Bands of young Muslims and other foreigners roamed the suburbs, occasion- 
ally penetrating into the central cities to loot and burn. Slow to respond, society’s institutions for preserving law and order proved incapable of dealing with this new threat. With increasing frequency, property owners fell victim to thieves and kidnappers. The inner cores of many cities became neglected and run down, while taxpayers revolted against the confiscation of their wealth by public officials. As streets, highways and bridges fell into disrepair, the educational system was unable to maintain the standards of earlier years. Traditional religious institutions were no longer able to impose centralized discipline on their followers, who flocked to newer movements. In the political sphere, citizens looked in vain for leaders willing to put aside their personal interests and those of their inner circle in order to govern for the common good.

No, this is not a sequence from a recent newscast or from a science-fiction film portraying our society in the very near future. Rather, it describes Western Europe after the break-up of the Carolingian Empire, during the last half of the ninth century and the first half of the tenth. Yet the parallels between the creative destruction seen at that time and present-day events are quite striking. The similarities suggest that the West has come full circle since the final collapse of the institutions of the Late Roman Empire some 1200 years ago. If we are interested in what lies ahead for us, we might do well to attempt to explain a remarkable series of social, political and economic transformations that have brought us from the Carolingians to the present time.

This book looks at how new communications technologies affect political, social and economic institutions. In an attempt to identify patterns in the process of social change, it focuses on short periods of rapid transformation in the West over the past 1200 years. Yet the situations we will be discussing are so basic to human behavior that you will undoubtedly have experienced them yourself.

WAVES OF DISCONTINUITY

Historians have often divided the history of the West since the fall of Rome into four distinct periods – the Middle Ages, the Early Modern period, the
century from 1815 to 1914 and the twentieth century. For many, the late twentieth century marks the beginning of yet a fifth era, sometimes called postmodern.¹ A feature that distinguishes each of these periods is the relationship between the West and the rest of the world. From one era to the next, it was the West that changed the most dramatically, with the other major areas of civilization suffering the consequences or, after 1500, trying desperately to catch up. Let us consider each of these social revolutions in the West to see what they have in common and how they differ.

In January 1989, East German Party Secretary Erich Honecker predicted that the Berlin Wall would stand for another 50 or 100 years.² However, only ten months later, on the evening of 9 November 1989, the gates in the Berlin Wall were suddenly thrown open to allow free travel across the Iron Curtain for the first time in almost three decades. The event was spontaneous – the result of a minister’s momentary confusion in answering journalists’ questions on live television. Admittedly, pressure for reform had been growing in East Germany. In September, 1989, the Neues Forum was founded by a group of peace activists who called for the rule of law in place of the invasive one-party state.³ In October and the first week in November, there had been demonstrations in Leipzig and other East German cities. Nevertheless, the outpouring of thousands of East Berliners who spilled through Checkpoint Charlie on to the streets of West Berlin on the night of 9–10 November took the East German regime by surprise.

What finally brought down the German Democratic Republic (GDR) was the exodus that followed over the next few weeks and months. It was very much a minority decision, as thousands of skilled East German workers realized that they could do better in the West than in their own country. The socialist country’s leaders quickly realized that to avoid economic chaos, they had no choice but to proceed as quickly as possible with hitherto unthinkable German reunification. Indeed, less than a year after the fall of the Berlin wall, on 3 October 1990, the GDR formally disappeared, and the institutions of the Federal Republic were extended into the eastern part of Germany.

The momentous events of 1989 were not the first occasion on which small groups of citizens acted together to transform Western societies. There had been equally profound upheavals during the first decades of the twentieth century. However, the discontinuity that occurred then was far from spontaneous. During the First World War, there was an unprecedented increase in the power of the state to tax and to determine how resources were allocated in all of the combatant countries. Small groups of officials made decisions previously left to individuals or groups in the private sector. After the war’s end, some of these powers were relinquished,
but the degree of taxation never returned to its prewar levels. The extra resources were now channeled into social welfare programs. In country after country, the state began to provide unemployment insurance, old-age pensions and medical coverage to be paid for by progressive taxation. Prior to the First World War, government expenditures had averaged a modest ten per cent of GNP, a proportion that had been approximately constant in periods of peace for at least a century. The public share of total income then doubled before 1939 and doubled again after the Second World War.\(^4\) The establishment of the welfare state and its extension in some countries to become totalitarianism involved unprecedented control by the state over individuals.

If we look at the three previous centuries (from 1600 to 1900), there had also been two waves of discontinuities in the West. However, the characteristics of these earlier sets of mutations were quite different from those of the twentieth century. It was accepted that the state would play a moderate role in each country’s economic and social affairs. The government’s principal activity during this period was the defense of its territory against invasion by foreign powers and the protection of property rights through the legal system. At issue, rather, was the degree of cultural homogeneity to be allowed within each society.

Was it acceptable to have multiple allegiances within a single society? At the end of the Middle Ages, the answer to this question was certainly yes. The societies of Europe were marked by strong class divisions. Also, many of the civil institutions of these societies were controlled by a powerful transnational organization distinct from the secular state, namely, the Catholic Church. In addition, there were strong regional loyalties reinforced by linguistic differences. Finally, people considered themselves subjects of the hereditary ruler who happened to govern their state.

During the seventeenth and eighteenth centuries, this structure of multiple identities was to a great extent destroyed. As wealthy commoners purchased titles or used their wealth to obtain power and influence, the distinctions between the social classes became blurred. As for religion, either the Catholic Church was brought under firm state control or it was replaced by weaker institutions subservient to the state. Common national vernaculars overrode regional dialects. Finally, in a series of great political upheavals, the citizens of three nations – England, the United States and France – each established their collective sovereignty.

Although these momentous events were spread out over a century and a half, there was a common theme. Absolutism was swept away in each case, to be replaced by constitutional regimes under a set of rules that in principle all accepted. Britain and France were now governed by hereditary monarchs who ruled with the consent of elected assemblies. It was
generally accepted that the right to vote be restricted to white men of above-average income and wealth. Even in the United States, there were property-holding or tax-paying requirements for voting in many states until the 1820s.\(^5\)

This broad consensus in support of national policies set by representative institutions broke apart in a second set of social upheavals in the second and third quarters of the nineteenth century. The United States was one of the first to abolish restrictions on the right to vote for white men. Nevertheless, the nation became increasingly divided over the question of slavery. In Europe, the nineteenth century saw the formation of new social classes and political movements that reflected their interests. Great Britain underwent a similar although more peaceful transition to broader democracy in three steps, in 1832, 1867 and 1884.

On the continent, in 1830 and again in 1848, political unrest spread from France to other countries. In the latter year, there was rebellion across much of central Europe, as people took to the streets in Germany, Austria and northern Italy. Just as the ‘Second Empire’ architectural style of the Paris boulevards was imitated with a delay in other major European capitals, so also were the institutions of the liberal state. To prevent social upheaval, those who controlled the political systems of Western states proposed constitutional reforms that diluted their own power and privileges.

The High Middle Ages are almost a millennium away from us in the distant past. However, those who have traveled in Western Europe will be familiar with the Tower of London, Notre Dame in Paris and the great Romanesque cathedrals along the Rhine in central Germany. These structures are reminders of yet another wave of social upheaval that marked the transition from the centralized successor states of the Roman Empire to the decentralized feudal societies of medieval Europe. As we will see in the next chapter, this period has much in common with the one which we are now experiencing.

We see that over the past thousand years, there have been several quite different types of transformation in the West. During the Middle Ages, the turn of the millennium saw a break-up of the centralized kingdoms that had formed as Roman civilization declined. There was no organized movement. Rather, a series of ad hoc contractual arrangements, at first oral and then written, gave rise to a social structure known as feudalism. Only a small faction of the population, namely the most capable warriors, was directly concerned. Accordingly, this mutation, supported by a minority and spontaneous, might be called contractual.

The transition from the medieval to the modern period was also marked by a series of spontaneous upheavals. However, these revolts against a hereditary monarchy to establish more representative governments quickly gained
the support of the great majority of citizens. Examples are the English, American and French (1789) Revolutions. This second type of transformation, majoritarian and spontaneous, could be termed consensual.

In the second and third quarters of the nineteenth century, the previous consensus broke down, as important groups within Western societies threatened to take power into their own hands. To avoid anarchy, the previously dominant groups conceded written constitutions which guaranteed that all – or at least all men – would be represented. These planned but majoritarian mutations, carefully structured by groups that already held power but submitted to the approval of a majority of citizens, deserve the description pre-emptive.

Finally, during the years from 1914 to 1938, troubled citizens ceded to powerful leaders and government bureaucracies unprecedented powers to tax and redistribute income. These planned but minoritarian transformations might be termed a prescriptive mutation.

Where does the recent transition in Eastern Europe fit within this typology? The most recent mutation was characterized by spontaneous upheaval and ended when a minority drafted new codes of conduct that limited state power. In many ways, then, this latest transformation resembles the changes that marked the introduction of feudalism a thousand years earlier and might also be termed a contractual mutation.

In short, each of the five major periods of Western history over the past millennium began with a restructuring of society. The next section will discuss possible explanations for these discontinuous changes.

THEORIES OF REVOLUTION

Can we be more precise about the nature of the transformations in the West over the past millennium? Ekkart Zimmermann has offered a definition of revolution that would probably be accepted by many social historians: ‘A revolution is the successful overthrow of the prevailing elite by a new elite who after having taken over power fundamentally change the social structure and therewith also the structure of authority’. It may be seen that there are three elements to this definition, namely, a rapid, contested transfer of power between elites, a transformation of relations between individuals within the society and a restructuring of political institutions. By this criterion, the rise of feudalism, the formation of nation states, the granting of democratic constitutions, the state takeover of responsibility for social welfare and the sudden collapse of socialism in Eastern Europe all qualify as revolutionary. But what caused these social mutations?
In a recent survey, Jack Goldstone (2001) suggested that over the past half-century there have been three successive generations of theories of revolution, namely, those focusing on institutions, those emphasizing social classes and, more recently, those suggesting factors that alter the probability of state breakdown. With each successive generation of theories, the set of phenomena to be explained has been enlarged.

The first generation of postwar revolutionary theorists emphasized the breakdown of political institutions during periods of technological and economic change. Proponents of this approach focused on the failure of the state to adapt to the demands of important groups within the society during a period of modernization. More generally, Samuel Huntington argued that there were two preconditions for revolution: first, institutions that are too rigid to cope with demands for change, and second, new political groups that aspire to participate in political decisions.7

This approach would seem well-tailored to fit the great revolutions such as the English rebellion of 1642, the French Revolution of 1789 and the Russian October Revolution of 1917. Indeed, the institutional hypothesis perhaps fits too well. It is virtually a tautology to state that regimes have been overthrown when a state’s institutions have proved too inflexible to meet the demands of powerful aspiring groups. The question is whether such a theory can help predict which states will suffer institutional failure, when the break will occur and how the society will change.

A second generation of studies focused on conflict between social classes. In her studies of the French, Russian and Chinese Revolutions, Theda Skocpol (1979, 1986) attributed revolution to structural weaknesses of the state that allowed unfavorable external military or economic shocks to destabilize the social system. Marginal elites such as students, teachers or journalists could then seize power. In Russia, military defeat in the First World War destroyed the tsarist bureaucracy, leaving the poorly-organized peasantry open to exploitation by whoever could seize power in the cities. In China, war also weakened the central regime, but because the urban sector was underdeveloped, revolutionary success came from alliances in the countryside between peasants and the challenging elite.8

For Charles Tilly (1986, 1990) the increased frequency of conflict between social classes after 1500 was the result of changes in the structure of the state that raised the stake in such struggles. The modern period of history, he noted, has been marked by the concentration of power in the nation state and by a general rise in the level of organized violence due to inter-state wars. As a result, the principal ingredients of revolutions have
been taxation to wage war, defeat in war, and the complicity of military leaders in attempts to overthrow existing regimes.

Jack Goldstone (1991) examined the interplay between demographic and environmental forces in generating class conflict. He observed that revolution repeatedly occurred when the majority of a society’s members experienced sharp falls in their real income. Such shocks were likely to occur when population growth strained an economy’s productive capacity, leaving its distribution system vulnerable to climatic disturbances or war. He pointed out that crop failures and high grain prices preceded the revolutions of 1640 in England, and 1789, 1830 and 1848 in France.9

Beginning in the 1970s, as Goldstone (2001, p. 141) noted more recently, there began a series of revolutions that did not fit easily into the frameworks proposed by either the institutional or the social class approaches. The overthrow of the Shah of Iran in 1979, the fall of the Philippines dictatorship in 1986 and the collapse of Communism in Eastern Europe in 1989 all occurred in states that were experiencing favorable external economic and military conditions. Moreover, the political changes were backed by broad alliances that crossed class boundaries.

The most recent generation of studies suggests there can be no general theory of revolution. At the very least, it would appear to be necessary to separate pre-1950 revolutions from the more recent upheavals in the Third World and Eastern Europe. Goodwin’s (2001) inventory of revolutionary movements in the postwar period, Kurzman’s (2004) detailed study of the Iranian revolution and Foran’s (2005) comparison of 36 revolutions in developing countries imply that each instance of social breakdown and the transfer of power between elites is a special case that has its own unique causes and consequences. One can speak only of factors that increase or decrease the probability that a given social and political regime will be able to reproduce itself from one moment to the next. In addition to war and public finance, factors such as religion, ideology, leadership and the expectations of individuals can all play a role in destabilizing regimes.

A common failing of all three generations of revolutionary theory is their inability to explain the differences between the four types of revolution described earlier. Why were some spontaneous and others carefully planned? Why were some the result of actions by a small minority in a society while others received strong majority support? To help answer these questions, the next section points out a remarkable fact that most studies of revolution have overlooked. Each of the major turning points in the history of the West since the fall of Rome has coincided with the introduction of a radically new information technology.
AN ALTERNATIVE APPROACH

A half-century ago, several observers noticed that the waves of social revolution described at the outset of this chapter coincided with the diffusion of new information technologies. But what exactly constitutes a major change in such techniques? In the 1950s, Harold Innis suggested that media may be biased towards either ‘time’ or ‘space’.\(^{10}\) A decade later, Marshall McLuhan spoke of the creation of the ‘global village’ in which ‘Big Brother goes inside’ the mind of each individual.\(^{11}\) Unfortunately, neither author defined these terms precisely enough to allow his hypotheses to be tested. However, recent developments in the theory of information networks allow the possible links between media and social institutions to be expressed with greater precision. The key concepts are scale economies and network effects.

Scale Economies

In the mid-1960s, graduate students in the social sciences began writing theses that required many numerical calculations. On some days, when there were just a few long divisions to do – for example, for a summary table – one could use an electronic calculator that cost a couple of hundred dollars. However, for more complex statistical estimates involving thousands of calculations, one had to go to the university’s computer center to use an IBM 360 mainframe that cost many hundreds of thousands of dollars. On this machine, one first had to write a program in FORTRAN or some other friendly ‘high-level’ language. Once this program had been debugged, each operation required only a tiny fraction of the time and effort that it took by hand on the calculator.

The contrast between doing a small number of calculations on an electronic calculator and a large number on a computer is an example of the presence of scale economies – the extent to which unit costs fall when the volume of production increases. As the quantity of information to be treated rose, the cost of each additional transformation fell. First, however, there was a high initial cost – the financing of a university computer center and the preparation of a computer program for one’s specific needs – that had to be met. It was efficient to use the computer only if one had a large number of computations to do.

In 1981, consumers were introduced to the IBM personal computer, a scaled-down version of the old IBM 360, with 64 kilobytes of random-access memory. After adding a bit of extra computing power, one could easily do statistical tasks that had previously required a mainframe. The difference was that instead of costing several hundred thousand
dollars, the microcomputer sold for $4000. Because of the dramatic fall in
the initial investment, it was now possible for an individual to afford doing
calculations that only a large organization could have financed a decade
earlier. After a decade and a half of innovation, unit costs no longer fell
very much as volume rose; that is, there had been a sharp decrease in the
scale economies of information processing.

Network Effects

The first home computers such as the Apple II and the IBM PC were stand-
alone devices, useful for word processing or computation, but unable to
communicate electronically with one another. Network effects – the gain to
other users when an additional person bought a similar machine – were very
low. However, a useful accessory soon available for home computers was the
modem. Thanks to this marvelous device, one could subscribe to an
electronic data service and buy the most recent economic statistics to be
delivered electronically over the telephone line to one’s computer. Electronic
data transfer, formerly limited to large organizations with mainframe com-
puters, was now open to individuals in their own homes. Nevertheless, as
there were still relatively few individuals and firms linked to the internet, the
connections to the existing subscriber base were still of low value to each
subscriber. In other words, network effects were positive but modest.

Then in the 1980s, commercial internet providers such as Compuserve
and Quantum (later America Online) began offering electronic mail,
chat groups and on-line games to their customers in the United States.
Many, many people began buying modems. By the late 1980s Western
European universities, firms and government agencies were linked to their
North-American counterparts through the internet. In the early 1990s,
individual households in Western Europe began to get internet access. Over
the decade, as the number of internet users grew and the software to link
them improved, there occurred a great increase in the importance of
network effects – the rise in the value of a network to existing members
when a new participant joins.

We see, then, that the revolutionary changes in Eastern Europe that began
in 1989 were preceded by a remarkable fall in the importance of scale
economies in information processing and a simultaneous rise in network
effects. Using these concepts, we may perhaps better understand the terms
used by an earlier generation of media analysts. Innis’s ‘bias’ toward time
and space may be expressed in terms of the relative importance of scale
economies. When they were considerable, as with the Roman alphabet
and centrally-manufactured papyrus, regimes tried to dominate an extended
territory. However, when scale economies were low, as with locally-produced
parchment during the Middle Ages, there were many political units concerned with transmitting knowledge and wealth across generations.\textsuperscript{13} Similarly, McLuhan’s distinction between the individualism of eighteenth-century ‘typographic man’ and the ‘electronic interdependence’ of the mid-twentieth-century ‘global village’ may be expressed as the effect of a decrease in network effects. The introduction of the telegraph, radio and television transformed a society of freely interacting individuals into a mass audience throbbing unconsciously to a common rhythm.\textsuperscript{14}

Our task in the following chapters will be to see whether at the beginning of each period in the West over the past millennium a new technology altered the importance of informational scale economies relative to network effects and if so, whether the revolutionary social changes that defined the new era were related to the diffusion of this innovation. Unfortunately, there will not be enough space to do more than hint about how spillovers from these diffusion processes have affected social structures in the Third World.

**OUTLINE OF THE BOOK**

One of the limitations of earlier studies of media – such as those of Innis and McLuhan – is their focus on causality in a single direction – from information technology to social structure. However, new media themselves are not created spontaneously: they are generated at specific times by individuals living in particular societies trying to solve certain problems. To be complete, our analysis must pay as much attention to the effects of social institutions on the innovation process as to the impact of innovations themselves on social behavior. Our proposed study should therefore have two components. First, we should explore the origin of innovations in information technology. Second, we should study the diffusion of the resulting techniques and their social effects. Analytically, then, it is convenient to divide each of the major periods in the history of the West into two phases, one explaining how a new information technology came to be developed and a second describing the impact of its diffusion.

In his study, *Capitalism Socialism and Democracy*, first published in 1942, the Austrian economist Joseph Schumpeter warned that the introduction of a major new technology would be followed by an initial phase of ‘creative destruction’. Firms using earlier techniques would see their markets eroded and many would consequently perish in the ‘perennial gale’. For example, the introduction of the railroad destroyed the jobs of many workers whose livelihoods depended on intercity transport by horse-drawn carriage. However, as the diffusion of the new technology
progressed, there would be a second phase in which new relationships were formed. Invariably, in the longer term, the value of total output would rise and the society as a whole would benefit.\textsuperscript{15} Let us call this second phase in the revolutionary cycle ‘wrenching rebirth’.

The structure of the present book, with alternating chapters of creative destruction and wrenching rebirth, fits this Schumpeterian pattern. In the period from 800 to 1950, there were four sets of profound change in information technology in the West. Each altered the existing balance between scale economies and network effects. For each set of media breakthroughs, the book offers an initial chapter devoted to the innovation and the creative destruction it caused. The following chapter then describes how a new social structure formed. The ninth chapter in the book presents the latest innovation and the perturbations that its diffusion is presently causing.

The most convenient way to organize the material is by means of a series of questions, two for each of the four types of revolution and a final question for the recurrence of one of these types. Here, then, is a preview of the following nine chapters, each a case study of a revolutionary new information technology’s development or diffusion.

\textbf{The Contractual Revolution}

1. \textbf{Why did the Carolingian Empire collapse?}

Under Charlemagne, the Franks controlled an empire that covered a large part of Western Europe – Belgium, the Netherlands, Luxembourg, France, Germany and most of Italy, the original six members of the European Union. Yet within a century of his death in 814, this enormous state had broken up into dozens of autonomous petty kingdoms, duchies and counties. The usual explanation has been the invasion of Western Europe by Muslims, Vikings and Magyars.\textsuperscript{16} Yet the brunt of these attacks came after 841, when the Empire had already broken up.

We will explore another approach. During the last two decades of Charlemagne’s reign, there occurred a standardization of the Latin language used at the royal court and in the monasteries. This standardization made possible a considerable increase in literacy, thereby reducing the fixed cost of a scriptorium and raising network externalities. Might there be a link between the emergence of Medieval Latin and the break-up of the Carolingian Empire?

2. \textbf{Why were the Normans able to conquer and hold on to the Kingdom of England?}

Beginning in the eleventh century, William the Conqueror and his descendants, unlike the Romans and the Danes before them, successfully
invaded and maintained their conquest of England. Indeed, the present queen, Elizabeth II, is a direct descendant of Duke William. How could Normandy, with only 400,000 inhabitants, succeed in a sea-borne invasion of an island kingdom with four times its population? The usual explanation is that William’s success was an accident. Barely two weeks before Hastings, the Anglo-Saxon army had fought and won a battle against another invader and his English allies.\textsuperscript{17} However, it is difficult to believe that the fate of a country for a millennium depended upon the outcome of a single battle.

We shall see that the conquest took place shortly after the appearance on the continent of a convention that governed relations between a military leader and the mounted knights who followed him. Under what became known as feudalism, the followers and their heirs received permanent title to landed property. In exchange, they and their dependents were expected to provide the leader with annual military service. These changes in turn occurred during a period of a steady increase in the number of clergy and laymen able to read and write in a recently standardized form of the Latin language. Could the defeat of the Anglo-Saxon shield wall at Hastings in 1066 be connected with the diffusion of literacy in Medieval Latin across the English Channel and the accompanying spread of feudalism?

The Consensual Revolution

3. Why did Luther’s movement to reform the practice of Christianity succeed where the earlier attempts of John Wycliffe and Jan Hus had failed?

In 1415 the Church succeeded in stamping out heresy by setting fire to John Wycliffe’s books and by burning Jan Hus himself at the stake. However, in 1450, Pope Nicholas V authorized the sale of letters of indulgence in Germany to finance the defense of Cyprus against the Turks. The production of these letters marked the first recorded use of Gutenberg’s printing press. In 1517, this same invention was used to diffuse Luther’s 95 theses attacking the sale of the letters of indulgence. Although Luther was undermining both the spiritual and the financial foundations of the Catholic Church, his ideas survived all attempts of the Church and its allies to suppress them.

The most frequent explanation for the success of the Protestant Reformation has been the popular rejection of growing secularization of the Church during the fifteenth century, indulgences being one example.\textsuperscript{18} Yet as Diarmaid MacCulloch has recently observed, Luther himself considered the indulgences to be a minor issue.\textsuperscript{19} Not only did Luther use the printing press but he also translated the Bible into German and insisted
that all boys and girls be taught to read the scriptures. Might the Reformation’s success be linked rather to the spread of literacy in the vernacular?

4. Why did Charles I of England lose his kingdom – and his head?

In 1611, King James I authorized the publication of a standardized English Bible, the result of seven years of labor by a royal commission. His heir, Charles I, followed his father’s example by ruling over England for a long period without summoning parliament to approve his decisions. However, this time Parliament rebelled. In the 1640s, the king lost two civil wars against parliamentary armies and was subsequently executed. The usual explanation for the defeat of the Stuart monarchy refers to the character of the king. By his intransigence, his duplicity and his belief in the use of force to settle disputes, he incurred the wrath of his subjects. However, neither the parliamentary leader, Oliver Cromwell, nor his eventual Stuart successor, James II, was able to impose personal rule on the English.

In 1688, William III, the Dutch stadtholder, was invited to take the throne provided that he accept the sovereignty of an elected legislature. When he and his wife Mary II signed the Bill of Rights, the elected Parliament was finally supreme. This remarkable expansion of the number of people participating in political decisions came at the end of a process of linguistic transformation. Over the course of the seventeenth century, the percentage of adult men able to read and write almost doubled, approaching the 50 per cent level. At the same time, written English became standardized, with present-day English emerging by the end of the seventeenth century. Was the diffusion of literacy in this standardized language somehow related to these tumultuous political events?

The Pre-emptive Revolution

5. Why did the British Parliament pass the Great Reform Bill of 1832?

By the early nineteenth century, although Parliament was sovereign, it was far from representative of Great Britain’s male population. At the beginning of 1832, only one adult male in eight was eligible to vote. However, in that year, the relatively small number of people who controlled political decisions suddenly agreed to dilute their power by eliminating ‘rotten boroughs’ and increasing the electorate by 50 per cent. Most historians would probably agree with Simon Schama that the reform was designed to pre-empt the type of revolution that France had experienced in 1830. But why extend the right to vote in 1832 and not a quarter-century earlier or later?

Was it a coincidence that the preceding three decades had seen the first important improvements in the printing press since the days of Gutenberg?
First had come the all-metal Stanhope press and then the steam-powered Koenig press. Between 1780 and 1835, total stamped newspaper circulation more than doubled, rising from 14 million to 31 million despite crippling taxes that the Tory government placed on newspapers. In addition, by the early 1830s, there were numerous unstamped popular periodicals, some of them selling from 10,000 to 30,000 copies a week.²²

6. Why did the Northern states not let the Deep South secede in April 1861?
By the beginning of April 1861, seven states in the Deep South had seceded. However, North Carolina and the Border States were still in the Union. Newly inaugurated president Abraham Lincoln then made a fateful decision. He sent ships without munitions to supply Fort Sumter, the federal stronghold that controlled access to the harbor of Charleston, South Carolina. This step led South Carolina to open fire on the fort – the opening shot in the Civil War. When Lincoln called for volunteers to maintain the Union, four other states seceded. But why did Lincoln refuse to abandon Fort Sumter? Why not simply let the defenders of the Union fort surrender peacefully and then try to make some accommodation with the rebelling states? Twice before, in 1820 and in 1850, compromise had preserved the Union. Why was the North so intransigent this time? The textbook answer is that Lincoln sent provisions to Fort Sumter because he felt it his duty as president to uphold the law of his country.²³ But were the lives of the soldiers who would die in the conflict that his decision provoked less valuable than the title to federal property?

Could the answer somehow be related to the tremendous expansion in newspaper readership and the great acceleration in the flow of information that had occurred over the preceding two decades?

The Prescriptive Revolution

7. Why did the United States declare war on Spain in 1898?
In 1896, William McKinley became the first American political leader to master the art of campaigning through the mass media. At the beginning of his second year in office, on 27 March 1898, McKinley sent Spain an ultimatum that he hoped would end three years of fighting between Cuban rebels and the Spanish army. Spain over the following two weeks agreed to comply with the essential terms of McKinley’s note, declaring an immediate armistice, abandoning its concentration camps and accepting autonomy for the Cuban legislature. Nevertheless, the president on 11 April sent a war message to Congress. The House and Senate then passed a resolution demanding Spain’s immediate withdrawal from Cuba, in effect declaring war.
Was the American decision made simply because Spain’s concessions were too little too late, as some have argued? In the ensuing war, the United States inflicted a severe defeat on Spain. Although it then allowed Cuba to become an independent republic, it retained rights to the Guantánamo Bay Naval Base. In addition the US insisted on maintaining control of Puerto Rico, Guam and the Philippine Islands. Indeed, the American army subsequently fought a two-year war against a Philippine insurrection in order to establish its hold on the islands. These two wars marked the beginning of American military intervention beyond the North American continent and the founding of an American empire. Might the sudden belligerence of a nation that had previously opposed colonialism since its inception somehow be related to a circulation war that was raging between two American newspaper magnates?

8. Why did the United Kingdom enter the First World War?
In 1908, British Liberal ministers Winston Churchill and David Lloyd George both visited Germany, scoffing at the possibility of war between the two countries. In that same year Alfred Harmsworth, Lord Northcliffe, purchased The Times, thereby obtaining control of 40 per cent of the London daily press. Northcliffe had been predicting war with Germany since the turn of the century. Six years after these events, on Saturday 1 August 1914, Germany and Austria declared war on Russia. The following Tuesday, German armies invaded Belgium and Luxembourg, which lay on their route into northern France.

Britain was not directly threatened and need not have intervened. Indeed, a majority of the ruling Liberal Party’s MPs were against war. However, Churchill and Lloyd George convinced their cabinet colleagues not only to declare war on the central powers but also to send an expeditionary force to northern France. The two ministers were not alone in their enthusiasm for war. Almost three million British men volunteered for military service. One in five would be killed in battle. Niall Ferguson has argued that Britain’s intervention to aid France was the result of decade-long planning by ‘a minority of generals, diplomats and politicians’. However, on the eve of the war, Britain’s foreign secretary, Sir Edward Grey, in a critical conversation with the German ambassador, referred to the pressure of public opinion. Might the channeling of information through a few mass-circulation newspapers help explain this extraordinary willingness to sacrifice?

Another Contractual Revolution

9. Was there a connection between 11/9 and 9/11?
On the night of 9 November 1989, East German authorities opened the border crossings between East and West Berlin for the first time in over
28 years. Within a few weeks, the Berlin Wall had been broken into pieces for souvenir sellers and the German Democratic Republic’s one-party regime had ceased to exist. Then on 7 August of the following year, the first contingents of American troops arrived in Saudi Arabia to defend that nation from a threatened invasion by Iraq, which had just seized Kuwait. At that time, Osama bin Laden, a wealthy Saudi who had participated in the Afghan victory over the Soviet Union in the 1980s, resolved to do all he could to rid Islamic lands of the hated infidels. Twelve years later came the 11 September 2001 attacks on the World Trade Center and the Pentagon.

Most people would fail to see any link between the two key events that marked the transition to the new millennium. However, as Thomas Friedman has pointed out, in recruiting for, planning and financing the 9/11 attacks, the al-Qaeda movement made use of the latest electronic technologies. Moreover, in losing its monopoly over the public distribution of information, the East German government on 9 November 1989 was also a victim of this wave of innovation. Might there be a technological link between 9/11 and 11/9?

In the concluding chapter, we will discuss why information revolutions have been followed by, to quote Zimmerman once again, ‘the successful overthrow of the prevailing elite by a new elite who after having taken over power fundamentally change the social structure’. We will see that on a much smaller scale, similar mutations in group behavior were the surprising outcomes of two controlled experiments in psychology. Indeed, careful examination of these experiments will perhaps enable us to understand the relationship between major changes in information technology and the revolutions that have featured so prominently in what William McNeill called the Rise of the West. First, however, there are nine stories to be told.

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