Digitally Mapping the Growth of the Railroads in the United States

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Abstract
During the late 19th century, railroad networks in the United States exploded, drastically changing the economics, politics, and culture of the country. But our ability to examine how the expansion of the railroads affected the country is hampered by a dearth of data. Previous efforts to digitize the extent of the railways relied on tracing maps, but the lack of reliable maps means that this can only be done for every ten years. This only permits us to see snapshots of the rapid expansion that quintupled the miles of track between 1870 and 1910 and limits our ability to examine the connection between the railroads and other contemporaneous developments. I solve this problem by turning to textual sources. By digitizing and geocoding indices of railway stations from 1880 to 1910, I will be able to create maps that reveal the location of stations, rail lines, and the operators of those lines on a yearly basis.

Why map the railroads?
During the late 19th century, railroads...
1. drastically reduced transportation times
2. increased population mobility
3. connected the economies of distant places
4. made possible national political campaigns
We need maps to investigate how proximity to railroads changed local social, political, and economic life.

The need for more data
1. Previous digitization efforts traced maps
   - Depends on existence of quality maps
   - Can only be done for intervals of almost 10 years
2. Between 1870 and 1910, the miles of track in the United States quintupled.
3. Can only look at broad, long-term trends with data every decade.

A new data source
The Official Guide to the Railways
- Published at least quarterly from 1870 through today
- Used by station officers, businesses, and travelers
- Included an alphabetical index of all railroad stations and the companies that served them

Index from each year from 1880 to 1910 can be geocoded to make yearly maps of stations
Using the station maps, I can work backwards from 1910 to see where lines were added by identifying new stations

Digitization process
Scanning the text
- Librarians helped obtain volumes from Stanford
- Library Scan and Deliver produced high resolution scans

Geocoding
- Obtain latitude and longitude for list of station location using Geolocate and Google Maps APIs
- Locate remaining stations from books of state historic places

Mapping
- Combine dataset of station locations with 1911 GIS map of rail lines
- Use GIS to identify line segments along stations that exist in each year
- Create interactive online map that shows lines, stations, and railroad companies for each year

Current Progress and next steps
- OCR dictionary is prepared and all images scanned and ready for digitizing text
- Once transcription is complete:
  - Ready to geocode full list of places using Python
  - Locate unidentified stations using books of historic places

Contributions
- First yearly mapping of railroads in the United States at moment of greatest expansion
- Rich source of data on railroad lines, rail stations, and rail companies operating at stations
- Full dataset will be a boon to economic historians, sociologists, political scientists, and historians
- Interactive maps displaying the data will be a resource for public education

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