TRANSFORMATIVE HISTORICAL INFRASTRUCTURES: THE CASE OF THE TRANSCONTINENTAL RAILROAD

Jamie M. Fischer
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Overview

- Rail Development in the United States
- Transcontinental Railroad
- Economic Impact
- Social Impact
- Environmental Impact
- Lessons Learned
Rail Instead of Water

Before rail, American transport was mostly by water.

1815 The first railroad charter was granted in the United States.

1837 Over 200 railroad companies existed in the United States.

1853 The first major U.S. railroad linked Baltimore to the Ohio River.

Figure 1: American Railroad Network by 1850 (From Dale)

SOURCES: Dilts 1993, Dale 1994
1848 The Southwest was ceded by Mexico, and gold was discovered in California.

1861-1865 U.S. Civil War

Figure 2: American Railroad Network by 1870 (From Dale)

Sources: Gordon 1997, Clark 2001
Rail for Rapid Expansion

Figure 3: American Railroad Network by 1890 (From Dale)
The Transcontinental Railroad

- Constructed 1863-1869
- Connected the Union Pacific and Central Pacific Railroads.
- Provided continuous, fixed route to the west coast.
- Was the largest railroad in the world at the time.
  - More than 900 miles of track
  - 200-foot right of ways
  - Standard gauge: 4’ and 8-1/2”

Figure 4: Artist’s rendering of the Golden Spike ceremony at Promontory Point, Utah

SOURCES: Schoek, Siddall 1969
Railroad Financing & The Gilded Age

- Railroad proliferation was possible due to laissez-faire economic policies.

- Transcontinental Railroads received direct Federal Subsidies through:
  - Land Grants, and
  - Collateral for Bonds.

- Because of their size, the transcontinentals were particularly vulnerable to corruption, for instance:
  - the Crédit Mobilier Scandal.

**Figure 5:** Thomas “Doc” Durant at the end of the Union Pacific Line (From Union Pacific Website)

**Sources:** White 2003, Raken 2009,
The rise of investment banking was associated with railroad expansion and consolidation.

Cycles of “oligopoly agreements” dictated how railroads could maximize their profits.

The Interstate Commerce Commission was formed in 1887 to re-regulate the industry.
- Shipping rates had to be "reasonable and just."
- Rates had to be published.
- Secret rebates were made illegal.
- Price discrimination was made illegal.

**Sources:** Harley 1982, Raken 2009
Opening the West to Science

- Railroads allowed the rapid and safe movement of
  - Specimens
  - Equipment
  - Personnel

- The publication of scientific articles nearly tripled from the 1860s to the 1870s.

Figure 6: Elasmosaurus muzzle, discovered by Dr. Theophilus Turner in Kansas and shipped by rail in 1868 (From Everhart)

Sources: Vetter 2004, Everhart 2009
Changes to the Social Landscape

- **Migration and Displacement**
  - Chinese laborers immigrated to work on the railroad, and some settled on the West Coast.
  - White and Black Americans settled the western plains, forming railroad towns.
  - Native Americans were forcibly relocated to reservations.

- **Class Segregation**
  - It was possible to travel “first-class” by rail, unlike on canal packets or riverboats.
  - The rural-urban economic gap developed and widened.

**Figure 7: Late-nineteenth-century Pullman railcar (from Gordon)**

**SOURCES:** Rach 2003, Gordon 1997, Morin 1998
Environmental Legacy of Westward Expansion

- **Deforestation**
  - By 1860 California had already lost an estimated 1/3 of its trees

- **Decline of the buffalo**

- **Rise of the dust**
  - Over-planting and overgrazing led to an increase in dusty conditions in the West.

- **Noise pollution**

**Sources:** Rach 2003, Neff 2008

**Figure 6 Above:** The dusty American West (University of Colorado at Boulder)

**Figure 7 Below:** Train passengers shooting buffalo for sport (Northern Plains Buffalo Products)
Lessons Learned

- **Major infrastructure development can shape**
  - Financial Markets
  - Social Structure and Stratification
  - Natural Landscapes and the Fates of Species

- **To enable positive growth, disable corruption, and prevent harm, policy or other mechanisms should ensure**
  - Financial Transparency
  - Social Inclusion
  - Environmental Stewardship
Sources