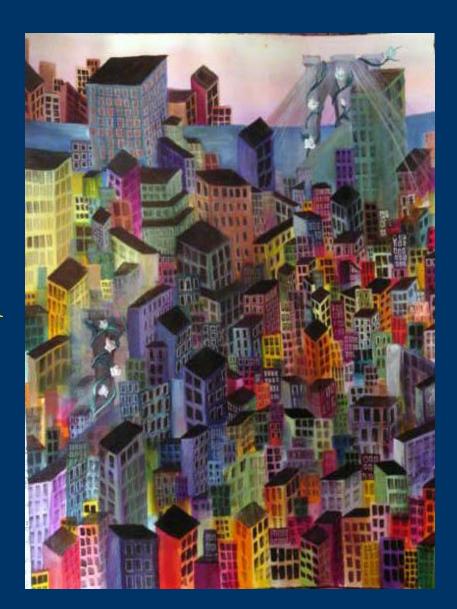
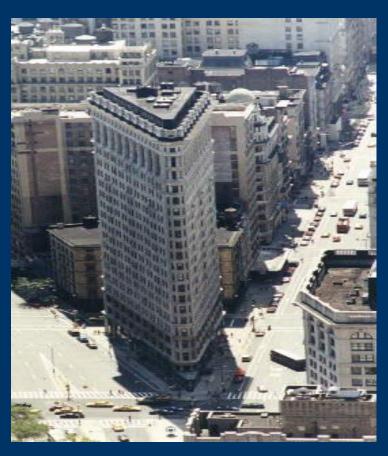


### Science and Urban Life

- By the turn of the 20<sup>th</sup> century, 40% of Americans lived in cities.
- In response to urbanization, technological advances began to meet demands in:
  - 1. communication
  - 2. Transportation
  - 3. space



### Skyscrapers



Flatiron Building - 1902

- Skyscrapers emerged after elevators & steel skeletons to bear weight were invented.
  - Examples include Daniel
     Burnham's Flatiron Building in
     NYC and Louis Sullivan's
     Wainwright Building in St. Louis.
- The skyscraper, America's greatest contribution to architecture, solved the issue of how best to use limited and expensive space.



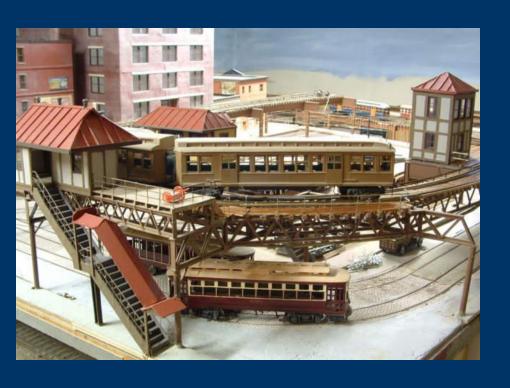
Another view of Burnham's Flatiron Building

#### Electric Transit

- Changes in transportation allowed cities to spread outward.
- By the turn of the century, intricate networks of electric streetcars – also called trolley cars – ran from outlying neighborhoods to downtown offices & stores.



### El's and Subways



- A few large cities
   moved their
   streetcars far above
   street level, creating
   elevated or El trains.
- Other cities built subways by moving their rail lines underground

# Bridges and Parks

- Steel-cable suspension bridges also brought cities' sections closer.
  - Brooklyn Bridge
- Some urban planners sought to include landscaped areas and parks.
  - Frederick Law Olmsted--- Central park, NYC.



Central Park is an oasis among Manhattan's skyscrapers

# City Planning: Chicago



Chicago's lakefront features parks, harbors for pleasure boats, and stunning views of the city's skyline

 Daniel Burnham oversaw the transformation of Chicago's lakefront from swampy wasteland to elegant parks strung along Lake Michigan. Today Chicago's lakefront is one of the most beautiful shorelines in North America.

New Technologies

 New developments in communication brought the nation closer.

- Advances in:
  - Printing
  - Aviation
  - photography

helped speed the transfer of information.



# A Revolution In Printing



- By 1890, the literacy rate in the U.S. was nearly 90%.
- American mills began to produce huge quantities of cheap paper from wood pulp.
- Electrical web-presses printed on both sides of paper at the same time.
- Faster production and lower costs made newspapers and magazines more affordable.
   Most papers sold for 1 cent.

# Airplanes

- In the early 20<sup>th</sup> century,
   brothers Orville and Wilbur Wright, experimented with engines and aircrafts.
  - They built a airplane and on December 17, 1903, they flew it for 12 seconds over 120 feet.
  - Two years later, they were making 30 minute flights and by 1920, the U.S. was using airmail flights regularly.



Wright Brother's first flight

# Explosion of Photography



- Before 1880, photography was a professional activity.
  - Subjects could not move and the film had to be developed immediately.
- Then George Eastman invented lighter weight equipment and more versatile film.
  - In 1888, he introduced his Kodak camera
  - It cost \$25 camera and came with a
     100-picture roll of film

### Section 2

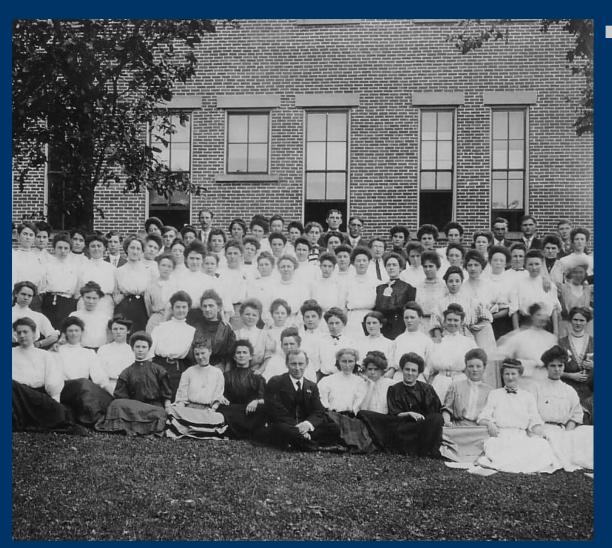
Expanding Public Education

# Expanding Public Education

 Between 1865 and 1895, states passed laws requiring 12 to 16 weeks of annual education for students ages 8-14, but the curriculum was poor and the teachers were usually not qualified. However, the number of kindergartens expanded from 200 in 1880 to 3,000 in 1900



# High School Enrollment



High schools expanded their curriculum to include science, civics and social studies. By 1900, 500,000 teenagers were enrolled in high schools.

### Racial Discrimination



 African Americans were usually excluded from secondary education. In 1890, less than 1% attended high school. By 1910, that figured had reached only 3%.

# Education for Immigrants

 Unlike African Americans, immigrants were encouraged to go to school. Most immigrants sent their children to public schools. In addition, thousands of adult immigrants attended night schools to learn English.



## Expanding Higher Education



In 1900, less than 3% of America's youth attended college. Between 1880 and 1920 college enrollments more than quadrupled. Professional schools were established for law and medicine

### African American Universities

- After the Civil War, thousands of African
   Americans pursued higher education, though excluded from white schools.
  - Booker T. Washington founded Tuskegee University to provide technical training.
  - W.E.B. Dubois founded the Niagara Movement to provide liberal arts education to blacks.



Women at the 1906
Niagara Movement
Conference at
Harpers Ferry