

# OLLI 964

## Technology in the 1930s

William A. Reader

[williamreader40@gmail.com](mailto:williamreader40@gmail.com)

# New Technologies

- The 1930s saw the beginnings of several technologies we take for granted
  - Photoflash bulbs – 1930
  - Sliced bread – 1930
  - Polyvinyl chloride – 1930
  - Polystyrene - 1931
  - Electric guitar – 1931
  - Electron microscope – 1933
  - FM radio – 1933
  - Magnetic tape recording – 1935

# New Technologies - 2

- IBM electric typewriter - 1935
- Xerography – 1936
- Waring blender – 1937
- Instant coffee – 1938
- Fluorescent lights – 1938
- Ballpoint pens - 1938
- Nylons – 1939
- Helicopter -1939
- Television – 1939
- Car radio - 1939

# Maturing Technologies

- We will focus on the four technologies that had a significant influence on the 1930s
  - Motion Pictures thanks to the “talkies”, 3-color Technicolor, the full-blown emergence of the studio and star systems, and the marketing of 16mm and 8mm film cameras
  - Still photography thanks to the 35mm camera and Kodachrome
  - Radio, thanks to the newly-created networks, the cheap table-model radio, the newly-created radio genres, and the full emergence of sports and news broadcasts
  - The airplane thanks to the DC-3 and a new airport infrastructure

# Movies in the 1930s

# Motion Pictures

- Motion pictures are based on the illusion of continuous motion. This results from:
  - The persistence of vision
  - The Phi phenomena
- Because of persistence of vision, we do not see the dark interface areas of a projection print as it moves through the projector

# Prior to the Talkies

- Hollywood had emerged as the center of both American and world feature film production
- The “star system” had emerged
- The Hollywood studios had come to dominate film production and film distribution
  - The Studio System consisted of:
    - Actors under exclusive contract
    - Vertical integration – screenwriting, production, promotion, distribution & exhibition under one roof
    - Use of the profits of one film to fund the production of another
    - Multiple production units, each headed by a director
    - Each director shooting an assigned film according to a detailed continuity script, a detailed budget, and a tight schedule with the studio making the final cut

# The Golden Age of Movies

- The 1930s saw the following:
  - Talking pictures replaced the silents
  - Technicolor came on the scene
  - Movies developed many of their characteristic genres
  - Movies become subject to the strictures of the Motion Picture Production Code
- With the combination of sound and color, Hollywood entered a “golden age” that lasted until television



# Talking Pictures - 1

- In 1927, Warner Bros released *The Jazz Singer* which included dialog as well as music. Its phenomenal success ensured the film industry's conversion to sound.
  - Warner Bros pioneering of talkies propelled it from the smallest, most poorly financed movie studio to a major studio and a force to be reckoned with in Hollywood

# Talking Pictures - 2

- Rather than use Warner Bros sound system, however, the other studios decided to use a sound-on-film system
  - This enabled images and film to be recorded simultaneously on the same film medium, insuring automatic synchronization
  - Competition between Western Electric's Movietone and General Electric's Photophone competing sound-on-film systems led RCA to form RKO Pictures

# Talking Pictures' interesting consequences - 1

- Increased Hollywood's share of world cinematic revenue
- Led to the demise of many "Silent Era" film stars
- Made Bank of America a major financial institution since they, unlike other banks, were willing to finance Hollywood productions
- Led to the creation of distinct genres to facilitate marketing

# Talking Pictures' interesting consequences – 2

- Led most theaters to drop the interspersing of vaudeville acts and live music with motion pictures
  - Resulted in the fading of vaudeville
- Led to the sound pioneers becoming the dominant studios in Hollywood, resulting in the emergence of a Big 5 and a Little 3 with a few independents
  - The Big 5 were Warner Bros, Fox, M-G-M, Paramount & RKO. The Little 3 were Universal, Columbia, and United Artists
- Altered the behavior of moviegoers
  - The talking audience for silent pictures became the silent audience for talking pictures

# Talking Pictures' interesting consequences – 3

- Sound gave filmmakers new ways to attract and excite audiences
  - Allowed films to become more fast paced and complex
  - Boosted ticket sales
    - In 1930, weekly movie attendance rose to 90 million. This equaled 75% of the total American population
  - Boosted the popularity of war movies, horror movies, westerns, and films that depended on clever, fast-paced, and witty dialog

# The Motion Picture Production Code

- 1915 – The Supreme Court ruled that movie making was a business not protected by the the First Amendment
- In the 1920s, the motion picture industry was rocked by sex scandals, sensational divorces, and accusations that sex was for sale in exchange for movie roles
- The 1920s saw conflict between those concerned that movies adversely affected public morals and movie producers/directors who resisted censorship and felt that movies devoid of sex and violence would not sell at the box office

# The Motion Picture Production Code

## -2

- By 1927, the Hays Office developed a list of 11 DON'Ts and 25 BE CAREFULs
- In 1930 in response to the threat of censorship by various states, the Motion Picture Producers and Distributors of America agreed to the Code
  - The Code consisted of
    - A general statement of principles concerning the moral responsibilities of moviemakers
    - The “Don’ts” and “Be Carefuls”

# 3-Color Technicolor

- Added living color to the movies
- Popularized certain genres that were better viewed in color than in black & white
  - Historical costume dramas
    - Gone with the Wind (1939}
    - The Adventures of Robin Hood (1p38}
  - Animated features
    - Snow White and the Seven Dwarfs (1937)



# What Hollywood Wrought - 1

- Movies had the following effects:
  - Constituted a lifestyle classroom on a whole host of topics – clothes, hairstyles, social attitudes, behavior, and much else
  - Provided a set of shared experiences for almost the whole population
  - Affected people's concepts of historical fact
  - Served as a purveyor of a whole host of consumer goods
    - Fostered discontent in the Third World

# What Hollywood Wrought - 2

- Movies had the following effects – 2
  - Along with the automobile, led to the Drive-in movie
  - Initially supplemented and then supplanted lecture hall and vaudeville theater audiences
  - Brought the “Star” system to full fruition
    - Led to fan magazines and fan clubs
  - Played a major role in popularizing the myth of the “Wild West”

# What Hollywood Wrought - 3

- Movies had the following effects – 3
  - Films made cultural production a major economic force
  - Films made commercial entertainment a center of American social life
  - As noted earlier, films constituted a major force in Americanizing world popular culture
    - As a backlash, it also led both intellectuals and traditionalists to react against aspects of American culture deemed incompatible with traditional values

# What Hollywood Wrought - 4

- Movies had the following effects – 4
  - Popularized air conditioning
    - Seeing movies in comfort on hot summer day fueled a desire for air conditioning in the home and office
  - Gave us the animated feature cartoon
    - The marriage of the newspaper comic strip with the movie gave us the animated cartoon feature film

# What Hollywood Wrought - 5

- Movies had the following effects - 5
  - Helped turn the American people against Prohibition
    - The urban jazz-age flapper and her boyfriend conveyed the impression that drinking was widespread and that violating Prohibition laws was socially respectable
  - Diverted artistic talent from other endeavors to the movies
    - People who formerly composed symphonies now wrote movie scores; persons who in the past wrote novels now wrote screenplays

# Movies and the Great Depression - 1

- Movies were a low-priced amusement
  - 25 cents to see a double feature as late as 1940 (\$3.78 in 2009 prices)
  - For the unemployed and underpaid, they were comfortable places to sit
  - In 1940, weekly attendance averaged 80 million

# Movies and the Great Depression - 2

- Effects of the Great Depression on Movies
  - Popularized escapist as distinct from topical films
    - Historical or literary-based films that showed people coping with difficult times and overcoming them
    - Animated films – Walt Disney
  - Led to various innovations as theater owners sought to attract customers
    - Drive-in movies
    - Serials
    - Double Features
    - Popcorn & candy sales
    - Bank Nights and Giveaways

# Still Photography in the 1930s



# Photography

- Photography is based to some extent on an optical illusion
  - The human eye sees a vast range of greys and colors but if the individual items of grey or color are small enough, it blends the distinct elements into a continuous tone
  - At the microscopic level, developed black & white film consists of either black or white film grains (or pixels in the case of digital photographs) but they are so small that the eye sees them as a continuous tone

# Color Photography

- At the microscopic level, developed color film consists of the black or white film grains, but they are within three different dye layers – normally cyan, magenta, and yellow. When white light is reflected off or passed through the film, each layer subtracts from the white light to produce what we see as continuous tone colors

# 35mm Photography

- 35mm still photography was based on several prior innovations
  - 35mm MOPIC roll film with perforations
    - The fact that film companies were producing large quantities of 35mm film stock led to the development of 35mm cameras
  - Fine grain film that could be exposed at high shutter speeds
  - Film cassettes that permitted loading of film into the camera with ease in broad daylight into all 35mm cameras

# 35mm Still Cameras

- In 1934, Kodak introduced single daylight-loading 35mm film cassettes
  - This cassette could be used in all 35mm still cameras, including the German Leica and Zeiss Ikon Contax cameras
- In 1935, Kodak introduced the Kodak Retina 35mm camera. Also in 1935, the Argus camera came onto the market
  - The Argus Model A sold for \$12.50 (\$209.30 in 2012 prices)
    - 30,000 were sold the first week it went on the market
  - The Retina 1, which sold for \$57.50 had shutter speeds up to 1/500<sup>th</sup> of a second – fast enough to freeze motion without blurring

# Kodak Retina 1 Camera



# Argus Camera



# Fuji 35mm Film Cassette



# Notes about the 35mm Camera

- Became a favorite of both professional and amateur photographers
  - The camera was small, compact, easily portable, and rugged enough to be used in the field
  - 35mm cameras like the Leica and Kodak Retinas had a sufficiently high shutter speed and low focal length to lens aperture ratio (f-stop) to photograph moving objects without blurring and to take pictures in poor light



# Impact of the 35mm Camera

- Led to the popularization of the candid snapshot in which the subject is not aware of being photographed
- Permitted “concealed” and “secret” photography since the camera was small enough to be hidden in one’s clothes or in a room and yet still be able to take pictures
- Led to the creation of a large body of skilled photographers who were not professionals but definitely beyond the casual shooter with a box camera
  - Could use the 35mm camera to create a variety of special picture effects

# Impact of the 35mm Camera

- Since the processing of black & white film was a fairly simple process that could be done in a small dark room, it made the dark room part of many a house
  - There, one could process the film and then make prints and enlargements from the negative(s)

# Kodachrome

- Kodachrome, introduced in 1935, was the first successfully mass-marketed color film
  - It produced a positive color slide
  - It used a subtractive color process with layers of magenta, cyan, and yellow
  - Because of its complex processing requirements, it was sold process paid until 1954
  - It won the admiration of both professionals and amateurs because of its vivid colors and its long-term archival stability
  - It's production run lasted for 74 years

# Impact of Kodachrome

- Popularized color vis-à-vis black & white photography
- Created an ancillary demand for slide projectors and screens for viewing
- Led to the ritual of the photographer subjecting family, relatives, and friends to the slide show
  - With the subject generally being the recent wedding, birth, graduation, or family vacation

# More General Impacts - 1

- Led to the visual documenting of persons and events that previously went undocumented
- Created a treasure trove of material for future historians and producers
  - People and institutions now only left paper records in the form of documents now left photos as well permitting us to see what people and objects looked like

# More General Impacts - 2

- Since film freezes images in time, it draws very visible contrasts between the then (when the film was shot) and the now (when it was viewed)
  - This may have had some effect on how people viewed history
    - If events did not leave a visual record, then the events either did not happen or had relatively little significance in comparison with those event that left a visual record
    - History is less a logical continuous developmental flow and more a dichotomous succession of events

# Radio in the 1930s

wreader@cox.net

# During the 1920s

- Radio became a broadcasting medium took on many of the characteristics that marked radio and later television during their heydays
  - The AM band as we know it was created
    - Bandwidth & wattage allocations favored well-heeled stations
  - Commercial advertising emerged as the dominant source of radio station revenue
  - Networks provided programming to individual stations



# Radio in the 1930s

- Was characterized by:
  - Programming directed toward the tastes and interests of the largest possible audience
  - A concern with program ratings
  - An alliance of networks and advertisers
  - A weak, administrative type of Federal regulation
  - A widespread diffusion of radios in the American home where they served as centers of family life

# 1920s Radio Programming

- In the 1920s:
  - Music – both live performances and phonograph recordings – dominated programming
  - Other programming consisted of
    - Election returns, political party conventions, and major sports events
    - Lectures, dramatic readings, and church services
  - Radio stations broadcast only a few hours each day

# 1930s Radio Programming

- In the 1930s:
  - Radio became a full-fledged mass medium
  - The entertainment genres that characterized the “golden age of radio” came into its own
  - Sports programming came into its own
  - Radio became a news dissemination medium

# Radio Penetration

- Radio quickly penetrated the American market
  - 1927 – 25% of all American households had a radio
  - 1929 - 1/3<sup>rd</sup> owned a radio
  - 1934 - 60% of all homes had a radio;
  - 1940 - 83% of all households owned at least one set. There were also 6.5 million radios in automobiles.

# Daytime Programming

- By the early 1930s, morning programming focused on weather reports, recorded music, and talk a la “Don McNeill’s Breakfast Club”
- By the late-1920s, broadcasters realized that the right daytime programming might attract housewives
  - This led in the early-1930s to serial romantic dramas, such as “Ma Perkins” and “The Romance of Helen Trent”
    - Termed soap operas because these programs were most often sponsored by laundry soap manufacturers

# Evening Programming - 1

- By 1930, evening programming focused on the radio genres with mass appeal
  - Domestic sitcoms
  - Crime, mystery, & detective shows
    - Psychological Thriller
  - Comedy/Variety shows
  - Radio versions of plays and movies

# Evening Programming - 2

- Probably the most popular program of the 1930s was “Amos ‘n’ Andy” which began broadcasting in 1929
  - About 1/3 of the nation’s population tuned in every weeknight at 7:00 PM
  - Focused on two black migrants to the South Side of Chicago who were perpetually confused by city life

# A Note on Sports Broadcasting

- The uncertainties of early radio required radio announcers with the gift of gab who could fill airtime if something went wrong
- Since many radio announcers lacked an athletic background, two or more announcers often teamed up to report a game
  - One described the play-by-play action and the other provided analysis, information on players, and ‘color’.
  - With football, there was three announcers – one for play-by-play description, one for color, and a spotter to identify the large and constantly shifting cast of players on the field.



# Impact of Sports Broadcasting

- Revolutionized radio announcing by promoting a relaxed, colloquial, and emotionally inflected form of announcing
  - This in turn affected radio advertising, announcing for entertainment shows, and radio news in the 1930s and beyond
- Made baseball the ‘national pastime’
  - Baseball is an ideal radio sport
  - Radio turned baseball into a male soap opera

# News Broadcasting

- No regular news coverage before the mid-1930s
  - Newspapers refused to make wire service reports available to radio stations for broadcasting
- Only in the mid-1930s did the networks begin to broadcast regular and substantial news programs
  - Prior to that, radio lacked the resources and incentive to gather news on its own
  - Rising international tensions made news programs popular
    - What Saddam Hussein did for CNN during the Gulf War, Adolf Hitler did for NBC and CBS News
  - By 1940, network news & commentary shows comprised about 14% of all network evening programs

# Notes About the Radio Medium - 1

- With radio, the speaker addressed an audience that was invisible and unknown
- Radio allowed millions to hear the same program at the same time
  - It provided a speaker with an audience that dwarfed any audience that could fit in an auditorium or theater
  - Along with the phonograph, it gave any song, symphony, or opera more listeners than any theater or symphony hall

# Notes About the Radio Medium - 2

- Radio leads people to create images in their mind to provide a picture background for the actions and dialog that they are hearing in the broadcast
- Radio is a medium that allows people to do other things while they are listening
- Radio fostered the creation of “imagined communities” of people who never met but of which individuals were a part – E.g. sports fans, Fred Allen fans, Amos ‘n’ Andy fans

# The Impact of the Great Depression

- Accelerated the expansion and influence of radio
  - Increased the audience for radio vis-à-vis other forms of entertainment
  - Caused vaudeville, the recording industry, nightclubs, and the performing theater to suffer, driving many of their performers into radio broadcasting.

# Effects of Radio - 1

- By broadcasting the same content to a vast audience at the same time, radio created a shared simultaneity and unity of experience
  - This led to both a standardization of culture and also of speech
- It led people to focus on and know about what was happening at the national and international level as distinct from the local community level
  - Thanks to radio and later TV, we now have people who are well-informed about what is going on in Washington or in the Middle East, but who have no idea of who their local mayor or city council representative is

# Effects of Radio - 2

- Along with the movies, led to the rise of a popular entertainment industry geared to the mass market
  - Reduced traditional forms of high art to elite ghettos of the well-to-do and the highly educated
- Radio made music a more integral, structuring part of everyday life and individual identity.
  - Fostered an interest in classical music – especially live performance due to the poor sound quality of early radio
  - Fostered an interest in country/western music and jazz

# Effects of Radio - 3

- The concept of the audience led to the concept of the average American
  - This provoked an interest in ratings, audience demographics, and the tastes and attitudes of the presumed average America
    - What was the average American listening to? Or buying? Who was listening to *Our Miss Brooks* or *The Shadow*?
- Radio adversely affected the advertising revenues of newspapers and magazines



# Effects of Radio - 4

- The technical limitations of early radio:
  - Precluded use of very high or very low frequency musical instruments – cello, oboe, violin
  - Favored use of certain musical instruments - piano, clarinet, and saxophone
  - Led to the use of crooning as a singing technique
  - Favored jazz despite its frequent association with prohibition-era speakeasies and its black roots

# Effects of Radio - 5

- Radio and WWI led to code encryption and code breaking
- Radio paved the way for TV and radar
- Radio made music an acceptable endeavor for men
- Radio led people to match their personal schedules to the schedules of the broadcast day

# Effects of Radio - 6

- Revolutionized advertising
  - Radio enabled the advertiser to reach into the home
  - Radio helped create the celebrity product endorser
    - This promoted an ethic of consumption, by encouraging people to buy the product or service that a psychologically-significant person endorsed
  - Radio enabled sponsors to identify their products with certain lifestyles and demographic groups
    - E.g. the Lucky Strike campaign which popularized smoking by women
    - Sponsors often became identified with the programs they sponsored

# Effects of Radio - 7

- Revolutionized politics
  - Enabled politicians to go over the heads of both the press and the political party, thus weakening their relative power
  - Helped set the national agenda on significant issues and events
  - Created an ‘imagined community’ of like-minded listeners who could be politically mobilized

# The DC-3

# The DC-3

- The DC-3, which first flew on July 4, 1936, was the first modern airliner
  - It could carry 24 passengers and had a top speed of 230 mph
  - By 1939, it was carrying 90% of all airline passengers in the U.S.
  - Had all-metal construction, retractable landing gear, and stressed skin fuselages
  - Had such passenger amenities as stewardesses, reading lamps, call buttons, and upholstered seats

# Impact of the DC-3

- Made transcontinental air travel possible
- Began the process by which the airplane replaced the train and bus as the favored means of long-distance travel across the United States
- Began trans-atlantic and trans-pacific passenger flight service
- Gave rise to sun glasses