new impetus to hydraulic engineering: it permitted major projects such as those regulating the upper and lower Rhine, or the great canals in North America and central Europe, and later in Egypt and Central America. In some cases, technological breakthroughs allowed new irrigation systems to be created out of ancient installations: for example, the massive projects initiated in the 1860s in the Bombay hinterland.[134] From 1885 on, in another project that took years to complete, the government of British India modernized and expanded a system of hydraulic installations in the Punjab (in today's Pakistan) going back to the time of the Mogul rulers. In this way, even the high plains of northwestern India were turned into wheat fields. Laborers were recruited from far and wide, and shepherds were replaced with taxpaying farmers reliable in their political loyalty to the colonial power.[135]

Sensitive irrigation systems—which require constant attention to work at their peak of efficiency—can be slowly degraded if private interests get out of hand and prevail over regulation in the common good.[136] War can destroy them in next to no time, as it did in Mesopotamia in the thirteenth century. The worst disasters occur where dams or dikes collapse—a constant danger not only in protected coastal areas but also on a number of great rivers. Such incidents were likeliest in China, the classical country of premodern water taming. Researchers have used the ample documentation on tax exemptions for flood victims to estimate the scale of the damage along the Yellow River (Huanghe), China's most difficult. For centuries a system of ever higher dikes guided the Yellow River through the provinces of Henan and Shandong, but the dangers of collapse also grew over time. In 1855 the northern dam in Henan gave way. The backwaters of gigantic floods could be seen three hundred kilometers away. And although the authorities deployed more than 100,000 men at the point of fracture, they were unable to hold the river again. After 361 years China's second-largest river altered its course for the sixth time in recorded history, now flowing northeast instead of southeast, so that its new mouth lay three hundred kilometers from the previous one.

In comparison with the catastrophe of 1938, when the Chinese high command blew up the Yellow River dikes in the face of advancing Japanese troops, the floods of the nineteenth century claimed surprisingly few lives. This was because the Qing state was then still capable of operating a kind of early warning system and, at many places, of maintaining protective dikes below the level of the main dams. Nevertheless, it was not unusual for many people to drown or lose their home in the escaping waters of the Yellow River, and floods often brought famine and disease in their wake. In some cases as many as 2.7 million people—7 percent of the population in the province of Shandong—received official disaster aid after dike breaches of the 1880s and 1890s. Social tensions, looting, and unrest were frequent consequences. In one region notorious for its banditry, in which the Taiping and Nian rebels had been active and sections of the population had been formed into armed militias, it did not take long for law and order to break down. Natural disasters alone seldom trigger social protest directly, but they were invariably a contributory factor in drought-prone northern China.[137] Floods there were not "manmade disasters" in any platitudinous sense of the term. The engineering challenges were enormous by any conceivable measure, as were those relating to work organization and project funding. The dike bureaucracy, the largest branch of the Qing state in the nineteenth century, concentrated many skills and discharged many tasks competently, but it was hobbled by its growing corruption, fiscal weakness, lack of planning, a tendency to act reactively rather than preventively, and resistance to new technologies.[138]

All in all, the old basic patterns changed little in the nineteenth century. In principle they still apply today. Owing to the bounty of nature, everyday life held fewer dangers for Europeans than for people in many parts of Asia. Although

the capacity for government regulation was not noticeably different (no state in the world had as much experience as China in dealing with natural disasters), and although a massive impulse was required even in the West to galvanize the state (as the example of the American locusts showed), things were easier for Europeans when push came to shove: more resources could be concentrated on a small number of less serious cases. Nevertheless, the victims of a disaster generally had to fend for themselves or to rely on help from the narrow circle of people around them. Neither medical/humanitarian assistance nor international support entered the picture in the nineteenth century. Both have developed in the period since 1950. They presuppose the deployment of airlifts and a conception of international aid as an ethical principle within a nascent global society—one of the greatest advances of civilization in the contemporary world.

6 Famine

The extent to which famines are "man-made" is not something that can be determined in general. Nor is it easy to say what the "starvation" associated with a famine actually is. The difficulty is twofold: on the one hand, starvation is "culturally constructed," so that the word does not mean the same at every time and place; on the other hand, the question arises as to what must be taken into account, apart from human physiology and culturally specific "semantics," in order to reach a reasonably complete understanding of the existential state of "starvation." One big question therefore turns into a number of subquestions concerning: (1) the *quantity* of food—that is, the minimum of calories—necessary for people differentiated by age and gender; (2) the *quality* of nourishment required to ward off dangerous deficiencies; (3) the regularity and *dependability* of food grown at home or supplied through public distribution or the market; (4) the actual form and level of *distribution* according to social stratum; (5) the claims and *entitlements* to food associated with various positions in society; and (6) the *famine relief* institutions, whether governmental or private-philanthropic, that can be mobilized in an emergency.

The Last Famines (for the Time Being) in Europe

One simple distinction is the one between chronic starvation (long-term shortage of food) and acute famine with a high level of mortality.[139] Famine crises were more characteristic of the twentieth century than the nineteenth. The century of great medical advances and the doubling of life expectancy was also the one of the greatest famines known to man: in the Soviet Union in 1921–22 and 1932–34, Bengal in 1943, the Warsaw Ghetto in 1941–42, Leningrad during the siege by German troops in 1941–44, the Netherlands in the winter of 1944–45, China in 1959–61, and Sudan in 1984–85. The effects of starvation are the same across cultures: people of all age groups—but first the very young and very old—eat ever-smaller quantities of less and less nourishing food: grass, tree bark,

unclean animals. They become "all skin and bones." Secondary effects such as scurvy are almost inevitable, especially where people (as in Ireland) are used to a vitamin-rich diet. The struggle for survival destroys social or even family ties, pitting neighbor against neighbor. Men and women commit suicide, children are sold, defenseless people are attacked by animals; cannibalism itself—however unreliable the reports always are—lies in a straight line from despair. Survivors are traumatized, children suffer lasting physical damage, and governments, bearing the original guilt of having failed to provide relief, are often discredited for decades. Memories stick in the collective mind.

Were there such famines in the nineteenth century, and if so, where? The question is rarely mentioned in the history textbooks. The German texts recall the terrible times of the Thirty Years' War, especially 1637 and 1638, as well as the great famine of 1771–72. Hunger again stalked the country in 1816 and 1817. After the subsistence crisis of 1846–47, the classic famine—brought on by harvest failure, grain profiteering, and inadequate government action—disappeared from the history of central Europe and Italy (where things were especially grim in 1846–47).[140] Of course, this needs to be seen in a broader framework: famine had marked many parts of Europe in the age of the Napoleonic wars; and hunger riots had broken out in England during the 1790s, even though it was then the richest country in Europe and had the best system of poor relief (the Poor Law) supported by religious and philanthropic private initiative. Few actually starved to death in England, but many of the things to which people were accustomed became prohibitively expensive. Those who could no longer afford wheat turned to barley, while those who found even that too expensive had to make do with potatoes and turnips. Women and children went short more than others, in order to maintain the laboring power of the head of the family. Household goods were pawned, and the number of thefts shot up. Such was the face of hunger in a country that after 1800, thanks to its wealth and its global connections, would be able to ensure its food supply from overseas.[141]

On the Continent, the specter of subsistence crises retreated after 1816–17. In some parts of Europe where famine had been a regular occurrence, it became much more of an exception—in the Balkans after the 1780s, for example. Spain remained vulnerable and in 1856–57 experienced another major crisis. And Finland lost 100,000 of its 1.6 million inhabitants after the harvest failure of 1867—the last true subsistence crisis in Europe west of Russia.[142] At the same time, and in similar weather conditions, Sweden's northernmost province, Norbotten, suffered a serious food bottleneck, although its much better organized disaster relief meant that the loss of life was much smaller than in Finland.[143] Scotland—unlike France, for instance—came through the eighteenth century rather well. But between 1846 and 1855 it endured hardship unparalleled since 1690, with year after year of poor potato crops in the western highlands and islands. The loss of life was not especially large, but it fueled massive emigration and was therefore of great demographic significance. It was the last great subsistence crisis in the British Isles.[144]

Europe's Exceptions: Ireland and the Tsarist Empire

In Ireland, the poorest part of the United Kingdom, the Great Famine of 1845–49 was caused by several years of potato crop failure resulting from the mysterious fungus *Phytophthora infectans*.[145] The potato blight hit a society in which the poor lacked not so much food as adequate clothing, housing, and education. English visitors described in dark hues the impoverishment of the island before the famine; they could hardly have failed to do so, given that they came as aristocrats and bourgeois from a country where living standards were twice as high. But, to keep a sense of perspective, we should bear in mind that Ireland's real per capita income in 1840 was equivalent to that of Finland in the same year, Greece in 1870, Russia in 1890—or Zaire in 1970.

The size of the potato harvest in 1845 was one-third smaller than normal, and in 1846 three-quarters smaller. The situation was a little better in 1847, but in 1848 it was scarcely possible to speak of a crop at all. The Irish famine, more than many others, was unleashed by the direct physical failure of the food supply. High prices and speculation, the usual triggers of early modern hunger revolts, played no significant role. The scale of the disaster becomes clearer by the criterion of land acreage of potatoes: two million acres before the famine, a mere quarter of a million in 1847. The death toll peaked in 1847–48, when dysentery and typhus ravaged an already weakened population and tens of thousands were dying in poorhouses, while at the same time the birthrate plummeted. Not only the poor were affected, since no one was safe from infectious diseases. As so often was the case in nineteenth-century epidemics, doctors succumbed too, in droves. Present-day research confirms the old figure of one million excess deaths in a total population of 8.5 million before the onset of the crisis. Perhaps a further 100,000 died of the consequences of starvation, either during or immediately after emigration.

It is still not altogether clear how the destructive fungus reached Ireland; one plausible theory is that it came in shiploads of guano fertilizer from South America. Relief measures, at first involving private initiatives, began shortly after the first crop failure became apparent, as reports aroused sympathy and support in many countries. The Catholic Church and the Quakers were especially active in the work of organization; even the Chocktaw nation sent donations from Oklahoma. As a reasonably good experience in 1822 had already shown, massive government aid at the beginning of the crisis might have been successful in controlling it; wheat could have been imported from the United States, for example, which unlike Europe had had a record harvest in 1846. But several factors determined the actual response of the British government. The ruling ideology of laissez-faire excluded any interference in the "free play" of market forces, because that would have been damaging to the landowning and commercial interests. Also influential was the view that the collapse of the potato economy would create opportunities for the modernization and reorganization of agriculture

and allow it to achieve a "natural equilibrium." Some Protestants even believed that the crisis was a gift from the Almighty, making it possible to root out the evils in Ireland's Catholic society. Another element was British hostility to Irish landowners (whose greed and neglect of agricultural improvements were held responsible for the problems in the country), so that it saw little reason even to repair the damage.

In 1845–46, the first year of the famine, the Tory government of Sir Robert Peel bought emergency supplies of Indian meal (a cheap, coarsely ground cornmeal) from the United States and had it distributed at various official sales points; at the same time it inaugurated a program of public works. The Whig government of Lord John Russell that came to power in June 1846 continued with this approach but refrained from any involvement in the trade. Soup kitchens were set up in 1847 but soon were discontinued. It has often been asked how three million people could have been so dependent on the potato. The answer is probably that it had proved its worth for decades and that people did not think it left them open to excessive or incalculable risks. One theory is that the disaster of 1845–49 brought the long decline of the Irish economy to a head, while another school of historians sees the fungus invasion as an exogenous blow to a process of slow economic modernization. But a purely naturalistic explanation will not do. The Irish famine does not invalidate the general insight that from the beginning of the seventeenth century, European agriculture was productive enough to satisfy the basic needs of the population and that "famines were man-made rather than natural disasters."[146]

The famine of 1891–92 in the Tsarist Empire, which claimed approximately 800,000 lives, mostly in the Volga region, had quite different causes. It was not due to an absolute shortage of food: the harvest of 1891 was very small but no more so than those of 1880 or 1885, when Russia had pulled through without any major relief effort. A number of other factors came into play at the beginning of the 1890s, however. In the preceding years, farmers in the black soil region in particular had tried to raise output by redoubling their labor and putting a relentless strain on the earth. Then bad weather came on top of the exhaustion of people, animals, and soil; soon all reserves kept for a rainy day were used up. The famine of 1891–92 was a turning point in the history of Russia. It brought to an end the "reactionary" period following the assassination of Tsar Alexander II and introduced a phase of social unrest that issued in the Revolution of 1905. In general the Tsarist government did not perform badly in disaster relief, but this counted for little in the realm of symbolic politics. It seemed to the public of the time that famines happened only in "uncivilized" colonial or semicolonial countries such as Ireland, India, and China. The anachronistic famine of 1890–92 appeared to demonstrate once again the growing gap between the Tsarist Empire and the progressive, prosperous countries of the West.[147]

The New World was also one of these "civilized" areas of the globe. North America was free of famine in the nineteenth century: only small communities

of Indians may have been temporarily reduced to extreme subsistence levels. The fact that people in the Western hemisphere were not undernourished made a favorable impression on many poverty-stricken Europeans during the great crisis years of 1816–17 and 1846–47. An immigrant from northern Italy, where the rural population suffered from the vitamin deficiency disease pellagra and had meat on the table only on the main feast days, found a surplus of meat in Argentina. Even in Mexico, which was not a classic country of immigration, the age of famines lay in the past; the last one had occurred in 1786. The food situation improved markedly during the first half of the nineteenth century, as grain production increased twice as fast as the population. The new republic also took better precautionary measures than the Spanish colonial state had done, and on several occasions after 1845 it bought cereals from the United States in time of need.[148] In Australia and New Zealand, too, there was no longer any reason to fear an outbreak of famine.

Africa and Asia

Things looked different in the Middle East and Africa. In Iran, a great famine between 1869 and 1872 claimed approximately 1.5 million lives.[149] In sub-Saharan Africa, the 1830s, 1860s, and 1880s were marked by especially severe drought, and after 1880 the colonial wars of conquest everywhere exacerbated the food supply problem. In perhaps the worst known famine before the First World War, 25 to 30 percent of the population perished in 1913–14 in the Sahel region, not long after another famine in 1900–1903.[150] Drought does not automatically result in famine. African societies had a lot of experience in averting food shortages and starvation and in cushioning their impact. The mechanisms of crisis prevention and management included a change in production methods, the mobilization of social networks, and the use of ecological reserves. Supply maintenance techniques were highly developed. But it is true that in persistent drought, often followed by scarcely less dangerous periods of monsoon-like rainfall that brought diseases such as malaria in their wake, social orders might fall apart. People then dispersed into the bush to increase their chances of survival. Violence was more widely practiced by warrior groups in such situations. In southern West Africa (Angola), for instance, there was also a long-standing connection with the slave trade: drought victims would flock toward populated centers and become subjugated as "slaves"—a pattern still apparent in the generation affected by the extended drought of 1810–30.[151]

Even before the colonial invasions of the 1880s, however, two new developments made it more difficult to apply such tried-and-tested strategies. First, the spread of the caravan trade and the "Oriental" slave trade in the savannah belt south of the Sahara led to a new kind of commercialization from the 1830s on; long-distance trade started to bring in food supplies through regional distribution networks. Second, a new factor both in the Mediterranean North and in South Africa was the vigorous competition for land between African societies

and European settlers. An additional complication was that colonial ideas about natural conservation often corresponded more to European fancies of a "savage" Africa than to the survival needs of the indigenous population.[152]

In Asia, which in the second half of the twentieth century left starvation behind faster than Africa did, the nineteenth century witnessed the most devastating famines. They seem to have been particularly deadly where, in conditions of low agricultural productivity and meager surpluses, societies found themselves temporarily trapped between growing marketization of the food supply and an underdeveloped structure of disaster relief. Despite its relatively productive agriculture and exceptionally good health conditions, Tokugawa Japan was not spared the visitation of famine. Like Europe, it had repeatedly witnessed hunger crises in the early modern period—for example, in 1732–33 and again in the 1780s, when the eruption of the Asama volcano in August 1783 added to the ecological and economic difficulties facing the country. The Tempō famine, the last great tragedy of its kind to strike Japan, broke out in 1833 as a result of crop failures and aggravated by infectious diseases; the next two harvests were not much better, and the one of 1836 was a disaster.

There are indications that between 1834 and 1840 Japan suffered a drop in population of about 4 percent.[153] A sharp rise in social protest was directly linked to the food crisis, but, as in large parts of Europe around the same time, it signaled the end of the recurrent threat of famine. The size of this threat should not be exaggerated. It had always been lower than in many parts of mainland Asia: Japan was not susceptible to climate-induced harvest failure (except in the far North), nor did its agriculture perform badly. The Tokugawa economy kept the growing cities fed, and the average food situation in the eighteenth century was probably not essentially different from that which prevailed in Europe. The second quarter of the nineteenth century followed a period of relative prosperity that had begun around 1790. The Tempō famine, comparable in scale to the European crisis of 1846–47, was felt as a great shock and a symptom of a broader social crisis precisely because it was *uncharacteristic*. Though the Japanese were by no means generally protected from hunger, they were no longer accustomed to the kind recurrent food shortage that haunted other societies in Asia.[154]

The Asian famines of the nineteenth century that caused the most deaths and attracted the greatest attention in the rest of the world were those in India and China. These countries experienced unusually severe weather conditions at almost the same time, from 1876 to 1879 and from 1896 to 1900–1902. Also Brazil, Java, the Philippines, and northern and southern Africa suffered poor harvests that have since been blamed on the meteorological phenomenon known as El Niño (although this is still disputed). For India and China together, the excess mortality during these years has been estimated at a total of 31 to 59 million.[155] In both cases, unlike Russia in the 1890s or Japan in the 1830s, it is questionable whether the famines triggered major historical changes. In China the famine of the seventies, which was considerably graver than the one at the end of the

century, led to no really significant increase in political or social protest. The Qing Dynasty, which shortly before had withstood the far greater challenge of the Taiping Revolution, was not seriously destabilized and eventually collapsed in 1911 for quite different reasons. British rule similarly held firm in India—as it had in Ireland after the Great Famine. But the famous naturalist Alfred Russel Wallace, in the assessment of the Victorian age that he wrote in 1898, included both these famines among the "most terrible and most disastrous failures of the nineteenth century."[156]

But although famines are not always turning points in history, they invariably tell us something about the society in which they occur. In neither India nor China was the whole country affected. In India, where monsoon failure was the trigger, the worst famine of the nineteenth century was concentrated in the south, mainly in the provinces of Madras, Mysore, and Hyderabad, with a second center in the north-central region south of Delhi.[157] In China, only the northern parts of the country between Shanghai and Beijing were affected, especially the provinces of Shanxi, Henan, and Jiangsu. Undoubtedly the actions of the colonial government made the situation worse in India; contemporary critics already blamed the severity of the famine on doctrinaire adherence to free-market principles. It took some time before the administration was willing to acknowledge the scale of the disaster and to suspend the collection of taxes.[158] In northern India, where the harvest failure had been relatively minor, high prices in the British market sucked away so much grain that not enough was left to cover the subsistence minimum of the peasantry. Despite many initiatives by lower-level authorities to relieve the disaster, the policy of the Raj was to place nothing in the way of the private grain trade and to avoid as far as possible any additional public expenditure. The results were the same in 1896–98: grain could be bought at high prices even in areas where the harvest had suffered the worst damage.[159]

Commissions put in place by the government in London were among the critics of the British authorities, but they found no fault with the principle of "colonialism on the cheap." The great famines of the last quarter of the century were less an expression of primitive Indian resistance to progress than, on the contrary, the symptom of an early crisis of modernization. Railroads and canals, which made it easier to transport aid to crisis-hit areas, were at the same time the logistical basis for engaging in speculation with the harvest yield; they facilitated both an inflow and an outflow of grain. Poor harvests were inescapably reflected in high prices.[160] Hoarding and speculation had always been a possibility in premodern conditions. What was new was that traditional village reserves of food were also caught up in the flow of all-Indian and international trade, so that even small changes in harvest yield led to exceptional price increases. The severity of the impact on the rural population—the cities remained fairly well supplied—was ultimately due to the fact that incipient modernization made certain social groups more vulnerable, especially small leaseholders, landless laborers, and home weavers. The decline of home weaving in the countryside and of many

social institutions that had formerly offered some protection against disasters (castes, the family, village communities) was an intensifying factor.

In many parts of India, farmers drove agriculture to the limits of the possible, mostly by using poorer soils that required a greater input of labor and reliable irrigation. Often these conditions were not present. The race to produce for export markets resulted in large-scale privatization of common land; shepherds were driven into mountainous country with their animals; trees and bushes were cleared away. Ecological stress on soil reserves was therefore part of the fateful modernization crisis. The growing economic vulnerability of families and individuals led to an upward spiral of debt, and urban moneylenders and their village agents, alongside grain speculators, were a great threat to the existence of the peasantry. The lack of adequate communal or government-controlled credit for small landowners fueled the debt spiral, which the colonial regime shrugged off as a consequence of the free play of market forces. The landless seem to have been the hardest-hit by famine, neither having their own means of production nor being able to assert ancient rights, however rudimentary, to the moral economy of mutual aid. The evolution from harvest problems to a full-blown famine did not depend only on the "free play" of market forces and self-interested policies on the part of the colonial rulers. Peasant producers were mostly cut off from the market and exposed to the machinations of landowners, merchants, and moneylenders, many of whom tried to profit from the crisis. The distribution of power in rural societies was one of the causes of starvation.[161]

In northern China, nightmare scenarios similar to those in India played themselves out between 1876 and 1879.[162] The Great North China Famine, which claimed 9 to 13 million lives (most of them from typhoid), was the most serious and geographically most widespread human disaster in any time of peace during the Qing era; the region had seen nothing like it since 1786. The only Westerners who observed it were not colonial officials but individual missionaries and consuls. It is therefore little documented in Western sources, whereas Chinese sources are filled with detail. The sense of horror that the Indian famine aroused abroad was due not least to the spectacular photographs of its victims, the first of their kind to be published anywhere in the world. Very few similar pictures exist from northern China; the famine there was in media terms the last of the "old type." Nearly a year passed before foreigners in Shanghai or Hong Kong became aware of its scale in a remote province such as Shaanxi. But then a private China Famine Relief Fund was soon set up in Britain, which transferred funds to China in an early charitable application of telegraph technology.[163]

Unlike India, northern China had not yet been opened up by the railroad and was all but untouched by capitalism. The province of Shanxi, for example, was linked to the coast only by narrow, frequently impassable roads that wound across high mountains. Aid from other regions of the country was more difficult to organize than in India, especially as the Great Canal, which for centuries had supplied the capital Beijing with rice from the lower Yangtze region, had silted

up and fallen into disrepair. The famine-stricken regions had long been among the most precarious economically and the least productive in their agriculture. China's real granaries—the lower Yangtze and the southern coastal strip—were not hit by the natural disaster that lay at the origin of the famine. In the end the Chinese state did undertake considerable relief efforts, but the results were paltry in comparison with the size of the challenge, or indeed with some of the great relief campaigns of the eighteenth century. But this discrepancy had less to do with a doctrine of cheap government plus free markets than with the fact that the Qing Dynasty had been financially drained by the suppression of the Taiping and Muslim rebels. In contrast to the Indian famine, the one in North China was more a crisis of production than a crisis of distribution. It broke out in an ecologically precarious niche, where for centuries state intervention had been able to ward off the worst consequences of disastrous weather conditions. The limits to such intervention were now greater than in the past.

A "Land Stalked by Hunger"?

The famine of 1876–79 leads us on to the general standard of living in nineteenth-century China. Had it really become a "land stalked by hunger"? The question is so interesting partly because recent research, in both China and the West, has painted an extremely rosy picture of the eighteenth-century Chinese economy, confirming the favorable reports of missionaries at the time. The variants of agriculture in the Qing Empire ranged from pasture farming in the grasslands of Mongolia to the highly productive mix of rice terraces and fish ponds in the south to the export of products such as tea and sugar. But however hard it may be to make a generally applicable statement in this regard, there is now agreement among experts that until the last quarter of the eighteenth century, Chinese agriculture kept a fast-growing population adequately fed. The claim that eighteenth-century Chinese peasants lived at least as well as and probably better than their counterparts in the France of Louis XV—a claim that people in the West long found beyond belief—has something to be said for it in the state of our present knowledge.

The comparison with eastern Europe is certainly favorable. Almost constantly one district official or another would report food supply problems from a part of the vast empire and ask the imperial court for help. The Chinese state responded to such appeals on a scale that had no parallel in Europe at that time; the care and maintenance of its famed system of public grain reserves, which reached its peak of efficiency under the Qianlong Emperor (r. 1737–96), was one of the principal duties of local officials, and the relief it gave in an emergency was several times greater than the tax yield in a normal year. The emperor and provincial governors personally concerned themselves with the functioning of this system. The dynasty of the Qing conquerors from Manchuria derived some of their legitimacy as rulers of China from their success in ensuring internal peace and public welfare. When urban leaders other than government officials

began in the 1790s to take on philanthropic commitments, the first goal they set themselves was to build up private grain reserves.[164] The state granaries also had ongoing responsibilities. Especially in Beijing and its surroundings, they took delivery of taxes and tribute in grain and even sold it in normal times at below the market price, keeping a close eye on private traders to prevent hoarding. The mixed state-private grain market that developed in this way had to be repeatedly kept on a middle course, and in general this was successfully achieved. In the last two decades of the eighteenth century, 5 percent of China's total grain harvest was being stored in public granaries. The system proved its worth under the rule of the Qianlong Emperor. Despite numerous droughts and floods, no famine remotely comparable to that of the 1870s is known to have occurred in the eighteenth century.[165]

It is not yet fully understood how Chinese agriculture fared in the nineteenth century. The climate seems to have worsened after the turn of the century, and there was a rise in the number of natural disasters. At the same time, the capacity of the state to intervene proactively in society gradually declined. Little use was made of the usual method of tax deferrals or exemptions, while fewer and fewer disaster areas received old-style direct support from the government. The general plight of the Qing Dynasty was palpable in the lower ethical standards of public officials and the spread of corruption, which must have negatively affected the complicated system of grain storage. Grain rotted away in poorly maintained storehouses, and there was a failure to keep the reserves regularly replenished. When the Opium War then opened a long series of conflicts with the Great Powers, and the Taiping Revolution shortly afterward started a chain of internal revolts, the Qing state began to set new priorities for its dwindling resources. The supply of food to the army would now take precedence over civilian disaster relief. This reorientation contributed to the virtual disappearance of the granary system in the 1860s, a hundred years after the height of its functioning.[166] Yet famine on the scale of the 1870s was a unique event. It may well be that until the 1920s Chinese agriculture was still capable of providing a reasonably tolerable average supply of food to the population.

Eurasia as a whole differed from North America in that its western and far eastern (Japanese) extremities left the constant threat of famine behind only in the second half of the nineteenth century, and the rest of the continent followed much later. This did not mean that all sections of society in Japan and Western Europe were now free of undernourishment or malnutrition, or that individuals were protected from extreme poverty, but it did mean that the specter of inescapable collective famine and widespread deaths from starvation was a thing of the past. Another ancient phenomenon also became unusual in nineteenth-century Europe: the starving of cities into submission through siege warfare. One notable exception was the siege of Paris in 1870–71, when the German blockade of food and fuel was partly responsible for a higher-than-usual number of civilian deaths, especially among the very young and the very old.[167] Ten years earlier, in

the winter of 1861–62, there had been a similar episode in China, when imperial troops had besieged the city of Hangzhou in the hands of Taiping rebels, and two months of economic blockade had produced 30,000 to 40,000 deaths from starvation among the civilian population.[168] During the First World War, one of the few examples of such a blockade was that which Ottoman troops mounted in 1915–16 against the British garrison at Kut on the Tigris, although there were more soldiers than civilians inside the fortress. During the Second World War, this form of warfare was practiced against the city of Leningrad, with the new impetus of an ideological war of annihilation. Of a different order was the blockading of whole countries and regions—a strategy twice implemented on a large scale, each time with grave consequences for the civilian population. In 1806 Napoleon imposed the so-called Continental System against Britain, which retaliated by taking up the idea in an escalating spiral. And between August 1914 (a fortiori 1916) and April 1919, Britain maintained a blockade against Germany.

7 Agricultural Revolutions

The nineteenth-century changes in the geography of shortage and surplus must be seen against the wider background of a global development of agriculture.[169] The importance of agriculture everywhere at that time cannot be overestimated: most countries were still agrarian on the eve of the First World War; the world was still a world of tillers of the soil. This did not mean that the societies in question were mired in that general stagnation that city dwellers liked to ascribe to the alien world of the peasantry. After the middle of the nineteenth century, world agriculture experienced an extraordinary boom, most evident in the land area under cultivation. In the rice economies of East and Southeast Asia, there was literally no space for such expansion. But in Europe, Russia, and the neo-European overseas societies, total arable land rose by a factor of 1.7—from 255 million hectares in 1860 to 439 million hectares in 1910—which was a rate of growth without precedent in history over a period of five decades. Western Europe had only a minor share in this expansion, and the settlement and agricultural utilization of the vast Canadian prairie began only after 1900. The decisive advances were in the United States and Russia.[170] Only in a few countries for which estimates are possible—above all, Britain and France—did the total area of land given over to field and bush crops decline between 1800 and 1910. But there is not a direct correlation between industrial growth and a decline in agricultural acreage, since in the United States, Germany, Russia, and Japan (which all had industrial structures at the latest by 1880) the extensive development of agriculture continued.[171]

In the years from 1870 to 1913, world agricultural output grew by an estimated annual average of 1.06 percent—a rate far higher than any achieved between the two world wars. The per capita increase was smaller, of course. But annual growth of 0.26 percent meant that, by the eve of the First World War, more food

and agrarian raw materials were available per capita of the world's population than there had been in the middle of the previous century. This outcome was made up of very different trends in individual countries. But the advances were by no means concentrated only in the North Atlantic space: output growth was higher in Russia than in the United States, and countries as different in their agrarian structure as Argentina and Indonesia occupied positions at the top of the league table.[172] The expansion of production concealed huge differences in productivity, and hence in the ratio of resource inputs to outputs. The yield per hectare in American wheat production and in Indian rice-growing, for example, was roughly comparable at the end of the nineteenth century, but productivity in the United States was fifty times higher than in India.[173]

The international trade in agricultural goods rose even more sharply than production, although at a somewhat slower pace than world trade as a whole. New export regions emerged for wheat, rice, and cotton, and challenged the position of traditional producers. Agrarian frontiers opened up in the American Midwest and in Kazakhstan, but also in West Africa, Burma, and Vietnam. In Cochin China—that is, the Mekong delta and its hinterland, which were scarcely populated before the arrival of the French—a dynamic rice-exporting sector geared itself mainly to southern China, while Burmese rice was sold chiefly to India. Between 1880 and 1900 the area used for rice nearly doubled and the volume of exports tripled.[174] New tropical products such as coffee, cocoa, and palm oil won overseas markets for themselves. "Developed" and "backward" countries alike offered agrarian products for sale on the world market; Britain obtained its wheat from the United States and Russia as well as from India.[175]

What did this mean for social history, in Europe, for example? Although the relative proportions of the three sectors—(a) agriculture and fisheries, (b) industry and mechanized mining, and (c) services—gradually changed in Europe, employment in the primary sector remained for a long time the highest in absolute terms. In 1910 the numbers working in agriculture were below the level of 1870 only in Britain, Belgium, Denmark, and Switzerland (plus Ireland, for altogether special reasons). At some point the share of those employed in agriculture fell below 50 percent in Europe: it happened before 1750 in England, between 1850 and 1880 almost everywhere in western and northern Europe, and only after 1900 in Italy, Portugal, and Spain.[176] The typical cause was more the emigration of rural laborers to urban industrial centers than a reduction in the number of family farms. All societies of Europe with the exception of England (much less Wales and Scotland) retained a strongly agrarian character throughout the nineteenth century. And even in England, with its towering (and tiny) landowning aristocracy, cultural ideals of a preindustrial country life continued to be dominant. The great contraction of agriculture, together with the social and cultural marginalization of the world of the peasantry, began in continental Europe after 1945 and is only today reaching a climax in countries such as China.

Statistically, then, the global food situation improved spectacularly between 1800 or 1850 and 1913. Engel's Law (so named after the Prussian statistician Ernst Engel), which is one of the few empirically rock-solid laws in social science, states that since the share spent on food decreases as total income increases, the rich are not the only ones able to profit from a growth in per capita production. Attempts have been made to demonstrate this by reference to an "agricultural revolution."[177] It is a concept about which there has long been intense debate, especially in relation to the economic history of England—that is, to the prehistory of the Industrial Revolution. The classic question is whether an "agricultural revolution" really did precede the Industrial Revolution and was perhaps even its necessary prerequisite. Suffice to recall a simple rule: "For industrialization to occur, it had to be possible to produce more food with fewer people."[178] There is no need to pronounce on the matter here. The relative proportions are the main interest for global history, and about those it is possible to say the following.

First, historians of England or Europe define agricultural revolution in general as the beginning of a long and steady increase in agricultural efficiency, measured both by rising yields per hectare (resulting in Europe mainly from new systems of crop rotation and preindustrial technological innovations)[179] and by a growth of labor productivity caused by mechanization and so-called economies of scale. Similar phenomena have already been recorded in the fourteenth-century Netherlands. The true agricultural revolution, however, took place in England in the late eighteenth century and continued in the first half of the nineteenth.[180] By 1800 an English rural laborer was producing twice as much as a Russian, and wheat output per hectare in England and the Netherlands was more than twice as high as almost anywhere else in the world. England was able to become a leading grain exporter to the Continent over the course of the eighteenth century, before its fast-growing population turned it into an even larger net importer and, beginning with the first Corn Law of 1815, made grain tariffs a central bone of contention in British politics.[181]

Second, England's special developmental path does not allow the conclusion that European or "Western" agriculture was unambiguously leading the world at the end of the eighteenth century. In large parts of Europe, agriculture was no more able to sustain the local population than in Indian, Chinese, Japanese, or Javanese regions of intensive farming. It was a long time before even the more dynamic European regions clearly benefited from advances in mechanization. The age-old sickle still cut 90 percent of the wheat harvest in southern England in 1790, being only slowly replaced by the scythe; and around 1900, when the sheaf-binding harvester was the leading technology in England, the scythe was still reaping most of the cereals on the Continent.[182] Steam-powered machines threshed most of the harvest from the 1880s in England, but only much later elsewhere. In 1892 the first tractor went into batch production in the United States, though no more than one thousand were in use in 1914 (one million by 1930). In 1950 horses still accounted for 85 percent of traction in European

agriculture.[183] Artificial fertilizer, first used on a large scale in Germany and the Netherlands, came to be taken for granted all over Europe only in the 1930s, a full century after Justus von Liebig's trailblazing discoveries. Full mechanization and rationalization of agriculture was a *twentieth*-century development also in Europe and the United States, and relics of premodern ways of using the soil still lingered there. From Scandinavia to southern Italy, many farmers practiced technologically simple forms of subsistence agriculture, sometimes even slash-and-burn techniques as in Africa. Wherever, as around the Mediterranean, the use of horses came up against a lack of pasture and winter fodder, the energetic input into agricultural production faced narrow constraints. And also in Europe there were cases of agricultural "decay." Spanish agriculture had never recovered from the fact that the agrarian expertise of the Jews and Muslims (the last of whom were expelled in 1609) had been treated with contempt and their irrigation systems allowed to fall into disrepair.[184]

Third, labor-intensive rice cultivation on irrigated fields in tropical and subtropical latitudes had for millennia been among the most productive forms of agriculture. It too acquired its finished shape in a long process, which came to an end only in twelfth-century southern China: in the words of Fernand Braudel, "the most important event in the history of mankind in the Far East."[185] Since a transcendence of the given limits of agriculture is possible only at the highest "traditional" level, some regions of Asia were candidates for such a leap forward. Agricultural revolution presupposes a high population density, a functioning market system, reasonably free labor, and a high level and wide dissemination of know-how. These conditions were present also in parts of southern and central China in the mid-eighteenth century. Other factors, however, were working against an independent Chinese or Asiatic agricultural revolution: paddy cultivation was able to absorb ever increasing labor inputs on a given area; there were scarcely any reserves of land that could be opened up, given proper incentives; the ecological costs of intensive agriculture were more plainly visible in China (or Japan and India) than in Europe; alternative job opportunities were lacking outside the villages; absentee landowners living in the cities had few motives to improve production on their leased-out lands; and in the nineteenth and early twentieth centuries there was only limited access to industrially produced fertilizer. In northern China, where the ecological conditions were less favorable than in the south, and where producers tended to prefer millet and wheat over rice, the extreme parcelization of landownership and minimal "economies of scale" presented major additional difficulties.[186] Large estates or farms serve no purpose in the cultivation of rice: centralized management brings little benefit; and power-driven machinery—apart from small diesel and electric pumps, which first began to raise productivity in Japan in the 1910s—has very limited application in rice fields or tea gardens.[187] There is also little scope for soil-preserving crop rotation, since terraced pools can scarcely be used for anything other than rice and carp.

All this means that it would be unrealistic and inappropriate to use the Dutch-English "agricultural revolution" as a yardstick for an ecologically and socially quite different form of agriculture. In various parts of Asia at various times, that model reached a point at which it became difficult to feed an often-growing population. When that critical point was reached, however, also depended on *external* circumstances. Paddy cultivation in southern China, for instance, was part of a wider production complex, which included fish farming, tea growing, and silkworm breeding. From the early eighteenth century on, tea and silk were highly dependent upon the export trade, and the collapse of China's foreign markets (first for tea, then for silk) when Indian and Japanese competition emerged in the late nineteenth century was a decisive factor in the acute crisis of Chinese agriculture that many Western observers described in the 1920s and 1930s.

Fourth, the model of the English agricultural revolution did not spread through the West in the same way as the industrial mode of production, which could find a niche in the most diverse contexts. Agriculture is more bound up than industry with particular ecological conditions and much more tied to traditional social structures that are not easy to overcome. Certainly agricultural performance displayed wide variations. Only a few countries in continental Europe made spectacular gains in crop yield and productivity—by Germany first of all (where grain yields per hectare rose by 27 percent in the first half of the nineteenth century[188]), then by Denmark, the Netherlands, and Austria-Hungary, but scarcely at all by France, the largest agrarian economy of Western Europe. The absolute figures for output show a similar pattern: the grain harvest grew between 1845 and 1914 by a factor of 3.7 in Germany but only 1.2 in France.[189] One peculiarity of Europe and North America in comparison with Asia and large parts of Africa is the mixed economy of agriculture and livestock farming. In nineteenth-century Asia the distance between agriculture and (often nomadic) livestock breeding was still greater than in Europe—an important point, given that Europe's better integration of the two helped it to attain especially high productivity increases.[190] A country like Denmark managed to achieve its own quite distinctive agricultural revolution by specializing in animal farming. Butter, cheese, and bacon can also be a road to riches.

Fifth, the "pure" model of agricultural revolution, with the intensification of production at its core, assumes that improved performance is due primarily to increases in labor productivity and only secondarily to the expansion of arable land. In England and Wales, the acreage of farmland and pasture increased by nearly 50 percent between 1700 and 1800, but only by an insignificant amount in the following hundred years.[191] The great gains of the nineteenth century came rather from the *extensive* growth of production in frontier areas of the Tsarist Empire, the United States, Argentina, and Canada, as well as in India.[192] This expanding production of food staples had consequences that intruded far into political history. Two are particularly worth mentioning here. On the one hand, the adversaries of the Central Powers gained a decisive advantage in the First

World War from their ability to mobilize the far superior agricultural potential of North America and Australasia.[193] A lack of global political judgment led German leaders of the time to overlook this key factor.

On the other hand, agriculture had already become a central field of political conflict in a number of countries. This had only partly to do—as it has long been claimed for Germany—with the preponderance of authoritarian aristocratic elites, since the problem was similar in countries like the United States or the Netherlands where such elites were not a significant feature. By the turn of the century at the latest (gradually after the Emancipation of 1861 in the case of Russia), the intensive *and* extensive advances of agriculture had led on both sides of the Atlantic to the rise of an agrarian capitalism that employed wage labor and was highly export oriented. The crisis of world agriculture that began in 1873 and lasted for two decades was exemplified by the falling prices for agricultural goods and the less sharply falling, or even slightly rising, wages for farm laborers in line with pay increases in the cities. In this situation, large estates were often less capable of survival than smaller production units consisting essentially of members of one family. As the landowners' income fell, they asserted their interests ever more vociferously within the political system by calling, above all, for protective tariffs on agricultural imports—a campaign that was especially successful in Germany but less so in Britain or the United States. The prominence of agrarian issues in public debate, and of agrarian-romantic themes in cultural life, concealed the slow decline in the weight of the rural sector in several growing national economies of the West.[194] Elsewhere, in countries that had not seen the development of agrarian capitalism and where rural interests were represented in the political system by urban rentiers remote from village life, agrarian issues remained more or less out of sight. This was the case in the Ottoman Empire and Japan. But the most surprising silence was in the world's largest peasant country: China. It is a striking fact that in the whole discussion on reform, which began after the end of the Taiping Revolution in 1864 and grew more intense after the Sino-Japanese war of 1894–95, there was almost never any talk of the peasantry. China's public discussion was blind to one of its most pressing problems.

8 Poverty and Wealth

Poverty and Modernity

With the exception of the kind of utopian visions that exist in many civilizations, people before the nineteenth century never doubted that poverty was part of the natural, divinely ordained scheme of things. Classical political economy from Thomas Robert Malthus to John Stuart Mill, pessimistic in its basic mood, was not confident that modern capitalism was bringing a qualitative rise in productivity, or that the "uplifting" of the poor was possible except as the result of

individual effort. But there was also a more optimistic school of thought that did not take poverty for granted and insisted that it could be overcome. The pioneers were two late Enlightenment thinkers: Tom Paine and the Marquis de Condorcet. Writing independently of each other in the 1790s, both formulated the idea that poverty was unacceptable in the modern world; that it should not be alleviated with alms but conquered through redistribution and development of the productive forces; and that society should help those who were unable to help themselves. Ever since Paine and Condorcet, two revolutionaries eventually killed or forgotten by their revolutions, the Western world has in principle regarded poverty as a scandal.[195]

Poverty and starvation are closely related to each other, without quite being mutually reinforcing. Although the poor may lack everything else, the last thing left to them is enough food to keep body and soul together. Not all poor people go hungry, and not all starving people are poor. Poverty as a concept embraces more. Societies have their own definitions of "the poor"; people who are not poor engage in discourse about those who are and make them recipients of their charity. In comparison with developed industrial societies, *all* premodern societies, whatever their cultural characteristics, were poor. But modern economies have not ended poverty—which is one reason why the achievements of "modernity" should not be celebrated too smugly. In the early twenty-first century there are still famines and hunger revolts in Africa and Asia; every sixth person on the earth is persistently undernourished. The increase in the productive forces of society in the nineteenth century—mainly the increases in agricultural productivity and the opening up of cheaper sources of fossil energy—did not as a rule go hand in hand with more equal opportunities in life.

Poverty and affluence are relative terms, both within one single society and between different societies. For example, an individual country—say, mid-nineteenth-century England—may become richer as a whole, but at the same time, if differences in income, consumption, and educational opportunity between the top and bottom layers of society become greater rather than smaller, relative poverty will become more evident than before. Long-term tendencies of income distribution are hard to identify in Western Europe (in spite of particularly good data), and even harder for the rest of the world. "Optimists" and "pessimists" have long stood in irreconcilable opposition to each other. There is much to suggest that, at least in England and France, the income and assets gap opened wider around the 1740s and gradually began to close again only a century later. In particular, the gulf between the big bourgeoisie and the class of manual workers broadened during that period. In many countries, the last third of the nineteenth century was a new era of narrowing differences. This is also consistent with the simple theoretical observation that the growth processes of "high industrialization" were driven not by working-class "underconsumption" but only by an expansion of mass demand.[196] This did not mean, of course, that the rich grew poorer.

The Rich and the Superrich

The richest were not immune from illness or misfortune. They ate better, enjoyed better clothing and housing, freed themselves of physical work, were able to travel more easily, and had unobstructed access to high culture. They lived in a world of luxury and, through their public conduct, set the norms of consumption to which others aspired. Whether in Europe, North America, or South Africa, the capitalist process created a degree of private wealth that in earlier ages had been attainable only by political and military rulers and by very small numbers of patrician merchants. In the year 1900 the rich were nowhere as rich, in absolute or relative terms, as they were under the conditions of capitalism. In some European countries, landowning aristocracies preserved their wealth from former times. At the end of the nineteenth century, the highest echelons of the English and Russian nobility (including many ennobled merchants) were still among the wealthiest people in the world. The Austrian, Hungarian, and Prussian (mainly Upper Silesian) nobility followed some distance behind, whereas the French had never really recovered from the Revolution of 1789–94.[197] Such wealth could be best preserved if it was invested not only in well-run landed estates but also in more modern sectors such as banking, mining, and urban real estate. At the same time, huge new fortunes had been amassed in finance and industry, and especially in Britain these nouveaux riches aped the lifestyles and symbolic displays of an aristocracy that did not constitute a closed caste but was separated from lower strata by fine shades of status. Old and new money, lords, knights (who had to be addressed as "Sir"), and untitled millionaires shared a world of sumptuous townhouses and country estates, a world inhabited by no more than four thousand people.[198]

In the pioneer societies of the New World and Australasia, nearly all the great fortunes were of capitalist origin. There were no feudal roots, even though many landowners in British North America could effortlessly mimic the grand lifestyle of wealthy English gentry. A distinction must be drawn, however, among the various "new Europes." In the antipodes few became spectacularly and lastingly rich as a result of either the gold rush or sheep farming. Although in 1913 Australia had a per capita income appreciably higher than Britain's and was even slightly ahead of the United States, it had few huge fortunes, and even the largest among them were considerably more modest than in Britain or the United States. There were more superrich people in Canada, but the real historical exception was the United States. When Alexis de Tocqueville traveled there in 1831–32 and felt himself to be fundamentally in a society of equals, he underestimated not only the ongoing formation of *very* large fortunes but also the widening of income differentials within American society—a process, it is true, that only later historical research uncovered. The growth and concentration of wealth was giving rise to prosperous oligarchies, both in the Northern states and among the planters of the South. The "self-made men" of the middle

of the century, who used to be readily thought of as anti-oligarchic levelers, inserted themselves into this elite cosmos.

After the end of the Civil War in 1865, the elite divisions between North and South disappeared over time, while the transition began to a mature, high-growth industrial economy able to benefit from nationwide economies of scale and unparalleled corporate opportunities for capital accumulation. The richest tenth of the population owned one-half of the national wealth in 1860, but two-thirds by 1900; the top 1 percent of families held 40 percent.[199] Income inequality reached a peak between the turn of the century and 1914. The conviction of the founding fathers, especially Thomas Jefferson, that republican virtue required limits to material inequality continued to have some resonance into the 1880s, but then a new free-market ideology bestowed on boundless capital accumulation a legitimacy that would be occasionally questioned but never radically combated in the politics of the United States.[200] Extreme wealth even became one of the symbols of America's nascent world supremacy. The Astors, Vanderbilts, Dukes, and Rockefellers put Europeans in the shadow with their fabulous riches, staging a degree of luxury consumption that became known throughout the world.

Re-creations of English country estates, French châteaux, or Italian palazzi, filled with priceless works of art from the Old World, were the most visible display of the new superwealth; nor was there any problem endowing universities, thereby helping them achieve a position among the most highly regarded in the world. The first rank, and even the second rank, of American property owners were able to marry effortlessly into the European upper nobility: Consuelo Vanderbilt, for instance, having a share in an inheritance worth $14 billion, married the financially tarnished Ninth Duke of Marlborough and became the mistress of Blenheim Palace, one of the largest palaces in Europe. Around the turn of the century, a generation that had inherited wealth from their industrialist parents also appeared on the scene: those champions of luxury consumption who were the subject of the sociologist Thorstein Veblen's *The Theory of the Leisure Class* (1899). Nevertheless, ancestry was not altogether unimportant in the United States. The cream of the cream—assuming they had managed to preserve and multiply their riches—came from old families that went back to colonial times in cities such as Charleston, Philadelphia, Boston, and New York. People referred to them as "aristocratic," without implying that they occupied a fixed position at the top of a hierarchy. The US Constitution of 1787 made no provision for noble titles to be conferred on American citizens, and public officeholders, at least, did not accept foreign titles. "Aristocracy" was a metaphor for high prestige maintained across generations, and for a lifestyle expressing unshakable confidence in good taste that need fear no comparison with the summits of European *noblesse*. The American aristocracy, perhaps four hundred strong in late-nineteenth-century New York, could exude an exclusiveness and self-confidence that made even wealthier tycoons and captains of industry mildly aware of their

parvenu status. Old and new money sometimes competed for political power in a city, but in the game of distinction even a weakened patriciate was usually able to keep its nose in front.[201]

The size of the top American fortunes was without precedent in the history of the world. Never before had private individuals accumulated such wealth. The money that could be made from oil, railroads, and steel in the late-nineteenth-century United States was several times greater than that which even the most successful European cotton industrialist could achieve; in fact, very few pioneers of the English Industrial Revolution had become truly rich.[202] The megarich looked down on those who were merely superrich. Thus, when the banker John Pierpont Morgan left a fortune of $68 million in 1914, the steel magnate Andrew Carnegie is supposed to have remarked pityingly that he had by no means been "a rich man."[203] Carnegie's own fortune and those of industrialists like John D. Rockefeller, Henry Ford, and Andrew W. Mellon were over half a billion dollars. The rapidity of the concentration of wealth may be gauged from the fact that the largest American private fortunes grew from about $25 million in 1860 to $100 million twenty years later and $1 billion two decades after that. By 1900 the richest man in the United States had assets worth twelve times more than those of the richest European (who was a member of the English aristocracy); not even the Rothschilds (finance), the Krupps (steel, machinery, weapons), or the Beits (British/South African gold and diamond capital) were in the same league.

The unique megafortunes in the United States are explained partly by factors such as the size of the internal market, the relatively high starting point for the economy, the wealth of natural resources, and the absence of political or legal obstacles to capitalist development. In addition there were synergistic effects within the industrial system. Rockefeller became a very rich man only after the emergence of the US car industry had presented his oil company with golden opportunities. Agricultural property did not stand behind any of the top American plutocrats, and in Britain too, by the 1880s, it was no longer land but finance, press ownership, or the gold and diamond trade that accounted for the largest fortunes. On the other hand, urban real estate was much in demand as a capital investment.[204]

Throughout the "West" (with the possible exception of Russia), the 1870s witnessed the birth of a "new," hierarchically differentiated, wealth. Beneath the megafortunes lay a stratum consisting of mere millionaires or half-millionaires. This elite had a different cultural style: Old Money began to complain about the New Rich, who flaunted their wealth in a vulgar or unthinking fashion and hollowed out aristocratic manners by dint of imitation. And something else was new. In the 1830s or 1840s, rich people with democratic or even radical political views had existed in the United States under President Jackson, in France during the July Monarchy, in England after the Reform Bill of 1832, and in pre-1848 Germany. But now, by the 1880s at the latest, the classic plutocracy of the fin de siècle had come into being. Political liberalism was largely divided within itself,

as wealth virtually implied the representation of moneyed interests by conservative and right-leaning liberal parties. By no means were all the rich and superrich, in either Europe or the United States, vociferous propagandists for conservative values. But "radical plutocrat" had become a contradiction in terms.

Wealth in Asia

As in the United States, scarcely any large fortunes in Asia went back further than two centuries at the outmost. The conditions for the formation of private wealth were different from those in Europe and the neo-Europes. In China there had been no hereditary landowning aristocracy before the Manchu conquest of 1644, and large estates had generally been atypical; education more than property had been the qualification for elite membership. One could become prosperous in the state service, but not spectacularly wealthy, and few managed to keep their wealth in the family for many generations. The richest people in Qing China in the eighteenth and early nineteenth century were either members of the high Manchu nobility (e.g., princes living in Beijing in palaces arranged around a progression of inner courtyards[205]), merchants holding a monopoly from the state (salt, the Canton trade), or bankers from Shanxi province. They were joined in the nineteenth century by middlemen trading within the treaty-port system, the so-called compradors. The social prestige of merchants was far below that of scholar-officials, but they could indulge in luxury consumption that the latter deprecated as parvenu behavior, while also taking care to use their money to acquire landed property, purchase titles, and educate their sons. The dynastic accumulation of great fortunes was uncommon; it was more likely to occur among Chinese merchants, tax farmers, and mine owners in colonial Southeast Asia—in Batavia, for example, where ethnic Chinese had been active in the economy since the early seventeenth century. In 1880 the Khouw family, whose forebears had migrated there from China in the eighteenth century, were one of the largest landowners in and around Batavia and lived grandly at one of the best addresses in the city.[206] In China itself, wealth tended to be kept secret so that the envy of the authorities would not be aroused; manorial architecture—the most conspicuous expenditure of the European aristocracy and their American imitators—played scarcely any role. In late imperial China, "rich people" were not a model for the rest of society. Moreover, although the Manchurian imperial family occupied the largest palace complex in the world, the riches "belonged" to an imperial clan of several thousands rather than to a royal family of ten to twenty people.

In Japan, with its very different social structure, the outcome was similar. The aristocratic samurai, though sharply differentiated from "commoners," were seldom rich in a European sense: most lived on hereditary stipends awarded by their feudal prince (*daimyō*), who alone was entitled to raise taxes in his domain, and on low salaries for administrative duties. The objective impoverishment of many samurai, and even more their subjective experience of it, fostered

discontent with the Edo ancien régime that found political expression in the 1860s in the Meiji Restoration.[207] Yet, in a way unknown in the rather austere Chinese empire, the Edo period was, until the end, one of conspicuous consumption. In a Japanese variant of the "royal mechanism," which Norbert Elias analyzed for the court of the Sun King, the real rulers of early modern Japan, the House of Tokugawa, tamed the territorial princes by compelling them to spend regular periods at the shogun's court in Edo (Tokyo). Edo was a great stage on which the princes and their entourages competed with one another to display the most glamorous buildings, festivals, gifts, and concubines. Many a thrifty prince, though aware of the impact on his finances back home, was driven to the brink of ruin by this contest of competitive splendor. Most of their treasuries had little left in them once the samurai stipends and the costs of running a court had been paid out.[208] Few large aristocratic fortunes therefore survived into the Meiji period. The feudal princes disempowered after 1868 lost their lands in return for a degree of compensation, while samurai status was abolished within just a few years. After 1870 Japan was a much more "bourgeois" country than Prussia, England, or Russia. Fortunes acquired through industrialization (some on the basis of merchant wealth from the Tokugawa period) did not constitute an upper class of "the rich," and private ostentation was also discreetly limited. It was considered improper to show off one's wealth in the shape of ostentatious private buildings, for example.

In South and Southeast Asia, wealth was traditionally in the hands of princes. The European colonial invasion narrowed the scope for enrichment, both in their case and in the case of court aristocracies. At the same time, it opened up new opportunities in commerce. Some Bengali merchant families, for example, amassed large fortunes after 1815, as did a number of cotton manufacturers in western India after 1870. In many places in Asia and North Africa, corporate assets had an importance similar to that of church property in Europe before the Reformation and the French Revolution. Clans and lineages, temples of various kinds, Buddhist monasteries, Muslim holy shrines, and pious foundations (*waqf*) owned and leased out land that was safe from state exactions, or controlled and multiplied large sums of money.[209] In the eighteenth and nineteenth centuries, private accumulation often occurred in the hands of religious or ethnic minorities that possessed extensive business networks: Jews, Parsis, Armenians, Greeks in the Ottoman Empire, and Chinese in Southeast Asia.

We know as yet too little about the financial circumstances of such merchant dynasties—or of Indian maharajahs, Malayan sultans, Philippine landowners, or Tibetan monasteries—to draw a substantive comparison with Europe or the United States. One thing is clear: these elites lived a life that was between comfortable and luxurious. But nowhere in Asia was Western-style aristocratic or upper-bourgeois wealth taken as a model, and apart from Indian courts and Japanese princely homes in Edo before the mid-nineteenth century, displays of luxury consumption were of less significance. This was not simply because Asian

societies were poorer; material success in general had less of a function in guiding their cultures.

Types of Poverty

At the bottom end of the social ladder, the differences among the poor appear at first sight not to have been very great. On closer examination, however, all possible distinctions open up. In 1900, the pioneer social researcher Charles Booth identified five categories in London alone among the less "well-to-do." The decisive qualification for prosperity was the regular employment of one or more domestic servants, even in rented accommodation. From there it was a long way, through gradations of "shabby gentility," to outright poverty. If the rise of rich and superrich capitalists gave the nineteenth century a special place in the history of wealth, how does it appear in the history of poverty?

Poverty and wealth are relative, culturally specific categories. In sub-Saharan Africa, for example, the ownership of land was a far less important criterion than control over dependent persons. Many rulers in precolonial Africa had scarcely more storable wealth than their subjects. They stood out by the number of their wives, slaves, and animals, and by the size of their granaries. Wealth meant access to manpower that allowed the leap into conspicuous consumption and lavish hospitality. In Africa the poor were people whose situation in life made them especially vulnerable, and who had little or no access to other people's labor. The poorest of all were the unmarried and childless, especially if some physical disability made them unable to work, and doubtless also slaves (even if they were often well fed). Some African societies had institutions that provided a poverty net, but others (Christian Ethiopia among them) lacked anything that could be described as such. A precolonial "caring Africa," with a comprehensive community life, is a romantic myth.[210] The higher value given to control over people rather than ownership of land was not a peculiarity of Africa, since wealth is generally seen in terms of access to scarce resources. Thus, the status of Russian magnates before the emancipation of the peasantry in 1861 was measured more by their serfs or "souls" than by the size of their estate, and around the same time in Brazil the importance of a landowner depended on the number of his slaves. In early nineteenth-century Batavia, no European who wanted to count as somebody could afford to arouse the suspicion that he was skimping on the number of his black slaves.[211]

In societies of herdsmen—not only in Africa but also in West Asia, from Anatolia to Afghanistan or Mongolia—wealth was measured by herd size. The mobile way of life excluded the amassing of treasure as well as investment in buildings made to last. European conceptions of poverty and wealth apply to no one less than they do to nomads. This continually gave rise to the cliché that they were especially deprived, as many travelers reported from trips they made among African herdsmen, Mongols, or Bedouins. What is true is that a nomadic existence was (and is) especially prone to risk. It came increasingly into conflict

with the interests of farmers and was exposed to the hazards of drought and food shortage. Herdsmen were the first to suffer in lean times: those who lost their herd no longer had any means of subsistence and were unable to pick up again after the end of a drought.[212]

In southern Africa, already before the First World War, poverty began to take on a form familiar from the densely populated societies of Europe and Asia: landlessness more than physical disability became the main cause of material deprivation, typically resulting from the state-supported takeover of land by settlers. Cities played a rather different role here, though. Whereas in Europe, at least during the first half of the nineteenth century, poverty was more visible and perhaps also greater in the town than in the country, African poverty was (and still is today) "made" above all in rural areas. It is likely that slumdwellers in Johannesburg felt better off in comparison with their relatives in the country. Extremes of structural poverty were found less among physically capable male migrant workers in the cities than among family members who remained behind in areas that, until the 1920s, were often still difficult to reach with famine relief. Nevertheless, there was an advantage in maintaining links with relatives in the country: the poorest sections of the population in Africa's growing cities were those for whom it was no longer an option to return to their village in times of crisis. There is little evidence, in large parts of the world such as Africa and China, that the lives of "the poor" improved to any noticeable degree in the course of the nineteenth century.

Poverty became most firmly entrenched in cities that displayed the full spectrum of income groups—from beggars to ultrarich manufacturers, bankers, or landowners. In any case, social research was still in its early days, and profiles of income and living standards were developed only for urban areas. In the English cities a turning point was reached around 1860 when the diet of the lower classes gradually improved and the proportion of people in the worst housing situation (statistically, more than two adults per bedroom) began to fall, partly as a result of the development of new working-class suburbs. But even in one of the richest countries in the world, destitution among the urban lower classes by no means disappeared. The number of males fit for work living in British workhouses is a good indicator of the scale of *extreme* urban poverty—and between 1860 and the First World War there was no significant drop in this total. The same is true of the figure for those classified as "vagrants."[213]

It is impossible to quantify global poverty for the nineteenth century. We rarely have any insight into proportions between Europe and other civilizations. Measuring income is scarcely ever possible in the case of the very poor, even in the cities. A minimum of data exists only where wages were paid, and actually recorded, at the bottom of the income ladder. Then we learn, for example, that between 1500 and 1850 the *real* wages of unskilled construction workers in Istanbul, the Muslim metropolis on European soil, followed the general trend in big cities to the north of the Mediterranean. They fell behind it only after 1850.

According to another estimate, shortly before 1800 the real wages (measured in wheat equivalent per day) of workers in Istanbul and Cairo exceeded those paid in Leipzig or Vienna and were significantly higher than in southern India or the Yangtze delta.[214] It is important not to assume a *general* superiority of "Europe" over "Asia." One has to differentiate according to region, type of work, social position, and gender. Toward the end of the eighteenth century, living standards of unskilled male workers in London or Amsterdam were already significantly higher than in the big Chinese cities, and that gap widened enormously during the nineteenth century. The contrast is less stark when we compare the more developed parts of China to those regions of southern and eastern Europe that remained untouched by industrialization.[215]

Begging and Charity

The gradual emergence of a welfare state in Germany and certain other European countries toward the end of the nineteenth century should not obscure the fact that in many parts of the world this was also an age of continuing, and freshly motivated, philanthropic efforts on behalf of the poor. There are many cases in Europe where poor relief funded by local authorities went hand in hand with private charity; the mix of the two varied, as did the motives behind them. In the Tsarist Empire, for instance, there was nothing that might be described as a public *system* of poor relief (such as existed in England under the Poor Laws, until their abolition in 1834); the altruism of large landowners and state officials, hardly on a large scale, stemmed partly from a wish to emulate Western European models of social commitment.[216] Contrasting examples outside Europe come mainly from philanthropic orientations in the Muslim world. In Egypt an ancient tradition of munificence persisted, not in ostentatious displays (which Islam prohibited) but out of the public view. It was a moral obligation that was often taken over by charitable institutions. This distinctively Muslim practice caused many European observers to tell stories about rich beggars. But in Egypt too, the nineteenth century saw the state increasingly assume the task of helping the poor.

One should not exaggerate the differences between Western Europe and North America, on the one hand, and the Muslim world on the other. In neither was there a linear development of a welfare state; family or community forms of aid coexisted alongside new state institutions. The greater failure of the Egyptian state, compared to "the West," to stem begging in the cities had to do with the public tolerance shown toward beggars (as in Tsarist Russia). Of course, Egypt differed in many respects from northern Europe: (1) its lower level of economic development meant that fewer resources were available to the state for poor relief; (2) its poorhouses were used as temporary accommodations, never as English-style workhouses; (3) poor relief acquired a colonial dimension when missionaries appeared on the scene, and when the British, after the occupation of 1882, started up some rather meager initiatives; and (4) the poor never

disappeared from the public arena but vigorously asserted their claims—unlike the urban lower classes in England, for example, which from the 1860s on regarded poor relief and especially begging as shameful and demeaning.[217]

An absence of begging is very rare in history, and it was probably never attained before the twentieth century. We should bear in mind that in the nineteenth century begging was still seen as a normal part of social existence. It has always been a fairly precise indicator of poverty or even destitution, but also something else: a special kind of parasitic economy, often with a complex (in China even guild-like) organization and usually tolerated within limits by the authorities. The Victorian term "underworld" is here seldom apposite. In nineteenth-century Europe too, the social type of the penniless outcast, halfway between Franz Schubert's "hurdy-gurdy man" from his *Winterreise* (1828) and Charlie Chaplin's déclassé tramp (created in 1914), had not yet been rationalized away or pinned down in the categories of public welfare services. The struggle for existence at the lower depths was still visible.

9 Globalized Consumption

In both town and country, extreme poverty may be defined as a state of constant undernourishment. Beyond the threshold of a hunger that does not kill but does not abate, the range of variation is not as great as in other areas of consumption. The rich man whose monthly income is a hundred times greater than the poor man's is not a hundred times better nourished. As Fernand Braudel has shown, the differences between the culinary systems of various civilizations have greater importance than the vertical ones running within their respective societies.[218] The tables of the well-off were more diversified, fresher and more nutritious, and usually supplied by professional cooks but as a rule existed within one and the same culinary system. From the point of view of global history, therefore, only a few generalizations can be made.

The greatest interaction between the eating habits of continents occurred as long ago as the sixteenth century, when a "Columbian exchange" introduced European crops and animals into the New World and American crops into Asia and Europe.[219] Nor did this early modern transfer concern only rare luxuries: it changed the agricultural and garden economy, with huge effects on productivity and consumption habits in many parts of the world. The potato, which arrived in Europe shortly before 1600, took roughly two hundred years to become the main food staple in countries such as Germany, the Netherlands, or Britain. Much earlier still, the appearance of rice strains with a higher yield had considerably increased production in Southeast Asia and China. At the same time that the potato crossed the Atlantic, the sweet potato traveled from Manila to China and immediately became a tool of famine relief, while corn, tobacco, and groundnuts were introduced into the Middle Kingdom, and the chili pepper, today central to the cuisine of Sichuan and Hunan, was brought from the New

World. Once all these novelties had been absorbed in the space of a few decades, China's culinary system underwent no further major changes.[220]

The American manioc root became native in areas of Africa under Portuguese influence, and in the last third of the nineteenth century both indigenous and colonial initiatives helped to spread it to many other parts of the continent. Today it is by far the most widespread edible plant in the tropical countries of Africa. Centuries after plants of American origin first crossed the oceans, they were driven by new needs and applications to enter common use in the Old World. One example of this is the groundnut, probably first domesticated in Brazil and widely used in Inca Peru. It was introduced into China and soon became the main source of frying oil there. Then, in the nineteenth century, it was grown in the United States as animal fodder, before people realized that it could take the place of cotton in plantations devastated by pests. Nowadays the groundnut is firmly integrated into a number of Asian and West African culinary traditions, and over time groundnut oil has come to be appreciated in Europe too for its ability to withstand high temperatures. All in all, the use of tropical oils was one of the most important acquisitions of the nineteenth century, not only in cooking but also for soap and cosmetics.[221] The huge expansion of the international agrarian trade made tropical produce available even where it could not be acclimatized to local conditions.

Culinary Mobility

Culinary systems differ in respect to the innovations they acquire. The situation was clearest in countries such as the United States, where virtually all eating habits had to be imported. New tastes arrived on its shores with the great migrations of the nineteenth century: Italians were present in California from the midcentury gold rush on and were soon migrating from Italy to other parts of the United States. They brought with them durum wheat, the basis for pasta dishes. The international spread of Italian cuisine thus began long before the worldwide triumph of the pizza.[222]

The geography of dietary influences does not coincide with the distribution of political and economic power. The Chinese, for example, who in the sixteenth century had already demonstrated their willingness to learn from others, and who were politically much weakened by the forcible opening of their country in the Opium War, did not lose confidence in their own culture. At first they saw no reason to adopt Western influences in their cuisine. This changed slightly after 1900, when three "white" products from the West (produced in China, and often by Chinese companies) gained considerable popularity in the cities: white flour, white rice, and white sugar. A few European restaurants opened in the 1860s in the big cities, and beginning in the 1880s, a visit to one of them in Shanghai—complete with white tablecloths, silver cutlery, and "Western-style Chinese cooking"—became a demonstrative statement on the part of wealthy Chinese families. In general, however, affluent Chinese continued to show unusually

scant interest in Western food and Western consumer goods in general.[223] Japan, which in many other respects proved extremely receptive to the West, adopted few culinary loans in the nineteenth century; one major exception was the increased consumption of meat.

On the other hand, since the time of Marco Polo numerous European travelers, missionaries, and Canton-based merchants had become familiar with Chinese cuisine and written reports about it. After the opening of China in the 1840s hundreds of foreigners made its acquaintance in the restaurants of the treaty ports and in the offerings of their private cooks. Those unable or unwilling to eat it regularly spared no cost or effort to keep themselves supplied with European foods and delicacies. Outside China there was for a long time no opportunity to taste Chinese dishes. Scarcely any Europeans or Americans ever ventured into their local Chinatown to try out the fast-food booths or diners used by émigré workers. Mark Twain, in his time as a journalist, was one of the first Westerners to describe the experience of eating with chopsticks outside Asia. The first Chinese restaurant to appear in Europe, in 1884, could be visited as part of a health fair in South Kensington; Sir Robert Hart, the powerful Irish inspector-general of the Chinese Imperial Maritime Customs, was responsible for the attraction. But China's gastronomic success with Western consumers still lay in the future. It began gradually in 1920s California and did not become a global phenomenon until after 1945.[224] As to Western food, it was only in the last third of the twentieth century that it began to have a marked influence on eating habits outside the luxury hotels and Western enclaves of East Asia, and then in the form of mass-produced industrial items.

At the end of the nineteenth century, "colonial goods" were appearing more often in European food stores. In London and the large provincial cities of England it had been possible throughout the eighteenth century to buy cane sugar, tea, and other exotic produce in a number of specialist locations;[225] nowhere else in Europe did food and delicacies from overseas play such an important role. The East India Company had made the British a nation of tea drinkers, especially after the duty on tea was sharply reduced in 1784. By 1820 they were consuming thirty million pounds of tea per annum.[226] The only other exotic import that changed habits outside the narrow circle of luxury food and drink was sugar. Already in the seventeenth and eighteenth centuries, the demand for cane sugar had set in motion the dynamic of the Caribbean and Brazilian plantation economy and the transatlantic slave trade. But only in the late eighteenth century, not least as a sweetener in tea, did it reach the level of mass consumption. The real expansion, however, took place in the nineteenth century: world sugar production doubled between 1880 and 1900, and doubled again between 1900 and 1914.[227] The share of sugar in the average caloric intake of Britons is thought to have increased from 2 percent to 14 percent in the course of the century. As the anthropologist Sydney W. Mintz has argued in an influential book, sugar actually became a food for the poor, a quick energy boost for the flagging labor force

of industrial Britain.[228] This popularity of sugar was possible only because its real price was continually falling in retail outlets.[229]

Sugar can be produced only as cane in the tropics and only as beet at temperate latitudes. Salt, by contrast, can be extracted by various methods and is therefore more closely associated with particular localities. The same applies to livestock breeding, which like slaughtering was a local trade; the limited durability of meat in its fresh state was enough to ensure this. One of the major food trends of the nineteenth century was the industrialization of meat production, soon turned into a transcontinental business. Average meat consumption had slowly declined in early-modern Western Europe, and this trend persisted here and there into the nineteenth century, sometimes disguised as falling standards and expectations: in really hard times the poor of Paris ate cats.[230] By midcentury at the latest, however, meat consumption was rising among the lower classes of Europe: English working-class families doubled their intake between the 1860s and 1890s to more than one pound per person per week.[231] The Japanese, who otherwise stuck to the Tokugawa cuisine, were converted in the Meiji period to the eating of meat. Although certain groups such as samurai and sumo wrestlers had indulged in it before 1866, it was only in the final third of the century that people more generally became convinced that the imposing strength of the West was due in part to meat consumption and that a vegetarian diet was unworthy of a "civilized" nation.[232]

Expanding demand caused cattle stocks in Europe to grow faster than the human population between 1865 and 1892, while at the same time cattle breeding developed in the western United States, Canada, Argentina, Paraguay, Uruguay, Australia, and New Zealand. In 1876 beef was sent by refrigerated ship to Europe for the first time, and in the 1880s the new technology made it possible for Argentina and Australasia to export meat in large quantities.[233] After 1900, as more and more of the colossal US output was absorbed by its internal market, Argentina became the world's largest meat exporter.[234] The immediate reason, however, was the wish of the British government to supply canned and frozen meat to its troops fighting in the South African War. The real and lasting boom in Argentine exports to Europe began only in 1907, when American meatpacking companies with better deep-freeze technology took over the trade. It was the first important investment linkup between the United States and Argentina, which until then had belonged more to the British sphere of economic influence. On the other hand, access to the US market continued to be denied to Argentine producers.[235] Romantic social types such as the American cowboy or the Argentine gaucho were the mobile proletariat of a global meat industry.

The ranchers of the "Wild West" increasingly became suppliers of the giant Chicago slaughterhouses. The south of the city saw the rise of something that came to be one of its tourist sights: an industrial hell on earth for cattle and swine that flourished once the railroad was in full operation. Only the slaughterhouse districts of Buenos Aires, with their vast heaps of skulls and bones, were a

shade more dramatic as animal necropolises. The industrialization of food production began during the American Civil War, when demand soared for the new powdered milk and canned meat. Chicago filled the gap for the Northern states, a second "porkopolis" next to Cincinatti. Its slaughterhouse complex could process 21,000 cattle and 75,000 pigs at the same time, so that by 1905 it had dispatched a total of 17 million animals.[236] It is no accident that one of the sharpest literary attacks on American capitalism, Upton Sinclair's *The Jungle* (1906), is situated in the Chicago slaughterhouses, which the author, using Zola's naturalist techniques, depicted as a Dantesque inferno. Quickly becoming a bestseller, the novel caused many readers to lose their appetite for meat, and demand took a temporary dip. It is possible that the average American in the Midwest was consuming 4,000 calories a day around the turn of the century, at a time when the intake per head in English working-class families was around 2,400 calories.[237] That age of meat surpluses, a new departure in the second half of the nineteenth century, gave rise to the American glorification of the steak, which had no parallel in any food culture other than that of Argentina.

Department Store and Restaurant

The industrialization of food production in the Western world—its beginnings can be dated to the 1870s in the case of Germany[238]—was correlated with other changes in society. The growing employment outside the home of working-class and lower middle-class women reduced the time available for household labor and increased the need for ready-made food. Such products could reach the final consumer only via translocal distribution systems. This presupposed—in addition to farm sales, periodic markets, and local butchers and bakers—the existence of grocery stores that, in turn, required wholesale dealers to keep them supplied with produce. But this new trend spread through Europe only right at the end of the century, with many gaps and much unevenness. In many rural areas, the supply of nonlocal produce remained throughout the period in the hands of peddlers and traveling dealers. In this respect the distribution mechanisms were not essentially different from those in China at that time, where periodic district markets operated alongside elaborate chains of middlemen. The passage from market to store (or sometimes consumer cooperative) was a necessary concomitant of the industrialization and internationalization of food production.[239]

The most spectacular innovation of nineteenth-century commerce was the department store. More than any other form of retailing it relied on standardized mass production of many of the goods on offer. Department stores opened up a novel commercial and social space, providing a stage for the world of commodities and enchanting the public with a kind of world's fair in miniature. The first such stores appeared in Paris in the 1850s. The philosopher and cultural historian Walter Benjamin made them a central theme (along with the famous arcades) in his analysis of the culture of French capitalism.[240] Paris was not a

port city or international transshipment center like London or Hamburg or a center of industry like New York or Berlin. In France industrial mass production had not yet supplanted artisanal production to the extent it had in the United States; industry and crafts met up in the Parisian culture of consumption.[241] The great era of the Parisian arcades was the 1830s and 1840s, whereas the golden age of the department store lay in the Belle Époque between 1880 and 1914. The London department stores, which sprang up a few years after those in Paris, were even more uncompromising in their program of gathering all the necessities of life under one roof: not even a funeral department was lacking. Charles Digby Harrod built his store in the 1880s as a cross between a business and a club.[242] In New York the first department stores opened earlier than those in London, so early that a Parisian influence can be discounted. It was in 1851 that Alexander T. Stewart built a five-story Renaissance-style marble palace on Broadway and started an architectural rivalry in which newly founded cities such as Chicago soon took part.[243] The universal store did not, however, catch on at once everywhere in the developed world. The years between 1875 and 1885 were the launch period in Germany, when the Wertheim, Tietz, Karstadt, and Althoff families entered the fray, and architectural masterpieces such as the art deco Kaufhaus in the Saxonian town of Görlitz could hold up to comparison with stores in the largest cities. In Vienna, another great European center of consumption, it was only around the turn of the century that the department store overshadowed large stores with a more specialized range of goods.[244]

In Tokyo, department stores appeared toward the end of the Meiji period. A start was made in 1886, when for the first time one of the old silk stores also began to sell Western clothing. Subsequently, large stores witnessed many innovations: the city's first telephones were installed in them, and female assistants made their debut (traditionally only men stood at market stalls or behind counters). The first great Western-style shopping palace opened its doors in 1908. But there was also another novelty: the multistore covered market known as *kankōba* ("place for the encouragement of industry"), which fused the principle of the Oriental bazaar with that of the Parisian arcades, pointing ahead to the global "mall" of the present day. In the second decade of the twentieth century, however, fully fledged department stores supplanted these covered markets bazaars in Tokyo.[245]

Another innovation that one associates with the nineteenth century, the restaurant, is not actually a European invention. Rather, the evidence points to polygenesis of this type of commercial catering. Two attributes distinguish the restaurant from the manifold inns, taverns, and guesthouses that have existed since early times in numerous countries. On the one hand, it produced high-quality cuisine—previously a feature only of courts and elite private residences—and made it available to anyone who could afford to pay; it democratized fine dining. On the other hand, the restaurateur was an independent businessman, who offered a product and a service without the ties of a guild or corporation. A world in which food was not a biological need but an artistic passion came into

being where it still has its center today: in Paris. But behind complicated issues of cultural history, there lies a relatively mundane process. The French Revolution destroyed the royal court with all its culinary splendor and threw out of work the private cooks of dispossessed aristocrats who had fled the country. A new supply thus became available to cater to a new market, as an urban bourgeoisie with sufficient purchasing power discovered the culinary arts. In the course of the nineteenth century, this public became increasingly international: one of the great attractions of the French metropolis for the new luxury tourism was its unrivaled gastronomy.[246] The rise of outdoor eating did not stop with expensive high-class restaurants but stretched all the way down to diners in working-class districts. Peculiarities of national culture also played a role. Across the Channel there were 26,000 fish-and-chip shops, which used a thousand tons of frying oil a week. The occasion when cod was first combined with potato strips in this way is lost in the mists of time, but it must have been at some point in the 1860s. The meal then developed into the favorite of the British working class, helping to shape its identity and symbolizing the national virtues on a plate.[247]

Good-quality commercial eateries certainly existed at an earlier date in China, and so the French claim to have "invented" the restaurant rests on shaky foundations. Private gastronomy blossomed in the late Ming period, essentially in the sixteenth century, when new mercantile wealth, together with a boom in foreign trade, led to a kind of embourgeoisement of large parts of urban culture. The burgeoning food culture managed to survive the upheavals of the seventeenth century, and reports and literary sources from the subsequent period testify to a varied culinary landscape that included public restaurants at any level of quality and price, from simple street grills to teahouses and specialized guesthouses to large banqueting halls. In the early modern period, China was much less segregated by estate or hierarchy than European or Japanese society; the boundaries between popular and elite culture were more permeable. Moreover, the urban residences of the rich, with their pavilions and inner courtyards, were more modest than the *hôtels* and mansions of the nobility in Paris or London. Top chefs could therefore enter the public domain earlier than in the West. What happened in France after the Revolution was by then a matter of course in China.

And Japan? There the beginnings of the restaurant date back to the eighteenth century. Until the nineteenth century Japanese society and culture remained strongly marked by status distinctions. The various kinds of restaurant therefore served more blatantly than in Europe, and a fortiori China, as social markers and upholders of distinctness. The first Chinese restaurant, an exotic creature altogether, opened in Japan in 1883, and Western ones were very few and far between. "Fine distinctions" were thus plainly visible in the gastronomic world.[248] In sum: the restaurant was a parallel invention in East Asia and Europe; the former was clearly in the lead, but there is no evidence that Europe took to the restaurant from China in the same way that it was inspired by Chinese horticulture in the eighteenth century.

Changed eating and consumption habits went together with new forms of marketing—a field in which the United States was the world leader, closely followed by Germany. The 1880s saw the birth and marketing of the branded product, with strategies planned like military operations. Singer's sewing machine and Underberg's herb liqueur in its characteristic bottle were present at the dawn of brand-centered marketing. It could develop because the serial production of articles of mass consumption was now a technical possibility. Whereas most consumers had previously been in the dark about where a product came from (unless they bought it directly from the producer), they were now surrounded by the names and logos of cigarette firms, soap producers, or canned soup manufacturers. Branding and the patent law were part of the new era of organized mass consumption.[249] No commodity embodied this watershed in cultural and economic history more strikingly than the sticky brown liquid that the chemist John Styth Pemberton launched in Atlanta on May 8, 1886 as a cure for hangovers and headaches: Coca-Cola. Sales rocketed from 1,500 gallons in 1887 to 6,750,000 gallons in 1913.[250]

Coca-Cola belonged to the first generation of industrial food and drink, which emerged in the 1880s in the United States and soon led to the founding of corporations in Europe too. The key products, from Heinz Ketchup to Kellogg's Corn Flakes to Lever's margarine, were all created in the laboratory. Branded goods rapidly spread around the world, so that by the early years of the new century the petroleum lamp burning oil from Rockefeller's Standard Oil Company, along with Western artificial fertilizer and cigarettes, could be found in remote Chinese villages. A further element in the new marketing complex, which was decisive in extending its reach, was the mail-order business. This, too, was an American invention: it seemed an obvious idea, given the size of the country and the isolation of many of its farms. Also essential was the expansion of the railroad, while the delivery of heavy packages by the United States Postal Service after 1913 made things simpler still.[251]

Does all this add up to a new "consumer society"? In the early 1980s historians rediscovered the consumer and thereby corrected, or fleshed out, a view of history that had focused too narrowly on the *productive* achievements of industrialization. The flywheels of human action, they showed, were oiled by needs and competition, hedonism and fashion. This is not only interesting for cultural history but also important for the explanation of economic progress. For only a sufficient level of demand could (and can) translate impulses to rationalize production into macroeconomic processes of growth. When did the consumer society begin? If by that we do not mean the same as the affluent society (in which nearly *everyone* pursues consumption as an end in itself), if we have in mind only the existence of consumption-oriented social strata beyond a tiny traditional elite, then eighteenth-century England undoubtedly qualifies as a consumer society.[252] Again, to be sure, we might ask whether China in the period from roughly 1550 to 1640 might not already be described as such a consumer

society, and if the term might not be appropriate also for early modern Istanbul.[253] Clearly there was purchasing power among broad sections of the population outside the imperial court and officialdom. And contrary to the cliché that fashion was an eighteenth-century European fancy unknown in Asia at that time, it might be pointed out that the frequency of conservative-traditionalist complaints about the breakdown of morals is evidence of the extent to which official sartorial codes were eroded time and again.[254]

Hannes Siegrist has defined the ideal type of "consumer society" as follows: "Relatively high prosperity is not concentrated in a small elite. There is a minimum degree of civil equality and political rights, a broad middle class, social mobility and competition. A certain pluralism of values, diligence, a work ethic, and a striving for goods out of worldly but also partly religious motives are generally customary and understood to be legitimate. There is a division of labor and a degree of rationalization in agriculture, industry, and trade. The family is outwardly oriented in relation to work, professional life, and profit making; there is a well-differentiated institutional and legal system, rational knowledge that permits and fosters calculable and calculating behavior, a cultural apparatus that fosters understanding among the producers, procurers, and consumers of goods and that guides how buying and consuming are interpreted. Money functions as the general means of exchange."[255]

Most of the elements in this definition probably apply to late Ming China, although the country did not develop further in that direction and, like so many others, was overtaken by Europe in the nineteenth century. In Europe and North America, on the other hand, a long-term dynamic toward Siegrist's ideal type took shape. The extent to which this accentuated or flattened national cultural differences is an issue that was widely discussed in the twentieth century in relation to so-called Americanization. The most interesting aspect for global history is how far the rest of the world had already adopted Euro-American consumption goals and models in the nineteenth century. The answer to this question cannot be general but must proceed by way of examples.

The Creole elites of the new Latin American republics developed perhaps the strongest consumer orientation to Europe. British textiles flooded the region immediately after independence, and long before the arrival of the railroad, mule trains were carrying British cotton goods from port cities into the tablelands and high valleys of Mexico and Peru. Twenty or thirty years were enough to saturate the Latin American markets with British goods. Few imports passed through the cities to the haciendas and mines of the interior. The affluent elites, however, grew more and more accustomed to a European lifestyle. In the absence of local production, the prestigious symbols of Western progress had to be imported from England and Germany, Italy and France, and increasingly from the United States. The assortment ranged from machinery to French wine and English beer to coaches, spectacles, bicycles, and marble for the magnificent buildings of the rich. Gilberto Freyre considers that in the early nineteenth century, the rich in

Brazil tried to emulate the formerly despised Protestant heretics of Britain by wearing artificial dentures.[256] A small minority of Latin American consumers cultivated an ostentatiously European lifestyle, in which Spanish models usually played little or no role. From mid-century on, it became noticeable also in the appearance of a city such as Buenos Aires, with its shopping boulevards, grand hotels, *salons de thé*, and patisseries. The reorientation to European models went hand in hand with a new kind of racism: one switched custom from a baker of African origin to a genuine French pâtissier, and one's piano teacher, hitherto often black, was now brought out from Europe.[257] Meanwhile, social modernization passed by the majority of the population. Demand was funded increasingly out of the proceeds of Latin American exports to Europe (coffee, copper, guano, and so on).

Dress is always a good indicator of consumption preferences. In Latin America, especially in countries with a large indigenous population, society split into the peasantry who dressed as in colonial times and city dwellers for whom it was important to demarcate themselves from "uncivilized" fellow citizens. Mestizos, too, placed stress on sartorial markers, such as the polished leather shoe. Also in other spheres, the material cultures of town and country rapidly drifted apart. The identification of the Latin American upper classes with the civilization and commodities of England or France reached its peak in the Belle Époque, around the turn of the century. Equating progress with Europe, they were unreservedly prepared to interpret foreign goods as symbols of modernity. Their export *economies* were at the same time import *societies*, in either way occupying a peripheral position in the international order. Since the increasing prosperity did not rest upon domestic industrial production, the whole urban life of Latin America acquired a European stamp: not only clothing and furniture had to be imported but also the emblematic cultural institutions of contemporary Europe: the restaurant, the theater, the opera, the ball. Top chefs were enticed away from France, and in 1910, not a single indigenous dish was served at the official celebrations in Mexico to mark the anniversary of independence. In Lima golf and horseracing became an obsession. Railroad stations were built as exact copies of models in Paris or London.

The epitome of imitation was the wearing of heavy English men's clothing in tropical and subtropical zones. The British had already concluded that it was necessary in India. Around 1790 the governor-general Lord Cornwallis permitted himself to dine in his shirt sleeves, but two decades later it went without saying that members of the colonial elite should dress correctly for dinner when natives were present, even in intense heat, and in 1830 officials of the East India Company were forbidden to wear Indian clothes in public.[258] Such customs soon spread to Latin America. Whatever the temperature or degree of humidity, gentlemen in Rio de Janeiro and many other cities had to appear in penguin costume: black cutaway, starched white shirt and white waistcoat, tie, white gloves, and top hat; the disappearance of color and ornament from the fashion of the

male European upper class between circa 1780 and 1820 had earlier led to a new vestural style of generalized functionality where clothes were no longer permitted to express social rank and personal identity.[259] Ladies forced themselves into corsets and wrapped themselves in layer upon layer of heavy material. Until the end of the 1860s crinoline was de rigueur in good Brazilian society. Such martyrdom was the price of being civilized.

Tropical cultures in which not even the upper classes had been accustomed to wearing covering clothes of a European or Middle Eastern description had a long road to travel before they reached what was considered as "civilization." Invariably, Christian missionaries insisted on a proper covering of the body and instilled in their charges Victorian notions of shame. In vast parts of the planet, such as the Pacific islands, this resulted in "a fairly total reclothing of the region."[260] King Chulalongkorn, the reformer of Siam, made every effort to get his subjects to wear buttoned-up garments, and by the beginning of the twentieth century the urban population was fully dressed.[261] In Lagos, in the 1870s and 1880s, a small group of Western-oriented Africans in frock coats and lavish women's costumes created a social life centered on churchgoing, balls, concerts, and cricket.[262] Gandhi, the great virtuoso of symbolic politics and friend of frugality, later reversed the process: the late-Victorian dandy we see in his early photos turned into the charismatic "naked fakir," as Churchill reviled him.[263] Nowhere else outside Europe, however, were the trappings of its civilization so faithfully and uncritically adopted as in Latin America; nowhere else, except perhaps in the Egypt of Khedive Ismail (r. 1863–79), was the imitative fetishism of consumption so great.[264]

Cultural resistance was stronger in West and East Asia. Sultan Mahmud II prescribed Western clothing for the senior Ottoman bureaucracy, and the military likewise switched to Western uniforms. This did not at all involve internalizing a European attitude to fashion but rather an outward change in public dress that scarcely reached beyond the court and the top administration. On the streets of Istanbul, men continued for a long time to wear traditional costumes, and no women were photographed before the 1870s in European dress; foreign influence showed itself, as it had for centuries, only in the use of new materials such as French or Chinese silk. European clothes became popular and culturally acceptable as late as in the last quarter of the nineteenth century.[265] Foreign fabrics should not be thought of as a conscious loan from another culture. Where European imports had largely destroyed indigenous textile production, there was often no other option. In the 1880s it was reported from Morocco—not yet a colony—that nearly everyone was wearing cotton goods from abroad.[266]

Japan, unlike Latin America, did not share a colonial past with Europe. Before 1853 there were few contacts with foreigners, and they did not radiate out to Japanese society as a whole. Later—especially after the Meiji Renovation of 1868 brought systemic change to the polity—the country opened up to the West and launched a modernization drive that took directly from Europe, and

secondarily from the United States, new organizational forms for the state, the justice system, and the economy. But this far-reaching structural Europeanization was not matched by a de-Japanization of private life; people did not give up their traditional clothing, for example. It is true that following a decree of the State Council in 1872, top figures in the Meiji state, including the emperor himself, dressed in frock coat, top hat, or uniform, and that from the 1880s on lower officials fell in with the change. But traditional clothing kept its place in the home, as an early and expensive flurry of sartorial Westernization gave way to a moderate "improvement" of the *kimono*. Attachment to the familiar was even more self-assertive in other spheres of material culture. On the other hand, a fondness for leather shoes seems to have developed quite early, especially if they squeaked and "sang" as one walked. Those who wished to marry tradition with progress wore traditional dress plus leather shoes—a combination still popular today with Buddhist monks in various parts of Asia.[267] The hat became a universal symbol of bourgeois manners, civil servants wearing it for show in much the same way as a lawyer in Africa or India or a well-off worker on Sundays in the Polish industrial city of Lodz.[268] In the 1920s Kemal Atatürk ruthlessly forced hats onto the heads of Turks, banning the fez that had been introduced in 1836, in an earlier age of attempted modernization, as a symbol of the state's eagerness for reform. Before the hat became compulsory—having been prohibited to non-Muslim minorities in the Ottoman Empire—the Young Turk revolutionaries opted for the decidedly anti-Ottoman "Caucasian" cap.[269]

In China the resistance to foreign consumption models was even greater than in Japan, and Western clothing gained acceptance for the first time only through the military reforms of the Qing dynasty in the early 1900s. Photographs and moving pictures from the time of the nationalist protests in 1919, known as the "May Fourth Movement," show professors and students in Beijing, who were politically radical and often familiar with European culture, marching in the floor-length costumes of traditional scholars. Trousers and jackets, which finally won over these same circles in the 1920s, had traditionally been worn by peasants and ordinary soldiers only.[270] Groups of Chinese merchants who since the mid-nineteenth century had had close ties with Western business partners in Hong Kong, Shanghai, or other ports remained largely faithful to older models in their private life and were poor customers for European luxury items. Only in the 1920s did the appeal of these items increase in the cities, though even then with a bad conscience that regarded the display of "imperialist" appurtenances as national betrayal. The great opening of urban consumers to European and North American patterns of taste, fashion, and behavior occurred in mainland China only in the mid-1980s, a whole century after Latin America's, but now fueled by domestic industrialization and extensive brand piracy.

There are also examples of a reverse effect: of European acculturation to Asian customs. In China and especially in India, this was condemned with increasing severity as "going native"—as crossing a racial status barrier. Adaptation in the

opposite direction was also frowned upon. Much as the "trousered Negro" was later an object of ridicule in Africa, many British in the nineteenth century refused to accept Indians in shoes and suits, seeing such sartorial behavior as an insolent aping of Europeans. The Indian middle classes were expected to dress in Indian style, and the symbol designers of British India concocted especially "exotic" costumes for the princes they liked to regard as feudal museum pieces. It caused a huge scandal when one maharajah, the reform-minded Sayaji Rao Gaekwad III of Baroda, arrived to greet the King-Emperor George V at the Imperial Durbar in Delhi—a sumptuous assemblage of Indian dignitaries—in December 1911, wearing a plain white European suit instead of the Oriental costumes and jewelry sported by the other princes, and with a walking stick instead of the prescribed sword.[271]

Acculturation in reverse had been on the agenda in eighteenth-century India, when the adoption of an Indian lifestyle had been a frequent and acceptable occurrence.[272] In the nineteenth century such things were still possible in the Dutch East Indies. Whites there had become so orientalized in the previous century that the British—who occupied Java during the Napoleonic wars and held it until 1816—sought to stem their fall from civilization, requiring the men to give up brazen cohabitation with female natives, and the women to forgo idleness, Oriental dress, and the chewing of betel nuts. It cannot be said that they were very successful. If anything, the lifestyle of both Europeans and Chinese in Batavia became even more Asiatic or perhaps hybrid: they ate *rijstafel*, wore sarongs (at least at home), and indulged in endless midday breaks.[273]

It cannot be stressed enough that adaptation to European culture was very often a voluntary process; colonial authorities and missionaries occasionally helped things along, but that was by no means the rule. A whole series of cases shows that European architecture was embraced in Asia and Africa even in contexts where there was no colonial or quasi-colonial dependence. In the eighteenth century, the Qing emperor had Jesuit architects build him a rococo-style summer palace on the outskirts of Beijing. The Vietnamese ruler Nguyen Anh (after 1806 Emperor Gia Long), who reunified Vietnam following many years of turmoil, built citadels inspired by the famous military engineer and architect Vauban—not only in his new capital, Hanoi, but in all large provincial cities. The building plans stemmed from French officers who, without an official contract from Paris, worked for the emperor in return for a salary. Gia Long preferred European architecture to Vietnam's traditional Chinese styles because he recognized its superiority for his purposes. French influence, or even a reflection of French prestige, played no role in the decision. Gia Long was not an imitator of the West but an early "free shopper" of what was on offer abroad. Good relations with Catholic missionaries did not prevent him from swearing his mandarins and officers first and foremost to the cult of Confucius.[274]

One final example: On Madagascar, which became a (French) colony only in 1896, amateur European master builders had been developing an imaginative

architecture since the 1820s. A start was made with some modest buildings to house missionaries, but Jean Laborde, an adventurer shipwrecked on the island in 1831, had greater ambitions. In 1839 he built a new palace for the queen, skillfully combining local stylistic elements with neo-Gothic ones and stabilizing everything with European construction techniques. On other public buildings he put up Hindu quotations that he had learned in India. Later architects introduced granite facades, balconies, and Romanesque round arches. The resulting official style lent an unmistakable aspect to the capital, Antananarivo, where court ladies wore the latest fashions from Paris and London. In spite of all that, the Merina Monarchy did not belong among the zealous self-Westernizers of the age; the country was closed after being opened to the outside world several times, and deep suspicions remained about European intentions.[275]

Living standards, understood as a set of material circumstances or a measure of physical well-being, may be in part essentially the same for large differentiated societies but may also vary to a huge degree socially and regionally, and according to gender and skin color, within such societies. The epidemiological situation, for instance, may be very similar for all members of a society even if there are large income differences among them; the rich were no safer than the poor in the face of smallpox and cholera. On the one hand, then, the living standards of countries may be roughly quantified and ranked in a league table: "life" today is undoubtedly better in Switzerland than in Haiti. On the other hand, different societies and *types* of society operate by different yardsticks: wealth among rice farmers is not the same as wealth among Bedouins or among storekeepers. Societies, as well as social groups within them, differ in their perceptions of "illness" and in the language they use to speak about it. Some diseases are characteristic of particular epochs. Around the end of the nineteenth century, people in Central Europe complained of "neurasthenia"—a condition and a term that has all but disappeared in present-day medicine.[276] Yet the nineteenth century did not yet know the term "stress," which was borrowed in the 1930s from the realm of physics, from material science. This does not mean, of course, that people in the nineteenth century had "stress-free lives" by today's standards. But, whether it is a question of poverty and wealth, sickness and health, or hunger and adequate nourishment, the categories that describe such conditions are relative or—to use a trendy expression—"culturally constructed." They do, however, refer to tangible realities of bodily and material existence.

The nineteenth century, seen globally and in its full time span, was undoubtedly an age in which the material circumstances of life improved for a large part of the world's population. Today it seems perfectly natural to us to be skeptical about progress—the underlying ideology of the Atlantic West since the Enlightenment—but this should not be taken so far that it erases the idea altogether. Such a general statement suffers from a degree of triviality, however. A more interesting observation is that by no means do all tendencies lead in the same direction, that as a matter of fact they often contradict one another. There

are numerous examples of this. In the early nineteenth century, many people in the big cities had a higher income than they would have had in the country, even though they often lived in worse environmental conditions. In one and the same society, living standards did not differ only on the scale from less to more; they often reflected different economic logics. Many working-class households lived only just above the survival threshold and could therefore not escape from a narrow time horizon; the property-owning and educated middle classes were able to make long-term plans, basing them on various sources of income.[277] Or, with regard to nutrition: Europe's "long" eighteenth century, which in terms of welfare sometimes lasted into the 1840s, was a lean century, but from the 1850s on, there was a visible "relocation" of hunger, as the capability of transporting food over longer distances was combined with improvements in preservation and storage and the beginnings of a processing industry.[278] The example of the Indian famines demonstrates, however, that this expanded circulation could have a deadly impact on economically weak food-producing regions. The victims of progress are therefore not to be found only among those who are "left behind" or untouched by innovation. The unfettered and uninterrupted invasion of "modernity" could also have baneful consequences.

Many aspects of the standard of living have not been broached in this chapter. For example, few things reveal the character of a society better than the way in which it treats its weaker members: children, old people, the disabled, and the chronically sick.[279] Histories of childhood and old age therefore need to be narrated. The best of them would show whether, in and since the nineteenth century, not only various curves of economic growth but also the survival chances of infants and the physically and mentally handicapped have gone up—whether, that is, the world has become more humane.