

Radio, sound communication by radio waves, usually through the transmission of music, news, and other types of programs from single broadcast stations to multitudes of individual listeners equipped with radio receivers. From its birth early in the 20th century, broadcast radio astonished and delighted the public by providing news and entertainment with an immediacy never before thought possible. From about 1920 to 1945, radio developed into the first electronic mass medium, monopolizing “the airwaves” and defining, along with newspapers, magazines, and motion pictures, an entire generation of mass culture. About 1945 the appearance of television began to transform radio’s content and role. Broadcast radio remained the most widely available electronic mass medium in the world, though its importance in modern life did not match that of television, and in the early 21st century it faced yet more competitive pressure from digital satellite- and Internet-based audio services.

Based on the human voice, radio is a uniquely personal medium, invoking a listener’s imagination to fill in mental images around the broadcast sounds. More readily and in a more widespread fashion than any other medium, radio can soothe listeners with comforting dialogue or background music, or it can jar them back into reality with polemics and breaking news. Radio also can employ a boundless plethora of sound and music effects to entertain and enthrall listeners. Since the birth of this medium, commercial broadcast companies as well as government organs have made conscious use of its unique attributes to create programs that attract and hold listeners’ attention. The history of radio programming and broadcasting around the world is explored in this article.

Radio’s early years

The first voice and music signals heard over radio waves were transmitted in December 1906 from Brant Rock, Massachusetts (just south of Boston), when Canadian experimenter Reginald Fessenden produced about an hour of talk and music for technical observers and any radio amateurs who might be listening. Many other one-off experiments took place in the next few years, but none led to continuing scheduled services. On the West Coast of the United States, for example, Charles (“Doc”) Herrold began operating a wireless transmitter in conjunction with his radio school in San Jose, California, about 1908. Herrold was soon providing regularly scheduled voice and music programs to a small local audience of amateur radio operators in what may have been the first such continuing service in the world.

The radio hobby grew during the decade before World War I, and the ability to “listen in” with earphones (as there were no loudspeakers) and occasionally hear voices and music seemed almost magical. Nevertheless, very few people heard these early broadcasts—most people merely heard about them—in part because the only available receivers were those handmade by radio enthusiasts, the majority of them men and boys. Among these early receivers were crystal sets, which used a tiny piece of galena (lead sulfide) called a “cat’s

whisker" to detect radio signals. Although popular, inexpensive, and easy to make, crystal sets were a challenge to tune in to a station. Such experiments were scattered, and so there was little demand for manufactured receivers. (Plug-in radio receivers, which, through the use of loudspeakers, allowed for radio to become a "communal experience," would not become widespread until after 1927.) Early broadcasters in the United States, such as Herrold, would continue until early 1917, when federal government restrictions forced most radio transmitters off the air for the rest of World War I, stalling the growth of the medium.

After the war, renewed interest in radio broadcasts grew out of experimenters' efforts, though such broadcasts were neither officially authorized nor licensed by government agencies, as would become the practice in most countries by the late 1920s. Early unauthorized broadcasts sometimes angered government officials, as in England, where concern was raised over interference with official government and military signals. Amateurs developed the means and simply began to broadcast, sometimes preannounced but often not. As they became more proficient, they would announce schedules—typically an hour or so for one or two evenings per week.

One of the world's first scheduled radio broadcast services (known as PCGG) began in Rotterdam, Netherlands, on November 6, 1919. Other early Dutch stations were operated by the Amsterdam Stock Exchange (to send information to new members) and by a news agency that was seeking a new way to serve newspaper subscribers. Another early station appeared in Canada when station XWA (now CFCF) in Montreal began transmitting experimentally in September 1919 and on a regular schedule the next year. (The first commercially sponsored stations in Canada appeared in 1922.) The first British station offered two daily half-hour programs of talk and music from Chelmsford (near London) in 1919–20. Concerns about interference with military wireless transmissions, however, led to a shutdown until 1922, when government-authorized stations appeared, including the first London-based outlet. The first Mexican radio station aired in the capital city in 1921, though many in the country had first heard broadcasts from Cuba or Puerto Rico. By that point, stations had also appeared in Australia (Melbourne, in 1921), New Zealand (from Otago University in Dunedin, also in 1921), and Denmark (from Copenhagen, 1923).

Broadcasting got an important boost in the huge American market when about 30 radio stations took to the air in different cities in 1920–21. Most of these developed out of amateur operations, each dedicated to a different purpose. "Doc" Herrold returned to the air in 1921, but he soon had to sell his station for lack of operating funds. The University of Wisconsin's WHA began as a physics department transmitter, but as early as 1917 it was sending wireless telegraph agricultural market reports by Morse Code to Wisconsin farmers. WHA, the first American educational outlet, probably began voice broadcasts in early 1921, though several other universities soon initiated stations with similar aims. KDKA in Pittsburgh, most often cited as the first radio outlet in the United States, had begun as the

amateur station 8XK in 1916, but it was forced off the air in World War I. It reappeared on November 2, 1920, as a "commercial" voice-and-music service operated by the Westinghouse electrical manufacturer to help sell the company's radio receivers. Westinghouse added other stations in different cities over the next two years, and General Electric and the newly formed Radio Corporation of America (RCA) soon entered the radio business as well. Detroit's amateur operation 8MK (which debuted on August 20, 1920) soon became WWJ, the first station to be owned by a newspaper (The Detroit News). Initially seen as simply another press-supported community service, a radio station became a means of hedging bets in case the new medium proved competitive with newspapers.

Slowly, other American stations took to the air, often as auxiliaries to the owner's primary business, such as a retail store, hotel, or record shop. The deluge came in 1922 when more than 550 new stations crowded onto the few available frequencies to build on radio's appeal across the country. Many quickly disappeared as they could not pay the cost of operations (on-air advertising was rare). Equipment was largely hand-built, and most stations operated with less power than an ordinary reading lamp. Initial studio spaces had walls covered in burlap to deaden sound and, along with a microphone, featured a piano that could be used for filling short bits of air time. A few stations experimented with telephone lines to allow two or more outlets to carry (or "network") an occasional presidential address or sporting event. Audiences were enthralled as radio became a national craze. Magazines, books, and even movies featured or included references to radio broadcasting.

Most other industrial nations began radio broadcasts by the mid-1920s. France (in Paris) and the Soviet Union (in Moscow) aired broadcasts in 1922. The first continuing Chinese radio station appeared in Shanghai early in 1923, when stations also appeared in Belgium, Czechoslovakia, Germany, and Spain. The pace quickened when Italy explored radio in 1924, followed by Japan, Mexico, Norway, and Poland in 1925. All these countries varied in how they authorized and organized radio services, with governments usually playing a far more central role than was the case in the United States.

Stations everywhere faced the same basic problem: what to program in order to attract and hold an audience—and how to support a continuing service financially. Radio quickly became popular anywhere signals could be heard, but how best to utilize the medium—what to place on the air, or to "program"—remained to be seen. Most early broadcasts were characterized by haphazardness, though two attractions quickly stood out: the warmth of the human voice (at first nearly always male) and almost any type of music, classical or popular, instrumental or vocal. Virtually everything on the air was live because recordings were of poor quality. Thus, a speaker or a musician could easily fill time until the next segment appeared. Only after the first few years did the notion of "programs" develop, with specific times and lengths, beginnings and endings.

The Golden Age of American radio

The Golden Age of American radio as a creative medium lasted, at best, from 1930 to 1955, with the true peak period being the 1940s. Writer-producer-director Norman Corwin, one of radio's brightest talents, ruefully made the point that radio's most creative era was "the shortest golden age in history." During its brief heyday, however, dramatic radio thrived and was a vital part of American culture. As would become true with television in later decades, frequently used expressions from popular programs became part of the vernacular, and people arranged their personal schedules, as they later did with television, around their favourite programs.

A new commercial medium

The need for regulation

In the United States, active broadcasting preceded firm government policy. Indeed, as radio became more and more of a business, station owners banded together to seek stronger government licensing regulation. From 1922 to 1925, Herbert Hoover, then secretary of commerce and in charge of radio policy, convened four national conferences, each of which petitioned Congress to replace the only existing (and obsolete) laws regarding broadcasting, which had been established in 1912 to regulate ship-to-shore transmissions.

Initially all stations in the United States had to operate on a single frequency, 833 kilohertz (kHz), and stations in the same area were forced to share time so their signals did not interfere with each another. The addition of two more frequencies, 619 kHz in December 1921 and 750 kHz in August 1922, helped somewhat, but most larger cities had far more than three stations and thus continued to use shared-time arrangements. At Hoover's behest, most frequencies between 550 kHz and 1,350 kHz were turned over for broadcast use in May 1923. The Department of Commerce, however, lacked the discretion to reject license applications or to enforce frequency assignments. Considerable interference resulted as operators shifted station frequency (and sometimes the transmitter location, by mounting it in a truck) in an attempt to obtain a clear signal.

This lack of self-regulation and mutual cooperation between station operators resulted in increased pressure on Congress to update radio legislation, which was accomplished with the landmark Radio Act of 1927. This act provided basic assumptions that have continued to underpin broadcasting policy in the United States to this day. Frequencies used for broadcasting were to be held by the government, not owned by licensees. A license would be issued only if "the public interest, convenience or necessity" was served. A new Federal Radio Commission established by the law would define what "the public interest" meant, though broadcasters would be held responsible for the content they provided.

The role of advertising

Sale of advertising time was not widely practiced at early radio stations in the United States. Indeed, many objected to the commercialization of radio, among them Herbert Hoover, who said in 1924, "I believe the quickest way to kill broadcasting would be to use it for direct advertising." Strong arguments were made opposing the "invasion of people's homes with commerce" (although newspapers and magazines had done so for more than a century) on the grounds that it would lead to entertainment programs pitched to the mass audience, thereby limiting radio's potential educational and social benefits. Searching for operating funds, stations sought government support, gifts from the wealthy, voluntary contributions, or an annual fee assessed on listeners (the latter an approach already adopted in some countries). A few cities or states operated stations as government services.

The American Telephone and Telegraph Company (AT&T) brought advertising to American radio when their New York City radio station, WEAf, began selling time for "toll broadcasting." Its first radio commercial, broadcast on August 22, 1922, was a 15-minute real-estate ad offering apartments in Jackson Heights, Queens. But acceptance of radio advertising was slow, as broadcasters did not want to offend listeners. Early ads promoted an institutional image in a style later common to public radio's "underwriting" announcements.

Nevertheless, by the end of the 1920s, radio was firmly established as an advertising medium, which in turn led to air time's being sold in set blocks, determined by the length of the program. As radio developed, daytime shows such as soap operas and children's programs generally ran 15 minutes. Dramatic shows and situation comedies, the bulk of prime-time programming, ran 30 minutes each. Hour-long blocks of time were generally reserved for prestigious big-star shows, such as Lux Radio Theatre, or for low-rated but esteemed and experimental shows, such as The Columbia Workshop.

Many advertisers made themselves known by eventually adopting the practice of combining their name with the name of the star or the title of the program, as with Camel Caravan, sponsored by the R.J. Reynolds Tobacco Company, or A&P Gypsies, sponsored by the largest American grocery-store chain at the time. Beginning in the 1930s and continuing for more than two decades, a majority of prime-time network programs were actually created by advertising agencies employed by sponsors. For example, during Bing Crosby's tenure as host of The Kraft Music Hall, the talent and staff were hired by the Kraft food company's advertising firm, the J. Walter Thompson agency. The networks merely provided the airtime and studio facilities. Some of the more creative radio talents functioned as their own producers, receiving a budget from the agency out of which they paid the supporting actors and crew. Even these artists were under strict supervision of the agencies, which usually had representatives present during the rehearsals and broadcast.