Introduction to Media History

Other [media] have sprung up in a night, almost unheralded; these too have fallen first into the hands of men of vigorous imagination and ruthless temper [and] … aroused frenzies of fear and crusades of repression. The theater in the time of Shakespeare, the novel in the 18th century, the newspaper a century later, were also extravagantly hailed and extravagantly anathematized.

THOMAS H. DICKINSON, *The New York Times*, July 6, 1923

0.1 Printing, imaging, and the electronic and digital revolutions

Civilizations rise and fall on the crests of great revolutions in communication, brought on by new technologies and limited only by human imagination. Well into the twenty-first century, we are witnessing these revolutions visibly transforming daily life. New technologies are enabling new modes of communication and are shunting aside older ones. Fortunes are being made and lost, nations fight and reunite, legacies are thrown to the winds, and a new world media era is emerging, for good and for ill.

Figure 0.1a **CLIO, THE MUSE OF HISTORY**—*Painting by Artemisia Gentileschi, 1632, Warsaw National Museum (public domain).*

To understand and learn from events, to envision the possibilities of the future, we turn to history. This book, *Revolutions in Communication*, takes an international, technological, and cultural focus as the framework for a narrative structure of media history. We will examine:

- **I** **printing**, which emerged from oral and manuscript cultures in the mid-1400s, bridged the medieval and modern eras, and then gave way as other technologies developed;
- **II** **imaging** technologies such as photography, cinema, and advertising, starting around the 1830s;

III **electronic media**, allowing instant messages to be "written in lightning" or broadcast to all corners of the earth, starting with the telegraph in the 1840s and leading to satellite systems; and

IV **digital media**, beginning with computers and digital networks and concluding with the fragmentation and search for peace among global cultures.

Constructing a history that approaches such a broad scope presents an interesting problem of scale, since there is far too much to include in a standard encyclopedia, much less a single book. However, since we live in revolutionary times, we ought to reflect and model those revolutionary new modes of communication in the way we present communication history.

One solution is to take advantage of the new media that this book describes. With that in mind, readers can turn to this book's website—https://revolutionsincommunication.com—for resources that can enhance their understanding of the depth, breadth, scope, and geographic reach of media history. Every chapter and most sub-chapters have links for further reading.

0.2 Understanding history

0.2.1 We need history

Without a sense of the past—without some concept of the triumphs and mistakes of people who have lived before us—we are merely groping blindly into the future.

But what is history? To begin with, history is the memory of civilization, "part of the never-ending process whereby people seek to understand the past and its many meanings," according to the American Historical Association (2023). No single perspective is exclusively valid.

History is the active investigation of what happened and what can be learned from the past. The meaning comes from the Greek word ἱστορία—*historia*, meaning "inquiry, knowledge acquired by investigation."

Historians explore their topics without expecting to find exact scientific answers. While history has a first duty to accuracy and the truth, the profession has its own high standards and answers (so to speak) to its own muse—Clio.

History is powerful, not only in terms of scope and analytical ability, but also in the way it legitimizes modern agendas and political projects. History helps us better understand the modern world by examining complex people, events, and technologies in the past.

Of course, history is often controversial. As journalist-turned-historian Allan Nevins said: "History is never above the melee. It is not allowed to be neutral, but forced to enlist in every army" (1938). Historian Eugen Weber once observed that history is "the dressing room of politics" (1972).

Recording and learning from the past is no simple proposition. History is more than collections of established facts, just as science is much more than an unchanging description of a static physical world. Historical perspectives may change as new facts emerge from research, or as historians use new tools, or as modern perspectives change. The history of computing,

for example, was riddled with omissions until post-Second World War intelligence work was declassified in the 2010s (as we will see in Chapter 10).

History, then, is a complex process of critical dialogue. Historians engage with the record to explore long-gone lives and older worlds. Incorporating multiple schools of history and previously underrepresented points of view is critical to ensuring the integrity of scholarship and historical practice.

History can be understood through a variety of narrative approaches, and students of history will want to be aware of them:

- the liberal narrative, concerned with freedom, viewing the press as a maturing force in democratic systems;
- the human rights narrative, including feminist and libertarian perspectives, in which the media originally held back, and then later helped, movements for equality and the redistribution of virtue;
- the populist narrative, tracking the rise of cultural democracy against social and political elites, sometimes seen as a regressive force;
- the critical narrative, viewing the decline of the public sphere through elite control of the press, often explained in terms of class struggle.

These historical narratives may take either an heroic approach or an interpretive approach. The contrast between the two might best be seen by comparing two early Greek historians.

Herodotus (484–420 BCE) said that he wrote his history of Greco-Persian wars "in the hope of … preserving from decay the remembrance of what men have done, and of preventing the great and wonderful actions of the Greeks and the Barbarians from losing their due meed (share) of glory." The problem with heroic history is that it often excludes people and themes that don't provide a positive or heroic lesson.

On the other hand, interpretive historical narratives take a "warts and all" approach, as exemplified by another Greek historian, Thucydides (460–400 BCE), who wrote the History of the Peloponnesian War. Thucydides hoped his history would "be judged useful by those inquirers who desire an exact knowledge of the past as an aid to the interpretation of the future … I have written my work, not as an essay which is to win the applause of the moment, but as a possession for all time."

Finally, since the history of technology is now such a vital part of media history, it's important at the outset to recall Melvin Kranzberg's admonition: "Technology itself is neither good, nor bad—nor is it neutral." In other words, as Kranzberg said, "technologies frequently have environmental, social, and human consequences that go far beyond the immediate purposes of the technical devices and practices themselves; the same technology can have quite different results when introduced into different contexts or under different circumstances" (1986).

Given the social impact of mass media, it is surprising that its history is so relatively unexplored and sometimes narrow in outlook. Only in the past few decades has history of communications caught up with great cultural issues, such as civil rights and digital technologies.

This book, *Revolutions in Communication*, is a relatively new cultural approach to the history of media and of technology. These are ever-evolving human endeavors, and while facts from the

past won't change, some of today's brilliant interpretations may seem dim in tomorrow's light. That's as it should be. We can never close the book on history.

0.3 A short history of media history

The first media histories followed a heroic and often grandiose style—Samuel Palmer's *The General History of Printing* (1732), Prosper Marchand's *Histoire de l'origine de l'imprimerie* (1740), and Philip Luckombe's *The History and Art of Printing* (1771). Palmer opens by writing that the art of printing was so beneficial to mankind that its origin "has been esteemed divine." Marchand's poetry implies that printing confers immortality.

In the United States, more down-to-earth histories of printing included Isaiah Thomas' *History of Printing in America* (1810), M. L. "Parson" Weems' *Life of Benjamin Franklin* (1817), and James Parton's biographies of Horace Greeley (1855) and Benjamin Franklin (1864). Thomas followed the development of newspapers and focused his narrative on their "powerful influence in producing the [American] Revolution." Weems was an outright fabulist whose stories about Washington chopping down the cherry tree and Franklin getting a witch's blessing on the streets of Boston had no basis in fact and brought little credit to the emerging historical profession. At least Parton's biographies were factually accurate, if heroically styled.

Among many histories of printing technology, one stands out: *The Book: The Story of Printing and Bookmaking* by Douglas McMurtrie. Focusing on the craft of typography and printing, McMurtrie began with the origin of writing and papermaking, and focused as well on the difficult leap from artistic hand printing to mechanized press work in the nineteenth and twentieth centuries (McMurtrie, 1948).

Frederic Hudson's *Journalism in the United States* (1873), and James Melvin Lee's *History of American Journalism* (1917) became standard textbooks for college journalism courses in their day but faced criticism for "a complacent and partisan denial" of problems with the news media (Grabo, 1918). An important survey of minority media was *The Afro-American Press and Its Editors* (1891) by Irvine Garland Penn. The book stands as the early high-water mark of the African American press; it was published just before the anti-Reconstruction backlash that ended most of the minority newspapers by the turn of the century (see Chapter 3).

Insightful perspectives on the news business found a wide audience with Will Irwin's "American Newspaper" book-length series in *Collier's* magazine, published in 1911. It was a time when the power of the press was "greater than ever before" with contributions seen as the "light of civilization." And yet, as Irwin said, the press of his time spoke "in the voice of an older generation."

A more critical approach came from muckraker Upton Sinclair, whose book *The Brass Check* (1920) was a bitter attack on the press, focused on the warped reporting of labor struggles. Other examples of mixed history and criticism are found in Walter Lippmann's *Public Opinion* (1922) and his *Liberty and the News* (1920), as well as the 1947 Hutchins Commission report.

By mid-century, Edwin Emery and other twentieth-century American media historians settled on a liberal consensus narrative history of American journalism with a focus on the role of the mainstream press as a check on government. Emery's *Press and America* takes students

from the American Revolution to television news and the Vietnam war (Emery, 1972). A more diverse history is found in Jean Folkerts' book *Voices of a Nation*, which featured a long-overdue survey of minority press (1989). A similar liberal, diverse, and heroic focus is found in Hiley Ward's *Mainstreams of American Media History* (1996). Ward's book focused on varieties of journalism and served as the historical framework for the Gannett newspaper chain's popular but troubled Washington DC "Newseum."

Journalism was—and is—an important subject for history, writes journalism historian Andy Tucher. "Journalism history matters because it guides us to open our historical imaginations to the complex, contingent, sometimes surprising, and always illuminating process of how past societies made meaning in common," she wrote. "Journalism history matters because we can't use journalism to know about history—or to know about the present, either—without knowing how journalism worked in history" (Tucher, 2014).

The dominant focus on mainstream American journalism, rather than a more diverse international media, is parochial, narrow, and even passe, as historians Sven Beckert and Jonathan Shaw argued:

> Historians increasingly recognize that trying to understand the past solely within the confines of national boundaries misses much of the story. Perhaps the integration of today's world has fostered a renewed appreciation for global connections in the past. Historians now see that the same patterns … emerge across cultures worldwide through time, and they are trying to explain why.
>
> (Beckert and Shaw, 2014)

In a similar call for an international history of journalism, Mitchell Stephens said:

> To attempt to separate the history of American journalism from developments overseas seems … as foolish as attempting to separate the history of journalism in Ohio or Kansas from what was happening in Boston, Philadelphia and New York. … A kind of ignorance—which would not be tolerated in literature departments, in theater departments, in art departments, in science departments—is routinely accepted in journalism departments. American journalism history is dangerously and unflaggingly parochial.
>
> (Stephens, 2011)

By the same token, there is no reason why the sub-disciplines of communication should also be pigeon-holed. Why separate the history of photography from that of advertising and journalism, or the history of computing from that of broadcasting? As James Curran said:

> If media historians labor in the shadows, they are themselves partly to blame. In general, press historians stick rigidly to the press; television historians stay rooted in television; and film historians remain wedded to film. Within each of these specialisms, research is often narrow. Press and broadcasting historians tend to focus on institutional development, while film historians concentrate generally on the content of films—mostly within very limited periods of time.
>
> (Curran, 2002)

This separation risks missing some of the overlapping effects and connections between the technological revolutions that are having a profound impact on life in the twenty-first century. We might miss seeing the way digital technologies undermined the newspaper industry starting as early as the 1960s and 1970s, as well as the rise and fall of radio and television broadcasting networks. And we might miss an understanding of the way that visionaries, con artists, and reformers have, when confronted by political obstacles, used new media technologies to circumvent the old ones.

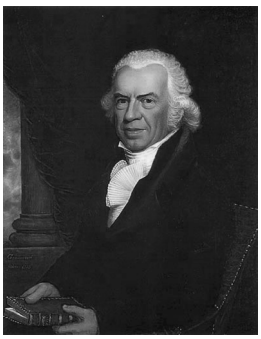

Figure 0.3a ***ISAIAH THOMAS***—*(1749–1831) was among the first of America's printers and journalists. He reported the Battles of Lexington and Concord in 1775 and later wrote A History of* Printing in America. *Painting by Ethan Allen Greenwood, 1818. American Antiquarian Society (public domain).*

0.4 Innovative people: Historians and media technology

The historical study of media is relatively new. When German historian Leopold von Ranke (1795–1886) wrote his *History of the Reformation in Germany* (1854), he did not even mention the role of printing in the rise of Protestantism. Similar omissions can be observed elsewhere, and the social impact of communications is an afterthought, if mentioned at all. It wasn't until the late twentieth century that the "unacknowledged revolution" of printing, film, and electronic media started to be taken seriously.

The twentieth century's pathbreaking explorations of media technologies and their place in history are deeply indebted to at least five historians: H. G. Wells, Harold Innis, Marshall McLuhan, Elizabeth Eisenstein, and Walter Ong. None of them claimed that media was an exclusive or all-important influence, but rather that media had an important place among the many influences of the modern era.

H. G. Wells (1866–1946), a science fiction author of *The Time Machine* (1895), *The War of the Worlds* (1898a), *The Invisible Man* (1897), and many others, incorporated the idea of media influence in his non-fiction *Outline of History* (1920). The ideas of the Renaissance era were percolating long before books were printed, Wells said, "but it was printing that released them from obscurity." Wells also wrote about the political consequences of "the new development of science, the exploration of the world, the great dissemination of knowledge through paper and printing, and the spread of a new craving for freedom and equality." The United States, he thought, "would have been impossible before the printing press." Later, Wells predicted the advent of the internet, as we will see in Chapter 11.

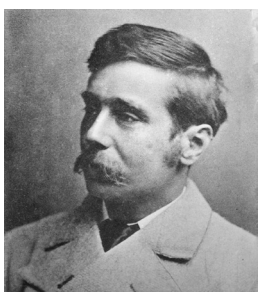

Figure 0.4a ***H. G. WELLS***—*Bain News Service, Library of Congress.*

Elizabeth Eisenstein (1923–2016) explored the epochal changes in early modern Europe associated with the introduction of the printing press. Her pathbreaking book *The Printing Press as an Agent of Change* (1980) explored the technological shift from manuscripts to printing and how it affected institutions, traditions, occupations, and modes of thought. She focused on printing's impact on the Renaissance, the Protestant Reformation, and the Scientific Revolution.

Eisenstein transformed the study of media history and influenced political history, art history, and the ongoing history of the digital revolution (Dewar, 1998). Eisenstein said her work "was concerned with a 'long revolution' entailing cumulative effects" (Eisenstein, 2002a). "I start with medieval texts and the incapacity of hand copying to achieve certain goals long valued by Latin reading elites" (Eisenstein, 2002b).

Eisenstein's thesis has been criticized as being too focused on the "stratospheric" concept of "Western Civilization," which allowed for "emphatic verdicts free of pedantic qualification" according to one prominent critic (Johns, 2002). Eisenstein's work was also noted as an attempt to "domesticate" Marshall McLuhan's history, especially his idea that the medium is the message (Burke, 2016).

Fr. Walter J. Ong (1912–2003) was a cultural and religious historian who studied traditional oral cultures. He was intrigued by the transitions to manuscript and print culture. In his book *Orality and Literacy: The Technologizing of the Word* (2002), Ong built on the work of Harold Innis and showed a strong relationship between primary oral culture and manuscript culture (1984).

Ong was also concerned with intermediate forms of communication such as African drum languages, and he believed that human consciousness was affected by the media in use. He saw radio and TV broadcasting as a reversion to oral culture—a "secondary orality." McLuhan and Ong's ideas about a return to oral culture are central to the "Gutenberg parenthesis" theory (noted below).

Harold Innis (1894–1952) was an economic historian who observed that the structures of civilizations were profoundly influenced by their communication technologies. Those using durable media tended to be oriented toward time and religious orthodoxy. One example would be the Sumerian and Babylonian civilizations, where cuneiform writing on clay tablets was organized by religious scribes. On the other hand, cultures with flexible media such as papyrus, paper, or velum—typical in ancient Egypt, Greece, and Rome—were more oriented toward control of space and a secular approach to life (Innis, 1950).

What this implies is both obvious and far-reaching. Clearly, detailed instructions and correspondence over a distance can take place only if a medium is light and flexible enough for the kind of message that a messenger can carry. Military orders and letters of credit are far easier to communicate with papyrus and parchment than with clay tablets. And the fact that you can have orders or letters of credit means that you can have a complicated governance or banking system within an empire.

The concepts of time and space reflect the significance of media to civilization. Media that emphasize time are those durable

Figure 0.4b ***ELIZABETH EISENSTEIN***—*Library of Congress.*

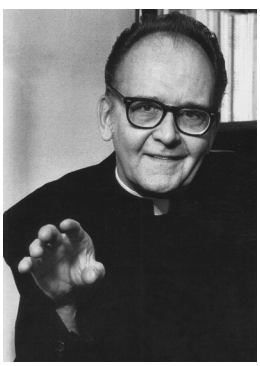

Figure 0.4c ***FATHER WALTER J. ONG, SJ***—*by Daniel T. Magidson, Saint Louis University.*

Figure 0.4d ***HAROLD INNIS***—*Photo by William A. James, Jr., Toronto city archives.*

in character such as parchment, clay, and stone. The heavy materials are suited to the development of architecture and sculpture. Media that emphasize space are apt to be less durable and light in character such as papyrus and paper. The latter are suited to wide areas in administration and trade (Innis, 1950).

Marshall McLuhan (1911–80) was a famous media theorist who saw communication as central to history and social life. McLuhan was the author of the 1962 book *The Gutenberg Galaxy: The making of typographic man*, and the 1964 book *Understanding Media: The extensions of man*. He built on Innis' ideas and came up with the aphorism: "The medium is the message." By that, McLuhan meant that the type of communications medium—print, imaging, broadcasting, or computing—has a strong influence not only on the message itself, but also on the type of thinking and the development of the culture that creates and consumes the message. A literate print culture is very different from a visual or radio or television culture, McLuhan said. This is a deterministic perspective, as we will see.

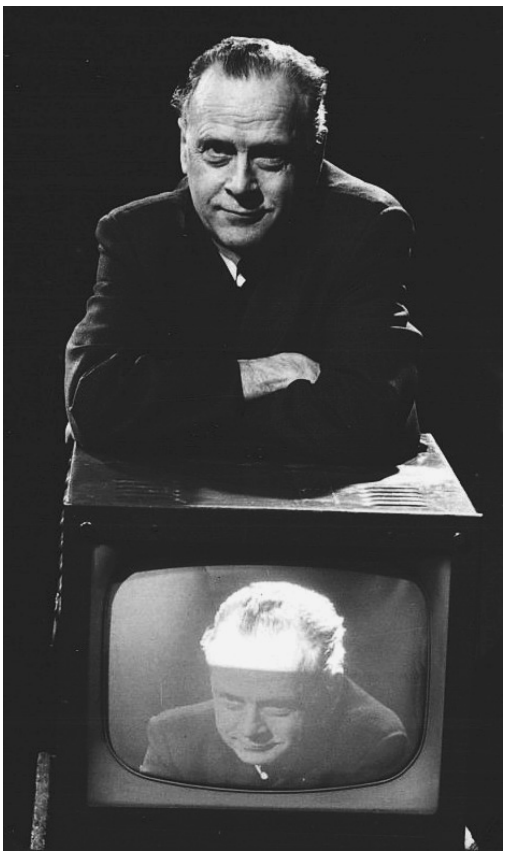

Figure 0.4e ***MARSHALL MCLUHAN***— *Bernard Gotfryd Collection, Library of Congress.*

McLuhan thought literate culture would be weakened by television and radio. This theme—concerns about the cultural impacts of new technologies—comes up with every new media. Religious leaders feared that their culture would be weakened by printing, and leading authors worried that printing cultures would be weakened by visual technologies.

McLuhan was relatively optimistic, although not utopian, about media technology. Digitally controlled international broadcast media were connecting print and imaging and radio and television through satellites in his era of the 1940s through the 1970s. And, he said, the convergence of media cultures was leading us into a twenty-first-century "global village." This would not lead to universal peace and happiness, he believed. But at least there was the possibility that humanity might free itself from print-induced passivity and approach a greater degree of cultural maturity (McLuhan, 1966).

McLuhan's ideas are poetic and often difficult to understand; as novelist Tom Wolfe once said, McLuhan was deliberately Delphic, cryptic, and metaphorical (Jacobs, 2011).

0.5 Key concepts: Determinism and social construction

When historians consider how a technology is developed, they often use two basic schools of thought: technological determinism and social construction. Determinism explains a technology's

development as an internal process, in which a technology follows an inevitable path based on its own characteristics. On the other hand, social construction explains technological change as a process influenced by cultural factors such as economics, politics, and environmental impacts. Neither perspective is right or wrong; both are often applied, simultaneously, in the history of technology.

Technological determinism was probably best articulated by historian Charles Beard (1874–1948), who said: "Technology marches in seven-league boots from one ruthless, revolutionary conquest to another, tearing down old factories and industries, flinging up new processes with terrifying rapidity" (1927). Determinism was simplified into the grim motto of the 1933 Chicago World's Fair: "Science Finds, Industry Applies, Man Conforms."

McLuhan was labeled a technological determinist, but he resisted that label and argued that technologies have deterministic effects only because media audiences are unaware of them. He also advised that we use a constructivist perspective to anticipate the process of social change. In a 1969 interview, McLuhan said:

> Because of today's terrific speed-up of information moving, we have a chance to apprehend, predict and influence the environmental forces shaping us—and thus win back control of our own destinies. The new extensions of man and the environment they generate are the central manifestations of the evolutionary process, and yet we still cannot free ourselves of the delusion that it is how a medium is used that counts, rather than what it does to us and with us.
>
> (Norden, 1969)

Media technologies have had enormous and unavoidable effects in recent decades. For one thing, fiber optics, satellites, and digital networks have "flattened" the world, making it just as easy to process information or do business in India as it is in Europe or North America, according to Thomas Friedman's 2005 book *The World Is Flat*. While social institutions might buffer some of the impacts, the globalization of information work has brought the world closer and destabilized employment in banking, news, and entertainment.

Another example of the deterministic trajectory of technology is the rise and fall of Kodak film and camera company, which employed 145,000 people at its peak, but went bankrupt in 2012. Kodak foresaw digital cameras on the horizon—it even invented most of the underlying technology—but it could not alter its trajectory (See Chapter 4).

Engineer and science fiction writer Arthur C. Clarke took a deterministic position about media technology when he said: "In the struggle for freedom of information, technology, not politics, will be the ultimate decider" (Krone, 2014).

One interesting aspect of this debate is the question of the political and cultural implications of various technologies. Historians Lewis Mumford and Langdon Winner were proponents of this view. Two kinds of technologies have existed side by side from the dawn of humanity, Mumford argued: a) the authoritarian, centrally controlled, and ultimately unstable kind and b) the democratic, human-centered, resourceful, and durable kind (Mumford, 1964). While some kinds of technological systems are highly compatible with authoritarian management, the interesting question, Winner says, is whether that is determined by the technology itself. Are more democratic forms of management possible or even preferable with some technologies? Winner noted:

> It can happen that within a particular complex of technology—a system of communication or transportation, for example—some aspects may be flexible … and others … completely intractable … To understand which technologies and which contexts are important to us, and why, is an enterprise that must involve both the study of specific technical systems and their history as well as a thorough grasp of the concepts and controversies of political theory. In our times, people are often willing to make drastic changes in the way they live to accord with technological innovation, [even though] at the same time they would resist similar kinds of changes on political grounds.
>
> (Winner, 1980)

According to Google founder Larry Page, the acceleration of digital technologies might eventually eliminate nine of out ten jobs but also make basic living costs much cheaper. "When we have computers that can do more and more jobs, it's going to change how we think about work. There's no way around that. You can't wish it away" (Isaacson, 2015). Still, "wishing" is certainly not the only possible social construction of digital technology.

Social construction of technology: The counter-thesis to technological determinism is social construction of technology. The idea is that social processes (including politics, economics, and culture) can have more influence on the development and control of a technology than the technology's own internal characteristics. From a social construction viewpoint, people don't necessarily conform, even if science does find and technology does apply, as with the 1933 Chicago World's Fair motto noted above.

Many believe it is the other way around. Vannevar Bush, president of MIT and science advisor to President Franklin D. Roosevelt, expressed that opinion in a post-Second World War book. "In a free country, in a democracy … [the technical path we take] is the path that public opinion wishes to have pursued, whether it leads to new cures for man's ills, or new sources of a raised standard of living … In a dictatorship the path is the one that is dictated, whether the dictator be an individual or part of a self-perpetuating group" (Bush, 1949).

Similarly, the fact that political and social considerations often take precedence over

Figure 0.5a ***CHICAGO WORLD'S FAIR, 1933***—*The motto "Science Finds, Industry Applies, Man Conforms" exemplifies technological determinism. By Weimer Pursell, Library of Congress.*

purely technical factors should not alarm us, as Melvin Kranzberg said. "In a democracy, that is as it should be" (1986).

Values may also be infused in the broad inventive process as people may believe in styles of improvement. Steve Jobs and Apple Computers are frequently cited as examples. Jobs often said he was out to change the world, not simply make an information utility, as noted in Chapter 10. "It takes a lot of hard work," Jobs said, "to make something simple, to truly understand the underlying challenges and come up with elegant solutions" (Isaacson, 2012). Asked what his greatest achievement was, among an array of well-known media products like the iPhone and the Mac, Jobs said it was not the products but Apple, the company itself.

Historian Robert Friedel described these social aspects of technology as "cultures of improvement," where key technologies are "captured" and become part of a sustained series of changes. The political rivalries, patent fights, and developmental circumventions are part of the processes of social construction of technology (Friedel, 2007).

Another aspect of social construction of technology involves personal and social control. For example, Thomas Edison unsuccessfully tried to retain content control of the motion picture industry through his patents (see Chapter 5). Guglielmo Marconi retained patent control over radio telegraphy for too long, and that contributed to the *Titanic* disaster (see Chapter 8). And the US Federal Communications Commission, along with most of the world's other national PTTs (for postal, telegraph, and telephone agencies), exercised a high degree of regulatory control over radio and television, as we will see in Chapters 8 and 9.

So, then: Is the medium the message? Or, to rephrase McLuhan's question: How much does a medium determine the environment, the context, and the content of a message? If the dark side of printing was empire and the rise of the nation-state, and the dark side of electronic media was nationalism and twentieth-century warfare, what are we seeing with the rise of digital communication? One issue has to do with the erosion of fact-verifying authority and related institutional hierarchies, as noted by J. David Bolter (2019). Another issue involves sudden and unusual conflicts between cultures that have never had much contact in the past.

There's no question that digital media is causing deep changes in society. Are the effects inevitable? Are these effects from runaway technologies? Or are they part of a process that can (or should) be socially constructed? And, in any event, can we afford to be neutral or hesitant?

The possibility that technology could accelerate to a point where no social process could exert any control whatsoever is called a technological "singularity." For example, futurist Raymond Kurzweil asks, what would happen if the global network of computers became independent through artificial intelligence? That would be a "singularity," because after that, no one could predict what might happen. The network could even make decisions about ending all human existence (Kurzweil, 2005). These kinds of questions are being asked more frequently with the advent of artificial intelligence.

0.6 Key concepts: Utopians and Luddites

When people embrace technology in an extremely optimistic way, they are said to be technological utopians. For example, much of the rhetoric surrounding the development of the

telegraph, the early years of radio, and the early years of the internet were marked by cringe-worthy enthusiasm. The telegraph will make "one neighborhood of the whole country," Samuel Morse wrote 125 years before McLuhan's idea of the "global village." Similarly, H. G. Wells envisioned the morning television report as a staple of a utopian communal village of the future (1898a).

People who reject technology in an extreme and pessimistic way are often called Luddites. The term goes back to 1811, when thousands of British textile workers lost their jobs following the introduction of steam-powered machinery. Mobs of starving workers broke into textile factories and destroyed the machinery. Then they blamed it on a mythical figure named Ned Ludd, who only destroyed machinery by accident. Apparently, the Luddites accidentally killed a few mill owners, and as a result, about two-dozen were executed and hundreds more were exiled to Australia. The Luddite movement was very much on the mind of *London Times* owner John Walter II when he promised workers that they would keep their jobs, even after steam-powered printing presses were introduced in 1814 (see Chapter 2).

Enthusiasm for new technologies has been more the rule than the exception, but skepticism about every phase of technology is not difficult to find in history. Johannes Trithemius (1462–1516) condemned printers as lazy and urged monks to keep copying manuscripts by hand (1494). Henry David Thoreau (1817–62), the transcendentalist writer of "Walden," was especially skeptical of the telegraph, which he considered only "an improved means to an unimproved end" (1854). Henry Adams (1838–1918), writer and diplomat, worried that civilization had become morally and philosophically adrift when we abandoned religious faith only to embrace science and technology. His point of comparison was between the Virgin Mary, a Christian symbol of old Europe, and the electric dynamo, a symbol of new Europe and the industrial revolution (Adams, 1918a).

0.7 Key concepts: Fallacies, anachronisms, and media futures

Sometimes misplaced predictions end up as technological fallacies. It was a fallacy, for example, that computers would lead to a police state, although that belief was a factor in the early history of personal computing because, in the 1970s, it led to a preference for individual, non-networked units. Or possibly it was only a partial fallacy since networked computers have helped repress dissent, especially in Russia, China, Saudi Arabia, Cuba, and other totalitarian regimes (Reporters Without Borders, 2024).

It was a partial fallacy for Alexander Graham Bell and other inventors of the late nineteenth century to predict that the telephone would be used as a medium for music and news broadcasting. However, telephone lines did provide the infrastructure for broadcast networks in the 1920s. Now, a century later, people are using their "telephones" to pick up live audio streams or pre-recorded podcasts.

Early radio inventor Guglielmo Marconi anticipated wireless telephones, but also predicted that radio waves could stimulate plants and act as a new kind of fertilizer. More than one hundred years later, scientists have confirmed that weak radio waves can lead to slightly more plant growth, while strong radio waves can be destructive (Marchant, 2020).

In the 1950s and 1960s, comic book detectives used "wrist televisions" (a feature added to a wristwatch) to communicate with each other—again, something of a partial fallacy. These devices are now possible—we do have the technology to bring back the comic book detective's style of communication. "Wearable" devices are not usually worn on the wrist today, but the basic idea of tracking medical conditions or using projections to control ubiquitous devices are available now as AI "pins" (Griffith and Mickle, 2023).

Envisioning the future has always been an interesting and perhaps "dangerous" pastime, as Arthur C. Clarke once said, but the future isn't what it used to be. The atomic-powered airplane, the personal "ornithopter," the robot valet—all have been chalked up as technological fallacies (Barbrook, 2007; Dregni and Dregni, 2006).

Anachronisms (things contrary to time) confuse two or more time periods. For instance, medieval paintings and Renaissance-era woodcuts often portray biblical figures with fashions or weapons typical of the Renaissance. The usual portrait of Johannes Gutenberg is an anachronism; it was created to illustrate a different person in the 1500s, a century after Gutenberg's death. The usual portrait depicts typical clothing and hair style that were alien to Gutenberg's era, as we will see in Chapter 1.

0.8 Envisioning media futures

Science fiction (also known as Le Merveilleux-scientifique) is a popular genre of literature and illustration originating in mid-nineteenth-century France with Jules Verne. Visions about the future of communications often involve technologies that reflect hopes for a better world, even though some may seem anachronistic or commonplace today.

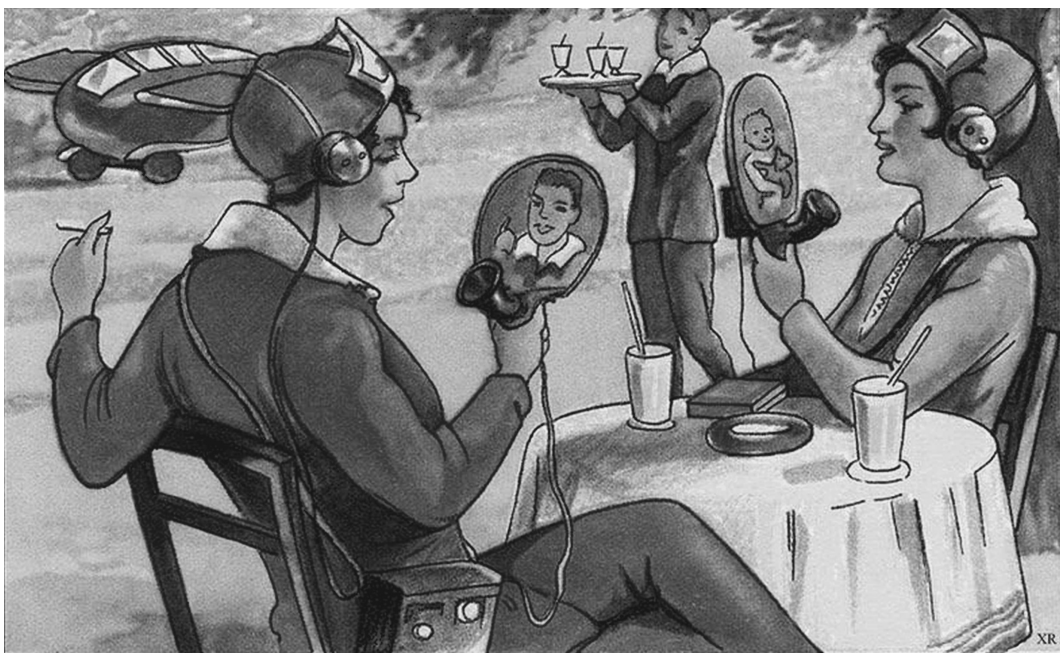

Figure 0.8a ***TELEPHONOSCOPE***—*Echte Wagner Album No. 3, series 12 and 13, 1930. Author unknown (public domain).*

Paris in the Twentieth Century (1863)—by Jules Verne—depicts literature student Michel Dufrénoy, who uses fax machines, electronic music, and an internet-like system of communication. But the social impact is far from positive. He is appalled that education has shifted away from the humanities, and that fellow students laugh when he receives a diploma in literature. The book was not published in Verne's lifetime. In other books, Verne anticipated television and commercials.

Le Vingtième siècle. La vie électrique (1891)—by Albert Robida—depicts fictional characters George Lorris and Estelle Lacombe, who meet each other via the téléphonoscope as they enjoy video-recordings of great musicians. The "electric life" of the future, however, sweeps away history and tradition and leaves a sterile and powerless void.

The Machine Stops (1909)—by E. M. Forster—is a short story about a mysterious machine that controls everything from food to information. All face-to-face communications are gone, and people meet through a kind of instant messaging/video conferencing system. The protagonist, Kuno, lives only to share ideas. And when the machine stops, so does civilization. Kuno realizes too late that the natural world is what really mattered.

Ralph 124c 41+ (1911)—by Hugo Gernsback—whose title means "one to foresee for one another," was a poorly received early science fiction work that contained insightful predictions including radar, television, the video phone, sound movies, voice printing, tape recorders, postage-stamp newspapers, and electronic writing.

Brave New World (1931)—by Aldous Huxley—presents a society in which people are separated into intellectual classes and oppressed mostly by their own addiction to amusement.

Nineteen Eighty-Four (1948)—by George Orwell—is a nightmarish vision of state totalitarianism and absolute mind control, considered a reaction to Stalinism.

Miracles You'll See in the Next 50 Years (1950)—by Waldemar Kaempffert—depicts Joe Dobson talking on the phone while also seeing other businessmen via television conferences. Meanwhile, Jane Dobson does much of her shopping by television.

Fahrenheit 451 (1953)—by Ray Bradbury—tells of how books are banned but nobody cares. Social life is limited because people consider the melodramas played on their "parlor wall" television screens as their real family. People are inundated by an "electronic ocean of sound, of music and talk and music and talk, coming in on the shore of [your] unsleeping mind."

Star Trek (1966, television series)—by Gene Roddenberry—often featured hand-held communications devices like the "communicator" and the "tricorder."

2001 A Space Odyssey (1968, movie)—by Arthur C. Clarke—follows space travel to Jupiter and trouble with the AI computer HAL 9000. The movie also shows a "newspad" digital newspaper embedded in a dining room table, which resembles iPads and tablets.

The Hitchhiker's Guide to the Galaxy (1979, book; 2005 movie dir. Jon Favreau)—by Douglas Adams—had its protagonist Arthur Dent use a "small, thin, flexible lap computer."

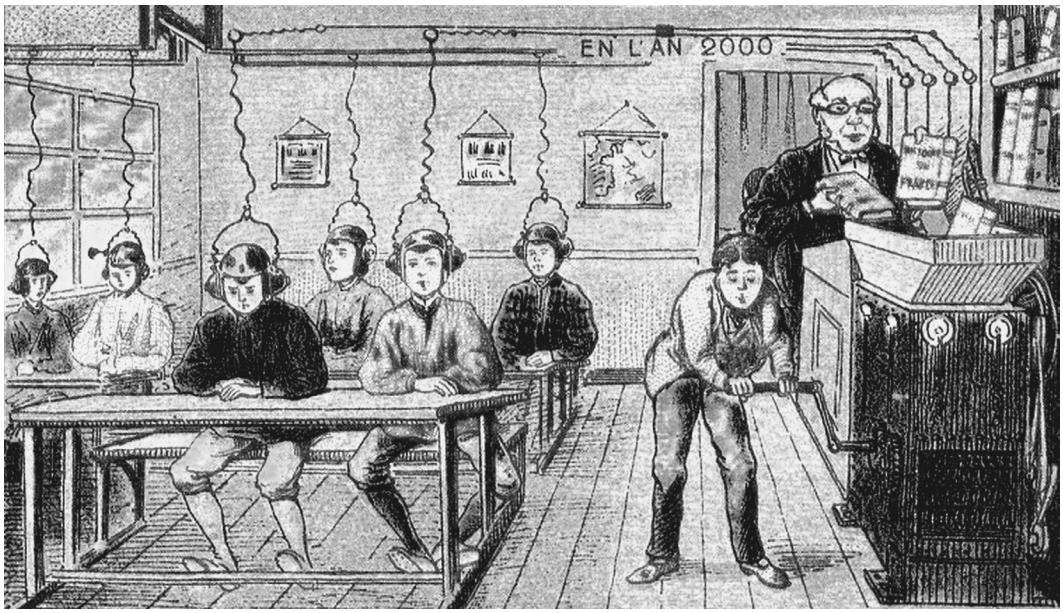

Figure 0.8b ***FUTURE SCHOOL IN THE YEAR 2000***—*Postcard by Jean-Marc Côté, c. 1900 (public domain).*

Minority Report (1956, book; 2002 movie dir. Steven Spielberg)—by Philip K. Dick—shows a constantly updating e-newspaper in the year 2054, along with a barrage of highly personalized advertising as computers recognize the protagonist's biometrics: "John Anderton! You could use a Guinness right about now."

City of the Future (1967, cartoon)—by Robert Crumb—depicts an average person tuned into everything that's happening all the time. "No one will be left out. We'll all be normal."

Iron Man (2008, movie dir. Jon Favreau)—Tony Stark uses a combination telephone and computer with a transparent screen in the visor of his Iron Man costume. Google tried this kind of ubiquitous heads-up display on eyeglasses as the "Google Glass" project in 2014. Safety, privacy, and other issues led to its abandonment in 2023.

0.9 Key concepts: Media effects

Theories of media effects include persuasion, agenda-setting, media uses and gratifications, cultivation analysis, and other here-and-now concepts. Most are sociological rather than historical in nature, but Marshall McLuhan used history to survey what he called an "inventory of effects" of individual and long-term social change.

Among these effects are: 1) the influence of immersive "hot" media as opposed to dispassionate "cool" media; 2) the historical "tetrad" mapping of media technology changes; 3) the "alphabet effect" of writing and printing on traditional oral cultures, and also the reverse of the alphabet effect, in the way that radio and television can "re-tribalize" society; and 4) media

Figure 0.8c ***THE INCONVENIENCE OF POCKET PHONES***—*By W. K. Haselden, 1919, Daily Mirror (public domain).*

ecology, or the environment that media creates in a society.

0.9.1 Hot and cool media

In his 1964 book *Understanding Media* McLuhan theorized that some types of media are "hot"—that is, they invite easy participation and less conscious immersion. Others tend to be "cool," inviting audience members to take a more active role in the construction of meaning.

Just where each medium might fall on a hot–cool spectrum depends on its historical, cultural, and technological context. Cinema was "hot" in the 1960s because audiences were fully immersed watching a movie. They suspended disbelief. Television was "cool" because, at the time, it was a low-definition medium that required some effort to enjoy. Yet over time, as television technology improved, the medium became hotter—that is, more and more immersive.

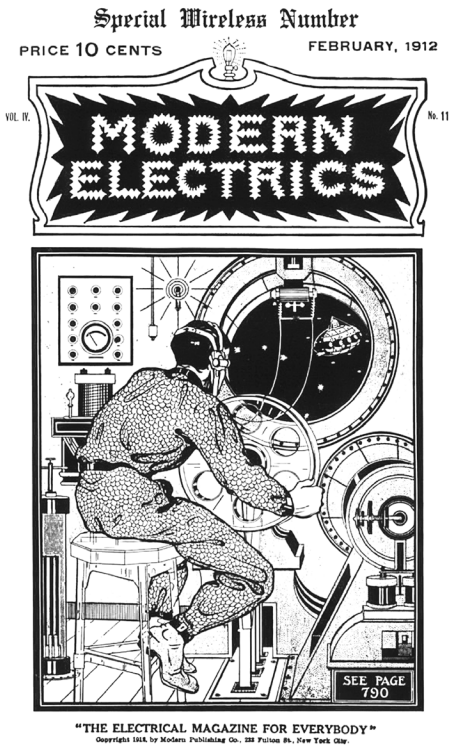

Figure 0.8d **SPACE RADIO, RALPH 124C41+**—*By Hugo Gernsback, 1912, Modern Electrics (public domain).*

The idea of print as an actively constructed medium wasn't entirely new. For example, Enlightenment philosopher David Hume said that a free press should not be feared because the medium could not incite rebellion. "A man reads a book or pamphlet alone, coolly. There is none present from whom he can catch the passion by contagion" (Hume, 1742).

McLuhan's linear view of hot–cool media categories is not the last word concerning the psychology of media effects. In the twenty-first century, studies of brain activity in young children have shown that reading books helps develop brain structures, while screen time correlates with lag in brain development. The differences are visible with functional magnetic resonance imaging (fMRI) (Hutton et al., 2019; Girard et al., 2021).

Another facet of media-effects psychology involves a spectrum of human attention moving from "flow" to "catharsis." Flow is what happens when people are so deeply immersed in a game or sport that time stands still for them (Csikszentmihalyi, 1991). Catharsis is what happens when theater or cinema helps people release emotions. "Film, television, and fiction belong to catharsis culture," said historian J. David Boulter in his 2019 book *The Digital Plentitude*. "Flow culture flourishes in digital media such as video games."

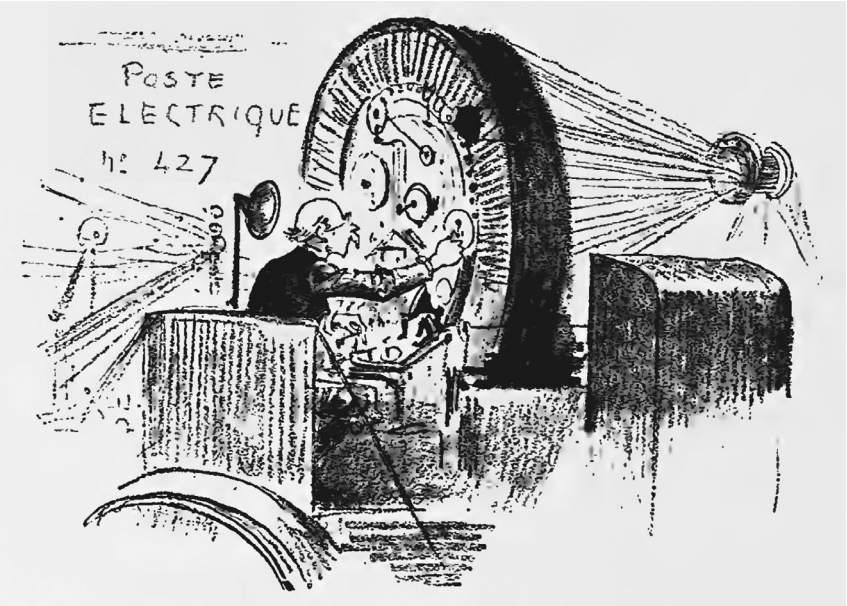

Figure 0.8e ***EMAIL AS ENVISIONED IN 1900***—*By Alfred Robida, 1892,* L'vie Electrique *(public domain).*

Figure 0.8f **WE'LL ALL BE NORMAL**—*By Robert Crumb, 1967.*

0.9.2 Tetrad of new technology effects

New communications technologies change and grow in familiar patterns that McLuhan said could be mapped out in what he called a "tetrad" of four effects. A new medium can: 1) enhance; 2) obsolesce; 3) retrieve; and 4) reverse.

For example, the arrival of radio enhanced speech and music; it obsolesced (or made less prominent) print and visual media; it retrieved oral culture and Vaudeville-style music hall shows; and it reversed (when pushed to its limits) into television.

Another example is the internet. In his 1962 book *The Gutenberg Galaxy*, McLuhan said: "A computer as a research and communication instrument could enhance retrieval, obsolesce mass library organization, retrieve the individual's encyclopedic function and flip into a private line to speedily tailored data of a salable kind." As media revolutions continue to reverberate, McLuhan's tetrad is a useful way of considering change, although we need to be careful about the uncertainty of historical cause-and-effect relationships.

0.9.3 Alphabet effect

The alphabet effect is a theory that alphabetic scripts promote abstraction, analysis, classification, and linear thinking (McLuhan and Logan, 1977). This has led, McLuhan said, to accelerated technological development in Western civilization.

The theory helps describe the transition from oral culture to manuscript and then print culture. The historical question, noted above, is whether this print culture is part of the Gutenberg Parenthesis, with new secondary orality/re-tribalization returning civilization to a digital oral culture.

The alphabet effect theory is controversial in that it represents a response to historian Joseph Needham's "Grand Question" of why Western Europe surpassed China using technologies originally invented in China (2005).

According to media historian Paul Grosswiler: "McLuhan elevated the phonetic alphabet to the highest importance—together with typography—in the rise of visual Western culture. He wrote that the alphabet had, in effect, created civilization."

But this is ethnocentric, Grosswiler maintains. "A writing effect, not an alphabet effect, unites Western alphabetic and Eastern non-alphabetic cultures in a common heritage." Historical periods of social advancement have alternated in pendulum fashion, rather than as a permanent superiority brought about by the alphabet (Grosswiler, 2004).

0.9.4 Media literacy, social maturity, and media ecology

The questions that early communications historians addressed are still being asked today: What are the effects of technology on the structure of civilization? How do media technologies influence our psychology? How do we map technology change?

These questions relate to studies of media literacy and media ecology. Media literacy involves the maturity with which individuals use the media. Media ecology is the study of the environments created by media and their overall influence on society.

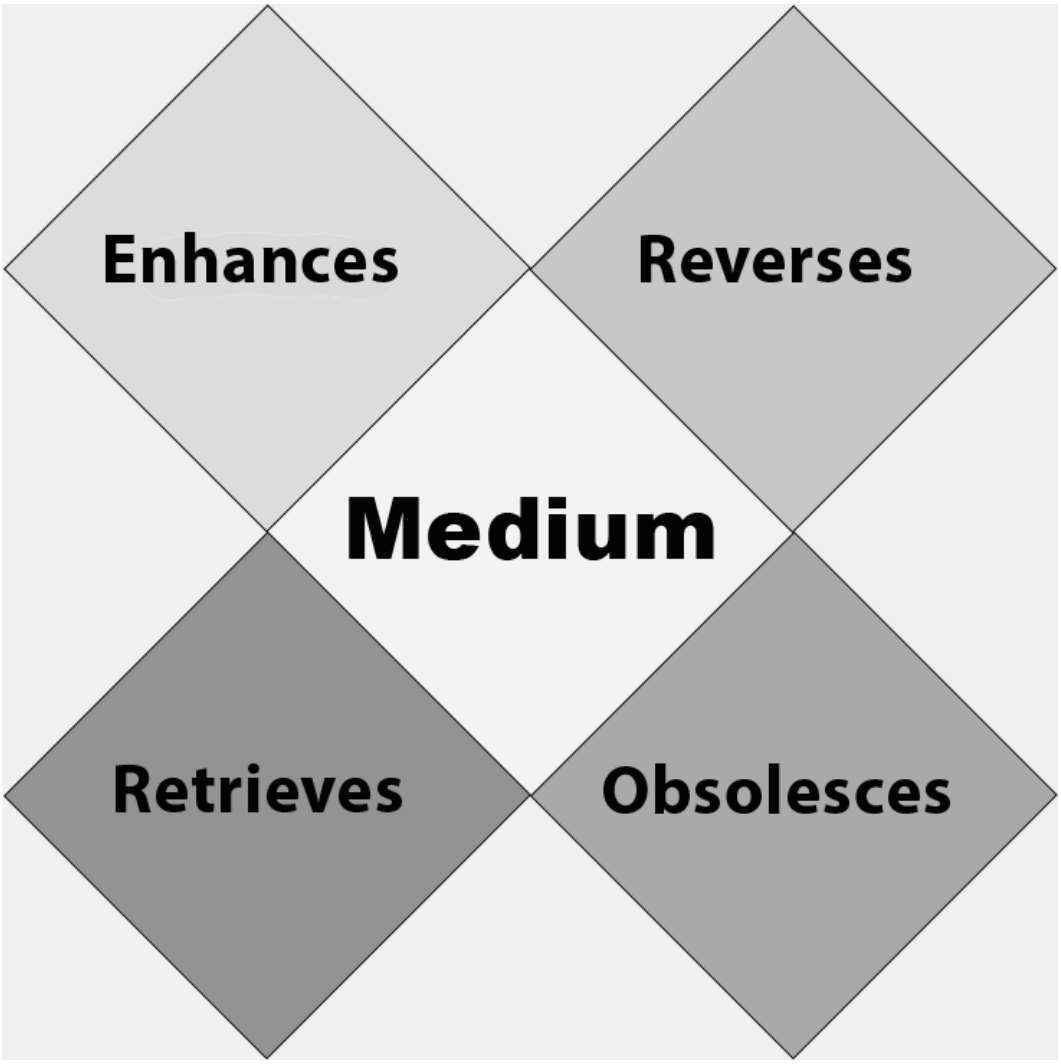

Figure 0.9a ***MCLUHAN'S MEDIA EFFECTS TETRAD***—*Adapted from Merosonox, Creative Commons, Wikimedia.*

Literacy and maturity are often advanced by media technology, but they can also be set back, as Arthur Koestler observed in his 1941 novel *Darkness at Noon*: "Every leap of technical progress brings with it a relative intellectual regression of the masses, a decline in their political maturity … It may take decades or even generations before the collective consciousness gradually catches up to the changed order and regains the capacity to govern itself that it had formerly possessed at a lower stage of civilization."

This lack of maturity is a theme often found in media history. Fraudulent uses of new technologies, such as "spirit photography" in the late nineteenth century (see Chapter 4), or stock swindles by telegraph (noted in Chapter 7), or the panic over the 1938 *War of the Worlds* radio broadcast (see Chapter 8), show a simple-minded gullibility when people are

exposed to new media. The problems were as serious in their day as bank account "phishing" and social media addiction are in the twenty-first century. "The internet seems to have made many of us so much dumber—or at least, much more susceptible to wildly false information," said *The Washington Post* columnist Catharine Rampell. It's easy to be astonished at the range of falsehoods, from fake birth control information to "911 truthers," or even mundane things like the price of a hamburger or the shape of the earth (Rampell, 2024).

Rumors that surround ordinary events are "a stark reminder of the erosion of trust among Americans in major institutions, particularly government and media, and the perverse online incentive structures that reward the sharing of misinformation," said a CNN columnist (O'Sullivan, 2024).

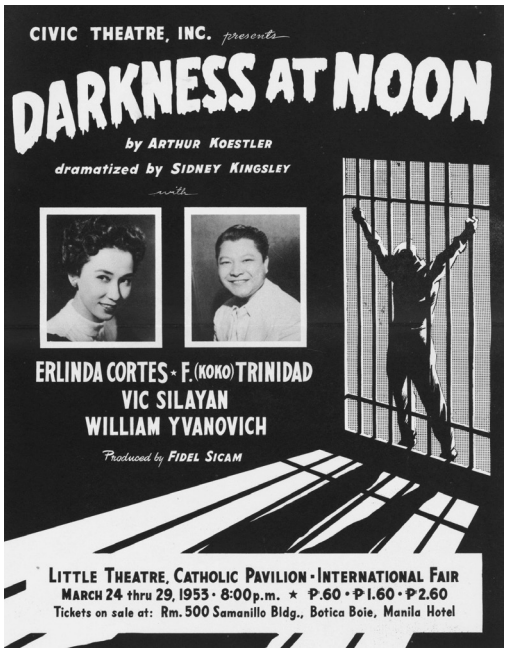

Figure 0.9b ***HANDBILL FOR ARTHUR KOESTLER'S* DARKNESS AT NOON**—*Sidney Kingsley, 1953, US National Archives.*

New media technologies create changes, sometimes with great force, effect, and consequences. Plato famously warned that writing "will implant forgetfulness" in the souls of people who once memorized the *Iliad*. Walter J. Ong found that memory training in an oral culture is, not surprisingly, better than similar training in a manuscript or print culture. Similarly, military band conductor John Phillip Sousa feared in 1906 that recorded music would end community sing-alongs, as we will see in Chapter 7. "The tide of amateurism cannot but recede, until there will be left only the mechanical device and the professional executant. Singing will no longer be a fine accomplishment; vocal exercises, so important a factor in the curriculum of physical culture, will be out of vogue!" (Sousa, 1906).

Another aspect of the media technology/social maturity issue involves the way propaganda depends on illiteracy and a lack of critical thought. During the US–Russia Cold War (1945–91), propaganda was easily identified. In the twenty-first century, people using new social media are easier to fool, as we will see in Chapter 12.

The revolutionary shift in media technology—and in global social organization—is having serious consequences. As Librarian of Congress James H. Billington said:

> We are now discovering—painfully and much too slowly—that deep conflict between cultures is in many ways being fired up rather than cooled down by this revolution in communications, as was the case in the 16th and 19th centuries. Whenever new technology suddenly brings different peoples closer together and makes them aware of certain commonalities, it seems simultaneously to create a compensatory psychological need for the different peoples to define—and even assert aggressively—what is unique and distinctive about their own historic cultures.
>
> (Billington, 2005)

0.10 From oral culture to literary culture and back again

The move from oral culture to manuscript culture and then to print culture is thought to have profoundly reshaped patterns of human thinking. Traditional oral cultures are so ingrained in human behavior, according to one theory, that electronic and digital media are propelling something of a return.

The shift from traditional cultures to linear printed culture tends to be one of the most intractable issues in history, made even more difficult by modernization, globalization, and digital culture, as we will see in Chapter 12.

As traditional oral cultures became lost over time, some of the world's most sorrowful literature emerged: Oliver Goldsmith's 1770 poem *The Deserted Village* lamented the rural "innocence and ease" lost to Britain's enclosure acts; Chinua Achebe's 1958 book *Things Fall Apart* described the way European colonialism eroded social structures in Africa; and Anne Pancake's 2007 book *Strange as This Weather Has Been* follows social disintegration in traditional Appalachian communities as coal mining accelerated during the late twentieth and early twenty-first centuries.

Despite the romance, few people want to return to a pre-industrial world. "We dream that the country was idyllic in the eighteenth century, a lost paradise like *The Deserted Village*," said European mathematician and philosopher Jacob Bronowski in his 1974 book *The Ascent of Man*. "That is a fable. The country was a place where [people in poverty] worked from dawn to dark" (Bronowski, 1974).

One of the many reasons that radio was so successful as a mass medium is that it revived this pre-industrial sense of belonging and community, creating what McLuhan called a "re-tribalization" of culture and what Ong called a "secondary orality" (Ong, 1984). In these cultural conditions, people long for older and more community-oriented life, including slower communications systems. This is a great touchstone of twentieth-century fiction, especially the epic history and fantasy genres in books, games, and cinema—not only *Harry Potter*, *The Lord of the Rings*, or *Game of Thrones*, but also patriotic history such as *Band of Brothers* and *Masters of the Air*. These help recover this sense of connection to the heroic epic that was well served by oral culture (Campbell, 1949; Drout, 2006).

This same "re-tribalization" has also become a factor in political culture: "It seems fair to say that liberalism has more of a print culture and conservatism more of an oral one, shaped especially by the rhythms of televised infotainment, with its celebrity hosts, its heroes and villains of the week, and its partisan cheerleading," said a *New York Times* columnist (Hanania, 2021; Douthat, 2023).

If digital media is hastening a return to this comfortable but authoritarian oral and tribal culture, how far will print culture recede? Some scholars believe printing will be seen as a few unusual centuries sandwiched between great eras of traditional oral culture and digital tribalism. The idea is called the "Gutenberg parenthesis" (Jarvis, 2023). In the view of Danish researchers Thomas Pettitt and Lars Ole Sauerberg, the rationality of a literary world is giving way to the emotionalism and superstition of a new digital oral culture. "The future is medieval," say Pettitt and Sauerberg (Starkman, 2013).

> Current developments in culture and the media are taking us beyond book culture, which may in retrospect be seen as a "Gutenberg" parenthesis—the dominance of the powerful

combination of alphabet, print and book—now challenged not merely by the "secondary orality" identified by Walter Ong as facilitated by electronic media such as telephone, radio, and television, but also by the "electronic verbalization" enabled by digital technology.

Science fiction writer Ray Bradbury anticipated the decline of print literacy and rise of secondary orality and tribalization in his chilling book *Fahrenheit 451* (1953). Bradbury depicted a culture that had banned all books and used the fire department to destroy them. People find a sense of community by watching serialized fiction on their "parlor wall" television sets. "Remember, the firemen are rarely necessary," says one of Bradbury's characters. "The public itself stopped reading of its own accord."

———

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