

# Revolutions in Communication

*Media History from  
Gutenberg to the Digital Age*

2nd Edition

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## The New World of Radio

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It's of no use whatsoever.

Heinrich Hertz, 1888, in response to questions by students about the practical value of his experiments

Oh, the Humanity.

Herbert Morrison, radio reporter at the scene of the *Hindenburg* disaster, 1937

This ... is London.

Edward R. Murrow, 1940, reporting the blitz for CBS

### 1 Auroras and Equations

The mysterious forces surrounding electric currents fascinated scientists of the eighteenth and nineteenth centuries—from Luigi Galvani and Alessandro Volta in Italy to Benjamin Franklin in America and Michael Faraday in Britain. When telegraph lines began stretching across continents, the mystery deepened as scientists tried to explain occasional fluctuations in electrical current that seemed to be associated with the Aurora Borealis and solar flares.

Particularly mysterious were the events of September 2, 1859, when the sky filled with auroras of writhing purple and red colors unlike anything ever seen before. “Around the world, telegraph systems crashed, machines burst into flames, and electric shocks rendered operators unconscious,” said Stuart Clark in a book about the auroras of 1859. “Compasses and other sensitive instruments reeled as if struck by a massive magnetic fist” (Clark 2007).

“I have cut my battery off and connected the line with the earth,” tapped out a Boston operator on the morning of September 2. “We are working with current from the Aurora Borealis alone. How do you receive my writing?” The other operator, who had also cut off his batteries, responded, “Much better than with batteries on” (*New York Times*, September 6, 1859).

In New York, a telegraph operator having trouble the evening of September 3 happened to look out the window and saw “broad rays of light extending from the zenith toward the horizon in almost every direction.”

We now know that the worldwide auroras of 1859 were the same as the “northern lights” usually seen in polar regions, and that the auroras expanded for a few days due to

a giant solar flare. We also know that electromagnetic fields travel invisibly through the atmosphere. And we call the solar storm a “Carrington event” for the English astronomer, Richard C. Carrington, who observed the solar flare and described it at the time.

## 2 Like Discovering a New Continent

Scientists wondered how electricity could be related to magnetism, and how the great auroras of 1859 could create electricity in telegraph wires. One piece of the puzzle was solved a few years later, when James Clerk Maxwell, a British mathematician, published a paper describing the electric and magnetic forces that could be carried through space without wires. Maxwell called it “displacement current.” Another part of the puzzle involved Thomas Edison’s observations about the behavior of one electrical circuit when it was near a similar circuit. The phenomenon, when one circuit mimics another without actually touching it, was called the “Edison effect.” Some historians think Edison’s labs could have created radio, had he not focused on a sound-recording device (the phonograph, patented in 1878) and the electric light (patented in 1879).

In the 1880s, Heinrich Hertz, a German scientist, found a way to test Maxwell’s theory by generating electromagnetic waves, detecting them, and measuring their velocity. When he published his findings in 1888, Hertz thought he had simply verified an interesting scientific speculation (Aitken 1992). “This is just an experiment that proves Maestro [teacher] Maxwell was right,” he said. “We just have these mysterious electromagnetic waves that we cannot see with the naked eye. But they are there.” Asked about the value of the experiment, Hertz told students: “It’s of no use whatsoever.”

If Hertz saw no practical value in radio telegraphy, others were racing to lay claim to what seemed like a new continent that was just being discovered. In the United States, Nikola Tesla began giving demonstrations of short-range wireless telegraphy in 1891. In Britain, Oliver Lodge transmitted radio signals at a meeting of a British scientific society at Oxford University. Similar experiments were being conducted by Jagadish Chandra Bose in India at the same time. Radio experiments are also recorded in Germany, Russia, and Brazil. All faced the same problem: usually the signals would not travel more than a few dozen meters.

### 2.2 Guglielmo Marconi

An unlikely inventor is often credited with making radio telegraphy practical. Guglielmo Marconi, a twenty-year-old from a wealthy Irish-Italian family with little formal education, had become fascinated with electronic waves while attending a friend’s scientific lectures at the University of Bologna.

In 1894, Marconi was able to duplicate Hertz’ experiments in his home laboratory, but he faced the familiar problem: he was not able to receive a signal over any great distance. At the time, most research was focused on the higher-frequency part of the radio spectrum, and physicists hoped to understand the relationship between radio waves and

light waves. Marconi moved down the spectrum, using lower-frequency waves. He also used high-powered transmitters and larger, grounded antennas.

Marconi was not the first to think of using what we now call a “ground,” but he was the first to use it specifically for radio signaling, and he was also the first to fully describe the commercial potential of long-distance signaling. He arrived at just the right time, with the right financial and political backing connected with his family’s Jamison Irish whiskey fortune.

In 1896, Marconi was introduced to officials in the British Postal Service who, just that year, were finalizing the purchase of the last remaining commercial British telegraph company. This was being done to avoid the information bottlenecks created by monopoly systems like Western Union in the United States. Having nationalized the telegraph system by merging it with the Post Office, postal officials now saw a duty to fully investigate what they saw as an entirely new communications system.

In 1897, on a windy day on Salisbury Plain, near the ancient Stonehenge

monument, Marconi showed government officials a practical radio telegraph system that could send a signal for 6 kilometers (3.7 miles). Over the next few years, the range of Marconi wireless systems expanded with higher-power amplifiers, and their value became obvious when radio helped rescue ships’ crews in distress off the English coast.

As radio began saving lives and money, insurance companies like Lloyds of London ordered ships to install the new devices. By 1900, the Marconi radio telegraph could be found on most large ocean-going vessels. In several cases, Marconi operators saved the lives of many passengers. For example, in 1910, an operator named Jack Binns became famous for using radio to save passengers on the HMS *Republic*—a sister ship of the ill-fated *Titanic*.



**Figure 8.1** Radio entrepreneur—Using trial and error techniques, Guglielmo Marconi found a way to transmit radio over long distances. With influential backing, Marconi patented early radio technology and commercialized radio telegraphy. Photo by Pach Brothers, 1908, Library of Congress.

### 3 Radio and the *Titanic*

Problems with radio played a major role in the *Titanic* disaster of April 14, 1912, when the British passenger liner sank after hitting an iceberg in the mid-Atlantic. These problems

delayed and complicated the rescue, contributing to the deaths of 1,514 passengers and crew, and very nearly sealing the fates of those who managed to survive.

Although its owners boasted that the *Titanic* was the most modern ship of its day, the Marconi radio system that had been installed in the weeks before the disaster was already obsolete. It was not, as was claimed at the time, the best radio technology available.

Instead, the system devised by Guglielmo Marconi in 1897, and still in use in 1912, had long since been superseded by other radio pioneers—Reginald Fessenden and Lee DeForest in the US, and others in Europe. Still, Marconi used his patents, research, and monopoly power to hold back competition from other systems. And in the end, even Marconi himself admitted he was wrong to do so.

The *Titanic* was on its first voyage from Britain to the United States, and had just crossed the point where messages from ships at sea could be exchanged from the easternmost North American wireless station at Cape Race, Newfoundland. After sending personal messages from the *Titanic*, the operators were taking down news and stock reports for the passengers to read the next morning.

Just minutes before the *Titanic* hit the iceberg, Cyril F. Evans, a wireless operator on the *Californian*, which was about 20 miles away, attempted to contact the *Titanic* to tell them they were surrounded by dangerous icebergs.

The captain of the *Californian* told Evans: “Better advise [the *Titanic*] we are surrounded by ice and stopped. So I went to my cabin, and at 9:05 p.m. New York time I called him up. I said, ‘Say, old man, we are stopped and surrounded by ice.’ He turned around and said ‘shut up, shut up, I am busy; I am working Cape Race’ [Newfoundland] and at that I jammed him.”

When questioned, Evans explained to a US Senate inquiry: “By jamming we mean when somebody is sending a message to somebody else and you start to send at the same time, you jam him. He does not get his message. I was stronger than Cape Race. Therefore my signals came in with a bang, and he could read me and he could not read Cape Race.” “At 11:35 I put the [ear] phones down and took off my clothes and turned in.” He was awakened by the *Californian*’s captain at 3:40 am when the crew observed distress rockets coming from the *Titanic*’s position. By that time, it was too late to help.



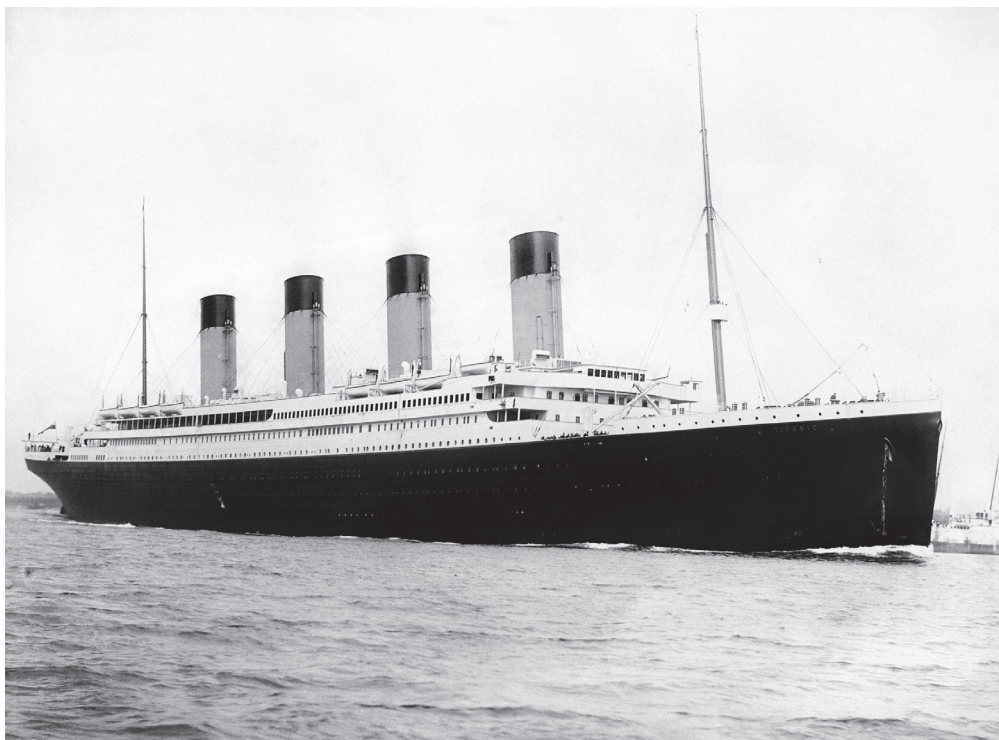
**Figure 8.2** Marconi cutting the wires—Poster from a celebration in spring 1903 in Bologna, Italy. Courtesy of Marconi Museum, Bologna, Italy.

Members of a British commission of inquiry were incredulous. “Do I understand rightly then that a Marconi operator ... can only clearly hear one thing at a time?” one asked. It was, unfortunately true, and as the *New York Times* said a few weeks later, “Sixteen hundred lives were lost that might have been saved if the wireless communication had been what it should have been” (*New York Times*, May 2, 1912).

The official cause of the disaster was the negligence of the *Titanic*'s captain in ignoring iceberg reports. However, the delayed rescue effort was also a crucial issue, a US Senate committee found: “Had the wireless operator of the *Californian* remained a few minutes longer at his post ... that ship might have had the proud distinction of rescuing the lives of the passengers and crew of the *Titanic*” (*New York Times*, May 29, 1912).

The *Titanic* used wireless technology that was rapidly becoming obsolete. Marconi was not a scientist, and when he found an effective system based on previous scientific work and his own trial-and-error results, he used the patent system to freeze the technology into place and buttress his commercial monopoly. While research on better systems was taking place in smaller companies, such as Reginald Fessenden's National Electric Signaling Company, none of these had the commercial power of the Marconi company.

Technically, the problem with the radio telegraph systems on the *Titanic* was that Marconi's “spark” system soaked up large segments of the bandwidth and created



**Figure 8.3** RMS *Titanic*—The radio system in use when the RMS *Titanic* sank on April 14, 1912 could have been much better, and a better system could have saved lives. This photo shows the ill-fated ocean liner departing Southampton, UK, on April 10, 1912. Wikimedia Commons.

interference even when there were only a few ships on the vast ocean. As many engineers were realizing at the time, it was far better to use continuous wave radio transmitters (where signals were carried inside the wave) rather than intermittent spark transmissions (where interruptions in the wave *were* the signal). A continuous wave could be “tuned” to allow a variety of frequencies, and it could use shorter-wavelength radio transmissions, which carried over long distances by bouncing off the electrically charged outer layer of the atmosphere called the ionosphere—the region where auroras form. This more modern approach uses the ionosphere as a resource, rather than as an obstacle to be overcome, as was the case with Marconi’s approach.

With large profits from international radio sales, Marconi could have investigated a variety of technical paths to improve radio. Instead, the company focused on a narrow technical path—low-frequency, spark transmission, high-power transmitters—that was initially successful but not flexible enough in the long run. In effect, said historian Hugh Aitken, the personal stubbornness that made Marconi a commercial success prevented him from envisioning a wider variety of engineering solutions to obvious problems.

“Now I have realized my mistake,” he told an audience of radio engineers in a 1927 speech in New York City. “Everyone followed me in building stations hundreds of times more powerful than would have been necessary had short waves been used” (Aitken 1992). After the speech, Marconi laid a wreath at a small Battery Park memorial for Jack Phillips, the wireless operator who had gone down with the *Titanic*, still sending out distress calls to the last (*New York Times*, “Marconi Describes Beam to Engineers,” October 18, 1927).

The *Titanic* disaster illustrates the limitations of monopolies that form early in the cycles of technological adaptation. Because the *Titanic* used wireless technology that was already obsolete, within an industry-dominated regulatory framework, many people lost their lives.

### 3.1 Radio Act of 1912 is passed

US regulation of radio telegraphy had already been contentious in the years before the disaster for two major reasons. In the first place, antitrust law had not been applied to telecommunications in the same way that it had been to commodities. American Telephone and Telegraph Co. had successfully lobbied the government and the public to be considered as a regulated “natural” monopoly, and was in the process of working out an agreement with the Justice Department that would be called the Kingsbury Commitment. Similarly, the Associated Press and Western Union monopolies had been frequently called into question but very little had been done. On the other hand, commodities, especially petroleum, were seen as a major object of antitrust law, and the year before the *Titanic* disaster, the US Supreme Court confirmed a Justice Department order breaking up the Standard Oil Trust into thirty-four separate companies.

Secondly, there had been very little in the way of radio regulation, and what there was had been extremely weak. Federal regulation of radio began with the Wireless Ship Act of June 24, 1910, which forbade any steamer carrying or licensed to carry fifty or more

persons to leave any American port unless equipped with a radio and staffed by a skilled operator. But the 1910 act did not regulate frequency allocation or require radio licensing, which was an extremely unpopular idea among radio amateurs. Nor did it require round-the-clock radio monitoring, which would have prevented the *Californian* from steaming off that night of April 12, 1912, instead of stopping to help. Nor did it interfere with the Marconi monopoly on radio equipment. All of these issues would be on the table in the wake of the *Titanic* disaster.

Six bills were presented to the House Merchant Marine and Senate Commerce committee to give the Secretary of Commerce “control over wireless operation.” Various features of the bills would come together in the Radio Act of 1912, passed exactly four months later, on August 13, 1912. The law provided for the setting of radio frequencies, for penalties against interference with emergency communications, for an international distress signal (SOS), and for interoperability of radio stations “without distinction of the radio systems adopted by each station, respectively.” In other words, Marconi operators could no longer be instructed to ignore those using other kinds of radio sets. The law also required that ship radios be monitored for distress calls 24 hours a day.

## 4 Early Radio Technology

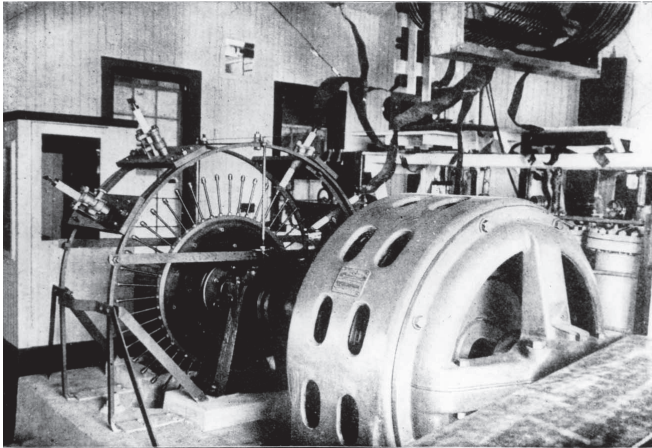
On Christmas Eve, 1906, operators in the “radio shacks” of ships around Cape Cod were sending and receiving routine messages in Morse code over the airwaves.

Suddenly their headphones picked up a strange sound ... Through the static, they heard a violin, playing “O Holy Night.” Even more astonishing ... the voice of Reginald Fessenden reading a passage from the Bible. The Canadian radio inventor and entrepreneur had developed a continuous wave system to broadcast voice and music after years of experimentation in universities and with the US Weather Service. With the help of investors, he built a high-power continuous wave transmitting station in Brant Rock, Massachusetts, designed to compete with Marconi’s spark transmitting system. Fessenden’s financial backers hoped to sell the telephonic radio system to AT&T, but the company was deeply involved in antitrust litigation and may have misunderstood the opportunity.

Around the same time, the problem of tuning the radio and broadcasting voice and music was solved with the invention of the “audion” (triode) tube by Lee DeForest, but the device would undergo many improvements before it became part of commercial radio broadcasting in the 1920s.

The electronics engineer who contributed the most to the development of radio was Edwin H. Armstrong, who devised and patented a new kind of radio tuning circuit in 1914. Bypassing DeForest’s audion patents, Armstrong developed a system that took part of the current and fed it back to the grid, strengthening incoming signals. As a young man testing this concept in his house in Yonkers, New York, Armstrong began receiving distant stations so loudly that they could be heard without headphones, which had been necessary until then. The story is that he was so excited he woke up his sister, Cricket, shouting, “I’ve done it! I’ve done it!”





**Figures 8.4 and 8.5** First voice broadcast—On Christmas Eve, 1906, operators in the “radio shacks” of ships around Cape Cod were sending and receiving routine messages in Morse code over the airwaves. Suddenly their headphones picked up a strange sound ... Through the static, they heard a violin, playing O Holy Night. Even more astonishing ... the voice of Reginald Fessenden reading a passage from the Bible. The Canadian radio inventor and entrepreneur had developed a continuous wave system to broadcast voice and music after years of experimentation in universities and with the US Weather Service. Marconi, then dominant in radio telegraphy, stayed with spark technology until the *Titanic* disaster of 1912. Wikimedia Commons.

Armstrong later found that when the feedback was pushed to a high level, the tube produced rapid oscillations acting as a transmitter, and putting out electromagnetic waves. He also developed FM (frequency modulation) radio, which had far less static than older AM (amplitude modulation) radio technology. Although Armstrong developed the electronic key to continuous-wave transmitters that are still at the heart of all radio and television operations, a bitter patent fight with RCA broke out. The fight was one reason that AM radio technology dominated commercial broadcasting until the 1960s.

Commercial radio was still a dream when, in 1914, amateur radio operators across the country formed the American Radio Relay League (ARRL). Soon afterwards, legend has it, a young Marconi employee, David Sarnoff, wrote a “radio music box memo” about the possibility of commercial broadcasting to Marconi:

I have in mind a plan of development which would make radio a “household utility” in the same sense as the piano or phonograph. The idea is to bring music into the house by wireless. While this has been tried in the past by wires, it has been a failure because wires do not lend themselves to this scheme. With radio, however, it would seem to be entirely feasible.

The new system would be supported with advertising, rather than by subscription or government subsidy, Sarnoff said. While there is some historical controversy about the

memo itself, there is evidence that Sarnoff pushed for commercial radio at the time. Ideas about commercial radio had to be put on hold, however, with the outbreak of World War I, and all radio operations were suspended. Armstrong donated all his patents and know-how to the government to help fight the war, and served as a captain in the US Army Signal Corps.



**Figure 8.6** Exuberant inventor—Edwin H. Armstrong, inventor of FM radio and many other improvements to radio, was fond of climbing radio towers. He is seen here atop the 115-foot-tall RCA radio tower in New York on May 15, 1923, the opening day of RCA's Radio Broadcast Central. US Army photo.

## 5 The 'Radio Craze' of the 1920s

They called it the “radio craze,” and after World War I, millions of young people put on headphones and tuned into the weak signals from a handful of small radio stations and individual broadcasters. The sets were so popular that Radio Corporation of America—the new US company created from American Marconi at the end of World War I—pushed its radio tube manufacturing from an average of 5,000 tubes per month in 1921 to over 200,000 by June of 1922. (By 1930, the number would rise to 125 million per month.)

Radio listeners originally heard a haphazard and eclectic schedule of literary readings, church sermons, foreign news, and musical recitals put together at the whim and

convenience of local radio stations. Only four station schedules were listed in the *New York Times* “radio section” when it was included in the newspaper in May, 1921, and of these, only one was near New York. The others were in Pittsburgh, Chicago, and Springfield, Massachusetts.

Consumer demand surprised everyone, especially the electronics industry, which was preoccupied with a complicated set of patent lawsuits between Edwin H. Armstrong and RCA, Westinghouse, and AT&T. Their original plan was to freely broadcast educational music and high-toned programming, making money by marketing home radio receivers. But since demand for the receivers was already so high, the focus turned to a business model for radio broadcasting. Some 732 radio stations were on the air in 1927, among them, the two stations owned by RCA in New York and Washington, DC. Other affiliates would form the two networks for RCA’s National Broadcasting Company division. The affiliates were either in the Red network, offering commercial entertainment; or the Blue Network, originally to have news and cultural programs without sponsors. Also in 1927, a small group of radio stations formed the Columbia Broadcasting System headed by the young heir of a cigar company, William S. Paley.

## 5.1 Radio licensing

Before radio could be a commercial success, the chaos in the airwaves had to be straightened out. After a failed attempt at voluntary regulation, Congress created the Federal Radio Commission (FRC) in 1927 with the idea that radio should serve the public interest, convenience, and necessity. But the commission found “public interest” to be an elusive concept, and on August 20, 1928, the FRC issued General Order 40, a set of regulations that split radio licenses up into three classes.

Third-class amateur radio operators were not permitted to broadcast news, weather, sports, information, or entertainment, but instead were confined to an undesirable part of the AM spectrum. Medium-sized radio stations were assigned low broadcasting power and limited hours. Many of these were educational stations owned by unions, universities, and churches. They were labeled “propaganda” stations by the FRC and given the lowest priority.

Twenty-five “clear channel” radio stations were given strong frequencies, and of these, twenty-three were affiliated with NBC. They were not permitted to play recorded music, which meant that all music had to be live on the air. Only a very large company could afford its own in-house orchestra. In this way, radio became a centrally controlled national medium rather than a widely distributed locally controlled medium (McChesney 1994).

Publicly, FRC commissioners said the educational stations differed greatly in their technical qualities. But privately, they hoped to do away with these “small and unimportant stations” by requiring four license renewals per year and by assigning them poor low-power frequencies. Within a year of the 1927 regulations, 100 radio stations had folded up, and by 1930 only a handful of the original educational stations remained.

WNYC, a station owned by the city of New York, was among those assigned a part-time, low-power channel. The city appealed to the FRC and lost. Other stations, such



**Figure 8.7** Radio legend—David Sarnoff was a pivotal figure in twentieth-century broadcasting. According to one legend, now proven mostly false, Sarnoff stayed by his telegraph key for days relaying news of the *Titanic*. Another legend, possibly true, was that Sarnoff envisioned the future of commercial broadcasting in 1915. However, there's no question that, as a long-time executive with RCA and NBC, Sarnoff put his personal stamp on the way radio and television broadcasting developed. Harris & Ewing, 1939, Library of Congress.

as a handful of Brooklyn-based Jewish community stations, also lost in the rush to create a large central network.

The US process failed to make the best possible use of the medium, noted legal analyst Philip J. Weiser (2005). In contrast, Britain, Australia, and Canada created hybrid systems where both commercial and non-profit educational stations coexisted and were funded by taxes on radio.

## 6 Radio Licensing and Censorship

Fear of the power of the new media was one of the reasons that the US government excluded small non-profit stations, but censorship was already taking place on many levels. Complaints about the treatment of controversial speakers were typical in the early

days. Congressman Emanuel Celler of New York noted that speakers had been cut off in mid-sentence, plays had been censored, and even political speeches had been edited before air time (*New York Times*, May 29, 1927). Norman Thomas, a leading US democratic-socialist, warned that radio had lost the capacity for genuine discussion of great ideas in the rush to commercialism (*New York Times*, March 30, 1934).

In idealizing radio policy, former President Calvin Coolidge insisted that control remain in the hands of the government:

In its broad aspects, radio is a new agency brought by science to our people which may, if properly safeguarded, become one of our greatest blessings. No monopoly should be allowed to arise, and to prevent it, the control of the channel through the ether should remain in the hands of the government, and therefore of the people, as the control of navigation upon our waters; that while we retain the fundamental rights in the hands of the people to the control of these channels we should maintain the widest degree of freedom in their use. Liberty is not license in this new instrument of science. There is a great responsibility on the part of those who transmit material over the radio." (*New York Times*, Nov 20, 1938)

But the reality was far from the ideal. The government promoted a monopoly radio network and shoved the small independent educational stations off into a corner. Most of these gave up or joined NBC or CBS.

It is not surprising that a system favoring tight content control would be the original framework for the new medium. Film, also relatively new at the time, was similarly regulated for similar reasons. No one was sure what the social effects of new media would be.

Some of the new programs and stations posed serious challenges to the emerging radio system. Licenses for two radio stations were revoked in the early 1930s by the FRC, which said that the stations were "sensational rather than instructive" in nature. John R. Brinkley, a Kansas City surgeon, used his radio station, KFKB, to advocate medically fraudulent implants of supposedly rejuvenating animal organs. When his medical license was revoked in 1930, the FRC also revoked the radio station's license. He moved the operation to Mexico, where his station was one of the most powerful in North America.

Two years later, the FRC also revoked the license of KGEF, a radio station owned by Rev. Robert P. Shuler and the Trinity Methodist Church. Shuler was a shrill muckraker who mounted extreme anti-Semitic attacks on corrupt politicians in Los Angeles. In denying the church's legal appeal, a federal court said radio was only an "instrumentality of commerce." The First Amendment did not apply to broadcasting, the court said, and the license revocation was simply an "application of the regulatory power of Congress."

This broadcast licensing case stands in sharp contrast with the 1933 newspaper censorship case, *Near v. Minnesota*, in which a state tried to shut down the *Saturday Press* of Minneapolis. The Supreme Court said that printed media, no matter how offensive, could not be censored outright. But radio, on the other hand, could be censored.

## 7 The Golden Age of Radio

Radio became the first “electronic hearth,” bringing families—and nations— together to face the crises of the 1930s and 1940s. Media theorist Marshall McLuhan said radio was having a “re-tribalizing” effect, creating an electronic return to oral culture and representing a departure from literacy. Radio was also an extension of, and new twist on, vaudeville and theater, and during its golden age in the 1930s and 1940s, radio attracted the best entertainers in the world.

Originally, the NBC network, led by David Sarnoff, took a high-minded approach to public service. An advisory group of 17 prominent citizens helped shape the programming schedule with lessons in music appreciation, productions of Shakespeare, political debates, and symphonies. By 1928, the network made its first profits (Smith 1990: 73).

Sarnoff “had a vision of what radio and television could become in terms of being informational, educational, cultural, relevant,” said his great-nephew, Richard Sarnoff, in 2008. “He said ‘OK, we’ve got radio, let’s put Tchaikovsky on!’ ... The reason the broadcast media didn’t end up being this public trust type of programming ... is that radio and television is just so good at delivering audiences to advertisers. Business being what it is, whatever you’re good at, you concentrate on, you maximize, and that ends up delivering value to your shareholders” (Auletta 2010: 222).

While “high-brow” symphonic and theatrical productions drew modest audiences, people were far more interested in popular entertainment. Vaudeville, the variety entertainment genre of theater, became the model for many local and national radio programs, and provided a platform for comedians, musical variety, and short dramas. Children’s and family-oriented programs were also especially popular, and these included Western dramas and comic-book heroes.

The most popular show on radio at the end of the 1920s and all through the 1930s was *Amos ’n’ Andy*. The show shamelessly stereotyped two African-American taxicab owners. At first in 1926, white actors Freeman Gosden and Charles Correll syndicated the show by distributing recorded episodes. Despite its offensive nature, the show proved to be an unexpected hit, within a few years attracting 40 million listeners per episode—far more than any other program at the time. NBC signed contracts with Gosden and Correll in 1929.

“*Amos ’n’ Andy* profoundly influenced the development of dramatic radio,” broadcast historian Elizabeth McLeod said:

Working alone in a small studio ... [the performers] created an intimate, understated acting style that differed sharply from the broad manner of stage actors ... The performers pioneered the technique of varying both the distance and the angle of their approach to the microphone to create the illusion of a group of characters. Listeners could easily imagine that that they were actually in the taxicab office, listening in on the conversation of close friends. The result was a uniquely absorbing experience for listeners who, in radio’s short history, had never heard anything quite like *Amos ’n’ Andy*. (McLeod 2005)

The show was not only offensive by modern standards—it was also offensive to some people by the standards of the 1920s. Bishop W. J. Walls of the African Methodist Zion

Church said it was “crude, repetitious, and moronic.” A petition drive was taken up to have the show taken off the air. But *Amos 'n' Andy* was only mildly controversial in the African-American community, and the show’s two white actors were favorite guests at Bud Billekin picnics and parades in Chicago. Nor is there any mention of controversy in several references to the show in *Chicago Defender* (Ellett 2010).

This may have been because the show provided occasional glimpses into the real world of African-Americans. For instance, at one point, the show depicted an innocent Amos undergoing brutal interrogation by police—an event not at all uncommon at the time. The National Association of Chiefs of Police took *Amos 'n' Andy* so seriously that they protested to the network, and the story had to be rewritten to show that it was nothing more than a dream. Still, it’s interesting to note that the show proved too controversial to make the transition to television in the 1950s. After two seasons it was taken off the air and kept out of circulation until 2012.

Following the success of *Amos 'n' Andy*, highbrow symphonies and educational programs were pushed off the air, and radio comedies and dramas began to dominate. The public, anxious to escape the grim realities of the Depression, bought radios by the millions. NBC and CBS worked hard to keep up with the demand for programming.

One of the favorite and best-remembered radio dramas of the 1930s was *The Shadow*, a melodrama concerning a crime-fighter with psychic powers. Its opening line, delivered with manic and sinister laughter, was, “What evil lurks in the hearts of men? Who knows? The Shadow knows.”

Apparently the FCC knew as well. The FCC objected when a Minneapolis, Minnesota, radio station allowed “certain words” (damn and hell) to go on the air when they broadcast Eugene O’Neill’s play *Beyond the Horizon*.



**Figure 8.8:** Controversial radio—Actors Freeman Gosden and Charles Correll created the first big radio hit, *Amos 'n' Andy*, depicting comic slices of life in an African-American taxi company. Although offensive, the show also provided occasional glimpses into the real-world dilemmas of American minorities. *New York World Telegram*, 1935, Library of Congress.

## Give me Trouble

The FCC was “outraged” when, on December 12, 1937, NBC’s *Chase & Sanborn Hour* carried a skit featuring Mae West and Don Ameche in the Garden of Eden. The skit depicts Eve as adventurous and hoping to “develop her personality.” She was seen as bored with life in the Garden and encouraged Adam to “break the lease.” At one point Adam asked what’s wrong with life in the Garden.

Eve: You don’t know a thing about women.

Adam: You apparently forget you were one of my own ribs.

Eve: Yeah, I’m ribbed once, now I’m beefin’.

Adam: Me? I know everything about women.

Eve: That’s covering a lot of territory. Listen long, lazy and lukewarm. You think I want to stay in this place all my life?

Adam: I do, and I tell you, you’re one of my ribs.

Eve: Yeah, but one of your floatin’ ribs. A couple of months of peace and security and a woman is bored all the way down to the bottom of her marriage certificate.

Adam: What do you want, trouble?

Eve: Listen, if trouble means something that makes you catch your breath, if trouble means something that makes your blood run through you veins like seltzer water, mmmm, Adam, my man, give me trouble.

These provocative words led the FCC to issue a “stern reprimand” for violating “the ethics of decency.” The agency began considering how to deal more effectively with content on the radio networks—not just allowing or taking away station licenses, but reaching more into the core of the program development process.



**Figure 8.9** “Give me trouble”—Mae West got more trouble than she anticipated with a 1937 NBC comedy sketch about the Garden of Eden. *New York World Telegram*, c. 1938, Library of Congress.



## 8 Radio and the News

As radio became more popular, radio broadcasters were able to bring fascinating new sounds to the American public. From the volcanoes of Hawaii to the acoustics of a submarine, the microphone could go everywhere and try everything. Its power was particularly noticed during a prison riot on April 21, 1930, in Columbus, Ohio. A line to the radio station, which had already been installed months before to pick up the prison band, now carried the sound of a prison riot and fire. One prisoner, identified only by number, described the fighting and confusion that killed 317 men. “The microphone was at the heart of the grim tragedy, at times no more than 30 feet away from the crackling flames,” said a *New York Times* account.

Radio gained audience and advertising power during the Depression, increasing ad revenues 40 to 50 percent per year as newspaper advertising dropped. American newspaper publishers began to fear radio, fanning the “smoldering fires of opposition” to the new medium, as NBC radio president M. H. Aylesworth warned in 1930. Yet he argued that radio and newspapers are natural allies: “Gutenberg’s conception of printing, coupled with Marconi’s perfection of the radio, has armed society with its greatest weapon against darkness” (*New York Times*, April 25, 1931).

NBC’s olive branch did not win the friends NBC needed, and in 1933, the three wire services (Associated Press, United Press, and International Press) agreed with the publishers association to boycott radio news. AP began with lawsuits against radios broadcasting their news without permission the next year.

CBS radio, at that time a far smaller organization than NBC, responded by creating its own news service. William Paley, president of CBS, found a sponsor for a news program and CBS had gathered 600 part-time reporters in major cities across the world. But in December of 1933, CBS and NBC succumbed to pressure from publishers and wire services to scrap individual broadcast news divisions and form a “Press-Radio” bureau. Under what was called the “Biltmore Agreement,” the bureau would air two 5-minute broadcasts per day, except when issues of “transcendent” importance came up. The broadcasts would not be in prime time and they would refer listeners to their newspapers for more details.

Local radio stations more or less ignored the Biltmore Agreement, even though they now had no wire service access to national and international news. But the networks held back on news coverage until the 1936 elections. Tensions began running high between the networks and the publishers. For instance, when CBS gave *all* presidential candidates airtime—including an unlikely candidate from the Communist party—the Hearst *Journal-American* ran an editorial cartoon of CBS president Paley on a soapbox waving a red flag.

One incident proving the value of radio news involved the May 6, 1937, *Hindenburg* disaster. Herbert Morrison was narrating the airship’s landing, which was being recorded to be broadcast the next day on Chicago’s WLS radio station. Morrison talked as the airship, arriving from Frankfurt, Germany, burst into flames as it attempted to land at

the Lakehurst, New Jersey, airfield. His exclamation, “Oh the humanity,” as he helplessly watched passengers die, shows the deeply emotional nature of radio. The phrase has become an idiomatic cliché of the twentieth century.

Demand for radio news grew with the rise of tensions in Europe, and one of the talented young CBS news producers, Edward R. Murrow, was tapped in 1937 for the job of heading the network’s European offices. Murrow was initially frustrated that his plans for wider coverage of Europe were not supported, but events on the ground were moving quickly. The Nazi takeover of Austria on March 11, 1938 was the first time that Murrow and other correspondents, such as William Shirer, were able to broadcast a full report from the field. NBC also broadcast the event, doing a better job than the CBS team. CBS president Paley, at this point, began to come around to Murrow’s point of view, and then claimed to have invented the “World News Roundup” himself. Murrow



**Figure 8.10** Radio news—Edward R. Murrow and William L. Shirer fought with the CBS bureaucracy to create a news program from European capitols. With Murrow in London and Shirer in Berlin, Americans by 1938 began hearing some of the disturbing developments first-hand. Murrow’s radio and television work would later be seen as legendary in broadcasting, while Shirer went on to write a ground-breaking history of the Third Reich and a memoir of his years covering Mahatma Gandhi in India. *New York World Telegram*, c. 1938, Library of Congress.

and Shirer were hardly in a position to argue when they finally got the okay for their project.

As radio proved its worth, cooperation between radio news organizations and the wire services grew. By 1938, as major events began overtaking minor disputes, AP stopped worrying about whether radio was carrying their news. Now all news organizations started focusing on the increasingly irrational demands of Nazi leader Adolf Hitler. In September 1938, war was temporarily averted when Britain and French leaders met with Hitler in Munich, Germany, and agreed to cede the Sudetenland in western Czechoslovakia to Germany. Radio reports were now coming in daily, and audiences were becoming attuned to urgent news announcements for the first time. Yet people were not accustomed to taking a critical view of the media, and could easily be misled by hoaxes.

### **Martian Invasion Panics Millions**

The whole thing began as a Halloween prank. A brilliant but immature young theater director named Orson Welles hoped he could scare some of the CBS listeners. Like the sorcerer's apprentice, he got a lot more than he bargained for.

Welles had been hired by CBS to present non-commercial dramas such as adaptations of *Treasure Island*, *Dracula*, *The Count of Monte Cristo*, and *Huckleberry Finn*. CBS management hoped the productions, which had no sponsorship and no advertising, would help ward off FCC concerns about over-commercialization. Welles and the under-funded Mercury Theater were always under tremendous pressure to present these Sunday night programs, and when the idea for an adaptation of H. G. Wells's *War of the Worlds* came up, Welles and others worried that it would be their least successful program to date. They decided to frame the narrative inside a series of newscasts to make it seem a little more realistic.

John Houseman later recalled that the scriptwriters for the *War of the Worlds* did not believe the show would be quite up to standard. They studied Herbert Morrison's *Hindenburg* disaster reporting as they rewrote it so that they could achieve the live news effect. "We all felt its only chance of coming off lay in emphasizing its newscast style—its simultaneous, eyewitness quality," Houseman said.

The show aired on October 31, 1938. Over the course of an hour, the Martian invaders traveled from their home planet, landed in New Jersey, released clouds of lethal gas and then took over New York. In the end, of course, the Martians were defeated by the humblest of earth's creatures, the bacteria. All within an hour.

Listeners panicked as they heard what seemed to be a news broadcast about an invasion. Without interruptions for commercial sponsors, station identification, or even any warning that it was all just in fun, hundreds of thousands of listeners took to the streets, especially in New Jersey, as they attempted to flee the approaching Martians.



**Figure 8.11** Martian invasion—radio and theater producer Orson Welles panicked millions of Americans with an hour-long program that used news bulletins to depict an invasion from Mars. Welles went on to produce and direct the movie *Citizen Kane*. Wikimedia Commons.

Although no deaths or major incidents were reported, reaction to the prank was fairly strong. Within a month, some 12,500 newspaper articles were written about the broadcast (Hand 2006). Houseman attributed the press reaction to its disdain for radio itself. "Having had to bow to radio as a news source during the Munich crisis, the press was now only too eager to expose the perilous irresponsibilities of the new medium" (Houseman 1948).

A similar Spanish-language radio drama based on the original Orson Welles script was broadcast in 1949 in Quito, Ecuador, with a much more serious effect, according to historian John Gosling. The broadcast was interrupted when a full-blown panic emerged in the city streets. Thousands mobbed cathedrals, hoping to receive last rites. When the infuriated listeners realized they were victims of a prank, a mob set the radio station on fire, killing as many as twenty people (Gosling 2009).

## 9 Censoring Hate Speech on the Radio

If radio could convince people of a Martian landing, how much more damage could it do? As Adolf Hitler said, “By clever, constant propaganda, a people can be convinced that heaven is hell or that a miserable life is paradise” (Brown and Brown 1939).

One American who attempted to prove Hitler right was Father Charles Coughlin, a Catholic priest with a syndicated radio talk show and 16 million listeners. Coughlin started out as a democrat, a union supporter, and a champion of the oppressed working class. But by the middle of the 1930s, he had become so disgusted with Depression-era capitalism that he embraced fascism and anti-Semitic rhetoric, for example, calling FDR’s “New Deal” the “Jew Deal.” He also repeated German Nazi propaganda nearly word for word in his newspaper columns and secretly took money from Nazi front groups (Warren 1996).

In the summer of 1938, throwing his arm out in a Nazi salute, he told a rally of supporters, “When we get through with the Jews in America, they’ll think the treatment they received in Germany was nothing” (Manchester 1974). The “treatment” got even worse in November 1938, as Nazi party members destroyed synagogues and killed Jewish people across Germany in a pogrom called “Kristallnacht.” Coughlin tried to defend it, saying that persecution was only natural since Jews had been “numerous among radical leaders” on the left, and that many Christians had been persecuted by communists in Russia.

It was a moment of truth for many Americans, who reacted with horror. And it was a turning point for Coughlin as well, since from that point forward, the NBC and CBS networks refused to pass along “errors of fact” and demanded Coughlin’s advance radio scripts. Coughlin refused, and continued his broadcasts through independent radio stations for another year. The Nazis trumpeted the censorship, saying Coughlin was not

**Figure 8.12** Fascism on the air—Charles Coughlin, a Catholic priest, ran a syndicated talk show that drew 16 million listeners in the mid-1930s. He began as a pro-labor reformer, but when he openly backed the Nazi party and its treatment of Jews, radio networks and the US government pulled the plug. *New York World Telegram*, 1935, Library of Congress.



being allowed to broadcast the truth. This was of course the rankest hypocrisy, since censorship in Nazi Germany had long since risen to totalitarian levels.

While the FCC wondered how to approach content regulation, the National Association of Broadcasters changed the code of ethics to bar the sale of airtime for the presentation of controversial issues except in political races. The effect was to take Coughlin and others like him off the air permanently in 1939. “This new rule closed the one loophole that remained in the networks’ and stations’ ability to censor controversial opinion: the dollar loophole,” said historian Michelle Hilmes. “The ability to pay was no longer [enough] . . . In fact, now broadcasters had an obligation to restrict all those outside the broad mainstream of political views” (Hilmes 2006: 129).

A few months later, in January of 1940, the FBI raided the secret New York hideout of seventeen armed Nazi saboteurs who had been associated with Coughlin’s group. Although he tried to defend their ideas, it was clear that Coughlin had totally misunderstood American public opinion. He was forced by the Church to retire from public life.

Coughlin also inspired counter-propaganda efforts. Rachel Du Bois, a New Jersey high school teacher, started an influential radio program on diversity because she was infuriated with Coughlin when he yelled things like “This is a country for White Christians!” She proposed a series, financed by the Department of Education, entitled *Americans All, Immigrants All* that described the variety of ethnic streams that made for a diverse and stronger country (Hilmes 2006).

Coughlin was one of several popular fascist Americans whose views were marginalized and undermined by network regulation during the years before World War II. The process was disconcerting to many who felt, at the very least, that Americans needed to understand what they would soon be fighting. But the security threat was real. German attempts to keep America neutral had been exposed in the Bolo Pasha-Hearst affair in 1917 (see Chapter 3), and similarly well-financed attempts to influence the American public were also taking place in the 1930s (Shannon 1995).

“To permit radio to become a medium for selfish propaganda of any character would be shamefully and wrongfully to abuse a great agent of public service,” said US President Franklin D. Roosevelt. “Radio broadcasting should be maintained on an equality of freedom which has been and is the keynote of the American press” (*New York Times*, November 20, 1938).

## 9.2 Developing a governing philosophy of broadcasting

By the late 1930s, the power of radio was being seen as far greater than anyone originally imagined. To give First Amendment freedoms to the very enemies of the First Amendment raised the question of how much faith one could have in the wisdom of the American public. On the one hand, many argued for freedom of speech and trust in the public. “The American people are not boobs,” as one pundit picturesquely said (Saerchinger 1940). On the other hand, the FCC had become increasingly concerned about controlling the content



**Figure 8.13** Fireside chats—US President Franklin D. Roosevelt’s “fireside chats” were an innovative use of media at the time. Roosevelt used them to reassure Americans during the Great Depression and rally the country during World War II. *New York World Telegram*, 1937, Library of Congress.

of the media. The Coughlin problem, the Mae West episode, the War of the Worlds panic, and dozens of other issues provoked calls for outright censorship. In FCC hearings in 1938, regulators talked about “the right of free speech and liberty of thought.” The FCC chairman said censorship was “impracticable and definitely objectionable,” and then called for self-regulation of radio as the only traditional American way to avoid a plague of innumerable and unimaginable evils (*New York Times*, November 20, 1938).

The National Association of Broadcasters responded with changes in its voluntary code of conduct in 1939, effectively taking Father Coughlin off the air permanently and advanced the idea of greater scrutiny of radio programming. While controversial ideas would still be heard on the air, they would be part of news programs or balanced panel discussions. A formal FCC policy on fairness and objectivity, known as the Mayflower Decision, came in January 1941. The context was a contested radio station license in Boston, Massachusetts. Mayflower Broadcasting Corp. challenged the existing license holders because they endorsed political candidates. While not siding with Mayflower, the

FCC agreed that the station (WAAB) had made a mistake when “no pretense was made at objective, impartial reporting.”

“Radio can serve as an instrument of democracy only when devoted to the communication of information and the exchange of ideas fairly and objectively presented,” the FCC said. “A truly free radio cannot be used to advocate the causes of the licensee [owner]. It cannot be used to support the candidacies of his friends. It cannot be devoted to the support of principles he happens to regard most favorably. In brief, the broadcaster cannot be an advocate. The public interest—not the private—is paramount” (*New York Times*, January 18, 1941). This policy was the precursor of the 1947 Fairness Doctrine, which applied to both radio and television, as we will see in Chapter 9. Since it was based in part on the idea of the scarcity of radio frequencies, courts upheld the Fairness Doctrine until 1984, when competition from other media undermined the scarcity rationale and opened the way to deregulation.

## 10 Radio in World War II

The long-expected shooting war arrived in Europe on September 1, 1939, when Nazi Germany’s armies invaded Poland, although America would remain neutral for another two years and four months. Radio became the way that Americans best understood what was at stake for the British as they faced the Blitz. Edward R. Murrow is particularly associated with giving a human and dramatic flavor to news from London during the bombings of the early 1940s. His signature opening, “Hello America: This is London calling,” was heard by millions around the world. Murrow would often report from rooftops with the sound of bombs and anti-aircraft fire in the background, describing the gritty determination of Londoners and the hardships of the war.

Radio also carried some of the best remembered speeches in history, such as Winston Churchill’s June 4, 1940 address: “We shall defend our island, whatever the cost may be. We shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender.” And Americans gathered around the radio when, on September 7, 1941, the Japanese bombed the US Naval base at Pearl Harbor, Hawaii. The next day, 81 percent of American homes listened to the radio as Roosevelt asked Congress for a declaration of war.

A fireside chat later that week is remembered for its eloquence: “We are now in this war. We are all in it—all the way. Every single man, woman and child is a partner in the most tremendous undertaking of our American history.”

The war hardly meant unanimity of opinion in all things. Debates about the best way to go about defeating the Nazis, and how best to mobilize the American public, took place at many levels of society. As Hilmes notes, a group of prominent writers in the Office of War Information resigned in 1943 after objecting to advertising-agency and publicity-style tactics that were aimed at manipulating rather than informing the public. They also objected to the way that home-front controversy was censored from news sent to the soldiers through radio and newspapers (Hilmes 2006).



On the front lines, radio news reporters carried each twist and turn of the war to the home front. Radio news reporters were a brave and storied lot, climbing into bombers and broadcasting from the front lines of the war. Among them were Edward R. Murrow; Walter Cronkite, later to become the famed news anchor for CBS television; Chet Huntley, who became the NBC television news anchor; and William L. Shirer, whose 1960 history, *The Rise and Fall of the Third Reich*, would become a classic.

Cronkite's February 26, 1943 CBS broadcast gives a feel for the air war. Parts of the broadcast were obscured by static, so a full transcript was never made:

In what should be the peaceful [unintelligible], up where the blue skies begin fading into only a haze, I witnessed a man-made hell of bursting anti-aircraft shells, of burning tracers, of crippled Fortresses, and exploding Nazi fighters, of men parachuting to a [unintelligible] plunge in the North Sea, and of other men not so lucky, plunging to death in fiery planes ... those who made the supreme sacrifice for their country. For two hours I watched a vicious gun duel, so excited I had no time to be scared. That came later. I have seen what it's like to [unintelligible] in the dark, what it is like to fight German airmen and dodge German flak. We put our bombs just where they were supposed to go, but we paid a price. As you know, seven of our bombers did not come home. I guess we were lucky. Other formations felt the brunt of German fighter blows, and we watched Fortresses and Liberators plucked from formations around us as if an invisible hand had reached out and pulled them to the ground.

Cronkite wrote about the experience for United Press the following day, but the newspaper dispatch had only some of the immediacy and personal drama of the radio Report (Cronkite 1943).

## 10.2 “If I have offended you ...”

In an outstanding broadcast at the war's end, Murrow has described the notorious Buchenwald concentration camp:

There surged around me an evil-smelling stink, men and boys reached out to touch me. They were in rags and the remnants of uniforms. Death already had marked many of them ... As we walked out into the courtyard, a man fell dead. Two others, they must have been over 60, were crawling toward the latrine. I saw



**Figure 8.14** Women in radio—The contribution of women in World War II was often as courageous as its depiction in this US Navy poster. John Falter, 1942, Library of Congress.

it, but will not describe it ... I pray you to believe what I have said about Buchenwald. I reported what I saw and heard, but only part of it. For most of it, I have no words ... If I have offended you by this rather mild account of Buchenwald, I'm not in the least sorry ...

Murrow and colleagues had proven the value of radio news in ways that could have hardly been imagined a decade before. One indicator of how far radio news had come in the war is this: Colleagues in the print media did not even allow Murrow to join the London Correspondents Club in 1937. By war's end, he had been elected the club's president (Sperber 1998).

But radio news had its own particular problems that would extend into television after the war. A single company would sponsor a news or entertainment show and expect the show's stars to attend the company's business functions, cut ribbons at factory openings, and even invite company executives to their summer homes. Murrow had this relationship with the Campbell Soup Company, and the company followed his work very closely.

In a post-war *Hear it Now* show, Murrow described people in the town of Anzio, Italy, now recovering from heavy combat a few years beforehand. In the course of the report, Murrow mentioned that the mayor happened to be both Catholic and communist. The soup company started getting complaints from American listeners and even threats to boycott company products. A company advertising executive wrote to warn Murrow to be more pro-American in his reporting. "There are comments ... that you are pink," the man warned, asking him to give "careful thought as to what to do about it." ("Pink" here meant slightly "red," which is to say, sympathetic to communism.)

## 11 The Post-war Blue Book Controversy

The structure of the news media has always been a contentious issue. During the 1920s, under a Republican administration, the FRC helped NBC and CBS networks establish dominance over the airwaves. But under the democratic administration of Franklin D. Roosevelt, concentration of media power was considered to be a problem by the new Federal Communications Commission. In 1939, following a lengthy controversy, NBC was ordered to sell the Blue Network. It became the American Broadcasting Company (ABC), and the Supreme Court backed the FCC order up in 1943.

Attention turned once again to the structure and performance of radio at the end of the war. Since only a limited number of radio stations could use the publicly owned broadcast spectrum, the question became how well they were serving the public interest.

On March 7, 1946, the FCC issued *Public Service Responsibility for Broadcast Licensees*, also known as the "Blue Book" report. The report expressed disappointment in the over-commercialization of radio, its high wartime profits, its lack of public service programming, and the generally lax quality standards in the industry. The report also insisted that broadcasters had an obligation to serve the "public interest, convenience, and necessity," and that obligation could be enforced by revoking station licenses (*New York Times*, September 18, 1947).

“Shabby commercialism” and a “listeners be damned” attitude is how *Kiplinger* magazine depicted the issue in 1947 (*Kiplinger*, 1947). “Wayward” radio executives will not be punished by forcing them to listen to their own programs, said Charles R. Denny, FCC chairman, because that would be cruel and unusual punishment (*New York Times*, 1945).

Meanwhile, a report by Robert Hutchins’ Commission on Freedom of the Press devoted a chapter to radio (although it had primarily been concerned with newspapers and magazines, as we have seen in Chapter 3). The commission joined the FCC in its concern about commercialism in radio, saying that the networks and electronics companies had a responsibility to do more. “Unless broadcasters themselves deal with over-commercialism, the government may be forced to act. So far this challenge has produced little from the National Association of Broadcasters except outraged cries about Freedom of Speech and suggestions for a new code, which, of course, would not go to the heart of the problem” (Hutchins 1947).

Broadcasters “howled” about free speech and encroaching communism, and said that a peril to press freedom could emerge when new technologies, such as newspaper by fax, allowed newspapers to be delivered via broadcasting (*Washington Post*, June 19, 1947). But newspaper publishers sided with the FCC, saying that broadcasters had to get their own house in order.

The controversy died down when the broadcasters issued a new code and Denny resigned in 1947 to take a job with NBC. But the complex question remained over how much pressure the FCC could put on broadcasters to improve their public service when station licenses were only rarely suspended or terminated.

Another regulatory issue emerged around the same time. Newspapers were refusing to accept advertising from businesses that also advertised on radio. The US Justice Department brought a case against the *Loraine Ohio Journal*, questioning its “refusal to deal” as a violation of antitrust laws. The Supreme Court agreed in the case *Loraine Journal v. United States* (1951), and the principle that advertising had to be accepted in competitive situations was established. Both cases would come up in subsequent media antitrust actions, such as the when the US Justice Department sued Microsoft in 1999 over its alleged refusal to deal with competing web browsers (see Chapter 11).

## 12 New Competition for Markets

Radio was at the center of news and entertainment during the first half of the twentieth century. But in the 1950s, the rise of television meant that radio’s original role as the “electronic hearth” and prime source of news and entertainment had become obsolete.

At this point, radio reverted to more local content as the broadcast networks focused their efforts on television. Sometimes radio’s move to local content focused on news and sports, but increasingly it turned to music that could be heard while driving or doing other things. It was inexpensive to program and, station owners found, it was increasingly appreciated by the post-World War II baby boom generation.

With universal technical standards for what was called high-fidelity music in the 1950s, a market for record sales began driving the content of a new kind of locally produced radio.

The radio format was called Top-40, and its theme was a kind of competition between music artists to see whose record could become the best-selling top of the charts hit.

Typically, radio DJs (disk jockeys) would “count down” from the top 40, inserting commercials, announcements, and wise-cracking commentary between three-minute songs. Some DJs became celebrities in their own right; probably the most famous in the 1960s was a New York DJ, Murray the K (Murray Kaufman).

As the recording industry income grew, the pressures to promote records to teenagers grew as well. Underpaid DJs began taking various kinds of bribes to promote records or big name bands coming to their city. Investigations in the 1950s and 1960s led to criminal prosecutions for what was nicknamed “Payola” (Hilmes 2006). Congressional hearings looking into radio and television programming practices also found that television quiz shows had been rigged. Stronger regulations against bribery for music promotion or programming followed.

The recorded music industry, boosted by radio, doubled in size between 1960 and 1970 from \$600 million to \$1.2 billion in the United States and more than doubled again by 1980. Similar acceleration was seen in Britain, France, Germany, and Japan (Gronow 1983).

As the radio audience grew, content expanded into a variety of new formats. By the 1970s a fair-sized city might have a dozen separately owned radio stations, each with a distinct approach to music and culture, including Top 40, heavy metal, classic rock, golden oldies, middle of the road and classical symphonic music, and “talk radio” programming.

This broad variety of programming was expensive to maintain locally, and in the 1980s and 1990s, station owners turned to syndicated radio shows. Starting around 1981, radio stations could buy music program packages delivered by satellite at costs geared to market sizes. While this produced profits in the short term, over the long term, radio again drifted into national syndication and began losing its local news, audiences, and advertisers.

Ownership rules for broadcasting began changing during the 1980s and 1990s. Under the original FCC rules, ownership of radio and TV stations was limited to the “rule of sevens”—seven AM, seven FM, and seven TV stations. During the 1980s, more consolidation of station ownership was permitted under various deregulatory initiatives.

Then, in the 1996 Telecommunications Act, ownership regulations were lifted almost entirely as part of a sweeping reform of telephone, satellite, cable, and broadcast industry regulation. In theory, the act was supposed to allow more competition and better efficiencies of scale. In practice, however, the new regulations allowed a much higher concentration of radio stations under single owners, a homogenization of programming, and loss of minority-owned radio stations.

Technically, the high concentration of radio station ownership is not a monopoly, and statistically an argument can be made that radio is more competitive than most other kinds of businesses. Even at the height of media consolidation, around 2005, one company (Clear Channel, now iHeart Media) owned only about 10 percent of all radio stations (Thierer 2015). But the argument also involves the loss of a diversity of voices, including the declining ownership by women and minorities and the decline in community and local service radio.

Advocates for media reform point out that people of color—36 percent of the US population—own only 8 percent of commercial radio stations, typically small, with lower quality frequencies, representing only 1 percent of the total assets. “The *real* reasons for the decline in minority [radio] ownership are well known,” said David Honig, co-founder and president of the Minority Media and Telecommunications Council (MMTC). They include access to capital; advertisers’ “no urban” and “no Spanish” instructions to ad agencies to avoid customers they don’t want patronizing their stores; employment discrimination; sampling deficiencies in radio ratings; and many other problems that could be remedied at the FCC level (Honig 2012).

“Imagine a US media landscape even more viciously unfair, more drastically tilted to favor greedy, irresponsible and immensely powerful media corporations than the one we already have,” said Bruce A. Dixon in a Black Agenda Radio commentary about removing “the few remaining limits on how many radio and TV stations and newspapers giant media companies are allowed to operate in a single market.”

Another issue is the influence over live entertainment markets that comes with concentration. For instance, in a 2004 antitrust lawsuit against Clear Channel, a Denver promotions group said the radio station was refusing to sell advertising for its concerts. The suit was settled out of court (*Billboard*, 2004). More issues involving diversity of voices include the banning of music by groups that disagreed with the Iraq War and the inability of pre-programmed local radio to respond to life-threatening local emergencies, such as train wrecks and the release of killer clouds of chemicals.

One area of media reform that has been at least partially successful has involved the expansion of low-power FM community radio stations. Following decades of advocacy and protests, in 2000, the FCC issued regulations for the LPFM category of non-profit education radio station. But with resistance by traditional radio and after a decade of filings, notices, and rule changes, the FCC will have the LPFM “right back where it started—small, isolated, and rare” (Skorup 2012).

With all kinds of alternative sources of music and entertainment, including podcasting and satellite radio, the fight over radio ownership concentration almost seemed moot by the second decade of the twenty-first century.

## 13 Emergence of Talk Radio

Among important developments in radio during the late twentieth century was the distribution of “talk radio” shows to older AM radio stations and mainstream FM stations. With 400 radio stations around 1990, talk radio grew to nearly 3,000 stations by 2010 (Pew Research, 2010).

A typical talk radio show would last from one to three hours daily and focus on political issues, often with telephone call-ins from listeners. Research by the Pew Center in 2004 showed that 17 percent of the public were regular talk radio listeners and tended to be male, middle-aged, and conservative.

The talk radio format had partisan precursors in Father Charles Coughlin's Sunday talks, but also in the more balanced panel programs such as *America's Town Meeting of the Air*, put on by NBC from 1935 to 1956. The end of the "Fairness Doctrine" in 1987 gave a green light to partisan political radio shows that became popular in the 1990s, when passionate conservative viewpoints connected with a popular market. One of the first of the conservative talk radio success stories was Rush Limbaugh, whose show was carried on 600 Clear Channel network radio stations. Other conservative talk show hosts included Bill O'Reilly, Michael Savage, and Glenn Beck. Yet conservative talk shows began facing major problems as an aging audience demographic made old-guard conservatism increasingly irrelevant (Ungar 2014).

Liberal talk radio was relatively rare in comparison, with hosts such as Ed Schultz, Stephanie Miller, Randi Rhodes, and Bill Press. A network designed to carry liberal talk shows, Air America, started in 2004 but went bankrupt by 2010, partly because overall radio revenue fell by 20 percent or more per year in the economic recession. But Air America itself had problems. It was based on a broader and more expensive concept of audience service, business observers said. Conservative talk radio programs are sold to individual radio stations and have their own individual following. Progressive radio "remains a solid business proposition" said Bill Press, but it takes business and radio experience first, and not ideology (Press 2010). *Ring of Fire*, a progressive show starring Robert F. Kennedy Jr., survives as one of the foremost liberal talk shows.

## 14 New Radio Technologies

The idea for direct satellite radio service for consumers dates back to the 1980s, when new telecommunications satellite link-ups allowed programs produced in Los Angeles or New York to be broadcast through local radio stations. Bypassing the "middle man"—the small local radio station—seemed like an attractive business strategy. Broadcasting directly to the consumer was technically feasible by the early 1990s, and the idea attracted great hopes. "A new technology will eventually compete with local stations," said media writer Edmund L. Andrews (*New York Times*, January 13, 1995).

But it was not until 1997, over the strong opposition of the National Association of Broadcasters, that the FCC finally approved satellite radio, with the condition that the two major entrants in the field—XM Radio and Sirius—never merge. Despite a wide variety of programming, with hundreds of channels ranging from shock jocks to sports to all kinds of music genres, consumer barriers included the need for a specific satellite radio receiver in the car or at home, and the monthly subscription costs were relatively high. Within a decade, competition from other digital media was so strong that both satellite radio companies were on the brink of bankruptcy, and the FCC allowed the two companies to merge into one monopoly service that would compete against traditional radio.

Meanwhile, in the rest of the world, satellite radio became significant for its ability to promote development and international interconnections. Radio is the only accessible medium in many rural and developing areas, and several low-earth orbit satellites carry

development and peacekeeping information programs from the United Nations to rural Africa, Asia, and Latin America. Peacekeeping missions involve a mix of terrestrial and satellite transmissions for the Congo, Kosovo, Liberia, Haiti, Timor-Leste, and other conflict regions.

## 14.2 Podcasting and Internet radio streaming

In the spring of 1993, when the possibilities of the Internet were just beginning to dawn on most people, an enterprising author and public domain advocate named Carl Malamud began the first Internet radio station, the Internet Multicasting Service. His “Geek of the Week” program featured interviews with European and US internet experts, including a then-obscure British programmer named Tim Berners-Lee who went on to develop the world wide web.

At the time, audio file formats were clumsy and Internet speeds were slow, even for text exchanges. Malamud used a Sun Sparc computer to send and receive audio files, and joked that he owned either the world’s cheapest radio broadcasting station or the world’s most expensive radio receiver.

Even with high-tech equipment, file sizes were large and download speeds were excruciatingly slow. A three minute uncompressed audio file might be 50 megabytes in size, while a 56 kilobit-per-second download speed would be the best available. So, up to two hours could be spent waiting for a three-minute file to work its way through the system.

But improvements were on the way. During the late 1980s, the International Standards Organization (ISO) had been hosting meetings of digital technology coordination groups such as the Joint Photographic Experts Group (JPEG) and the Motion Picture Experts Group (MPEG). The motion picture group developed a standard for audio compression that allowed a controlled loss of data in order to compress a large file into a smaller one. By 1995, a free software compressor could turn an audio file in the of 50 MB size into a 5 MB file, or smaller, in the new MPEG-1 Layer 3 (or “mp3”) format.

The MPEG compression technologies were effective because they first removed data in audio ranges that tended to be less audible to the human ear. The speed and ease of audio file exchanges, especially music downloads, became appreciated in the late 1990s when digital versions of popular music were exchanged through services like Napster (see Chapter 11). This free exchange of copyrighted music was opposed by the Recording Industry Association of America, and Napster was out of business in 2001.

Around the same time, Apple computers offered music files in mp3 and other easy to use formats that could be played on a small player called the iPod. They also introduced a network that allowed the sale of copyrighted music at reasonable prices. The iPod freed audiences from passive roles and allowed them to create their own playlists and even send their own podcasts back into the system. It was an instant hit.

As people began using iPods and other MP3 players more and more, radio audiences have begun to shrink, affecting both traditional radio stations and satellite broadcasters.

Since nearly two-thirds of radio audiences are listening in their cars on any given day, the introduction of iPods is shrinking both terrestrial and satellite radio audience size.

Other mobile devices, such as cell phones, are also allowing consumers to receive both live “streaming” and stored audio files in their cars and cell phones, wherever they go. These developments probably spell the end of the traditional radio broadcasting station. The people formerly known as the “audience” will now have the technology to easily pick and choose their own music playlists and talk programs without the intervening broadcast medium. Once again, a circumventing technology was used to undermine a monopoly.

## 14.3 Copyright and music on the Internet

The introduction of mp3 audio compression made it far easier to digitally store, rearrange, and share audio files. One effect was to unbundle songs that had been thrown together into standard 70-minute “album” sets to be sold on CDs. With mp3 technology, listeners could isolate their favorite songs and play them in whatever order they wanted. At the same time, musicians did not have to conform to a list of ten to twelve songs. They could have more flexibility and control over how their music was created and when and where their songs were released.

“There is a whole universe that already exists on line, built around the mp3,” said Neil Strauss in the *New York Times*. “It is not a world of pirated music, as the record industry would have you believe, but one in which you can choose and design the look and feel of your music” (Strauss, 1999). Yet “piracy”—the illegal sharing of music—did become a problem for the industry, which began the debate in 1999 by insisting on full digital rights management (DRM) so that mp3 players could not be used for copied songs. Consumers rejected DRM, and younger music lovers began sharing music files by the millions over the Internet.

Napster was one of the first sites to freely share copyrighted music. It was developed by Shawn Fanning while at Northeastern University in Boston in 1999. By 2001, Napster had over 26 million users worldwide, but lost a copyright suit brought by A&M Records and other music companies. By 2002, Napster was bankrupt. While some established musicians, including Dr. Dre and Metallica, were vehemently opposed to having their music given away for free, other emerging musicians, such as Radiohead and KidA, found that the exposure helped their sales and concerts.

Once Napster was shut down, other point-to-point music-sharing sites, such as Limewire, Gnutella, Kazaa, and Pirate Bay, emerged between 2000 and 2010. Most were closed down after various legal battles; the owners of Pirate Bay, for instance, were sentenced to one year in jail in Sweden in 2010.

Meanwhile, legal music websites, especially iTunes by Apple, emerged to take advantage of legal music sales through the Internet. Apple also managed to pull back from near-bankruptcy with its popular iPod, a player for digital music in MP3 and other formats. By 2010, iTunes was selling 312 million songs per year for one dollar each. But the music industry notes that this was only a fraction of its \$10 billion US annual (and \$27 billion international) revenue in 2008—a figure that had come down 25 percent from the recording industry’s peak sales ten years earlier.

The Recording Industry Association of America (RIAA) said that musicians were suffering. “Piracy doesn’t even begin to adequately describe the toll” that music theft takes



on the industry, it said, claiming that global music theft “causes \$12.5 billion of economic losses every year” (RIAA 2010).

To reduce the losses, the RIAA sued 17,000 individuals who simply downloaded music in the decade between 2000 and 2010. Only a few chose to fight the lawsuits; most settled with the RIAA and paid a few thousand dollars. Those who did fight faced serious consequences. In one 2009 case, *Capitol Records v. Jammie Thomas-Rasset*, the RIAA persisted through a jury trial and was awarded a fine of \$80,000 per song or \$1.9 million for twenty-four songs. Later, the judge cut the fine to \$54,000 for Thomas-Rasset, a working mother with four children. In another case, *Sony v. Tenenbaum*, courts upheld a verdict of \$675,000 for a young man who illegally downloaded thirty copyrighted songs.

Neither defendant has any hope of paying the fines, which were widely seen as so far out of proportion to the individual impacts of the infringements that it was highly contrary to the spirit of the law. Critics said the existing copyright system was flawed, and that excessive fines and overly long copyright terms should not be imposed on new digital media. Elected representatives, deeply out of touch with younger music-lovers, maintained stiff fines for infringements without regard for the harm it caused relatively innocent people, critics said.

The debate had the familiar sound of previous media controversies. Two prominent critics of the copyright law, Harvard University law professors Lawrence Lessig and Jonathan Zittrain, questioned the way copyright and communications law affected creativity and freedom. Lessig compared copyright law to the original idea of property ownership that extended from the ground all the way out into space. That idea was fine until the invention of the airplane, he said. At that point, a new technology made the old law irrelevant:

We come from a tradition of free culture. Not “free” as in “free beer” ... But “free” as in “free speech,” “free markets,” “free trade,” “free enterprise,” “free will,” and “free elections” ... A free culture is not a culture without property, just as a free market is not a market in which everything is free. The opposite of a free culture is a “permission culture”—a culture in which creators get to create only with the permission of the powerful, or of creators from the past. (Lessig 2005)

One of the impacts of digital media technology on the music recording industry was the reduced support that recording companies were able to give their musicians. This change in media structure was rather similar to the way the Hollywood studio system collapsed with the advent of television. As they began to lose constant, dependable income, the broad based systems began shrinking, which opened the way for a more independent productions, but, at the same time, made it more precarious to try to make a living as a musician or producer.

## 15 The Future of Radio

From its earliest days, predictions about the future of radio involved many ideas that today seem impractical or even absurd. Some predicted that radio would help speed up crops

growing in fields with a kind of fertilizing effect. Others predicted that radio microwaves could be used to send electric power over long distances without wires, an idea that is possible in theory but extremely dangerous in practice. Over a century after the birth of radio, it turns out that its enduring value is its ability to accompany people as they do other things, such as walking, driving, and working, in situations where video would be too distracting.

To the extent that music and talk programs are now available through new wireless technologies, the connection between telephones, cars, and home computers will allow people to program a wide variety of music, news, or educational experiences before or during these activities.

And so, one frequently made prediction for radio is coming true. The future of radio, Guglielmo Marconi said in 1928, involved its ability to avoid the expense of cable wiring. “The value of the cables has been very great,” said the man who helped create wireless, “but I would hesitate to express an opinion about their future” (*New York Times*, February 25, 1928).

For additional reading, discussion questions, links to video, and other suggestions, see [www.revolutionsincommunications.com](http://www.revolutionsincommunications.com).