

The Faculty of Information and Communication Sciences

The History Of Boadcasting  
A Handout Destinated For Master1 Audio-  
Visual Students

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## The history of broadcasting

### 1. The history of radio broadcasting

At its most basic level, radio is communication through the use of radio waves. This includes radio used for person-to-person communication as well as radio used for mass communication. Both of these functions are still practiced today. Although most people associate the term *radio* with radio stations that broadcast to the general public, radio wave technology is used in everything from television to cell phones, making it a primary conduit for person-to-person communication.

### **The Invention of Radio**

Guglielmo Marconi is often credited as the inventor of radio. As a young man living in Italy, Marconi read a biography of Hienrich Hertz, who had written and experimented with early forms of wireless transmission. Marconi then duplicated Hertz's experiments in his own home, successfully sending transmissions from one side of his attic to the other. He saw the potential for the technology and approached the Italian

government for support. When the government showed no interest in his ideas, Marconi moved to England and took out a patent on his device. Rather than inventing radio from scratch, however, Marconi essentially combined the ideas and experiments of other people to make them into a useful communications tool. Lewis Coe, *Wireless Radio: A Brief History* (Jefferson, NC: MacFarland, 1996), 4–10.

In fact, long-distance electronic communication has existed since the middle of the 19th century.

The telegraph communicated messages through a series of long and short clicks. Cables across the Atlantic Ocean connected even the far-distant United States and England using this technology. By the 1870s, telegraph technology had been used to develop the telephone, which could transmit an individual's voice over the same cables used by its predecessor.

When Marconi popularized wireless technology, contemporaries initially viewed it as a way to allow the telegraph to function in places that could not be connected by cables. Early radios acted as devices for naval ships to communicate with other ships and with land stations; the focus was on person-to-person communication. However, the

potential for broadcasting—sending messages to a large group of potential listeners—wasn't realized until later in the development of the medium.

## **Broadcasting Arrives**

The technology needed to build a radio transmitter and receiver was relatively simple, and the knowledge to build such devices soon reached the public. Amateur radio operators quickly crowded the airwaves, broadcasting messages to anyone within range and, by 1912, incurred government regulatory measures that required licenses and limited broadcast ranges for radio operation. Thomas White, –Pioneering Amateurs (1900–1917),|| *United States Early Radio* Wireless technology made radio as it is known today possible, but its modern, practical function as a mass communication medium had been the domain of other technologies for some time. As early as the 1880s, people relied on telephones to transmit news, music, church sermons, and weather reports. In Budapest, Hungary, for example, a

subscription service allowed individuals to listen to news reports and fictional stories on their telephones. White, –News and Entertainment by Telephone (1876–1925),|| *United States Early Radio History*, . Around this time, telephones also transmitted opera performances from Paris to London. In 1909, this innovation emerged in the United States as a pay-per-play phonograph service in Wilmington, Delaware. White, –News and Entertainment by Telephone (1876–1925),|| *United States Early Radio History*. This service allowed subscribers to listen to specific music recordings on their telephones. White, –News and Entertainment by Telephone

In 1906, Massachusetts resident Reginald Fessenden initiated the first radio transmission of the human voice, but his efforts did not develop into a useful application. John Grant, *Experiments and Results in Wireless Telegraphy* (reprinted from *The American Telephone Journal*, 49–51, January 26, 1907). Ten years later, Lee de Forest used radio in a more modern sense when he set up an experimental radio station, 2XG, in New York City. De Forest gave nightly broadcasts of music and news until World War I halted all transmissions for private citizens.

## **The Rise of Radio Networks**

Not long after radio's broadcast debut, large businesses saw its potential profitability and formed networks. In 1926, RCA started the National Broadcasting Network (NBC). Groups of stations that carried syndicated network programs along with a variety of local shows soon formed its Red and Blue networks. Two years after the creation of NBC, the United Independent Broadcasters became the Columbia Broadcasting System (CBS) and began competing with the existing Red and Blue networks.

Although early network programming focused mainly on music, it soon developed to include other programs. Among these early innovations was the variety show. This format generally featured several different performers introduced by a host who segued between acts. Variety shows included styles as diverse as jazz and early country music. At night, dramas and comedies such as *Amos 'n' Andy*, *The Lone Ranger*, and *Fibber McGee and Molly* filled the airwaves. News, educational programs, and other types of talk programs also rose to prominence during the 1930s.

## **The Golden Age of Radio**

The so-called Golden Age of Radio occurred between 1930 and the mid-1950s. Because many associate the 1930s with the struggles of the Great Depression, it may seem contradictory that such a fruitful cultural occurrence arose during this decade. However, radio lent itself to the era. After the initial purchase of a receiver, radio was free and so provided an inexpensive source of entertainment that replaced other, more costly pastimes, such as going to the movies.

Radio also presented an easily accessible form of media that existed on its own schedule. Unlike reading newspapers or books, tuning in to a favorite program at a certain time became a part of listeners' daily routine because it effectively forced them to plan their lives around the dial.

## **The Origins of Prime Time**

During the evening, many families listened to the radio together, much as modern families may gather for television's prime time. Popular evening comedy variety shows such as George Burns and Gracie Allen's *Burns and Allen*, the *Jack Benny Show*, and the *Bob Hope Show* all began during the 1930s. These shows featured a central host—for whom the

show was often named—and a series of sketch comedies, interviews, and musical performances, not unlike contemporary programs such as *Saturday Night Live*. Performed live before a studio audience, the programs thrived on a certain flair and spontaneity. Later in the evening, so-called prestige dramas such as *Lux Radio Theater* and *Mercury Theatre on the Air* aired. These shows featured major Hollywood actors recreating movies or acting out adaptations of literature. Michele Hilmes, *Radio Voices: American Broadcasting 1922–1952* (Minneapolis: University of Minnesota Press, 1999), 183–185.

### **Instant News**

By the late 1930s, the popularity of radio news broadcasts had surpassed that of newspapers. Radio's ability to emotionally draw its audiences in close to events made for news that evoked stronger responses and, thus, greater interest than print news could. For example, the infant son of famed aviator Charles Lindbergh was kidnapped and murdered in 1932. Radio networks set up mobile stations that covered events as they unfolded, broadcasting nonstop for several days and keeping listeners updated on every detail while tying them emotionally to the outcome. Robert Brown, *Manipulating the*

*Ether: The Power of Broadcast Radio in Thirties*

*America* (Jefferson, NC: MacFarland, 1998), 134–137.

As recording technology advanced, reporters gained the ability to record events in the field and bring them back to the studio to broadcast over the airwaves. One early example of this was Herb Morrison's recording of the *Hindenburg* disaster. In 1937, the *Hindenburg* blimp exploded into flames while attempting to land, killing 37 of its passengers. Morrison was already on the scene to record the descent, capturing the fateful crash. The entire event was later broadcast, including the sound of the exploding blimp, providing listeners with an unprecedented emotional connection to a national disaster.

Radio news became even more important during World War II, when programs such as Norman Corwin's *This Is War!* sought to bring more sober news stories to a radio dial dominated by entertainment. The program dealt with the realities of war in a somber manner; at the beginning of the program, the host declared, —No one is invited to sit down and take it easy. Later, later, there's a war on.‖Gerd Horten, *Radio Goes to War: The Cultural Politics of Propaganda During World War II* (Los Angeles: University of California Press, 2002), 48–52. In 1940, Edward R. Murrow, a journalist

working in England at the time, broadcast firsthand accounts of the German bombing of London, giving Americans a sense of the trauma and terror that the English were experiencing at the outset of the war. Gerd Horten, *Radio Goes to War: The Cultural Politics of Propaganda During World War II* (Los Angeles: University of California Press, 2002), 36. Radio news outlets were the first to broadcast the attack on Pearl Harbor that propelled the United States into World War II in 1941. By 1945, radio news had become so efficient and pervasive that when Roosevelt died, only his wife, his children, and Vice President Harry S. Truman were aware of it before the news was broadcast over the public airwaves.

### **Television Steals the Show**

A great deal of radio's success as a medium during the 1920s and 1930s was due to the fact that no other medium could replicate it. This changed in the late 1940s and early 1950s as television became popular.

## 2. History of the Television

Televisions can be found in billions of homes around the world. But 100 years ago, nobody even knew what a television was. In fact, as late as 1947, only a few thousand Americans owned televisions. How did such a groundbreaking technology turn from a niche invention to a living room mainstay?

Today, we're explaining the complete history of the television – including where it could be going in the future.

### Mechanical Televisions in the 1800s and Early 1900s

Prior to electric televisions, we had mechanical televisions.

These early televisions started appearing in the early 1800s. They involved mechanically scanning images then transmitting those images onto a screen. Compared to electronic televisions, they were extremely rudimentary.

One of the first mechanical televisions used a rotating disk with holes arranged in a spiral pattern. This device was created independently by two inventors: Scottish inventor John Logie Baird and American inventor Charles Francis Jenkins. Both devices were invented in the early 1920s.

Prior to these two inventors, German inventor Paul Gottlieb Nipkow had developed the first mechanical television. That device sent images through

wires using a rotating metal disk. Instead of calling the device a television, however, Nipkow called it an “electric telescope”. The device had 18 lines of resolution.

In 1907, two inventors – Russian Boris Rosing and English A.A. Campbell-Swinton – combined a cathode ray tube with a mechanical scanning system to create a totally new television system.

Ultimately, the early efforts of these inventors would lead to the world’s first electrical television a few years later.

## The First Television Stations in America

The world’s first television stations first started appearing in America in the late 1920s and early 1930s.

The first mechanical TV station was called W3XK and was created by Charles Francis Jenkins (one of the inventors of the mechanical television). That TV station aired its first broadcast on July 2, 1928.

One of the world’s first television stations, WRGB, has the honor of being the world’s only continuously operating station since 1926 to the modern day.

## How Did Early Televisions Work?

The two types of televisions listed above, mechanical and electronic, worked in vastly different ways. We’ve hinted at how these TVs worked above, but we’ll go into a more detailed description in this section.

## Mechanical Televisions

Mechanical televisions relied on rotating disks to transmit images from a transmitter to the receiver. Both the transmitter and receiver had rotating disks. The disks had holes in them spaced around the disk, with each hole being slightly lower than the other.

To transmit images, you had to place a camera in a totally dark room, then place a very bright light behind the disk. That disk would be turned by a motor in order to make one revolution for every frame of the TV picture.

Baird's early mechanical television had 30 holes and rotated 12.5 times per second. There was a lens in front of the disk to focus light onto the subject.

When light hit the subject, that light would be reflected into a photoelectric cell, which then converted this light energy to electrical impulses. The electrical impulses are transmitted over the air to a receiver. The disk on that receiver would spin at the exact same speed as the disk on the transmitter's camera (the motors would be synchronized to ensure precise transmissions).

The receiving end featured a radio receiver, which received the transmissions and connected them to a neon lamp placed behind the disk. The disk would rotate while the lamp would put out light in proportion to the electrical signal it was getting from the receiver.

Ultimately, this system would allow you to view the image on the other side of the disk – although you'd need a magnifying glass. Here's how the system works in diagram form:

## Electronic Televisions

There's a reason we stopped using mechanical televisions: electronic televisions were vastly superior.

Electronic televisions rely on a technology called a Cathode Ray Tube (CRT) as well as two or more anodes. The anodes were the positive terminals and the cathode was the negative terminal.

The "Cathode" part of the Cathode Ray Tube was a heated filament enclosed in a glass Tube (the "T" of CRT). The Cathode would release a beam of electrons into the empty space of the tube (which was actually a vacuum).

All of these released electrons had a negative charge and would thus be attracted to positively charged anodes. These anodes were found at the end of the CRT, which was the television screen. As the electrons were released at one end, they were displayed on the television screen at the other end.

Of course, firing electrons against a glass screen doesn't make images. To make images, the inside of the television screen would be coated with phosphor. The electrons would paint an image on the screen one line at a time.

To control the firing of electrons, CRTs use two "steering coils". Both steering coils use the power of magnets to push the electron beam to the desired location on the screen. One steering coil pushes the electrons up or down, while the other pushes them left or right.

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## The First Television Sets in America

America's first commercially produced television sets were based on the mechanical television system – made by John Baird's television designs. These sets were shown off to the public in September, 1928.

It would take until 1938, however, before American electronic television sets were produced and released commercially. They were an instant hit after release.

## The First Television Program in America

Today, American networks play thousands of different programs every day. Every single one of these programs, however, owes its existence to America's first television program, which was called The Queen's Messenger. That program was first shown in 1928 by WRGB station.

We're not *100% sure* that The Queen's Messenger was the first TV program shown in America. In 1928, the program was thought to be broadcast only to

four television sets. Not 400. Not 4,000. *Four*. Thus, we have some ambiguity and debate over whether this was actually the first television program.

## America's First Television Commercial

The first television station in America started broadcasting in 1928. For the first 13 years of its existence, television remained blissfully commercial-free. The first commercial broadcast in America did not take place until July 1, 1941, which is when the first American advertisement aired. The ad was for a Bulova watch and lasted for 10 seconds. It aired on NBC.

## Timeline of TV History Between the 1950s and 2000s

Between the 1950s and 2000s, television turned from a niche technology into a critical form of communication found in living rooms across the nation. A vast number of changes and improvements took place in the second half of the 20th century to make the television into what it is today. Here's a timeline:

- **1949:** In January, the number of TV stations had grown to 98 in 58 market areas.
- **1949:** The FCC adopted the Fairness Doctrine, which made broadcasters responsible for seeking out and presenting all sides of an issue when covering controversy. This act was a supplement to the Communications Act of 1934, which required broadcasters to give equal airtime to candidates running in elections.
- **1951:** *I Love Lucy*, sponsored by Philip Morris, was born. The half-hour sitcom ranked as the number one program in the nation for four of its first six full seasons.

- **1951:** On June 21, CBS broadcasted the first color program. As mentioned above, CBS's color system only worked with a small number of TVs across America. Only 12 customers across America could see the first color TV broadcast. 12 million other TVs were blank for this program.
- **1952:** Bob Hope takes his comedy from radio to TV as The Bob Hope Show debuts in October, 1952.
- **1952:** By the end of 1952, TVs could be found in 20 million households across America, a rise of 33% from the previous year. U.S. advertisers spent a total of \$288 million on television advertising time, an increase of 38.8% from 1951.
- **1953:** RCA releases its color broadcasting system, which worked on 12 million TVs instead of 12.
- **1954:** NBC launches The Tonight Show with comedian Steve Allen.
- **1955:** Gunsmoke, the classic western TV show, began its 20 year run on CBS.
- **1958:** 525 cable TV systems across America serve 450,000 subscribers. In response, CBS takes out a two page advertisement in TV Guide stating that "Free television as we know it cannot survive alongside pay television."
- **1960:** Four debates between John F. Kennedy and Richard Nixon were broadcast throughout the year across the country, forever changing the way presidents would campaign.
- **1963:** For the first time in history, television surpasses newspapers as an information source. In a poll this year, 36% of Americans found TV to be a more reliable source than print, which was favored by 24%.
- **1964:** The FCC regulates cable for the first time. The FCC required operators to black out programming that comes in from distant markets and duplicates a local station's own programming (if the local station demanded it).
- **1964:** 73 million viewers watch The Beatles appear on the Ed Sullivan Show.

- **1965:** NBC calls itself The Full Color Network and broadcasts 96% of its programming in color.
- **1969:** Astronaut Neil Armstrong walks on the moon for the first time as millions of American viewers watch live on network TV.
- **1970:** The FCC implements the Financial Interest Syndication Rules that prohibit the three major networks from owning and controlling the rebroadcast of private shows. This meant 30 minutes of programming each night were given back to local stations in the top 50 markets, encouraging the production of local programming.
- **1971:** Advertisements transition from 60 seconds in average length to 30 seconds.
- **1979:** Some people believe it's the "beginning of the end for TV" as a poll indicated that 44% of Americans were unhappy with current programming and 49% were watching TV less than what they did a few years earlier.
- **1979:** ESPN, a network totally devoted to sports, debuts on cable. ESPN would go on to become the largest and most successful basic cable channel.
- **1980:** Ted Turner launches Cable News Network (CNN), a channel devoted to showcasing news 24 hours a day.
- **1980:** Music Television (MTV) makes its debut in August of 1980.
- **1986:** After years of rising rates, ABC, CBS, and NBC have trouble selling commercial time for sports programs for the first time. Commercial rates for the 1986 NFL season dropped 15% from the 1985 season.
- **1989:** Pay Per View begins to leave its mark on the television landscape, reaching about 20% of all wired households.
- **1992:** Infomercials explode with growth. This year, the National Infomercial Marketing Association estimates infomercials generate sales of \$750 million, double that of 1988.

- **1993:** At the start of 1993, 98% of American households owned at least one TV, with 64% owning two or more sets.
- **1996:** Digital satellite dishes 18 inches in diameter hit the market, becoming the bestselling electronic item in history next to the VCR.
- **2000:** The Digital Video Disc (DVD) is introduced.
- **2004:** DVDs outsell VHS tapes for the first time.
- **2005:** Flat screen TVs and HDTVs are introduced for the first time.
- **2006:** Flat screen TVs and HDTVs become affordable for the first time.
- **2006:** Sony releases its Blu-ray disc format, capable of holding up to 27GB despite being the same size as a DVD.
- **2010:** 3D televisions start hitting the market, spurred by popular 3D blockbusters like Avatar.

Today, online television and other broadcasting technologies have changed the future of traditional TV. With more and more people “cutting the cord”, it remains to be seen if traditional TV can survive in an era filled with Netflix and other technologies