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THE INDUSTRIAL REVOLUTION: THE TRANSFORMATION OF SOCIETY

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Introduction

In the last part of the eighteenth century, as a revolution for liberty and equality swept across France and sent shock waves through Europe, a different kind of revolution, a revolution in industry, was transforming life in Great Britain. In the nineteenth century, the Industrial Revolution spread to the United States and to the European continent. Today, it encompasses virtually the entire world; everywhere the drive to substitute machines for human labor continues at a rapid pace.

After 1760, dramatic changes occurred in Britain in the way goods were produced and labor organized. New forms of power, particularly steam, replaced animal strength and human muscle. Better ways of obtaining and using raw materials were discovered, and a new way of organizing production and workers—the factory—came into use. In the nineteenth century, technology moved from triumph to triumph with a momentum unprecedented in human history. The resulting explosion in economic production and productivity transformed society with breathtaking speed.

I. Britain First

Britain possessed several advantages that enabled it to take the lead in industrialization. Large and easily developed supplies of coal and iron had given the British a long tradition of metallurgy and mining. In the early stages of industrialization, Britain's river transportation system was supplemented by canals and toll roads (turnpikes), which private entrepreneurs financed and built for profit. In addition, the enclosure movement provided factories with a labor pool. During the eighteenth century great landlords enclosed, or fenced off and claimed as their own, land formerly used in common by villagers for grazing farm animals. Once the peasants were gone, lords could bring this land under cultivation for their own private gain. No longer able to earn a living from the land, these dispossessed farmers sought work in emerging factories.

Britain also had capital available for investment in new industries. These funds came from wealthy landowners and merchants who had grown rich through commerce, including the slave trade. Interest rates on loans fell in the eighteenth century, stimulating investment. Britain's expanding middle class provided a home market for emerging industries. So, too, did its overseas colonies, which also supplied raw materials—particularly cotton, needed for the developing textile industry. A vigorous spirit of enterprise and the opportunity for men of ability to rise from common origins to riches and fame also help explain the growth of industrialization.

Finally, two European cultural traditions in which Britain shared played crucial roles in the rise of industrialism. One was individualism, which had its roots in both the Renaissance and the Reformation; during the era of the commercial revolution, it manifested itself in hard-driving, ambitious merchants and bankers. This spirit of individualism, combined with the wide latitude states gave to private economic activity, fostered the development of dynamic capitalist entrepreneurs. The second cultural tradition promoting industrialization was the high value westerners placed on the rational understanding and control of nature. Both individualism and the tradition of reason, concludes historian David S. Landes, "gave Europe a tremendous advantage in the invention and adoption of new technology. The will to mastery, the rational approach to problems that we call scientific method, the competition for wealth and power—together these broke down the resistance of inherited ways and made change a positive good."

Changes in Technology

The Cotton Industry Long the home of an important wool trade, Britain in the eighteenth century jumped ahead in the production of cotton, the industry that first showed the possibility of unprecedented growth rates. British cotton production expanded ten-fold between 1760 and 1785, and another ten-fold between 1785 and 1825. A series of inventions revolutionized the industry and drastically altered the social conditions of the work.

In 1733, long before the expansion started, a simple invention—John Kay's flying shuttle—made it possible for weavers to double their output. The flying shuttle enabled weavers to produce faster than spinners could spin—until James Hargreaves's spinning jenny, perfected by 1768, allowed an operator to work several spindles at once, powered only by human energy. Within five years, Richard Arkwright's water frame spinning machine could be powered by water or animals, and Samuel Crompton's spinning mule (1779) powered many spindles, first by human and later by animal and

water energy. These changes improved spinning productivity so much that it caused bottlenecks in weaving until Edmund Cartwright developed a power loom in 1785. To the end of the century, there was a race to speed up the spinning part of the process and then the weaving part by applying water power to looms or new, larger devices to the spinning jenny.

Arkwright's water frame made it more efficient to bring many workers together, rather than sending work out to individuals in their own homes. This development was the beginning of the factory system, which within a generation would revolutionize the conditions of labor. Because water power drove these early machines, mills were located near rivers and streams. Towns thus grew up where machinery could be powered by water; the factory system concentrated laborers and their families near the factories.

The Steam Engine James Watt, a Scottish engineer, developed the steam engine in the 1760s. Because steam engines ran on coal or wood, not water power, they allowed greater flexibility in locating textile mills. Factories were no longer restricted to the power supplied by a river or a stream or to the space available beside flowing water; they could be built anywhere. With steam, the whole pattern of work changed because weaker, younger, and less skilled workers could be taught the few simple tasks necessary to tend the machine. The shift from male to female and child labor was a major social change.

The Iron Industry Although steam power allowed employers to hire weaker people to operate machinery, it required machines made of stronger metal to withstand the forces generated by the stronger power source. By the 1780s, trial and error had perfected the production of wrought iron, which became the most widely used metal until steel began to be cheaply produced in the 1860s.

The iron industry made great demands on the coal mines to fuel its furnaces. Because steam engines enabled miners to pump water from the mines more efficiently and at a much deeper level, rich veins in existing mines became accessible for the first time. The greater productivity in coal allowed the continued improvement of iron smelting. Then, in 1856, Henry Bessemer developed a process for converting pig iron into steel by speedily removing the impurities in the iron. In the 1860s, William Siemens and the brothers Pierre and Émile Martin developed the open-hearth process, which could handle much greater amounts of metal than Bessemer's converter. Steel became so cheap to produce that it quickly replaced iron in industry because of its greater tensile strength and durability.

Transportation The steam engine and iron and steel brought a new era in transport. As machines speeded up factory production, methods of transportation also improved. In 1830, the first railway line was built in England, connecting Manchester and Liverpool; this sparked an age of railway building throughout much of the world. Shipping changed radically with the use of vessels without sails, which had greater tonnage capacity.

II. Society Transformed

The innovations in agricultural production, business organization, and technology had revolutionary consequences for society, economics, and politics. People were drawn from the countryside into cities, and traditional ways of life changed. Much of the old life persisted, however, particularly during the first half of the nineteenth century. Landed property was still the principal form of wealth, and large landowners continued to exercise political power. From England to Russia, families of landed wealth often the old noble families still constituted the social elite. European society remained overwhelmingly rural; as late as the midcentury, only England was half urban. Nevertheless, contemporaries were so overwhelmed by industrialization that they saw it as a sudden and complete break with the past: the shattering of traditional moral and social patterns.

Cities grew in number, size, and population as a result of industrialization. For example, between 1801 and 1851, the population of Birmingham rose from 73,000 to 250,000 and that of Liverpool from 77,000 to 400,000. Industrial cities expanded rapidly, without planning or much regulation by local or national government. So much growth with so little planning or control led to cities with little sanitation, no lighting, wretched housing, poor transportation, and little security.

Rich and poor alike suffered in this environment of disease, crime, and ugliness, although the poor obviously bore the brunt of these evils. They lived in houses located as close to the factories as possible. The houses were several stories high and built in rows close to each other. Sometimes a whole family huddled together in one room or even shared a room with another family. Open sewers, polluted rivers, factory smoke, and filthy streets allowed disease to spread. In Britain, about twenty-six out of every one hundred children died before the age of five. Almost universally, those who wrote about industrial cities—England's Manchester, Leeds, and Liverpool and France's Lyons—described the stench, the filth, the inhumane crowding, the poverty, and the immorality.

Changes in Social Structure

The Industrial Revolution destroyed forever the old division of society into clergy, nobility, and commoners. The development of industry and commerce caused a corresponding development of a bourgeoisie: a middle class, comprising people of common birth who engaged in trade and other capitalist ventures. The wealthiest bourgeois were bankers, factory and mine owners, and merchants, but the middle class also included shopkeepers, managers, lawyers, and doctors. The virtues of work, thrift, ambition, and prudence characterized the middle class as a whole, as did the perversion of these virtues into materialism, selfishness, callousness, and smugness.

From the eighteenth century on, as industry and commerce developed, the middle class grew in size, first in England and then throughout western Europe. During the eighteenth and nineteenth centuries, the middle class struggled against the entrenched aristocracy to end political, economic, and social discrimination. By the end of the nineteenth century, bourgeois politicians held the highest offices in much of western Europe and shared authority with aristocrats, whose birth no longer guaranteed them the only political and social power in the nation. As industrial wealth grew more important, the middle class became more influential. Its wealthy members also tended to imitate the aristocracy: it was common throughout Europe for rich bourgeois to spend fortunes buying great estates and emulating aristocratic manners and

pleasures.

Industrialization may have reduced some barriers between the landed elites and the middle class, but it sharpened the distinctions between the middle class and the laboring class. Like the middle class, the proletariat encompassed different economic levels: rural laborers, miners, and city workers. Many gradations existed among city workers, from artisans to factory workers and servants. Factory workers were the newest and most rapidly growing social group; at midcentury, however, they did not constitute most of the laboring people in any major city. For example, as late as 1890, they made up only one-sixth of London's population.

The artisans were the largest group of workers in the cities for the first half of the nineteenth century, and in some places for much longer than that. They worked in construction, printing, small tailoring or dressmaking establishments, food preparation and processing, and crafts producing such luxury items as furniture, jewelry, lace, and velvet. Artisans were distinct from factory workers; their technical skills were difficult to learn, and traditionally their crafts were acquired in guilds, which still functioned as both social and economic organizations. Artisans were usually educated they could read and write, lived in one city or village for generations, and maintained stable families, often securing places for their children in their craft. As the Industrial Revolution progressed, however, they found it hard to compete with cheap, factory-produced goods, and their livelihoods were threatened.

Servants were especially numerous in capital cities. In the first half of the nineteenth century, in cities like Paris and London, where the number of factories was not great, there were more servants than factory workers. Servants usually had some education. If they married and had a family, they taught their children to read and write and sometimes to observe the manners and values of the household in which the parent had worked. Many historians believe that these servants passed on to their children their own deference to authority and their aspirations to bourgeois status, which may have limited social discontent and radical political activity.

Working-Class Life

Life was not easy for those whose labor contributed to the industrializing process. Usually, factory workers were recent arrivals from agricultural areas, where they had been driven off the land. They frequently moved to the city without their families, leaving them behind until they could afford to support them in town. These people entered rapidly growing industries, where long hours—sometimes fifteen a day—were not unusual. Farming had meant long hours, too, as had the various forms of labor for piecework rates in the home, but the pace of the machine, the dull routine, and dangerous conditions in factories and mines made work even more oppressive. Miners, for example, labored under the hazards of caveins, explosions, and deadly gas fumes. Deep beneath the earth's surface, life was dark, cold, wet, and tenuous. Their bodies stunted and twisted, their lungs wrecked, miners toiled their lives away in "the pits."

Sometimes, compared with their lives in the country, the workers' standard of living rose, particularly if the whole family found work; the pay for a family might be better than they could have earned for agricultural labor. But working conditions were terrible, as were living conditions. The factories were dirty, hot, unventilated, and frequently dangerous. Workers toiled long hours, were fined for mistakes and even for accidents, were fired at the will of the employer or foreman and

were laid off during slowdowns. They often lived in overcrowded and dirty housing. If they were unmarried or had left their family in the country, they often lived in barracks with other members of their sex. If they lost their jobs, they also lost their shelter.

In the villages they had left, they had been poor, but they were socially connected to family, church, and even local landlords. But in the cities, factory workers labored in plants with twenty to a hundred workers and had little contact with their employers. Instead, they were pushed by foremen to work hard and efficiently for long hours to keep up with the machines. Workers had little time on the job to socialize with others; they were fined for talking to one another, for lateness, and for many petty infringements. They often became competitors in order to keep their jobs. Lacking organization, a sense of comradeship, education, and experience of city life, factory workers found little comfort when times were bad.

Workers often developed a life around the pub, the café, or some similar gathering place, where there were drinks and games and the gossip and news of the day. On Sundays, their one day off, workers drank and danced; absenteeism was so great on Monday that the day was called “holy Monday.” Gin drinking was denounced on all sides; workers and reformers alike urged temperance. Many workers played sports, and some social organizations grew up around their sporting games. In these and other ways, workers developed a culture of their own—a culture that was misunderstood and often deplored by middle-class reformers.

Many contemporaries felt that the poor—those who were so unfortunate that they needed the assistance of others—were growing in numbers, that their condition was woeful, and that it had actually deteriorated in the midst of increased wealth. If machines could produce so much wealth and so many products, then why, social observers wondered, were there so many poor people? Parliamentary reports and investigations of civic-minded citizens documented the suffering for all to read.

Historians still debate how bad workers’ conditions were in the early stages of industrialization. Most workers experienced periods of acute distress, but historians generally conclude that the standard of living slowly improved during the eighteenth and nineteenth centuries. Although historians take an optimistic view of the long-range effects of industrialization, the rapidity of change also wreaked great hardships on the workers of all countries, who endured cruel conditions in factories and slums.

III. The Rise of Reform in Britain

Although it was the freest state in Europe in the early decades of the nineteenth century, Britain was far from democratic. A constitutional monarchy, with many limits on the powers of king and state, Britain was nonetheless dominated by aristocrats. Landed aristocrats controlled both the House of Lords and the House of Commons—the House of Lords because they constituted its membership and the House of Commons because they patronized or sponsored men favorable to their interests. The vast majority of people, from the middle class as well as from the working class, could not vote. Many towns continued to be governed by corrupt groups. New industrial towns were not allowed to elect representatives to Parliament; often they lacked a town organization and could not even govern themselves effectively.

The social separation of noble and commoner was not as rigid in Britain as on the Continent. Younger sons of aristocrats did not inherit titles and were therefore obliged to make careers in law, business, the military, and the church. The upper and middle classes mingled much more freely than on the Continent, and the wealthiest merchants tended to buy lands, titles, and husbands for their daughters. However, Parliament, the courts, local government, the established Anglican church, and the monarchy were all part of a social and political system dominated by aristocratic interests and values. This domination persisted despite the vast changes in social and economic structure that had taken place in the process of industrialization during the second half of the eighteenth century.

Some members of Parliament urged timely reforms. In 1828, Parliament repealed a seventeenth-century act that in effect barred Nonconformists (non-Anglican Protestants) from government positions and from universities; the following year, Catholics gained the right to sit in Parliament. In 1833, slavery was abolished within the British Empire. The British slave trade had been abolished earlier. The Municipal Corporations Act (1835) granted towns and cities greater authority over their affairs. This measure created town and city governments that could, if they wished, begin to solve some of the problems of urbanization and industrialization. These municipal corporations could institute reforms such as sanitation, which Parliament encouraged by passing the first Public Health Act in 1848.

Increasingly, reform centered on extending suffrage and enfranchising the new industrial towns. Middle-class men, and even workers, hoped to gain the right to vote. Because of population shifts, some sparsely populated regions—called rotten boroughs—sent representatives to the House of Commons, while many densely populated factory towns had little or no representation. Often a single important landowner controlled many seats in the Commons. Voting was public, which allowed intimidation, and candidates frequently tried to influence voters with drinks, food, and even money.

Intense and bitter feelings built up during the campaign for the Reform Bill of 1832. The House of Commons passed the bill to extend the suffrage by some 200,000, almost double the number who were then entitled to vote. The House of Lords, however, refused to pass the bill. There were riots and strikes in many cities, and mass meetings, both of workers and of middle-class people, took place all over the country. King William IV (1830–1837) became convinced, along with many politicians, that the situation was potentially revolutionary. To defuse it, he threatened to increase the number of the bill's supporters in the House of Lords by creating new peers. This threat brought reluctant peers into line, and the bill was passed. The Reform Act of 1832 extended the suffrage to the middle class and made the House of Commons more representative. The rotten boroughs lost their seats, which were granted to towns. However, because there were high property qualifications, workers did not gain the right to vote.

Workers did obtain some relief when humanitarians pressured Parliament to pass the Factory Act (1833), which legislated that no child under thirteen could work more than nine hours a day and that no one aged thirteen to eighteen could work more than sixty-nine hours a week. The act also provided some inspectors to investigate infractions and punish offenders. That same year, Parliament also banned children under ten from the mines. The Factory Act of 1847 stipulated that boys under eighteen and women could work no more than ten hours a day in factories. At first, workers resented the prohibition of child labor, since their family income would be greatly reduced if their children could not work, but they gradually came to approve of this law. The ten-hour day for adult male workers was not enacted until 1874.

The Chartist reform movement, whose adherents came from the ranks of both intellectual radicals and workers, pressed for political, not economic, reforms. During the 1830s and 1840s, the Chartists agitated for democratic measures, such as universal manhood suffrage, the secret ballot, salaries and the abolition of property qualifications for members of Parliament, and annual meetings of Parliament.

The last political effort by the Chartists was led by Feargus O'Connor, a charismatic Irishman who organized a mass demonstration to present a huge petition of demands to Parliament in 1848. The cabinet ignored the great "People's Charter," which had signatures of at least two million names, and the movement died out. But the Chartist platform remained the democratic reform program for the rest of the century, long after the death of Chartism itself at midcentury. All of the Chartists' demands, except for annual elections for members of Parliament, were eventually realized.

At the beginning of the nineteenth century, elementary education in Britain was managed by private individuals and church organizations. Schools were financed by contributions, grants, and fees paid by students. The government neither financed nor promoted education. As a result, very few poor children attended school. Indeed, many government officials feared that educating the poor would incite unrest. If the lower classes read publications attacking Christianity and challenging authority, they would become insolent to their superiors. One member of Parliament declared that schooling would teach the poor "to despise their lot in life, instead of making them good servants in agriculture and other laborious employments to which their rank in society had destined them." However, many Britons, inheriting the Enlightenment's confidence in education, favored schooling for the poor. In 1833, Parliament began to allocate small sums for elementary education.

These funds were inadequate; in 1869, only about half of all children of school age attended school. The Education Act of 1870 gave local governments the power to establish elementary schools. By 1891, these schools were free and attendance was required.

Many workers and radicals believed that the only hope for their class lay in unified action through trade unions. At first, Parliament fought the unions, passing the Combination Acts (1799–1800), which made unions illegal. In 1825, Parliament allowed workers to unionize but forbade them to strike. Unions made some headway in protecting their members from unemployment and dangerous working conditions, but strikes which remained officially illegal until 1875 were rarely successful and were often suppressed by force.

Unlike the Continental states, England avoided revolution. British politicians thought that it was because they had made timely reforms in the 1830s and 1840s. The political experience of the first half of the nineteenth century laid the foundation for British parliamentary practices, which came to be the model of liberal, progressive, and stable politics. Britain was the

symbol for all those who argued for reform rather than revolution.

IV. Responses to Industrialization

The problems created by rapid industrialization profoundly influenced political and social thought. Liberalism, which began as an attempt to safeguard individual rights from oppressive state authority, now had to confront an unanticipated problem: the distress caused by rapid industrialization and urbanization. Also responding to this ordeal was a new group of thinkers, called socialists.

Liberalism

Adopting the laissez-faire theory of Adam Smith, liberals maintained that a free economy, in which private enterprise would be unimpeded by government regulations, was as important as political freedom to the well-being of the individual and the community. When people acted from self-interest, liberals said, they worked harder and achieved more; self-interest and natural competitive impulses spurred economic activity and ensured the production of more and better goods at the lowest possible price, benefiting the entire nation. For this reason, the government must neither block free competition nor deprive individuals of their property, which was their incentive to work hard and efficiently.

Convinced that individuals were responsible for their own misfortunes, liberals were often unmoved by the misery of the poor. Indeed, they used the principle of laissez faire—that government should not interfere with the natural laws of supply and demand—to justify their opposition to humanitarian legislation intended to alleviate the suffering of the factory workers. Liberals regarded such social reforms as unwarranted and dangerous meddling with the natural law of supply and demand.

They drew comfort from the theory advanced by Thomas Malthus (1766–1834) in his Essay on the Principle of Population (1798), which supported laissez-faire economics. Malthus asserted that population always grows at a faster rate than the food supply; consequently, government programs to aid the poor and provide higher wages would only encourage larger families and thus perpetuate poverty. Malthus seemed to supply "scientific" justification for opposing state action to help the poor. Poverty, argued Malthusians, was not the fault of factory owners. It was an iron law of nature—the result of population pressure on resources—and could not be eliminated by state policies. According to Malthus, the state could not ameliorate the poor's misery; "the means of redress," he said, "are in their own hands, and in the hands of no other persons whatever." This "means of redress" would be a lowering of the birthrate through late marriages and chastity, but Malthus believed that the poor lacked the self-discipline to refrain from sexual activity. When they received higher wages, they had more children, thereby upsetting the population-resource balance and bringing misery to themselves and others.

A fellow economist, David Ricardo (1772– 1823), gave support to Malthus's gloomy outlook. Wages, he said, tended to remain at the minimum needed to maintain workers. Higher wages encouraged workers to have more children, causing an increase in the labor supply, and greater competition for jobs would then force down wages. Ricardo's disciples made his law inflexible. This "iron law of wages" meant bleak prospects for the working poor. Many workers felt that the new science of economics offered them little hope. They argued that the liberals were concerned only with their class and national interests and that they were callous and apathetic toward the sufferings of the poor.

Liberals of the early nineteenth century saw poverty and suffering as part of the natural order and beyond the scope of government. They feared that state intervention in the economy to redress social ills would disrupt the free market, threatening personal liberty and hindering social well-being. In time, however, the liberals modified their position, allowing for government action to protect the poor and the powerless against the economy's ravages.

Early Socialism

The socialists went further than the liberals. They argued that the liberals' concern for individual freedom and equality had little impact on the poverty, oppression, and gross inequality of wealth that plagued modern society. Liberal ideals, socialists claimed, protected the person and property of the wealthy, while the majority were mired in poverty and helplessness. Asserting that the liberals' doctrine of individualism degenerated into selfish egoism, which harmed community life, socialists de manded the creation of a new society based on cooperation rather than competition. Reflecting the spirit of the Enlightenment and the French Revolution, socialists, like liberals, denounced the status quo for perpetuating injustice and held that people could create a better world. Like liberals, too, they placed the highest value on a rational analysis of society and on transforming society in line with scientifically valid premises, whose truth rational people could grasp. Socialists believed that they had discerned a pattern in human society that, if properly understood and acted upon, would lead men and women to an earthly salvation. Thus, socialists were also romantics, for they dreamed of a new social order, a future utopia, where each individual could find happiness and fulfillment. Although they sought to replace the existing social order with a more just arrangement, these early socialists, unlike Karl Marx, did not advocate class warfare. Rather, they aspired to create a new harmonious social order that would reconcile different classes.

Saint-Simon Henri Comte de Saint-Simon (1760–1825) renounced his title during the French Revolution and enthusiastically preached the opportunity to create a new society. His mission, he believed, was to set society right by instilling an understanding of the new age that science and industry were shaping. He argued that just as Christianity had provided social unity and stability during the Middle Ages, so scientific knowledge would bind the society of his time. The scientists, industrialists, bankers, artists, and writers would replace the clergy and the aristocracy as the social elite and would harness technology for the betterment of humanity. Saint-Simon's disciples championed efforts to build great railway and canal systems, including the Suez and Panama Canals. His vision of a scientifically organized society led by trained experts was a powerful force among intellectuals in the nineteenth century and is very much alive today among those who believe in a technocratic society.

Fourier Another early French socialist, Charles Fourier (1772–1837), believed—like the romantics—that society conflicted with the natural needs of human beings and that this tension was responsible for human misery. Only the reorganization of society so that it would satisfy people's desire for pleasure and contentment would end that misery. Whereas Saint-Simon and his followers had elaborated plans to reorganize society on the grand scale of large industries and giant railway and canal systems, Fourier sought to create small communities that would let men and women enjoy life's simple pleasures.

These communities of about sixteen hundred people, called phalansteries, would be organized according to the unchanging needs of human nature. All the people would work at tasks that interested them and would produce things that brought them and others pleasure. Like Adam Smith, Fourier understood that specialization, with its deadening

routine, bred boredom and alienation from work and life. Unlike Smith, he did not believe that vastly increased productivity compensated for the evils of specialization. In the phalansteries, money and goods would not be equally distributed; those with special skills and responsibilities would be rewarded accordingly, a system that conformed to nature because people have a natural desire to be rewarded.

Fourier thought that marriage distorted the natures of both men and women, since monogamy restricted their sexual needs and narrowed the scope of their lives to just the family. Instead, people should think of themselves as part of the family of all humanity. Because married women had to devote all their strength and time to household and children, they had no time or energy left to enjoy life's pleasures. Fourier did not call for the abolition of the family, but he did hope that it would disappear of its own accord as society adjusted to his theories. Men and women would find new ways of fulfilling themselves sexually, and the community would be organized so that it could care for the children. Fourier's ideas found some acceptance in the United States, where in the 1840s at least twenty-nine communities were founded on Fourierist principles. None, however, lasted more than five or six years.

Owen In 1799, Robert Owen (1771–1858) became part owner and manager of the New Lanark cotton mills in Scotland. Distressed by the wide-spread mistreatment of workers, Owen resolved to improve the lives of his employees and show that it was possible to do so without destroying profits. He raised wages, upgraded working conditions, refused to hire children under ten, and provided workers with neat homes, food, and clothing, all at reasonable prices. He set up schools for children and for adults. In every way, he demonstrated his belief that healthier, happier workers produced more than the less fortunate ones. Like Saint-Simon, Owen believed that industry and technology could and would enrich humankind if they were organized according to the proper principles. Visitors came from all over Europe to see Owen's factories.

Just like many philosophes, Owen was convinced that the environment was the principal shaper of character—that the ignorance, alcoholism, and crime of the poor derived from bad living conditions. Public education and factory reform, said Owen, would make better citizens of the poor. Owen came to believe that the entire social and economic order must be replaced by a new system based on harmonious group living rather than on competition. He established a model community at New Harmony, Indiana, but it was short-lived.

V. Industrialism in Perspective

Like the French Revolution, the Industrial Revolution helped to modernize Europe. Eventually, it transformed every facet of society. In preindustrial society—Europe in the mid-eighteenth century—agriculture was the dominant economic activity and peasants were the most numerous class. Peasant life centered on the family and the village, which country folk rarely left. The new rational and critical spirit associated with the Enlightenment hardly penetrated rural Europe; there, religious faith, clerical authority, and ancient superstition remained firmly entrenched.

Traditional society was predominantly rural. By the start of the nineteenth century, 20 percent of the population of Britain, France, and Holland lived in cities; in Russia, the figure was only 5 percent. Artisan manufacturing in small shops and trade for local markets were the foundations of the urban economy, although some cities did produce luxury goods for wider markets. Textile manufacturing was conducted through the putting-out system, in which wool was turned into cloth in private dwellings, usually the homes of peasants.

The richest and most powerful class was the aristocracy, whose wealth stemmed from land. Nobles dominated the countryside and enjoyed privileges protected by custom and law. Eighteenth-century aristocrats, like their medieval forebears, viewed society as a hierarchy, in which a person's position in life was determined by his or her inherited status. By championing the ideals of liberty and equality, the French Revolution undermined the traditional power structure of king, aristocracy, and clergy. French reformers further dismantled the religious and political pillars of traditional rural society by advocating the rational and secular outlook of the Enlightenment.

The Industrial Revolution transformed all areas of society. Eventually, agricultural villages and handicraft manufacturing were eclipsed in importance by cities and factories. In the society fashioned by industrialization and urbanization, aristocratic power and values declined; at the same time, the bourgeoisie increased in number, wealth, importance, and power. More and more, a person was judged by talent rather than by birth, and opportunities for upward social mobility expanded. The Industrial Revolution became a great force for democratization: during the nineteenth century, first the middle class and then the working class gained the vote. The Industrial Revolution also hastened the secularization of European life. In the cities, former villagers, separated from traditional communal ties, drifted away from their ancestral religion. In a world being reshaped by technology, industry, and science, Christian mysteries lost their force, and for many, salvation became a remote concern. Modernization did not proceed everywhere at the same pace and with the same thoroughness. Generally, premodern social and institutional forms remained deeply entrenched in eastern and southern Europe, persisting well into the twentieth century.

Although the Industrial Revolution created many problems, some of which still endure, it was a great triumph. Ultimately, it made possible the highest standard of living in human history and created new opportunities for social advancement, political participation, and educational and cultural development. It also widened the gap between the West and the rest of the world in terms of science and technology. By 1900, Western states, aided by superior technology, extended their power over virtually the entire globe, completing the trend that had begun with the Age of Exploration.

THE REFORMATION: THE SHATTERING OF CHRISTIAN UNITY

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INTRODUCTION

By the early sixteenth century, the only European institution that transcended geographic, ethnic, linguistic, and national boundaries was under severe attack from reformers. For centuries, the Catholic church, with its center in Rome, had extended its influence into every aspect of European society, culture, and politics. Reformers said that the church's desire to amass wealth and power appeared to outweigh its commitment to the search for holiness in this world and salvation in the next. Preoccupied by wealth, addicted to international power, and protective of their own interests, the clergy, from the pope down, took a battering from the church's critics. Humanists, made self-confident by the new learning and historical knowledge gathered during the Renaissance, called for reform and renewal, setting the stage for the Protestant Reformation. Eventually, though, the Reformation deviated significantly from what the Renaissance humanists had in mind. It brought into being a new form of Christianity, Protestantism, rather than reform of the Catholic church from within.

Schooled in new critical techniques, humanists used them to undermine the authenticity of documents that supposedly justified papal authority. Lorenzo Valla, for instance, disproved the validity of the Donation of Constantine. But the fraud that especially vexed the humanists lay not on parchment but in the very practices by which the clergy governed the faithful.

The Protestant Reformation did not originate in elite circles of humanistic scholars. It began in German-speaking Europe with Martin Luther, an obscure monk and a brilliant theologian. Luther rejected the church's claim that it was the only vehicle for human salvation, and he defied the pope's right to silence, reprimand, and excommunicate any Christian who rejected papal authority or denied the truth of certain church teachings. After much soul-searching, in 1517 Luther

proclaimed his Ninety-Five Theses. This set of short propositions started a public rebellion against the church's authority that in less than one decade shattered irrevocably the religious unity of Christendom. This rebellion also worked a quiet revolution in the lives of men and women. Marriage rather than celibacy for the clergy became an ideal, as did preaching, Bible-reading, and education. People felt less intimidated by clerical authority but may have privately questioned and chastised themselves. For help they turned to the Bible. Pitted against the church, the Reformation and then the Catholic response dominated European history throughout much of the sixteenth century.

I. The Medieval Church in Crisis

By the Late Middle Ages, the church had entered a time of crisis. Theologians and political theorists rejected the pope's claim to supremacy over kings and to spiritual sovereignty over all of Western Christendom. They argued that the church had become inefficient and corrupt, and they blamed the papacy in Rome. Some reformers sought to wrest power from the pope and give it to a general council of the church's hierarchy. Before 1480, this was one of the aims of the Conciliar Movement. However, the Councils of Constance and of Basel failed to leave a meaningful inheritance to the church, largely because the special interests of kings and the papacy undercut the councils' authority. By 1500, the failure of the Conciliar Movement meant that reforming the church from within would be very difficult. A broader reformation required defiant action and outreach to the faithful. The recent invention of printing gave literate people access to the writings of the reformers and their Catholic adversaries.

Wycliffe and Hus

Prior to Luther, the two most significant attempts to reform the church occurred first in the thirteenth century and then again in the late fourteenth century in England and Bohemia. In France, Waldo (d. 1218) led a band of reformers, the Waldensians, who wanted the Bible to be read in French and who laid emphasis on inner spirituality. As late as the 1680s, the French church, aided by the army, attempted to stamp out what it regarded as a form of Protestantism. In the fourteenth century, the leaders of two new movements, John Wycliffe in England and Jan Hus in Bohemia, were theologians who attacked vital church doctrines and practices. Wycliffe and Hus made heresy intellectually respectable. The influence of Wycliffe's and later Hus's movements also contributed to the long-term success of Protestantism in England and to its short-term success in portions of Eastern Europe. Hus laid the ground for the conversion of the Hungarian nobility. Even without access to printing, both Wycliffe and Hus appealed for mass support, prefiguring the populist quality of the Reformation.

John Wycliffe (c. 1320–1384), a master at Oxford University, attacked the church's authority by arguing simply that the worldly church did not control eternal destiny or the soul's access to grace. He said that salvation came only to those who possess faith, a gift freely given by God and not contingent on the church's rituals or sacraments. This position downgraded the clergy. Wycliffe attacked the church's wealth and argued that all true believers in Christ were equal and, in effect, Christ's priests. To make faith accessible to them, Wycliffe and his followers translated portions of the Bible into English. Wycliffe's preaching foreshadowed the teachings of Luther and the practices of the English Reformation.

Wycliffe received staunch support from some members of the English nobility. However, when his ideas were taken up by articulate peasants during an abortive peasants' revolt in 1381, Wycliffe lost many powerful backers. In the end, his attempt to reform the church by bringing it under secular control failed. Partly because he retained strong supporters and was more interested in scholarship than leadership, Wycliffe survived the failure of his movement and died a natural death. His ideas remained alive in popular religious beliefs, and his followers, called Lollards, have been credited with laying a foundation on which Protestant reformers of the sixteenth century could build.

A harsher fate awaited the Bohemian (Czech) reformer Jan Hus (c. 1369–1415): he was burned at the stake in 1415. Partly

influenced by Wycliffe's writings, Hus, in his native Prague, attacked the sacramental system of the church, as well as its wealth and power. A popular preacher, he argued for Bohemian independence at a time when the Holy Roman Emperor sought to continue his control over that territory. After Hus's execution, his followers broke with the Roman Catholic church. The Bohemian church became independent from Rome, and the Hussites prepared the ground for the success of the Protestant Reformation. Until well into the seventeenth century, Bohemia remained a battleground of popular Protestantism against the official church.

Mysticism and Humanism

Wycliffe's and Hus's reform attempts coincided with a powerful new religiosity. Late medieval mystics sought to have immediate and personal communication with God and to renew the church's spirituality. Many late medieval mystics were women who, by virtue of their sex, were deprived of a clerical role in governing the church. First mysticism and then Protestantism offered women a way of expressing their independence in religious matters.

The church hierarchy had a deep distrust of mysticism. If people could experience God directly, they would have little need for the church and its rituals. In the fourteenth century, mystical movements seldom became heretical. But in the sixteenth and seventeenth centuries, radical reformers, some of them women preachers, often found in Christian mysticism a powerful alternative to the control and consolation offered by priests and the sacraments.

In the Low Countries, the Brethren of the Common Life propounded a religious movement known as the devotion moderna, which was inspired by mysticism. A semimonastic order of laity and clergy, the Brethren embraced a practical piety, dedicating their lives to the service of the entire community. With their teaching, they trained a new generation of urban-based scholars and humanists, including Erasmus, who were severe critics of the church.

The humanist Erasmus of Rotterdam thought that critical words should be enough to show the clergy the folly of their ways, which he ridiculed in The Praise of Folly (1509). Yet neither mysticism, with its emphasis on inner spirituality, nor humanism, with its stress on classical learning, captured the attention of learned ordinary Europeans. A successful reform movement required leaders with a common touch and an aggressive temperament who could do battle with political realities and win lay support against the vast power of the church. Such leaders took solace in millenarianism, the belief that after the Last Judgment Christ would institute a thousand-year rule of saints on earth. Its believers found a radical and religious justification for attacking established institutions and institutional corruption. The end of the world would be ushered in by righteous reformers whose time had come.

The End of the World

In the movements inspired by Wycliffe and Hus, as well as in the peasant revolts often spurred by economic grievances, a sense of urgency became apparent. Millenarians, inspired by the biblical prophecies, looked forward to the moment of divine intervention when the world would be destroyed, sinfulness overwhelmed, and a paradise on earth created where God's chosen would rule. Millenarian reformists, some quite radical, took prophecies accepted but not promoted by the

church and reinterpreted them to express their vision of a just society where religion aids the poor and oppressed. Protestant reformers reinterpreted Catholic millenarian doctrine. According to them, Christ would condemn the rich and propertied and establish a new society, not in heaven but on earth, which the poor would inherit, and for a thousand years—a millennium—the poor would rule in Christ's kingdom.

By 1500, the biblical concept of the Antichrist and the image of the whore of Babylon, both a part of millenarian thinking, became a shorthand for the corruption of the church. When Luther and other reformers in the early sixteenth century called the pope himself the Antichrist or the whore of Babylon, they drew upon the millenarian tradition of reform and protest that had existed in the West for centuries.

II. The Lutheran Revolt

Only an attack on papal and clerical authority could strike at the church's power. To succeed, the attack had to address the multitudes while appealing to princes. Heresy had to be made respectable and compelling. Such a feat required someone whose inner spiritual struggle highlighted the church's failure to care for souls, someone who could translate the agony of the search for salvation into language accessible to all Christians. Martin Luther (1483–1546) had experienced a personal crisis of faith, and he possessed the will, the talent, and the intellectual vigor to offer it as an example for other Christians. Luther wrote voluminously and talked freely to his friends and students. Using this mass of recorded material, historians have been able to reconstruct the life and personality of this Augustinian friar and theologian who began the Reformation (see Primary Source feature).

Luther: Humanist, Prophet, and Conservative

Martin Luther was born in eastern Germany to relatively uneducated parents of humble origins. His strict father, Hans Luther, was exceptionally ambitious. Born a peasant, he left the land and became a miner and finally a manager of several mines in the booming late-fifteenth-century German mine industry. Like many of the newly rich, Hans Luther had ambitious plans for his son; he wanted Martin to attain the status of an educated man and become a lawyer. Luther's mother was intensely pious, thus putting Luther in close touch with German popular religion.

At the university, Luther embarked on an ambitious intellectual career that was to make him one of the foremost theologians and biblical scholars of his day. At first, he studied law, and, of course, he read the humanists, including Erasmus.

But a rebellious streak surfaced. In 1504, at the age of twenty-one, Luther suddenly abandoned his legal studies to enter the Augustinian monastery at Erfurt. The actual decision was made swiftly. In later life, Luther recounted that the decision had been made in fear, as a vow to Saint Anne in the midst of a fierce lightning storm, by a young man convinced that his death at that moment would bring him eternal damnation. Why Luther thought he was damned is not known, but his guilt conspired with his vivid imagination to kindle what must have been a growing resentment against his father's domination. Challenging authority became a habit for Luther.

Luther was also a millenarian; he thought that he was living in the last days of the world. Eventually, as he became the leader of an international religious movement, Luther grew convinced that he was the long-foretold, divinely ordained prophet chosen to announce the coming Final Judgment. When he became the strong leader of the German Reformation, he also had to take political stands and pick his allegiances. Without hesitation and with deep conviction, Luther chose to preserve the social order, to support the power of princes and magistrates, and to maintain social hierarchy. Yet he took on papal authority and the power of the Holy Roman Emperor.

Luther's Break with Catholicism

As he prayed, Luther grew increasingly terrified by the possibility of his damnation. As a monk, he sought union with God, and he understood the church's teaching that salvation depended on faith, works meaning acts of charity, prayer, fasting, and so on, and grace. He participated in the sacraments of the church, and through them sought God's grace. Indeed, after his ordination, Luther administered the sacraments. Yet he still felt the weight of his sins, and the church seemed unable to relieve that burden.

Even the mystery of the Mass and the conversion of bread and wine into the body and blood of Christ brought Luther little inner peace. Seeking solace and salvation, he increasingly turned to reading the Bible. Two passages spoke directly to him: "For therein is the righteousness of God revealed from faith to faith: as it is written, 'He who through faith is righteous shall live'" (Romans 1:17); and "They are justified by his grace as a gift, through the redemption which is in Christ Jesus" (Romans 3:24). In faith and grace, Luther found, for the first time in his adult life, some hope for his own salvation. These biblical passages said to him that faith, freely given only by God through Christ, gives salvation and that human beings, powerless because of their fallen and sinful nature, are rescued by divine mercy. Neither the pope nor the sacraments give what only God can provide—salvation.

The concept of salvation by faith alone satisfied Luther's spiritual quest. Practicing good works such as prayer, fasting, pilgrimages, and receiving the sacraments would not in themselves lead to grace. No amount of good works, however necessary for Christian unity, would bring salvation. Through reading the Bible and through faith alone, the Christian could find the purpose of earthly existence. For Luther, the true Christian was a courageous figure who faced the terrifying quest for salvation armed only with the hope that God had granted the gift of faith. The new Christian served others, not to bargain with good works for salvation, but solely to fulfill the demands of Christian love. Nuns left their convents and married in the belief that their faith and service to the community would save them. Priests also left the church to become, like Luther, leaders of their own churches. Luther's odyssey laid out a new Protestant piety that embraced activity in the world.

Pursuing his theological and biblical studies, Luther became a professor at the nearby university at Wittenberg, in Saxony, and a preacher in that city's church. He shared his personal struggle with his students and his congregations. At the University of Wittenberg and in the province of Saxony in general, Luther found an audience receptive to his views, and his popularity and reputation grew. Before 1517, he was considered a dynamic and controversial preacher, whose passionate interest lay in turning Christians away from their worldly pleasures and from reliance on good works while focusing their attention on Christ and the truth contained within Scripture. After 1517, Luther became internationally famous; eventually the church deemed him a heretic.

The Reformation began in 1517 with Luther's attack on the church's practice of selling indulgences. The church taught that some individuals go directly to heaven, some go directly to hell, and others go to heaven after spending time in purgatory. Punishment in purgatory is necessary for those who sinned excessively but had the good fortune to repent before death. Naturally, people worried about how long they might have to suffer in purgatory. Indulgences were intended to remit portions of that time and punishment and were granted by the church to those who prayed, attended Mass, and performed acts of charity—including making monetary offerings to the church itself. Could the church be selling and people buying admittance to heaven?

In the autumn of 1517, a friar named Tetzel was selling indulgences near Wittenberg. Some of the money went to rebuilding Saint Peter's Basilica in Rome, and the rest was for paying off debts incurred by a local archbishop when he purchased his office from the pope. Although Luther did not know about the purchase, he was incensed both by Tetzel's crude manner and by his flagrant exploitation of the people's ignorance and what Luther deemed his misuse of their money. Luther launched his attack on Tetzel and the selling of indulgences by tacking on the door of the Wittenberg castle church his Ninety-Five Theses. He also sent a copy to the local archbishop. Luther's theses (propositions) challenged the entire notion of selling indulgences not only as a corrupt practice but also because it rested on a theologically unsound assumption—namely, that salvation could be bought and sold, that is, earned by the good work of supporting the church. Luther was blunt with the church's hierarchy and, in particular, with the papacy: he challenged its sole authority to save souls and to guard entrance into heaven. By his logic, indulgences were worthless.

Luther's argument in all his writings rested on the belief that Christian salvation through personal piety requires contrition for sins and trust in God's mercy and grace. He also believed that no good work earned salvation. The church, in contrast, held that both faith and good works were necessary for salvation. Luther further insisted that every individual could discover the meaning of the Bible unaided by the clergy. The church maintained that only the clergy could read and interpret the Bible properly. Luther argued that in matters of faith there was no difference between the clergy and the laity; indeed, each person could receive faith directly and freely from God. The church held that the clergy and the sacraments were intermediaries between individuals and God: Christians reached eternal salvation through the church and its clergy. For Luther, no priest, no ceremony, no sacrament, and certainly no confinement in convents or monasteries could bridge the gulf between the Creator and his creatures, and the possibility of personal damnation remained a distinct reality. Hope lay only in a personal relationship between the individual and God, as expressed through faith in God's mercy and grace. In Luther's view, no church could mediate that faith for the individual, and to that extent Luther's theology destroyed the foundations of the church's spiritual power. By declaring that clergy and church rituals do not hold the key to salvation, Luther rejected the church's claim that it alone offered the way to eternal life.

But Who Is Saved?

If faith alone, freely given by God, brings salvation to the believer, how can a person know whether he or she has faith? Luther seemed content to assert that the search itself by a pious and penitent supplicant implied God's favor. In Luther's doctrine of faith, the notion of predestination is barely beneath the surface. Luther never chose to bring forth the implications of his doctrine. His contemporary, the great French theologian John Calvin, however, made predestination central to his version of reformed Christianity. This belief made salvation an intensely personal matter—some might say an intensely terrifying or liberating matter.

Predestination is such a difficult doctrine that discussion about it continues today. Predestination rests on the assumption that God is all-knowing, eternal, his will absolute: he gives faith to whomever he chooses and does so for his own inscrutable reasons. Because God's existence and will are timeless, God knows the fate of every person even as individuals are searching for salvation. Given God's foreknowledge, it may be said that every person is predestined for either heaven or hell. But for believers, the question remains: how can individuals know whether God has chosen them for salvation?

Luther said simply that men and women should hope and trust in salvation but certainty would be granted only after death. For subsequent reformers predestination made Protestant doctrine logical and created an identifying experience for all true Christians. Calvin and his followers, who by 1650 became numerically the largest group of European and American Protestants, believed firmly that some are chosen and others damned—but no one should presume one way or another.

The Creation and Spread of Lutheranism

In 1517, Luther could not foresee what he had started, that the Reformation was under way. Quickly translating his theses from Latin into German, his students printed and distributed them throughout Germany. Local church authorities recognized in Luther a serious threat and prepared to silence him. But Luther was tenacious; he began to write and preach his theology with increasing vigor. With the aid of the printing press, by 1525 there were probably three million Protestant pamphlets circulating in Germany. Students and well-wishers from Eastern Europe as well as Germany flocked to Wittenberg.

At this point, politics intervened. Recognizing that his life might be in danger if he continued to preach without a protector, Luther appealed for support to Prince Frederick, the elector of Saxony. The elector was a powerful man in international politics—one of the seven lay and ecclesiastical princes who chose the Holy Roman Emperor. Frederick's support for his most famous university professor convinced church officials, including the pope, that this friar had to be handled cautiously.

The years 1518 and 1519 were momentous ones for the Holy Roman Empire. Before his death in 1519, the Holy Roman Emperor Maximilian I wanted to see his grandson Charles, king of Spain, elected to succeed him. The papacy at first opposed Charles's candidacy, even looking to Frederick of Saxony as a possible alternative. Frederick wisely declined. However, because he was one of the seven electors, the contenders—Charles, Francis I of France, and Henry VIII of England—counted on him for his vote. Charles bribed the electors and won the title. Therefore, during this crucial period and for years afterward, he had to proceed cautiously on issues that might offend powerful German princes.

These political considerations explain the delay in Luther's official condemnation and excommunication by the pope. When in late 1520 the pope finally acted, it was too late; Luther had been given the time needed to promote his views. He proclaimed that the pope was the Antichrist and that the church was the "most lawless den of robbers, the most shameless of all brothels, the very kingdom of sin, death and Hell." When the papal bull excommunicating him was delivered, Luther burned it.

Luther and his followers established congregations for Christian worship throughout Germany. To find protectors, in 1520 Luther published the Address to the Christian Nobility of the German Nation. In it, he appealed to the German princes to cast off their allegiance to the pope, who, he argued, had used taxes and political power to exploit them for centuries. His appeal tapped into the resentment against foreign papal intervention that had long festered in Germany. Luther also wrote to the German people about the meaning of his personal experience as a Christian. In the Freedom of a Christian Man (1520), he called on Germans to strive for true spiritual freedom through faith in Christ, to discipline themselves, to obey legitimate political authority, and to perform good works according to the dictates of Christian love. In these treatises,

Luther made his political conservatism clear: he wanted to present no threat to legitimate authority, that is, to the power of German princes.

In 1521, Charles V, the Holy Roman Emperor and a devout Catholic, summoned Luther to Worms, giving him a pass of safe conduct. In that imperial city Luther faced the charge of heresy, both an ecclesiastical and a civil offense. As he traveled to Worms, crowds of well-wishers cheered his way. Then standing before the emperor and his court, Luther was supposed to recant. His careful and defiant reply became his most famous statement: "Unless I am convinced of error by the testimony of Scripture or by clear reason . . . I cannot and will not recant anything, for it is neither safe nor honest to act against one's conscience. God help me."

Shortly after this confrontation with the emperor, Luther went into hiding to escape arrest. In that one-year period, he translated the New Testament into German. With it, he offered literate Germans the opportunity to take the same arduous spiritual odyssey that he had undergone and to join him as a new type of Christian. These followers, or Lutherans, were eventually called Protestants, those who protested against the established church, and the term became generic for all supporters of the Reformation.

Religious Reform or Social Revolution?

Luther looked to every level of German society for support. In a country of many small towns with printing presses, the literate urban population responded dramatically to his call. Led by city fathers and preachers, individuals converted to the new Protestant churches or turned their own Catholic church into a Protestant one. The new faith made men and women bold. When a teenage boy married of his own will without consulting his family in Nuremberg, he defended his actions by saying that God "ordained that it happens this way by his divine will." Priests were now expected to marry. Even though Protestants insisted that women marry and be silent and obedient, a Swiss Protestant woman who refused marriage justified her wanting to remain "master-less" by saying: "Those who have Christ for a master are not master-less."

Luther was a brilliant preacher, and clearly his message could inspire people to be defiant as well as devout. Protestantism came to be seen not only as a source of personal revitalization and salvation but also as a force that could renew society and government.

The same issues that moved Germans to leave the church appealed to people in towns and cities in Austria, Hungary, Poland, the Netherlands, and Switzerland. Even in Paris and London, as well as in northern Italy by the late 1520s, followers or readers of Luther could easily be found, and lives changed profoundly. Katharina von Bora, who married Martin Luther, was so devoted to the Lutheran cause that Luther called her his "Moses." There were thousands of devout and defiant Katharinas throughout Europe.

Despite repression by the Catholic church and the weight of habit and tradition, in 1550 Protestants were probably in the majority in some German towns, in much of Hungary and Bohemia, in Sweden, and in various Swiss cantons. In France, more than a million people converted to Calvin's version of Protestantism. Dutch city dwellers turned to it as well, much to the horror of their Spanish king. How could this have happened in one generation?

In the sixteenth century, any new religious or political movement needed the support of the nobility. Early on, Luther appealed to them, and they responded. Their motives ranged from piety to political ambition. The Reformation provided the nobility with the unprecedented opportunity to confiscate church lands, eliminate church taxes, and gain the support of their subjects by serving as leaders of a popular and dynamic religious movement. The Reformation also gave the nobles a way to resist the Catholic Holy Roman Emperor Charles V, who wanted to extend his authority over the German princes. Resenting Italian domination of the church, many other Germans who supported Martin Luther believed that they were freeing German Christians from foreign control. The same spirit motivated the nobility in France, the Low Countries, Poland, and Lithuania.

First and foremost, however, Lutheranism was a popular evangelical movement. Its battle cry became "The Word of God"; faith and the Bible were its hallmarks. Luther turned his wrath on the "detestable tyranny of the clergy over the laity; [the clergy] almost look upon them as dogs, unworthy to be numbered in the Church along with themselves.... They dare to command, exact, threaten, drive, and oppress, at their will."

Those were fighting words—but uttered by a political conservative, who hesitated to challenge secular authority. To Luther, the good Christian must be an obedient citizen. The freedom of the Christian lay inward, a spiritual freedom. Yet Luther could not stop his ideas from spreading to the poor and the peasantry, often by word of mouth. The population of Germany was about 16 million, of which probably no more than 400,000 could read. For the illiterate and largely rural people, Lutheranism came to mean not only religious reform but also an evangelical social movement that would address their poverty. In addition, the peasants believed that the end of the world was near and that God would soon impose justice. Millenarianism and poverty inspired social revolution.

Although Luther had spoken forcefully about Christians' discontent with their church, he never understood that to the poor and socially oppressed, the church's abuses were visible signs of the poverty and exploitation they encountered in their daily lives. The wealthy feudal lords who dominated every aspect of their existence, as well as the prosperous townspeople who bought their labor for the lowest possible wages, seemed no different from the venal clergy; indeed, in some cases the lord was also a local bishop.

In the early sixteenth century, a rapid population explosion throughout Europe had produced severe inflation, high unemployment, and low wages. The poor get poorer. The peasantry in Germany was probably worse off than the peasantry in England and the Low Countries. In 1524, long-suffering peasants openly rebelled against their lords. The peasants' revolt spread to more than one-third of Germany; some 300,000 people took up arms against their masters. They were inspired by Luther's successful confrontation with the church. Had he not chastised the nobles for failing to care for the poor as commanded in the Gospel?

Luther, however, had no intention of associating his movement with a peasant uprising and thereby alienating the nobility from the Reformation. Luther virulently attacked the rebellious peasants, urging the nobility to become "both judge and executioner" and to "knock down, strangle, and stab… and think nothing so venomous, pernicious, Satanic as an insurgent… Such wonderful times are these that a prince can merit heaven better with bloodshed than another with prayer." By 1525–1526, the peasants had been put down by the sword. Thousands died or were left homeless, and many were permanently alienated from Lutheranism. Because of the failure of the revolt, the German peasantry remained relatively backward and oppressed well into the nineteenth century. In Germany, the Reformation meant religious reform, not social

revolution or even social reform, and it became increasingly an urban phenomenon.

III. The Spread of the Reformation

Lutheranism spread in waves and in every direction out from Wittenberg, the training ground for Luther's clergy. In northern Europe, cut off from the south by the Alps and the Pyrenees, the Reformation spread rapidly. In southern Europe, where the church and the Inquisition were strongest, the Reformation made fewer inroads in Italy or Spain. Thus, the spread of Protestantism had a pattern. It grew strong in northern Germany, Scandinavia, the Netherlands, Scotland, and England but failed in Ireland and the Romance countries, though not without a struggle in France.

Protestantism also appeared simultaneously in different places—a sure indication of its popular roots. For example, in the Swiss city of Zurich, the priest and reformer Ulrich Zwingli (1484–1531) preached faith and not good works and saw the Bible as the key to divine will and law. Like Luther, he looked for an alternative to the doctrine of transubstantiation—the priest's transformation of Communion bread and wine into the substance of Christ's body and blood. It gave enormous power to the priesthood. But the two reformers differed bitterly over the form and meaning of the ceremony. Zwingli radically altered the Communion service, and it became solely a commemoration of the Last Supper. Their quarrel highlights that the reformers, as predicted by the Catholic church, could not agree on the meaning of the Bible or on the ritual expressions they would give their new versions of Christianity.

Zwingli died on the battlefield in a war to defend the Reformation. His teachings laid the foundation for a thorough reformation in Switzerland, and the major reform movement of the next generation, Calvinism, benefited from Zwingli's reforms. Both forms of the Reformation spread into Eastern Europe.

In Germany, the strife created by the Reformation was settled, though not to everyone's satisfaction, by the Peace of Augsburg (1555). It decreed, by the famous dictum cuius regio, eius religio ("whoever rules, his religion"), that each territorial prince should determine the religion of his subjects. Broadly speaking, northern Germany became largely Protestant, and Bavaria and other southern territories remained in the Roman Catholic church. The victors were the local princes. Toward the end of his life, Charles V expressed bitter regret for not intervening more forcefully in those early years. The decentralization of the empire and its division into Catholic and Protestant areas blocked German unity until the last part of the nineteenth century. In Eastern Europe, both forms of Christianity showed hostility to Islam, and it was returned in kind.

Calvin and Calvinism

The success of the Reformation outside Germany and Scandinavia derived largely from the theological rigor of John Calvin (1509–1564), a French scholar and theologian. By the 1530s, Lutheran treatises circulated widely in Paris. Some university students, including the young John Calvin, seized upon Luther's ideas.

Calvin was born into a French family of bourgeois status; his father, somewhat like Luther's, was self-made and ambitious. A lawyer and administrator, the elder Calvin served ecclesiastical authorities until a dispute led to his excommunication. He desired prosperous careers for his sons. John first studied to be a priest and then, at his father's insistence, took up the study of law at the University of Orléans. Unlike the rebellious Luther, Calvin waited until his father's death to return to

Paris and resume his theological studies. Even more so than Luther, Calvin was trained as a humanist. He knew the ancient languages, as well as philosophy and theology, and he knew the Bible. From all those sources, Calvin fashioned the most logically compelling version of Protestantism to come out of the Reformation.

Sometime in 1533 or 1534, Calvin met French followers of Luther and became convinced of the truth of the new theology. He took to the streets to spread his beliefs, and within a year he and his friends were in trouble with the authorities. Calvin was arrested but released because of insufficient evidence.

King Francis I, a bitter rival of the Holy Roman Emperor, could countenance Protestantism in Germany but would never permit disruptive religious divisions in France. Riots had already broken out in Paris between Catholics and supporters of the Reformation. In 1534, the French church, backed by a royal decree, declared the Protestants heretics and subjected them to arrest and execution.

Within a year, young Calvin abandoned his literary studies to become a preacher of the Reformation. Calvin explained his conversion as an act of God: “He subdued and reduced my heart to docility, which, for my age, was overmuch hardened in such matters.” Calvin emphasized the power of God over sinful and corrupt humanity; his God thundered and demanded obedience, and the terrible distance between God and the individual was mediated only by Christ.

In his search for spiritual order and salvation, Calvin spoke to his age. His anxiety was widely shared. He feared disorder and ignorance, sinfulness, and simply the unpredictable quality of human existence. The only solution to anxiety lay in unshakable faith in God, knowledge of his laws, and absolute adherence to righteous conduct. We must see God’s order everywhere, especially in nature, in “the symmetry and regulation” of the universe. Faith in God is so obviously our salvation that, according to Calvin, only the damned, the reprobate, would turn their back on him and live in disorder. Calvin assured his congregations that God “will give a good result to everything we do…. God will cause our enterprises to prosper when our purpose is right and we attempt nothing except what he wills.” With Calvin, the doctrine of predestination became the centerpiece of Protestant theology: some people are saved, others damned at birth; inward belief and outward righteousness and integrity may signal a person’s fate, but God alone knows what the future holds.

The social and political implications of predestination were immediate: Calvinists became militant Protestants capable of ruling their towns or cities with the same iron will they used to control their unruly passions. Like Luther, Calvin always stressed that Christians should obey legitimate political authority. But Calvinists were individuals who assumed that unfailing dedication to God’s law could signal salvation; their obedience to human laws would always be contingent on their inner sense of righteousness. Thus, Calvinism made for stern followers, active in their churches and willing to suppress vice in themselves and others. Calvinism also could produce revolutionaries willing to defy any temporal authorities seen to violate God’s laws. Obedience to Christian law became the dominating principle of Calvin’s life. Rigorous enforcement of the law ensured obedience to God’s law; the local Calvinist church became an alternative to the power of the Catholic church.

The political situation in France forced Calvin to leave. After his flight from Paris, he finally sought safety in Geneva, a small, prosperous Swiss city near the French border. It was a logical choice. Before Calvin’s arrival, Geneva’s citizens were in revolt against their Catholic bishops. The French-born reformer William Farel implored Calvin to stay to continue the work of the Reformation. Together, they became leaders of the Protestant movement in Geneva. After many setbacks,

Calvin emerged as the most dynamic agent of reform in the city. Until his death in 1564, his beliefs and actions ruled Geneva's religious and social life.

Calvin established an unofficial Calvinist theocracy—a society in which Calvinist elders regulated citizens' personal and social lives and did so through church courts that were independent of state institutions. Older, pious, male members of the community governed the city.

These elders of the Calvinist church imposed strict discipline in dress, sexual mores, church attendance, and business affairs; they severely punished irreligious and sinful behavior. This rigid discipline contributed to Geneva's prosperity; indeed, Calvin instituted the kind of social discipline that some of the merchants had always wanted. Prosperous merchants, as well as small shopkeepers, saw in Calvinism a series of doctrines that justified the self-discipline they already exercised in their own lives and wished to impose on the unruly masses. They particularly approved of Calvin's economic views, for Calvin, unlike the Catholic church, saw nothing sinful in commercial activities and even gave his assent to the practice of charging interest.

Geneva became the center of international Protestantism. Calvin trained a new generation of Protestant reformers of many nationalities who carried his message back to their homelands. Calvin's Institutes of the Christian Religion (1536), in its many editions, became after the Bible the leading textbook of the new theology. In the second half of the sixteenth century, Calvin's theology of predestination spread into France, England, Scotland, the Netherlands, and parts of the Holy Roman Empire.

Calvin opposed violence against the legitimate authority of magistrates. Yet when monarchy became a persecutor, his followers felt compelled to respond. Calvinist theologians became the first political theoreticians of modern times to publish cogent arguments for opposition to monarchy and eventually for political revolution. In France and later in the Netherlands, Calvinism became a revolutionary ideology, complete with an underground organization of dedicated followers who challenged monarchical authority. In the seventeenth century, the English version of Calvinism—Puritanism—performed the same function. In certain circumstances, Calvinism supplied the moral force to support the individual against the claims of the monarchical state.

France

Although Protestantism was illegal in France after 1534, its persecution was halfhearted and never systematic. The Calvinist minority in France, the Huguenots, became a well-organized underground movement that attracted nobles, city dwellers, some peasants, and especially women. Huguenot churches, often under the protection of powerful nobles, assumed an increasingly political character in response to the monarchy-sponsored persecution. By 1559, French Protestants had organized and challenged their persecutors, King Henry II and the Guise—one of the foremost Catholic families in Europe, tied by marriage and conviction to the Spanish monarchy and its rigorous form of Catholicism. Guise power in the French court meant that all Protestant appeals for lenient treatment went unheeded, and in 1562 civil war erupted between Catholics and Protestants. What followed was one of the most brutal religious wars in the history of Europe. In 1572, an effort at conciliation through the marriage of a Protestant leader into the royal family failed when

Catholics, urged on by the queen mother, Catherine de' Medici, murdered the assembled Protestant wedding guests. Over the next week, a popular uprising left thousands of Protestants dead; the streets, according to eyewitness accounts, were stained red with blood. These murders and the ensuing slaughter, known as the Saint Bartholomew's Day Massacre, inspired the pope to have a Mass said in thanksgiving for a Catholic "victory." Such was the extent of religious hatred in late-sixteenth-century Europe.

After nearly thirty years of brutal fighting throughout France, victory went to the Catholic side—but just barely. Henry of Navarre, the Protestant bridegroom who in 1572 had managed to escape the fate of his supporters, became King Henry IV, but only after reconverting to Catholicism. He established a tentative peace by granting Protestants limited toleration. In 1598, he issued the Edict of Nantes, the first document in any nation-state that attempted to institutionalize a degree of religious toleration. In the seventeenth century, the successors of Henry IV he was assassinated by a priest in 1610 gradually weakened the edict and then in 1685 revoked it. The foundations of toleration, in theory and practice, remained tenuous in early modern France. Every French king of the seventeenth century tried to decrease the number of Protestants. In 1685, more than 150,000 fled to the Protestant areas of Europe or the American colonies.

England

The Reformation in England differed profoundly from the Continental Reformations. The king, Henry VIII (1509–1547), and not clergymen in revolt, made it happen. The pope refused to grant Henry an annulment of his marriage to his first wife, who had failed to produce a male heir. So, this self-confident Renaissance king, bent on having a new wife and new sources of revenue, removed the English church from papal jurisdiction.

Unlike the French and Spanish kings, the English Tudors never frightened the papacy. Henry VII (1485–1509), the first Tudor monarch, and his son, Henry VIII, enjoyed a good measure of control over the English church but never played a major role in European and papal politics. When Henry VIII decided that he wanted a divorce he called it an annulment from the Spanish princess Catherine of Aragon in 1527–1528, the pope in effect ignored his request. Henry had neither power nor theology on his side. As the pope stalled, Henry grew more desperate; he needed a male heir and presumed that the failure to produce one lay with his wife. At the same time, he desired Anne Boleyn. But Spain's power over the papacy ensured that Henry's pleas for an annulment would go unheeded.

The English possessed a tradition of opposing the church that went back to Wycliffe in the fourteenth century. Aware of that long tradition, Henry VIII arranged to grant himself a divorce by severing England from the Roman Catholic church. To do so, he summoned Parliament, which in turn passed a series of statutes drawn up at his initiative and guided through Parliament by his political adviser, Thomas Cromwell. Beginning in 1529, Henry convinced Parliament to accept his Reformation, and so began an administrative and religious revolution. In 1534, Henry had himself declared supreme head of the Church of England also known as the Anglican church. In 1536, he dissolved English monasteries and seized their property, which was distributed or sold to his loyal supporters. In most cases, it went to the lesser nobility and landed gentry. By involving Parliament and the gentry, Henry VIII turned the Reformation into a national movement.

In the eleven years after Henry's death in 1547, three more Tudor monarchs ascended the throne of England. Henry was

succeeded by his sickly son, Edward VI, a Protestant, who reigned from 1547 to 1553. On his death, Edward was succeeded by his Catholic half-sister, Mary (1553–1558), the daughter of Henry VIII and Catherine of Aragon, the divorced first wife, who had been sent into exile. Allied with the remaining Catholic minority in England, Mary persecuted Protestants severely. On her death, she was succeeded by her Protestant half-sister, Elizabeth I (1558–1603), Henry's daughter by Anne Boleyn, and England became a Protestant country again.

The Church of England as it developed in the sixteenth century differed only to a limited degree in its customs and ceremonies from the Roman Catholicism that it replaced. Sections of the English population, including aristocratic families, remained Catholic and even used their homes as centers for Catholic rituals performed by clandestine priests. Thus, the exact nature of England's Protestantism became a subject of growing dispute. Was the Anglican church to be truly Protestant? Was its hierarchy to be responsive to, and possibly even appointed by, the laity? Were its services and churches to be simple, lacking in "popish" rites and rituals and centered only on Scripture and sermon? Was Anglicanism to conform to Protestantism as practiced in Switzerland, either in Calvinist Geneva or in Zwinglian Zurich? The clergy, especially the English bishops, would accept no form of Protestantism that might limit their ancient privileges, ceremonial functions, and power. Mary's persecutions, however, had forced leading English Protestants into exile in Geneva and into the arms of the Calvinist church.

Despite these religious issues, which were raised by the growing number of English Calvinists, or Puritans, as they were called, Elizabeth's reign was characterized by a heightened sense of national identity and by only the limited persecution of Catholics. At this same time, Calvinism flourished in Scotland. In Ireland, some elites and most peasants remained staunch Catholics.

Southern and Eastern Europe

In Spain and Italy, where the Inquisition was powerful, the Reformation struggled but failed to take hold. In Venice, as late as the 1560s, it was possible to find Protestants of all sorts—Lutherans, Calvinists, radical millenarians. We know about them from the interrogation reports filled out by their Catholic inquisitors. The Italian Inquisition had the backing of the papacy and the populace. Humanism, which might have given support to Protestantism, had never possessed a popular base in Italy, and the universities and printing presses, so vital to the Reformation north of the Alps, remained firmly under clerical control.

Luther's writings circulated in Spain for a time, but there, too, the authorities, both lay and clerical, quickly and thoroughly stamped out Protestantism. In the Middle Ages, the Spanish church and state had successfully joined in a religious and nationalist crusade to drive out the Muslims, and this effort forged strong links between the Spanish monarchy and the church. About a quarter of the Spanish population held a church office of one kind or another, and the church owned half of Spain's land. Allied with the state, the Inquisition enforced public and private morality. In southern Europe, the Reformation simply could not evade clerical authorities.

In Eastern Europe, the pattern was quite different and more complex than in Italy and Spain. In Hungary, warfare between Christians and Turks led to the collapse of the nobility, three-quarters of whom were killed in one battle in 1526. The

weakness of Austrian Hapsburg authority in the country, coupled with the demise of the local elite, created a power vacuum into which the Reformation rushed.

Hungarian reformers such as Mathias Biró (1523–1545) and Stephen Kis (1505–1572) studied with Luther in Wittenberg and returned to Budapest to preach the Lutheran gospel. But as the number of their converts grew, Catholic and Turkish authorities became alarmed. They imprisoned Kis and Biró, confiscated their libraries, and fought the Reformation at every turn. Yet the Protestants did make converts among the Hungarian nobility, as well as among the townspeople. Not until the seventeenth century and the Hapsburg-led Counter-Reformation did Hungary return to the church. Even in the eighteenth century, during the Enlightenment, Hungarian Protestants were influential in the intellectual life of the country.

The pattern of the Reformation in Eastern Europe followed that in the rest of the continent. It began in the cities, succeeded where it was supported by the nobility or where traditional authority was weak, and lasted when it took root among the general population. In Poland, that pattern occurred; in neighboring Lithuania, only the nobility, already immensely powerful, took up Protestantism. When the church, led by the Jesuits, fought back, it easily triumphed in those areas where the Reformation lacked popular support. Very slowly, Poland was brought back into the church; in Lithuania, by the late sixteenth century, Protestantism had all but disappeared. The Catholic version of reformation had demonstrated its considerable appeal.

The Radical Reformation

The mainstream of the Protestant Reformation can be described as magisterial because the leading reformers generally supported established political authorities, whether they were territorial princes or urban magistrates. For the reformers, human freedom was a spiritual, not a social, concept. Yet the Reformation did help trigger revolts among the artisan and peasant classes of Central and then Western Europe. Indications are that church doctrine had not made great inroads into the folk beliefs of large segments of the European masses. For example, some peasants held the very un-Christian beliefs that Nature was God or that witches had as much spiritual power as priests did. By the 1520s, several radical reformers arose, often from the lower classes of European society, and they channeled popular religion and folk beliefs into a new version of reformed Christianity that spoke directly to the temporal and spiritual needs of the oppressed.

Some beliefs constituted what may be called the Radical Reformation. Appealing to the poor and oppressed, the radicals argued that ordinary men and women, even if illiterate, have certain knowledge of their salvation through an inner light, a direct communication from God to his chosen “saints”—men and women predestined for salvation. That knowledge makes the saint free. For the radicals, spiritual freedom paralleled their demands for social and economic freedom and equality. Protestantism, radically interpreted, proclaimed the righteousness and the priesthood of all believers. It said that all people can have faith if God wills it and that God would not abandon the wretched and humble of the earth.

The radicals said, as did the Bible, that the poor shall inherit the earth, which is ruled at present by the Antichrist, and that the end of the world had been proclaimed by Scripture. The saint’s task was to purge this earth of evil to make it ready for Christ’s Second Coming. For the radicals, the faith-alone doctrine meant certain salvation for the poor and lowly, and the Scriptures became an inspiration for social revolution. The doctrine could also inspire quietism, retreat from this world in

anticipation of a better world to come. Luther, Calvin, and the other reformers vigorously condemned the social doctrines preached by the radical reformers, whether activist or quietist.

The largest group in the Radical Reformation prior to 1550 has the general name of Anabaptists. On receiving the inner light—the message of salvation—the Anabaptist felt born anew and yearned to be rebaptized. This notion had a revolutionary implication: the first infant baptism—thought to ensure allegiance to an established church Protestant or Catholic—did not count. The Anabaptist was a new Christian led by the light of conscience to seek the reform and renewal of all institutions in preparation for the Second Coming of Christ. Millenarian doctrines about the end of the world provided a sense of time and urgency.

In 1534, Anabaptists captured the city of Münster in Westphalia, near the western border of Germany. They seized the property of non-believers, burned all books except the Bible, and in a mood of jubilation and sexual excess openly practiced a repressive as far as women were concerned polygamy. All the while, the Anabaptists proclaimed that the Day of Judgment was close at hand. The radical leaders at Münster were men totally unprepared for power. They were defeated by the army led by a Lutheran prince, Philip of Hesse, and the local Catholic bishops brutally suppressed them. In early modern Europe, Münster became a byword for dangerous revolution. In Münster today, the cages still hang from the church steeple where the Anabaptist leaders were tortured and left to die as a warning to all would-be imitators.

By the late sixteenth century, many radical movements had either gone underground or grown quiet. But a century later, during the English Revolution of 1640 to 1660, the beliefs and political goals of the Radical Reformation resurfaced, threatening to push the political revolution in a direction that its gentry leaders desperately feared. Although the radicals failed in England, they left a tradition of democratic and anti-hierarchical thought. The radical assertion that saints, who have received the inner light, are the equal of anyone, regardless of social status, helped shape modern democratic thought.

IV. The Catholic Response

As late as the 1530s, the Catholic church hesitated, uncertain that the Protestant Reformation would gain strength or attract so many powerful noble families. Initially, the energy for reform came from ordinary clergy, as well as from laypeople such as Ignatius Loyola (1491–1556), rather than from the hierarchy or the established religious orders. Clergy and especially the laity gave renewed energy to Catholicism. Trained as a soldier, the Spanish reformer Loyola created a new religious order. He fused the intellectual rigor of humanism with a reformed Catholicism, forming a renewed spirituality with wide appeal. Founded in 1534, the Society of Jesus, commonly known as the Jesuits, became the backbone of the Catholic Reformation also called the Counter-Reformation in southern and Western Europe.

The Jesuits strove to bypass local corruption and appealed to the papacy to lead a truly international movement to revive Christian universalism. The Jesuits saw most clearly the bitter fragmentation produced by the Reformation. Moreover, they perceived one of the central flaws in Protestant theology. Predestination offered salvation to the literate and prosperous laity and, at least in theory, to the poor as well. However, it also included the possibility of despair for the individual and a life tormented by the fear of inescapable damnation. In response, the Jesuits offered hope: a religious revival based on ceremony, tradition, and the priestly power to offer forgiveness.

Jesuits became confessors to princes and urged them to strengthen the church in their territories. They developed a pragmatic theology that permitted “small sins” in the service of an ultimately just cause. In this way, the Jesuits, by the seventeenth century, became the greatest teachers in Europe and also the most controversial religious group within the church. Were they the true voice of a reformed church, or did they have nefarious intentions, as their critics claimed? Did they seek political power of their own, making themselves the Machiavellian servants of princes? It was a controversy that continued well into the eighteenth century. Urged on by Catholic reformers, the church finally convened a council at Trent. It tackled corrupt practices and renewed Catholic spirituality throughout the West.

As a result of the Catholic revival, new schools and universities appeared, as did newly designed churches. The revival even fostered a distinct style of art and architecture: cherubic angels grace the ornate decor of Counter-Reformation churches; heaven-bound saints beckon the penitent. This baroque style, so lavish and emotive, sought to move the heart, just as Protestant preachers sought to move the intellect. The baroque constituted a powerful response to the Protestant message that religion is ultimately a private, psychological matter; instead, religion should move the emotions and inspire devotion to God and the church.

By the 1540s, the Counter-Reformation was well under way. The attempt to reform the church from within combined several elements—some benign, others bellicose. The leaders of this Catholic movement attacked many of the same abuses that Luther targeted, but they avoided a break with the doctrinal and spiritual authority of the pope and the clergy.

At the same time, the Counter-Reformation also turned aggressive and hostile toward Protestants. The church tried to counter the popular appeal of Protestantism by offering dramatic, emotional, and even sentimental piety to the faithful. For individuals who were unmoved by this appeal to sentiment or by the church’s more traditional spirituality, and for those who allied themselves with Protestant heresy, the church resorted to sterner measures. The Inquisition expanded its activities, and wherever Catholic jurisdiction prevailed, unrepentant heretics—Protestants, especially Jews, and even Muslims—were subject to death or imprisonment. Catholics did not hold a monopoly on persecution: wherever

Protestantism obtained official status—in England, Scotland, Ireland, and Geneva, for instance—Catholics or religious radicals also faced persecution. Calvin, for example, approved the execution in 1563 of the naturalist and skeptic Michael Servetus, who opposed the doctrine of the Trinity. In 1600, the Catholic church in Italy burned Giordano Bruno for similar reasons.

Aside from torture and imprisonment, one of the Catholic church's main tools was censorship. By the 1520s, the impulse to censor and burn dangerous books intensified as the church tried to prevent the rapid spread of Protestant ideas. In the rush to eliminate heretical literature, the church condemned the works of reforming Catholic humanists as well as those of Protestants. The Index of Prohibited Books became an institutional part of the church's life. Over the centuries, the works of many leading European thinkers were placed on the Index, which was abolished only in 1966.

The Counter-Reformation policies of education, vigorous preaching, church building, and self-reform but also torture, persecution, and censorship all succeeded in bringing thousands of people, Germans and Bohemians in particular, back into the church. Furthermore, the church implemented concrete changes in policy and doctrine. In 1545, the Council of Trent met to reform the church and strengthen it so as to better confront the Protestant challenge. Over the years, the council modified and unified church doctrine; abolished many corrupt practices, such as the selling of indulgences; and vested final authority in the papacy, thereby reasserting its power. The Council of Trent invigorated the church and gave it doctrinal clarity on such matters as the roles of faith and good works in attaining salvation. It made the church into the final arbiter of the Bible and demanded that texts be taken literally wherever possible. Galileo Galilei, the Italian physicist and astronomer, was to experience great difficulties in the next century because a literally read Bible implied that the motion of the earth contradicted Scripture.

After Trent the church sought to offer a clear voice amid the babble of Protestant tongues. All compromise with Protestantism was rejected not that Protestants were anxious for it. The Reformation had split Western Christendom irrevocably.

V. The Reformation and the Modern Age

At first glance, the Reformation would seem to have renewed the medieval stress on other-worldliness and reversed the direction toward a secularized humanism that the Renaissance had taken. Yet a careful analysis shows decisively modern elements in Reformation thought, as well as anti-authoritarian tendencies in its political history. The Reformation shattered the religious unity of Europe, the cornerstone of medieval culture, and further weakened the principal authority in medieval society, the church. The political power of the church waned considerably. To this day, Western Europe reveals both Catholic and Protestant traditions. Although doctrinal rigidity and, in many places, church attendance has largely disappeared, the split between the southern Catholic countries and the mostly Protestant north is still visible, if only in various customs and rituals. In Eastern European countries, where the churches, both Catholic and Protestant, emerged as powerful political forces, governments had to be cautious in dealing with them. During the 1980s, German Lutheran and Polish Catholic churches became focal points for anti-Soviet activities. Today, Northern Ireland stands as the sole reminder of the religious tensions that had once plagued the whole of Christian Europe. Even there, however, religious tensions appear to be waning. The challenge has now become to accept the Muslim minorities found in every European city, and to avoid a revival of anti-Semitism.

By strengthening the power of monarchs and magistrates at the expense of religious authority, the Reformation furthered the growth of the modern state. Protestant rulers completely repudiated the pope's claim to temporal power and extended their authority over Protestant churches in their lands. In predominantly Catholic lands, the church reacted to the onslaught of Protestantism by supporting the monarchies, but at the same time it preserved a significant degree of political independence. Protestantism did not create the modern secular state; it did, however, help free the state from subordination to religious authority. Such autonomy is an essential feature of modern and secular political life.

Indirectly, Protestantism contributed to the growth of political liberty: another ideal, though not always a reality, in the modern West. To be sure, neither Luther nor Calvin championed political freedom. Nevertheless, tendencies in the Reformation provided a basis for challenging monarchical authority. During the religious wars, both Protestant and Catholic theorists supported resistance to monarchs whose edicts, they believed, defied God's Law. Moreover, the Protestant view that all believers—laity, clergy, lords, and kings—were masters of their own spiritual destiny eroded hierarchical authority and became compatible with emerging constitutional government.

The Reformation also contributed to the creation of an individualistic ethic. Protestants sought an unmediated relationship with God and interpreted the Bible for themselves. Facing the prospect of salvation or damnation entirely on their own, without the church to provide sacramental aid, and believing that God had chosen them to be saved, Protestants developed inner confidence and assertiveness. This religious individualism was the counterpart of the intellectual individualism of the Renaissance humanists.

The Protestant ethic of the Reformation developed concurrently with a new economic system. Theorists have argued ever since about whether the new individualism of the Protestants brought on the growth of capitalism or whether the capitalistic values of the middle class gave rise to the Protestant ethic. In the middle of the nineteenth century, Karl Marx theorized that Protestantism gave expression to the new capitalistic values of the bourgeois: thrift, hard work, self-reliance, and rationality. Hence, Marx argued, the success of Protestantism can be explained by reference to the emergence of

Western capitalism.

In 1904–1905, the German sociologist Max Weber argued that Marx had got it backward—that Protestantism enhanced the work ethic of capitalism, not vice versa. Weber perceived in the Protestant ethic of the Reformation the spirit of a nascent capitalism. He saw the spirit of capitalism embodied in the entrepreneur, the parvenu, the self-made person. Such people strive for business success and bring to their enterprises self-discipline and self-restraint. They make profit not for pleasure but for the sake of more profit. They bring to their enterprises moral virtues of striving, frugality, and honesty. For Weber, Protestants made the best capitalists because predestination made them worldly ascetics: Christians forced to find salvation without assistance and through activity in this world. The reformers had condemned the monastery as an unnatural life; their concomitant emphasis on human sinfulness established a psychology of striving that could be channeled only into worldly activity. The characteristics of the modern world—individual expression, economic development, and scientific learning—were to become most visibly present in Western European Protestant cities, such as London, Amsterdam, and Geneva. By 1700, both the Protestant entrepreneur and the Protestant intellectual began to endorse religious toleration, freedom in trade as well as learning, and scientific investigation.

The tension between the Roman church and Protestantism set the former in the direction of opposing modernity. By 1800, the papacy in Rome—but by no means all Catholics—viewed change with deep suspicion and came to believe that churches, whether Protestant or Catholic, had a right to interfere in the political process in order to stem the tide toward irreligion.

Level II

Descriptive ★★★★★

Analytical ★★★☆☆

Persuasive ★☆☆☆☆

Critical ★☆☆☆☆

TWO PASSAGES ON REFORMATION

Marr, A. (2012). *A History of the World*. Pan Macmillan. 241-253

Man in Black

The look of things, the outward style, can be profound – not trivial at all. During the Reformation one kind of Christian worship, conducted by gorgeously dressed men chanting Latin in their rich, multicoloured churches, was assaulted by another kind. The Germany of Martin Luther was a land of black and white, The stark, black German prose of his preaching, with its urgent choices, strides purposefully over the snow-white of the paper. The spiny black letters impressed with the soot-and-egg mix of early printers' ink carried tens of thousands of sermons once delivered by his voice into people's hands across northern Europe. For those who couldn't read, crude black-and-white woodcuts – as different as it is possible to imagine from the richly coloured altarpieces that had preceded them – would convey the reformers' messages. Their clothes were plain white, dark, black. Their language was the guttural jab-jab of common German. Their faces glare back from early portraits, severe and uncompromising.

The north was in revolt against the south. There, all the Italianate glitter and gleam of the papacy, with its polychrome churches and gilded Madonnas, represented a Church that had grown worldly. No wonder that Martin Luther, sturdy and bullish and a great self-dramatizer, became the German hero, confronting popes and emperors, standing, as he put it, 'in the mouth of the great Behemoth, between his great teeth'. German history before Luther is the history of rulers and knights, of emperors, archbishops and fables. In many ways he seems the first modern German, arms akimbo, un-frightened, staring back at us in the well-known portrait. He was a plain man, but no peasant. His father had worked in the coalmines of Saxony and had done well enough to become a burgher, with a rich wife and an impressive stone-built house. He had sent Martin to a good, if brutal, school, and like so many upwardly mobile parents wanted his son to become a lawyer. But from early on, Martin Luther showed a darkly questioning side to his personality, an itchy restlessness.

We must imagine a world in which Hell is real and close; where the woods and lanes are haunted by fiends and witches; and where the only possible way out of all this is to secure Christ's help. Germany in Luther's time was not a comfortable or safe place to be. Apart from suffering plague and the threat of famine in bad years, it was politically weak. In the east, the Teutonic knights had bowed to the Poles. In the north, the Danes had taken Holstein. In the west, the Swiss confederation was winning its independence. More important – and this was the case throughout Luther's life – the Muslim armies of the Ottomans were threatening all of Europe. These early years of the Reformation coincide with sensational Ottoman challenges such as the fall of Belgrade in 1521, the capture of Rhodes in 1522, the crushing of the Hungarians in 1526, the siege of Vienna three years later, and then further drives into Poland, across the Mediterranean to Malta, and the long fight with Venice. Though the Southern Catholic powers would eventually beat the Ottoman fleet at the Battle of Lepanto in 1571, and though both Malta and Vienna held out, many Christians believed they were living through the end of Christendom, the last people of a doomed civilization.

Germany existed as a territory and language area claimed by that 'religious and pseudo-classical myth', the Holy Roman

Empire. It did not exist as a nation. Amongst the political minestrone of duchies, princedoms, archbishoprics and free cities there were three hundred or so semi-autonomous principalities, many with their own laws, currencies and family feuds. War and the plague had cut Germany's population. A new and terrible disease, syphilis, was spreading across Europe. 'Ghost villages', which had simply been abandoned, were a common sight. A series of savage peasant rebellions had erupted in southern and western Germany, though not on the scale of the 'Peasant War' of Luther's adulthood, which would claim at least a hundred thousand lives.

So Luther's world felt rickety and impermanent. Death lurked behind every tree. When he was a twenty-one-year-old student, he tells us, one day in 1505 during a summer thunderstorm he had a revelation while walking along a country road. As the lightning crashed down, he promised that if he survived he would enter a monastery. Luther promptly gave up his studies and became a monk in a notably tough, though not extreme, order. For more than a dozen years he was a model monk, hard-driven at his lessons and duties by his ambitious superiors and studying the conventional texts of Catholicism almost to the point of nervous breakdown. He did well enough to be sent to Rome by his monastery on a diplomatic mission, albeit an unsuccessful one. He was then sent to the new university of Wittenberg to teach.

Universities were starting up across Germany at this time. They offered a way for principalities and ambitious towns to mark themselves out and attract new talent. Wittenberg was one of twenty or so and known for being forward-looking and experimental. The small town, scarcely more than a walled village, was ruled by Friedrich the Wise, the Elector of Saxony. A shrewd and independent-minded character, Friedrich was one of the seven German 'electors' whose status allowed them to choose the Holy Roman Emperor not, at this point, a hereditary title, and he had considerable political clout in northern Germany. Later, at the time of his great religious rebellion, Luther would depend on Friedrich for his very survival.

At Wittenberg, Luther's thinking about sin and redemption challenged much of the traditional teaching. Scholars argue still about just how radical his theology really was – it was certainly not unique. The essence of the problem was this. The earlier medieval scholastic tradition insisted that the God of love condemned sinful mankind to Hell on the basis of laws so strict and fierce that they could not be kept to the letter. Luther's view was that mankind was entirely sinful, corrupt, fallen, and could not be transformed into a creature deserving of Heaven simply by repeating prayers or doing good works.

So how could anyone be saved? In a world so intensely religious, this was an urgent question.

Luther solved it when he concluded that God simply brushed aside the sinfulness of those who had true faith – those who were saved, the elect. Sin was too powerful to be defeated by human action. Only a miracle of divine love could overcome it. Christ's sacrifice, taking on himself mankind's sinfulness, was the means by which that miracle happened. To be saved, all you needed was true faith in this. The obvious problem with Luther's view is that it implied that sinful behaviour did not necessarily matter. Trying to overcome sin in a day-to-day way was pointless. Faith was all that counted. Luther's response to such an objection was that the saved would be so grateful, they would not *want* to sin. This, as many later generations of Protestants would realize, was a little too easy: the Scottish writer James Hogg's satire, *Confessions of a Justified Sinner*, skewered the ease with which hypocrites could have their sinful cake and eat it.

Luther's thinking was that of a Christian intellectual who had come to loathe the cerebral, sophisticated classical Greek thought of Plato and Aristotle, on which traditional Church theology rested. His main impulse, when he had reached his

conclusion about sin, was emotional and personal, an urgent sense of release and joy that demanded to be communicated – and which had nothing to do with the Church hierarchy or liturgies. He described himself as feeling 'born again', an experience still at the heart of modern evangelical Protestantism.

This would always have driven a man like Luther, an odd mix of bruiser and dreamer, into a fight with the Church authorities. But it was the practice of selling indulgences that tipped him over the edge. What was an indulgence? In its most literal sense, it was the transfer of a little of the goodness of Christ and the saints the 'treasury of merit' to a human sinner. The receiver of the indulgence then had less time to spend in Purgatory – today sometimes seen as the dull airport lounge of the system, minus the duty-free shops, but then portrayed as a place of purging and agonizing fires, even of torture – before arriving in Heaven. It was not quite a get-out-of-jail-free card, but it was certainly a get-to-Heaven-quicker card.

How did you obtain an indulgence? Prayers and good works could win you one. Travelling to see and touch the relics of saints would, too – and this also brought useful revenue to whichever church or town had the relics Wittenberg itself had a world-class collection of fragments of wood, bones, thorns and hair. But apart from prayers, good works and relics there was a more reliable route: hard cash. Priests had long suggested that recipients of indulgences might want to make a 'charitable offering', to say thank you, as it were. In time, this became a plain cash transaction. As Christ's vicar on earth, the pope could simply sell indulgences. They became his money supply, notes that came in different denominations. He could not only sell them to buy the purchaser time off Purgatory, he could also sell them for the purchaser's already-dead parents, who might be crying out to their children for the coins to be paid. Reform-minded clerics from Italy and Holland, France and Switzerland, had spoken out against the crass commercialization of indulgences before now: Luther's blast would be altogether angrier.

The papacy has given history an impressive number of decadent villains, and Leo X, Luther's adversary, was one of them. He was a Medici, the son of the great Florentine ruler Lorenzo the Magnificent, and brought up in an atmosphere of war, artistic exhibitionism and political intrigue. Made a cardinal when he was thirteen, he had little interest in religion as such. When Italian politics landed him the role of pope at the age of thirty-seven, Leo is reported to have said that since God had given him the papacy, 'then let us enjoy it'. A fat, sweaty and hospitable man, he turned Vatican life into a perpetual Roman carnival of indecent plays, bull-fights, dances, banquets and races. Gold poured from his hands in a glittering stream of favours, patronage and personal retail therapy.

Leo's most expensive problem was St Peter's Basilica. The original church had been built under St Constantine in the 330s, over St Peter's supposed burial site. It had fallen into disrepair and was being replaced by a gargantuan new church, intended to awe the world with its scale and beauty. But in 1517 the church was a giant embarrassment, little more than a mucky building site. The huge expense was crippling the papacy. Leo's solution was to declare a fund-raising drive through ever more, and more expensive, indulgences. In Germany a hyper-ambitious archbishop who was raising funds for his own purposes, would act as Leo's agent. The German people would have to be squeezed, and then squeezed again.

In Luther's Saxony, the squeezer-in-chief was a remarkable salesman called Johann Tetzel. Tetzel was a blow-hard televangelist from the age of pulpit oratory. He would arrive in town trailing a long procession of solemn, berobbed priests and followers, and carrying the papal insignia and Leo X's bull a papal declaration, with the round seal, or *bulla*, hanging from it, showing its authenticity. Oak and iron coffers to receive the loot would be opened, a grand stall set up, and Tetzel

would begin. His message was straightforward. If you wanted to avoid hundreds or even thousands of years suffering in Purgatory – pay up. If you wanted to release your dear mother or father from the torments – pay up. According to your wealth and ability – pay up. If this sounds like a satire on his style, the jingle for which he is remembered gives the authentic Tetzel style:

When the coin in the coffer rings

A soul from Purgatory springs.

For Luther, this was more than the robbing of honest Germans to build a swanky new church in Italy. It was a terrible sin, which would condemn the innocent buyers of indulgences to hellfire, because it meant they would not properly repent or confront their sinfulness or seek Christ's forgiveness. The most profound matters of faith and punishment had been turned into a cash transaction. It was this that finally exhausted his patience. Protestant Christians the world over knows that on 31 October 1517, Martin Luther strode to the oaken doors of Wittenberg's Castle Church and nailed to them a list of ninety-five 'theses', or arguments for debate – an act of defiance aimed at the papacy. It may be so. The original doors are long gone and have been replaced by metal 'heritage' replicas.

Not a man crippled by personal modesty, Luther himself never mentioned the nailing of the theses. It was probably a later story. In Luther's day the church doors were certainly used as a notice-board, a place for announcements of all kinds. So for this locally famous academic monk to nail up some religious arguments would have been possible, though hardly necessary. Nor did Luther intend to start a revolution, or even directly challenge the institution of the papacy. These were points for discussion, in Church Latin, albeit made in his usual punchy style. His students at Wittenberg University would have heard it all before. Luther was still a Catholic, and much of what he said was still official doctrine.

To appreciate why Luther's arguments spread so fast, we need to turn to another small town in Germany, this time in the north-west, Mainz-on-the-Rhine. Here, fifteen years before Luther was born, Johannes Gutenberg had died after inventing Europe's first real printing press. The Chinese and Koreans had long used wood-block printing, and even ceramic printing. Woodcuts had been made in Europe too, long before Gutenberg. What he did was to bring together a system of casting individual metal letters, and groups of letters, so they could be arranged in lines of words, then inked and pressed into dampened paper or animal-skin vellum.

We know relatively little about Gutenberg himself, except that he was skilled in metalwork – we might describe him as a jobbing engineer – and at cutting precious stones; and he was an ambitious entrepreneur, eager to borrow money to build his business. Urban Germany, with its coalmines and stocks of iron ore, and its long-established tradition of making armour, arms and clocks, was not going through an industrial revolution – quite. But it was experiencing an industrious boom, a rise in the status and ambition of craftworkers who would pass on their skills.

Gutenberg bought paper from Italy, experimented with metal alloys and ink mixtures, and hired at least eighteen helpers for his six presses. He intended to produce a printed Bible and wanted it to look as reassuringly like a handwritten one as possible – rather in the way TV drama at first mimicked theatre, or early bloggers tried to mimic newspaper pages online. His planned first run of 180 Bibles of 1,282 pages each was a huge gamble, and in 1454 he had to raise money from all across Europe. His Bible took six months for the casting of the metal type, and two years to set and print. Then it was hand-coloured and illustrated, to make it look 'real'. The effect was similar to contemporary handwriting, compared at the time

to woven black-and-white cloth, or textile – hence our word 'text'. The whole process took about three years, as long as it took a scribe to write out a Bible by hand. The scribe, however, produced one, Gutenberg 180.

Printing was an almost overnight craze. The Bibles were admired across Germany, the Low Countries, Italy and Spain. Gutenberg's presses were turned over to other printed work, including grammars for schoolboys, savage tracts attacking the Turks, calendars; and above all, indulgences, made out like huge cheques, with only the time, date and signature to be filled in by hand.

Germany was soon awash with print. Some of the tens of thousands of pamphlets were medical and scientific; others were downright rude. Luther himself, in a sermon on marriage, complained that booksellers were peddling material 'which treats of nothing but the depravity of women'.

So Luther's theses too, nailed up or not, were quickly printed and distributed. He combined them into a single sermon, reprinted twenty-five times in two years. At the same time, he also changed his pen-name from the Greek for 'the free one', Eleutherius, to the homely German Luter, and then Luther. His arguments aroused intense interest among a clergy and laity already debating the question of indulgences, the correct notion of sin, and papal authority. During his heyday, Luther is reckoned to have produced, on average, a pamphlet about once a fortnight; his followers, such as the simple shoemaker-writer 'Hans Sachs', and his Catholic foes, contributed many more. Wittenberg had once depended on its ruler's interesting collection of saintly body parts as a revenue-earner. Now it became a boom town because so much printing work was brought to it for the simple reason that Luther lived there.

It could not be long before his arguments were heard in Rome. Set-piece confrontations were arranged. First, he took on fellow Augustinian monks in Heidelberg – and rather effectively; next, at Augsburg, one of Leo X's brightest cardinals; then a brilliant rival theologian in Leipzig, where he was tricked into supporting the Czech reformer Jan Hus, who had been burned at the stake for heresy. Luther was himself condemned as a heretic in a papal bull, which he promptly burned in Wittenberg. Now his relish for a fight really took over. In three famous broadsides, The Christian Nobility of the German Nation addressing those very members of society, Babylonian Captivity, addressing the clergy, and The Freedom of a Christian, aimed at all readers, Luther demolished many of the arguments the Church's authority had rested on. These included the special function of priests, their organization as clergy, and the supremacy of the pope.

He had taken the bull – and the bulla – by the horns. Again, this would have been impossible without printing presses: the last of these three books was published in thirty-six editions within two years, and translated into Dutch, English, Spanish, Czech and Latin. All Europe was blazing with argument. In faraway England, Henry VIII told his bishops to think up rebuttals to present against Luther. In April 1521 the newly appointed Holy Roman Emperor, the teenage Habsburg Charles V, confronted Luther in person at Worms, where the empire's ruling council, or 'diet', was meeting. Confronted by his own books and told to recant, Luther famously refused. There is no evidence that he actually said: 'Here I stand, I can do no other.' The words were written into his speech later, by an editor after Luther's death. But they are too good, too resonantly right, to scrub out. For it was a potentially perilous confrontation. Luther might have expected to be burned at the stake despite the offer of safe passage to Worms.

After Worms, Luther was spirited away for his own safety by his ruler Friedrich, who kept him in the fabulously Germanic Wartburg Castle. There, disguised with a beard and a false name, Luther again did something amazing – he began

translating the Bible into sharp, pungent popular German. He produced a New Testament quickly and then, over several years, a complete Bible. He boasted that he took his style not from the Latin, but from the street: 'Ask the mother in the home, the children in the alleys, the common man in the market, about it and watch what comes out of their mouths.' Many of his coinages, such as Herzenslust for 'heart's content' and Morgenland for 'the east', remain in modern German. Luther said he wanted 'to make Moses so German that nobody would suspect he was a Jew', and his translation has been called 'the central document in the evolution of the German language'.

The Bibles were soon on sale at the already famous Leipzig book fair, priced at roughly the cost of a calf, or two weeks' wages for a schoolmaster, and by Luther's death it is reckoned half a million were in circulation. Other Bibles in local European languages and dialects had a big effect too – Britain's King James Bible is an obvious example – but in some ways Luther's impact on German is better compared to Shakespeare's on English. The historian C.V. Wedgwood put it well when she said that German phrasing came to him almost too easily, 'bursting forth in plentiful homely images, gross, earthy, graphic . . . his Bible was perhaps the most astonishing and highly personal translation ever compassed'.

So Luther had a nationalistic effect as well as a religious one. Slowly, one by one, northern German aristocrats and free towns came over to his side. Something similar was happening in Switzerland, Holland and Denmark too, where other reformers were busy. But it was obvious quite soon that Luther's religious reformation and the beginnings of a new Church could not be neatly separated from social challenge, and even revolution. Pro-Luther crowds started destroying religious art. Strikes by miners and peasants against tax-gathering clerics used Luther-like arguments. Rebel clerics took the lead in mocking their old leaders and the old orders. Luther, who depended on the protection of an aristocrat and was himself from a prosperous family, began to seem nervous, insisting on the importance of temporal authority.

Then, during 1524–5, a huge peasant rebellion started up across Europe, from the lands of the Teutonic knights and Hungary, to Switzerland and then central Germany itself. It was uncoordinated and desperate. To the established order of late medieval Europe, it was terrifying. One of Luther's early followers, the charismatic priest Thomas Müntzer, led the most extreme movement, predicting the wiping-out of all earthly authority in an imminent apocalypse. He and his supporters briefly created a semi-communistic 'League of God' in the city of Mülhausen, until like the other rebellions it was shattered by the military power of the princes. Across Germany, the battle-hardened forces of the emperor, who had just returned from victories against the French in Italy, crushed the peasant armies, exacting terrible revenge. Luther egged them on. In his April 1525 pamphlet originally called An Admonition to Peace surely the worst piece of headlining in German journalism he wrote: 'Let everyone who can, smite, slay and stab, secretly or openly, remembering that nothing can be more poisonous, the original 'rebel' was now firmly on the side of the German princes who would, in turn, shift their allegiance to Lutheran Christianity. In Saxony, Hesse, Schleswig, Brunswick and Brandenburg they came over. So did most of the northern towns and cities. Though Charles V tried hard for conciliation, and planned ways to reunite his empire, there were simply too many rulers and influential soldiers now with Luther's cause to make that practicable. Luther told his ally and fellow reformer Philipp Melanchthon that 'agreement in doctrine is plainly impossible, unless the pope will abolish his papacy'. Luther's theology had become more conservative in its social effects; he was a fierce advocate of a husband's rights over his wife, and hostile to easy marriages. Against suitors he wrote: 'If I raised a daughter with so much expense and effort, care and trouble, diligence and work and had bet all my life, body and property on her for so many years, should she not be better protected than a cow who had wandered into the forest?' He also became a bitter anti-Semite.

In 1531 a treaty between Lutheran princes, known as the Schmalkaldic League, made the political split irrevocable. There was then a golden pause. The Peace of Augsburg of 1555 allowed a time of rebuilding and economic growth, during which German culture flourished and German universities became famous – a time when even Elizabethan English plays and actors travelled to Germany to find fame. Yet the great divide that Luther had wrenched open would poison the future of Europe. The Thirty Years War was looming. This would be a catastrophe driven by spear and flintlock, rape and famine, and would bring down on German soil a hell every bit as terrible as the punishment Luther had spent his life so dreading, and that the cheerful monks had sold indulgences to escape from.

Pan and Pirates

Luther's revolution, amplified and hardened by John Calvin in Geneva and by other reformers, such as Scotland's forbidding John Knox, had come about partly because of a common sense that history must soon end. Christ's awesome second coming was surely due, not least because Christendom was so threatened. Christian Europe, which would soon dominate much of the rest of the world, still felt hemmed in, divided, on the retreat. We cannot understand the ferocity of the reformers with their bleak warnings, or the paranoid excesses of the Catholic Counter-Reformation, led by fanatical Jesuits and by the Inquisition, unless we understand how frightened Christians were. The Ottoman Empire now controlled more of the Mediterranean coastline and waters than did the Christians. Fear of 'the Turk' haunted the imaginations of Christian children, scolded at bedtime. It took Shakespeare to portray the 'Moor' as fully human.

Nor was the threat of 'the Moor' or 'the Turk' limited to the capture of Mediterranean islands, the defeat of Christian fleets or the taking of Christian lands and walled towns. For many Christians, travelling by sea, or even just living near the sea, became perilous. Some of the raids were spectacular. In 1544 Muslim corsairs attacked the Bay of Naples and seized seven thousand men, women and children; ten years later they took six thousand from the 'toe' of Italy, then in 1566 four thousand from Granada in southern Spain, after which it was said to be 'raining Christians' in Algiers. Around most of the Christian coasts of the Mediterranean, life became more dangerous. In Corsica and Sardinia, and around much of Italy, seaside villages were deserted and rebuilt further inland. At sea, the enemy's culling rate of Christian ships was extraordinary. In one short period, between 1609 and 1616, the Royal Navy admitted that 466 English and Scottish ships – though many of these were relatively small – had been seized by Algerian corsairs. A similar rate of attrition was suffered by Dutch, French, German and Spanish shipping, all feeding the hungry need for slaves felt by the Muslim rulers of North Africa, who used the men as labourers and the women as domestic or sexual servants.

As Christian villagers retreated from the shoreline and Christian ships became more cautious, the raiders went further afield. They turned up in the Thames estuary again and again, and took English fishermen from just off Essex and Kent. With the help of a renegade Dutch seaman, Jan Janszoon of Haarlem, who converted to Islam and called himself Murat Reis, they raided Iceland in 1627, burning the church on the island of Heimaey and taking 242 people, as well as more from the mainland near Reykjavik. Janszoon was also on the scene in 1631, when 327 people were taken from the village of Baltimore in West Cork. He was captured himself later on, by the Knights of Malta, but later escaped and lived to a grand old age. His claimed descendants include John F. Kennedy, Humphrey Bogart and many Spencers and Churchills, one of them a lady-in-waiting to Queen Elizabeth II.

Though the high point of Muslim coastal slave-taking was between 1530 and 1640, it continued until the 1780s; and for every major raid, it is believed, there were scores of smaller ones when boats would suddenly appear in coves – villagers would run from their fields, and the corsairs would seize those they could. It is reckoned that, overall, one and a quarter million Christians were enslaved, far more than the numbers of black Africans that were taken across the Atlantic by whites during most of this time. Many would die of plague or ill-treatment in desperate circumstances in Africa. A few converted, and some were rescued or bought out by priests and wealthy families.

All this was a major source of European terror and of a certain strand of storytelling, dimly reflected in Christmas pantomimes and winter tales into modern times. Until recently it has been largely written out of mainstream history, reflecting, in part, white guilt about the Atlantic slave trade, which later became far greater, by a factor of nine or ten. In part, it surely reflects sheer embarrassment. But for Europeans of Luther's time, the gnawing-away at the coasts caused much fear and insecurity.

The more spectacular attacks, though, came from the eastern edge of the European world, as the mighty Ottoman Empire spread ever further. After the rule of the first conqueror-sultan who had taken Constantinople, his successors spread Islam deep into the Christian world. They faced fierce resistance. The battle of Kosovo, or more poetically, the 'Battle of the Field of Blackbirds', in 1389, was a devastating slaughter of Serbs by Ottomans. But it was decades before the Ottomans finally took Bosnia and Serbia. In Wallachia a man who signed himself Wladislaus Dragwlya was cheered on by the pope and half of Christendom for his victories against Mehmet II in 1459 and 1462. This Christian leader had lived as a boy in the Ottoman court, a hostage sent by his father along with his younger brother. The brother converted to Islam and served the Ottomans; the older boy learned the Koran and Turkish, but turned against Islam.

Better known today as Dracula, or Vlad the Impaler, he proved a formidable guerrilla fighter and rallied Transylvania against the invaders, surviving imprisonment in Hungary before dying in battle in Romania in 1476. His relish for executing prisoners, criminals and rivals by impalement undermined his popularity, however. At one-point Dracula had twenty thousand dying and dead enemies hanging from sharpened poles, speared through their rears, around his capital. The boyars, the local princes, began to feel that relatively humane Muslim occupation might be preferable to paranoid and sadistic Christian freedom.

One of the great losers in all this was the extraordinary Jagiellon dynasty of Lithuania-Poland.

In the late 1300s Lithuania was much bigger than today's small state. Indeed, it was the biggest single nation in Europe, stretching through today's Ukraine, Belarus and parts of Russia. Officially it stayed as a pagan country, repulsing the bloody crusading incursions of the Teutonic knights in favour of a family of ancient gods and goddesses. These were mostly divinities of the usual things fire, the moon, fate, death, evening stars, though, rather appealingly, they also had a god of good grooming. This pantheon met its end only in 1386, when the ruler Jogaila married Queen Jadwiga of Poland and converted to Christianity. His knights and courtiers, seeing which way the wind was blowing, now engaged in mass baptisms in the local rivers.

To the effective union of Lithuania and Poland, Hungary was later added, making the Jagiellon dynasty one of the most powerful in Europe. They, with the Habsburgs to their south, were the effective guardians of the Christian world against Eastern and later Ottoman attack. The battle of Mohacs, still remembered in Hungary today as a moment of national

catastrophe, finished off the Jagiellons too. Buda, then Hungary's capital and the place where Vlad had been imprisoned, fell to the Ottomans in 1541.

So far, we have seen a fairly straightforward picture of aggressive Muslim conquest on the one hand, and anxious Christian defence on the other. The true picture was not so straightforward. For in the middle of Europe stood the great Catholic ruler and Holy Roman Emperor Charles V, who to many Christians, the followers of Luther and other reformers, was seen as a greater threat than any Ottoman. His rule was less tolerant of religious difference than Muslim authority was. His grand designs for a renewed, huger empire based firmly on his family authority scared Venetians, Dutch and Frenchmen even more than the advancing armies of Ottoman janissaries. So perhaps it is not so surprising that the best-known and best portrait we have of Mehmet II, conqueror of Constantinople, is by Gentile Bellini, who was sent there only twenty-five years after the city's fall by the Doge of Venice to record that scourge of all Christians. Or that in the 1460s there was already a large colony of Florentines in Galata, the town just over the water from Constantinople, running fifty businesses. Galata had churches – the only thing forbidden them was the noisy ringing of bells, which might disturb Islamic tranquillity – taverns, and Lenten carnivals.

Nor should we be surprised that Jews, French Protestants, Lutherans and Orthodox Christians mingled safely under Muslim rule on the shores of the Bosporus. Or that François I of France, fighting the Habsburgs, looked for help in 1525 from Suleiman the Magnificent. Or even that dialogues were constantly going on between Protestant rulers and the Muslims, ranging from letters between Queen Elizabeth I and Sultan Murad III discussing an Anglo-Ottoman military pact, to an offer by Suleiman to provide troops to help Lutherans in Flanders. Many Protestants and Ottomans thought that the simplicity of their devotions and their shared dislike of statues and icons made them natural allies against the Catholics – a division based not on Christ against Muhammad but on 'men of faith' against 'idolaters'. This goes a long way towards explaining why it was impossible for Charles V or the popes to rally 'Christendom' as a single force against its enemies.

THREE PASSAGES ON THE INDUSTRIAL REVOLUTION

Marr, A. (2012). *A History of the World*. Pan Macmillan. 341-358

The Industrial Revolution

Between the mid-1700s and the end of the 1900s, the world would change more than at any time since the invention of farming. The term 'industrial revolution' technically makes no sense, since 'revolution' implies a return to something previous, while this was all new. But it has stuck. This mega-change, based on machines that used the earth's stored energy in coal and oil to produce everything from cheap clothes to tinned food – and, not least, to build other machines – reshaped mankind's relationship with nature. It allowed people to travel far more quickly across the sea, by steamship, and across the land, by train. It allowed them to light their homes and workplaces cheaply and effectively, greatly extending their useful hours, particularly in northern latitudes. It brought well-made clothes, household goods and entertainments to millions of people in Europe and America who could never before have dreamt of enjoying such things.

But it came at a price so high that many thinkers hated this revolution and questioned whether it was worthwhile. For it forced millions into repetitive, grindingly hard indoor jobs and into crammed, insanitary urban housing. Its environmental effects, in densely populated towns or valleys, could be terrible. Victorian Britons died in huge numbers from lung diseases caused by air pollution – almost a quarter of deaths were caused by bad air. In 1866, government inspectors found one river, the Calder, so polluted that its water made effective ink, while the Bradford Canal, teeming with the chemical by-products of industry, was regularly set on fire by local boys, the flames rising six feet along it.

As the revolution spread to the United States and continental Europe, then Japan, the same thing happened to the huge rivers and lake systems there. This revolution also made wars far more destructive. It made it easy for the industrially advanced countries to bully, take over and exploit the less advanced ones, destroying in the blink of an eye cultures that had existed for centuries. Indeed, this was the most significant period of 'creative destruction' that human societies had ever experienced. And although the countries leading it included some that would dominate the story of the twentieth century, above all the United States and Germany with France and Russia following not far behind, this transformation began in the damp islands of Britain.

There, the harnessing of coal, chemicals, ores and electricity was slow, compared with any political revolution. It took place in Britain over the course of a century or so, from the mid-1700s to about 1850, beginning in relatively remote areas such as Coalbrookdale in the Iron-bridge Gorge, Shropshire, where coal and iron were traditionally found near the surface, and in the Cornish tin-mining areas; and around the then modest town of Birmingham. Its pioneers were men of business and gentleman-scientists, rather than visionary change-makers; their ceramics and their metal trinkets were deliberately made to mimic old, familiar handmade objects, and the use of machines was all about immediate profit. There was no master plan, no revolutionary cell. The profits were big enough to inspire rapid, even desperate, copying and competition. By the time the industrial revolution spread to Germany and the United States, as well as to smaller countries such as Belgium, the cascade of changes was gathering speed, and on the back

of early British breakthroughs.

So why Britain? And why then?

Industrialization was more about politics than about geographical chance, even though Britain did have large deposits of coal and iron. It could not have happened without capitalism – the capital-intensive, market-based, relentlessly disruptive, creative/destructive system of funding, buying and selling that the world still lives under today. Industrialization can also happen without capitalism. The Soviet Union and Communist China showed that. But in both cases, it required extreme violence, huge waste and above all, the theft or purchase of capitalist-created technology. We cannot run control experiments with history, but it seems that industrialization could not have been brought about and sustained outside a market system. And that, in turn, to get going properly, needed a special set of circumstances.

Such circumstances occurred first in Britain in the eighteenth century, not because the British were specially gifted by nature – think of the Chinese and Greek inventors, the French and Spanish explorers, the Italian and German craftsmen – but because happy coincidences collided to make something entirely new, rather as a chance mixture of chemicals can produce a chain reaction.

The coincidences occurred in what had seemed a pretty poor country. Britain had nothing like the gold and silver wealth of the Spanish colonies, nor the huge army and glittering court of France. It had decapitated one monarch, had had to beg his exiled son to return, and had then imported a foreign dynasty. Any overseas conquests it had at the beginning of its capitalist period were still marginal and, with the notable exceptions of tobacco and some sugar plantations, still unprofitable. Nor was this a time of peace when Britons could concentrate on affairs at home. Having just staggered through destructive civil wars, Britain was now entering a period, from 1689 to 1815, when almost one year in two would be spent at war with her European rivals. The country was still thinly populated but already mostly denuded of timber. In 1696 a civil servant called Gregory King had reckoned the population of England and Wales to be just five and a half million, of whom about a tenth lived in London. Many of the more independent-minded and ambitious, particularly religious dissenters, were desperate to emigrate and start again.

Yet behind this somewhat desolate picture, huge changes were afoot. The first was happening away from the cities, on flat and rolling agricultural land where improving landowners, making use of shorter leases, plus some new, professional, farmers, were greatly increasing the yield of their fields. The key effect would be on people, both on their numbers and on where they lived. It has been estimated that before the seventeenth century, no developed country had been able to feed its population without four-fifths of its people being employed as farmers. From China to France, from the new USA to Russia, this left an absolute maximum of a fifth of the population to do everything else – to be the soldiers, sailors, priests, rulers, bureaucrats, craftsmen and traders. These had surplus wealth, but they did not add up to nearly enough consumers for a capitalist take-off.

In England, however, the enclosure of common land, drainage, and new systems of crop rotation changed those proportions radically. You cannot much improve agricultural yields on the traditional small strips of land; nor is there an incentive to invest in new techniques, hedges or drainage if the leases are short. But from the late 1500s and accelerating through the following century, the takeover and enclosure of what had been common land was changing

the shape of the English countryside. Larger fields, where more food could be grown, were being carved out, protected by longer hedges and longer leases. This was a controversial procedure, ripping up by the roots ancient traditions of ownership and husbandry. To modern eyes the English countryside can look cozy, even dozy, but to country people of the seventeenth and eighteenth centuries much of it would have looked bleakly new, raw and unfamiliar, with its great, stark squares of tillage. The Church and many writers protested at the devastating effect of all this on the new rural poor. The pain being caused to Old England echoes through plays by Shakespeare and from the angry rural poetry of John Clare.

But the consequence was that by 1700 England's agriculture was the most productive in Europe, probably twice as productive as that of her nearest rivals. A year later, Jethro Tull introduced his famous horse-drawn seed drill. Soon after that, four-field crop rotation, using clover and turnips to keep fields rich and abundant, was brought in from Flanders. Lacking any scientific knowledge, farmers nevertheless successfully bred new, much larger varieties of sheep and cattle: within a century, at London's Smithfield market the average weight of a sheep rose from twenty-eight pounds to eighty. The changes happened raggedly, with Essex, Hertfordshire, Norfolk, Suffolk and Leicestershire leading the way, but by the 1750s or thereabouts they were reaching more of the Midlands and the north too, driven by enthusiastic reforming propaganda in the newspapers, themselves the product of new and faster printing presses. Far fewer people were producing much more food, allowing far more people to do . . . something else. Soon the labour force in the English fields was not 80 per cent of the population, but around 32–33 per cent, an astonishing change. Other countries were also learning to feed themselves with fewer farmers, but not to the same extent.

For Britain this meant two things, both important for the leap into-capitalism. First, the ancient fear of famine was receding. There would still be times of hunger after wet, cold springs, but surplus grain was being stored and new foods imported. People are less likely to take risks when they are scared of being hungry, so the spirit of adventure thrived. Second, there were now far more people available to become shopkeepers, artisans, traders and the like, paid with coins rather than, in the old days, with food. The new town-dwellers would be the new consumers. Thanks to the accelerated international trade already described, bringing spices, Indian fabrics, wines, tobacco, sugar, silks and ceramics to Britain's shores, these people now had things to consume – new wants they had not known before. Supplied and protected by her ships, both merchant and military, Britain became a market economy long before she was an industrial one.

A better-fed market economy meant more people. By 1700 life expectancy in England was around thirty-seven years, which sounds very low but was better than France's twenty-eight. It requires only a very slight improvement in the rate of reproduction and survival to produce a very fast growth in population. By 1850, at the zenith of the British industrial revolution, the population had tripled. Without the changes in the fields and villages, this could not have happened. But without the right political system, the same is true. As we have seen, the wars and the political revolution of the previous century had hacked away much of the independent power of the British monarchy, which now found itself embedded in Parliament. This set-up represented not 'the people', but the well-off people such as landowners who included owners of mines, wealthy merchants and investors in trade, as well as the ruling cliques of towns and cities.

Put like this, Britain might seem to have simply swapped a monarchy for an oligarchy. But the wars of religion had shaken Britain up quite a lot more than that. The overthrow of royal supremacy resulted in a genuinely independent

judiciary, while Parliament had sole authority for setting taxation. Britain still had her great landowners, but her tradition of primogeniture kept the numbers of the aristocracy limited, while the trauma of the Civil War led the earls, the barons and the viscounts to tread more carefully. France, by contrast, had an ever-growing aristocracy entitled to many perks and rights and weighing more heavily on their food-producing peasants.

In Britain, one consequence of the relative weakness of the old order was that the bad habit of raising money by selling such perks and monopolies began to wither. Under James I, it has been said, the typical Englishman had a house built with monopoly bricks and heated by monopoly coal. 'His clothes are held up by monopoly belts, monopoly buttons, monopoly pins', and he ate 'monopoly butter, monopoly currants, monopoly red herrings, monopoly salmon, monopoly lobsters'. The countless trade tariffs and barriers continued across France, Germany and Italy, but were disappearing in Britain. The British developed a national bank using the government's authority to back its loans, thereby stabilizing the national debt and bringing some sense of security to the capital markets. London was nothing like as important a financial centre as Amsterdam, but it was getting there. After the Bank of England was founded, in 1694, local banks began to spring up all across the country.

If it is hard for us today to be sure about the meaning of the changes happening around us, it was just as hard for the Britons of this fast-changing age of markets. Many did not feel particularly free. Gamekeepers with their man-traps, punitive local magistrates, the threat of the naval press-gang, tight religious restrictions constraining ambitious young men – petty tyranny was everywhere. But absolute tyranny had vanished. The law relied on barbarous punishments, but it could also be used by many who were not rich to protect their interests. Parliament could be lobbied, in response to the rising interest in changing laws that stymied change. When inventors and the first capitalists challenged the old order, patent law and parliamentary debate would be the cornerstones of their success.

There was another key difference from most of the European continent. Alongside better farming, more secure laws and less oppressive government, the British now had a freer press than anywhere else. This had started with the cranking-out of pamphlets and broadsheets full of libels, and the vituperative arguments over religion that plagued the 1600s but had developed into the nearest thing yet seen to a free market in ideas. Scientists, or 'natural philosophers' as they still called themselves, could publish their speculations without fear of the censor. Newspapers carried a mass of information about new systems of farming and newfangled gadgets, as well as the doings of princelings and generals and the prices of commodities. In Britain, arguments about trade policy and finance could be fought out openly.

Importantly, even though Britain was hobbled by many trade restrictions and poor transport, industry was already in place. It was simply not yet organized into factories. Rich men funded families working with spinning and weaving machines in their Yorkshire cottage homes; in the growing Midland towns and villages, makers of nails, buckles, screws and buttons operated in their family workshops. In the traditional coalmining areas, above all around Newcastle, owners were experimenting with machines as they struggled with the ancient problem of how to keep the deeper mines free of water. As with the tin industry, they had used waterwheels and pulleys as far back as anyone could remember but were now trying out primitive steam engines.

In 1679 the French inventor Denis Papin exhibited his 'steam digester' at the Royal Society and eight years later had developed a better pressure-cooker and steam pump. Two Devon engineers appropriated his idea and improved on

it. Thomas Savery had made some primitive but ingenious devices including an early steam engine, which was being used by Cornish miners during 1708–14; then, about 1712, a Baptist preacher and engineer called Thomas Newcomen produced his more efficient version. It was slow to take on in the West Country tin-mines, but after he persuaded colliery owners in Warwickshire and Newcastle to give his engines a try, their use rapidly increased in the mining areas of Yorkshire, Lancashire and Staffordshire too. But they seemed to be for just one thing, as suggested in the description that Newcomen gave of his company: 'Proprietors of the Invention for Raising Water by Fire'. The engines were for clearing mines of water, but they used so much coal they could only be sited right beside coalmines.

Even at this point, Britain had things other countries had not – inventors, plentiful raw materials, a food surplus; and there were small local outbreaks of ingenuity. But nobody would have predicted the almost volcanic eruption of inventiveness about to take place here, such as had not happened in Italy, Germany, China, France or Japan.

To look a little more closely at this development, it may be helpful to follow the career of the man who took Newcomen's invention and changed it into something that would bring power from the coalmines into thousands of factories, onto railway tracks and aboard ships.

James Watt

The career of the engineer and engine-inventor James Watt is a classic example both of the limitations of the age and of how those limits could be suddenly and brilliantly breached. Watt's father was a craftsman, merchant and small-time capitalist. He was based at the Scottish port of Greenock, gateway to Glasgow, where ships arrived laden with tobacco, timber, herring, linens and sugar. Watt senior sold the essentials of shipbuilding, designed a crane for use in the docks, invested in ships and mended the sailors' instruments. His boy James was bright, if sickly. He was good with his hands, and particularly adept at mathematics.

The Scotland he grew up in was already known for its high level of literacy and the practical zeal of its universities. It had become formally linked to England only when Great Britain had come into being, three decades before James Watt's birth, and was still a somewhat awkward and uncertain junior partner in the new nation. When James was nine, North Britons as Scots sometimes called themselves, as well as Englishmen, had experienced the 1745 Jacobite rebellion. This last throw by the Catholic Stuarts had united Gaelic clans, French and Irish adventurers and Scottish and English Catholics alike. Though 'Bonnie Prince Charlie' and his supporters talked of a Stuart restoration, behind this was something more radical: a restoration of the pre-capitalist, aristocratic, feudal order, a true revolution against the New Times. The rebellion reached Derby before the clansmen, worried about the harvest and their families, headed north again. Finally defeated in 1746 by the discipline of a hardened modern army – the Battle of Culloden Moor was more like a nineteenth-century confrontation in the colonies than a fight between well matched opponents – the revolt collapsed. It shattered not New Times but the old ways, the Gaelic and clan world of the north and west.

For a long time, at least among novelists and romantic poets, the cruelty of the victors and the poignancy of a pre-modern way of life expiring in the heather overshadowed the truth, which was that Culloden was good news not only for England, but for Scotland too. As one Scottish historian has put it, the 1707 Union of the two countries

'implied a Scotland with expanding horizons and possibilities; growing commerce and trade; the good things in life'; success for Prince Charlie would have closed this off. Watt's life would straddle the best of Scotland and the best of England, exemplifying the new Britain of expanding horizons and possibilities.

After the uprising, Scottish politics was virtually cancelled. The country was ruled from London by proxies. In Edinburgh there was no royal court to siphon off ambition, as there was across the rest of Europe. So, two or three generations of Scots had to look elsewhere for work and excitement. Thanks to its Presbyterian Bible-based religion, Scotland was unusually literate and its four universities were free of the dead hand of the English Anglican establishment. At Edinburgh, Glasgow and Aberdeen students were encouraged to think things out from first principles, to challenge received wisdom. The result was a remarkable flowering of new thinking – the famous Scottish Enlightenment.

Watt, lacking the Greek-and Latin-based education of the English gentleman, was prime material for this development, eagerly sucking in the new ideas being promoted by men who would become friends, such as the pioneering chemist Joseph Black and the philosopher of capitalism, Adam Smith. Before that, though, he had to find himself a living. It was no big leap for him to want to learn how to make mathematical instruments, essential accompaniments to the new scientific learning. And in 1755 it was natural enough for him to make the long, jolting journey south from Scotland to London, to the great stinking metropolis, for his training. But at once Watt came up against an ancient barrier to bright boys in a hurry. The medieval guilds, which still controlled London's trades, tried to keep out non-locals, and insisted all apprentices serve for seven years. Watt was an incomer anxious to get ahead fast. He wanted his training to be completed in a year, and eventually bought it, but this dodge left him dangerously open to the naval press-gang; writing to his father he complained that they 'now press anyone they can get . . . unless one be either a Prentice or a creditable trades man, there is scarce any getting off again'. If Watt had been seized for the Navy, he could not have appealed to the Lord Mayor for a reprieve, since he was already evading the apprenticeship system.

He was lucky, and got back safely to Glasgow, keen to open his own workshop. But Glasgow, like London, was an old town ruled by royal charter, whose guilds were trying to hang on to their stranglehold. And because Watt had no entrée with the burgesses of Glasgow, the relevant guild, the 'Hammermen', refused him permission to open his shop, even though there were no other mathematical instrument-makers in Scotland at the time. Had this been a representative picture of Britain, of a land of marauding press-gangs seizing men from the streets to serve in the Navy, and trade guilds hanging on to their ancient rights to the exclusion of all but their chosen few, then Watt would have had to resign himself to a lifetime of piecework, and nobody would have heard of him today. Or, had the Jacobites succeeded, he would have ended his days in frustration in a backstreet workshop in Glasgow.

Instead he was saved by the Scottish Enlightenment. Specifically, he was given a job repairing astronomical instruments that had just arrived from Jamaica for Glasgow University. There he built up a workshop, making his own instruments and becoming indispensable to the professors. As a practical man with no classical learning, he would have been merely a hired hand at Oxford or Cambridge. In Glasgow, he was soon regarded by the scientists as their social equal. He opened his own shop in the town and began to study the latest gadgets, including steam engines. In 1763, aged twenty-seven, he was asked to repair a model of a Newcomen engine belonging to the university. Watt mended it, but found it infuriatingly badly made and inefficient.

The principle was easy enough: the steam went into the cylinder, pushing up a piston. Then the steam condensed back to water, creating a vacuum, which brought the piston down again. It was the up–down motion that drove thepump for the coalmines. The trouble was, most of the steam escaped. How could it be made to work better? Two years on, still puzzling over the idea of 'latent heat', a phrase coined by his friend Black – that is, the heat taken in or thrown out during a change of form, as when water boils or ice melts – he suddenly found the solution. It was, at least as he recalled it, a classic Eureka moment.

One sunny Sunday morning in Glasgow, Watt was passing an old wash-house presumably a steamy sort of place when it suddenly came to him that since steam would rush into a vacuum wherever it was located, he could put a separate tube or cylinder alongside the main cylinder to take the steam and condense it back to water again. So the main cylinder would stay hot, and far less energy would be wasted. The engine would use less coal and make more power. This doubling-up, the separate condenser, may seem a simple idea. But would it have occurred to anyone who was not both interested in scientific theory as explained by Watt's university friends and also a practical instrument-maker with leisure to think and room to tinker? There was a long way to go, and many frustrations, failures, wrong turnings and experimental mistakes to be met with, but Watt's understanding would transform the industrial scene, first in Britain, then around the world. He took a simple coalmine pump and made it into an engine with universal applications. Watt recalled: 'I had not walked farther than the golf-house when the whole thing was arranged in my mind.'

But he could not advance without money, support and the help of other engineers. What he needed next was capital, the backing to allow him to produce prototypes, then engines for sale. Though there was a growing number of private banks in Britain, it was still too early for an inventor to go to his bank manager and hope to be loaned sufficient cash. Most entrepreneurs borrowed from friends, wives or other relatives. Watt's first backers were his physicist friend Joseph Black and, more substantially, an eager English entrepreneur, one John Roebuck.

Roebuck, like Watt, was a product of the new Britain. He was a Sheffield and Birmingham chemist who had established a successful ironworks at Carron in Stirlingshire. Its short-range cannon, known as the 'carronade', would be used by everyone from the Duke of Wellington to the Imperial Russian army, and later by the new United States. In the past, manufacturing had happened simply where it had sprung up, quite by chance. Roebuck had done things differently. He had started from first principles, asking where there was good water-power, supplies of ore, limestone and coal and good transport links, and had then built his operation from scratch. It happened to be in Scotland, but he imported his key workers from England. His action has been referred to as 'a decisive change in the structure of industry'. Roebuck needed coal for his ironworks, so he had bought a coalfield nearby, but found that it suffered from the perennial pre-Watt problem of too much underground water. Hearing of the Watt design, he helped fund an early version, but that one was not strong enough.

Though he went into partnership with the young engineer, Roebuck himself went bust – an early bank crash was partly responsible – and sold his share of Watt's invention to another eager Englishman, Matthew Boulton of Birmingham. That city now becomes a crucial part of thestory.

Birmingham had long been a centre for blacksmiths and metal-workers. It had supplied huge numbers of swords for Cromwell's armies during the Civil War, guns for both sides during the Jacobite rebellion, and buckles and buttons

for half the world. But as a town it was a late developer and enjoyed the wonderful bonus of not having a royal charter, so the guilds and craft companies had no hold there, which kept it open to entrepreneurs and commercial adventurers. Dissenters had gathered there, and the city already had a thriving intellectual life. Soon, members of the famous Lunar Society, experimenters such as Erasmus Darwin, Charles's brilliant grandfather, and the chemist and dissenting radical Joseph Priestley, would assemble on the Sunday nearest the full moon so that they could get home more safely to debate chemistry, physics, evolution, the new canals and factories, and much else. Birmingham was a long way from London – and all the better for that.

Among these Lunar Men was Boulton. He was one of those eighteenth-century figures whose energy and breadth of interests compare well with any Renaissance man. His father, another Matthew, had been a successful Birmingham metalworker. Matthew the younger invented new kinds of steel buckles, which rapidly became so fashionable that they had to be exported to France, then imported back again, since clearly nothing so chic could possibly have come from Birmingham. He had gained capital by marrying an heiress, then inherited the family business in 1759 and expanded it hugely to Soho, just north of Birmingham, where he gambled everything on a huge new manufacturing centre, driven by water-power. There he arranged his workmen in designated rooms, depending on which goods were being made there – buckles, watch-chains, sword handles or metal boxes. These items were soon being sold all over Europe, but the factory – for that is what it was – depended still on specialized but manual skills, with a little help from flowing water. What Boulton needed was a more reliable source of power.

Boulton and Watt lived far apart, but moved in similar circles; both promoted the new canals, the great transport breakthrough of the pre-railway age, and both were in touch with the same natural philosophers and other enthusiasts. Boulton had met Watt in 1767 and shown off Soho to him, trying to encourage the Scot to come to Birmingham. But Watt, constantly setting his steam engine aside for other projects, was slow to respond. It was all of seven years later, after the traumatic death of his wife, that he finally decided to leave Scotland and move south. Had she lived, and had his civil engineering projects in Scotland been more successful, he would have been remembered, probably, as a designer of Highland canals.

Instead, in 1774 James Watt came south to Birmingham, and one of his coalmine engines – what he called a 'fire-engine' – was set up at Soho. It worked, not brilliantly, but well enough. Watt soon went into full partnership with Boulton, whose main business continued to be metalworking. Watt would now divide his time between two equally important tasks. He tinkered and experimented, worked away incessantly at honing his machine, introduced a series of small but crucial improvements. Having the large and experienced Soho workforce of mechanics helped considerably, but one can equally well imagine the same scene being played out on the outskirts of Paris or Hamburg.

At the same time, however, Watt and Boulton were conducting a long and ferocious legal battle in the British courts and in Parliament itself to protect their intellectual copyright against the ideas-thieves already at work. The notion that an inventor deserved a large share of the profit from his idea, that mechanical devices could make men rich, was a new one. Earlier inventors had often behaved like philanthropists, scattering their thoughts before the press and hoping, mainly, for fame. But patents, and therefore profits, were essential for stimulating the horde of bright and ambitious people who would turn industrial Britain into a kitchen garden of invention. Watt's struggles with politics and the law were wearisome, and must have seemed fruitless at times, but they were as important to the history of industrialization as was his engine. and these struggles would have achieved nothing in other European countries at

the time.

Boulton, despite having received a second marital windfall new wife, new fortune, struggled desperately for capital. Many of the new machines were sold to Cornish tin companies, who derived the money to pay for them partly from what they had saved on coal. But sharp practice and protests about monopolies, as well as slow payment for other products sold abroad, caused him serious difficulties.

Watt's engines were first employed in mines, but soon also in mills grinding flour, in breweries and then in other factories. Altogether, between 1775 and the end of the century the firm produced about 450 steam engines. Boulton was now expanding into coin production. At this time Britain was experiencing a plague of fake coinage, so crippling that the Royal Mint had stopped minting. Boulton at his 'Soho Mint' had already produced free-market coins as well as coins for foreign governments, for the British in India, and then for the British at home. Coins depended for their high quality on fixed amounts of metal, accurate shaping and industrial-scale manufacture: accuracy and reliability Boulton's new system, with its Watt engines, could deliver.

Looking back at their story, it becomes easier to see why industrialization took off first in Britain. The state was still old-fashioned. What we today call 'infrastructure' was primitive. There were some good roads and some new, useful canals, but muddy and dangerous travel was the norm. The banks were shaky, commercial law was full of holes, Parliament was a cockpit where vested interests fought the newcomers, and the country as a whole was obsessed with its overseas wars. But in both Scotland and England a vigorous, free exchange of new ideas was taking place. Far from London, and outside the ancient guild restrictions, men were able to build, trade and experiment freely, lobby the politicians and take pride in the new philosophy of capitalism explained by Watt's friend Adam Smith in his *Wealth of Nations*, published in 1776. They could also get rich. Watt and Boulton represent pioneers of railways and iron bridges, of new types of ship, gas lighting, electricity; initiators of revolutions in pottery, glass, fabrics and machine-tools, men of genius as varied as Humphry Davy, Michael Faraday and Abraham Darby. They were all remarkable. They were also all lucky: that time, that place.

Dark, Satanic and Infectious

But the industrialization of parts of Britain came at a terrible price. Wrenched from the old seasonal rhythms and religious holidays, people were being forced to work differently. During the 1700s, it has been calculated, the average number of work days in a year in Britain rose from 250 to 300. Those were lost days for living and loving, for storytelling and teaching. People who had risen with the sun found themselves stumbling to work in the dark, to artificially lit factories and workshops where they would spend twelve hours on their feet, their time regulated by large mechanical clocks. The famous coal-black factories with their huge chimneys were rare enough at first, mainly in the Lancashire cotton towns, but the packed, cheap housing and the ubiquitous coal smoke soon presented a convincing image of hell to writers as various as Charles Dickens, Friedrich Engels and Queen Victoria.

Although children had always worked in the fields, doing the lighter jobs, they were now pressed into an industrial labour force where they would be so ill-treated that even in these tough times a movement to limit their hours arose.

Driven by the same Christian outrage as fuelled the anti-slavery movement, it resulted in a series of Factory Acts limiting hours and setting out health and safety requirements. But the lives of early-nineteenth-century child workers are grimly apparent from the clauses of the first of these Acts, in 1802, which specified that children could work up to eight hours a day from the age of nine, and twelve hours from the age of fourteen; that they should not begin work until after six in the morning; and that they should sleep no more than two to a bed and get an hour's instruction in Christianity on Sundays. Even with light fines, these laws were much ignored. Further reports, scandals and laws followed; Dickens and his novelist friend Elizabeth Gaskell highlighted factory conditions in their books, and pioneering journalists explored the northern cities as if they were alien jungles – which, for middle-class southerners, they were.

Industrialization also changed the politics of the British, in many unexpected ways. During 1811–16 in Nottinghamshire, Yorkshire and Lancashire, the old artisan, cottage-based handloom weavers revolted violently against the new mechanized factory looms that were destroying their livelihoods. Taking their battle name from a fictitious woodland freedom fighter called King Lud, these 'Luddites' smashed machines, attacked employers and magistrates and, having practised night manoeuvres outside industrial cities, ended up clashing with the army. Many were hanged or sent to Australia. In 1830, agricultural workers in Kent began the 'Swing Riots' – another attack on the new job-destroying technology, in this case mechanized threshing machines.

The New Poor Law of 1834, which replaced the Elizabethan system of parish relief with a national network of grim workhouses designed to force thepoorest out of the countryside and into towns to find work, or to live in deliberately harsh conditions, segregated by sex, in prison-like buildings, provoked violent protests in cities such as Bradford, Oldham and Huddersfield. In 1834, too, the 'Tolpuddle Martyrs', six agricultural labourers from Dorset who had formed a union against low wages, were transported to Australia. The popular protest that ensued resulted in a campaign that became seminal in the development of trade unionism. For many visiting continentals, from the German capitalist Engels to the French artist Gustave Doré, Britain was both an amazing example of new ways of making things and a vision of human inequality pressed too far.

Before the advent of industrialization, British politics had been a balance between the influence of the old elites – landowners and gentry – the city merchants and the clergy, plus the new entrepreneurs. Now that balance ended. From 1780 to 1830 the population of England doubled. Industrial output leapt threefold. Much of the increased wealth accrued to the towns, and governments found themselves forced to defend the property rights of mill-owners, to send soldiers to put down workers' protests, and to tilt both the law and the political system to reflect the new wealth and the new power. The House of Commons had originally been elected from constituencies whose origins were now half lost in time, many of them tiny 'rotten boroughs' bearing no relation to the growth of industrial cities. The most important tariff system, the Corn Laws, taxed imported food to protect the income of British farmers and landowners, so keeping the price of bread artificially high. In an orgy of reform, both of these imbalances would be swept aside.

The food issue had been sharpened by Britain's long war with France and her continental allies. We have seen how huge advances in British farming made the industrial revolution possible; but the further leaps in population then outpaced the farming revolution, so that by the late 1790s Britain had stopped exporting grain. 'Food security', which would be such an issue for the British during the two world wars, was a prime national concern during the

Napoleonic era too. Tariffs were seen as a way of protecting and promoting home-grown food. Yet industrialization was feeding – literally – on what now had to be imported.

Though clouded by the high-flown rhetoric of free trade and the advance of civilization, this was really a fight between the more southerly Britain of the fields and the northerly Britain of the factories. In 1846 the factories, and the north, emerged as the winners, when a Tory prime minister, Robert Peel, abolished the Corn Laws at the cost of his own position. By then, the political change was under way too. The Great Reform Act of 1832 swept away the most corrupt boroughs and increased the franchise by around 60 per cent, but it failed to extend the vote to enough poorer citizens to satisfy the growing working and middle-class movement for democracy. Much of the story of later-nineteenth-century politics would be about the constant pressure for reform, and the series of further Acts that would extend voting rights and begin to give cities like Birmingham the political clout they had lacked in the lifetimes of Watt and Boulton.

So the British state shifted from a position of essentially supporting the power of land, of the ancient city guilds and of the chartered merchant companies, to one of essentially supporting capitalism and industry. Religious controversies, always important, were gradually crowded out by class struggles, as trade unions and political reformists such as the Chartists demanded new rights. British industry had emerged victorious in the competition stakes. Having overwhelmed foreign competitors, the British began to adopt free trade as a national religion. This may have been unfair to other countries, struggling to catch up, who would require a period of protection to develop their own industries; it certainly gave the British a reputation for stinking hypocrisy, as well as for skill and hard work. It also became clear that the optimistic theories of Adam Smith and his free-trade followers underplayed the role of war. Many of Britain's early technical skills related to her mighty fleet think of Watt's father, and nautical instruments, and those devastating carronades. Her young consumer economy was fed by the success of British bayonets and cannon in India, America and the Caribbean. Britain would probably have been the first to industrialize anyway, but had France not been preoccupied by the revolutionary and Napoleonic wars during the crucial decades she might have run her old adversary close. (Gas-lighting, so important to making early-industrial city life safer and the days longer, got a major boost in Britain because of the massive accumulation of unwanted musket barrels after Napoleon's defeat in 1815, which were turned into gas pipes.)

Both of the major nations that were the next to pick up industrialization protected their own industries and used them to promote nationalism. The United States had great advantages as a rising industrial power. It had a young people, seemingly unlimited land, long rivers for transportation, large natural resources and a new, enlightened political system that positively encouraged people to challenge European orthodoxy. Germany had different advantages. After Napoleon had abolished the Holy Roman Empire, those who spoke German were still divided into around three hundred separate countries, mini-countries, micro-countries, free cities and other political flecks and speckles. But they had huge coal and iron reserves, a long and excellent tradition in metalworking and, in Prussia, a rising national leader. The Prussians drew other smaller German states into their customs union, or *Zollverein*, which encouraged free trade and began to wear away some of the maze of different measuring systems, currencies and related laws. After defeating first the Austrians and then the French, the united Germany led by Prussia was able to forge ahead at a remarkable pace.

It seemed obvious that industrial growth needed a liberal political order to thrive in. Yet most of Europe had been

under the hegemony of the illiberal Habsburgs of Austro-Hungary and other, lesser monarchies, with the Russian Czar still acting as a policeman of last resort. During the nineteenth century the struggle to build liberal political states, in which capitalism and therefore modernization could thrive, was the main internal European cause. By and large liberalism and nationalism marched together. The unification of Italy, a long and complex struggle against Austrian occupiers, local monarchies with medieval origins, such as the Kingdom of the Two Sicilies and the Duchy of Modena, and against Papal conservatism, was driven by a sense that Italy needed a modern, united democratic state to pull her into the modern world. In fact, the absolute monarchs had not always done badly; the Naples-based Kingdom of the Two Sicilies had some highly effective shipyards and railway engineering companies.

Nowhere was the tension between traditionalism and modernization sharper than in France. The post-Napoleonic monarchy curdled into a fully reactionary one under Charles X. Ousted by a revolt in July 1830, he was replaced by the more liberal Louis-Philippe, the 'bourgeois monarch'; but France lagged far behind Britain in its franchise and a formidable reform movement began to grow. The problem for middle-class liberals was that change was likely to be provoked by the poorer and angrier masses, who they themselves also feared. Poor crops and widespread hunger in turn provoked the ripple of uprisings that made 1848 the year of revolutions in Poland, across the Habsburg empire, and in smaller countries such as Denmark, Belgium and Switzerland. In France, the ancient monarchy was finally overthrown and a Second Republic declared, which would become, within four years under Louis-Bonaparte, the Second Empire. These two steps forward, one back pattern was widespread. Most of the uprisings failed, and few produced clear political advances. Perhaps their most important side-effect was the biggest new political idea of the mid-century: the messianic socialist creed of Marxism.

Karl Marx had come from a wealthy Rhineland family but spent his early adult years as a philosopher-rebel, finally finding safety in liberal Britain. With his co-author and financial supporter Friedrich Engels, he argued for a purely material vision of historical advance, in which the struggle between the rich owners of capital and industry and the workers who produced the real wealth would eventually result in a Communist world, where the working class owned the full value of their work, and the state – monarchical, bourgeois, parliamentary or republican – withered away. In *The Communist Manifesto* of 1848, addressed to rebelling German workers, he expressed himself in clear, biting and exciting imagery. His huge later work of 1867–94, *Capital*, attempted to use statistics to demonstrate the scientific truth underlying his vision. It became the secular bible of twentieth-century revolutionaries, even though Marx assumed the revolution must start in advanced Germany or Britain, rather than backward Russia. Marx's work spread among the extreme socialists of Europe but was at that time a minority taste compared with Christianity-tinged and more moderate, parliamentary visions of socialist politics. His analysis lacked the subtleties of traditional political and moral philosophers, but he had a vivid understanding of the ruthless competition hiding below the dimpled smile of bourgeois capitalism. The future would be nothing like his prediction; but the world around him in the mid-nineteenth century was very much as hedescribed it.

Both the United States and Germany exploited technologies first developed in Britain. They stole patents, copied machines, debriefed British workers and set up their own technical colleges. This was inevitable. In an interconnected world, good ideas cannot be hidden. Anyway, key breakthroughs exploited in the British industrial revolution had themselves come from overseas – that early steam engine from France, but also the wet-spinning of flax and the Jacquard loom, and four-field crop rotation from Holland. The Japanese did the same after 1945; the Chinese are doing

it now to Japan and the US. One day, with any luck, Africans will steal Chinese systems. Copying happens far more quickly than inventing.

For both the US and Germany the most important early technological innovation was the railway though both also followed the British in digging new canals. In Britain, 1830 is often given as the year when the railway system really came of age; but it was also the year when the first US railway opened. By the 1860s, the Americans had nearly 30,000 miles of track and by 1870, 50,000 miles, compared with the 6,000 miles built in Britain during 1830–50 at the height of the 'railway mania'. By 1875 Germany too had overtaken Britain in railway miles. A similar overleaping would happen with iron and steel; but both the US and Germany would soon move on to new technologies of their own, from the telegraph to more advanced chemicals and engines. In both cases industrialization drove, and was driven by, nationalism. In the US the railways knitted together a new, huge country. Whereas in Britain they had been built by private money and labour, which often had to fight politicians trying to obstruct new lines, in the US the government loaned army engineers to help. In Germany, though the first railways were designed to link the industrial towns, unification made the railways a key agent in binding the new nation into one.

Capitalist-industrialist theory emphasized openness and free markets, and argued that the more trade, the less national conflict. In practice, nationalism and capitalist industrialization marched in lockstep. The American experience involved cartels, bribery scandals, political corruption and the brutal suppression of workers' organizations, as well as the racist exclusion of some would-be industrial workers, such as the Chinese, by others, such as the Irish. Industrialization was a far more violent and less pure process than early writers on capitalism had hoped and expected. The theory, nice though it was, had emerged from the unique experience of the British as the first, unchallenged seedbed of this momentous change in human life. And there were many places where it would completely fail to take root.

Level III

Descriptive ★★☆☆☆
Analytical ★★★★☆
Persuasive ★★★★★
Critical ★★☆☆☆

THE ORIGINS OF NATIONAL CONSCIOUSNESS

Anderson, B. (2006). *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. Verso Books. 37-47

Why did the nation become so popular? The factors involved are obviously complex and various. But a strong case can be made for the primacy of capitalism.

As already noted, at least 20,000,000 books had already been printed by 1500, signalling the onset of Benjamin's 'age of mechanical reproduction.' If manuscript knowledge was scarce and arcane lore, print knowledge lived by reproducibility and dissemination. If, as Febvre and Martin believe, possibly as many as 200,000,000 volumes had been manufactured by 1600, it is no wonder that Francis Bacon believed that print had changed 'the appearance and state of the world.'

One of the earlier forms of capitalist enterprise, book-publishing felt all of capitalism's restless search for markets. The early printers established branches all over Europe: 'in this way a veritable "international" of publishing houses, which ignored national frontiers, was created. 'And since the years 1500-1550 were a period of exceptional European prosperity, publishing shared in the general boom, 'More than at any other time' it was 'a great industry under the control of wealthy capitalists. ' Naturally, 'booksellers were primarily concerned to make a profit and to sell their products, and consequently they sought out first and foremost those works which were of interest to the largest possible number of their contemporaries. '

The initial market was literate Europe, a wide but thin stratum of Latin-readers. Saturation of this market took about a hundred and fifty years. The determinative fact about Latin - aside from its sacrality - was that it was a language of bilinguals. Relatively few were born to speak it and even fewer, one imagines, dreamed in it. In the sixteenth century the proportion of bilinguals within the total population of Europe was quite small; very likely no larger than the proportion in the world's population today, and - proletarian internationalism notwithstanding - in the centuries to come. Then and now the bulk of mankind is monoglot. The logic of capitalism thus meant that once the elite Latin market was saturated, the potentially huge markets represented by the monoglot masses would beckon. To be sure, the Counter-Reformation encouraged a temporary resurgence of Latin-publishing, but by the mid-seventeenth century the movement was in decay, and fervently Catholic libraries replete. Meantime, a Europe-wide shortage of money made printers think more and more of peddling cheap editions in the vernaculars.

The revolutionary vernacularizing thrust of capitalism was given further impetus by three extraneous factors, two of which contributed directly to the rise of national consciousness. The first, and ultimately the least important, was a change in the character of Latin itself Thanks to the labours of the Humanists in reviving the broad literature of pre Christian antiquity and spreading it through the print-market, a new appreciation of the sophisticated stylistic achievements of the ancients was apparent among the trans-European intelligentsia. The Latin they now aspired to write became more and more Ciceronian, and, by the same token, increasingly removed from ecclesiastical and everyday life. In this way it acquired an esoteric quality quite different from that of Church Latin in mediaeval times. For the older Latin was not arcane because of its subject matter or style, but simply because it was written at all, i.e. because of its status as text. Now it became arcane because of what was written, because of the language-in-itself.

Second was the impact of the Reformation, which, at the same time, owed much of its success to print-capitalism. Before the age of print, Rome easily won every war against heresy in Western Europe because it always had better internal lines of communication than its challengers. But when in 1517 Martin Luther nailed his theses to the chapel-door in Wittenberg, they were printed up in German translation, and 'within 15 days [had been] seen in every part of the country.' In the two decades 1520-1540 three times as many books were published in German as in the period 1500-1520, an astonishing transformation to which Luther was absolutely central. His works represented no less than one third of all German-language books sold between 1518 and 1525. Between 1522 and 1546, a total of 430 editions whole or partial of his Biblical translations appeared. 'We have here for the first time a truly mass readership and a popular literature within everybody's reach.' In effect, Luther became the first best-selling author so known. Or, to put it another way, the first writer who could 'sell' his new books on the basis of his name.

Where Luther led, others quickly followed, opening the colossal religious propaganda war that raged across Europe for the next century. In this titanic 'battle for men's minds', Protestantism was always fundamentally on the offensive, precisely because it knew how to make use of the expanding vernacular print-market being created by capitalism, while the Counter-Reformation defended the citadel of Latin. The emblem for this is the Vatican's Index *Librorum Prohibitorum* - to which there was no Protestant counterpart - a novel catalogue made necessary by the sheer volume of printed subversion. Nothing gives a better sense of this siege mentality than Francois I's panicked 1535 ban on the printing of any books in his realm - on pain of death by hanging! The reason for both the ban and its unenforceability was that by then his realm's eastern borders were ringed with Protestant states and cities producing a massive stream of smugglable print. To take Calvin's Geneva alone: between 1533 and 1540 only 42 editions were published there, but the numbers swelled to 527 between 1550 and 1564, by which latter date no less than 40 separate printing-presses were working overtime.

The coalition between Protestantism and print-capitalism, exploiting cheap popular editions, quickly created large new reading publics - not least among merchants and women, who typically knew little or no Latin - and simultaneously mobilized theft for politico-religious purposes. Inevitably, it was not merely the Church that was shaken to its core. The same earthquake produced Europe's first important non-dynastic, non-city states in the Dutch Republic and the Commonwealth of the Puritans. Francois I's panic was as much political as religious.

Third was the slow, geographically uneven, spread of particular vernaculars as instruments of administrative centralization by certain well-positioned would-be absolutist monarchs. Here it is useful to remember that the universality of Latin in mediaeval Western Europe never corresponded to a universal political system. The contrast with Imperial China, where the reach of the mandarinal bureaucracy and of painted characters largely coincided, is instructive. In effect, the political fragmentation of Western Europe after the collapse of the Western Empire meant that no sovereign could monopolize Latin and make it his-and-only-his language-of-state, and thus Latin's religious authority never had a true political analogue.

The birth of administrative vernaculars predated both print and the religious upheaval of the sixteenth century and must therefore be regarded at least initially as an independent factor in the erosion of the sacred imagined community. At the same time, nothing suggests that any deep-seated ideological, let alone proto-national, impulses underlay this vernacnlarization where it occurred. The case of 'England' - on the northwestern periphery of Latin Europe - is here especially enlightening. Prior to the Norman Conquest, the language of the court, literary and administrative, was Anglo-Saxon. For the next century and a half virtually, all royal documents were composed in Latin. Between about 1200 and

1350 this state-Latin was superseded by Norman French. In the meantime, a slow fusion between this language of a foreign ruling class and the Anglo-Saxon of the subject population produced Early English. The fusion made it possible for the new language to take its turn, after 1362, as the language of the courts-and for the opening of Parliament. Wycliffe's vernacular manuscript Bible followed in 1382. It is essential to bear in mind that this sequence was a series of 'state,' not 'national,' languages; and that the state concerned covered at various times not only today's England and Wales, but also portions of Ireland, Scotland and France. Obviously, huge element of the subject populations knew little or nothing of Latin, Norman French, or Early English. Not till almost a century after Early English's political enthronement was London's power swept out of 'France'.

On the Seine, a similar movement took place, if at a slower pace. As Bloch wryly puts it, 'French, that is to say a language which, since it was regarded as merely a corrupt form of Latin, took several centuries to raise itself to literary dignity', only became the official language of the courts of justice in 1539, when Francois I issued the Edict of Villers-Cotterets. In other dynastic realms Latin survived much longer - under the Habsburgs well into the nineteenth century. In still others, 'foreign' vernaculars took over: in the eighteenth century the languages of the Romanov court were French and German.

In every instance, the 'choice' of language appears as a gradual, unselfconscious, pragmatic, not to say haphazard development. As such, it was utterly different from the self-conscious language policies pursued by nineteenth-century dynasts confronted with the rise of hostile popular linguistic-nationalisms. (See below, Chapter 6). One clear sign of the difference is that the old administrative languages were just that: languages used by and for officialdoms for their own inner convenience. There was no idea of systematically imposing the language on the dynasts' various subject populations. Nonetheless, the elevation of these vernaculars to the status of languages-of-power, where, in one sense, they were competitors with Latin (French in Paris, [Early] English in London), made its own contribution to the decline of the imagined community of Christendom.

At bottom, it is likely that the esotericization of Latin, the Reformation, and the haphazard development of administrative vernaculars are significant, in the present context, primarily in a negative sense - in their contributions to the dethronement of Latin. It is quite possible to conceive of the emergence of the new imagined national communities without any one, perhaps all, of them being present. What, in a positive sense, made the new communities imaginable was a half-fortuitous, but explosive, interaction between a system of production and productive relations (capitalism), a technology of communications (print), and the fatality of human linguistic diversity.

The element of fatality is essential. For whatever superhuman feats capitalism was capable of, it found in death and languages two tenacious adversaries. Particular languages can die or be wiped out, but there was and is no possibility of humankind's general linguistic unification. Yet this mutual incomprehensibility was historically of only slight importance until capitalism and print created monoglot mass reading publics.

While it is essential to keep in mind an idea of fatality, in the sense of a general condition of irremediable linguistic diversity, it would be a mistake to equate this fatality with that common element in nationalist ideologies which stresses the primordial fatality of particular languages and their association with particular territorial units. The essential thing is the interplay between fatality, technology, and capitalism. In pre-print Europe, and, of course, elsewhere in the world, the diversity of spoken languages, those languages that for their speakers were and are the warp and woof of their lives, was immense; so immense, indeed, that had print-capitalism sought to exploit each potential oral vernacular market, it would

have remained a capitalism of petty proportions. But these varied idiolects were capable of being assembled, within definite limits, into print-languages far fewer in number. The very arbitrariness of any system of signs for sounds facilitated the assembling process. At the same time, the more ideographic the signs, the vaster the potential assembling zone. One can detect a sort of descending hierarchy here from algebra through Chinese and English, to the regular syllabaries of French or Indonesian. Nothing served to 'assemble' related vernaculars more than capitalism, which, within the limits imposed by gram and syntaxes, created mechanically reproduced print-languages capable of dissemination through the market.

These print-languages laid the bases for national consciousnesses in three distinct ways. First and foremost, they created unified fields of exchange and communication below Latin and above the spoken vernaculars. Speakers of the huge variety of Frenches, Englishes, or Spanishes, who might find it difficult or even impossible to understand one another in conversation, became capable of comprehending one another via print and paper. In the process, they gradually became aware of the hundreds of thousands, even millions, of people in their particular language-field, and at the same time that only those hundreds of thousands, or millions, so belonged. These fellow-readers, to whom they were connected through print, formed, in their secular, particular, visible invisibility, the embryo of the nationally imagined community.

Second, print-capitalism gave a new fixity to language, which in the long run helped to build that image of antiquity so central to the subjective idea of the nation. As Febvre and Martin remind us, the printed book kept a permanent form, capable of virtually infinite reproduction, temporally and spatially. It was no longer subject to the individualizing and 'unconsciously modernizing' habits of monastic scribes. Thus, while twelfth-century French differed markedly from that written by Villon in the fifteenth, the rate of change slowed decisively in the sixteenth. 'By the 17th century languages in Europe had generally assumed their modern forms.'

To put it another way, for three centuries now these stabilized print-languages have been gathering a darkening varnish; the words of our seventeenth-century forebears are accessible to us in a way that to Villon his twelfth-century ancestors were not.

Third, print-capitalism created languages-of-power of a kind different from the older administrative vernaculars. Certain dialects inevitably were 'closer' to each print-language and dominated their final forms. Their disadvantaged cousins, still assimilable to the emerging print-language, lost caste, above all because they were unsuccessful or only relatively successful in insisting on their own print-form. 'Northwestern German' became Platt Deutsch, a largely spoken, thus sub-standard, German, because it was assimilable to print German in a way that Bohemian spoken-Czech was not. High German, the King's English, and, later, Central Thai, were correspondingly elevated to a new politico-cultural eminence. (Hence the struggles in late-twentieth-century Europe by certain 'sub-' nationalities to change their subordinate status by breaking firmly into print - and radio.)

It remains only to emphasize that in their origins, the fixing of print-languages and the differentiation of status between them were largely unselfconscious processes resulting from the explosive interaction between capitalism, technology and human linguistic diversity. But as with so much else in the history of nationalism, once ‘there,’ they could become formal models to be imitated, and, where expedient, consciously exploited in a Machiavellian spirit. Today, the Thai government actively discourages attempts by foreign missionaries to provide its hill-tribe minorities with their own transcription-systems and to develop publications in their own languages: the same government is largely indifferent to what these

minorities speak. The fate of the Turkic-speaking peoples in the zones incorporated into today's Turkey, Iran, Iraq, and the USSR is especially exemplary. A family of spoken languages, once everywhere assemblable, thus comprehensible, within an Arabic orthography, has lost that unity as a result of conscious manipulations. To heighten Turkish-Turkey's national consciousness at the expense of any wider Islamic identification, Atattirk imposed compulsory romanization. The Soviet authorities followed suit, first with an anti-Islamic, anti-Persian compulsory romanization, then, in Stalin's 1930s, with a Russifying compulsory Cyrillicization.

We can summarize the conclusions to be drawn from the argument thus fur by saying that the convergence of capitalism and print technology on the fatal diversity of human language created the possibility of a new form of imagined community, which in its basic morphology set the stage for the modem nation. The potential stretch of these communities was inherently limited, and, at the same time, bore none but the most fortuitous relationship to existing political boundaries which were, on the whole, the highwater marks of dynastic expansionisms.

Yet it is obvious that while today almost al modem self-conceived nations - and also nation-states - have 'national print-languages', many of them have these languages in common, and in others only a tiny fraction of the population 'uses' the national language in conversation or on paper. The nation-states of Spanish America or those of the 'Anglo Saxon family' are conspicuous examples of the first outcome; many ex colonial states, particularly in Africa, of the second. In other words, the concrete formation of contemporary nation-states is by no means isomorphic with the determinate reach of particular print-languages. To account for the discontinuity-in-connectedness between print languages, national consciousness, and nation-states, it is necessary to tum to the large cluster of new political entities that sprang up in the Western hemisphere between 1776 and 1838, all of which self-consciously defined themselves as nations, and, with the interesting exception of Brazil, as (non-dynastic) republics. For not only were they historically the first such states to emerge on the world stage, and therefore inevitably provided the first real models of what such states should 'look like,' but their numbers and contemporary births offer fruitful ground for comparative enquiry.

THE SELF-REGULATING MARKET AND THE FICTITIOUS COMMODITIOUS COMMODITIES: LABOR, LAND, AND MONEY

Polanyi, K., & MacIver, R. M. (1944). *The great transformation.* Boston: Beacon Press. Vol. 2, p. 71-80

This cursory outline of the economic system and markets, taken separately, shows that never before our own time were markets more than accessories of economic life. As a rule, the economic system was absorbed in the social system, and whatever principle of behavior predominated in the economy, the presence of the market pattern was found to be compatible with it. The principle of barter or exchange, which underlies this pattern, revealed no tendency to expand at the expense of the rest. Where markets were most highly developed, as un der the mercantile system, they throve under the control of a centralized administration which fostered autarchy both in the household of the peasantry and in respect to national life. Regulation and markets, in effect, grew up together. The self-regulating market was unknown; indeed the emergence of the idea of self-regulation was a complete reversal of the trend of development. It is in the light of these facts that the extraordinary assumptions underlying a market economy can alone be fully comprehended.

A market economy is an economic system controlled, regulated, and directed by market prices; order in the production and distribution of goods is entrusted to this self-regulating mechanism. An economy of this kind derives from the expectation that human beings behave in such a way as to achieve maximum money gains. It assumes markets in which the supply of goods including services available at a definite price will equal the demand at that price. It assumes the presence of money, which functions as purchasing power in the hands of its owners. Production will then be controlled by prices, for the profits of those who direct production will depend upon them; the distribution of the goods also will depend upon prices, for prices form incomes, and it is with the help of these incomes that the goods produced are distributed amongst the members of society. Under these assumptions order in the production and distribution of goods is ensured by prices alone.

Self-regulation implies that all production is for sale on the market and that all incomes derive from such sales. Accordingly, there are markets for all elements of industry, not only for goods always including services but also for labor, land, and money, their prices being called respectively commodity prices, wages, rent, and interest. The very terms indicate that prices form incomes: interest is the price for the use of money and forms the income of those who are in the position to provide it; rent is the price for the use of land and forms the income of those who supply it; wages are the price for the use of labor power and form the income of those who sell it; commodity prices, finally, contribute to the incomes of those who sell their entrepreneurial services, the income called profit being actually the difference be tween two sets of prices, the price of the goods produced and their cost, i.e., the price of the goods necessary to produce them. If these conditions are fulfilled, all incomes derive from sales on the market, and incomes will be just sufficient to buy all the goods produced.

A further group of assumptions follows in respect to the state and its policy. Nothing must be allowed to inhibit the formation of markets, nor must incomes be permitted to be formed otherwise than through sales. Neither must there be any interference with the adjustment of prices to changed market conditions-whether the prices are those of goods, labor, land, or money. Hence there must not only be markets for all elements of industry, but no measure or policy must be countenanced that would influence the action of these markets. Neither price, nor supply, nor demand must be fixed or regulated; only such policies and measures are in order which help to ensure the self-regulation of the market by creating

conditions which make the market the only organizing power in the economic sphere.

To realize fully what this means, let us return for a moment to the mercantile system and the national markets which it did so much to develop. Under feudalism and the guild system land and labor formed part of the social organization itself money had yet hardly developed into a major element of industry. Land, the pivotal element in the feudal order, was the basis of the military, judicial, administrative, and political system; its status and function were determined by legal and customary rules. Whether its possession was transferable or not, and if so, to whom and under what restrictions; what the rights of property entailed; to what uses some types of land might be put-all these questions were removed from the organization of buying and selling and subjected to an entirely different set of institutional regulations.

The same was true of the organization of labor. Under the guild system, as under every other economic system in previous history, the motives and circumstances of productive activities were embedded in the general organization of society. The relations of master, journeyman, and apprentice; the terms of the craft; the number of apprentices; the wages of the workers were all regulated by the custom and rule of the guild and the town. What the mercantile system did was merely to unify these conditions either through statute as in England, or through the "nationalization" of the guilds as in France. As to land, its feudal status was abolished only insofar as it was linked with provincial privileges; for the rest, land remained extra commercium, in

England as in France. Up to the time of the Great Revolution of 1789, landed estate remained the source of social privilege in France, and even after that time in England Common Law on land was essentially medieval. Mercantilism, with all its tendency toward commercialization, never attacked the safeguards which protected these two basic elements of production-labor and land-from becoming the objects of commerce. In England the "nationalization" of labor legislation through the *Statute of Artificers (1563)* and the *Poor Law (1601)* removed labor from the danger zone, and the anti-enclosure policy of the Tudors and early Stuarts was one consistent protest against the principle of the gainful use of landed property.

That mercantilism, however emphatically it insisted on commercialization as a national policy, thought of markets in a way exactly contrary to market economy, is best shown by its vast extension of state intervention in industry. On this point there was no difference between mercantilists and feudalists, between crowned planners and vested interests, between centralizing bureaucrats and conservative particularists. They disagreed only on the methods of regulation: guilds, towns, and provinces appealed to the force of custom and tradition, while the new state authority favored statute and ordinance. But they were all equally averse to the idea of commercializing labor and land-the precondition of market economy. Craft guilds and feudal privileges were abolished in France only in 1790; in England the Statute of Artificers was repealed only in 1813-14, the Elizabethan Po or Law in 1834. Not before the last decade of the eighteenth century was, in either country, the establishment of a free labor market even dis cussed; and the idea of the self-regulation of economic life was utterly beyond the horizon of the age. The mercantilist was concerned with the development of the resources of the country, including full employment, through trade and commerce; the traditional organization of land and labor he took for granted. He was in this respect as far removed from modern concepts as he was in the realm of politics, where his belief in the absolute powers of an enlightened despot was tempered by no intimations of democracy. And just as the transition to a democratic system and representative politics involved a complete reversal of the trend of the age, the change from regulated to self-regulating markets at the end of the eighteenth century represented a complete transformation in the structure of society.

A self-regulating market demands nothing less than the institutional separation of society into an economic and a political sphere. Such a dichotomy is, in effect, merely the restatement, from the point of view of society as a whole, of the existence of a self-regulating market. It might be argued that the separateness of the two spheres obtains in every type of society at all times. Such an inference, however, would be based on a fallacy. True, no society can exist without a system of some kind which ensures order in the production and distribution of goods. But that does not imply the existence of separate economic institutions; normally, the economic order is merely a function of the social order. Neither under tribal nor under feudal nor under mercantile conditions was there, as we saw, a separate economic system in society. Nineteenth-century society, in which economic activity was isolated and imputed to a distinctive economic motive, was a singular departure.

Such an institutional pattern could not have functioned unless society was somehow subordinated to its requirements. A market economy can exist only in a market society. We reached this conclusion on general grounds in our analysis of the market pattern. We can now specify the reasons for this assertion. A market economy must comprise all elements of industry, including labor, land, and money. In a market economy money also is an essential element of industrial life and its inclusion in the market mechanism has, as we will see, far-reaching institutional consequences. But labor and land are no other than the human beings themselves of which every society consists and the natural surroundings in which it exists. To include them in the market mechanism means to subordinate the substance of society itself to the laws of the market.

We are now in the position to develop in a more concrete form the institutional nature of a market economy, and the perils to society which it involves. We will, first, describe the methods by which the market mechanism is enabled to control and direct the actual elements of industrial life; secondly, we will try to gauge the nature of the effects of such a mechanism on the society which is subjected to its action.

It is with the help of the commodity concept that the mechanism of the market is geared to the various elements of industrial life. Commodities are here empirically defined as objects produced for sale on the market; markets, again, are empirically defined as actual contacts between buyers and sellers. Accordingly, every element of industry is regarded as having been produced for sale, as then and then only will it be subject to the supply-and-demand mechanism interacting with price. In practice this means that there must be markets for every element of industry; that in these markets each of these elements is organized into a supply and a demand group; and that each element has a price which interacts with demand and supply. These markets-and they are numberless-are interconnected and form One Big Market.

The crucial point is this: labor, land, and money are essential elements of industry; they also must be organized in markets; in fact, these markets form an absolutely vital part of the economic system. But labor, land, an d money are obviously *mot* commodities; the postulate that anything that is bought and sold must have been produced for sale is emphatically untrue in regard to them. In other words, ac cording to the empirical definition of a commodity they are not commodities. Labor is only another name for a human activity which goes with life itself, which in its tum is not produced for sale but for entirely different reasons, nor can that activity be detached from the rest of life, be stored or mobilized; land is only another name for nature, which is not produced by man; actual money, finally, is merely a token of purchasing power which, as a rule, is not produced at all, but comes into being through the mechanism of banking or state finance. None of them is produced for sale. The commodity description of labor, land, and money is entirely fictitious.

Nevertheless, it is with the help of this fiction that the actual markets for labor, land, and money are organized; these are being actually bought and sold oft the market; their demand and supply are real magnitudes; and any measures or policies

that would inhibit the formation of such markets would ipso facto endanger the self-regulation of the system. The commodity fiction, therefore, supplies a vital organizing principle in regard to the whole of society affecting almost all its institutions in the most varied way, namely, the principle according to which no arrangement or behavior should be allowed to exist that might prevent the actual functioning of the market mechanism on the lines of the commodity fiction.

Now, in regard to labor, land, and money such a postulate cannot be upheld. To allow the market mechanism to be sole director of the fate of human beings and their natural environment indeed, even of the amount and use of purchasing power, would result in the demolition of society. For the alleged commodity "labor power" cannot be shoved about, used indiscriminately, or even Len unused, without affecting also the human individual who happens to be the bearer of this peculiar commodity. In disposing of a man's labor power the system would, incident ally, dispose of the physical, psychological, and moral entity "man" attached to that tag. Robbed of the protective covering of cultural institutions, human beings would perish from the effects of social exposure; they would die as the victims of acute social dislocation through vice, perversion, crime, and starvation. Nature would be reduced to its elements, neighborhoods and landscapes defiled, rivers polluted, military safety jeopardized, the power to pro- duce food an d raw materials destroyed. Finally, the market adminis-tration of purchasing power would periodically liquidate business enterprise, for shortages and surfeits of money would prove as disastrous to business as floods and droughts in primitive society. Undoubtedly, labor, land, and money markets are essential to a market economy. But no society could stand the effects of such a system of crude fictions even for the shortest stretch of time unless its human and natural substance as well as its business organization was protected against the ravages on his satanic ill.

The extreme artificiality of market economy is rooted in the fact that the process of production itself is here organized in the form of buying and selling. No other way of organizing production for the market is possible in a commercial society. During the late Middle Ages industrial production for export was organized by wealthy burgesses and carried on under their direct supervision in the home town. Later, in the mercantile society, production was organized by merchants and was not restricted any more to the towns; this was the age of "putting out" when domestic industry was provided with raw materials by the merchant capitalist, who controlled the process of production as a purely commercial enterprise. It was then that industrial production was definitely and o n a large scale put under the organizing leadership of the merchant. He knew the market, the volume as well as the quality of the demand; and he could vouch also for the sup plies which, incidentally, consisted merely of wool, wood, and, some times, the looms or the knitting frames used by the cottage industry. If supplies failed it was the cottager who was worst hit, for his employment was gone for the time; but no expensive plant was involved and the merchant incurred no serious risk in shouldering the responsibility for production. For centuries this system grew in power and scope until in a country like England the wool industry, the national staple, covered large sectors of the country where production was organized by the clothier. He who bought and sold, incidentally, provided for production-no separate motive was required. The creation of goods involved neither the reciprocating attitudes of mutual aid; nor the concern of the householder for those whose needs are left to his care; nor the craftsman's pride in the exercise of his trade; nor the sat is faction of public praise-nothing but the plain motive of gain so familiar to the man whose profession is buying and selling. Up to the end of the eighteenth century, industrial production in Western Europe was a mere accessory to commerce.

As long as the machine was an inexpensive and unspecific tool there was no change in this position. The mere fact that the cottager could produce larger amounts than before within the same time might induce him to use machines to increase

earnings, but this fact in itself did not necessarily affect the organization of production. Whether the cheap machinery was owned by the worker or by the merchant made some difference in the social position of the parties and almost certainly made a difference in the earnings of the worker, who was better off as long as he owned his tools; but it did not force the merchant to become an industrial capitalist, or to restrict himself to lending his money to such persons as were. The vent of goods rarely gave out; the greater difficulty continued to be on the side of supply of raw materials, which was sometimes unavoidably interrupted. But, even in such cases, the loss to the merchant who owned the machines was not substantial. It was not the coming of the machine as such but the invention of elaborate and therefore specific machinery and plant which completely changed the relationship of the merchant to pro duction. Although the new productive organization was introduced by the merchant-a fact which determined the whole course of the transformation-the use of elaborate machinery and plant involved the development of the factory system and therewith a decisive shift in the relative importance of commerce and industry in favor of the latter. Industrial production ceased to be an accessory of commerce organized by the merchant as a buying and selling proposition; it now involved long-term investment with corresponding risks. Unless the, continuance of production was reasonably assured, such a risk was not bearable.

But the more complicated industrial production became, the more numerous were the elements of industry the supply of which had to be safeguarded. Three of these, of course, were of outstanding importance: labor, land, and money. In a commercial society their supply could be organized in one way only: by being made available for purchase. Hence, they would have to be organized for sale on the market-in other words, as commodities. The extension of the market mechanism to the elements of industry-labor, land, and money was the inevitable consequence of the intro duction of the factory system in a commercial society. The elements of industry had to be on sale.

This was synonymous with the demand for a market system. We know that profits are ensured under such a system only itself regulation is safeguarded through interdependent competitive markets. As the development of the factory system had been organized as part of a process of buying and selling, therefore lab or, land, and money had to be transformed into commodities in order to keep production going. They could, of course, not be really transformed into commodities, as actually they were not produced for sale on the market. But the fiction of their being so produced became the organizing principle of society. Of the three, one stands out: labor is the technical term used for human beings, insofar as they are not employers but employed; it follows that henceforth the organization of labor would change concurrently with the organization of the market system. But as the organization of labor is only another word for the forms of life of the common people, this means that the development of the market system would be accompanied by a change in the organization of society itself. All along the line, human society had become an accessory of the economic system.

We recall our parallel between the ravages of the enclosures in English history and the social catastrophe which followed the Industrial Revolution. Improvements, we said, are, as a rule, bought at the price of social dislocation. If the rate of dislocation is too great, the community must succumb in the process. The Tudors and early Stuarts saved England from the fate of Spain by regulating the course of change so that it became bearable and its effects could be canalized into less destructive avenues. But nothing saved the common people of England from the impact of the Industrial Revolution. A blind faith in spontaneous progress had taken hold of people's minds, and with the fanaticism of sectarians the most enlightened pressed forward for boundless and unregulated change in society. The effects on the lives of the people were awful beyond description. Indeed, human society would have been annihilated but for protective counter-moves which blunted the action of this self-destructive mechanism.

Social history in the nineteenth century was thus the result of a double movement: the extension of the market organization in respect to genuine commodities was accompanied by its restriction in respect to fictitious ones. While on the one hand markets spread all over the face of the globe and the amount of goods involved grew to unbelievable dimensions, on the other hand a network of measures and policies was integrated into powerful institutions designed to check the action of the market relative to labor, land, and money. While the organization of world commodity markets, world capital markets, and world currency markets under the aegis of the gold standard gave an unparalleled momentum to the mechanism of markets, a deep-seated movement sprang into being to resist the pernicious effects of a market-controlled economy. Society protected itself against the perils inherent in a self-regulating market system – this was the one comprehensive feature in the history of the age.

THE HISTORIAN AND HIS FACTS

Carr, E. H. (1967). *What is History?*. Penguin Books, 7-30.

WHAT is history? Lest anyone think the question meaningless or superfluous, I will take as my text two passages relating respectively to the first and second incarnations of the Cambridge Modern History. Here is Acton in his report of October 1896 to the Syndics of the Cambridge University Press on the work which he had undertaken to edit:

> It is a unique opportunity of recording, in the way most useful to the greatest number, the fullness of the knowledge which the nineteenth century is about to bequeath.... By the judicious division of labour we should be able to do it, and to bring home to every man the last document, and the ripest conclusions of international research.
>
> Ultimate history we cannot have in this generation; but we can dispose of conventional history, and show the point we have reached on the road from one to the other, now that all information is within reach, and every problem has become capable of solution.'

And almost exactly sixty years later Professor Sir George Clark, in his general introduction to the second Cambridge Modern History, commented on this belief of Acton and his collaborators that it would one day be possible to produce 'ultimate history', and went on:

> Historians of a later generation do not look forward to any such prospect. They expect their work to be superseded again and again. They consider that knowledge of the past has come down through one or more human minds, has been 'processed' by them, and therefore cannot consist of elemental and impersonal atoms which nothing can alter.... The exploration seems to be endless, and some impatient scholars take refuge in scepticism, or at least in the doctrine that, since all historical judgements involve persons and points of view, one is as good as another and there is no 'objective' historical truth.

Where the pundits contradict each other so flagrantly, the held is open to inquiry. I hope that J am sufficiently up-to-date to recognize that anything written in the 1890s must be nonsense. But I am not yet advanced enough to be committed to the view that anything written in the 1950s necessarily makes sense. Indeed, it may already have occurred to you that this inquiry is liable to stray into something even broader than the nature of history.

The clash between Acton and Sir George Clark is a reflection of the change in our total outlook on society over the interval between these two pronouncements. Acton speaks out of the positive belief, the clear-eyed self-confidence, of the later Victorian age; Sir George Clark echoes the bewilderment sad distracted scepticism of the beat generation. When we attempt to answer the question 'What is history?' our answer, consciously or unconsciously, reflects our own position in time, and forms part of our answer to the broader question what view we take of the society in which we live. I have no fear that my subject may, On closer inspection, seem trivial. I am afraid only that I may seem presumptuous to have broached a question so vast and so important.

The nineteenth century was a great age for facts.' What I want', said Mr. Gradgrind in Ward Times, 'is Facts.... Facts alone are wanted in life.' Nineteenth-century historians on the whole agreed with him. When Ranke in the 1830s, in legitimate protest against moralizing history, remarked that the task of the historian was 'simply to show how it really was (*wei es*

eigentlich gewesen)', this not very profound aphorism had an astonishing success. Three generations of German, British, and even French historians marched into battle intoning the magic words *'Wieu eigendich gewesen*' like an incantation-designed, like most incantations, to save them from the tiresome obligation to think for themselves. The Positivists, anxious to stake out their claim for history as a science, contributed the weight of their influence to this cult of facts. First ascertain the facts, said the Positivists, then draw your conclusions from them. In Great Britain, this view of history fitted in perfectly with the empiricist addition which was the dominant strain in British philosophy from Locke to Bertrand Russell. The empirical theory of knowledge presupposes a complete separation between subject and object. Pacts, like sense-impressions, impinge on the observer from outside and are independent of his consciousness. The process of reception is passive: having received the data, he then acts on them. The Oxford Shorter English Dictionary, a useful but tendentious work of the empirical school, clearly marks the separateness of the two processes by defining a fact as 'a datum of experience as distinct from conclusions'. This is what may be called the common-sense view of history. History consists of a corpus of ascertained facts. The facts are available to the historian in documents, inscriptions and so on, like fish on the fish monger's slab. The historian collects them, takes them home, and cooks and serves them in whatever style appeals to him. Acton, whose culinary tastes were austere, wanted them served plain. In his letter of instructions to contributors to the first Cambridge Modem History he announced the requirement 'that our Waterloo must be one that satisfies French and English, German and Dutch alike; that nobody can tell, without examining the list of authors, where the Bishop of Oxford laid down the pen and whether Fairbairn or Gasquet, Liebermann or Harrison it up'.' Even Sir George Clark critical as he was of Acton's attitude, himself contrasted the 'hard core of facts in history with the 'surrounding pulp of disputable interpretation" - forgetting perhaps that the pulpy part of the fruit is more rewarding than the hard core. First get your facts straight, then plunge at your peril into the shifting sands of interpretation - that is the ultimate wisdom of the empirical, common-sense school of history. It recalls the favourite dictum of the great liberal journalist C. P. Scott: 'Facts are sacred, opinion is free.'

Now this clearly will not do. I shall not embark on a philosophical discussion of the nature of our knowledge of the past. Let us assume for present purposes that the fact that- Caesar crossed the Rubicon and the fact there is a table in the middle of the room are fan of the same or of a comparable order, that both these facts enter our consciousness in the same or in a comparable manner, and that both have the same objective character in relation to the person who knows them. But, even on this bold and not very plausible assumption, our argument at mice runs into the difficulty that not all facts about the past are historical facts or are treated as such by the historian. What is the criterion which distinguishes the facts of history from other fan about the past?

What is a historical fact? This is a crucial question into which we must look a little more closely. According to the commonsense view, there are certain basic facts which are the same for all historians and which form, so to speak, the backbone of history - the fact, for example, that the Battle of Hastings was fought in 1066. But this view calls for two observations. In the first place, it is not with facts like these that the historian is primarily concerned. It is no doubt important to know that the great battle was fought in 1066 and not in 1065 or 1067, and that it was fought at Hastings and not at Eastbourne or Brighton. The historian must not get these things wrong. But when points of this kind are raised, I am reminded of Housman's remark that 'accuracy is a duty, not a virtue'." To praise a historian for his accuracy is like praising an architect for using well-seasoned timber or properly mixed concrete in his building. It is a necessary condition of his work, but not his essential function. It is precisely for matters of this kind that the historian is entitled to rely on what have been called the 'auxiliary sciences' of history archaeology, epigraphy, numismatics, chronology, and so forth. The historian is not required to have the special skills which enable the expert to determine the origin and period of a fragment of pottery

or marble, to decipher an obscure inscription, or to make the elaborate astronomical calculations necessary to establish a precise date. These so-called basic facts, which are the same for all historians, commonly belong to the category of the raw materials of the historian rather than of history itself. The second observation is that the necessity to establish these basic facts rests not on any quality in the facts themselves, but on an a priori decision of the historian. In spite of C. P. Scott's motto, every journalist knows today that the most effective way to influence opinion is by the selection and arrangement of the appropriate facts. It used to be said that facts speak for themselves. This is, of course, untrue. The facts, speak only when the historian calls on them: it is he who decides to which facts to give the door, and in what order or context. It was, I think, one of Pirandello's characters who said that a fact is like a sack - it won't stand up till you've put something in it, the only reason why we are interested to know that the battle was fought at Hastings in 1066 is that historians regard it as a major historical event. It is the historian who has decided for his own reasons that Caesar's crossing of that petty stream, the Rubicon, is a fact of history, whereas the crossing of the Rubicon by millions of other people before or since interests nobody at all. The fact that you arrived in this building half an hour ago on foot, or on a bicycle, or in a car, is just as much a fact about the past as the fact that Caesar crossed the Rubicon. But it will probably be ignored by historians.

Professor Talcott Parsons once called science 'a selective system of cognitive orientations to reality'. It might perhaps have been put more simply. But history is, among other things, that. The historian is necessarily selective. The belief in a hard core of historical facts existing objectively and independently of the interpretation of the historian is a preposterous fallacy, but one which it is very hard to eradicate.

Let us take a look at the process by which a mere fact about the past is transformed into a fact of history. At Stalybridge Wakes in 1850, a vendor of gingerbread, as the result of some petty dispute, was deliberately kicked to death by an angry mob. Is this a fact of history? A year ago, I should unhesitatingly have said 'no'. It was recorded by an eye-witness in some little - known memoirs"; but I had never seen it judged worthy of mention by any historian. A year ago, Dr Kitson Clark cited it in his Ford lectures in Oxford. Does this make it into a historical fact? Not, I think, yet. Its present status, I suggest, is that it has been proposed for membership of the select club of historical facts. It now awaits a seconder and sponsors. It may be that in the course of the next few years we shall see this fact appearing first in footnotes, then in the text, of articles and books about nineteenth-century England, and that in twenty or thirty years' time it may be a well-established historical fact. Alternatively, nobody may take it up, in which case it will relapse into the limbo of unhistorical facts about the past from which Dr Kitson Clark has gallantly attempted to rescue it. What will decide which of these two things will happen? It will depend, I think, on whether the thesis or interpretation in support of which Dr Kitson Clark cited this incident is accepted by other historians as valid and significant. Its status as a historical fact will turn on a question of interpretation. This element of interpretation enters into every facet of history.

May I be allowed a personal reminiscence. When I studied ancient history in this university many years ago, I had as a special subject 'Greece in the period of the Persian Wars'. I collected fifteen or twenty volumes on my shelves and took it far granted that there, recorded in these volumes, I had all the facts relating to my subject. Let us assume - it was very nearly true - that those volumes contained all the facts about it that were then known or could be known. It never occurred to me to inquire by what accident or process of attrition that minute selection of facts, out of all the myriad facts that must once have been known to somebody, had survived to become tire facts of history. I suspect that even today one of the fascinations of ancient and medieval history is that it gives us the illusion of having all the facts at our disposal within a manageable compass: the nagging distinction between the facts of history and other facts about the past vanishes, because

the few known facts are all facts of history. As Bury, who had worked in both periods, said, 'the records of ancient and medieval history are starred with lacunae. ' History has been called an enormous jig-saw with a lot of missing parts. But the main trouble does not consist in the lacunae. Our picture of Greece in the fifth century B.C. is defective not primarily because so many of the bits have been accidentally lost, but because it is, by and large, the picture formed by a tiny group of people in the city of Athens. We know a lot about what fifth-century Greece looked like to an Athenian citizen; but hardly anything about what it looked like to a Spartan, a Corinthian, or a Theban - not to mention a Persian, or a slave or other non-citizen resident in Athens. Our picture has been preselected and predetermined for us, not so much by accident as by people who were consciously or unconsciously imbued with a particular view and thought the facts which supported that view worth preserving. In the same way, when I read in a modern history of the Middle Ages that the people of the Middle Ages were deeply concerned with religion, I wonder how we know this, and whether it is true. What we know as the facts of medieval history have almost all been selected for us by generations of chroniclers who were professionally occupied in the theory and practice of religion, and who therefore thought it supremely important, and recorded everything relating to it, and not much else. The picture of the Russian peasant as devoutly religious was destroyed by the revolution of 1917· The picture of medieval man as devoutly religious, whether true or not, is indestructible, because nearly all the known facts about him were preselected for us by people who believed it, and wanted others to believe it, and a mass of other facts, in which we might possibly have found evidence to the contrary, has been lost beyond recall. The dead hand of vanished generations of historians, scribes, and chroniclers has determined beyond the possibility of appeal the pattern of the past.' The history we read;' writes Professor Barraclough, himself trained as a medievalist, 'though based on facts, is, strictly speaking, not factual at all, but a series of accepted judgements."

But let us turn to the different, but equally grave, plight of the modern historian. The ancient or medieval historian may be grateful for the vast winnowing process which, over the years, has put at his disposal a manageable corpus of historical facts. As Lytton Strachey said, in his mischievous way, 'ignorance is the first requisite of the historian, ignorance which simplifies and clarifies, which selects and omits.'" When I am tempted, as I sometimes am, to envy the extreme competence of colleagues engaged in writing ancient or medieval history, I find consolation in the reflexion that they are so competent mainly because they are so ignorant of their subject. The modern historian enjoys none of the advantages of this built-in ignorance. He must cultivate this necessary ignorance for himself - the more so the nearer he comes to his own times. He has the dual task of discovering the few significant facts and turning them into facts of history, and of discarding the many insignificant facts as unhistorical. But this is the very converse of the nineteenth-century heresy that history consists of the compilation of a maximum number of irrefutable and objective facts. Anyone who succumbs to this heresy will either have to give up history as a bad job, and take to stamp-collecting or some other form of antiquarianism, or end in a madhouse. It is this heresy which during the past hundred years has had such devastating effects on the modern historian, producing in Germany, in Great Britain, and in the United States, a vast and growing mass of dry-as-dust factual histories, of minutely specialized monographs of would-be historians knowing more and more about less and less, sunk without trace in an ocean of facts, It was, I suspect, this heresy - rather than the alleged conflict between liberal and Catholic loyalties - which frustrated Acton as a historian. In an early essay he said of his teacher Dollinger: 'He would not write with imperfect materials, and to him the materials were always imperfect.' Acton was surely here pronouncing an anticipatory verdict on himself, on that strange phenomenon of a historian whom many would regard as the most distinguished occupant the Regius Chair of Modern History in this university has ever had - but who wrote no history. And Acton wrote his own epitaph, in the introductory note to the first volume of the Cambridge Modern History published just after his death, when he lamented that the requirements pressing on the historian 'threaten to turn him from a man of letters into the compiler

of an encyclopedia'. Something had gone wrong. What had gone wrong was the belief in this untiring and unending accumulation of hard facts as the foundation of history, the belief that facts speak for themselves and that we cannot have too many facts, a belief at that time so unquestioning that few historians then thought it necessary - and some still think it unnecessary today - to ask themselves the question.

The nineteenth-century fetishism of facts was completed and justified by a fetishism of documents. The documents were the Art of the Covenant in the temple of facts. The reverent historian approached them with bowed head and spoke of than in awed tones. If you find it in the documents, it is so. But what, when we get down to it, do these documents - the decrees, the treaties, the rent-rolls, the blue books, the official correspondence, the private letters and diaries - tell us. No document am tell us more than what the author of the document thought - what he thought had happened, what he thought ought to happen or would happen, or perhaps only what he wanted others no think he thought, or even only what he himself thought he thought. None of this means anything until she historian has got to work on it and deciphered it. The facts, whether found in documents or not, have still to be processed by the historian before he can make any use of them: the we he makes of them is, if I may put it that way, the processing process.

Let me illustrate what I am trying to say by an example which I happen to know well. When Gustav Stresemann, the Foreign Minister of the Weimar Republic, died in 1929, he left behind him an enormous mass - 300 boxes full - of papers, official, semi-official, and private, nearly all relating to the six years of his tenure of office as Foreign Minister. His friends and relatives naturally thought that a monument should be raised to the memory of so great a man. His faithful secretary Bernhard got to work; and within three years there appeared three massive volumes, of some 600 pages each, of selected documents from the 300 boxes, with the impressive title *Stresemanns Vermachtnis*. In the ordinary way the documents themselves would have mouldered away in some cellar or attic and disappeared for ever; or perhaps in a hundred years or so some curious scholar would have come upon them and set out to compare them with Bernhard's text. What happened was far more dramatic. In 1945 the documents fell into the hands of the British and American Governments, who photographed the lot and put the photostats at the disposal of scholars in the Public Record office in London and in the National Archives in Washington, so that, if we have sufficient patience and curiosity, we can discover exactly what Bernhard did. What he did was neither very unusual nor very shocking. When Stresemann died, his western policy seemed to have been crowned with a series of brilliant successes - Locarno, the admission of Germany to the League of Nations, the Dawes and Young plans and the American loans, the withdrawal of allied occupation armies from the Rhineland. This seemed the important and rewarding: part of Stresemmn's foreign policy; and it was not unnatural that it should have been over-represented in Bernhard's selection of documents. Stresemann's eastern policy, on the other hand, his relations with the Soviet Union, seemed to have led nowhere in particular; and, since masses of documents about negotiations which yielded only trivial results were not very interesting and added nothing to Stresemann's reputation, the process of selection could be more rigorous. Stresemann in fact devoted a far more constant and anxious attention to relations with the Soviet Union, and they played a far larger part in his foreign policy as a whole, than the reader of the Bernhard selection would surmise. But the Bern-hard volumes compare favourably, I suspect, with many published collections of documents on which the ordinary historian implicitly relies.

This is not the end of my story. Shortly after the publication of Bernhard's volumes, Hitler came into power. Stresemann's name was consigned to oblivion in Germany, and the volumes disappeared from circulation: many, perhaps most, of the copies must have been destroyed. Today *Stresemanns Vernachtnis* is a rather rare book. But in the west Stresemann's

reputation stood high. In 1935 an English publisher brought out an abbreviated translation of Bernhard's work - a selection from Bernhard's selection; perhaps one-third of the original was omitted. Sutton, a well-known translator from the German, did his job competently and well. The English version, he explained in the preface, was 'slightly condensed, but only by the omission of a certain amount of what, it was felt, was more ephemeral matter ... of little interest to English readers or students'. This again is natural enough. But the result is that Stresemann's eastern policy, already under-represented in Bernhard, recedes still further from view, and the Soviet Union appears in Sutton's volumes merely as an occasional and rather unwelcome intruder in Stresemann's predominantly western foreign policy. Yet it is safe to say that, for all except a few specialists, Sutton and not Bernhard - and still less the documents themselves - represents for the western world the authentic voice of Stresemann. Had the documents perished in I945 in the bombing, and had the remaining Bernhard volumes disappeared, the authenticity and authority of Sutton would never have been questioned. Many printed collections of documents, gratefully accepted by historians in default of the originals, rest on no securer basis than this.

But I want to carry the story one step further. Let us forget about Bernhard and Sutton, and be thankful that we can, if we choose, consult the authentic papers of a leading participant in some important events of recent European history. What do the papers tell us ? Among other things they contain records of some hundreds of Stresemann's conversations with the Soviet Ambassador in Berlin and of a score or so with Chicherin. These records have one feature in common. They depict Stresemann as having the lion's share of the conversations and reveal his arguments as invariably well put and cogent, while those of his partner are for the most part scanty, confused, and unconvincing. This is a familiar characteristic of all records of diplomatic conversations. The documents do not tell us what happened, but only what Streetman thought had happened, or what he wanted others to think, or perhaps what he wanted himself to think, had happened. It was not Sutton or Bernhard, but Stresemann himself, who started the process of selection. And if we had, say, Chicherin's records of these same conversations, we should still learn from them only what Chicherin thought, and what really happened would still have to be reconstructed in the mind of the historian. Of course, facts and documents are essential to the historian. But do not make a fetish of them. They do not by themselves constitute history; they provide in themselves no ready-made answer to this tiresome question 'What is history?'

At this point I should like to say a few words on the question why nineteenth-century historians were generally indifferent to the philosophy of history. The term was invented by Voltaire and has since been used in different senses; but I shall take it to mean, if I use it at all, our answer to the question,’ What is history~' The nineteenth century was, for the intellectuals of western Europe, a comfortable period exuding confidence and optimism.

The facts were on the whole satisfactory; and the inclination to ask and answer awkward questions about them was correspondingly weak. Ranke piously believed that divine providence would take care of the meaning of history, if he took care of the facts; and Burckhardt, with a more modern touch of cynicism, observed that 'we are not initiated into the purposes of the eternal wisdom'. Professor Butterfield as late as I93I noted with apparent satisfaction that 'historians have reflected little upon the nature of things, and even the nature of their own subject'.' But my predecessor in these lectures, Dr A. L. Rowse, more justly critical, wrote of Sir Winston Churchill's World Crisis - his book about the First World War - that, while it matched Trotsky's History of the Russian Revolution in personality, vividness, and vitality, it was inferior in one respect: it had 'no philosophy of history behind it'.' British historians refused to be drawn, not because they believed that history had no meaning, but because they believed that its meaning was implicit and self-evident. The liberal nineteenth-century view of history had a close affinity with the economic doctrine of laissez-faire also the product of a

serene and self-confident outlook on the world. Let everyone get on with his particular job, and the hidden hand would take care of the universal harmony. The facts of history were themselves a demonstration of the supreme fact of a beneficent and apparently infinite progress towards higher things. This was the age of innocence, and historians walked in the Garden of Eden, without a scrap of philosophy to cover them, naked and unashamed before the god of history. Since then, we have known Sin and experienced a Fall; and those historians who today pretend to dispense with a philosophy of history Pre: merely trying, vainly and self-consciously, like members of a nudist colony, to recreate the Garden of Eden in their garden suburb. Today the awkward question can no longer be evaded.

During the past fifty years a good deal of serious work has been done on the question 'What is history?' It was from Germany, the country which was to do so much to upset the comfortable reign of nineteenth-century liberalism, that the first challenge came in the 1880s and 1890s to the doctrine of the primacy and autonomy of facts in history. The philosophers who made the challenge are now little more than names: Dilthey is the only one of them who has recently received some belated recognition in Great Britain. Before the turn of the century, prosperity and confidence were still too great in this country for any attention to be paid to heretics who attacked the cult of facts. But early in the new century, the torch passed to Italy, where Croce began to propound a philosophy of history which obviously owed much to German masters. All history is 'contemporary history', declared Croce,' meaning that history consists essentially in seeing the past through the eyes of the present and in the light of its problems, and that the main work of the historian is not to record, but to evaluate; for, if he does not evaluate, how can he know what is worth recording? In 1910 the American historian, Carl Becker, argued in deliberately provocative language that 'the facts of history do not exist for any historian till he creates them'. These challenges were for the moment little noticed. It was only after 1920 that Croce began to have a considerable vogue in France and Great Britain. This was not perhaps because Croce was a subtler thinker or a better stylist than his German predecessors, but because, after the First World War, the facts seemed to smile on us less propitiously than in the years before 1914, and we were therefore more accessible to a philosophy which sought to diminish their prestige. Croce was an important influence on the Oxford philosopher and historian Collingwood, the only British thinker in the present century who has made a serious contribution to the philosophy of history. He did not live to write the systematic treatise he had planned; but his published and unpublished papers on the subject were collected after his death in a volume entitled The Idea of History, which appeared in 1945·

The views of Collingwood can be summarized as follows. The philosophy of history is concerned neither with 'the past by itself' nor with 'the historian's thought about it by itself', but with 'the two things in their mutual relations'. This dictum reflects the two current meanings of the word 'history' - the inquiry conducted by the historian and the series of past events into which he inquires. 'The past which a historian studies is not a dead past, but a past which in some sense is still living in the present.' But a past act is dead, i.e. meaningless to the historian, unless he can understand the thought that lay behind it. Hence 'all history is the history of thought', and 'history is the re-enactment in the historian's mind of the thought whose history he is studying'. The reconstitution of the past in the history,', mind is dependent on empirical evidence. But it is not in itself an empirical process and cannot consist in a mere recital of facts. On the contrary, the process of reconstitution governs the selection and interpretation of the facts: this, indeed, is what makes them historical facts. ' History', says Professor Oakeshott, who on this point stands near to Collingwood, ‘is the historian's experience. It is " made " by nobody save the historian: to write history is the only way of making'.

This searching critique, though it may call for some serious reservations, brings to light certain neglected truths. In the first place, the faces of history never come to us 'pure', since they do not and cannot exist in a pure form: they are always refracted through the mind of the recorder. It follows that when we take up a work of history, our first concern should be not with the facts which it contains but with the historian who wrote it. Let me take as an example the great historian in whose honour and in whose name these lectures were founded. G. M. Trevelyan, as he tells us in his autobiography, was 'brought up at home on a somewhat exuberantly Whig tradition and he would not, I hope, disclaim the title if I described him as the last and not the least of the great English liberal historians of the Whig tradition. It is not for nothing that he traces back his family tree, through the great Whig historian George Otto Trevelyan, to Macaulay, incomparably the greatest of the Whig historians. Trevelyan's finest and maturest work, England under Queen Anne, was written against that background, and will yield its full meaning and significance to the reader only when read against that background. The author, indeed, leaves the reader with no excuse for failing to do so. For, if following the technique of connoisseurs of detective novels, you read the end first, you will find on the last few pages of the third volume the best summary known to me of what is nowadays called the Whig interpretation of history; and you will see that what Trevelyan is trying to do is to investigate the origin and development of the Whig tradition, and to root it fairly and squarely in the years after the death of its founder, William III. Though this is not, perhaps, the only conceivable interpretation of the events of Queen Anne's reign, it is a valid and, in Trevelyan's hands, a fruitful interpretation. But, in order to appreciate it at its' full value, you have to understand what the historian is doing. For if, as Collingwood says, the historian must re-enact in thought what has gone on in the mind of his dramatis personae, so the reader in his turn must re-enact what goes on in the mind of the historian. Study the historian before you begin to study the facts. This is, after all, not very abstruse. It is what is already done by the intelligent undergraduate who, when recommended to read a work by that great scholar Jones of St Jude's, goes round to a friend at St Jude's to ask what sort of chap Jones is, and what bees he has in his bonnet. When you read a work of history, always listen out for the buzzing. If you can detect none, either you are tone deaf or your historian is a dull dog. The facts are really not at all like fish on the fishmonger's slab. They are like fish swimming about in a vast and sometimes inaccessible ocean; and what the historian catches will depend, partly on chance, but mainly on what part of the ocean he chooses to fish in and what tackle he chooses to use - these two factors being, of course, determined by the kind offish he wants to catch. By and lame, the historian will get the kind of facts he wants. History means interpretation. Indeed, if, standing Sir George Clark on his head, I were to call history 'a hard core of interpretation surrounded by a pulp of disputable facts ', my statement would, no doubt, be one-sided and misleading, but no more so, I venture to think, than the original dictum.

The second point is the more familiar one of the historian's need of imaginative understanding for the minds of the people with whom he is dealing, for the thought behind their acts: I say imaginative understanding', not 'sympathy', lest sympathy should be supposed to imply agreement. The nineteenth century was weak in medieval history, because it was too much repelled by the superstitious beliefs of the Middle Ages, and by the barbarities which they inspired, to have any imaginative understanding of medieval people. Or take Burckhardt's censorious remark about the Thirty Years War: It is scandalous for a creed, no matter whether it is Catholic or Protestant, to place its salvation above the integrity of the nation." It was extremely difficult for a nineteenth-century liberal historian, brought up to believe that it is right and praiseworthy to kill in defence of one's country, but wicked and wrong-headed to kill in defence of one's religion, to enter into the state of mind of those who fought the Thirty Years War. This difficulty is particularly acute in the held in which I am now working. Much of what has been written in English speaking countries in the last ten years about the Soviet Union, and in the Soviet Union about the English-speaking countries, has been vitiated by this inability to achieve even the most

elementary measure of imaginative understanding of what goes on in the mind of the other party, so that the words and actions of the other are always made to appear malign, senseless, or hypocritical. History cannot be written unless the historian can achieve some kind of contact with the mind of those about whom he is writing.

The third point is that we can view the past, and achieve our understanding of the past, only through the eyes of the present. The historian is of his own age and is bound to it by the conditions of human existence. The very words which he uses - words like democracy, empire, war, revolution - have current connotations from which he cannot divorce them.

Ancient historians have taken to using words like polls and plebs in the original, just in order to show that they have not fallen into this trap. This does not help them. They, too, live in the present, and cannot cheat themselves into the past by using unfamiliar or obsolete words, any more than they would become better Greek or Roman historians if they delivered their lectures in a chilamys et a toga. The names by which successive French historians have described the Parisian crowds which played so prominent a role in the French revolution - les sans-vulottes, le peuple, la canaille, les bras-nus - are all, for those who know the rules of the game, manifestos of a political affiliation and of a particular interpretation. Yet the historian is obliged to choose: the use of language - forbids him to be neutral. Nor is it a matter of words alone. Over the past hundred years the changed balance of power in Europe has reversed the attitude of British historians to Frederick the Great. The changed balance of power within the Christian churches between Catholicism and Protestantism has profoundly altered their attitude to such figures as Loyola, Luther, ad Cromwell. It requires only a superficial knowledge of the work of French historians of the last forty years on the French revolution to recognize how deeply it has been affected by the Russian revolution of 1917· The historian belongs not to the past but to the present. Professor Trevor-Roper tells us that the historian 'ought to love the past'.' This is a dubious injunction. To love the past may easily be an expression of the nostalgic romanticism of old men and old societies, a symptom of loss of faith and interest in the present or future. Cliché for cliché, I should prefer the one about freeing oneself from 'the dead hand of the past'. The function of the historian is neither to love the past nor to emancipate himself from the past, but to master and understand it as the key to the understanding of the present.

If, however, these are some of the insights of what I may call the Collingwood view of history, it is time to consider some of the dangers. The emphasis on the role of the historian in the making of history tends, if pressed to its logical conclusion, to rule out any objective history at all: history is what the historian makes. Collingwood seems indeed, at one moment, in an unpublished note quoted by his editor, to have reached this conclusion:

> St Augustine looked at history from the point of view of the early Christian; Tillamont, from that of a seventeenth-century Frenchman; Gibbon, from that of an eighteenth-century Englishman; Mommsen from that of a nineteenth-century German. There is no point in asking which the right point of view was. Each was the only one possible for the man who adopted.

This amounts to total scepticism, like Froude's remark that history is 'a child's box of letters with which we can spell any word we please'." Collingwood, in his reaction against 'scissors-and-paste history', against the view of history as a mere compilation of facts, comes perilously near to treating history as something spun out of the human brain, and leads back to the conclusion referred to by Sir George Clark in the passage which I quoted earlier, that there is no "objective" historical truth'. In place of the theory that history has no meaning, we are offered here the theory of an infinity of meanings, none any more right than any other - which comes to much the same thing. The second theory is surely as untenable as the first. It does not follow that, because a mountain appears to take on different because interpretation plays a necessary part in

establishing the facts of history, and because no existing interpretation is wholly objective, one interpretation is as good as another, and the facts of history are in principle not amenable to objective interpretation. I shall have to consider at a later stage what exactly is meant by objectivity in history.

But a still greater danger lurks in the Collingwood hypothesis. If the historian necessarily looks at his period of history through. the eyes of his own time, and studies the problems of the past as a key to those of the present, will he not fall into a purely pragmatic view of the facts, and maintain that the criterion of a right interpretation is its suitability to some present purpose? On this hypothesis, the facts of history are nothing, interpretation is everything. Nietzsche had already enunciated the principle: 'The falseness of an opinion is not for us any objection to it. ... The question is how far it is life-furthering, life-preserving, species-preserving, perhaps species-creating. The American pragmatists moved, less explicitly and less wholeheartedly, along the same line. Knowledge is knowledge for some purpose. The validity of the knowledge depends on the validity of the purpose, But even where no such theory has been professed, practice has often been no less disquieting. In my own held of study I have seen too many examples of extravagant interpretation riding roughshod over facts not to be impressed with the reality of this danger. It is not surprising that perusal of some of the more extreme products of Soviet and anti-Soviet schools of historiography should sometimes breed a certain nostalgia for that illusory nineteenth-century haven of purely factual history.

How then, in the middle of the twentieth century, are we to define the obligation of the historian to his facts ~ I trust that I have spent a sufficient number of hours in recent years chasing and perusing documents, and stuffng my historical narrative with properly footnoted facts, to escape the imputation of treating facts and documents too cavalierly.

The duty of the historian to respect his facts is not exhausted by the obligation to see that his facts are accurate. He must seek to bring into the picture all known or knowable facts relevant, in one sense or another, to the theme on which he is engaged and to the interpretation proposed. If he seeks to depict the Victorian Englishman as a moral and rational being, he must not forget what happened at Starybridge Wakes in 1850. But this, in turn, does not mean that he can eliminate interpretation, which is the life-blood of history. Laymen - that is to say, non-academic friends or friends from other academic disciplines - sometimes ask me how the historian goes to work when he writes history.

The commonest assumption appears to be that the historian divides his work into two sharply distinguishable phases or periods. First, he spends a long preliminary period reading his sources and filling his notebooks with facts: then, when this is over, he puts away his sources, fakes out his notebooks and writes his book from beginning to end. This is to me an unconvincing and implausible picture. For myself, as soon as I have got going on a few of what I take to be the capital sources, the itch becomes too strong and I begin to write - not necessarily at the beginning, but somewhere, anywhere. Thereafter, reading and writing go on simultaneously. The writing is added to, subtracted from, re-shaped, cancelled, as I go on reading. The reading is guided and directed and made fruitful by the writing: the more I write, the more I know what I am looking for, the better I understand the significance and relevance of what I find. Some historians probably do all this preliminary writing in their head without using pen, paper, or typewriter, just as some people play chess in their heads without recourse to board and chessmen: this is a talent which I envy but cannot emulate. But I am convinced that, for any historian worth the name, the two processes of what economists' call 'input' and 'output' go on simultaneously and are, in practice, parts of a single process. If you try to separate them, or to give one priority over the other, you fall into one of two heresies. Either you write scissors-and-paste history without meaning or significance; or you write propaganda or historical fiction, and merely use facts of the past to embroider a kind of writing which has nothing to do with history.

Our examination of the relation of the historian to the facts of history finds us, therefore, in an apparently precarious situation, navigating delicately between the Scylla of an untenable theory of history as an objective compilation of facts, of the unqualified primacy of fact over interpretation, and the Charybdis of an equally untenable theory of history as the subjective product of the mind of the historian who establishes the facts of history and masters them through the process of interpretation, between a view of history having the centre of gravity in the past and a view having the centre of gravity in the present. But our situation is less precarious than it seems. We shall encounter the same dichotomy of fact and interpretation again in these lectures in other guises - the particular and the general, the empirical and the theoretical, the objective and the subjective. The predicament of the historian is a reflexion of the nature of man. Man, except perhaps in earliest infancy and in extreme old age, is not totally involved in his environment and unconditionally subject to it. On the other hand, he is never totally independent of it and its unconditional master.

The relation of man to his environment is the relation of the historian to his theme. The historian is neither the humble slave nor the tyrannical master of Ids facts. The relation between the historian and his facts is one of equality, of give-and-take. As any working historian knows, if he stops to reflect what he is doing as he thinks and writes, the historian is engaged on a continuous process of moulding his facts to his interpretation and his interpretation to his facts. It is impossible to assign primacy to one over the other.

The historian starts with a provisional selection of facts, and a provisional interpretation in the light of which that selection has been made - by others as well as by himself. As he works, both the interpretation and the selection and ordering of facts undergo subtle and perhaps partly unconscious changes, through the reciprocal action of one or the other. And this reciprocal action also involves reciprocity between present and past, since the historian is part of the present and the facts belong to the past. The historian and the facts of history are necessary to one another. The historian without his facts is rootless and futile; the facts without their historian are dead and meaningless. My first answer therefore to the question 'What is history?' is that it is a continuous process of interaction between the historian and his facts, an unending dialogue between the present and the past.

Level IV

Descriptive ★☆☆☆☆
Analytical ★★★★★
Persuasive ★★★★★
Critical ★★★★★

THE USE OF KNOWLEDGE IN SOCIETY

Hayek, F. A. (1945). The use of knowledge in society. *The American economic review*, *35*(4), 519-530.

I.

What is the problem we wish to solve when we try to construct a rational economic order? On certain familiar assumptions the answer is simple enough. *If* we possess all the relevant information, *if* we can start out from a given system of preferences, and *if* we command complete knowledge of available means, the problem which remains is purely one of logic. That is, the answer to the question of what is the best use of the available means is implicit in our assumptions. The conditions which the solution of this optimum problem must satisfy have been fully worked out and can be stated best in mathematical form: put at their briefest, they are that the marginal rates of substitution between any two commodities or factors must be the same in all their different uses.

This, however, is emphatically *not* the economic problem which society faces. And the economic calculus which we have developed to solve this logical problem, though an important step toward the solution of the economic problem of society, does not yet provide an answer to it. The reason for this is that the "data" from which the economic calculus starts are never for the whole society "given" to a single mind which could work out the implications and can never be so given.

The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate "given" resources — if "given" is taken to mean given to a single mind which deliberately solves the problem set by these "data." It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality.

This character of the fundamental problem has, I am afraid, been obscured rather than illuminated by many of the recent refinements of economic theory, particularly by many of the uses made of mathematics. Though the problem with which I want primarily to deal in this paper is the problem of a rational economic organization, I shall in its course be led again and again to point to its close connections with certain methodological questions. Many of the points I wish to make are indeed conclusions toward which diverse paths of reasoning have unexpectedly converged. But, as I now see these problems, this is no accident. It seems to me that many of the current disputes with regard to both economic theory and economic policy have their common origin in a misconception about the nature of the economic problem of society. This misconception in turn is due to an erroneous transfer to social phenomena of the habits of thought we have developed in dealing with the phenomena of nature.

II.

In ordinary language we describe by the word "planning" the complex of interrelated decisions about the allocation of our available resources. All economic activity is in this sense planning; and in any society in which many people collaborate, this planning, whoever does it, will in some measure have to be based on knowledge which, in the first instance, is not given to the planner but to somebody else, which somehow will have to be conveyed to the planner. The various ways in which the knowledge on which people base their plans is communicated to them is the crucial problem for any theory explaining the economic process, and the problem of what is the best way of utilizing knowledge initially dispersed among all the people is at least one of the main problems of economic policy — or of designing an efficient economic system.

The answer to this question is closely connected with that other question which arises here, that of who is to do the planning. It is about this question that all the dispute about "economic planning" centers. This is not a dispute about whether planning is to be done or not. It is a dispute as to whether planning is to be done centrally, by one authority for the whole economic system, or is to be divided among many individuals. Planning in the specific sense in which the term is used in contemporary controversy necessarily means central planning — direction of the whole economic system according to one unified plan. Competition, on the other hand, means decentralized planning by many separate persons. The halfway house between the two, about which many people talk but which few like when they see it, is the delegation of planning to organized industries, or, in other words, monopoly.

Which of these systems is likely to be more efficient depends mainly on the question under which of them we can expect that fuller use will be made of the existing knowledge. And this, in turn, depends on whether we are more likely to succeed in putting at the disposal of a single central authority all the knowledge which ought to be used but which is initially dispersed among many different individuals, or in conveying to the individuals such additional knowledge as they need in order to enable them to fit their plans with those of others.

III.

It will at once be evident that on this point the position will be different with respect to different kinds of knowledge; and the answer to our question will therefore largely turn on the relative importance of the different kinds of knowledge; those more likely to be at the disposal of particular individuals and those which we should with greater confidence expect to find in the possession of an authority made up of suitably chosen experts. If it is today so widely assumed that the latter will be in a better position, this is because one kind of knowledge, namely, scientific knowledge, occupies now so prominent a place in public imagination that we tend to forget that it is not the only kind that is relevant. It may be admitted that, as far as scientific knowledge is concerned, a body of suitably chosen experts may be in the best position to command all the best knowledge available — though this is of course merely shifting the difficulty to the problem of selecting the experts. What I wish to point out is that, even assuming that this problem can be readily solved, it is only a small part of the wider problem.

Today it is almost heresy to suggest that scientific knowledge is not the sum of all knowledge. But a little reflection will

show that there is beyond question a body of very important but unorganized knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place. It is with respect to this that practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active cooperation. We need to remember only how much we have to learn in any occupation after we have completed our theoretical training, how big a part of our working life we spend learning particular jobs, and how valuable an asset in all walks of life is knowledge of people, of local conditions, and of special circumstances. To know of and put to use a machine not fully employed, or somebody's skill which could be better utilized, or to be aware of a surplus stock which can be drawn upon during an interruption of supplies, is socially quite as useful as the knowledge of better alternative techniques. And the shipper who earns his living from using otherwise empty or half-filled journeys of tramp-steamers, or the estate agent whose whole knowledge is almost exclusively one of temporary opportunities, or the *arbitrageur* who gains from local differences of commodity prices, are all performing eminently useful functions based on special knowledge of circumstances of the fleeting moment not known to others.

It is a curious fact that this sort of knowledge should today be generally regarded with a kind of contempt and that anyone who by such knowledge gains an advantage over somebody better equipped with theoretical or technical knowledge is thought to have acted almost disreputably. To gain an advantage from better knowledge of facilities of communication or transport is sometimes regarded as almost dishonest, although it is quite as important that society make use of the best opportunities in this respect as in using the latest scientific discoveries. This prejudice has in a considerable measure affected the attitude toward commerce in general compared with that toward production. Even economists who regard themselves as definitely immune to the crude materialist fallacies of the past constantly commit the same mistake where activities directed toward the acquisition of such practical knowledge are concerned — apparently because in their scheme of things all such knowledge is supposed to be "given." The common idea now seems to be that all such knowledge should as a matter of course be readily at the command of everybody, and the reproach of irrationality leveled against the existing economic order is frequently based on the fact that it is not so available. This view disregards the fact that the method by which such knowledge can be made as widely available as possible is precisely the problem to which we have to find an answer.

IV.

If it is fashionable today to minimize the importance of the knowledge of the particular circumstances of time and place, this is closely connected with the smaller importance which is now attached to change as such. Indeed, there are few points on which the assumptions made usually only implicitly by the "planners" differ from those of their opponents as much as with regard to the significance and frequency of changes which will make substantial alterations of production plans necessary. Of course, if detailed economic plans could be laid down for fairly long periods in advance and then closely adhered to, so that no further economic decisions of importance would be required, the task of drawing up a comprehensive plan governing all economic activity would be much less formidable.

It is, perhaps, worth stressing that economic problems arise always and only in consequence of change. So long as things

continue as before, or at least as they were expected to, there arise no new problems requiring a decision, no need to form a new plan. The belief that changes, or at least day-to-day adjustments, have become less important in modern times implies the contention that economic problems also have become less important. This belief in the decreasing importance of change is, for that reason, usually held by the same people who argue that the importance of economic considerations has been driven into the background by the growing importance of technological knowledge.

Is it true that, with the elaborate apparatus of modern production, economic decisions are required only at long intervals, as when a new factory is to be erected or a new process to be introduced? Is it true that, once a plant has been built, the rest is all more or less mechanical, determined by the character of the plant, and leaving little to be changed in adapting to the ever-changing circumstances of the moment?

The fairly widespread belief in the affirmative is not, as far as I can ascertain, borne out by the practical experience of the businessman. In a competitive industry at any rate — and such an industry alone can serve as a test — the task of keeping cost from rising requires constant struggle, absorbing a great part of the energy of the manager. How easy it is for an inefficient manager to dissipate the differentials on which profitability rests, and that it is possible, with the same technical facilities, to produce with a great variety of costs, are among the commonplaces of business experience which do not seem to be equally familiar in the study of the economist. The very strength of the desire, constantly voiced by producers and engineers, to be allowed to proceed untrammeled by considerations of money costs, is eloquent testimony to the extent to which these factors enter into their daily work.

One reason why economists are increasingly apt to forget about the constant small changes which make up the whole economic picture is probably their growing preoccupation with statistical aggregates, which show a very much greater stability than the movements of the detail. The comparative stability of the aggregates cannot, however, be accounted for — as the statisticians occasionally seem to be inclined to do — by the "law of large numbers" or the mutual compensation of random changes. The number of elements with which we have to deal is not large enough for such accidental forces to produce stability. The continuous flow of goods and services is maintained by constant deliberate adjustments, by new dispositions made every day in the light of circumstances not known the day before, by *B* stepping in at once when *A* fails to deliver. Even the large and highly mechanized plant keeps going largely because of an environment upon which it can draw for all sorts of unexpected needs; tiles for its roof, stationery for its forms, and all the thousand and one kinds of equipment in which it cannot be self-contained and which the plans for the operation of the plant require to be readily available in the market.

This is, perhaps, also the point where I should briefly mention the fact that the sort of knowledge with which I have been concerned is knowledge of the kind which by its nature cannot enter into statistics and therefore cannot be conveyed to any central authority in statistical form. The statistics which such a central authority would have to use would have to be arrived at precisely by abstracting from minor differences between the things, by lumping together, as resources of one kind, items which differ as regards location, quality, and other particulars, in a way which may be very significant for the specific decision. It follows from this that central planning based on statistical information by its nature cannot take direct account of these circumstances of time and place and that the central planner will have to find some way or other in which the decisions depending on them can be left to the "man on the spot."

V.

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders. We must solve it by some form of decentralization. But this answers only part of our problem. We need decentralization because only thus can we insure that the knowledge of the particular circumstances of time and place will be promptly used. But the "man on the spot" cannot decide solely on the basis of his limited but intimate knowledge of the facts of his immediate surroundings. There still remains the problem of communicating to him such further information as he needs to fit his decisions into the whole pattern of changes of the larger economic system.

How much knowledge does he need to do so successfully? Which of the events which happen beyond the horizon of his immediate knowledge are of relevance to his immediate decision, and how much of them need he know?

There is hardly anything that happens anywhere in the world that might not have an effect on the decision he ought to make. But he need not know of these events as such, nor of all their effects. It does not matter for him why at the particular moment more screws of one size than of another are wanted, why paper bags are more readily available than canvas bags, or why skilled labor, or particular machine tools, have for the moment become more difficult to obtain. All that is significant for him is how much more or less difficult to procure they have become compared with other things with which he is also concerned, or how much more or less urgently wanted are the alternative things he produces or uses. It is always a question of the relative importance of the particular things with which he is concerned, and the causes which alter their relative importance are of no interest to him beyond the effect on those concrete things of his own environment.

It is in this connection that what I have called the "economic calculus" proper helps us, at least by analogy, to see how this problem can be solved, and in fact is being solved, by the price system. Even the single controlling mind, in possession of all the data for some small, self-contained economic system, would not — every time some small adjustment in the allocation of resources had to be made — go explicitly through all the relations between ends and means which might possibly be affected. It is indeed the great contribution of the pure logic of choice that it has demonstrated conclusively that even such a single mind could solve this kind of problem only by constructing and constantly using rates of equivalence (or "values," or "marginal rates of substitution"), *i.e.*, by attaching to each kind of scarce resource a numerical index which cannot be derived from any property possessed by that particular thing, but which reflects, or in which is condensed, its significance in view of the whole means-end structure. In any small change he will have to consider only these quantitative indices (or "values") in which all the relevant information is concentrated; and, by adjusting the quantities one by one, he can appropriately rearrange his dispositions without having to solve the whole puzzle *ab initio* or without needing at any stage to survey it at once in all its ramifications.

Fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to coördinate the separate actions of different people in the same way as subjective values help the individual to coördinate the parts of his plan. It is worth contemplating for a moment a very simple and commonplace instance of the action of the

price system to see what precisely it accomplishes. Assume that somewhere in the world a new opportunity for the use of some raw material, say, tin, has arisen, or that one of the sources of supply of tin has been eliminated. It does not matter for our purpose — and it is very significant that it does not matter — which of these two causes has made tin more scarce. All that the users of tin need to know is that some of the tin they used to consume is now more profitably employed elsewhere and that, in consequence, they must economize tin. There is no need for the great majority of them even to know where the more urgent need has arisen, or in favor of what other needs they ought to husband the supply. If only some of them know directly of the new demand, and switch resources over to it, and if the people who are aware of the new gap thus created in turn fill it from still other sources, the effect will rapidly spread throughout the whole economic system and influence not only all the uses of tin but also those of its substitutes and the substitutes of these substitutes, the supply of all the things made of tin, and their substitutes, and so on; and all this without the great majority of those instrumental in bringing about these substitutions knowing anything at all about the original cause of these changes. The whole acts as one market, not because any of its members survey the whole field, but because their limited individual fields of vision sufficiently overlap so that through many intermediaries the relevant information is communicated to all. The mere fact that there is one price for any commodity — or rather that local prices are connected in a manner determined by the cost of transport, etc. — brings about the solution which it is just conceptually possible might have been arrived at by one single mind possessing all the information which is in fact dispersed among all the people involved in the process.

VI.

We must look at the price system as such a mechanism for communicating information if we want to understand its real function — a function which, of course, it fulfils less perfectly as prices grow more rigid. Even when quoted prices have become quite rigid, however, the forces which would operate through changes in price still operate to a considerable extent through changes in the other terms of the contract. The most significant fact about this system is the economy of knowledge with which it operates, or how little the individual participants need to know in order to be able to take the right action. In abbreviated form, by a kind of symbol, only the most essential information is passed on and passed on only to those concerned. It is more than a metaphor to describe the price system as a kind of machinery for registering change, or a system of telecommunications which enables individual producers to watch merely the movement of a few pointers, as an engineer might watch the hands of a few dials, in order to adjust their activities to changes of which they may never know more than is reflected in the price movement.

Of course, these adjustments are probably never "perfect" in the sense in which the economist conceives of them in his equilibrium analysis. But I fear that our theoretical habits of approaching the problem with the assumption of more or less perfect knowledge on the part of almost everyone has made us somewhat blind to the true function of the price mechanism and led us to apply rather misleading standards in judging its efficiency. The marvel is that in a case like that of a scarcity of one raw material, without an order being issued, without more than perhaps a handful of people knowing the cause, tens of thousands of people whose identity could not be ascertained by months of investigation, are made to use the material or its products more sparingly; *i.e.*, they move in the right direction. This is enough of a marvel even if, in a constantly changing world, not all will hit it off so perfectly that their profit rates will always be maintained at the same constant or "normal" level.

I have deliberately used the word "marvel" to shock the reader out of the complacency with which we often take the working of this mechanism for granted. I am convinced that if it were the result of deliberate human design, and if the people guided by the price changes understood that their decisions have significance far beyond their immediate aim, this mechanism would have been acclaimed as one of the greatest triumphs of the human mind. Its misfortune is the double one that it is not the product of human design and that the people guided by it usually do not know why they are made to do what they do. But those who clamor for "conscious direction" — and who cannot believe that anything which has evolved without design and even without our understanding it should solve problems which we should not be able to solve consciously — should remember this: The problem is precisely how to extend the span of our utilization of resources beyond the span of the control of any one mind; and therefore, how to dispense with the need of conscious control, and how to provide inducements which will make the individuals do the desirable things without anyone having to tell them what to do.

The problem which we meet here is by no means peculiar to economics but arises in connection with nearly all truly social phenomena, with language and with most of our cultural inheritance, and constitutes really the central theoretical problem of all social science. As Alfred Whitehead has said in another connection, "It is a profoundly erroneous truism, repeated by all copy-books and by eminent people when they are making speeches, that we should cultivate the habit of thinking what we are doing. The precise opposite is the case. Civilization advances by extending the number of important operations which we can perform without thinking about them." This is of profound significance in the social field. We make constant use of formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess. We have developed these practices and institutions by building upon habits and institutions which have proved successful in their own sphere and which have in turn become the foundation of the civilization we have built up.

The price system is just one of those formations which man has learned to use though he is still very far from having learned to make the best use of it after he had stumbled upon it without understanding it. Through it not only a division of labor but also a coördinated utilization of resources based on an equally divided knowledge has become possible. The people who like to deride any suggestion that this may be so usually distort the argument by insinuating that it asserts that by some miracle just that sort of system has spontaneously grown up which is best suited to modern civilization. It is the other way round: man has been able to develop that division of labor on which our civilization is based because he happened to stumble upon a method which made it possible. Had he not done so, he might still have developed some other, altogether different, type of civilization, something like the "state" of the termite ants, or some other altogether unimaginable type. All that we can say is that nobody has yet succeeded in designing an alternative system in which certain features of the existing one can be preserved which are dear even to those who most violently assail it — such as particularly the extent to which the individual can choose his pursuits and consequently freely use his own knowledge and skill.

VII.

It is in many ways fortunate that the dispute about the indispensability of the price system for any rational calculation in

a complex society is now no longer conducted entirely between camps holding different political views. The thesis that without the price system we could not preserve a society based on such extensive division of labor as ours was greeted with a howl of derision when it was first advanced by von Mises twenty-five years ago. Today the difficulties which some still find in accepting it are no longer mainly political, and this makes for an atmosphere much more conducive to reasonable discussion. When we find Leon Trotsky arguing that "economic accounting is unthinkable without market relations"; when Professor Oscar Lange promises Professor von Mises a statue in the marble halls of the future Central Planning Board; and when Professor Abba P. Lerner rediscovers Adam Smith and emphasizes that the essential utility of the price system consists in inducing the individual, while seeking his own interest, to do what is in the general interest, the differences can indeed no longer be ascribed to political prejudice. The remaining dissent seems clearly to be due to purely intellectual, and more particularly methodological, differences.

A recent statement by Professor Joseph Schumpeter in his *Capitalism, Socialism, and Democracy* provides a clear illustration of one of the methodological differences which I have in mind. Its author is pre-eminent among those economists who approach economic phenomena in the light of a certain branch of positivism. To him these phenomena accordingly appear as objectively given quantities of commodities impinging directly upon each other, almost, it would seem, without any intervention of human minds. Only against this background can I account for the following to me startling pronouncement. Professor Schumpeter argues that the possibility of a rational calculation in the absence of markets for the factors of production follows for the theorist "from the elementary proposition that consumers in evaluating ('demanding') consumers' goods *ipso facto* also evaluate the means of production which enter into the production of these goods."

Taken literally, this statement is simply untrue. The consumers do nothing of the kind. What Professor Schumpeter's *"ipso facto"* presumably means is that the valuation of the factors of production is implied in, or follows necessarily from, the valuation of consumers' goods. But this, too, is not correct. Implication is a logical relationship which can be meaningfully asserted only of propositions simultaneously present to one and the same mind. It is evident, however, that the values of the factors of production do not depend solely on the valuation of the consumers' goods but also on the conditions of supply of the various factors of production. Only to a mind to which all these facts were simultaneously known would the answer necessarily follow from the facts given to it. The practical problem, however, arises precisely because these facts are never so given to a single mind, and because, in consequence, it is necessary that in the solution of the problem knowledge should be used that is dispersed among many people.

The problem is thus in no way solved if we can show that all the facts, *if* they were known to a single mind as we hypothetically assume them to be given to the observing economist, would uniquely determine the solution; instead we must show how a solution is produced by the interactions of people each of whom possesses only partial knowledge. To assume all the knowledge to be given to a single mind in the same manner in which we assume it to be given to us as the explaining economists is to assume the problem away and to disregard everything that is important and significant in the real world.

That an economist of Professor Schumpeter's standing should thus have fallen into a trap which the ambiguity of the term "datum" sets to the unwary can hardly be explained as a simple error. It suggests rather that there is something fundamentally wrong with an approach which habitually disregards an essential part of the phenomena with which we have to deal: the unavoidable imperfection of man's knowledge and the consequent need for a process by which knowledge is constantly communicated and acquired. Any approach, such as that of much of mathematical economics with its

simultaneous equations, which in effect starts from the assumption that people's *knowledge* corresponds with the objective *facts* of the situation, systematically leaves out what is our main task to explain. I am far from denying that in our system equilibrium analysis has a useful function to perform. But when it comes to the point where it misleads some of our leading thinkers into believing that the situation which it describes has direct relevance to the solution of practical problems, it is high time that we remember that it does not deal with the social process at all and that it is no more than a useful preliminary to the study of the main problem.

MINDS, BRAINS, AND PROGRAMS

Searle, J. R. (1980). Minds, brains, and programs. *Behavioral and brain sciences*, *3*(3), 417-424.

What psychological and philosophical significance should we attach to recent efforts at computer simulations of human cognitive capacities? In answering this question, I find it useful to distinguish what I will call "strong" AI from "weak" or "cautious" AI (Artificial Intelligence). According to weak AI, the principal value of the computer in the study of the mind is that it gives us a very powerful tool. For example, it enables us to formulate and test hypotheses in a more rigorous and precise fashion. But according to strong AI, the computer is not merely a tool in the study of the mind; rather, the appropriately programmed computer really is a mind, in the sense that computers given the right programs can be literally said to understand and have other cognitive states. In strong AI, because the programmed computer has cognitive states, the programs are not mere tools that enable us to test psychological explanations; rather, the programs are themselves the explanations.

I have no objection to the claims of weak AI, at least as far as this article is concerned. My discussion here will be directed at the claims I have defined as those of strong AI, specifically the claim that the appropriately programmed computer literally has cognitive states and that the programs thereby explain human cognition. When I hereafter refer to AI, I have in mind the strong version, as expressed by these two claims.

I will consider the work of Roger Schank and his colleagues at Yale (Schank & Abelson 1977), because I am more familiar with it than I am with any other similar claims, and because it provides a very clear example of the sort of work I wish to examine. But nothing that follows depends upon the details of Schank's programs. The same arguments would apply to Winograd's SHRDLU (Winograd 1973), Weizenbaum's ELIZA (Weizenbaum 1965), and indeed any Turing machine simulation of human mental phenomena.

Very briefly, and leaving out the various details, one can describe Schank's program as follows: the aim of the program is to simulate the human ability to understand stories. It is characteristic of human beings' story-understanding capacity that they can answer questions about the story even though the information that they give was never explicitly stated in the story. Thus, for example, suppose you are given the following story:

-A man went into a restaurant and ordered a hamburger. When the hamburger arrived, it was burned to a crisp, and the man stormed out of the restaurant angrily, without paying for the hamburger or leaving a tip." Now, if you are asked -Did the man eat the hamburger?" you will presumably answer, ' No, he did not.' Similarly, if you are given the following story: '-A man went into a restaurant and ordered a hamburger; when the hamburger came he was very pleased with it; and as he left the restaurant he gave the waitress a large tip before paying his bill," and you are asked the question, -Did the man eat the hamburger? -' you will presumably answer, -Yes, he ate the hamburger." Now Schank's machines can similarly answer questions about restaurants in this fashion. To do this, they have a representation of the sort of information that human beings have about restaurants, which enables them to answer such questions as those above, given these sorts of stories. When the machine is given the story and then asked the question, the machine will print out answers of the sort that we would expect human beings to give if told similar stories. Partisans of strong AI claim that in this question and answer sequence the machine is not only simulating a human ability but also

FOCUS QUESTION

1. Identify the target theory against which the author was arguing.

2. State the main thesis of the author in one sentence.

3. Please do a little research on “Turing Test” and try to answer the following question:

   a) What is a Turing Test?

   b) What philosophical doctrine motivates the Turing Test?

   c) How is Turing Test related to this paper by Searle?

FOCUS QUESTION

1. How does the author argue for his thesis?

2. What is his argument?

1. that the machine can literally be said to understand the story and provide the answers to questions, and

2. that what the machine and its program do explains the human ability to understand the story and answer questions about it.

Both claims seem to me to be totally unsupported by Schank's' work, as I will attempt to show in what follows.

One way to test any theory of the mind is to ask oneself what it would be like if my mind actually worked on the principles that the theory says all minds work on. Let us apply this test to the Schank program with the following Gedankenexperiment. Suppose that I'm locked in a room and given a large batch of Chinese writing. Suppose furthermore as is indeed the case that I know no Chinese, either written or spoken, and that I'm not even confident that I could recognize Chinese writing as Chinese writing distinct from, say, Japanese writing or meaningless squiggles. To me, Chinese writing is just so many meaningless squiggles.

Now suppose further that after this first batch of Chinese writing, I am given a second batch of Chinese script together with a set of rules for correlating the second batch with the first batch. The rules are in English, and I understand these rules as well as any other native speaker of English. They enable me to correlate one set of formal symbols with another set of formal symbols, and all that 'formal' means here is that I can identify the symbols entirely by their shapes. Now suppose also that I am given a third batch of Chinese symbols together with some instructions, again in English, that enable me to correlate elements of this third batch with the first two batches, and these rules instruct me how to give back certain Chinese symbols with certain sorts of shapes in response to certain sorts of shapes given me in the third batch. Unknown to me, the people who are giving me all of these symbols call the first batch "a script," they call the second batch a "story. ' and they call the third batch "questions." Furthermore, they call the symbols I give them back in response to the third batch "answers to the questions." and the set of rules in English that they gave me, they call "the program."

Now just to complicate the story a little, imagine that these people also give me stories in English, which I understand, and they then ask me questions in English about these stories, and I give them back answers in English. Suppose also that after a while I get so good at following the instructions for manipulating the Chinese symbols and the programmers get so good at writing the programs that from the external point of view that is, from the point of view of somebody outside the room in which I am locked -- my answers to the questions are absolutely indistinguishable from those of native Chinese speakers. Nobody just looking at my answers can tell that I don't speak a word of Chinese.

Let us also suppose that my answers to the English questions are, as they no doubt would be, indistinguishable from those of other native English speakers, for the simple reason that I am a native English speaker. From the external point of view -- from the point of view of someone reading my "answers" -- the answers to the Chinese questions and the English questions are equally good. But in the Chinese case, unlike the English case, I produce the answers by manipulating uninterpreted formal symbols. As far as the Chinese is concerned, I simply behave like a computer; I perform computational operations on formally specified elements. For the purposes of the Chinese, I am simply an instantiation of the computer program.

Now the claims made by strong AI are that the programmed computer understands the stories and that the program in some sense explains human understanding. But we are now in a position to examine these claims in light of our thought experiment.

1. As regards the first claim, it seems to me quite obvious in the example that I do not understand a word of the Chinese stories. I have inputs and outputs that are indistinguishable from those of the native Chinese speaker, and I can have any formal program you like, but I still understand nothing. For the same reasons, Schank's computer understands nothing of any stories. whether in Chinese. English. or whatever. since in the Chinese case the computer is me. and in cases where the computer is not me, the computer has nothing more than I have in the case where I understand nothing.

2. As regards the second claim, that the program explains human understanding, we can see that the computer and its program do not provide sufficient conditions of understanding since the computer and the program are functioning, and there is no understanding. But does it even provide a necessary condition or a significant contribution to understanding? One of the claims made by the supporters of strong AI is that when I understand a story in English, what I am doing is exactly the same -- or perhaps more of the same -- as what I was doing in manipulating the Chinese symbols. It is simply more formal symbol manipulation that distinguishes the case in English, where I do understand, from the case in Chinese, where I don't. I have not demonstrated that this claim is false, but it would certainly appear an incredible claim in the example. Such plausibility as the claim has derives from the supposition that we can construct a program that will have the same inputs and outputs as native speakers, and in addition we assume that speakers have some level of description where they are also instantiations of a program.

On the basis of these two assumptions we assume that even if Schank's program isn't the whole story about understanding, it may be part of the story. Well, I suppose that is an empirical possibility, but not the slightest reason has so far been given to believe that it is true, since what is suggested though certainly not demonstrated -- by the example is that the computer program is simply irrelevant to my understanding of the story. In the Chinese case I have everything that artificial intelligence can put into me by way of a program, and I understand nothing; in the English case I understand everything, and there is so far no reason at all to suppose that my understanding has anything to do with computer programs, that is, with computational operations on purely formally specified elements. As long as the program is defined in terms of computational operations on purely formally defined elements, what the example suggests is that these by themselves have no interesting connection with understanding. They are certainly not sufficient conditions, and not the slightest reason has been given to suppose that they are necessary conditions or even that they make a significant contribution to understanding.

Notice that the force of the argument is not simply that different machines can have the same input and output while operating on different formal principles -- that is not the point at all. Rather, whatever purely formal principles you put into the computer, they will not be sufficient for understanding, since a human will be able to follow the formal principles without understanding anything. No reason whatever has been offered to suppose that such principles are necessary or even contributory, since no reason has been given to suppose that when I understand English I am operating with any formal program at all.

Well, then, what is it that I have in the case of the English sentences that I do not have in the case of the Chinese sentences? The obvious answer is that I know what the former mean, while I haven't the faintest idea what the latter mean. But in what does this consist and why couldn't we give it to a machine, whatever it is? I will return to this question later, but first I want to continue with the example.

FOCUS QUESTION

1. Identify the first objection that the author is expecting.

2. How does the author reply to this objection?

I have had the occasions to present this example to several workers in artificial intelligence, and, interestingly, they do not seem to agree on what the proper reply to it is. I get a surprising variety of replies, and in what follows I will consider the most common of these specified along with their geographic origins.

But first I want to block some common misunderstandings about "understanding": in many of these discussions one finds a lot of fancy footwork about the word "understanding." My critics point out that there are many different degrees of understanding; that "understanding" is not a simple two-place predicate; that there are even different kinds and levels of understanding, and often the law of excluded middle doesn't even apply in a straightforward way to statements of the form "x understands y; that in many cases it is a matter for decision and not a simple matter of fact whether x understands y; and so on. To all of these points I want to say: of course, of course. But they have nothing to do with the points at issue. There are clear cases in which "understanding' literally applies and clear cases in which it does not apply; and these two sorts of cases are all I need for this argument I understand stories in English; to a lesser degree I can understand stories in French; to a still lesser degree, stories in German; and in Chinese, not at all. My car and my adding machine, on the other hand, understand nothing: they are not in that line of business. We often attribute "understanding" and other cognitive predicates by metaphor and analogy to cars, adding machines, and other artifacts, but nothing is proved by such attributions. We say, "The door knows when to open because of its photoelectric cell," "The adding machine knows how) understands how to, is able to do addition and subtraction but not division," and "The thermostat perceives chances in the temperature."

The reason we make these attributions is quite interesting, and it has to do with the fact that in artifacts we extend our own intentionality; our tools are extensions of our purposes, and so we find it natural to make metaphorical attributions of intentionality to them; but I take it no philosophical ice is cut by such examples. The sense in which an automatic door "understands instructions" from its photoelectric cell is not at all the sense in which I understand English. If the sense in which Schank's programmed computers understand stories is supposed to be the metaphorical sense in which the door understands, and not the sense in which I understand English, the issue would not be worth discussing. But Newell and Simon (1963) write that the kind of cognition they claim for computers is exactly the same as for human beings. I like the straightforwardness of this claim, and it is the sort of claim I will be considering. I will argue that in the literal sense the programmed computer understands what the car and the adding machine understand, namely, exactly nothing. The computer understanding is not just like my understanding of German partial or incomplete; it is zero.

Now to the replies:

FOCUS QUESTION

1. Identify the second objection that the author is expecting here.

2. How does author reply to this objection?

The systems reply (Berkeley). "While it is true that the individual person who is locked in the room does not understand the story, the fact is that he is merely part of a whole system, and the system does understand the story. The person has a large ledger in front of him in which are written the rules, he has a lot of scratch paper and pencils for doing calculations, he has 'data banks' of sets of Chinese symbols. Now, understanding is not being ascribed to the mere individual; rather it is being ascribed to this whole system of which he is a part."

My response to the systems theory is quite simple: let the individual internalize all of these elements of the system. He memorizes the rules in the ledger and the data banks of Chinese symbols, and he does all the calculations in his head. The individual then incorporates the entire system. There isn't anything at all to the system that he does not encompass. We can even get rid of the room and suppose he works outdoors. All the same, he understands nothing of the Chinese, and a

fortiori neither does the system, because there isn't anything in the system that isn't in him. If he doesn't understand, then there is no way the system could understand because the system is just a part of him.

Actually I feel somewhat embarrassed to give even this answer to the systems theory because the theory seems to me so implausible to start with. The idea is that while a person doesn't understand Chinese, somehow the conjunction of that person and bits of paper might understand Chinese. It is not easy for me to imagine how someone who was not in the grip of an ideology would find the idea at all plausible. Still, I think many people who are committed to the ideology of strong AI will in the end be inclined to say something very much like this; so let us pursue it a bit further. According to one version of this view, while the man in the internalized systems example doesn't understand Chinese in the sense that a native Chinese speaker does because, for example, he doesn't know that the story refers to restaurants and hamburgers, etc., still "the man as a formal symbol manipulation system" really does understand Chinese. The subsystem of the man that is the formal symbol manipulation system for Chinese should not be confused with the subsystem for English.

So there are really two subsystems in the man; one understands English, the other Chinese, and "it's just that the two systems have little to do with each other." But, I want to reply, not only do they have little to do with each other, they are not even remotely alike. The subsystem that understands English assuming we allow ourselves to talk in this jargon of "subsystems" for a moment knows that the stories are about restaurants and eating hamburgers, he knows that he is being asked questions about restaurants and that he is answering questions as best he can by making various inferences from the content of the story, and so on. But the Chinese system knows none of this. Whereas the English subsystem knows that "hamburgers" refers to hamburgers, the Chinese subsystem knows only that "squiggle squiggle" is followed by "squoggle squoggle." All he knows is that various formal symbols are being introduced at one end and manipulated according to rules written in English, and other symbols are going out at the other end.

The whole point of the original example was to argue that such symbol manipulation by itself couldn't be sufficient for understanding Chinese in any literal sense because the man could write "squoggle squoggle" after "squiggle squiggle" without understanding anything in Chinese. And it doesn't meet that argument to postulate subsystems within the man, because the subsystems are no better off than the man was in the first place; they still don't have anything even remotely like what the English-speaking man or subsystem has. Indeed, in the case as described, the Chinese subsystem is simply a part of the English subsystem, a part that engages in meaningless symbol manipulation according to rules in English.

Let us ask ourselves what is supposed to motivate the systems reply in the first place; that is, what independent grounds are there supposed to be for saying that the agent must have a subsystem within him that literally understands stories in Chinese? As far as I can tell the only grounds are that in the example I have the same input and output as native Chinese speakers and a program that goes from one to the other. But the whole point of the examples has been to try to show that that couldn't be sufficient for understanding, in the sense in which I understand stories in English, because a person, and hence the set of systems that go to make up a person, could have the right combination of input, output, and program and still not understand anything in the relevant literal sense in which I understand English.

The only motivation for saying there must be a subsystem in me that understands Chinese is that I have a program and I can pass the Turing test; I can fool native Chinese speakers. But precisely one of the points at issue is the adequacy of the Turing test. The example shows that there could be two "systems," both of which pass the Turing test, but only one of which understands; and it is no argument against this point to say that since they both pass the Turing test they must both

understand, since this claim fails to meet the argument that the system in me that understands English has a great deal more than the system that merely processes Chinese. In short, the systems reply simply begs the question by insisting without argument that the system must understand Chinese.

WHAT MARY DIDN'T KNOW

Jackson, F. (1986). What Mary didn't know. *The Journal of Philosophy*, *83*(5), 291-295.

Mary is confined to a black-and-white room, is educated through black-and-white books and through lectures relayed on black-and-white television. In this way she learns everything there is to know about the physical nature of the world. She knows all the physical facts about us and our environment, in a wide sense of "physical" which includes everything in *completed* physics, chemistry, and neurophysiology, and all there is to know about the causal and relational facts consequent upon all this, including of course functional roles. If physicalism is true, she knows all there is to know. For to suppose otherwise is to suppose that there is more to know than every physical fact, and that is just what physicalism denies.

Physicalism is not the noncontroversial thesis that the actual world is largely physical, but the challenging thesis that it is entirely physical. This is why physicalists must hold that complete physical knowledge is complete knowledge simpliciter. For suppose it is not complete: then our world must differ from a world, *W(P)*, for which it is complete, and the difference must be in nonphysical facts; for our world and *W(P)* agree in all matters physical. Hence, physicalism would be false at our world [though contingently so, for it would be true at *W(P)*].

It seems, however, that Mary does not know all there is to know. For when she is let out of the black-and-white room or given a color television, she will learn what it is like to see something red, say. This is rightly described as *learning*—she will not say "ho, hum." Hence, physicalism is false. This is the knowledge argument against physicalism in one of its manifestations. This note is a reply to three objections to it mounted by Paul M. Churchland.

(i) Churchland's first objection is that the knowledge argument contains a defect that "is simplicity itself" (23). The argument equivocates on the sense of "knows about". How so? Churchland suggests that the following is "a conveniently tightened version" of the knowledge argument:

(1) Mary knows everything there is to know about brain states and their properties.

(2) It is not the case that Mary knows everything there is to know about sensations and their properties.

Therefore, by Leibniz's law,

(3) Sensations and their properties brain states and their properties.

Churchland observes, plausibly enough, that the type or kind of knowledge involved in premise 1 is distinct from the kind of knowledge involved in premise 2. We might follow his lead and tag the first "knowledge by description," and the second "knowledge by acquaintance"; but, whatever the tags, he is right that the displayed argument involves a highly dubious use of Leibniz's law.

My reply is that the displayed argument may be convenient, but it is not accurate. It is not the knowledge argument. Take, for instance, premise 1. The whole thrust of the knowledge argument is that Mary before her release does *not* know everything there is to know about brain states and their properties, because she does not know about certain qualia

FOCUS QUESTION

1. Identify the target theory against which the author was arguing.

2. State the thesis of the author in one sentence.

3. Physicalism is an influential branch in philosophy of mind. Please do a little research about physicalism.

   a) Find three reasons why someone would support physicalism.

   b) Find out the names of some of its alternatives.

4. What is the first objections from Churchland?

5. How does the author reply to this objection?

associated with them. What is complete, according to the argument, is her knowledge of matters physical. A convenient and accurate way of displaying the argument is:

(1) ´Mary (before her release) knows everything physical there is to kńow about other people.

(2) ´Mary (before her release) does not know everything there is to kńow about other people (because she *learns* something about them ońher release).

Therefore,

(3) ´There are truths about other people (and herself) which escape the Physicalist story.

What is immediately to the point is not the kind, manner, or type of knowledge Mary has, but *what* she knows. What she knows beforehand is ex hypothesis everything physical there is to know, but is it everything there is to know? That is the crucial question.

Now it is certainly true that Mary will acquire abilities of various kinds after her release. She will, for instance, be able to imagine what seeing red is like, be able to remember what it is like, and be able to understand why her friends regarded her as so deprived something which, until her release, had always mystified her. But is it plausible that that is *all* she will acquire? Suppose she received a lecture on skepticism about other minds while she was incarcerated. On her release she sees a ripe tomato in normal conditions, and so has a sensation of red. Her first reaction is to say that she now knows more about the kind of experiences others have when looking at ripe tomatoes. She then remembers the lecture and starts to worry. Does she really know more about what their experiences are like, or is she indulging in a wild generalization from one case? In the end she decides she does know, and that skepticism is mistaken even if, like so many of us, she is not sure how to demonstrate its errors. What was she to-ing and froing about—her abilities? Surely not; her representational abilities were a known constant throughout. What else then was she agonizing about than whether or not she had gained factual knowledge of others? There would be nothing to agonize about if ability was *all* she acquired on her release.

I grant that I have no *proof* that Mary acquires on her release, as well as abilities, factual knowledge about the experiences of others—and not just because I have no disproof of skepticism. My claim is that the knowledge argument is a valid argument from highly plausible, though admittedly not demonstrable, premises to the conclusion that physicalism is false. And that, after all, is about as good an objection as one could expect in this area of philosophy.

(ii) Churchland's second objection (24–5) is that there must be something wrong with the argument, for it proves too much. Suppose Mary received a special series of lectures over her black-and-white television from a full-blown dualist, explaining the "laws" governing the behavior of "ectoplasm" and telling her about qualia. This would not affect the plausibility of the claim that on her release she learns something. So, if the argument works against physicalism, it works against dualism too.

My reply is that lectures about qualia over black-and-white television do not tell Mary all there is to know about qualia. They may tell her some things about qualia, for instance, that they do not appear in the physicalist's story, and that the quale we use "yellow" for is nearly as different from the one we use "blue" for as is white from black. But why should it be supposed that they tell her everything about qualia? On the other hand, it is plausible that lectures over black-and-

FOCUS QUESTION

1. What is the second objections from Churchland?

2. How does the author reply to this objection?

white television might in principle tell Mary everything in the physicalist's story. You do not need color television to learn physics or functionalist psychology. To obtain a good argument against dualism attribute dualism; ectoplasm is a bit of fun, the premise in the knowledge argument that Mary has the full story according to physicalism before her release, has to be replaced by a premise that she has the full story according to dualism. The former is plausible; the latter is not. Hence, there is no "parity of reasons" trouble for dualists who use the knowledge argument.

(iii) Churchland's third objection is that the knowledge argument claims "that Mary could not even *imagine* what the relevant experience would be like, despite her exhaustive neuroscientific knowledge, and hence must still be missing certain crucial information" (25), a claim he goes on to argue against.

But…, the knowledge argument claims that Mary would not know what the relevant experience is like. What she could imagine is another matter. If her knowledge is defective, despite being all there is to know according to physicalism, then physicalism is false, whatever her powers of imagination.

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