

Revolutions in Communication

Media History from Gutenberg
to the Digital Age



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Section 1

The Printing Revolution

Introduction to Section I

We should notice the force, effect, and consequences of inventions, which are nowhere more conspicuous than in those three which were unknown to the ancients; namely, printing, gunpowder, and the compass. For these three have changed the appearance and state of the whole world; first in literature, then in warfare, and lastly in navigation: and innumerable changes have been thence derived, so that no empire, sect, or star, appears to have exercised a greater power and influence on human affairs than these mechanical discoveries. (Francis Bacon—Novum Organum, 1620)

Introduction

The printing revolution was *the* pivotal development in history, the turning point in the transition between the Medieval and modern worlds.

Beginning in 1455, printing technology spread quickly over Europe and played a central role in the great sweep of events that followed—the rediscovery of classical cultures during the Renaissance, the Protestant Reformation, the Enlightenment and the political revolutions from the 1600s to the twenty-first century. Printing allowed the spread of knowledge and challenges to authority by enabling mass communication among people who had previously been linked only by personal and small group communication.

The industrialization of media technologies in the nineteenth century—including the telegraph and steam-powered printing—created the opportunity for larger audiences and new institutions to serve them. Publisher Joseph Medill once compared early newspapers to little sailboats along an almost empty shore. But he boasted that by the mid-1800s, the press had become very much like a large ocean-going ship, “a proud steamer, bidding defiance to the tempests, laden with the mails and commerce of the world” (Brendon, 1983, p. 68).

Industrial media institutions continued in nearly the same form, if not always the same corporations, through the nineteenth and twentieth centuries. Digital media diminished their role during the twenty-first century by decreasing the cost of

information and the relative value of the product as well, transforming the business so much that, by the early twenty-first century, the proud old steamers of the press were foundering in the digital typhoon.

The question, of course, is why. We study history not only to appreciate the people of the past, but also as a guide to the possibilities of the future, as Thucydides advised. We should approach the history of communication with this in mind, especially now that new earth-shaking communications revolutions are having force and effect today. According to a 1998 Rand Corp. report:

The 21st century communications revolution may turn out to be every bit as dramatic, and entail similarly revolutionary and contradictory consequences, as the 15th century revolution. Some of these consequences may be just as beneficial, some just as unintended, and some just as socially damaging. Most will be well upon us before they are fully appreciated. (Dewar, 1998)

In this section on the Printing Revolution, we will compress over 500 years of publishing into three chapters in order to take the broadest possible view of media history. Chapter 1 covers the early printing revolution up to 1814. Chapter 2 describes the industrial media revolution in the nineteenth century and Chapter 3 describes the rise and fall of print media in the twentieth century. Naturally, there will be omissions, and readers are encouraged to use this as a starting point, and to follow links and suggestions for further reading, or to make their own suggestions for further exploration online at this book's website.

Before the printing revolution: pre-wired for oral culture

Printing was the first *mass* medium in human history, but long before printing, and even long before writing, people communicated in what is called an oral culture.

We know that humans had language skills for hundreds of thousands of years. Psychologists have shown that humans are born with a natural capacity for language while most other species have little capacity for anything beyond a few basic signals. (Cetaceans may be an exception; see Mercado, 2005.) Even the language abilities of primates such as chimpanzees and apes have been limited to several hundred idea symbols, as opposed to the virtually unlimited horizon of communication we enjoy. Studies comparing human and primate language abilities using functional Magnetic Resonance Imaging (fMRI) have shown that the human brain has special segments devoted to language (Wolf, 2008). In other words, we are “pre-wired” to talk and communicate.

On the other hand, reading and writing have to be learned. Unlike language, reading is not pre-wired in the human brain, and until the printing revolution in the 1450s, most reading took place among a very narrow elite in scholarly, religious or government institutions. Thus, most human beings, for nearly all of their natural history, communicated their songs, folklore, history and traditions within an oral culture.

Oral cultures can accurately transmit important information from generation to generation, but these abilities are subject to the limitations of a culture and human memory. This is not well understood today, and a good example of our modern misunderstanding is the children's game called "telephone," in which a message is whispered from one person to another person until it goes around a room. The message invariably gets garbled—sometimes with hilarious results—when the starting message and the final message are compared. But when it is important, historical information can be accurately transmitted down through generations within oral cultures. For example, American author Alex Haley was able to discover an oral record of his ancestors in Africa, and his search is described in the now-classic book, *Roots: The Saga of an American Family*. Similarly, the *Odyssey* and *Iliad* were originally oral histories of Greek culture that were only written down many centuries after they were composed.

How storytellers and minstrels could memorize such elaborate and lengthy epic poems has always been a subject of controversy, but according to the "theory of oral composition" a storyteller can draw from taproot of millennia—old oral tradition by a combination of improvisation, mnemonic devices and rote memory.

This taproot runs deep in human psychology. Most people need a sense of community, exemplified in oral culture, and some of the world's most poignant literature has shown the impact of its loss. Oliver Goldsmith's 1770 *The Deserted Village* lamented rural virtues lost to the English enclosure acts; Chinua Achebe's 1958 *Things Fall Apart* described the impacts of European colonialism in Africa; Anne Pancake's 2008 *Strange as This Weather Has Been* revealed the social disintegration that accompanies Appalachian mountaintop mining.

This sense of community can be seen as a kind of "tribalism," although that term seems derogatory in a modern context. However, Marshall McLuhan believed that radio created a new oral culture that recovered some of this lost sense of community, for example through the "fireside chats" of national leaders, and that this was a "re-tribalization" of a culture that longed for an older and more community-oriented communications system. Digital visual and aural media may be a relatively new extension of that concept.

Another link to the old oral culture might be the popularity of the "fantasy" genre in cinema, such as *Harry Potter* or *Lord of the Rings*. These movies help recover this sense of connection that was once served by the heroic epics of oral culture (Drout, 2006).

Before the printing revolution: the development of writing

Theorists believe that the step-by-step progression from symbols to a written language was the first real communications revolution because it was a leap forward from a natural ability to a revolutionary new ability. Since this book is focused on mass media, we will not spend a large amount of time on the writing revolution, but we do need to at least take note of what is arguably the first communication revolution in order to set the stage for the profound changes that mass media revolutions have wrought.



Figure 1.1 Monk—writing changed history—Monks and scribes hand-copied books from the dawn of writing 6,000 years ago to the invention of the moveable type and printing in the 1450s. (Illustration by William Blades, 1891, Wikimedia Commons)

Writing grew naturally from the elite in early cultures to the upper and then middle classes in the Greek and Roman empires. Although literacy faded in Europe during what is called the “dark ages,” literacy was nearly universal in other cultures, for example, in Arab nations in the 900–1500 period when great centers of learning flourished from Timbuktu, Mali to Baghdad, Iraq.

Writing, said media scholar Wilbur Schramm, allowed humans to conserve their intellectual resources, save what needed to be saved without having to keep all the details in their heads, and devote their major energies to advancing knowledge. This had enormous effect on human life (Schramm, 1988).

“With language and writing in hand, humans had paid the tuition for their own education,” Schramm said. Mass media, beginning with the printing revolution, would become their open university.

For additional reading, discussion questions, links to video and other suggestions, see www.revolutionsincommunications.com.

1

The printing revolution: from 1455 to 1814

Although the few had books before John Gutenberg gave us our art, not until printing could come learning, yes and wisdom also, knocking at every man's door. (Latin of Cardelius, 1546)

Foundations of the printing revolution

The printing revolution transformed Europe. It “changed the appearance and state of the whole world,” as Francis Bacon said, by providing cheaper, quicker and more accurate communication across once-formidable boundaries of space and time. It was the turning point in the transformation of a backward Medieval region into modern Europe.

Rising literacy, expanding knowledge and growing expectations of Renaissance Europe during the 1400s were the wellsprings of the printing revolution, and the religious and political revolutions that followed were some of the effects.

By accelerating the exchange of ideas and removing the barriers to communication that existed in Medieval society, printing contributed to dialogue as well as confrontation. Like other new communications media, printing helped release the best, and the worst, in human nature.

As a consequence, the European world emerged, in the 1700s, with a new commitment to reason, to tolerance and to freedom—ideals that would emerge again and again in subsequent media revolutions and are still being contested.

Technological context of printing

Most of the technologies involved in printing were already known and being employed in various ways when the printing revolution took place in the 1450s.

Stamps in soft clay had been used as part of the ancient Babylonian accounting system, and metal seals were often impressed into wax to validate official documents

in classical Rome. Wood block printing was widely used in China from the sixth century onward for sacred Buddhist scrolls. Impressions on textiles were known in Europe as early as the 1100s, and the first known woodcuts on paper appeared in Europe around 1400 (Hind, 1963). Presses had been used on farms for centuries to make olive oil and to press grapes into wine.

The increased availability of cheap, portable paper was another factor. Earlier cultures used clay or stone, which tended to be cheap and durable but not flexible or portable. In Asia, silk was available for transmitting and preserving important religious and civil texts, while in Europe, vellum (treated calf hide) and parchment (from sheep or goats) served elite readers. Papyrus, a paper made from plants native to the Nile River in Egypt, was widely used as a less expensive medium, but it was brittle and not as durable as paper.

The technique for making paper from wood or linen rags is said to have originated with Ts'ai Lun, a Chinese monk who observed paper wasps making a nest around 105 CE (Common Era/AD). Cheap paper became widely available around 1400 in Europe and was apparently in surplus by the mid-1400s. One contributing factor may have been the increased number of linen rags from cast-off clothing, which people needed to weather the winters in the Little Ice Age (c.1315–1800).

Historians have observed a small technical leap forward when monasteries began using presses to make impressions on paper or parchment from blocks of wood with raised areas to hold the ink. These woodcut impressions, mostly of religious icons, were offered for sale at fairs and pilgrimages. Books laboriously hand lettered were also becoming more common, and a thriving trade employed thousands of scribes, paper makers, illuminators, leather workers and bookbinders by the early 1400s.

And so, the printing revolution did not occur because one person invented one technology. It occurred when a key technical problem was solved within a supportive business and cultural context. In other words, Gutenberg found the right technology at the right time.

Gutenberg's insight: the original "matrix"

Johannes Gutenberg was a well-educated goldsmith from a politically active family in Mainz, Germany who planned to announce some kind of secret, probably a typesetting technique, at a religious fair in 1439. However, Gutenberg's plans went awry, and a long record of court documents and lawsuits by his investors gives us a somewhat cryptic record of his activities in the years leading up to the printing of the first Bible in 1454. During what was apparently a 15-year period of development, Gutenberg worked on perfecting the key technical problem of mass producing books.

The problem was that wood blocks did not hold up well to thousands of impressions. Although movable type made from wood blocks was widely used in China as early as 1297, Europeans did not adopt wood block type. One reason is that the monastic system of hand copying religious and classical texts served the market well in the early years of the Renaissance. The growing demand for books of all kinds led Gutenberg to consider how to serve the expanding market and make a profit.



Figure 1.1 Johannes Gutenberg: a goldsmith from Mainz, Germany; Gutenberg invented moveable metal type, which could be used many times in the process of mass producing books. (Engraving by Johnson, Fry & Co., 1869, Library of Congress)

Gutenberg's key insight was that individual pieces of "moveable" type could be made from an alloy of lead with tin and antimony. The alloy could be melted using conventional foundries and poured into a "matrix" that held the blanks for the different letters of the alphabet. The type could then be arranged face-up on a form and inked to make an impression on paper. Once the pages were printed, the type could be re-arranged for another set of pages. When the type eventually wore out, it could be melted and recast in the same type foundries.

The secret of movable type may have been discovered elsewhere in Europe around the same time. For example, Laurens Coster of Holland apparently used wooden type and was experimenting with lead type before his death in 1440. But it was Gutenberg who assembled all the necessary ingredients into a workshop that could quickly produce thousands of books.

The very first book printed—the Gutenberg Bible—looked very much like the hand-lettered manuscript books in terms of typographic style, column size, number of lines, selection of initials for decoration and other features (Eisenstein, 1980; Fussel, 2005). However, Gutenberg's printing method meant that the cost was far lower, and that other innovations were now possible.

The drop in the price of making a book gives an idea of the impact of moveable type. In Venice before the advent of printing, a monk might charge one florin for

copying 80 pages of Plato's Dialogues. In 1483, the Ripoli press charged three florins for printing 1,025 copies of the same number of pages.

The secret of moveable type spread quickly as Gutenberg's associates set up printing shops in other cities. By the 1470s, every city in Europe had printing companies. Like other media revolutions to come, the printing revolution regrouped people with older skills and new skills. The older skills included paper making, ink manufacturing, leather working, book binding and book marketing; and the new skills included press work, type setting and foundry type casting. (Similar re-groupings of skills would be seen, for example, in the visual revolution, when portrait painters like Samuel Morse became daguerrotype photographers; in the broadcasting revolution, when theatrical performers and broadcast engineers created radio drama; and in the digital revolution, when journalists and computer hackers created blogs and collaborative civic information systems.)

By 1500s, an estimated four million books were printed and sold, and by 1533, another 18 million more (Smiles, 1867). Among the best sellers were the Bible (with dozens of editions in major cities), Christopher Columbus' reports on his explorations, medical and scientific works, and ancient literary classics from Greece and Rome.

The immediate effect of printing was to allow a rapid expanse of exact duplicates of information that had been laboriously (and often inaccurately) copied by hand. Where knowledge was once difficult to preserve and share, printing allowed standardized knowledge that could be preserved and disseminated rapidly. Old ideas could be contrasted, contradictions revealed and new ideas developed.

At first, the low price of printed books alarmed book retailers who had been selling expensive manuscripts to an elite clientele in the mid-1400s. But then business accelerated, turning retailers into wholesalers, street vendors into bookstore owners, and copiers into publishers.

The significance of Gutenberg's insight into the key technical problem of communication in the Renaissance cannot be overstated, nor can the impacts. He is often considered the most influential figure in modern history (Gottlieb, 2006).

"The printing press precipitated 200 years of chaos, moving from a world where the Catholic church was the organizing political force to the Treaty of Westphalia, where we finally knew what the new unit was—the nation state," said Clay Shirky, a sociologist who has described a close connection between communications revolutions and the collapse of institutions. The digital revolution, considered in Section IV of this book, would lead to similar decades of chaos, Shirky predicted (Shirkey, 2010).

Printing and the Protestant Reformation

Every day in the well-ordered Medieval world, priests in churches would read from the Latin Gospels and interpret the readings in a sermon. Usually there were only a few Bibles in a church, chained to a pulpit, closely guarded as their most valuable possessions. Many ordinary people could read a little, but they did not have much

access to books; libraries were usually for scholars or monks. Only a very rich person could afford to own a Bible, let alone read one regularly. The church had an exclusive monopoly on information, and enforced it efficiently and ruthlessly.

It is significant that the Bible was the first book Gutenberg printed, since Scripture was at the center of the Medieval world. Gutenberg's Bibles were printed in Latin, and printing was initially welcomed as a divine gift, not only for the dissemination of religious knowledge, but also to print pamphlets to rally Christians against invading Turks in the 1450s. Printing also accelerated the church's ability to trade cash for the forgiveness of sins—a practice known as selling “indulgences”—as churches ordered thousands to be printed for the use of priests.

At first, printing seemed to be nothing short of divine intervention, but that impression quickly changed. “There is considerable irony about the enthusiastic reception accorded printing by the church,” said historian Elizabeth Eisenstein. “Heralded on all sides as a ‘peaceful art,’ Gutenberg’s invention probably contributed more to destroying Christian accord and inflaming religious warfare than any of the so-called arts of war ever did” (Eisenstein, 1980).

This “destruction of Christian accord” began to occur when printers translated Latin Bibles into the “vernacular” languages of German, French, English and many other languages. This sudden removal of barriers to religious knowledge had an enormous and unexpected impact. For the first time, ordinary people could read the Bible for themselves. They soon noticed that there was no scriptural support for the idea of the infallibility of the Pope or the sale of indulgences. The spread of low-cost Bibles did not only mean that more religious knowledge would be disseminated, but also that the church lost the exclusive power over that process. With printing, ordinary people could be their own priests and reformers could spark far more serious opposition.

Conflict between the church and reformers was not unusual before the invention of printing. The most significant examples include the Lollard movement of John Wycliffe in England in the late 1300s and the Hussite Movement in the central European city of Prague a generation later. Wycliffe managed to survive until a natural death, but Jan Hus, dean at the University of Prague, was tricked into a meeting with church authorities, arrested and executed in 1415. Books by Wycliffe and Hus were banned, and although their ideas survived, it was only because they were copied by hand and passed from scholar to scholar. (Similar hand made copies would emerge in modern times, such as “samizdats” in the Soviet Union in the 1960s–80s.)

Martin Luther and printing

The impact of the printing press became clear when a monk named Martin Luther famously nailed his “95 Theses” to a church door in Wittenberg, Germany on October 31, 1517. There was nothing terribly dramatic about the act itself—the practice of posting notices by nailing them to doors of churches or other buildings was common—but the 95 Theses were quickly printed and widely distributed. Within a month they were a subject of controversy throughout Europe, and within a few years, an estimated 300,000 copies had been printed. Had the call for reform been copied by hand, as it was for Wycliffe and Hus, it could have been easily suppressed by the church.

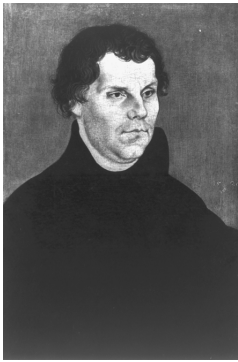


Figure 1.2 Printing sparks Reformation—Martin Luther’s calls for church reforms were nothing new to Europe, but they were amplified by the power of the printing revolution.

The printing press amplified Luther’s voice to an extent that astonished everyone—including Luther. The 95 Theses were in such demand that crowds surged around printing shops, grabbing for pages still wet from the press (Smiles, 1867). “For the first time in history, a great reading public judged the validity of revolutionary ideas through a mass medium which used the vernacular language,” Eisenstein wrote (Eisenstein, 1974).

“Printing was recognized as a new power and publicity came into its own,” said Maurice Gravier. “The printing presses transformed the field of communications and fathered an international revolt” (Eisenstein, 1974). Luther himself described printing as “God’s highest and extremest act of grace,” and his followers began to see the printing press as an agent of freedom, delivering them from bondage to the Roman church and delivering the light of true religion to Germany.

The religious revolt sprang from a few sparks to a fire fanned by the power of the press, spreading rapidly across Europe. A decade after the Lutheran revolt started, the Reformation was well underway across Europe. Under John Calvin’s leadership, Switzerland became something of the European capital of Protestantism, and in England, starting in 1529, King Henry VIII relied on the press to gather public support for a new Protestant church.

The danger of the spreading chaos eventually became clear to church officials. The Catholic Church confronted the Protestant Reformation with a ruthless Counter-Reformation. Thousands were executed simply for owning the wrong version of the Bible. Religious warfare broke out across Europe. In Germany, 25 to 40 percent of the population perished.

In England, as power see-sawed between Protestants and Catholics, cardinal Reginald Pole warned Londoners against reading scripture for themselves: “You should not be your owne masters,” he said. “Household religion” would be “a seed bed of sedition.” The English throne returned to a Catholic in 1553 and “Bloody” Queen Mary I ordered hundreds of executions. When Mary died in 1558, Protestant Queen Elizabeth I took the throne with a promise of religious tolerance. Protestants solidified power with the publication of John Foxe’s *Book of Martyrs* a few years later. The book’s strong emphasis on the cruelties of “Bloody” Mary’s reign, including the execution of Protestant Bishop Thomas Cranmer (Figure 1.3), was designed to turn public opinion away from the Catholic Church and toward the Church of England.

To give an idea of how ordinary people fared during the Counter-Reformation, historian Carlo Ginzburg described the trial of one relatively ordinary but outspoken Italian miller named Menocchio. He was tried and executed for the simple heresy of openly expressing his doubts about religious dogma in 1584 (Ginzburg, 1992). Millions of such cases emerged on both sides of the widening chasm between the Catholic and Protestant churches.

Protestant reformers dogmatically referred to “*sola scriptura*” as the the only authority and then often insisted that they were the only ones who could interpret scripture. All

too often “the rich an varied communal religious experiences of the Middle Ages” were lost as the new authorities demanded obedience. “Open books, in some instances, led to closed minds,” Eisenstein observed (Eisenstein, 1980).

Even the dissidents surprised other dissidents. The breakaway Church of England attempted to suppress Puritan and Scottish Presbyterian dissent well into the mid-1600s, sparking the “Bishops War” in Scotland and encouraging emigration to the new continent of North America.

By the mid-1600s, religious fervor faded, while contests between emerging nation states accelerated. A turning point occurred when French Catholic Cardinal Richelieu formed a political alliance between France and the Protestant states to check the power of the Catholic Spanish-Austrian Hapsburg dynasty in the 1620s. Religious warfare simmered down after the Treaty of Westphalia in 1648, where the major powers of Europe agreed that each king would determine the religion of his own nation.

Religion continued to be an important element in conflicts that continued to plague Europe in the late twentieth century, for example, in Ireland and the Balkans. As Elizabeth Eisenstein said,

We still seem to be experiencing the contradictory effects of a process which fanned the flames of religious zeal and bigotry while fostering a new concern for ecumenical concord and toleration, which fixed linguistic and national divisions more permanently while creating a cosmopolitan Commonwealth of Learning and extending communications networks which have encompassed the entire world. (Eisenstein, 1980)

As the horror of religious warfare declined, the need for religious tolerance became a primary ideal in the minds of Enlightenment thinkers.

The slow emergence of religious tolerance

Although printing plunged Europe into centuries of religious warfare, it also amplified calls for tolerance and reason. In France, Sebastian Castellio (1515–1563) became one of the first proponents of freedom of conscience. “It is unchristian to use arms against those who have been expelled from the Church, and to deny them rights common to all mankind,” he wrote in “Whether heretics should be persecuted,” a



Figure 1.3 Execution of Thomas Cranmer—
Archbishop Thomas Cranmer was burned at the stake at Oxford, England on March 21, 1556 as part of an attempt to stamp out the English Protestant cause. Cranmer was one of the three bishops of Oxford who were executed around this time. Catholic Queen Mary I earned the popular title of “bloody Mary” from the era of repression. (Illustration from Foxe’s Book of Martyrs, Library of Congress)

response to the intolerance of Protestant reformer John Calvin.

A British poet famed for writing *Paradise Lost*, John Milton (1608–1674) matched the idea of religious tolerance to the historical touchstone of the Athenian marketplace, arguing for a “marketplace of ideas” in his 1644 *Areopagitica*.

And though all the winds of doctrine were let loose to play on the earth, so Truth be in the field, we do injuriously by licensing and prohibiting misdoubt her strength. Let her and Falsehood grapple; who ever knew Truth put to the worse in a free and open encounter?

Milton insisted that Truth would win out in a free and fair fight, yet his argument for freedom of conscience did not include “popery” (Catholicism), blasphemy or impiety. In France, Francois Voltaire (1694–1788) railed against “the dreadful folly of religious wars.”

From the outset, the North American Protestant colonies of Virginia, Massachusetts and New York were notoriously intolerant of religious deviance, but at the surprisingly early date of 1649, the Catholic colony of Maryland made religious toleration the official position. Although Maryland’s official tolerance only applied to Christians, and was something of a pragmatic approach for a minority religion in a mostly Protestant set of English colonies, the act is still considered a leap forward for human rights:

Whereas the inforcing of the conscience in matters of Religion hath frequently fallen out to be of dangerous Consequence in those commonwealthes where it hath been practised . . . Be it Therefore . . . enacted . . . that noe person or persons whatsoever within this Province . . . shall from henceforth bee any waies troubled, Molested or discountenanced for, or in respect of, his or her religion nor in the free exercise thereof . . . nor any way compelled to the beliefe or exercise of any other Religion against his or her consent . . .

Tolerance was a large part of the new creed of printing, and it was within this cultural ferment that the Renaissance gave way to the Enlightenment. “From the days of Castellio to those of Voltaire, the printing industry was the principal natural ally of libertarian, heterodox and ecumenical philosophers,” Eisenstein said (Eisenstein, 1980). Printers naturally wanted to expand markets, but the capitalistic motive was not the central point. All Europe was on the move, and “the enterprising publisher was the natural enemy of narrow minds.”

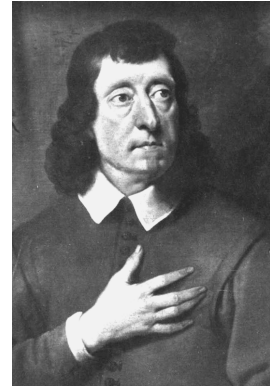


Figure 1.4 Milton’s marketplace of ideas—John Milton argued for tolerance and free speech since, he said, truth would win in the marketplace of ideas. (Library of Congress)



Figure 1.5 Printer and scientist—Benjamin Franklin believed that all sides ought to be heard in the marketplace of ideas. (Library of Congress)

Printers themselves could be instruments of tolerance, as Benjamin Franklin said in his 1731 “Apology for Printers,” when Pennsylvania Quakers reacted to his handling of religious controversy.

Printers are educated in the Belief, that when Men differ in Opinion, both Sides ought equally to have the Advantage of being heard by the Publick; and that when Truth and Error have fair Play, the former is always an overmatch for the latter: Hence they chearfully serve all contending Writers that pay them well, without regarding on which side they are of the Question in Dispute. (Franklin, 1731)

In his 1787 Notes on the State of Virginia, Thomas Jefferson said: “Millions of innocent men, women and children . . . have been burnt, tortured, fined, imprisoned; yet we have not advanced one inch towards uniformity. What has been the effect of (religious) coercion? To make half the world fools, and the other half hypocrites.”

Scientific and technical impacts of the printing revolution

Printing was “the most obvious and probably the most important” element in capturing the scientific and technological revolution from the Renaissance forward. Printing spread news of exploration, descriptions of new technologies, improvements in medicine, insights into astronomy and a host of other discoveries.

“The world before printing was one in which the whole pattern of learning, communicating and storing information was defined by what could be written down or drawn or spoken in a singular and immediate fashion,” wrote historian Robert Friedel. After printing, it was the exact and repeatable message that “carried authority and influence” (Friedel, 2007).

Printing spurred the exploration of physical and mental horizons with the publication of exact maps, charts and astronomical tables. For instance, news of Columbus’ explorations spread rapidly with printing in the 1490s, making him one of the first international heroes, at least, until the genocide in the West Indies was understood (Zinn, 1980). In contrast, the folkloric accounts of Viking landings in North America were little known outside the oral culture of Scandinavian nations.

The power of the press also influenced the way geographic discoveries were understood. The travel journals of Amerigo Vespucci were read by mapmaker Martin Waldseemüller, who believed Vespucci’s idea that the land to the west could not be India, as Columbus claimed. In 1507, a world map called the new



Figure 1.6 Information spread rapidly—a letter by Christopher Columbus, with this engraving, spread rapidly across Europe in the 1490s providing an early demonstration of the power of the press.

continent America. The name, amplified by the new power of the printing press, continues to be used.

The printing press was not as much of an agent of change in the early years of the scientific revolution as it had been in the Protestant Reformation. At first, the focus on publishing books from classical Greek and Roman authorities may have delayed the acceptance of emerging new ideas. Religious intolerance was another factor, and the church's suppression of the heliocentric theories of Nicholas Copernicus and Galileo Gallilei (1564–1642) is an example.

A new trend was evident in a 1556 book by Georgius Agricola (1494–1555), *De Re Metallica*, an exploration of geology, mining and metallurgy, lavishly illustrated. The book set a standard for scientific and technical books that were to come.

Gradually, scientists adopted the printing press as part of their educational and research efforts. For example in Denmark, the astronomical observatory established by Tycho Brahe (1546–1601) included a printing shop to help spread new scientific knowledge. While the church continued suppressing many new ideas, its rear-guard defense of an old way of thinking was doomed by the new media revolution.

As the horizon of knowledge expanded, the role of printing in forming communities became appreciated. Publishers of all kinds of books encouraged readers to help amend the next edition. For instance, mapmakers and medicinal herbalists called on readers to submit notes about plants and coastlines, and send seeds and maps to the publishers. They “called upon the unlearned to contribute to the knowledge of natural history, geography and physics by communicating their observations on birds and flowers, on ebb and flood tide, on celestial phenomena . . . Travellers and mariners especially were invited to do so” (Eisenstein, 1980, p. 236).

Eisenstein attributes the advent of participatory media to both idealistic and commercial motives, but there are parallels to crowdsourcing in the digital age, such as the Wikipedia online encyclopedia with thousandands of volunteer writers. “A new form of data collection was launched in which everyman could play a supporting role,” she wrote.

Political impacts of the printing revolution

One early consequence of the printing revolution was to consolidate the wildly divergent dialects that eventually merged to form modern French, German, English, Italian and other languages. Along with the Bible, many other works were translated into vernacular, leading to a standardized national language.

William Caxton, the first English printer, set up shop at Westminster in 1476 and, among his first efforts were Geoffrey Chaucer's *Canterbury Tales*, excerpts from the Bible and various philosophical tracts, all in English. More translations of the Bible quickly followed: William Tyndale's 1525 New Testament, Henry VIII's Great Bible and the King James I Bible of 1604.

The wide circulation of printed books in the home language created a standard for writing and speaking a language that was, at the time, still highly unsettled. As a result, printing also “created a new instrument of political centralism (that was) previously

unknown,” according to Marshall McLuhan (McLuhan, 1962). Although many other forces combined to create the idea of the modern nation-state, printing was a factor in the mix.

However, just as the printing revolution first enhanced and then challenged the central control of religion, printing also helped amplify challenges to established political thought. “Printing was an active force in history,” said historian Robert Darnton, “when the struggle for power was a struggle for the mastery of public opinion” (Darnton, 1989).



Figure 1.7 Printing in 1560s—this view of a print shop a century after Gutenberg shows a printer placing paper into the tympan, another printer inking the type with soft leather “beaters,” and two typesetters in the background. Printing technology barely changed until the early 1800s.

News in print

The need to hear and share news is universal in human cultures and a central part of what defines a community (Stephens, 2007). Personal news is the first thing most people discuss when they haven’t seen each other in a while. People also want to know the latest events in politics, religion, finance and other areas, whether they are in an oral culture or a literate culture or some blend of the two.

In ancient Rome and China, bureaucrats wrote of political events in the capitals and sent the news out to the provinces. Commercial news letters were produced as early as 131 BCE, and “armies of scribes” were employed to copy, publish and sell books by the thousands (Schramm, 1988). A daily newsletter called the “Acta Diurna” conveyed not only official acts of the Senate but also news of crime, divorce and other items of general interest (Ward, 1996). Intended for both a wide general audience and the upper classes, the Acta Diurna is usually considered the first example of a mass media publication.

Aside from individual correspondence and oral communication, there are few known examples of mass communication in Europe between the fall of the Roman Empire in the 400 AD period to the early Renaissance. Around the 1380s, the emergence of banks and international trading made small group communication necessary, and regular hand written newsletters were copied and sent by messenger.

Book publishing dominated the printing trade after Gutenberg’s invention caught on, but a wide variety of small publications were also available. Book merchants offered a variety of woodblocks and engravings, religious tracts and sermons, exhortations to join a cause, or speeches by monarchs and other public figures.

Four basic kinds of news publications emerged between the late 1500s and early 1700s (Schramm, 1988, p. 153):

- The “relation” was a one-time publication about a single event, for example a battle or a coronation, usually printed on a small single sheet.
- The “coronto,” often sold as a small bound book about news from a foreign country.

- The “diurnal” was a regular publication that covered one subject, typically events in government.
- The “mercury” was a small bound book that would cover events from a single country for six months at a time.

Each of these types of publication can still be found in various forms. For example, a modern day “diurnal” might be the Congressional Record or Federal Register, published by the US government. Industry newsletters from groups like the Bureau of National Affairs might be considered modern day “mercury,” in that they can be assembled, bound by volume and used as reference books in specific industry and regulatory areas.

First newspapers

Johann Carolus, the owner of a French book printing company in Strasbourg, France, had grown tired of copying business newsletters by hand. In 1605, he decided to use the new media to save himself some time and began publishing the first newspaper.

“The copying has been slow and has necessarily taken much time, and since, moreover, I have recently purchased at a high and costly price (a) former printing workshop . . . I have set, printed and published the said advice in my printing workshop.” (Weber, 2006)

Another early newspaper that was closer in form to the modern newspaper was the Dutch *Courante uyt Italien, Duytslandt, &c.* first published in 1618. Holland’s printing industry introduced many other innovations around this time, including the first newspaper advertisements, the first woodcuts in a newspaper, and the first English and French-language newspapers, printed in Amsterdam to evade strict censorship in England and France.

The spread of newspapers and the relationships between printers of various nations is also illustrated by the career of Benjamin Harris, a publisher of small textbooks and Whig reformist tracts in London in the 1670s. From 1679 to 1681, Harris published *Domestick Intelligence, Or News from Both City and Country* in London. He moved to Boston in 1686 and started the London Coffee House, modeled on the coffee houses that were becoming popular in England. He also began publishing small almanacs and textbooks and the first newspaper in the United States, *Publick Occurrences, Both Foreign and Domestick*, in 1690. The newspaper reported on a smallpox epidemic, on atrocities by Indians allied with the British, and some local news items. It had no license and was closed after the first edition. Harris took on some Massachusetts government printing work but decided to return London in 1695, where he founded the *London Post*.

Censorship and freedom of the press

Like most new media, printing was considered dangerous by the political rulers of Europe, and four basic approaches to censorship were put into effect:

- licensing of a printing company itself;
- pre-press approval of each book or edition of a publication;
- taxation and stamps on regular publications; and
- prosecution for sedition against the government or libel of individuals.

In Catholic countries, both state and church censored publications, and in most European nations, no book could be printed or distributed without permission of both the church and the king. The church issued the first Index of Prohibited Books in 1559, and through its control of universities such as the Sorbonne, also controlled all other kinds of publications. The dual system of censorship was widely used in Catholic nations around the world, for example, to prevent the invasion of Protestant ideas in Latin America in subsequent centuries (Newth, 2001).

Protestant nations were also engaged in political censorship. In sixteenth-century England, printing was controlled by licensing through the Stationers Company, and punishment for printing unlicensed material was meted out by the Star Chamber. The punishments included the death penalty for printing treasonous articles, for questioning the Church of England or advocating (or even envisioning) the death of the king.

Naturally, talented printers often moved to nations where they were free to publish, such as Holland and Switzerland, and later, Britain and the United States. Freedom of the press drew thinkers like Rene Descartes, John Locke and many others of the early Enlightenment to the publishing houses of Holland. As astronomer Carl Sagan noted: “Because of its tolerance for unorthodox opinions (Holland) was a haven for intellectuals who were refugees from censorship and thought control elsewhere in Europe—much as the United States benefited enormously by the exodus of intellectuals in the 1930s from . . . Europe” (Sagan, 1980).

Press freedom and the Enlightenment

The ideas that took hold in the new marketplace of ideas came from people like John Locke, Jean Jacques Rousseau, Benjamin Franklin, Thomas Paine and Thomas Jefferson. They insisted that human rights were natural, and not simply handed down by governments or kings. The very structure of government ought to be balanced to allow people to act according to these natural rights, said French philosopher Baron de Montesquieu in arguing for separation of government powers into executive, legislative and judicial branches. This idea, published in *The Spirit of the Laws*, was to form the basis of most nineteenth and twentieth century governments.

In Scotland, philosopher David Hume defended freedom of the press with this logic: “Press freedom can not excite popular tumults or rebellions . . . A man reads a book or pamphlet alone coolly. There is none present from whom he can catch the passion by contagion.”

Sentiment in favor of free speech and free press echoed back and forth across the English Channel and the Atlantic. In London, on February 15, 1721, popular newspaper

columnists John Trenchard and Thomas Gordon, writing under the name of Cato, said:

Without freedom of thought, there can be no such thing as wisdom; and no such thing as public liberty, without freedom of speech: Which is the right of every man, as far as by it he does not hurt and control the right of another; and this is the only check which it ought to suffer, the only bounds which it ought to know. (Trenchard, 1721)

Benjamin Franklin, in his persona as “Silas Dogood,” made the identical comment a year later: “Without Freedom of Thought, there can be no such Thing as Wisdom; and no such Thing as publick Liberty, without Freedom of Speech.” This motto, emblazoned across an entryway to the US Senate, differs only in the placement of a comma from the original by Trenchard and Gordon.

The strongest voice of the French Enlightenment was Francois Voltaire (1694–1778), author of *Candide*, who believed, more than anything else, in toleration, the rule of law and freedom of opinion. In his *Essay on Tolerance*, Voltaire said: “Think for yourselves and let others enjoy the privilege to do so too.” Voltaire also said, in a 1770 letter: “I detest what you write, but I would give my life to make it possible for you to continue to write.” (The idea was later paraphrased as: “I disapprove of what you say, but I shall defend to the death your right to say it.”) (Tallentyre, 1907).

Freedom of the press was among the natural freedoms, and it was among the “first freedoms” that also included religion, speech and assembly to be recognized during the American revolution with the *Virginia Declaration of Rights, of June 12, 1776*, followed by the *Declaration of the Rights of Man and of Citizen, France, August 26, 1789*.

Freedom of the press and religion were also included in the First Amendment of the federal US Constitution, also called the *Bill of Rights*, in 1791. These formed the basis of a modern international understanding of human rights, guaranteed in the United Nations *Universal Declaration of Human Rights, of December. 10, 1948* and the European *Convention for the Protection of Human Rights and Fundamental Freedoms of May 5, 1963*.

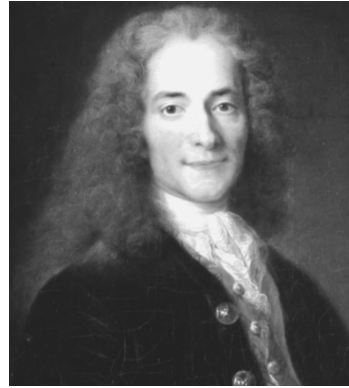


Figure 1.8 Think for yourselves and let others enjoy the privilege—that was the advice of Francois Voltaire, one of the most colorful and insightful of the philosophers from the French Enlightenment period.

Political revolutions

“A tumult of journalists”

The print media has a special relationship to political revolution, but aside from historians of the American revolution, only a few have investigated the idea on a broader basis. (Among these are Roger Chartier, Robert Darnton, Elizabeth Eisenstein, Jeremy D. Popkin and Rolf Reichardt.)

Every revolution had its own unique causes and effects, and historians usually make only weak claims about political revolutions being ignited by broadsides of the 1600s or printed newspapers of the 1700s. Yet, as a working historical hypothesis, the idea that revolutionary changes in media may be followed by changes in the entire structure of society is worth exploring (Billington, 1999).

Revolutionaries from the seventeenth to the twentieth centuries have advocated using the media of their day to advance the political revolutions they created, as historian Jeremy Popkin has pointed out. American revolutionary pamphleteers and publishers were well known as incendiaries. Observers of the French Revolution saw a rapid change in the media before and just after the revolution. Both Lenin and Gandhi began their revolutions by starting newspapers. And the role of various types of media in dozens of other revolutions has been well documented.

The printing press was not the cause of the political revolutions of England, America, France, Russia and other nations, but at the same time, it cannot be ignored as a vehicle. Clearly, the newspaper press, as a new system of communication in Europe, had been turned to the service of political revolution just as the printing of books and religious tracts had been turned to religious reform in previous centuries.

“If a great historical movement such as the Reformation can legitimately said to have started as a quarrel of monks, the (revolution of 1871) was also, in a certain sense, a tumult of journalists,” said historian Aime Dupuy. The same point could have been made about any political revolution (Popkin, 1990).

Political change, as Habermas has argued, is not only marked by a clash of classes or cultures, but is often an outcome of changes in the way people exchange ideas. The period from the seventeenth to the twentieth century was marked by a shift away from authoritarian monopolies over public debate and toward the rise of public opinion, Habermas said. A major factor was the “explosive power” of the periodical press (Habermas, 1991).

English Civil War and the marketplace of ideas

When England’s Parliament broke with the monarchy, starting the English Civil War between 1641 and 1659, a small printing industry quickly expanded with more than 350 periodicals and tens of thousands of other one-off broadsheets, almanacs, ballads, broadsides and other publications (Friedman, 1992).

Both sides—the Royalists and the Parliamentary forces—had newspapers, some of them falsely designed to entrap supporters of the other side. Historian Hiley Ward tells the story of “Parliament Joan,” a woman who pretended to be selling Royalist newspapers so that the buyers could be identified by their sympathies and turned over to Parliamentary forces (Ward, 1996).

John Milton’s 1644 *Areopagitica* (noted above), was one of the few arguments for tolerance. While it had little contemporary impact, the concept of a marketplace of ideas was taken up by others arguing for freedom of conscience and press in the next century.

While both sides vehemently criticized the other, open discussion of political issues within each faction was not possible. Parliament continued the reign of

sedition (seditious libel) continued. Truth was not a defense in such cases, and in fact, truthful criticism was seen as even worse since it more credibly undermined authority. This changed when a New York jury overruled a judge and established truth as a defense in libel of government in 1735.

Seditious libel and John Peter Zenger



Figure 1.9 The cause of liberty—New York editor John Peter Zenger’s lawyer argues before a colonial British court in New York. The Zenger decision was a landmark for freedom of the press in both the American colonies and Britain. (Library of Congress)

A landmark moment in American and British press freedom was the John Peter Zenger trial of 1735. Zenger’s newspaper, the *New York Weekly Journal*, objected to electoral manipulation by an unpopular colonial governor, who responded by charging Zenger with seditious libel, which means defaming the government. At the trial, Andrew Hamilton, a Philadelphia lawyer, gave an eloquent argument to the jury, insisting that truth should be a defense against seditious libel and that the cause of freedom everywhere was at stake.

“The question before the court and you, gentlemen of the jury, is not of small or private concern. It is not the cause of one poor printer, nor of New York alone, which you are now trying. No! It may in its consequence affect every free man that lives under a British government on the main of America. It is the best cause. It is the cause of liberty. And I make no doubt but your upright conduct this day will not only entitle you to the love and esteem of your fellow citizens, but every man who prefers freedom to a life of slavery will bless and honor you as men who have baffled the attempt of tyranny . . .”



The Jury agreed with Hamilton and bravely returned a “not guilty” verdict. The judges, overruled by the jury, were powerless to continue the case since the jury had, in effect, changed the law. The case had far-reaching legal and psychological impact in colonies, to the extent that it was later seen as “the germ of American freedom, the morning star of that liberty which subsequently revolutionized America” (Linder, 2001). And the case was widely accepted as a precedent. Five years later, when *Virginia Gazette* publisher William Parks printed a story about the conviction of a House of Burgesses member for stealing sheep, he was arrested on criminal libel charges. Citing Zenger, he used truth as a defense and was acquitted.

The pre-revolutionary period in America was marked by the rise of printing establishments in every major city in the colonies, and new printers were frequently assisted on liberal terms by Benjamin Franklin, who not only owned a newspaper (the *Pennsylvania Gazette*) but also a paper mill, type foundry and ink factory. It was Franklin’s assessment of Britain’s unwillingness to change that tipped the scales among colonial printers; and the colonial press, in turn, paved the way for the revolution.

“The (American) revolution was effected before the war commenced,” said the second US President, John Adams, writing to editor Hezekiah Niles in 1818. “The revolution was in the minds and hearts of the people, a change in their religious sentiments of their duties and obligations. . . . This radical change in the principles, opinions, sentiments, and affections of the people, was the real American Revolution.”

The most powerful weapons in this struggle were the colonial newspapers, according to historian Mitchell Stephens. During the decade before the outbreak of revolution, newspapers “festooned themselves with polemical woodcuts: divided snakes, death’s heads as mocking substitutes for tax stamps, and coffins designed by Paul Revere to represent the victims of the Boston Massacre” of 1774. Their rhetoric was heated, such as in this line from the *Massachusetts Spy* of 1773: “Shall the island Britain enslave this great continent of America, which is more than ninety nine times bigger, and is capable of supporting hundreds of millions of millions of people? Be astonished, all mankind, at her superlative folly” (Stephens, 2007).

Among the most famous agitators for American independence was Thomas Paine (1736–1809), an Englishman who emigrated to Boston in 1774. Paine’s pamphlet *Common Sense* argued for a complete break with Britain and independence for the American colonies. In *The Crisis, 1776–1777*, Paine famously said:

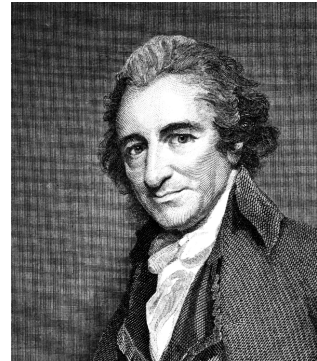


Figure 1.10 “These are the times that try men’s souls”—the words that turned the spark of rebellion into a campaign for American freedom emerged from the pen of Thomas Paine. After independence, Paine became involved in the French Revolution, then returned to the United States at the invitation of the then-president Thomas Jefferson. (Library of Congress)

These are the times that try men's souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of their country; but he that stands by it now, deserves the love and thanks of man and woman. Tyranny, like hell, is not easily conquered; yet we have this consolation with us, that the harder the conflict, the more glorious the triumph. What we obtain too cheap, we esteem too lightly: it is dearness only that gives every thing its value. Heaven knows how to put a proper price upon its goods; and it would be strange indeed if so celestial an article as FREEDOM should not be highly rated.

The success of the American revolution, and the role played by the press, meant that press freedom would be protected by the US Constitution in a way that was unique among nations. The First Amendment, Thomas Jefferson said, was “a great experiment . . . to demonstrate the falsehood of the pretext that freedom of the press is incompatible with orderly government.”

France: the call for freedom and the descent into terror

In the decades before the French Revolution, official censors worked hard to contain the circulation of forbidden books, anti-monarchist booklets and the innumerable pamphlets (called “libeles”) that floated around Paris and the provinces. Baron de Montesquieu had to work in secret on his *Spirit of the Laws*; Denis Diderot was hounded as he worked on his *Encyclopédie*; and *philosophes* François Voltaire and Jean-Jacques Rousseau had to flee the country at various times in their careers. The idea that these writers were being oppressed by small-minded censors seemed like “a flock of eagles submitted to the governance of turkeys” (Darnton 1989).

Not all official sympathies were against them. Diderot was once publicly accused of unpatriotic writing, and his apartments were searched by the same official who had previously arranged to hide Diderot's notes in his own apartment.

Like the American Revolution, the French Revolution was preceded by a shift in public sentiments expressed in the media. “What took place in 1789 could not have occurred as it did without a press or media revolution,” said historian Jeremy Popkin (Popkin, 1995).

A new network of “assemblies and clubs, newspapers, pamphlets, broadsides, songs, and other media . . . closely and intensely tied to events” was in itself a central part of the “democratic culture” of the Revolution (Reichardt, 1988). In other words, the new form of the press was a symbol of the Revolution; the change in medium was part of the revolutionary message.

One of the most interesting moments of the revolution was when journalist Camille Desmoulins (1760–1794) was pushed to the front of an angry mob milling on a Paris street on July 12, 1789.

“I was carried upon a table rather than allowed to mount it. Hardly had I got up on my feet when I saw myself surrounded by an immense crowd. Here is my short speech, which I shall never forget: ‘Citizens! There is not a moment to lose. . . . This evening all the Swiss and German battalions will sally forth from the Champs-de-Mars to cut our throats. We have only one recourse—to rush to arms.’ I had

tears in my eyes, and spoke with a feeling that I have ne'er been able to recapture, no less describe." (Snyder, 1962)

Two days later, Desmoulins helped organize the group that stormed the Bastille, an event commemorated every year as French independence day. Later that month his *La France Libre* was published, stating: "A popular and democratic government is the only constitution which suits France, and all those who are worthy of the name of men." His columns were widely circulated during the early years of the French Revolution, but his denunciation of the revolution's excesses led to his execution in 1794.

During the first decade after the French Revolution, about 350 newspapers were published in France (Schramm, 1988). Newspapers helped consolidate the gains of the revolution but also split into partisanship over the course of the revolution, with leading papers favoring the Girondists (liberal republicans) or the Jacobins (radical revolutionaries).

The press was needed in the early stages of the revolution, according to historian Robert Darnton, to circulate the Declaration of the Rights of Man, ideas for the new constitution, new currency, a new calendar, a new map and changes in the language itself. "At every stage in this process they use the same basic tool: the printing press," Darnton wrote.

Without the press, they can conquer the Bastille, but they cannot overthrow the old Regime. To seize power they must seize the word and spread it . . . When the revolutionaries grasped the bar of the press and forced the platen down on type locked in its form, they sent new energy streaming through the body politic. France came to life again, and humanity was amazed. (Darnton, 1989)

Jean Paul Marat, a Swiss physician who spent most of the pre-revolutionary years in London, arrived in France to help lead the Jacobins and wrote horrifying predictions about what would happen if the revolution failed. In a July, 1790 pamphlet entitled "C'enest fait de nous" ("We're done for!"), Marat wrote:

. . . A false humanity has restrained your arms and stopped your blows. If you don't strike now, millions of your brothers will die, your enemies will triumph and your blood will flood the streets. They'll slit your throats without mercy and disembowel your wives. And their bloody hands will rip out your children's entrails to erase your love of liberty forever.

As history has so often shown, fanatical rhetoric in the media can lead to bloody deeds in reality. An estimated 40,000 people, including King Louis XVI and Queen Marie Antoinette, were executed by the radical Jacobins at the urging of Marat and others. The

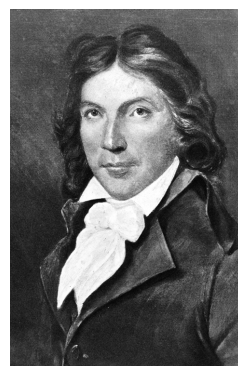


Figure 1.11 "Citizens! Rush to arms!"—Camille Desmoulins, an impoverished French journalist and lawyer, is remembered for an impassioned speech that sparked the storming of the Bastille. One of the revolution's most insightful minds, Desmoulins opposed the radical Jacobin faction and was executed in 1794. (Library of Congress)

Terror worsened when a Girondist (liberal) assassinated Marat at his home in 1793 while he wrote in the bathtub, but then ebbed with the establishment of the Directory in 1795. By 1798, Napoleon Bonaparte assumed power and many of the revolution's noble sentiments, including freedom of the press, lay in ruins. Napoleon was notoriously opposed to freedom of the press. A widespread system of censorship was put in place by 1808, and the number of newspapers in Paris dwindled to 13 and then finally to 4 by 1811. Censorship was lifted following Napoleon's defeat, then imposed and lifted again in cycles over the next century.

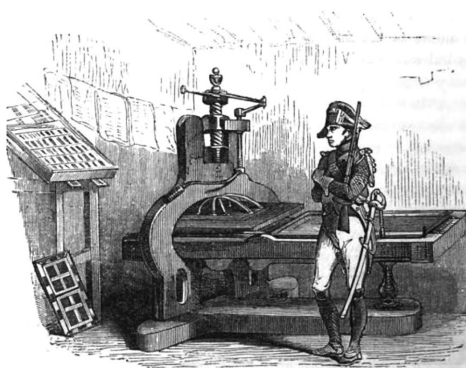


Figure 1.12 The little corporal, as Napoleon was called, is dwarfed by the printing press. Although he was a novelist and the publisher of several military newspapers early in his career, he also imposed draconian censorship during his reign as emperor of France.

The partisan press before the Industrial Revolution

News traveled slowly before the Industrial Revolution. A newspaper printed in New York might reach Boston in three days, Richmond, Virginia in five, and Cincinnati, Ohio in ten. It would take almost two months to cross the Atlantic to London or Paris until steamships became common in the 1830s, reducing the journey to about two weeks.

Yet newspapers flourished in the nineteenth century. In Europe, the number of daily and weekly newspapers grew from about 2,400 in 1820 to about 12,000 by 1900, even though publishers there were handicapped by censorship, higher taxes and higher postal rates.

In the United States, newspapers were supported by favorable postal rates as part of a strategy for democratic self government (Starr, 2004). In contrast to Europe, where postal rates held down newspaper circulation, the number of US daily and weekly publications grew from about 800 to nearly 16,000. With 50 newspaper and magazine subscriptions per 100 homes, twice as many publications were available by 1823 to Americans as the British, and the number grew to three times as many by 1900.

The US Postal Service was considered a public service, not a for-profit agency, operating with the idea of unifying a widely disbursed population. Printed information, rather than personal letters, made up 95 percent of the weight carried in the mail, but only 15 percent of the revenue (Starr, 2004).

Americans were enormously proud of their newspapers. In 1817, *Niles Register* claimed that New York state, with 96 newspapers, had “probably . . . a greater number than is published in the whole of Europe” (*Niles Register*, April 26, 1817, 12: 144). Although the figures are inaccurate, the assumption that Americans depended on newspapers more than other nations was essentially true.

“In America there is scarcely a hamlet that has not its newspaper,” wrote French aristocrat Alexis de Tocqueville in his 1835 book *Democracy in America* (De Tocqueville, 1835). Because “there are no licenses to be granted to printers, no securities demanded from editors, as in France, and no stamp duty, as in France and England . . . nothing is easier than to set up a newspaper . . . Hence the number of periodical and semi-periodical publications in the United States is almost incredibly large.”

Most newspapers in the United States or Europe were sold to a small circle of subscribers for at least five or six cents per copy, and the optimum economy of scale kept printing operations relatively small. Even national publications in the United States, like Baltimore’s *Niles Weekly Register*, had circulations under 5,000.

Editors kept in touch with each other by sending their publications through the mails. If the newspaper was being sent to another editor in small town, it would be considered an “exchange,” and other editors were free to print excerpts with attribution. This was seen as so important in the United States that the Post Office did not charge to deliver an exchange.

But the system of low postal rates, editor exchanges and widespread competition would change rapidly, beginning in the mid-nineteenth century, as steam printing transformed local publishing and the telegraph changed the way national news was distributed.

Partisan papers in Great Britain

The Glorious Revolution of 1688 set the stage for reform in England, and in 1694 the Licensing Act expired. Parliament approved a resolution, drafted by John Locke, noting that prior restraint was impractical; it hindered scholars and hurt the printing trade. Dozens of newspapers emerged at this time supported by two major political factions who opposed each other in the press and every other every aspect of public life.

These two parties were:

- The Tory party, which supported the monarchy over Parliament and tended to resist social reform and support tradition. By the 1900s the Tories became the conservative party. (The name Tory derives from an insulting Irish term for robbers.)
- The Whig party, which supported Parliament over the monarchy, and supported free trade, religious toleration, abolition of slavery and expansion of voting rights. Whigs became known as liberals and as the labor party in the late 1800s. (The name Whig derives from a nickname for Scottish parliamentarians, Whiggamores, which meant cattle drivers.)

Early Tory newspapers included the *Post Boy* and the *Examiner*; Whig newspapers included the *London Times*, the *Flying Post* and the *Observer*. These newspapers existed in a world swirling with political controversy that also included Whig and Tory political organizations, Whig and Tory coffee houses, and even Whig and Tory fashions. “Party conflict covered almost every aspect of public, professional and even recreational life in post-revolutionary England” (Bucholz, 2009).

In 1701, a group of printers wrote to parliament in protest against a contemplated tax on newspapers. At the time, England had “five master printers” using about 20,000 reams of paper per year, or about 28,000 newspapers in circulation per day nationwide.

These sold for one halfpenny “to the poorer sort of people, who are purchasing it by reason of its cheapness, to divert themselves and also to allure . . . young children and entice them into reading.” Hundreds of families, especially blind people, supported themselves by selling halfpenny papers on streets of London (*Encyclopedia Britannica*, 1911). The halfpenny press might have continued in England, but a stamp tax was imposed in 1724, and cheap newspapers vanished into an underground “pauper press” until 1855, when the tax was repealed. It was an extension of this same tax act to the American colonies in 1765 that aroused furor among American printers.

British authorities were finding the press very difficult to control, both at home and in the colonies, in the late 1700s. “For more than a century, newspapers and pamphlets had been strewn across the tables of clubs, inns, taverns and coffee houses and had fueled animated exchanges,” wrote historian Jeffrey Smith. No one exemplified this problem better than the editor of the *North Briton*, John Wilkes. Wilkes had been a member of Parliament for six years when he criticized a speech by King George III. He was convicted of seditious libel in 1764 and fled into four years of exile in France. He returned in 1768 to a tumultuous reception. The crowds in the London streets made it clear that Wilkes was widely supported by public opinion (Smith, 1988). He asserted Parliamentary privilege, was released, and won re-election to Parliament in 1768.

His treatment by British authorities was watched carefully in the American colonies, and was considered one reason why American colonial printers believed that the social contract was being undermined by corrupt British leaders. Ironically, just as the revolution was breaking out in America, Wilkes became Lord Mayor of London and spent the rest of his life defending relatively conservative political views.

By the late 1700s, the news business was dominated by the *Times of London*, established by John Walter in 1785. In the beginning, the *Times* favored modest reforms and supported the “unalienable rights” of citizens, including freedom of speech and the right to petition the government (*Parliamentary Reform* 1785). Walter was not immune to the problems experienced by Wilkes, Cobbett and others, spending 16 months in Fleet Street jail on libel charges. Despite competition from the *Guardian* and other regional newspapers, the *London Times* remained the semi-official reform-oriented newspaper of the nation through the twentieth century.

What was the Fourth Estate?

The term “Fourth Estate” was a reference to the growing power of the press by Whig party leader Edmund Burke in a 1787 speech to Parliament. The speech was made when the visitor’s gallery was opened to the press for the first time.

According to historian Thomas Carlyle, Burke said that there were three “estates” (walks of life) represented in Parliament: the nobility (House of Lords); the clergy; and the middle class (House of Commons). “But in the Reporters Gallery yonder, there sat a Fourth Estate, more important by far than they all.”

This story is disputed. Editors of the *Oxford English Dictionary* say that they cannot confirm Carlyle’s statement attributing the phrase “Forth Estate” to Burke. The earliest solid reference is in 1821 to William Cobbett, who was called “a kind of fourth estate in the politics of the country.” Another reference is to a different speaker in the House of Commons in 1823 or 1824, and the idea was treated as original at the time.

The point of the historical debate is simply whether the political power of the press was widely recognized in the late 1700s or some 50 years later. Still, by the end of the nineteenth century, there was no doubt about the power of the press. As Oscar Wilde said around the time of his libel and “indecent” trial (for homosexuality) in 1895:

“In old days men had the rack. Now they have the press . . . Somebody . . . called journalism the Fourth Estate. That was true at the time no doubt. But at the present moment it is the only estate. It has eaten up the other three . . . We are dominated by journalism.”

Trans-Atlantic connections

Journalists and their ideas traveled back and forth across the English Channel and the Atlantic Ocean as London became Europe’s hothouse of political debate.

Benjamin Harris, a London publisher, moved to the United States, opened a coffee house and printed the nation’s first newspaper before moving back to London. Benjamin Franklin came to London after leaving his brother’s newspaper in Boston, working to learn the trade and earn money to open the *Pennsylvania Gazette* in Philadelphia in 1731.

During the revolutionary period, journalists Thomas Paine and William Cobbett traveled between England, the United States and France. And during the later tabloid press period (late 1800s, early 1900s), publishers in England often adopted agendas and ideas from American counterparts. US publisher William Randolph Hearst and British publisher Alfred Harmsworth, for example, were friends who often traded ideas and techniques.

William Cobbett (1763–1835) was one influential journalist who was constantly in trouble with authorities. He originally wrote from a pro-British perspective in the United States in the 1790s, then returned to England in 1800 and established a Tory

publication called the *Weekly Political Register* in 1802. His conservative views changed over the years as he observed cruelty, poverty and corruption of the age. In 1809, when he objected in print to a flogging and to the use of German troops to put down a mutiny, he spent two years in prison for seditious libel.

After his release from prison, Cobbett continued to edit the *Political Register*, supporting agrarian reform, Catholic emancipation and changes to the Poor Laws. But in 1817 Cobbett fled back to the US when the “Blasphemous and Seditious Libels Act” was passed. The act (one of the so-called “Six Acts”) gave magistrates the power to seek and seize libelous materials. But the act was not especially effective, and juries were reluctant to convict editors, as Cobbett found when he returned to England. From 1819 to 1835, Cobbett fought off at least four serious libel charges.

Cobbett showed that the role of the British press in the social reform movements of the late 1700s and early 1800s could be daring, despite the frequent imposition of jail terms. The case for reform was largely accepted by British public opinion and reform governments by the mid-1800s.

Partisan papers in the United States

During the early years of the American republic, newspapers were usually financed and published by partisans of two major factions—John Adams’ Federalist party and Thomas Jefferson’s Democratic-Republican party.

Phillip Freneau’s *National Gazette* sided with Thomas Jefferson and the Democratic-Republicans. The paper favored the French Revolution and opposed the Alien and Sedition Acts. Jefferson later said Freneau saved the country, “which was galloping fast into monarchy.” After Freneau retired, Benjamin Franklin’s nephew started a newspaper in Philadelphia called *The Aurora* that took up the defense of Democratic-Republican causes.

John Fenno’s *Gazette of the United States* was the Federalist publication that sided with George Washington, John Adams and Alexander Hamilton on great questions of the day, such as the need for a strong federal government. The Federalists were alarmed by the French revolution.



Figure 1.13 Peter Porcupine—British journalist William Cobbett poured heated rhetoric into his US publications in the 1790s, warning in vitriolic terms of the excesses of the French Revolution and sympathizers like Thomas Paine. He celebrated his sharp personality with the pen name “Peter Porcupine.” Returning to Britain in 1800, Cobbett attacked its “smothering system” that led to the Luddite Riots and vowed to expose Britain’s “service and corrupt press” that had become an instrument in the “delusion, the debasement and the enslavement of a people.”

In an attempt to head off an American version of the French Terror, Congress passed the Alien and Sedition Acts of 1798. Aimed at deporting French sympathizers and quelling criticism of President John Adams, the Sedition Act led to the imprisonment of about 100 people for speaking out against Adams and the government. Thomas Jefferson denounced the Sedition Act as a violation of the First Amendment of the US Constitution, which guaranteed freedom of speech and press. In the Virginia and Kentucky Resolutions, Jefferson and James Monroe argued that the states and not the federal government were ultimately sovereign, and therefore the federal government could not take away the rights of citizens. This argument, originally meant to support freedom of speech and press, was the basis on which the Confederate states justified secession from the Union in the American Civil War (1861–1865). Although the Alien and Sedition Acts expired in 1801, Jefferson’s argument had unintended consequences.

Not all newspapers descended into political partisanship. *Niles Weekly Register*, published in Baltimore from 1811 to around 1844, was guided by what editor Hezekiah Niles called a principal of “magnanimous disputation” (Luxon, 1947). Niles was a forerunner of the more objective account of events, and his newspaper covered not only politics but economics, science, technology, art, literature and population growth. Niles is sometimes remembered today as the “Editor who tried to stop the Civil War” since he anticipated the conflict and attempted to outline economic policies like diversification and public works that might lead toward compromise and reconciliation. Remarkably similar policies would be advocated in the aftermath of the American Civil War by newspaper editors like Henry Grady of the *Atlanta Journal* (Kovarik, 1992).



Figure 1.14 The printing chapel—a young Benjamin Franklin is depicted working in a British printing establishment during his apprenticeship. (Engraving by Charles E. Mills, Library of Congress)



The world of the printing “chapel” 1450s–1800s

Imagine, for a moment, a world where the scale and pace of life is smaller and slower, and yet to its inhabitants, just as rich with possibilities. It is a world that has barely changed since Gutenberg invented the printing press three and a half centuries ago.

It's a world where a printing company is still called a “chapel,” partly because printing evolved from the scriptoria where monks once labored, and partly because, like a chapel, printing companies often have high ceilings and large windows to help printers see the details of their work.

If you were an apprentice in a printing chapel, you would find the work itself quite tedious. But the working environment would seem fascinating. Here, literacy and intelligence are rewarded, women often work with men, and the most interesting people in the city might show up at all hours.

As an apprentice, you would work under a system of rules much like other trades. You would start out at an early age, perhaps 10, and work your way up to journeyman by age 18 and then become a master printer in your 20s or 30s.

The language of craft printing: getting out of sorts, and by the same token, minding your ps and qs

Craft printing had its own culture and terminology, and there are remnants of this in everyday language. Many common terms and phrases—upper and lower case, out of sorts, by the same token, or minding your ps and qs—come from printing culture.

The first step in making any kind of newspaper or book would be to set the type. Typesetting had to be done by hand, letter by letter, until the early twentieth century. Each typesetter would work in front of two cases with dozens of open compartments that held the individual metal letters. The capital letters were in the upper case and the small letters would go into the lower case. Both of these terms—upper case and lower case—are still in use today.

The cases had larger openings for commonly used letters, such as e, t, and a, and smaller openings for less commonly used letters. Samuel Morse, when thinking about how to design Morse code, consulted a printer on the frequency of letters used.

The type had to be set backward, since it would read forward once printed. You would pick the type up and place it into a long holder called a “stick.” Let's say you wanted to set the type for the phrase *Life in a print shop*. You would start with the letter “p” in the lower case, then set o, h, s, quadrat (space), t, n, i, r, p, quadrat, a, quadrat, n, i, quadrat, e, f, i and then upper case L.

This can be confusing at first, and an apprentice typesetter might be told: “mind your ps and qs,” because a “p” would look like a “q” when it went in backward.

The first job of an apprentice might involve breaking up the columns of type after they had been used to print a book or newspaper. You'd clean them off and sort type back into the type cases according to letter, font and size. Apprentices would have to be sure that each piece of type went back into the right slot and that the cases were ready for the typesetters.

If this took too long, the typesetters might be “out of sorts”—in other words, they would lack the sorted type of a particular font. Later, this came to mean that a person might be angry or upset.



Usually, typesetters would work from instructions written in longhand on a paper held to the top of the composing case by a spike. When an experienced editor was in a hurry, he or she might set type while they composed an essay. This was called composing “on the stick.” Today being “on the stick” means that you are busy with a pressing task.

By the time you were a journeyman printer, you could probably set around 1,500 letters per hour, or about 20 words per minute. A column of type might take half the day—five or six hours—to set. Then you would spend another two hours redistributing the type after the book pages or day’s newspaper had been printed.

Once type was set, the columns would be assembled in galleys on the composing stone and then held together inside a frame. The frame would be locked down with quoins and other “furniture.” Then the type would be placed on a press.

One pressman (the “beater”) would gently pound an even coat of ink into the type using two soft leather inking balls. Another pressman would place a damp page of blank paper into the frisket and gently fold it over the frame of inked type. The final stage was to roll the type down the carriageway underneath the platen. The pressman would pull on the long lever, and the paper would be pushed into the inked type. Then he would roll the type back, open up the frisket and hang the page up to dry.

A team of two pressmen and an apprentice would usually print a token each hour. A token was usually 258 sheets. The expression “by the same token” (still in use today) means turning the sheets over once the ink has dried in order to print on the other side of the paper.

Once the pages were printed, they had to be assembled carefully to make a book. This involved placing and trimming the pages in the right order and then sewing up the back of each “signature” set of pages, which would be from two pages to 16 or 24, depending on the size of the page and the kind of book being produced.

Playing quadrats and getting a washing

The work could be tedious and exacting. To make the day go by more quickly, one printer might be asked to read aloud from works of literature or the Bible.

Printers had strict social rules. They were not allowed to brag, or to whistle in the presence of a lady, or to leave candles burning when they were not present. Breaking any of those rules would result in a punishment, which they called a “solace,” and this could be anything from having to perform a nasty chore to putting money into the “wayzgoose” fund. The wayzgoose was the printer’s holiday that took place every August 24th.

But printers had some fun too. A typical pass-time was a game called “quadrats.” Quadrats were square blank type pieces used for spaces between typeset words. Each has a nick, or indentation, on one of its four sides. The game was described in a 1683 book on printing customs:

They take five or seven Quadrats . . . and holding their Hand below the Surface of the Correcting Stone, shake them in their Hand, and toss them upon the Stone, and then count how many Nicks upwards each man throws in three times, or any other number of times agreed on: And he that throws most Wins the Bett of all the rest, and stand out free, till the rest have try’d who throws fewest Nicks upward in so many throws; for all the rest are free: and he pays the Bet. (Moxon, 1683; Savage 1841)



But watch out ! If the sextant (manager) of the chapel caught you playing quadrats, he or she might have to decide on a solace (punishment). This could involve anything from paying into the chapel beer fund to having to sing an embarrassing song at the wayzgoose.

If you or a co-worker were in the habit of telling tall tales, sometimes other workers would express their disbelief by making loud banging noises on their presses or type cases. When every person in the room did it, the drumming could be deafening (Savage, 1841). If, for some reason, a pressman resisted a solace, and the workers in the chapel were determined to enforce it, then the Spirit of the Chapel (sometimes called "Ralph") was said to be walking in the shop. Whatever mischief was done to the pressman, such as mixing up his pages or getting his type "pied" (mixed up) could then be blamed on the Spirit.