

# Origins of Radio: Technology & Industry

RTF 308 // Kathy Cacace



# Key Concepts

**Marconi, Hertz & DeForest**  
**Radio spectrum**  
**Broadcasting**  
**Film industry vs. radio industry**  
**Scarcity**  
**Liveness**  
**Seriality**  
**Commerciality**



**Free write or think for  
for 2-3 minutes:**

**Do you listen to the  
radio? What are  
some of your  
memories of listening  
to the radio? Does  
anyone in your life  
listen to the radio?**







**Anything we listen to with headphones is not quite the same as radio. Podcasts, playlists, and other on-demand audio media don't have the same characteristics.**







## **“Everybody Wants to Rule the World”**

### **Tears for Fears**

**One of the greatest songs ever written, this is an indisputable fact of history, I will test you on it (joking) (mostly)**

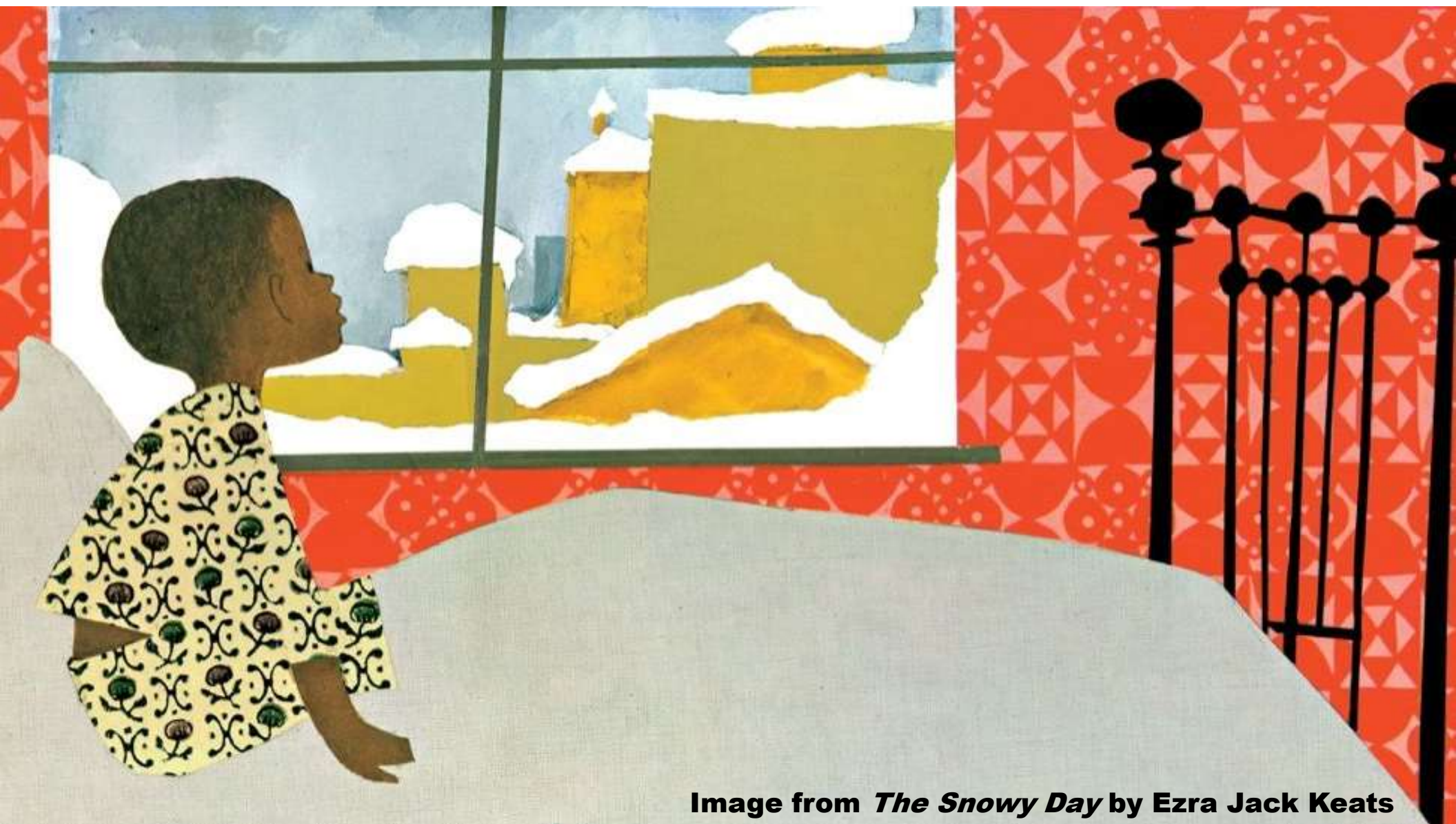


Image from *The Snowy Day* by Ezra Jack Keats









NEWS

KUT

90.5

The University of Texas at Austin  
Moody College of Communication

KUT

90.5

kutx  
98.9

The University of Texas at Austin  
Moody College of Communication

MUSIC

kutx  
98.9



**La Bronca**  
**1240 AM**  
**Bend, Oregon**













**Who invented  
the radio?**  
**Lots of people.**





# Heinrich Hertz

(1856-1894)

**Proved the existence of  
electromagnetic waves;  
he's why we use the unit  
Hertz for frequency**



**“It is of no use  
whatsoever.”**

**Hertz (reportedly) on the  
possible uses of the very  
electromagnetic waves he  
proved to exist.**

# Radio spectrum

**A specific region of the electromagnetic spectrum**  
**Different chunks assigned to different uses**  
**It's used for all kinds of telecommunications**

**AM radio = all frequencies from 535 to 1,700 kilohertz**

**FM radio = all frequencies from 88 to 108 megahertz**

**TV channels 2-6 = 54 to 88 megahertz**

**....I mean *all kinds* of telecommunications**

**Baby monitors = 49 megahertz**

**Wildlife tracking collars = 215 to 220 megahertz**

**Mir space station = 145 to 437 megahertz**

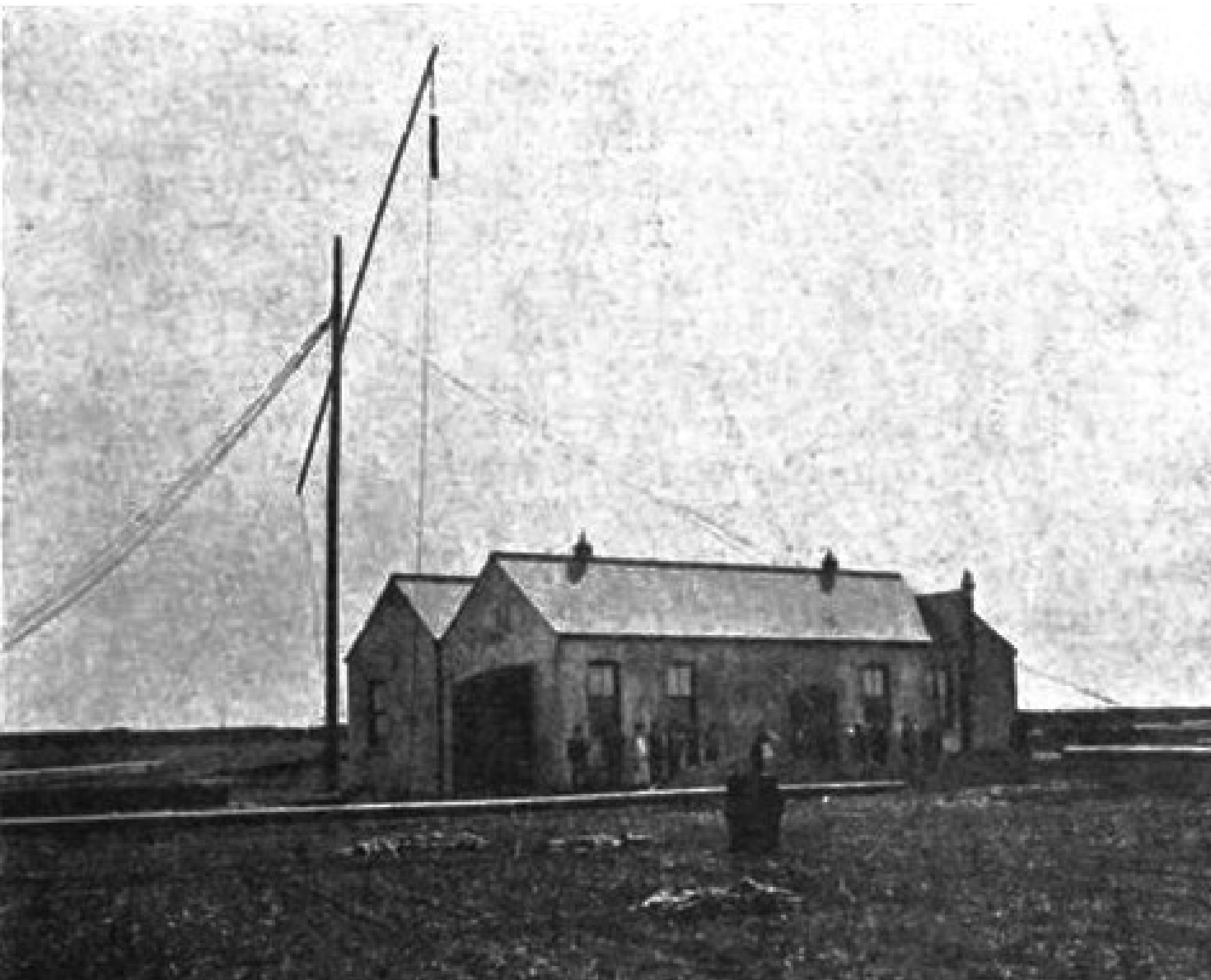




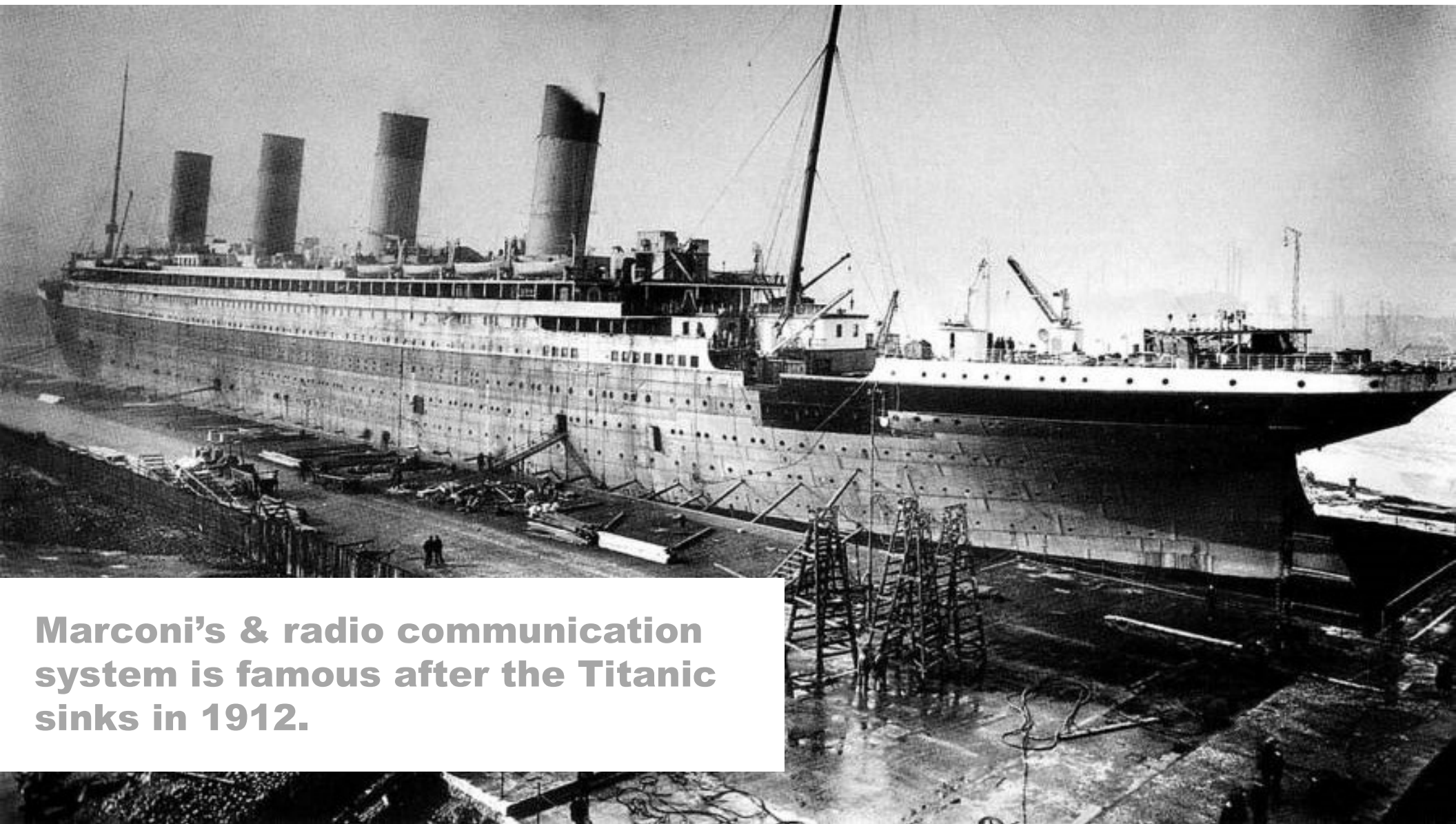
# **Guglielmo Marconi**

**1874-1937**

**Invents and hones  
the vertical antenna;  
can send messages  
from England to  
Canada by 1901.**

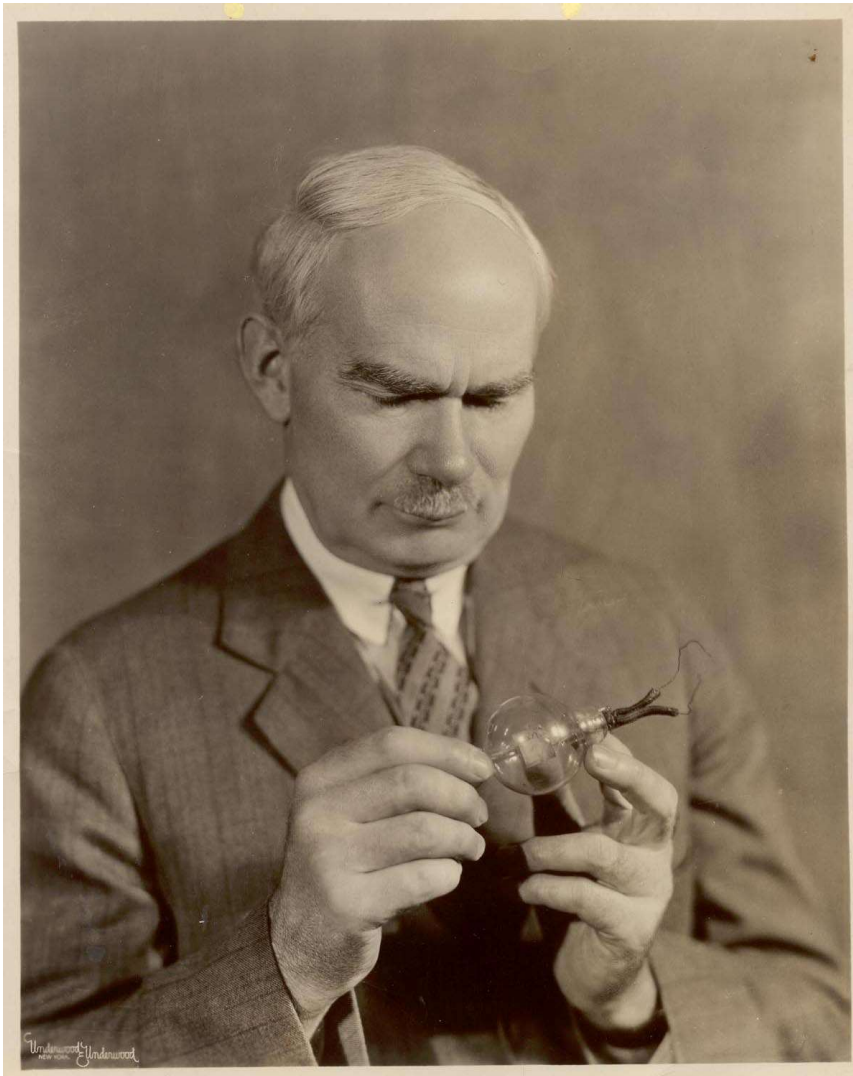


**Antenna at  
Marconi's  
transmitting  
station in  
Cornwall, England  
circa 1900.**



**Marconi's & radio communication system is famous after the Titanic sinks in 1912.**

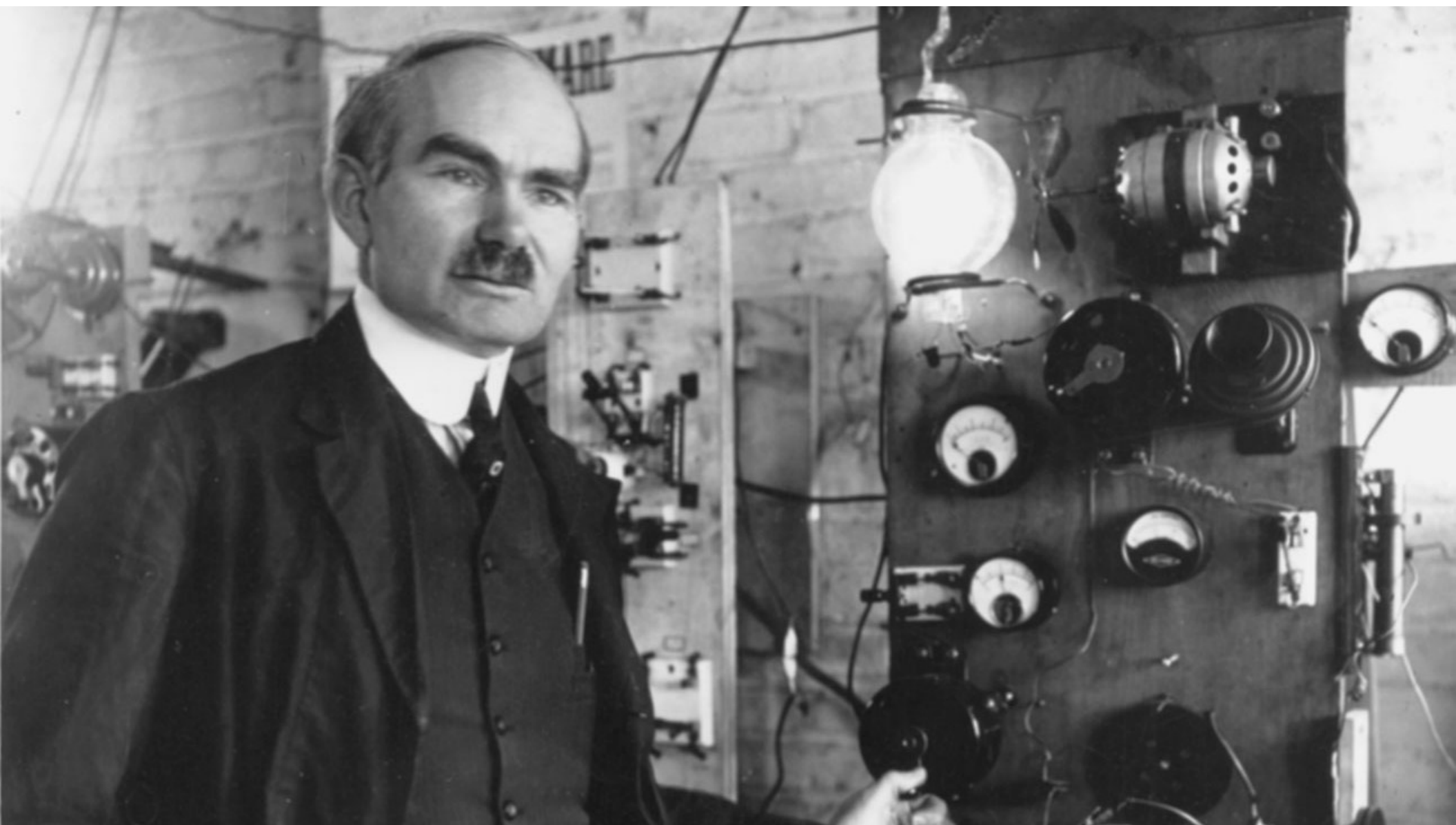




# Lee DeForest

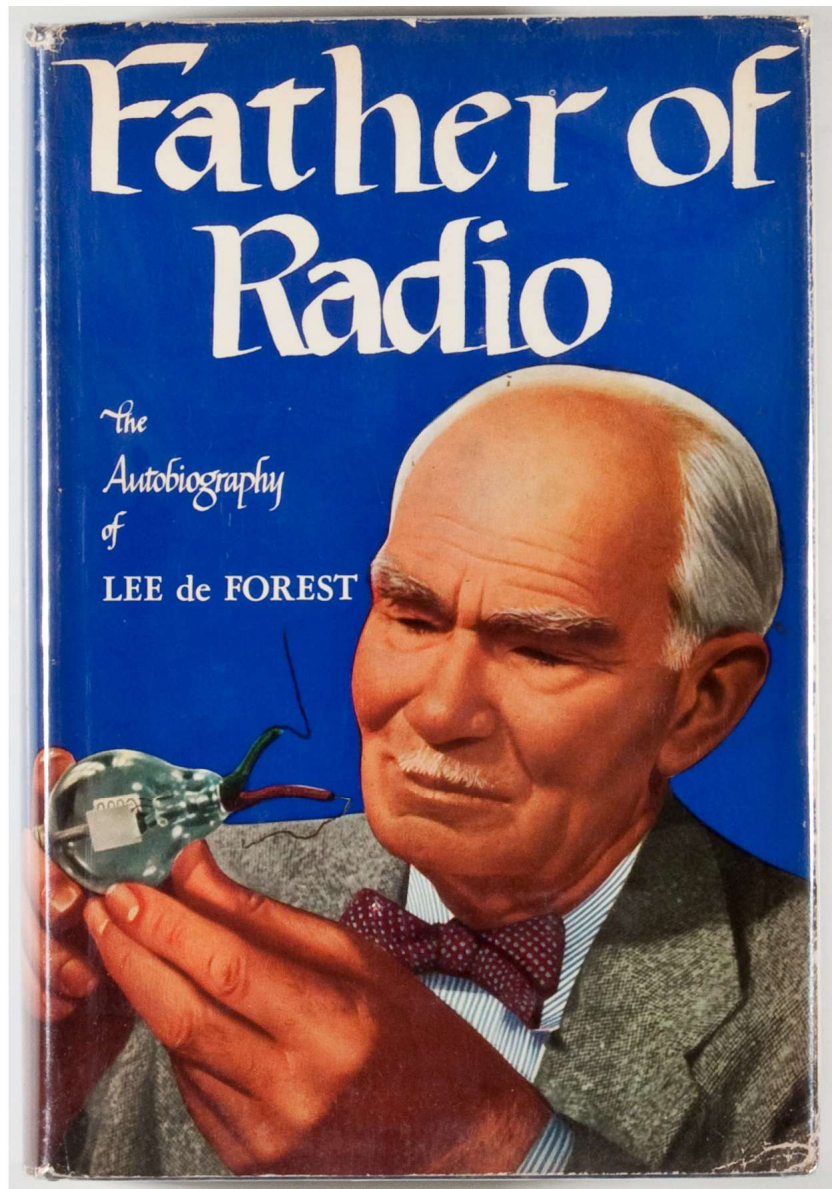
(1873-1961)

**Invents the three-element vacuum tube, the first amplification device; calls himself the “Father of American Radio”**









**“What have you done with my child, the radio broadcast? You have debased this child, dressed him in rags of ragtime, tatters of jive and boogie-woogie.”**

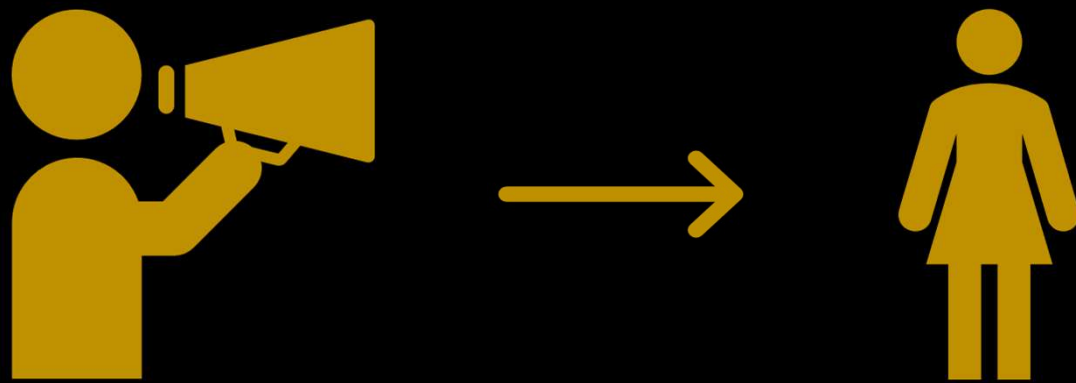
**Lee DeForest, a real cool guy, in 1940**

**Is radio a way to talk or listen?**

**If radio is for listening, what do audiences want to hear?**

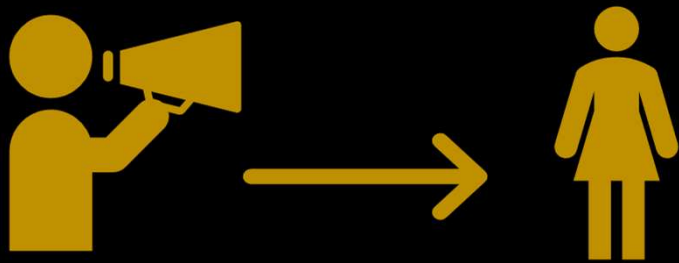
**Should the radio *industry* be different than the film industry?**

**Could radio be monetized?**



**radio communication**





**radio communication**

## **Amateurs**

**Anyone can build a radio**

**Most radios receive & transmit**

**People use any frequency (1905-1910)**

## **Emergencies**

**Wireless Ship Act of 1910**

**1912: Titanic sinks**

## **Regulation**

**Radio Act of 1912**

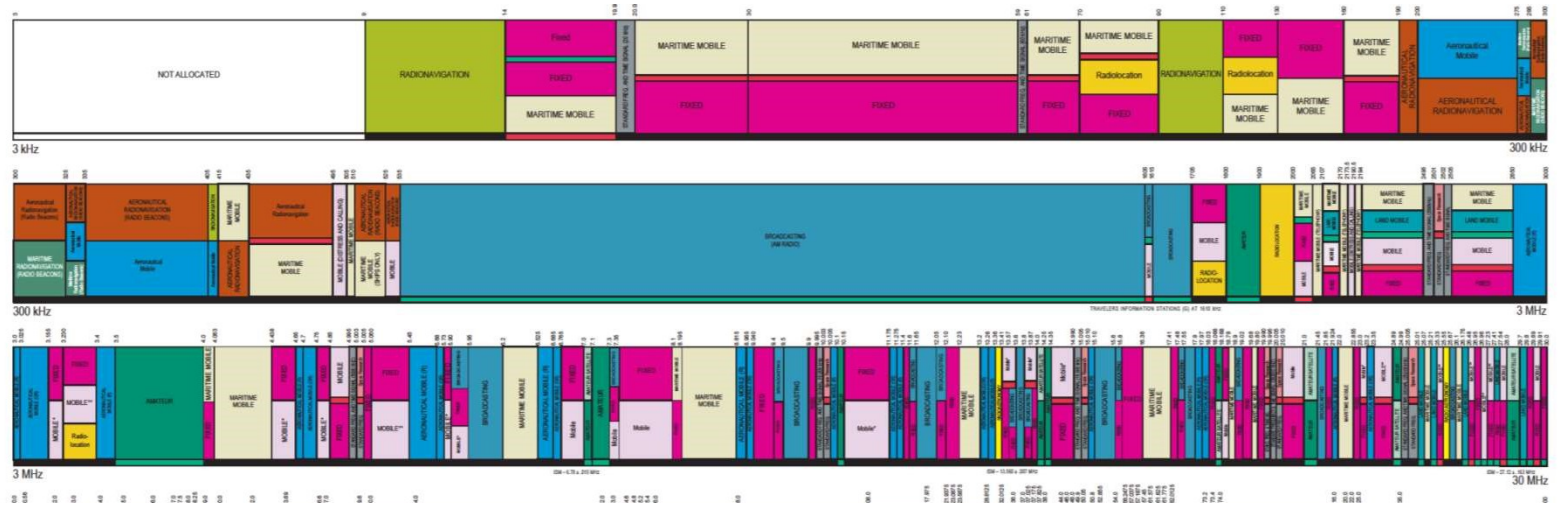
**WWI**

**Radio Act of 1927**

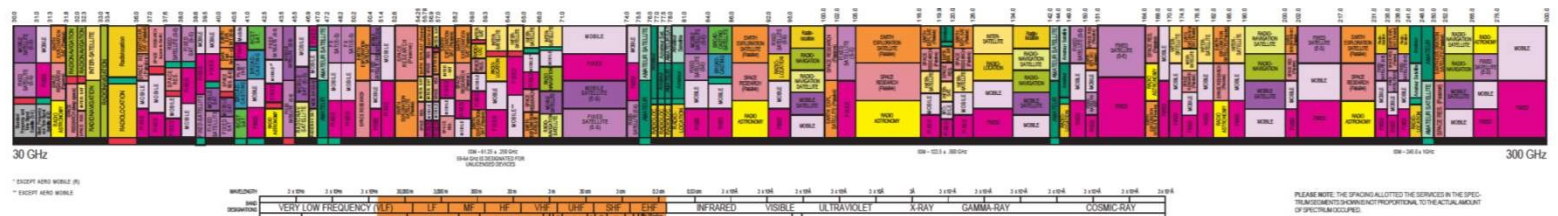
**Communication Act of 1934**

**The FCC**

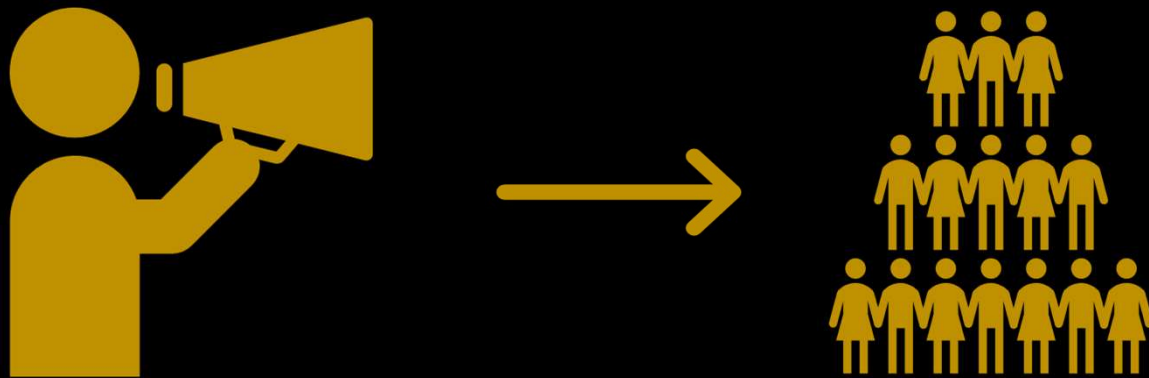
# UNITED STATES FREQUENCY ALLOCATIONS THE RADIO SPECTRUM



**Regulation puts the airwaves under federal control and divvies them up in a way that favors government/military uses and corporations—NOT individuals.**

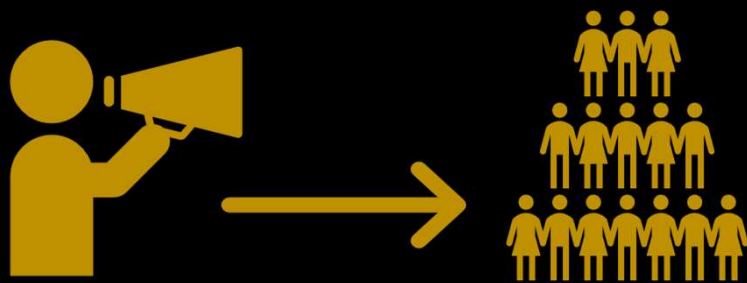


PLEASE NOTE: THE SPACING ALLOTTED THE SERVICES IN THE SPECTRUM SEGMENTS SHOWN ARE NOT PROPORTIONAL TO THE ACTUAL AMOUNT OF SPECTRUM OCCUPIED.



**radio broadcasting**





**radio broadcasting**

## **Entertainment**

**1910:** DeForest broadcasts from the Metropolitan Opera in New York City

**WWI:** Freeze on radio broadcasting

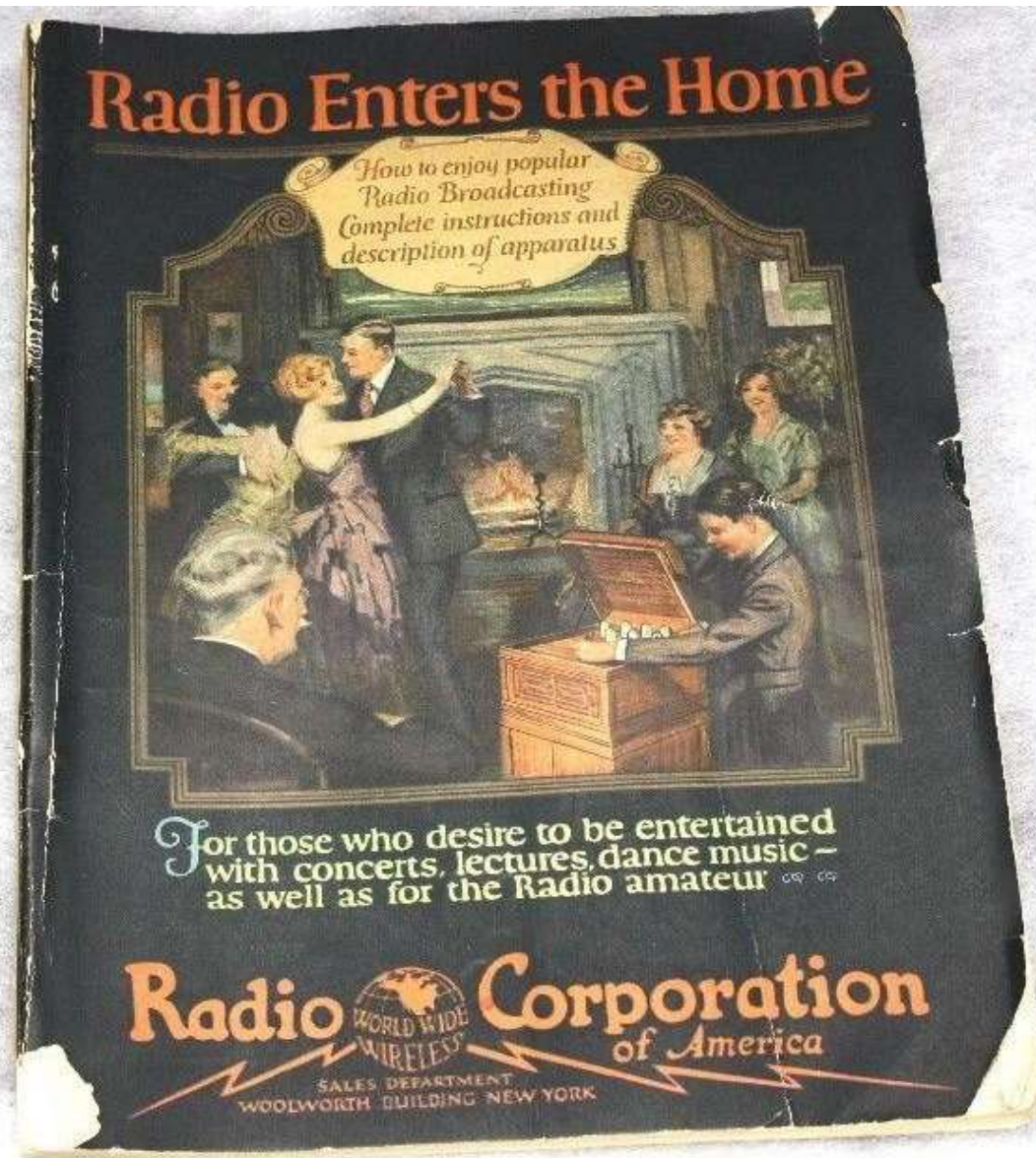
**1922:** Government licenses

broadcasters to transmit—these are the first radio stations

**From 1922-1923:** the number of radio receivers in the US increases from 60,000 to more than 1.5 million

**By 1924:** Radio stations have increased from 28 to over 1400

**From 1919 through the 1930s, RCA becomes a major force in radio set production and radio programming—and eventually television. But that's a story for another week.**





**Enrico  
Caruso**  
Opera star

**Caruso's arias were  
"trapped and magnified by  
the dictograph directly  
from the stage and borne  
by wireless Hertzian waves  
over the turbulent waters of  
the sea to transcontinental  
and coastwise ships and  
over the mountainous  
peaks and undulating  
valleys of the country."**

*The New York Times*  
January 13, 1910  
First public radio broadcast





## Film Industry

### How do uses evolve?

**From visual spectacle to narrative stories; both high art and popular entertainment**

### Beginnings

**Not enough films, random releases, different formats, scramble to start up theaters**



## Radio Industry

### How do uses evolve?

**From walkie-talkie to government control during WWI to a popular entertainment industry**

### Beginnings

**Thousands of random broadcasts compete with each other on the airwaves**



## Film Industry

### Control

**From the Edison monopoly to an oligopoly of 5-8 big studios in California**

### Regulation

**The government never regulates Hollywood! But they self-regulate via the Production Code**



## Radio Industry

### Control

**There are only 2-3 major National networks that form, eventually becoming NBC, ABC, CBS**

### Regulation

**Yes! Bans citizen radio during WWI; regulates the airwaves via licensing (favors industry)**



## Film Industry

### Independent makers

**Forced out by studios; make home movies on 16mm**

### Content (studios)

**Produce a steady stream of films and other programming; no direct advertising or reruns; distributed to theaters**

### Audience

**Out in public at theaters; sometimes fears about children and crime or sex content**



## Radio Industry

### Amateurs

**Forced to marginal bandwidths by government**

### Content (networks)

**Produce VERY LITTLE content; sell blocks to sponsors who provide programs; lots of ads; live; networks distribute programs to local stations**

### Audience

**Inside the home, listening alone or with family; worried about children and sex, crime...and JAZZ**



## Film Industry

### Typical show in 1930s

Two to three hours long; cartoon + newsreel + comedy short + feature (at least); no advertisements



## Radio Industry

### Typical show in 1930s

Programs in 15, 30, or 60-minute blocks; music, comedy, variety, soap opera, shows for kids, news, sports, religious; LOTS of ads

**Radio is different from film in four key ways:**

**Scarcity**

**Liveness**

**Seriality**

**Commerciality**