American Social and Cultural History, 1865 to the present

Class 3

American Social and Cultural History

- The world we live in is largely the product of three revolutions that took place in the first three decades of the 20th century
  - Electricity Revolution
  - Automobile Revolution
  - Communications Media Revolution

Electricity

- The Electricity Revolution began with two inventions that allowed the generation of electricity:
  - The first was the battery – which converted the energy of chemical reactions into direct current electricity
  - This second was the dynamo – a magnet mounted on a spindle revolving past a stationary coil – that converted mechanical motion into electricity

Electricity

- What got the Electricity Revolution really going was:
  - Invention of the electric motor and generator
  - Adoption of Alternating Current at 60 cycles per second at 120 volts as a standard
    - This took place after the so-called “current wars” over whether AC or DC would be the standard
      - AC won out because
        - » It could be easily stepped up to high voltage for long-distance transmission and then stepped down for use the home or factory while DC could not
        - » Nikola Tesla invented a polyphase induction motor that used AC and was as efficient as DC motors

Electricity

- The electricity revolution had four phases
  1. Electricity replaces steam and water power
  2. City street lighting with electricity replaces gas lighting
  3. Electricity in the home replaces gas and kerosene lighting
  4. The application of electric power to the factory which:
     - Enables the separation of factory and power supply
     - Permits the rationalization of the production process

Electricity

- Factory prior to electricity
  - Depended on water power or steam
    - Water power was free but restricted factory location, size, and layout
    - Steam allowed factories to locate away from streams but still restricted factory size and layout
  - Both types of power led to:
    - Multistory buildings
    - Power in the form of gears, shafts, pulleys, and belts
    - Factory layout tied to the power requirements of individual machines rather than the logical flow of the production process

Electricity

- Initially, factory owners added electric-powered machines to the already-existing power system
  - It took a while for factory owners to realize that to gain the efficiency benefits of electricity, they had to restructure the whole work process
  - Often it made sense to continue to use the already-existing plants and machinery until they had reached the end of their useful service life
  - Thus, it was not until the 1910s-1920s that electricity began to have major impacts on factory productivity and output

Electricity

- The result – a new kind of factory based upon the following:
  - The subdivision of labor
  - The use of interchangeable parts
  - Single-function machines
  - Machines arranged according to the sequence of work
  - The continuously-moving belt or assembly line

Electricity

- In contrast to the old multi-story factory with its belts and shafts:
  - The New Factory was generally a sprawling one-story building with:
    - Plenty of room to move people and materials around
    - Electrically-operated machines, each with its own motor
    - A large number of electrical outlets so that special tools when needed could be plugged
- The new factory with its assembly lines:
  - Eliminated waste motion and production bottlenecks, thus speeding up production
  - Vastly increased productivity and output

Electricity

- Proved a boon to small machine shops
  - Electric presses, lathes, and polishers breathed new life into small machine shops, helping them stay competitive
    - Particularly in industries requiring many small batches of goods, such as printing
  - Small workshops and repair shops quickly adopted electric hand tools

Electricity

- Electricity enabled small producers to outcompete larger producers that still used steam or water power
  - This helped newer textile mills in the South out-compete the older New England textile mills that still used steam and water power

Electricity

- Increased productivity and output
  - Created a new problem – how to sell all that could be produced
    - Led to large scale advertising and mass merchandising
    - Led to credit innovations, such as installment buying – especially for cars and consumer durables

Electricity

- Allowed for either higher wages, higher profits, or lower prices, or some combination of the three
  - In the 1920s (and later in the decades of the 1980s-2000s) it led to higher profits and lower prices which greatly impacted the socio-economic history of these decades
  - This led to an increasing maldistribution of wealth – the rich got richer while the income of workers and farmers in the 1920s and the middle class in later decades stagnated
    - In the 1920s, this led to conspicuous consumption and speculative bubbles

Electricity

- The second phase of the Electricity Revolution was:
  - Lighting up the night urban landscape
    - Broadway becomes the Great White Way
    - Illumination of landmarks and other important locations becomes a characteristic of the city
    - At night, restaurants, hotels, department stores, and other businesses turn on the lights and the neon signs
    - Professional sporting and other events now take place “under the lights”

Electricity

- Some effects of a city bathed in light
  - City night life
    - People begin to go out on a large scale
  - Proliferation of Public amusements
    - Amusement parks, vaudeville houses, theaters, movie palaces, city baseball parks, dance halls, and kinetoscope peep shows
  - Change in the way people see public buildings
    - Idea that the true nature of a building is perceivable only after dark when it is illuminated

Electricity

- Outdoor lighting paved the way for indoor lighting
  - Prior to electric indoor lighting, there was gas or kerosene lighting
    - Gas & kerosene lighting had disadvantages
  - Electric lighting was cleaner, brighter, safer, did not produce soot, and could not be blown out by wind
  - Electric lighting was first adopted in factories where clean air and visual acuity were important

Electricity

- Effects of electricity upon the home
  - In contrast to the Victorian home, newly-built homes with electricity had:
    - More open floor plans
    - Fewer doors
    - Light colors for walls and ceilings
    - Flexible placement of furniture and lamps, and
    - An increasing number of electrical appliances and devices using electricity

Electricity

- Consequences of Electric Indoor Lighting
  - Led to the redesign of the interior of the home
  - Made possible shift work
  - Ended the regime of night and day
  - Allowed people to make use of the evening hours before bedtime
    - One effect was that people read more
  - Dispersed the family within the house
    - The family no longer congregated around the hearth

Electricity

- Once a home had electricity, a sequence of electricity-using products occurred:
  - Electric lights
  - Small appliances, such as electric irons, fans, toasters, and coffee makers
  - Vacuum cleaners
  - Entertainment media, such as radios & phonographs
  - Major appliances, such as washing machines, dishwashers, and later refrigerators

Electricity

Item	1900	1920	1930	1970
Washing Machine	<1%	8%	24%	70%
Icebox	18%	48%	40%	<1%
Refrigerator	<1%	<1%	8%	99%
Vacuum Cleaner	0	9%	30%	92%
Electric lights	3%	35%	68%	99%
Dishwasher	0	0	1%	25%
Telephone		35%	41%	91%

Electricity

- Another major consequence of electricity was the streetcar and the subway
  - The streetcar (which first appeared in 1888 in Richmond VA) took over the horse car lines and greatly expanded their scale
  - Streetcar systems spread like wild fire. By 1890, there were trolleys in 200 streetcar systems, with electric trolleys constituting 30% of all streetcars. By 1890, there were over 800 streetcar systems, with electricity powering nearly all urban railcars

Electricity

- Street railways not only operated in cities, they also stretched way out into the countryside and linked up with street railways from other cities
  - It was possible to travel from New York City to Chicago or Boston by trolley, just by transferring from one line to another.
- Streetcar lines radiated out from the center of the city like spokes on a wheel
  - This drew people into the center of the city, which thanks to the skyscrapers and department stores (plus restaurants and hotels attracted by the business that the skyscraper workers and department store shoppers brought) became centers of commerce and culture

Electricity

- Impact of street railways
  - Streetcars opened up new areas for real estate development
    - This allowed the middle classes to move out of the congested city center into the near suburbs
    - It also allowed workers to move to areas on the city periphery (such as Brooklyn & Queens), creating very cheap housing in such districts as Greenwich Village in New York, the Left Bank & Montparnasse in Paris, and Bloomsbury in London which in turn allowed artist colonies of bohemians to form and flourish in these districts

Electricity

- Streetcars (and indoor lighting & elevators) made possible the development of the department store
- Streetcar systems created the amusement park
  - A 1907 census of electric railways found 467 such parks – visited by 50 million people
- Streetcars fostered day trips and interurban tourism
- Street railways were major purchasers of steel rails, copper wire, street cars, plate glass, and electricity
  - They also proved a boon to General Electric and Westinghouse

Electricity

- Streetcars and the Department Stores and Amusement Parks they fostered were all major advertisers
  - This proved a boon to the advertising agencies
- Along with retailing chains and mail-order businesses, department stores dominated merchandising after 1895
  - Together, all three erased the line between commodities and experience

Electricity –
A Note on Department Stores

- Department stores pioneered in the use of illuminated plate glass display windows
  - Plate glass display windows helped create a new culture of class

Electricity – A Note on Department Stores

- Department stores pre-empted Santa Claus and made him a merchandiser of children's toys
  - Live Santa Clauses took up residence in toy departments during the Xmas shopping season
- Department stores pioneered in such innovations as:
  - Money-back guarantees
  - Lay-a-way
  - Department store charge cards – e.g Central Charge

Electricity – The Skyscraper

- Skyscraper dates back to the early-1880s with the so-called Chicago method of construction
  - Complete interior metal framing
  - Metal frame supports the entire load of the building
    - Building walls which formerly supported building loads serve merely as decoration, giving rise to plate glass windowing.
  - First skyscraper was the 10-story Chicago Home Life Building (construction of which began in 1883)

Electricity – The Skyscraper

- Before the skyscraper became practical, several things had to come together
  - Interior steel framing
  - Indoor lighting
  - Workable electrically-powered elevators
  - Electrically-powered fans to provide ventilation and circulation of hot air during cold weather
  - Electrically-powered water pumps to provide indoor plumbing on upper floors

Electricity – The Skyscraper

- Skyscrapers became popular as corporate headquarters
  - They allowed for concentration of HQ employees at a single site
  - In New York and many other cities, the skyscraper name advertised the corporate owner
    - E.g. the Western Union, Metropolitan Life & Woolworth buildings in New York & the John Hancock in Boston & the Sears Tower in Chicago
  - Many corporate skyscrapers were also tourist attractions – a fact that brought added corporate revenue

Electricity – Toys

- Electricity revolutionized the toy industry
  - Many children's toys now require batteries or the ability to plug into an electrical outlet
  - Before 1890, there were almost no manufactured toys for children
    - After 1900, toy manufacturing boomed.
    - Educational toys emerged
  - The major electrically-powered toys were the Lionel and American Flyer toy trains
    - The toy train with its accessories was a miniature world

Electricity – Gender Roles

- Electricity and the appliances its spawned:
  - Subjected middle-class women to a cascade of rising expectations
    - Electrical conveniences made individual household tasks easier, but their number, frequency, and complexity increased
    - Displaced some tasks from men and children to the wife
    - Displaced some tasks from commercial providers back to the housewife

Electricity – Gender Roles

- Blurred traditional sex roles by eroding the lines between separate spheres for men and women
  - Electricity allowed the restructuring of jobs so that they could be performed by untrained but literate workers.
    - This made it easier for women to enter the workforce
  - Electrical appliances made it possible for unmarried men to live alone
    - Thus bachelors now longer had to live in boardinghouses where there was a women to do the cooking, cleaning, and laundry for the male residents

Electricity

- Played major roles in both the Automotive Revolution and the Communications Revolution
  - Both the auto and the new 20th century communications media depended upon electricity for both their operation and their construction
  - Thus the Electricity Revolution was the prerequisite for the other two

Automobile

- Origins of the Automobile
  - 1876 – Nicholas Otto invented the Otto internal combustion engine – the direct ancestor of all current automotive engines
  - 1883 – Gottlieb Daimler and Wilhelm Maybach develop an engine powerful enough to operate a motor vehicle
  - 1883 – Karl Benz developed an electrical ignition system
  - Early 1890s - Daimler and Benz begin production of autos in Germany

Automobile

- Origins of the Automobile – 2
  - 1893 – First American ‘horseless carriage’ – produced by Charles E. % J. Frank Duryea of Springfield MA
  - 1899 – By then, roughly 30 companies were making automobiles and between them had made 2,500
  - 1908 – Henry Ford starts making automobiles

Automobile

- Some Notes about the early auto industry
  - There were 2 ways of making cars with two very different potential markets
    - Craftsman approach – a team of skilled mechanics and carpenters who make one car at a time according to purchaser specifications
      - End product is a luxury auto aimed at people wealthy enough to have their own horse and carriage. E.g. Rolls Royce, Mercedes-Benz
    - Mass Production approach – use of mass production and standardized parts
      - End product is a uniform car for a mass market. E.g. Ford Motel T

Automobile

- Some Notes about the early auto industry – 2
  - There was a competition between 3 different modes of power
    - The internal combustion engine
    - The steam engine – Stanley Steamer
    - Battery-powered car
  - The early auto industry was extremely competitive
    - By 1908, some 515 firms entered the auto market
      - Half, however, had already failed.
      - By 1928, the Big Three controlled 80% of the market

Automobile

- Henry Ford was the first manufacturer to mass produce a standardized auto using interchangeable parts
  - He did this by combining the following to produce the moving assembly line
    - Subdivision of labor
    - Interchangeable parts
    - Single-function machines
    - Sequential ordering of machines
    - Moving belt or line

Automobile

- Henry in many respects followed a very enlightened labor policy
  - In 1914, Ford raised the daily wage to $5.00 at a time when a Model T cost $360.00
    - Ford felt that his workers should be able to buy the cars they made
  - He also hired large numbers of immigrants and African-Americans, disabled persons, and ex-convicts
- But he could not abide labor unions and was very much an anti-semite

Automobile

- Henry Ford believed in selling basic transportation and opposed model changes on principle
  - But by the 1920s, America had changed and General Motors took advantage of this
- General Motors, beginning in 1923, focused on styling and style changes.
  - GM was the first company to offer installment financing and trade-up brands

Automobile – Replacing the Horse

- It replaced horse carriages, stagecoaches, and the horse-drawn plough as well as the horses that pulled them
  - In 1900, there were 20,400,000 horses in the U.S.
    - 17.0 million used for pulling ploughs
    - 3.4 million used for urban transport in U.S. cities
  - The carrying capacity of these horses was equal to 75% of that of all U.S. railroads

Automobile – Replacing the Horse

- As the auto and tractor replaced draft animals, more an more agricultural land went to producing food for humans
  - Result: Massive agricultural surpluses and a consequent decline in rural income
- As the auto increased the mobility of farm families, the rural stores and banks they had patronized now faced competition from larger enterprises in larger nearby towns

Autos and Highways

- Autos led to:
  - The Good Roads Movement
    - As autos became popular, people became aware that the nation's roads were not equipped to handle motor vehicle traffic
  - The American Automobile Association

Autos and Highways

- Federally-financed highways
  - Federal Road Aid Act of 1916 provided for matching Federal-state funds for highway construction.
    - This led to the construction of the U.S. routes in the 1920s and 1930s -- the famous US1, US40, and US66
  - Interstate Highway System
    - The Clay Commission in 1954 concluded that an interstate highway system would be “vital as a civil defense measure” and “essential to national defense.” The result was the recommendation that the 44,000 mile system be constructed
    - This led to the Federal Highway Act of 1956, with the Federal Government supplying 90% of the financing

Effects of the Interstate Highway System

- Cloverleaf interchanges became the sites of new malls and industrial parks
- Suburban and exurban development was spurred by the enabling of workers to commute from further distances
- Travelers' desire for familiarity in unfamiliar surroundings when one turned off an Interstate led to the growth of franchised restaurants (like McDonald's) and chain motels (like Holiday Inn)

Automobile – Traffic Jams and Parking

- Initially, many politicians and urban planners felt the car would solve the problem of urban congestion
  - Cars could use all of a city's streets instead of just a few and cars could pass each other
  - But even in the 1920s, it became obvious that these predictions were wrong. The result:
    - Limited access expressways
    - Gradual abandonment of the central city

Autos and Social Inventions

- By its very existence, the automobile led to the following innovations - 1
  - Installment purchases
  - Used car markets
  - Camping & picnicking
    - Auto campgrounds
    - Private campgrounds

Autos and Social Inventions

- By its very existence, the automobile led to the following innovations – 2
  - Gasoline stations
  - Drive-in restaurants
    - Fast-food franchise restaurants
  - Motels and Motor Hotels
  - Gasoline credit cards
  - Traffic police & State highway patrols
  - Parking meters

Autos and Social Inventions

- By its very existence, the automobile led to the following innovations – 3
  - Drive-in movies
  - Shopping centers
  - Malls
  - Parking lots
  - Traffic courts
  - Automobile tags
  - Driver's Licenses

Creating the Auto Suburbs

- Autos created the modern auto-dependent suburbs
  - Prior to the auto, the city consisted of a commercial hub surrounded by residences within walking distance followed by development of businesses and residences radiating out from the central hub like spokes from a wheel, with the railroad and the horse-car and then the trolley lines providing the spokes

Creating the Auto Suburbs

- Creating the modern suburb - 1
  - The auto's ability to move laterally or perpendicularly to fixed trolley track opened up land for settlement that was previously too remote
    - This meant that vacant land between the transportation corridors could be platted and sold for home and business sites
  - The auto released potential home buyers and renters from the necessity of living close to a bus or trolley line

Creating the Auto Suburbs

- Creating the modern suburb – 2
  - As the central business district (CBD) was transformed from a shopping district to a skyscraper district of government and corporate headquarters
    - The skyrocketing rents, downtown traffic snarls, and inadequate parking forced small retail businesses out and they relocated elsewhere, usually to the suburbs
    - Eventually, the auto (and decline of public transportation) encouraged government and corporate offices to relocate from the CBD to industrial parks in the suburbs

Creating the Auto Suburbs

- Creating the modern suburb – 3
  - What set the modern suburb off from what existed previously was
    - Dependency on the auto not only for commuting to work but also for shopping
    - Relatively low density and larger average lot size due to cheaper land prices
  - With the modern suburb and the auto eventually came the centerless city and commuting from suburb to suburb

Creating the Auto Suburbs

- Social Effects of the Modern Suburb
  - In the city, life often took place on the sidewalk and the front porch or front steps; in the suburbs it took place in the family-oriented (and often fenced-in) backyard
  - Instead of congregating at a trolley or bus stop to commute to work, people now commuted individually in their cars
  - Instead of meeting neighbors at nearby stores that one walked to, suburbanites did their shopping at malls they drove to

Creating the Auto Suburbs

- Social Effects of the Modern Suburb – 2
  - Because of differential land prices and zoning regulations, different suburbs became stratified by housing size and price, and thus by socio-economic status
  - As suburban residents became more car-dependent, the number of cars increased while road construction and public transportation lagged. The result: increased traffic congestion not only in the city but also in the suburbs