

Mass Communications

a supplementary chapter to accompany

**Understanding Human Communication**

Fourth Edition

by

**Ron Adler and George Rodman**

prepared by

Eric Mark Kramer

**MASS COMMUNICATIONS**

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**UNDERSTANDING HUMAN COMMUNICATION**

**Fourth Edition**

by

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**Harcourt Brace Jovanovich College Publishers**

Fort Worth Philadelphia San Diego New York Orlando  
Austin San Antonio  
Toronto Montreal London Sydney Tokyo

ISBN: 0-03-076841-1

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*Address Editorial Correspondence To:* Harcourt Brace Jovanovich, Inc.  
301 Commerce Street, Suite 3700  
Fort Worth TX 76102

*Address Orders To:* Harcourt Brace Jovanovich, Inc.  
6277 Sea Harbor Drive  
Orlando FL 32887  
1-800-782-4479, or 1-800-433-0001 (in Florida)

Printed in the United States of America

2 3 4 5 023 9 8 7 6 5 4 3 2 1

After reading this chapter, you should understand the following:

1. The history and development of mass media technologies.
2. The history of modern scientific efforts to explain the impact of mass media on various audiences.
3. The interrelationships between media.
4. The characteristics of commercial media.
5. How media and culture interrelate.
6. The nature of media business.
7. Some of the most influential theories about the mass media.

You should be able to do the following:

1. Describe and discuss the development of various mass media.
2. Discuss how the media affect society.
3. Discuss how society affects the mass media.
4. Identify the most important theories about the mass media.
5. Discuss how efforts to explain and control mass media effects have changed over the years.

#### KEY TERMS

mass communication	blacklisting
selective effects	Payne Fund
agenda setting	wireless
gatekeeping	electromagnetic wave
spiral of silence	Morse Code
penny press	gramophone
muckraker	KDKA
triode	Radio Group
regenerative circuit	Telephone Group
network	FCC
amplifier	indoctrinate
uses and gratifications	propaganda
magic bullet theory	intervening variable
typesetting	The Radio Act of 1934
phonograms	exposure
ideograms	channel
reporter	scientific rhetoric
telegraph	law of minimal effects
information	two-step flow
transmission	opinion leader
global village	curve of diminishing returns
celluloid	television addiction
kinetograph	phenomenology
peep show	Critical School
yellow journalism	vaudeville

Although many people think of the mass media as a new phenomenon, it is actually quite old. The most important element of mass media is the medium itself because it determines how large the audience will be. Often we think of mass media as being electronic. But more fundamental to the modern understanding of mass media is that it allows many people in different places to receive the same message simultaneously. A more restricted notion of mass mediation has it that many people receive the same message, but not necessarily all at once.

Regardless of which definition of mass media one prefers, a key component of mediated communication is that it is often recorded. Recording makes it possible to warehouse messages so that they may be saved and transmitted at a later time to an entirely different audience. Thus, the great scientist Galileo wrote with wonder:

But above all astonishing inventions, what loftiness of mind was that of the man who conceived of finding a way to communicate his most recondite thoughts to whatever other person, though separated from him by the longest intervals of space and time! To speak with those as yet unborn, or to be born perhaps a thousand or even ten thousand years hence! And with what ease! All through various groupings of twenty simple letters on paper.<sup>1</sup>

Libraries, whether of books, films, or compact discs, are warehouses of stored messages, waiting for us to care enough to complete the communication process, to begin the conversation. Libraries are extensions of our collective memories. Over the centuries, millions of people may read the same book, making it a mass medium of sorts but without the component of simultaneous reception. In order to better appreciate Galileo's wonderment, we must understand writing as the first medium that encouraged mass communication by saving the message.

Between 5000 and 4000 B.C., people in different parts of China and the Middle East began to use pictures to help them preserve ideas. The important first step toward written language was the standardization of pictographs. Pictographic writing uses standardized ideograms which represent ideas rather than sounds. Examples of ideographic writing include ancient Egyptian, Chinese, and Mayan. Because pictographic writing does not represent sounds, though we may be able to read it (ancient Egyptian for example), we cannot speak it because we have no idea how it sounded. Ideographic systems of writing are very difficult to master because one must memorize the symbol for each idea. As a consequence, to read a Chinese magazine one must learn over 20,000 characters. For this same reason, mechanical Chinese typewriters are huge contraptions with hundreds of keys, requiring years of practice to be a typist. Today complex computer programs have made typesetting Chinese much easier.

Around 3000 B.C. in the Fertile Crescent region of the Middle East, a brilliant and revolutionary idea about writing emerged. The ancient Sumerians invented cuneiform, a style of writing that symbolizes sounds instead of ideas. Phonograms, rather than ideograms, made writing much simpler. Today's modern English alphabet of just 26 letters is inherited from the ancient Romans, who received it from the Etruscans, who obtained it from the ancient Greeks, who probably copied it from the Phoenicians, who adapted it from Assyrians, who borrowed it from the Babylonians, who got the idea from the Sumerians. The "capital" letters we use today are called *Majuscule*, and were originally used by ancient Romans on their buildings and monuments. Our lower case letters originated during the time of Charlemagne, and are called *Carolingian* script. Thus we have a simple phonetic writing system, but this leaves the problem of portability.

Writing messages for posterity's sake on marble monuments is a capital idea, but one cannot carry a newspaper around made out of stone. The Sumerians used clay tablets, but this too proved problematic. The first truly portable medium (not counting tattooed skin) was probably ancient Egyptian papyrus, which appeared about 3000 B.C. The Egyptians took a reed that grew in marshy areas (papyrus), sliced it into narrow strips, weaved the strips into matts, and then pounded them to produce something like paper. Unfortunately, not many papyrus scrolls exist today from these times, but the invention of this portable writing surface enabled the emergence of written history and culture. Other portable media include *vellum* (tanned calf skin) and *parchment* (tanned sheepskin). Around 1100 A.D. the Moors introduced paper to Europe. Paper had been invented in China and passed to the Persians at an earlier date.

With the phonetic alphabet and portable media, one might think that nothing more was needed to produce mass mediated messages. However, for many centuries, only a few literate persons, usually clerics, could write. These individuals worked diligently to reproduce *manu scripti* (books by hand). Because hand-made reproductions took so much effort, books were extremely expensive. Up through the Middle Ages (500–1500 A.D.), students at European universities had to rent textbooks, one chapter at a time, and copy them letter-by-letter. This level of technology greatly restricted the dissemination of information and ideas. Scientific, religious, political, and social reform could not occur under such conditions.

Two events converged that caused a revolution in the thinking of Western Europeans. First, a German goldsmith in Mainz named Johannes Gutenberg (c.1400–1468), perfected a technology that would allow for much more efficient reproduction of texts, including the Bible. Secondly, the German monk Martin Luther translated the Latin Bible into German (c.1525), which allowed nonclerics direct access to the sacred knowledge of the medieval church. The impact of these two events cannot be over-estimated for they represent the vanguard in a shift in attitude that led to the overthrow of the dominant power structure of Western Europe. For the Church of Rome not only held monopoly access to eternal salvation but, via the doctrine of divine

right, was also the ultimate basis of secular power. The beginning of the end of European royal power and Catholic hegemony is initiated by the act of widely disseminating information which presupposes translation and efficient reproduction of texts.

After 20 years of financial hardship and numerous failed attempts, Gutenberg finally perfected a new lead alloy which allowed him to make *movable* letters. The ancient Chinese had movable wood type centuries earlier, but prior to Gutenberg in Europe, printing used wooden blocks of entire pages, in reverse. In order to change the message, the printer had to carve a whole new page. Gutenberg also took a wine press and successfully converted it for pressing pages of text. Finally in 1455 he produced the 200 copies of his famous forty-two-line Bible, which is still revered as one of the greatest works of the printer's art. Unfortunately, just before Gutenberg could deliver his Bibles and receive payment, his major investor sued him, winning the press, all the movable type, and all the Bibles. Gutenberg was left destitute and soon went blind.

The new technology of reproduction spread rapidly throughout Europe and was brought to the New World. The press was the communicative cradle from which emerged modern science and literature, including essays about social and political alternatives to the old order. Along with the new concept of knowledge as progressive bibliography, the exploration of the globe represented the spirit of the European Renaissance. Wherever Europeans went, so went their culture and means to propagate and preserve it.

A century before the pilgrims landed at Plymouth, Massachusetts, Juan Pablo set up the first press in the New World. In 1539, Pablo pressed his first book in Mexico City, entitled *Breve y mass compendiosa doctrina cristiana*. The first press in the English colonies was set up about 100 years later, at Harvard College in Cambridge, Massachusetts. It was on this press that the first English book in the New World was produced, entitled *Whole Booke of Psalmes* (or *Bay Psalm Book*). Presses were considered dangerous (meaning subversive) technology by nearly all monarchs. The location and output of each press was carefully monitored by both religious and secular leaders. For instance, in 1529, Henry VIII established a list of prohibited books and a system of licensing. Galileo's scientific writings were still banned by the Vatican until the 1980s. The idea that knowledge is liberating, and empowering, fostered a drive toward the modern notion of individualism and democracy.

Newspapers proved to be essential for the dissemination of radical political views. For instance, Benjamin Harris was fond of criticizing the Crown of England. After fleeing political persecution in London, Harris arrived in Boston and promptly published a four-page paper entitled *Publick Occurrences Both Foreign and Domestick* (September 25, 1690). As a consequence, the British governor of the Massachusetts colony had him jailed.

The same fate awaited James Franklin, Benjamin's older brother, who was jailed for his newspaper the *New England Courant*, which he started in 1721. After being released, the governor forbade James Franklin from publishing, so

Benjamin took over the job. Later, Benjamin Franklin left Boston for Philadelphia, where he established the first chain of newspapers in the United States.

The Crown's fear of the effects of seditious political messages proved well-founded, as many American revolutionary leaders, including Thomas Paine and Thomas Jefferson, used presses as weapons in the fight for independence. The *Federalist Papers*, which prepared the ground for the *Declaration of Independence* and the *United States Constitution*, were first published and circulated in newspapers.

In 1834, in Massachusetts, Horace Mann won the battle for the first compulsory, tax-supported public education system anywhere, including France and England. A new genre of summarizing literature known as the textbook was born. Books were written for purely pedagogical purposes, assuming children as the audience. A famous example is the *Reader* written by William H. McGuffey (1800-1873), written expressly to teach children how to read. With this powerful new socializing tool for propagating and perpetuating knowledge, mass education was made possible. Quickly the United States surpassed England in the number of books sold. Literacy soared. The U.S. was poised to have the most educated labor force on earth, which set the stage for its rapid industrialization.

Seeking financial opportunities, vast numbers of people moved to the cities. Industrialized manufacturing needed a large and concentrated population. At the same time, this population was more literate than any before it in the history of the world. The technological advance of the steam-powered rotary press of the mid-1830s, and an urban readership, made conditions ripe for the new mass media content and form.

On September 3, 1833, Benjamin Day started a new kind of newspaper called the *New York Sun*. The *Sun* was neither a political nor religious organ, but a commercial paper designed for the less sophisticated, mass readership. It was entertaining and cheap. Because Day made his profits from advertising, he could afford to sell the paper for one penny.

The birth of the "penny press" is the beginning of modern mass media. Because of Day's immediate prosperity, many others quickly followed his example. Much of the *Sun's* success was due to what Day called "reporters." Reporters were hired to write stories of local interest with emphasis on sensational themes like crime, corruption, accidents, and humor. Other famous penny newspapers of this era include Joseph Pulitzer's *New York World*, Henry Jarvis Raymond's *New York Times*, and Horace Greeley's *Tribune*.

## Electrical Communication

In the 1820s, the British developed a form of electrical circuit used for communication called the telegraph (literally "distance writing"). A decade later, in the United States, Samuel F. B. Morse made significant improvements and invented a receiver that used strips of paper to make a permanent record

of messages. Morse also invented a code that has been adopted around the world. In 1844, Morse ran the first operational telegraph line in the United States between Baltimore and Washington D. C. His famous first words on the device were "What hath God wrought." By the end of the Civil War, a single company controlled the telegraph technology in the United States, Western Union. This technology helped to open the West. In 1866, the first submarine cable with regular transatlantic service was laid by the ship *Niagra*. This service made communication between Europe and North America nearly instantaneous. What had taken at least three weeks suddenly took only seconds.

Morse had predicted that the telegraph would turn the whole country into "one neighborhood." This prospect prompted the first doubts about technologically compelled communication from Henry David Thoreau. In *Walden*, Thoreau remarks, "We are in great haste to construct a magnetic telegraph from Maine to Texas; but Maine and Texas, it may be, have nothing important to communicate . . . We are eager to tunnel under the Atlantic and bring the old world some weeks nearer to the new; but perchance the first news that will leak through into the broad flapping American ear will be that Princess Adelaide has the whooping cough."<sup>2</sup> While Morse anticipates Marshall McLuhan's reflections about the advent of a "global village" by about one hundred years, in like fashion Thoreau opens the debate about the allure of gadgets, compelling us to attend to trivia, to become "couch potatoes."

However, the compulsion to speed information transmission was hardly "trivial," as it originated in military and commercial interests. From the days of Alexander the Great, it has been well understood that the fundamental problem of building and maintaining a geographically dispersed empire is communication. Thus, the Romans built the first all-weather roads and invented a large bureaucracy supported by great amounts of correspondence, handled by the first postal service. The European colonial powers of the 19th century also faced this problem. An investor in London, for instance, who is interested in the cocoa crop in India, would be very curious to know whether a typhoon wiped out the harvest. For mostly commercial reasons, news wires quickly spread from the European centers of power. News followed the cables as major news agencies like Agence France Presse, Reuters, and Wolff raced to connect the globe. In 1848, a group of American newspapers formed the Associated Press in order to share the cost of telegraphing foreign news from Boston. Originally, the news wire meant the telegraph.

In 1876, Alexander Graham Bell filed his key patent for the telephone. A year later he organized a company for the purpose of manufacturing his new voice transmission device. Though it also relied on wires, it had the advantage over the telegraph that the user need not master a code. Due to lack of funds, Bell sold his invention for a mere 100,000 dollars to a group of investors who called themselves American Telephone and Telegraph (AT&T). Bell had offered his patent to Western Union, but that company rejected it.

## Chemical Picture Processing

Meanwhile, photography had been invented (c.1839) by two Frenchmen, Louis Daguerre and Joseph Niepce. Daguerre, an artist, and Niepce, a chemist, collaborated on a technique that used a polished copper plate coated with silver. When a silverplated surface is exposed to iodine fumes, it forms a thin coat of light-sensitive silver iodide. After using a simple lens to focus an image on the plate, the two inventors were able to then "fix" the image with a chemical bath.

Photography quickly had an impact on journalism and our sense of history and truth. Such adages as "a picture is worth a thousand words," and "seeing is believing," was proven by photo journalism. The new visual medium quickly rivaled writing as a repository for current events and history. For example, Mathew Brady persuaded President Lincoln to support him in an effort to record the Civil War on photographic plates. Lincoln agreed and sent Brady, under protection of the Secret Service, to chronicle the war. Brady and his small crew traveled through the lines rather freely, freezing time on plates of copper. He took over 3000 photographs. Brady's photographic chronicle is itself considered an important achievement. But more than this, it has been a model for photo-historians ever since.

During the 1880s Hannibale Goodwin, an American preacher, invented flexible celluloid roll film, but it was George Eastman who promoted it with his Kodak camera in 1888. This made photography an amateur hobby and laid the technological foundation for motion pictures. The prolific inventor, Thomas Edison, worked on several devices that would exploit Eastman's celluloid.

First, in 1889, an assistant to Edison, William Dickson, perfected what was called the kinetograph, the first commercially useful motion picture camera. To view the motion pictures, Edison and Dickson invented the kinetoscope or "peep show," device. Edison, as much the entrepreneur as inventor, thought that he could make more money with his device, since it allowed only one person at a time to view, rather than a mass theatre audience. Hence, he neglected the development of a projection system for big screen viewing. However, Edison was quick to realize his mistake. He borrowed liberally from the work accomplished by the Lumiere brothers in France, who had already demonstrated their projection device, and also took ideas from Thomas Armat's work, to put together the vitascope motion picture projector. On April 23, 1896, Edison staged his first projection for the public in New York City. He even started a studio for filming vaudeville acts. As inventor of the tin-foil cylinder phonograph in 1877, Edison also anticipated films with audio, "talkies."<sup>3</sup>

By the end of the 19th century, several technological advances had powerful impacts on mass media. Among them were the advent of electrical presses, photography, color printing, the telegraph, the telephone, the phonograph, the gramophone, the first motion picture camera, and cheap wood pulp paper (prior to the 1860s paper was still made of rags). Other factors which greatly promoted the growth of mass media were the internal

combustion engine and paved roads. These made the delivery of posted reading material much easier.

### Commercially Driven Journalism

Social conditions were also rapidly changing. Large numbers of immigrants were arriving. This influenced the content of the media. Silent movies worked well for audiences that spoke several different languages. Newspapers, locked in fierce competition, exploited stories about the harsh lives of new immigrants, thus attracting readers with appeals to sympathy and their sense of justice. This came to be known as "Yellow Journalism," based on a cartoon character called the "Yellow Kid," about a boy growing up in a slum. William Randolph Hearst was the most famous newspaper magnate of the time, building a vast media empire on the basis of yellow journalism.

At the same time, mass circulation magazines with superior color reproduction proliferated. Some of the more famous were: *Harper's Monthly* (1850), *Atlantic Monthly* (1857), and several that were launched during the decade of the 1880s, including *Saturday Evening Post*, *The Arena*, *Cosmopolitan*, and *Collier's*. Due to advertisers' desires to reach women, several magazines targeting housewives were founded, including *Ladies' Home Journal* and *Woman's Home Companion*. With a generally more sophisticated level of writing than the newspapers, magazines published stories about dishonorable politicians, monopoly oil companies, urban crime, corruption, unjust labor practices, and other scandals. Writers who campaigned for social justice were dubbed "muckrakers" by President Theodore Roosevelt. Muckraking declined after World War I because the Bolshevik revolution in Russia and political unrest elsewhere made social reform and investigative reporting seem provocative, if not dangerous. As the political climate became more conservative, a new form of "apolitical," "objective," (meaning not critical) reporting soon emerged with the "newsmagazine." In 1923, Henry Luce and Briton Hadden launched *Time*. Soon "picture magazines" like *Life* and *Look* followed. This form of journalism tends to neglect socio-historical and political context, emphasizing isolated "facts" instead. The result has been accurate but sometimes trivial reporting.<sup>4</sup>

The leisure time and relative affluence afforded urban factory workers (as compared with agricultural workers) also promoted the acceptance of the idea that spending time being entertained was not sinful. Vaudeville thrived in the new metropolitan environment. Song-and-patter teams and comedians such as Jack Benny, Fred Allen, George Burns and Gracie Allen, and Red Skelton would soon make the move from the stage to the radio studio. By the end of World War I, about two hundred phonograph manufacturers existed in the United States alone. This accustomed people to the behavior of investing in a device for purely leisure activity. Entertainment and convenience were quickly being embraced as new cultural values.

In 1905, Harry P. Davis and John P. Harris opened the first theatre for public viewing of films in Pittsburgh. They used folding chairs, a piano for accompaniment, rented movies, and charged five cents for admission. They called their theatre the "Nickelodeon." They showed movies that were as much as 25 minutes long, and which told stories like *Life of an American Fireman* (1903) and *The Great Train Robbery* (1903). It was a rousing success, and by 1910 there were 1,000 such Nickelodeons around the country. This form of entertainment appealed to the working class and poor of urban, immigrant America. Nickelodeons were called by observers of the social scene "democracy's theatres."

As movie going grew, ornate "movie palaces" with large seating capacity were built, and "stars" were created. Prominent roles were reserved for particular actors and actresses. The "star system," which promoted romantic publicity about the off-screen lives of performers, helped to boost the allure of film. Movie going was a family affair, and already by 1914 an estimated 40 million people went to the movies every week. World War I caused the European movie industry to close, making Hollywood the world's mecca for film entertainment. This opened the world market to American filmmakers, with the consequence that people around the globe became exposed, for good or ill, to American cultural values and expectations.

### Early Social Science Meets Early Film

During the 1920s, the push for profits led the film industry, not unlike the yellow journalists, to pander to "lower tastes" with sexy content. Perhaps the best example of this tendency is represented by the buxom film star Mae West (who wrote her own scripts). West, who stared on Broadway in *Sex* (1926), went to Hollywood and promptly became a hit with risqué dialogue, her "ripe figure," and "frank appreciation of male virility."<sup>5</sup> She made famous such lines as, "Is that a role of nickels in your pocket, or do you like me?" This, along with the mass propaganda during the First World War (1914–1918), raised fears among parents, teachers, and government leaders about the effects mass mediated messages may have on audiences, especially children.

By 1929, it is estimated that 11 million children under age 14 attended horrors, crime dramas, action westerns, and romance movies every week. During the 1920s, concern about the immediate, direct, and uniform effects of movies had solidified into the "magic bullet" or "hypodermic injection" theory of mass media effects.<sup>6</sup> A private foundation, the Payne Fund, financed the first large-scale systematic research into the effects of mass media messages on audience members. Though fraught with methodological weaknesses, a few of the findings generated lasting interest.

One of the Payne researchers, Herbert Blumer, studied how movies depict role models for children's play-behavior. Blumer's research argues that movies have a powerful, and lasting, impact on children, that young viewers often mimic the mannerisms, speech patterns, attitudes, hair, and clothing styles of

their favorite stars. He also reported that many people he interviewed disclosed being "emotionally possessed" during the viewing experience.

Two other researchers who took part in the Payne Fund Studies were Ruth C. Peterson and L. L. Thurstone. They conducted an experiment to test the extent to which movie viewing can alter children's attitudes toward social issues. They pretested 4000 junior and senior high school students' attitudes about Negroes, gambling, drinking, Chinese, Germans, and criminal punishment. They then exposed the students to movies with various biases, both negative and positive, about these topics. Then they post-tested the students in an attempt to measure attitude change. Thurstone and Peterson reported that there was measurable change in attitudes, that the changes were sometimes dramatic and long lasting, and that influence was cumulative with many viewings.

Despite the methodological problems these studies had, the fact that direct effects were "scientifically demonstrated" gave strong support for the bullet theory. This, along with pressure from religious groups such as the Catholic Church's Legion of Decency, persuaded the Motion Picture Producers and Distributors Association (commonly called the "Hays Office") in 1930 to adopt a very stringent code for censoring movies. For instance, words such as "whore," "sex," "God," and "guts" were banned from scripts. For this reason, the famous line, spoken by Clark Gable in the 1939 blockbuster *Gone With the Wind*, "Frankly, my dear, I don't give a damn," caused a sensation. Also, all bedroom scenes were required to clearly indicate that each partner had his or her own, single bed. Full pajamas were mandatory, even during love-making, and the length of kisses was timed.

## Wireless

For millennia, and cross-culturally, humans have wished for the power to conquer space and time. Mediums like swamis, shamans, prophets, and gurus have existed for all of recorded history. As it turned out, understanding a quite mysterious and wonderful force, electricity, has been the key to distant seeing ("television") and distant hearing (radio). Each is an artificial extension of human sense perception. Today we can "vicariously" visit the wreck of the Titanic and the moons of Pluto. We can be "present" in Tienamen Square and the Gulf War. This ability is based on the work of several characters in our story about wireless.

Scientists who helped lay the foundations for wireless include Volta, Ampere, and Faraday. In 1873, the Scottish physicist, James Clerk Maxwell, predicted the existence of something that cannot be seen, smelled, touched, tasted, or heard. Maxwell argued that an invisible radiant energy, the ether, permeated all things. It was not until 1888 that the German physicist Heinrich Hertz published a paper (*Electromagnetic Waves and Their Reflection*) that described how to create and measurably detect this invisible force.

A young Italian was encouraged by his tutor to study these ideas about the physics of electromagnetism. His name was Guglielmo Marconi. He replicated the Hertz experiment and went on to make several improvements. At the youthful age of 22, Marconi had perfected a transmitter and receiver for radio waves. Being an avid amateur sailor, Marconi immediately realized the value of wireless communication for ships at sea. It was many years before radio was seen as anything other than a redundant competitor to telegraph for terrestrial communications. This was because radio was initially conceived as a point-to-point, rather than mass, communication service. Radio was seen as a wireless telegraph. For many years, all radio transmissions were in Morse code.

Since his father was an Italian nobleman, Marconi first took his invention to the Italian navy, which rejected it perhaps because its youthful inventor lacked credibility. His mother, heiress to a British distillery fortune, arranged a meeting with the British Post Office Department. Marconi's flare for dramatic demonstrations left them very impressed. The simple fact that he could "transmit" a message from one point to another with no intervening physical device, like a wire, awe-struck his audiences. His introductory speeches to such demonstrations were not unlike those of an overly dramatic circus caller, with the profound difference that the miracle Marconi promised turned out to be startlingly real. In 1896, Marconi registered his patent for the radio in London, England. A year later, he formed an international company and soon had patents in several countries and an expanding monopoly on wireless maritime communication. In 1909, Marconi shared the Nobel Prize in physics with Germany's Ferdinand Braun. Braun never capitalized on the wireless like Marconi.

Four events occurred that thrust the new invention into the public attention and imagination. First, during the Russo-Japanese War of 1904/1905, the Japanese fleet sunk the Russian fleet. The Japanese success was largely due to their use of Marconi wireless sets (and operators). While a dense fog prevented the Russian naval vessels from communicating with semaphores, the Japanese literally sailed circles around the blinded ships and fired at will. The lesson was not wasted. Military establishments around the globe rushed to implement the new technology.

Then on Christmas Eve, 1906, prolific inventor, Reginald Fessenden combined several new inventions to make the first noncoded, voice radio transmission in history from Brant Rock, Massachusetts. Fessenden used Bell's telephone microphone, connected to a Marconi wireless set, and boosted by a powerful mechanical amplifier patented by Ernst Alexanderson, to send his messages to startled Marconi operators at sea. Suddenly the wireless operators, accustomed to the staccato noise of Morse code, heard Fessenden reading the Bible, playing the violin, playing Berliner gramophone disc recordings, and singing. It was the beginning of radiotelephony.

The third event to rivet the popular imagination was a radio report of the impossible. A young Russian immigrant name David Sarnoff, who worked for American Marconi, was manning his wireless at a Wannamaker Department

Store in New York City when he heard the international call for help, "SOS" (Save Our Souls at 500 KHz). The signal alone was exciting, but considering its source, it was fantastic. On that fateful night of April 14, 1912, Sarnoff heard the Marconi operator on the new unsinkable ship, the *Titanic*, code that the vessel was going down in the icy waters of the North Atlantic. With it, the vessel took 1500 of the world's most influential citizens and the radio operator, who stayed with the ship. By comparison it would be as if the Space Shuttle *Challenger* had been packed with over a thousand industrialists, diplomats, royalty, and artists. Sarnoff promptly picked up the Bell invention and phoned the news to the newspapers, who rushed "extras" (special, unscheduled additions of newspapers) to the streets.

The fourth event was the return of thousands of veterans from World War I who had been trained in wireless operations. Many of these veterans promptly built their own sets for fun. It was only a matter of time before radiotelephony was to become more than a tool of commerce and war.

### The Americanization of Radio

In the United States, a few major corporations struggled in lengthy legal battles over the essential patents for radio. The financial stakes were high because whichever company was first in assembling a complete radio system could then enjoy a monopoly based on the technical standards of their choosing. The main protagonists were American Telephone and Telegraph, General Electric, Westinghouse, and American Marconi. Several technical problems had to be solved. The two greatest obstacles, and the vertices of legal storms, were amplification of signals and reliable signal detection. In 1904, Marconi received an important patent for a tuner that overcame the second technical obstacle. The first problem, the solution to which promised to be very lucrative, was not so easily resolved.

Several companies vied for the all-important patent on a device that could amplify a weak signal. In 1904 Ambrose Fleming received a patent for the diode, a vacuum tube with two poles, a hot filament and a metal plate. Both Edison and Fleming had explored the phenomenon that electricity would flow between these two points in a glass tube filled with gas. While Edison was interested in creating light, Fleming was interested in using this device to detect radio waves. A breakthrough in amplification came with the addition of a third element in the tube, creating the triode.

The goal was to find a lightweight and energy-efficient means of amplifying signals for long-distance communication. Prior to World War I, Ernst Alexanderson had invented the Alexanderson Alternator while working for General Electric. This contraption, developed for Reginald Fessenden's experiments in long-distance radio, was *mechanical*, large, hot, and required a large amount of electricity. Anxious to gain market advantage, two corporations laid claim to a new *electronic* amplifier that would make long-distance communication much easier. This amplifier, a triode, was called the

regenerative, or feedback, circuit because a tiny grid was inserted between the filament and plate. This grid carried a small charge of electricity which made it possible to precisely control the signal flow from the filament to the plate. As a consequence, part of the signal could be fed back on itself, greatly increasing signal strength.

Two engineers claimed to have invented the feedback amplifier. They were Lee de Forest, who worked for AT&T, and Edwin Armstrong, who worked for American Marconi. Because this device was the key to practical long-distance communication, the parties involved went to court to protect their respective patent claims. The legal struggle lasted more than 20 years. Finally in 1934, after millions had been spent on legal fees, the United States Supreme Court found in favor of de Forest. Armstrong was devastated but was destined to go on and invent frequency modulation (FM radio). The feedback circuit enabled AT&T to offer long-distance telephone service and network radio (and later television), with special, permanently equalized, long distance telephone lines. Despite terrestrial microwave relays, telephone "long lines" remained the most widespread technique for networking radio and television until 1974, when Western Union's Westar I was launched, making domestic communication via satellite feasible.

While the corporate behemoths were struggling over the control of radio, World War I ensued. The United States Government, specifically the Navy, intervened in the squabble over patent rights. The Navy pressured the competing parties to pool their patents in order to develop a single, workable radio system from transmission microphone to receiver headset for the war effort. National security took precedence over corporate profits. And so standard (meaning AM) radiotelephony was born. During the war, the Navy had claimed that radio was too important to be left to the private sector, so the government confiscated all radio sets. Two years after the war (1920), despite protests from military leaders, the United States Congress forced the Navy to relinquish control. But the government had reservations about to which private interest the control would return.

Recognizing the widespread negative sentiment about the recently ended foreign war, Owen D. Young, board chairman of General Electric, took advantage of the situation and proposed to the Federal Government that his competitor, Marconi (an Italian), not be allowed to resume his prewar dominance in American wireless communication. The government concurred and forced British Marconi to sell its American assets to GE. Then GE promptly formed a subsidiary (with AT&T and Westinghouse as investors) to manage the newly acquired Marconi business. In 1919, the Radio Corporation of America (RCA) was thus born. In this common venture, the rival communications businesses worked out a coherent radio system by entering into a voluntary cross-licensing agreement, modeled on the forced patent pool during the war. From 1919 to 1923, cooperation characterized corporate interaction. But then a new twist on the application of radio as a commodity raised the promise of vast new profits and led to fierce competition rather than cooperation.

## Commercial Radio

In 1920, Dr. Frank Conrad, an engineer in Pittsburgh, started *broadcasting* from the roof of the Westinghouse factory where he worked. He called his amateur radiotelephone station 8XK. Like other hobbyists at universities and homes around the country, Dr. Conrad's signals were truly broadcast because he was communicating to anyone who happened to have a homemade receiver and cared to listen. Then, something extraordinary happened. On September 22, 1920, a department store in Pittsburgh ran an ad in a local newspaper advertising ready-built wireless receiver sets for ten dollars and up. The executives at Westinghouse, already pondering ways to enter the consumer market, took notice. They realized that they could sell radio receivers to the public by simply giving them something to listen to. Westinghouse gave Dr. Conrad assistants and a budget. And so, the first regularly operating and scheduled broadcast station in the United States was launched in order to create demand for radio sets. Called KDKA, the station inaugurated broadcast service on November 2, 1920, to coincide with an important news event, the presidential election of that year. Conrad invented practically all radio formats used today, including sports coverage, news, church services, dramatic readings, and music. However, one type of radio content was initially absent on KDKA: the ubiquitous radio commercial.

Demand for ready-made radio receivers skyrocketed. The cooperation that marked the cross-licensing agreements quickly deteriorated as each corporation sought to position itself in the fight for consumer dollars. Two philosophies about how to best exploit the technology emerged. One was considered the "telephone," or common carrier approach. A common carrier service is one that rents a channel for use but does not have anything to do with the contents of the messages the renter disseminates. For instance, the telephone company rents telephone lines but does not tell customers what to say. Under this operational philosophy, money would be made from the rental of the radio station itself to several different advertisers, each of whom would be responsible for what they wanted to say during their time slot. Radio would be a profit-producing business in and of itself.

The other philosophy has been called the "Radio Group" philosophy. This philosophy saw the construction and operation of a radio station as a marketing device and advertising gimmick, like a blimp, to sell something else. Following this reasoning, it was presumed that everybody who had a product to sell, be it radios or toothpaste, would own and operate a radio station to advertise it. The contents of the radio messages would be the sole responsibility of the owner of the station. Revenue would be made from the sale of the company's product (i.e., toothpaste), and the cost of station construction and operation would be absorbed as a cost of doing business. In short, according to the Radio Group philosophy, a radio station would not make money directly. Indeed, the cost of operation would be born as an advertising expense.

The corporations in the cross-licensing agreement split over which operational philosophy to implement. Being a utility company, AT&T was

naturally inclined to run broadcast stations like the telephone business. Hence, stations were to act like telephone booths, to be rented by the minute to anyone who had the money and a message they wished to broadcast. By contrast, GE, Westinghouse, and RCA were manufacturing-based organizations. Consequently, they felt that they should sell manufactured goods, such as electronics equipment, rather than a service. In October, 1921, the "Radio Group" (GE, Westinghouse, and RCA) launched WJZ, in Newark, New Jersey as their flagship station in order to motivate sales of radio sets. About 10 months later, AT&T started WEAF in New York City, as its premier station for "toll broadcasting." By the end of the first year of operation, WJZ had cost the radio group about 100,000 dollars to operate, while WEAF had made 750,000 dollars for AT&T.

The executives at AT&T had a shrewd insight into the future of broadcasting as a business. They understood that there simply are not enough radio channels for each business to have its own station. If each business had its own station for advertising purposes, there would be nothing but a chaos of interference on the airwaves. Hence, broadcasting could be a proper business of its own, renting time to many different businesses. Since, according to the cross-licensing agreements AT&T had the monopoly right to manufacture broadcasting transmitters, the company decided to require anyone who wished to purchase one of its transmitters for toll broadcast use to pay to AT&T a "license" fee. This aroused much consternation among would-be broadcasters, the federal government, and the Radio Group. The federal government saw this as a pseudo-governmental activity, and it also feared that AT&T, which already had a monopoly on telephone, would soon gain a monopoly on radio also.

Another issue arose that spelled the end of the cooperative beginnings of radiotelephony in the United States. AT&T initiated network broadcasting in 1923, and a year later managed the first coast-to-coast radio network broadcast, linking 22 stations to carry a speech by President Calvin Coolidge. The interconnections were achieved by using long-distance telephone lines, a natural advantage AT&T had over the Radio Group. The Radio Group attempted to also begin networking, but AT&T refused to lease long-distance telephone lines to their competitors. The only alternative the Radio Group had was to turn to Western Union's telegraph lines, which were very much inferior in terms of sound quality.

A federal suit, alleging that the cross-licensing agreements constituted a violation of antitrust laws, forced the competitors to renegotiate their positions. By 1926, pressure from the Federal Government convinced AT&T to get out of the broadcast business forever, in exchange for an exclusive monopoly over telephone. AT&T sold its WEAF radio network to the Radio Group, which gave it a monopoly over network radio. David Sarnoff, the Marconi operator who became famous because of the *Titanic* incident, had stayed with the company when it was sold to RCA. While all of this was happening, he had risen through the ranks to become the Chief Executive Officer of RCA, which became the benefactor of yet another forced acquisition. RCA, which was the

umbrella organization for the Radio Group's broadcasting interests, reorganized the WJZ network into the American Broadcasting Corporation (ABC), and the WEAF network into the National Broadcasting Corporation (NBC). Sarnoff found himself heading the only two national radio networks in the United States and a significant electronics equipment manufacturing operation.

After the massive reorganization of cross-licensing agreements, RCA invented a hybrid way of doing business, taking the best of both the telephone and Radio Group philosophies. The consequence is that today, commercial broadcasters are responsible for the programming (as under the Radio Group's way of doing business), but they sell advertising time to many different advertisers (like AT&T had envisioned doing business). The combination of the two approaches has proved so profitable that newspaper entrepreneurs have complained that a license to broadcast is like a license to print money.

In 1927, United Independent Broadcasters, a shaky third network, had been consolidated by an independent talent-booking agent as an alternative to the RCA operated networks. William Paley, an advertising agent for his father's cigar company, bought the small broadcast group and renamed it the Columbia Broadcasting System (CBS). Paley managed to compete against RCA's two networks by pulling off an accounting coup. Paley discovered that the big talents that worked for NBC were being taxed at over 70 percent on personal income. Paley discovered that if the talent incorporated, their stellar salaries would be taxed at only 25 percent. As a consequence of this discovery, Paley wooed such major stars as Jack Benny, Bing Crosby, Red Skelton, Edgar Bergen, Groucho Marx, Frank Sinatra, and Gracie Allen away from NBC. The sponsors followed.

The miracle of radio brought culture, entertainment, and news to all the United States. Broadcasting then, and now, somehow makes people feel as though they are a part of something bigger than themselves, connected to the world "out there." No doubt, part of the roar in the "Roaring Twenties" can be attributed to radio. When the Great Depression, with extremely high rates of unemployment, followed the New York Stock Market Crash of 1929, people clung to their radios as if they were last lifelines to civilization. Listening to *Amos 'n Andy* or Al Jarvis' *Make-Believe Ballroom* apparently eased the pain of grinding poverty, giving hope that a better world existed somewhere like New York City or Los Angeles.

Marshall McLuhan observes, "Radio affects most people intimately, person to person, offering a world of unspoken communication between writer-speaker and listener."<sup>7</sup> A famous and very successful early radio personality, Arthur Godfrey, recognized this as he gave advice to would-be deejays, saying that a radio personality must hold a conversation with the microphone.<sup>8</sup> Godfrey understood that, despite the fact that a radio audience may be very large, the best communication occurs on a personal basis. Also appreciating this fact, President Franklin D. Roosevelt initiated his famous "fireside chats" in 1933, exploiting the intimate nature of radio to reassure millions of anxious Americans, one-by-one.

Radio and film both prospered during these bleak years of the 1930s. During the 1930s and 1940s, Hollywood turned out fantastic escapism in the form of Busby Berkeley (*Footlight Parade*) and Fred Astaire and Ginger Rogers (*Flying Down to Rio*) musicals. Zany comedies, like Frank Capra's *It Happened One Night* and the series of "Road" movies starring Bing Crosby and Bob Hope, as well as *The Thin Man* series starring Myrna Loy and William Powell, gave audiences short reprieves from the harsh reality outside the theatre. Radio, too, consolidated its place in the America psyche at this time.

Due to the immense popularity of broadcasting, industry leaders actually petitioned the government to formally regulate their business. The reason for this peculiar turn of events was interference. Because radio was expanding so rapidly to meet the seemingly insatiable public demand for it, new stations often sprung up on channels already occupied. The result of interference is that neither party's signal is understandable, with the consequence that valuable radio channel space is made useless. In 1927, Herbert Hoover, conservative Secretary of Commerce under President Calvin Coolidge, reluctantly accepted the power to regulate the new broadcast industry. Hoover's powers were mandated by a regulatory law known as the Radio Act of 1927. Hoover quickly realized why professional broadcasters wanted regulation, for interference made it impossible for anyone to make money off of the new medium.

Hoover discovered that many broadcasters simply refused to follow the law. It was not until legislation created an instrument by which to regulate the industry, the broadcast license, that a legal means of coercion became available to regulators. Since broadcasting is a very lucrative business, and because a station owner cannot turn on a transmitter without a license, it behooves the professional-broadcaster to comply with all the rules put forth for the right to monopolize public property (an electro-magnetic radio channel) for personal profit. Once the legal instrument of a broadcast license was legislated, then regulation became a much simpler task.

In 1934, recognizing that broadcasting was destined to become a permanent and powerful aspect of American life, President Franklin D. Roosevelt made the temporary regulatory mechanism sanctioned by the Radio Act of 1927 into a permanent agency of government. The legislation that made the Federal Radio Commission, first created by the Radio Act of 1927, into a permanent seven-member commission (the Federal Communication Commission - FCC) is the Communications Act of 1934. The Communications Act of 1934 remains the legal basis of government oversight of broadcasting in the United States.

It should be understood that many of radio's great pioneers, such as Lee de Forest (widely regarded by engineers as the "Father of Radio," because of his electronic amplifier invention), considered the commercialization of radio a sad state of affairs. De Forest, like another pioneering inventor, Nicola Tesla, envisioned radio as a wonderful means of bringing the best in cultural and educational experiences to rural and poor populations not otherwise able to avail themselves of society's opportunities. In England, a similar attitude about

using radio for the public good rather than the profit of a few station owners, led to the organization of the government-owned and operated, not-for-profit British Broadcasting Corporation (BBC).

In the United States, it was not until President John F. Kennedy initiated an effort to create a national broadcasting network similar to the British nonprofit model, that a noncommercial broadcasting system became a serious option for U.S. citizens. Five years after his assassination, the United States Congress passed the Public Broadcasting Act of 1967. This created the Corporation for Public Broadcasting (CPB), which oversees the Public Broadcasting Service (PBS) for noncommercial television and National Public Radio (NPR) for noncommercial radio service to the citizens of the United States.

For many years public broadcasting struggled for parity with its commercial competitors. Throughout the 1960s and 1970s most television sets sold in the United States were manufactured by the same corporations that owned and operated the major commercial television stations and networks. For instance, RCA owns and operates NBC. Since nearly all public broadcasting television stations had been relegated channel assignments in the ultra high frequency band (UHF), and since nearly all commercial network affiliates had assignments in the very high frequency band (VHF), it is not surprising that for many years consumers in the United States could not buy television sets with UHF tuners. It was not until 1964 that television manufacturers were forced by law to put UHF tuners on television sets.

Despite government efforts to give government-funded broadcasting a fighting chance, the UHF tuners manufacturers put on the sets after 1964 tended to be very cheap, compared with the VHF tuners, and not reliable, (usually continuous tune rather than click-stop tuners). The poor ratings of noncommercial television was often cited by commercial industry leaders as proof that PBS programming was too elitist and out of touch with mainstream American tastes to be worthy of government financial support and legal protection. However, since the boom in cable systems, PBS channels are just as easily received by viewers as commercial signals. The consequence has been a sharp rise in the popularity, measured as share of audience, of PBS. Nevertheless, it is likely that in the foreseeable future UHF can achieve only 80 to 85 percent of the coverage VHF has.

Ironically, in the 1980s, just when nonprofit broadcasting finally found equal access to the American audience, conservative political forces slashed the operating budgets for CPB (including PBS and NPR). Consequently, PBS television has been forced to accept more money from commercial interests in order to stay alive. In exchange for such "underwriting," something like mini-commercials are now presented on American "noncommercial" television, thus undermining its original pluralistic mission to be a genuine alternative to commercial broadcasting.

## Early Social Science Meets Early Radio

The intense popularity of the new mass medium of radio brought concerns about its effects, akin to those that precipitated the Payne Fund Studies of film. Several radio events were catalysts for praise, criticism, and scientific investigation. For instance, in its competition with ABC and NBC for audience, CBS spent unprecedented revenue on foreign news reportage, such as its extensive coverage of the Nazi invasion of Austria, which featured a half-hour live report originating from London, Paris, Rome, Berlin, and Vienna. Three of the correspondents became especially famous because of this coverage. They were Edward R. Murrow, Robert Trout, and William Shirer. Murrow would go on to television with his famous news show *See It Now*, the forerunner of such long-running successes as *20/20* and *60 Minutes*. Later, in September 1938, CBS's H. V. Kaltenborn gave around-the-clock coverage of the Munich Crisis (when the Allies abdicated Czechoslovakia to Hitler), with 85 consecutive broadcasts without leaving the studio.

World events, and the immediacy of radio news coverage, made many listeners anxious about life in general. One month after the Munich Crisis, two talented radio actors on *The Mercury Theater on the Air* found themselves in trouble, probably in part because of the tension many listeners were feeling: On Halloween night, 1938, John Houseman and Orson Wells presented a radio dramatization of H. G. Wells' famous story about an invasion from Mars, *War of the Worlds*. The extreme reactions by many listeners led to several investigations. CBS faced lawsuits for injuries, miscarriages, and other damages allegedly caused by the broadcast.

Hadley Cantril of the Office of Radio Research at Princeton University studied the psychological conditions that led to the panic response exhibited by some listeners' behavior. Cantril interviewed 135 people who had been frightened, and analyzed the mail the *Mercury Theatre*, the Federal Communications Commission, and CBS affiliate station managers received about the performance. He also reviewed over 12,000 newspaper stories about it. Cantril concluded that "critical ability" (the capacity to make intelligent decisions) was the most significant variable related to how a given individual responded to the show. He also reported that those with strong religious beliefs were especially vulnerable to the apocalyptic story. CBS researchers found that level of educational attainment was the single most significant factor in predicting whether listeners would check an alternative source of information, like the police, or different radio stations.

At about the same time, Arthur Cremin of the New York Schools for Music claimed to have experimental evidence to support the bullet theory-like explanation that a "wave" of sex crimes was the direct effect of the new "hot" jazz music. Duke Ellington, among others, was caught up in a public debate about the effects of jazz music on promiscuity.

Despite such charges, it was beginning to dawn on researchers that viewing movies and listening to records and radio is not a simple stimulus/response process. Human behavior does not fit the mechanical view

suggested by the bullet theory. Rather, intervening variables, that is, phenomena that intervene between the stimulus and the behavioral response, like level of education, can vary from person to person and influence the way people respond. This realization greatly complicates the explanations of the human uses of, and responses to, media messages.

For example, during World War II, General G. C. Marshall decided that the U.S. conscripts needed to be indoctrinated in order to be better soldiers. Yale University was funded to study the effectiveness of a series of orientation films produced for this purpose by the famous Hollywood director Frank Capra. The Yale researchers used a pre-test/exposure/post-test design to evaluate changes in attitudes, motivation, and knowledge. Capra's expertly produced films, in the Oscar-winning series *Why We Fight*, proved to have minimal effects. About the most exciting findings were that recruits with the most education tended to retain more information from the films than recruits with less education. There was also some weak evidence for cumulative effects of watching more than one of the films in the series.

World War II ushered in an intense interest in mass persuasion called "scientific rhetoric." Many social scientists began investigating the dynamics of persuasion. An influential book appeared in 1955, by Paul Lazarsfeld, Bernard Berelson, and Hazel Gaudet, entitled *The People's Choice*. They studied how media affected voter choices in the 1940 presidential election. What they discovered cast further doubt on the direct effects, bullet theory. They found that personal and social characteristics of voters comprise powerful influences on the persuasive aspects of mass mediated campaign information; that such information, depending on the voter's attitude, would: a) activate the indifferent, b) reinforce the partisan, and c) convert only a few. This supported the growing contention that media has minimal direct effects, summarized by Joseph Klapper in an influential book, *The Effects of Mass Communication* (1960).

The findings of Lazarsfeld, et al., promoted the emerging theory of selective perception, which states that people interpret information so as to fit their personal biases. For example, a strict supporter of Democratic Party policies and a staunch Republican supporter may each view the same political speech and come to diametrically opposed perceptions of what was said and what was meant. According to the theories of selective perception and selective attention, consumers of information tend to perceive only those aspects of a message that agrees with their pre-established beliefs, and/or pre-established interests. For instance, it is objective and accurate to report that there were no burned-out light bulbs in the courthouse at 10:30, Wednesday Morning, July 17, 1991. But of course such information is selectively ignored by news reporters and editors alike because it never even occurs to them that such facts could be "news worthy."

Lazarsfeld, et al., also discovered that opinion leaders constitute a significant intervening variable between the media message and the voter. The authors developed the two-step flow theory to explain the role of the personal influence exerted by opinion leaders on others. The first step was the

reception of information by the opinion leader, who was typically very attentive to the media. The second step was the manifest communication between the opinion leader and followers. Later research by Melvin De Fleur and Otto Larsen demonstrated that personal characteristics of opinion leaders further complicate media effects research by adding even greater variance to interpretations of media messages.<sup>9</sup> This is so because the filtering function opinion leaders serve is influenced by their personal qualities, which can lead them to selectively attend to and perceive messages. Consequently, opinion leaders, like everybody else, are likely to pass on only certain aspects of a message they receive via the mass media. What they are likely to pass on is information they find interesting. What is "interesting" and worthy of conversation varies, to some degree, from one opinion leader to the next.

The two-step flow theory has had a lasting influence on communication scholars. Everett M. Rogers, who is interested in what is called development communication (using media to foster development in poor countries) integrated the two-step flow theory into efforts to explain the diffusion of innovations in less developed societies.<sup>10</sup> Rogers integrated a theory of imitation that originated with Gabriel Tarde in the 19th century with the two-step flow. Rogers is convinced that the use of mass media speeds the diffusion of new information through a society, whether it be news about a new technique of farming, or information about a current event.

Many scholars have attempted to verify this claim. For instance, Paul Sheatsley and Jacob Feldman discovered an S-curve of information diffusion, where the more dramatic the news, the quicker it spreads through a population until it levels off near a saturation point.<sup>11</sup> For example, Sheatsley and Feldman have demonstrated that about 68 percent of the American population knew about President Kennedy's assassination within 30 minutes after it happened. Others, like De Fleur and Larsen, continued the study of the S-curve of information diffusion and discovered that at some point on the curve, continued repetition of the message no longer yields increased knowledge. This they labeled the curve of diminishing returns.

For instance, during coverage of the military operation "Desert Storm," in 1991, the same limited amount of information was repeated several times. Viewers who spent several hours absorbed by the coverage quickly realized that they were learning nothing they did not already know. Ironically, the paucity of new information compelled many viewers to keep an anxious vigil in front of their televisions in the hope of learning something new. The return on their investment of time diminished as no new developments were reported.

The preceding discussion about the development of social science to study the new media environment demonstrates that the questions these researchers asked, and their findings, shifted along with their attitudes toward human nature. The early positivistic approach viewed people as individual social "atoms," or "facts," that respond to stimuli. Meanwhile, European scholarship, emerging from the legacy of Karl Marx, Emile Durkheim, Max Weber, Sigmund Freud, and Edmund Husserl manifested an insistence in investigating social, political, ideological, cultural, and psychological contexts, even though such

concerns greatly complicate the work of explaining the process of mass communication.

European schools of thought, such as phenomenology, hermeneutics, and semiotics, were brought to the United States during World War II by refugee scholars. These approaches to understanding human behavior emphasize the interpretive dimension of human communication and its symbolic nature. As a result, ethnomethodology was founded on the work of such phenomenologists as Alfred Schutz<sup>12</sup>, Aron Gurwitsch<sup>13</sup>, and Maurice Merleau-Ponty.<sup>14</sup> This approach, further developed by Harold Garfinkle<sup>15</sup>, has been applied to the study of viewing behavior and the negotiation of shared meaning. At the same time, methodical approaches to the critical, usually meaning Neo-Marxist and Neo-Freudian, interpretations of literature, film, and TV have rapidly expanded. Instead of being concerned with exclusively behavioral responses to mass messages, these approaches concentrate on what such messages reveal about the societies that propagate and consume them, as well as their broader implications.

The work of the so-called "first generation" of the Critical School scholars from Frankfurt Germany, including Max Horkheimer, Herbert Marcuse, T. W. Adorno, and Walter Benjamin has had an increasing influence on mass media criticism. The application of the sociology of knowledge and ideology to mass media texts that these scholars attempted prior to World War II has informed many modern critics of the mass media, such as Herbert Schiller<sup>16</sup>, Hal Himmelstein<sup>17</sup>, Judith Williamson<sup>18</sup>, Jurgen Habermas<sup>19</sup>, Michel Foucault<sup>20</sup>, Terry Eagleton<sup>21</sup>, Umberto Eco<sup>22</sup>, and Roland Barthes<sup>23</sup>, to name a few of the more famous writers.

Generally, the "critical" approach these scholars share emphasize the issues of wealth and power in the control of mass media corporations and mass media content. In some measure, current feminist criticism has also been influenced by this approach to mass media critique.

The driving assumption underlying this approach can be traced to Karl Marx, who held that entertainment is an opiate of the masses, and that the ideas of the dominant (powerful) class in any given society are the dominating ideas. This implies that the dominated classes in a society think the thoughts they are taught to think by the dominating class of educated and wealthy elite. Such ideas, it is argued, are ideas that will perpetuate the unequal distribution of wealth and power in the society.

In short, the ideas which the dominant class teaches are meant to keep them in power. For example, movies written and directed by men, it is argued, teach women in subtle, and not so subtle ways, to be submissive and to strive to attract the sexual attention of males by attempting, at all costs, including reconstructive surgery and perpetual dieting, to be attractive. Hence, a recent television commercial shows a bikini-clad young beauty walking down a beach with the voice over saying, "If you don't watch your figure, who will?" Such messages are the target of critical school scholars who attempt to determine the motive for them and their possible social consequences.

## Television Joins the Fray

During this time television was introduced. The story of television is inextricably intertwined with that of radio and film, not only because they exist concurrently in history, but more importantly, because each medium shares the same talent, sources of revenue, and audience. The possibility of transmitting pictures had already occurred to the earliest inventors of wireless, but there were several major obstacles to picture processing and transmission. One was channel capacity. A television or radio channel is like a pipe. A big pipe can send a lot of water through all at once, while a smaller pipe can channel the same amount of water, but it will take longer. For instance, fax and newswire still photo services send pictures through the very narrow band width of telephone wires via a process known as slow scan. The picture trickles through, line-by-line to the receiver. This is far too slow for motion pictures.

To send motion pictures in "real time" requires a large channel, or more appropriately, one with a great frequency band width. In the United States, one television channel occupies 6 million hertz (6MHz) in electromagnetic spectrum space. All the AM and FM broadcast channels allocated the United States by the International Telecommunication Union (ITU) take up less space than just 4 TV channels. One of the great advantages of cable TV is that instead of using the naturally occurring spectrum, it offers a very broad artificial spectrum wrapped in insulation. This protects against outside interference and also allows for many TV channels.<sup>24</sup>

Two people are commonly held as the inventors of electronic television.<sup>25</sup> One was a self-educated American genius, Philo T. Farnsworth, and the other was a brilliant Russian emigre engineer, Vladimir Zworykin. Already in 1923, while working for Westinghouse, Zworykin applied for several patents for the electronic television device. He was immediately challenged in the courts for patent infringement. Twelve years later, in 1934, Farnsworth was finally awarded the key patent for his electron optics system. In the interim, Zworykin became famous for his invention, the iconoscope (pick-up tube), which is the essential part of a TV camera that performs electronic picture processing.<sup>26</sup>

In 1930, Zworykin was hired by RCA to lead a research effort to perfect a commercially viable television system. Just before America's involvement in the Second World War, this famous research team demonstrated the TV system still in use today. During the war, manufacturing energies went exclusively to military supplies, so television was put on hold for the duration. After the war, however, interest in and sales of television exploded. All three major radio networks rushed into television, taking with them the most popular talent and the sponsors, who were eager to exploit this new visual medium that would facilitate product demonstration in the home without the hassle of door-to-door sales.

As a direct consequence of interest in television by viewers and advertisers alike, radio stations around the country began to separate themselves from the radio networks. They did so because, without the big

name talent or sponsors, the networks had little to offer the affiliates. Just as radio listening had displaced time previously spent reading, television now challenged radio as the preferred leisure time activity. For the first time since the Depression, sizable numbers of radio stations began to go out of business, as their audience and advertising revenue flocked to the new medium. The crisis in radio continued until the late 1950s. Two factors converged to save radio. One was the superior sound quality of frequency modulation (FM), invented by Edwin Armstrong back in 1937. The other was the creation of the youth market with a new sound, rock 'n roll. This new music transcended racial, ethnic, and economic boundaries while it emphasized a generation gap.

The new, rigid Top-40 format, pioneered by sportscaster Gordon McLendon, made radio a sleepless promoter, with the playing of each song an advertisement for a record company. Just as MTV today is a 24-hour commercial for the music industry, so was radio saved from economic ruin. Radio drama disappeared, while news and commentary was reduced to four minutes per hour of headlines. It was an extreme solution to a desperate situation, and it caught on like wildfire. In the days before the civil rights movement, the music industry was looking for an angle. A lawyer and former disc jockey, Sam Phillips, founded Sun records in Memphis in the early 1950s. Phillips boldly stated, "What I need is a white boy who can sing colored."<sup>27</sup> In 1954, Phillips discovered Elvis Presley. Presley legitimized for the white youth market a form of black music that combined country with rhythm and blues. Rock 'n roll, and the youth culture to which it has been an important part, is now embraced globally.

Meanwhile, television continued to grow despite scandals in game show rigging, antitrust investigations, and the anti-communist hysteria. The latter, led by Senator Joseph McCarthy, caused panic in the creative community. Senator McCarthy, in desperate need for a re-election campaign issue in 1950, made an historic speech in Wheeling, West Virginia. In the speech he charged: "I have here in my hand a list of 205 names known to the Secretary of State as being members of the Communist Party . . . still shaping policy in the State Department."<sup>28</sup> This stirred the country into the "Red Scare." The problem, as McCarthy later admitted to his personal friend and supporter, newspaper magnate William Randolph Hearst, was that there were no names on the "list."<sup>29</sup> When the State Department and members of the Senate Foreign Relations Committee asked McCarthy for the names, he initially made them up, and later, with the help of his staff, named "suspicious characters." Many completely innocent people in the "liberal" mass media became victims of character assassination.

An example is the case of a radio and television correspondent, John Henry Faulk. During the 1950s, self-appointed anti-Communist "consultants" were attacking individuals for "dangerous neutrality." One group of organized anti-Communists was AWARE, Inc. As AWARE attacked individuals, talent unions such as Actors' Equity and The American Federation of Television and Radio Artists (AFTRA) found themselves in the precarious position of appearing "anti-American" for defending their members against unsubstantiated slander

and libel. AFTRA's leadership represented a small minority of the union with pro-blacklisting sympathies. When the powerful New York AFTRA chapter prepared for the election of its executive officers, Faulk organized an antiblacklist *and* anti-Communist ticket of candidates. The AWARE-backed pro-blacklisters in AFTRA lost the election to Faulk's candidates. For revenge they attacked Faulk, charging him with having communist sympathies. Fearful of negative publicity, CBS fired Faulk when he was out of the country on vacation.

Faulk sued AWARE, Inc., for malicious slander and a conspiracy to defame him. Faulk proved in court that AWARE's charges were all false. The jury in the trial was so shocked by the viciousness of AWARE's tactics that it awarded Faulk \$3.5 million in damages, more than he had asked for. When AWARE appealed the decision against them, a five-judge New York appellate court unanimously upheld the lower court's decision. The appellate court made the statement that, "the acts of the defendants were proved to be as malicious as they were vicious."<sup>30</sup> Unfortunately Faulk's career, like so many others slandered by the blacklisters, was ruined, and he was never able to actually collect the amount awarded him by the court.

The union AFTRA, like others, was devastated because of internal dissension caused by this stress. Indeed families were also torn apart; for instance, Jayne Wyman divorced Ronald Reagan, who was president of the Screen Actors' Guild in Hollywood from 1947-1952 and again in 1959. While overtly representing the interests of his union's members, Reagan, it is now known, was covertly supplying names of members to the Federal Bureau of Investigation. Wyman left him in part because of such treachery.<sup>31</sup> Others also jumped on the bandwagon, making political careers out of what has been called the era of "vigilantism cloaked in super patriotism."<sup>32</sup> For instance, Richard Nixon ascended to the position of legal counsel on the staff of Senator McCarthy during McCarthy's investigations into "un-American activities."

One of television's finest hours was when, on March 9, 1954, Edward R. Murrow, famous for his unyielding integrity and courage, exposed McCarthy on his news program *See It Now*, as a malicious fraud, liar, and political opportunist, in front of millions of American viewers. In a rebuttal, McCarthy called Murrow a traitor and, "the leader and the cleverest of the jackal pack."<sup>33</sup> A year later, after he charged the United States Army with treason, the full Senate passed a motion to censure McCarthy, bringing his political career to an end, but not until after he had ruined many careers and even caused some individuals to commit suicide in despair.

The practice of blacklisting (firing) actors, writers, producers, directors, and news personnel for alleged communist sympathies hit Hollywood exceptionally hard just when television was stealing its audience. Movie theater attendance peaked in 1948, with ticket sales of 90 million per week. The film industry, like radio, went into a decline that did not bottom until 1974, when sales of tickets had dropped to less than 18 million per week. At the same time, the cost of making movies had risen steadily. Hollywood suffered several financial disasters with high budget flops like *Cleopatra* (1963), *Dr.*

*Dolittle* (1968), and *Tora! Tora! Tora!* (1971). Despite the grand staging used in these movies, box office receipts fell off. While low budget independent producers had proven that money could still be made (i.e., *Marty*, 1955), the Hollywood establishment was not convinced until the summer of 1969 witnessed the smash hit *Easy Rider*. This film (made for \$370,000 and grossing \$50 million) did for Hollywood what rock 'n roll had done for radio. It changed Hollywood's marketing strategy to target the young with a product tailored to their tastes. Despite the earlier successes of films featuring anti-establishment heroes like *Rebel Without a Cause* (1955) showcasing James Dean, and *The Wild One* (1954) starring a youthful Marlon Brando, Hollywood was slow to realize the power of the youth market.

As a result of television, movie-going is no longer a family activity, and no longer do people go to the movies, but to see a particular film. Over 80 percent of box office sales are to people 14 to 35 years old. With movies like *Jaws* (1975), *Rocky* (1977), *Smokey and the Bandit* (1977), *Star Wars* (1977), *Superman* (1979), *Star Trek* (1979), *E.T.* (1982), *Back to the Future* (1985), *Predator* (1989), *Terminator* (1990), et cetera, two patterns emerge. First the advent of relentless merchandising tie-ins for such things as pajamas, lunch boxes, dolls, and skate boards; and second, the practice of sequel seriality.

During the sixties Hollywood had turned to more gimmicks like 3-D, and also sex and violence to save itself. Although this strategy met with some success (*Bullitt*, *Bonnie and Clyde*, *The French Connection*, *Deep Throat*, etc.), in the end its salvation came in the form of joint ventures with television, greater special effects, video cassette rentals, product development targeting the young, and most recently, mergers with large and wealthy conglomerates.

Meanwhile, the popularity of television continued to grow until the average American home had two TV's, with at least one of them on about seven hours every day.<sup>34</sup> By the mid-1970s, annual polls indicated that television had surpassed newspapers as the medium Americans most rely on for information, and also the medium perceived as most credible and complete in news coverage.<sup>35</sup> Not only the sheer quantity of television in American lives, but that coupled with concerns about message content, have kindled curiosity and anxiety among researchers. The promise of more powerful technologies such as "surround sound," video cassette recorders, direct broadcasting from satellites, and high definition picture quality, have added to the concern about so-called television addiction. It is well documented that people rarely watch a TV show, but rather TV, seeking the least objectionable program rather than choosing to turn it off when "nothing is on."<sup>36</sup>

### Social Science Meets Television

Trends in research demonstrate concerns about advertising that targets children, cultural "mainstreaming" (making a nationally homogenous culture by exposing everyone to the same music, books, movies, and television shows), agenda setting (telling the audience not necessarily what to think, but what to

think about), and gatekeeping (news story selection and rejection) by news organizations. Other topics of concern to researchers and lay persons alike include excessive levels of graphic violence and sex; negative political advertisements; and stereotypical portrayals of the elderly, racial minorities, and women. While the complication of intervening variables has led to the Selective Perception/Effects hypothesis<sup>37</sup>, Joseph Klapper's Law of Minimal Effects<sup>38</sup>, and the Uses and Gratifications Theory<sup>39</sup> propounded by Elihu Katz, Jay Blumler, and Michael Gurevitch, many have argued that even though effect may be indirect, they still have profound consequences.

One of the most influential current theories is put forth by the German scholar Elisabeth Noelle-Neumann.<sup>40</sup> This researcher claims that one of the effects of mass media consumption is the "spiral of silence." According to this theory, the two-step-flow, or interpersonal-media link, works to form personal opinion and to influence an individual's willingness to speak out about his or her views. If a person's opinion is perceived to be in agreement with popular opinion, as defined by mass media coverage, then that person feels more willing to be outspoken. But if an individual believes that his or her opinion does not coincide with the popular view, the perceived threat of criticism from others proves to be a very powerful force in silencing the individual. The consequence, according to this theory, is that publicized opinions become increasingly self-reinforcing, leading to increased intolerance of perceived minority opinions.

Another continuous strain of research can be traced from Blumer's Payne Fund research, through Wilbur Schramm's<sup>41</sup> 1960s investigations, to Muriel Cantor's<sup>42</sup> and Shearon Lowery's<sup>43</sup> current work on modeling and imitation of soap opera characters. Lowery has found that the consumption of alcohol on soap operas to facilitate social interaction, and as an immediate panacea for personal crisis, was in fact imitated by soap opera viewers. Viewers use soap opera characters as behavioral models.

During the 1960s and 1970s, several researchers including Wilbur Schramm, Jack Lyle, Edwin Parker<sup>44</sup>, George Gerbner<sup>45</sup>, and Albert Bandura<sup>46</sup>, investigated the impact on viewers (especially children) of viewing pro- and antisocial behavior on television. They found that children readily identify with characters, both real and fictional. They also discovered that children are more likely to accept beliefs and behaviors that are shared with characters with whom they identify. The conclusion is that children are indeed socialized by movies and television, especially when they identify with a character they watch. Violent television content has been of special interest to these researchers. The main concern has centered on imitation.

To this day, long-term social and psychological consequences of viewing anti-social behavior, including violence, remain topics of unresolved debate. For example, defenders of television argue that rape, pillage, plunder, sexism, ageism, racism, and domestic violence were widespread long before television came onto the stage of human events.

## Conclusion

Perhaps in no century before has popular art become the focus of so much "serious" critique. Television has been described as something like the *Circus Maximus* of ancient Rome, as a terrible escapism.<sup>46</sup> Yet, there is no evidence that attending chariot races or watching gladiators kill each other motivated nearly so much reflective criticism among Roman intellectuals as watching television has in today's society. No doubt, both mass media fare and critical reflection about its consequences will continue. Virtually all forms of mass media have been attacked at one time or another, whether they be plays, novels, comic books, horror movies, or music videos.

The people who attended the *Circus Maximus* were not the poor and slaves of Rome, being entertained in order to be kept servile. Rather, those with leisure time, the elite classes, were the most common attendees. Today's popular art is truly popular because it is much easier to acquire the necessities of life. Rock 'n Roll, television, and movies appeal to populations across educational, economic, racial, and gender boundaries. They even appeal across cultures, as evidenced by the fact that Madonna, Michael Jackson, Michael Jordon, and Lucille Ball are revered around the world, along with Shakespeare, Mozart, and Van Gogh. It is impossible to share with the world only what experts call high culture.<sup>47</sup> There is no evidence that convenience, creativity (at any level of expertise), and fun are new values, only that we have increased time to pursue them.

## Summary

Mass communication is the consumption of a single message by many people. It may take time, as when people share a book or a magazine article, or it may be simultaneous consumption, as when millions of people watch the same live television broadcast. The key to mass communication is the channel used. The medium, or mode of transmission, may be ink and paper, or electricity crafted into a meaningful code. Regardless of the medium, the channel or path the information follows must be accessible to many people.

We examined the development of print, film, radio, and television. In so doing, this chapter presented the historical development of mass-mediated communication, from writing to television. Some of the most influential and provocative scientific and critical reflections about mass communication were discussed. Criticisms and theories of mass communication were offered as they historically correspond to developments in the various technologies and industries of mass communication. This treatment of various theories revealed a change in the scientific conceptualization of human nature. This shift in attitude moves from the initial conceptualization of the individual as a passive receptor of messages to an active and free interpreter, capable of critically evaluating mass media messages.

It was explained that as new media are invented, they compete with older media for resources, including audience, talent, and money. On one hand, mass media were demonstrated to be part of cultural and political history, and as such, powerfully affected by the surrounding milieu. On the other hand, it was demonstrated that media affect the social and political environments within which they operate. This chapter showed that this reciprocal relationship between mass media and the world reveals that mass media simultaneously express culture and are products of a given cultural and historical time and place.

Special attention was given to the human aspect of mass media effects. This included the fear of power of mass media by various authorities like government leaders and parents. It also explored the various efforts to explain the extent of these effects by various social scientists. The human dimension of the mass media was also emphasized in the discussions of various inventors and industry leaders.

## NOTES

1. Galileo Galilei, *Discoveries and Opinions of Galileo*, trans. S. Drake (New York: New American Library, 1957), 44.
2. Henry David Thoreau, *Walden* (New York: Avenel Books), 58.
3. In 1887, Emile Berliner invented the gramophone, which uses plate discs and a turntable. This device proved more popular than Edison's cylinder phonograph, which appeared ten years earlier.
4. Ben H. Bagdikian, *The Media Monopoly*, 3rd ed. (Boston: Beacon Press, 1990), 180.
5. Dennis Denitto, *Film: Form and Feeling* (New York: Harper & Row, Publishers, 1985), 271.
6. Wilbur Schramm and Donald F. Roberts (Eds.), *The Process and Effects of Mass Communication* (Urbana, IL: University of Illinois Press, 1977).
7. Marshall McLuhan, *Understanding Media*, 2nd ed. (New York: New American Library, 1973), 261.
8. Miland D. Meeske and R. C. Norris, *Copywriting for the Electronic Media* (Belmont, CA: Wadsworth Publishing Company, 1987), 32.
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22. Umberto Eco, *A Theory of Semiotics* (Bloomington, IN: Indiana University Press, 1979).
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24. Despite the insulation, occasionally cable-carried TV signals "leak" out. When this happens, people living near a cable subscriber, as in apartments for example, may receive the cable service without being hooked up. If it is accidental leakage, there is no problem, but if this state of affairs has been encouraged by tampering, it is considered theft and is punishable by law.
25. Already in 1884, Paul Nipkow had developed a *mechanical* television in Germany. He called his invention a scanning wheel, which remained central to experiments through the 1920s. A variant of this mechanical system provided the first pictures of man on the moon in 1969. Later, during the 1930s, the American, Charles Jenkins, and the British, John Logie Baird, demonstrated and marketed mechanical television systems.
26. The first iconoscope was very large, making TV cameras large. Later developments led to their replacement with image orthicons (with 3 and 4.5 inch diameters). Orthicons were, in turn, replaced by smaller vidicons and plumbicons varying from 1.25 to .66 inch diameters, allowing for much smaller and lower energy-consuming cameras. Advancements in color filtering has also allowed for single tube cameras to be capable of processing the three primary colors (red, green, blue). New integrated circuit technology has made cameras much lighter and durable. This is the essential breakthrough that made electronic field production (EFP) and electronic news gathering (ENG) possible.
27. Charlie Gillet, *Sound of the City: The Rise of Rock and Roll* (New York: Dutton, 1970), 37.
28. Quoted in Ben H. Bagdikian, *The Media Monopoly* 3rd ed. (Boston: Beacon Press, 1990), 43.
29. The startling thing about this is that Hearst, a very powerful newspaper man, had this information, which could have been of great value to the American people; but instead of exposing McCarthy, Hearst formed a cadre of, "...journalists and researchers from his flagship paper, the *New York Journal-American*, to provide McCarthy with as much help as possible to keep the anticommunist hysteria alive" (see Bagdikian, *The Media Monopoly*, 1990, pp. 40-43).
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32. Louis Nizer, *The Jury Returns* (New York: Doubleday, 1966), 464.
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35. *Ibid.*, 135-140.
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