History of Communications Media

Class 3

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What We Will Cover Today

- Finish our discussion of printing
  - Pornography
  - News, newspapers, and 19th century printing innovations
- Discuss the telegraph and its impact
- Discuss the telephone and its impact

Pornography - 1

- "Great art is always flanked by its dark sisters, blasphemy and pornography.” Camille Paglia
- It didn’t take some authors and printers too long to find out that sex sells
  - Pietro Aretino *Postures* (1524)
  - Francois Rebelais *Gargantua and Pantagruel* (1530-1540)

Pornography - 2

- Prior to the 19th century, pornography was a vehicle to attack the political and religious authorities through the shock of sex
  - "Pornography has the power to delegitimize, by stripping the high ones of respect and exposing them to contempt. Pornography, customarily regarded as apolitical, has therefore enormous revolutionary potential." *Conor Cruise O'Brien*

Pornography - 3

- Pornography played a major role in the French Revolution
  - *Les Libelles* – pornographic pamphlets graphically described the alleged sex-lives of the French royal family and aristocracy
    - This did much to shape the attitudes of the Paris mobs toward the royal family
    - Thus, politically-motivated pornography helped bring about the Revolution by undermining the legitimacy of the ancien regime.

Pornography - 4

- In the 19th and 20th centuries, Pornography has been used to attack and discredit other groups
  - Anti-Catholics wrote numerous pornographic works describing the alleged sexual misdeeds of priests and nuns
  - Abolitionists wrote extensively about slave masters allegedly raping their slaves
  - Russian revolutionaries wrote extensively about the alleged sexual misdeeds of Rasputin and the Czarina

Pornography - 5

- In later 19th century America, Pornography largely took on an apolitical nature and began to focus more and more on the erotic and sexually explicit
  - It thus came to be seen as a separate, if disreputable, genre
  - If it was banned, it was banned for its alleged effects on morals, not for its libelous statements and political-religious radicalism

News and Newspapers - 1

- Definition of News
  - New information about a subject of some public interest that is shared with some portion of the public.
  - Thus news can be distinguished from:
    - History – since it lacks the requisite newness
    - Art – since it does not offer compelling information
    - Intelligence – which is reserved for governmental or private use and is usually close hold
    - Chit-chat & gossip – which is normally only of personal, family, or small group interest

News and Newspapers - 2

- Some Notes About News
  - Not all events are news
    - Events must be selected to be news and they are selected because
      - They are considered to be of interest
      - They are within the news gatherers' perceptual reach
      - They are seen as out of the ordinary
  - News imparts to occurrences a public character
    - It transforms mere happenings into publicly discussible events

News and Newspapers - 3

- Some Notes About News – 2
  - News is usually a report about an event, but
    - Word on the President's position on a major political issue of controversy would be news
  - News is usually about recent occurrences, but
    - Fresh information on whether President Zachary Taylor was or was not deliberately poisoned would be news
  - News is usually deliberately gathered for purposes of dissemination, but
    - Some news is obtained merely by stumbling upon it

News and Newspapers - 4

- Some Notes About Newspapers
  - Until the 19th century, almost all newspapers were weeklies whose content consisted largely of advertisements and news from outside the community. This was so for two reasons
    - Until the 19th century, printing remained a handicraft process
    - In small communities, local news could travel via the grapevine far quicker than by newspaper. Thus newspapers focused on news originating elsewhere

News and Newspapers - 5

- Some Notes About Newspapers
  - Despite their limitations, newspapers often had a major influence
    - The printers and publishers of newspapers were often well-educated individuals who were leaders and opinion makers in their community
    - Newspapers thrive on controversy, provided they are able to take part in public discussions with some degree of freedom
    - Prior to the 20th century, newspapers had a monopoly on the dissemination of news (except for word of mouth or letters read aloud)

19th Century Newspaper Innovations

- In the 19th century, the newspaper would be revolutionized by
  - Faster presses & printing processes
    - The Koenig Steam-powered Press
    - Stereotyping
    - The Rotary Press
    - The Linotype
    - Photoengraving and color lithography
  - New News-gathering techniques
    - Reporters
    - The telegraph and then the telephone
    - Investigative Journalism
  - New dissemination technologies and innovations
    - The railroad and the post office
    - Cheap paper made of wood pulp
    - The Penny Press

19th Century Newspaper Innovations - 1

- Use of steam power in printing
  - 1810 – Friedrich Koenig uses steam power to run a press
  - 1814 – *London Times* installs Koenig's press
    - Can print 1,100 sheets an hour (4X that of hand presses)
    - Bu 1850, further improvements raise the rate to over 4,000 sheets an hour
    - ***London Times*** circulation rose from 5,000 in 1815 to 50,000 in the 1850s

Koenig Steam Press

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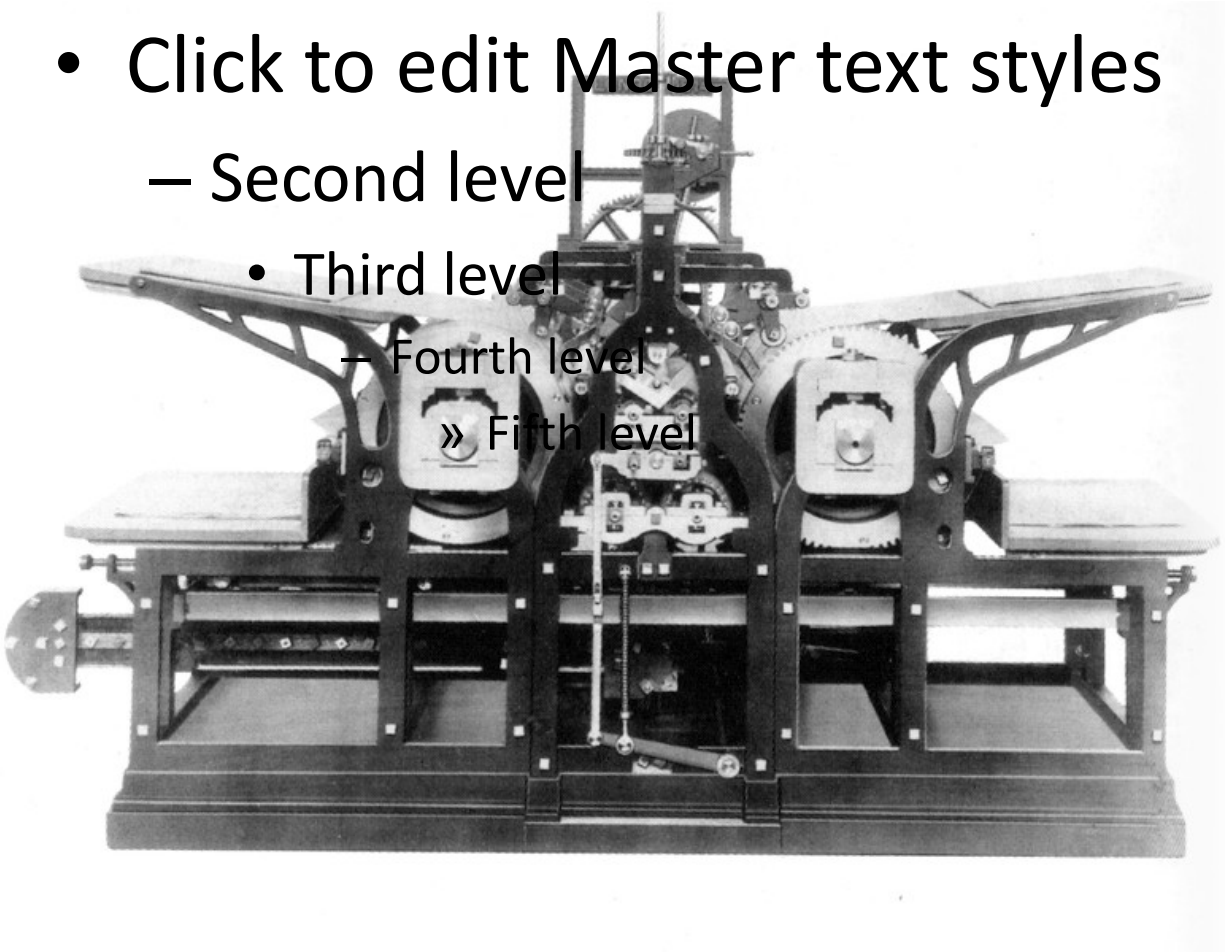

19th Century Newspaper Innovations - 2

- Stereotyping – 1811
  - Before stereotyping, a printer wishing to reprint something needed either to keep the original type in place or to reset it
  - With stereotyping, the set type was used to make a lead mold from which metal plates were cast
    - This freed up the type for other uses
    - It also facilitated multiple press runs

Stereotype Plate & Print

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19th Century Newspaper Innovations - 3

- Rotary press invented by Richard Hoe - 1846
  - Rotary press consisted of a cylinder with type fixed to its surface, which rolled against another cylinder as paper passed between the two.
    - By 1860, the *Daily Telegraph* in London, which used a rotary press, was rolling out 130,000 copies a day.
  - This was followed by:
    - Four cylinder presses capable of printing on both sides of a paper simultaneously
    - Automated printing on continuous rolls of paper

Rotary Press

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19th Century Newspaper Innovations - 4

- Reporters
  - Early newspapers did not have reporters
    - Local News was acquired by conversations at the print shop or local tavern
    - National and Foreign News acquired from letters to the newspaper and from other newspapers
  - Reporting -- going into the field in search of news -- was a consequence of:
    - Newspaper competition
    - Faster and better means of communication (which encouraged the use of out-of-town and overseas correspondents)
    - Growth of cities (which created an appetite for local news that word-of-mouth could not meet).

19th Century Newspaper Innovations -5

- Telegraph
  - Revolutionized the newspaper business
    - Made feasible the use of out-of-town and foreign correspondents
    - Led to the creation of news wire services, such as the Associated Press and Reuters
    - Gave rise to our present concept of news and our present methods of newsgathering
    - Had other impacts on the newspaper which I will talk about when I discuss the Telegraph and its impacts

19th Century Newspaper Innovations

- Investigative Journalism
  - Pioneered by the *New York Tribune* and the *New York Times*
    - *Tribune's* investigation of the 1836 murder of Ellen Jewett
    - *Times'* expose of the Tweed Ring in 1870

19th Century Newspaper Innovations

- Popularization of Wood Pulp Paper
  - As noted in the first class, paper meant rag paper until the middle decades of the 19th century
  - In the 1830s came hemp paper and straw paper
    - Hemp had a high cellulose content with strong fibers, but it was costly and could not be bleached – used for manila folders
    - Straw was cheap, but it had short fibers that were neither strong nor durable
      - Mixed with rags, it was widely used for newsprint and dime novels by mid-century

19th Century Newspaper Innovations

- Wood Pulp Paper
  - Production began in Germany In 1847
    - German immigrants brought the technology and production techniques to the U.S.
  - U.S. began wood pulp paper production in 1867
  - Wood Pulp Paper was less durable and weaker than paper made from straw, but was also cheaper
    - When it became available, newsprint prices dropped from 25 cents per lb in the 1860s to 2 cents per lb in 1897
  - U.S. newspapers begin using wood pulp paper in the late-1870s—early-1880s

19th Century Newspaper Innovations

- Wood Pulp Paper - 2
  - Facilitated the penny press and the dime novel by drastically lowering the cost of paper
  - Created a record storage medium that was highly prone to acidification and degradation
    - Thus many 19th and 20th century newspapers, books, and documents have become unreadable and have either been lost or have had to be deacidified and laminated at great expense

19th Century Newspaper Innovations

- Penny Press
  - Became possible when newsprint became cheap
    - Began with the rag-straw paper but was facilitated by the adoption of wood pulp paper
  - Depended on advertising revenues and newspaper sales rather than upon subsidies and printing contracts from political parties
    - This led to “sensationalism”, a focus on local news and especially crime news and human interest stories , and less of a focus on political and business news

19th Century Newspaper Innovations

- Linotype
  - The machine revolutionized printing and especially newspaper publishing, making it possible for a small number of operators to set type for many pages on a daily basis.
  - Resulted in an 85% reduction in the time it took for setting type
- Color Lithography & News Photography
  - Will talk about these when I discuss Photography

Linotype

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Telegraph

Telegraph

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Automatic Telegraph Receiver

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Telegraph

- Theoretically, Telegraphy became possible when Stephen Gray in 1729 discovered that electric current could be sent along a wire and activate some sort of device at the other end
  - Variation in the number or duration of the impulses could signal different letters or numbers. These could be strung together to form a message
- Practically, creating a telegraph system was possible only when reasonably reliable and economical batteries became available

Telegraph

- What Samuel F.B. Morse and Theodore Vail accomplished was:
  - A telegraphic system that used Morse Code
  - A telegraphic receiver that could both mark the dots and dashes onto a moving strip of paper and emit sounds that an experienced telegrapher could decipher at speeds up to 40-50 words a minute

Effects of the Telegraph

- Before the telegraph, the speed of information was tied to the speed of transportation.
  - The telegraph broke that link and made possible the almost instantaneous communication of information
    - This revolutionized information-intensive industries and activities
      - News could now be reported as it occurred and instantly disseminated across a fairly wide region
      - Railroad operations could more easily be coordinated
      - Business transactions between merchants in different cities that formerly took days or weeks now took only minutes or hours

Effects of the Telegraph - 2

- It created a lot of technological hype and technological utopianism
  - The notion that new technology equals progress and that technological innovation can solve our socio-economic-political problems largely gets its start with the telegraph and the railroad.
- It made possible the future creation of large-scale corporate entities

Effects of the Telegraph - 3

- Revolutionized the newspaper business
  - Led to the creation of the News Wire Services
    - The combined desire for speed and the increasing costs involved in using the telegraph to get news led New York City newspapers in 1848 to create the first news wire service, the Associated Press
  - Made feasible the use of out-of-town and foreign correspondents
  - Allowed political speeches and campaign events to be reported nationwide

Effects of the Telegraph - 4

- Revolutionized the newspaper business - 2
  - Led to the “Inverted Pyramid” style of news writing
    - The unreliability of early telegraph lines (especially in wartime) led reporters to develop the ‘inverted pyramid’ style of news writing
  - Led to a new form of English called “Cablese”
    - Continued until Western Union outlawed it in 1928
  - Differentiation between “news” and “opinion”
    - The concern with essential facts led to a differentiation between news and opinion – with the latter being segregated into an editorial section or caged in quotation marks

Cablese

- English
  - “The Prime Minister was shocked, horrified, appalled, and dismayed over the fact that terrorists blew up the building this morning.”
- Cablese
  - “PM was SHAD over building upblow smorning.”

Nationalizing of Markets

- To economists, it is axiomatic that markets are limited to the area in which communications is effectively instant
  - Thus, before telegraphy, markets were inherently local. After telegraphy, they became regional and then national.
    - One effect was to concentrate the trading of items such as gold, stock, bonds, and commodities in the place where most of their related financial transactions took place:
      - New York became a center of stock and bond trading
      - Chicago became a center of commodities trading

Some Other Consequences

- Created the first network-effect technology – the value and use of telegraphy increased as more nodes were added to the system
  - This provided a pattern for subsequent network-effect technologies
- Made Western Union a major corporate entity
- Fostered a lot of research directed to enabling telegraph lines to carry multiple messages simultaneously in both directions

Orville Wright Telegram

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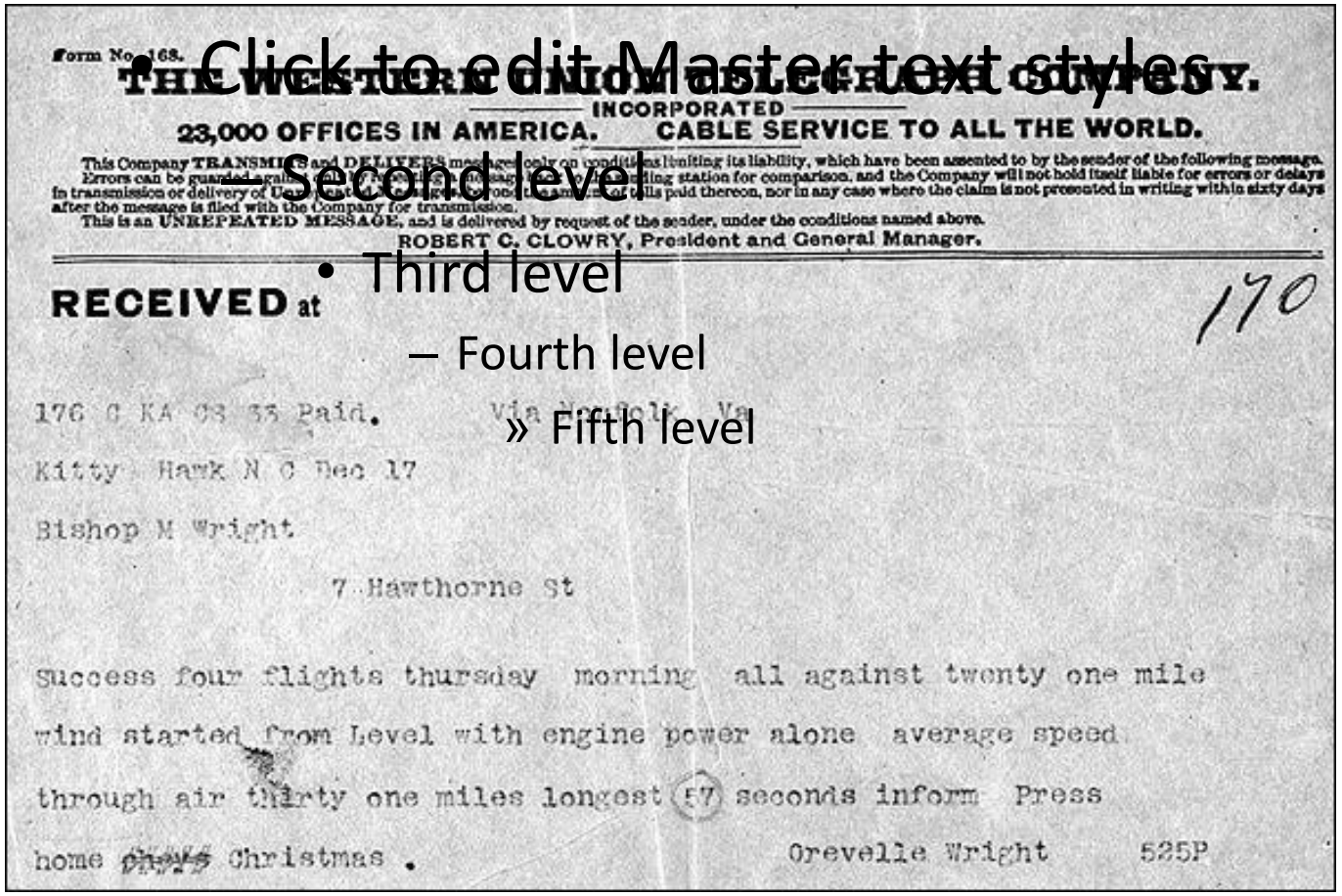

Form No. 1 68.

THE WESTERN UNION TELEGRAPH COMPANY.

INCORPORATED

23,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD.

This Company TRANSMITS and DELIVERS messages only on conditions limiting its liability, which have been assented to by the sender of the following message. Errors can be guarded against only by repeating the message back from the receiving station for comparison, and the Company will not hold itself liable for errors or delays in transmission or delivery of Unrepeated Messages, beyond the amount of tolls paid thereon, nor in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

This is an UNREPEATED MESSAGE, and is delivered by request of the sender, under the conditions named above.

ROBERT C. CLOWRY, President and General Manager.

RECEIVED at 170

176 C KA CH 35 Paid. Via Norfolk Va

Kitty Hawk N C Dec 17

Bishop M Wright

7 Hawthorne St

Success four flights thursday morning all against twenty one mile wind started from Level with engine power alone average speed through air thirty one miles longest 57 seconds inform Press home ~~Chas~~ Christmas .

Orevelle Wright 525P

Some Other Consequences - 2

- Paved the way for such future wire-related information technologies as the:
  - Telephone,
  - Teletype machine,
  - Stock ticker,
  - Remote fire and burglary alarm
  - Fax machine

Some Other Consequences – 3

- Along with the railroad, the Telegraph:
  - Facilitated travel and the holding of professional and business conventions
    - Telegraph allowed people to make hotel reservations and coordinate events
    - Allowed convention planners to coordinate convention planning with the hotels where the convention was to take place
  - Made modern sports leagues and touring theatrical companies and their related stars possible by:
    - Permitting long-distance transportation of teams, troupes, and fans (and the necessarily-related coordination) and
    - Allowing the electrical transmission of sports news and theatrical publicity to city newspapers and mass-distribution magazines

Some Other Consequences - 4

- Revolutionized military operations
  - Facilitated “up-the-chain-of-command” military reporting
  - Enabled the creation of war plans that linked military mobilization of reservists and initial combat operations
    - This led at the onset of World War I to the existence of complex and inflexible war plans that made mobilization the equivalent of a declaration of war
      - If one country mobilized, its enemies had to mobilize or be at a major disadvantage. Once Russia mobilized, Germany had to mobilize and activate the Schlieffen Plan to invade Belgium and France

Historical Notes -1

- 1851 – Fire alarm telegraph
- 1858 – Wheatstone Automatic Telegraph Sender that could transmit up to 400 words a minute from pre-punched tape
  - Used for news transmission
- 1867 – Stock ticker
- 1871 – Western Union begins money transfers
- 1871 – Signal telegraph
  - Allowed a customer to signal a central police station, firehouse, or messenger service
- 1872 – Duplex Telegraph
- 1884 – Quadraplex Telegraph

Historical Notes - 2

- 1884 – Western Union is one of the original 11 stocks included in the first Dow Jones Average
- 1900 – Fredrick Creed invents a way to convert Morse Code to text
- 1913 – Western Union develops Multiplexing
- 1914 – Western Union introduces the first charge card
- 1920s-1930s – Telegrams experience peak popularity
- 1925 – Teleprinter machines

Historical Notes - 3

- 1933 – Western Union introduces singing telegrams
- 1936 – Varioplex Telegraph
- 1938 – Facsimile
- 1959 – TELEX
- Jan 27, 2006 – Western Union delivers the last telegram

Police Alarm Signal Telegraph

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Telephone

Telephone

- Alexander Graham Bell
  - Son of a professor of elocution in London & Edinburgh who emigrated to Canada
  - Taught deaf mutes in Boston. There
    - Met Gardiner G. Hubbard, an affluent businessman and philanthropist
    - Married Hubbard's deaf daughter, Mabel
    - Became professor of vocal physiology and elocution in 1873
    - Conceived of the telephone in July 1874

Origins of the Telephone

- Invention of the duplex and quadraplex telegraph showed:
  - A telegraph wire could be made to carry the traffic of first two and then four wires
- Concept of the harmonic telegraph
  - Bell's experience with a stuck reed led to the realization that a wire could also transmit a voice message
- Bell obtained a patent for the telephone on March 7, 1876

How the Telephone Worked

- Caller would talk into vibrating plates or reeds
  - This would induce a continuous fluctuating current
  - Current would carry the exact amplitude and voice frequency along a wire
  - An electromagnet at the receiver would transform the current into pulses of magnetic force
  - These pulses would act on another set of tuned reeds to reproduce the original sound

Creation of the Bell System

- Hubbard was excited by Bell's invention
  - Opposed Western Union because it was a monopoly & favored a U.S. Postal Telegraph Company
  - Organized the Bell Telephone Company in July 1878
  - Persuaded Theodore N. Vail to run the company
- Bell Telephone won a suit against a Western Union-sponsored competitor

Notes about the Bell System

- Bell Telephone would manufacture the phones & license them to local phone companies
  - This meant that Bell:
    - Could for its first 16 years dictate, via its license agreements, both common technologies and the cost of local phone service
    - Due to its technical standardization, could begin long-distance phone service
- Bell created Bell Labs to solve the technical problems that beset long-distance service

The “Talking Telegraph”

- Early leaders of Bell saw the telephone as simply a “talking telegraph”
  - Assumed the telephone would be used just like the telegraph and by the same types of users
- This had three effects
  - Led independent phone companies to take advantage by providing services that Bell didn’t
  - Slowed down the pace of telephone adoption
  - Brought Bell to near bankruptcy, leading to its takeover in 1907 by Morgan banking interests and the stabilization of AT&T under Theodore Vail

Telephone vs Telegraph

- Telephone permitted voice communication as opposed to Morse Code
- Telephone communication was synchronous and dialogic whereas the telegraph was asynchronous
- Telegraph left a written record – the telegram – whereas the telephone did not
- Telegraph required an intermediary – the telegraph operator – while the telephone within a local exchange did not

Effects of the Telephone

- It replaced the telegraph in the performance of many of its functions, particular its coordination and communication functions
- Its technical problems led to the creation of Bell Labs – from which many innovations and discoveries flowed
- Its linking of different exchanges created the first virtually universal network
  - A network that no longer required people to be at a fixed point to access the communication system

Effects of the Telephone – 2

- Telephone poles and wires changed the suburban and rural landscape
- Made obsolete the Victorian practice of card leaving
  - Led to people calling before coming over for a visit
- Led to large-scale solicitation by businesses and charities who started calling people at home

Effects of the Telephone - 3

- Sped the commercial adoption of the typewriter
  - The need to create memos or records of phone conversations helped increase the need for typists
- Fosters sociable conversation, gossip, and chit-chat
  - Thus teen-age girls are the biggest users of the phone
- Fostered the development of subsequent communication technologies

Effects of the Telephone - 4

- Led to such ancillary inventions as the telephone booth, the telephone book, and the public pay telephone
- Replaced to some extent the red-light district with the call girl
- Gave organized crime the technology needed to tap into the lucrative but illegal market for off-track betting on the horses

Telephone Timeline - 1

- 1878 - First commercial switchboard established in New Haven, CT
- 1880 – Local telephone companies reorganized as the American Bell Telephone Company
- 1880 – First telephone numbers
- 1880 – First pay telephone
- 1885 – Name changed to American Telephone & Telegraph Company
- 1893 – With the expiration of Bell's patents, independent phone companies enter the business
  - By 1902, there were 9,000 such companies

Telephone Timeline - 2

- 1915 – First transcontinental telephone call
- 1919 – First rotary dial telephone
- 1922 - AT&T opens WEAF, the first commercial radio station in New York.
- 1925 - AT&T establishes Bell Telephone Laboratories Inc. as its research and development subsidiary.
- 1927 - AT&T begins transatlantic telephone service
- 1934 – AT&T inaugurates trans-pacific phone service

Telephone Timeline - 3

- 1941 – First non-experimental laying of coaxial cable
- 1946 – Beginning of mobile phone service
- 1947 - Bell Labs invents the transistor
- 1951 - First customer dialing of long-distance calls
- 1956 - First transatlantic telephone cable
- 1962 - First telephone satellite - Telstar

Telephone Timeline - 4

- 1963 – First touchtone phone
- 1968 - AT&T introduces 911 as a nationwide emergency number
- 1970 - First customer dialing of international telephone calls
- 1971 - Researchers at Bell Labs create the Unix computer operating system
- 1977 – Installation of the first fiber optic cable

Telephone Timeline - 5

- 1983 – AT&T opens the first commercial cellular telephone service in Chicago
- 1984 - Dissolution of AT&T and creation of the Baby Bells
- 1988 - First transatlantic fiber optic cable
- 1996 - Telecommunications Act of 1996

Bell on the Telephone

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Early Edison Wall Phone

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19th Century Phone Call

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1920s Candlestick Phone

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1950s Style Phone

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Push Button Phone

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