The Basics

- Industry found in many geographic regions of US / Canada
- Fairly simple industrial facility
- Supports a variety of rail traffic
- Small to large in size

Historical Aspects

- Wood Treatment Basics
  - Purpose was to prolong the life of wood products
  - Increases durability and resistance to bugs or fungus by providing long term resistance to organisms
- Historical
  - Protection of ship hulls with tar – Romans
  - Later half 1800’s – creosote rail ties
  - Use grew in 1970’s with home products
Historical Aspects (cont.)

- Historical
  - Dipping – short duration & small footprint
  - Brush and spray treatments
  - Steeping – same as dipping but longer duration
  - Pressure treatment – large cylinders or tanks used
  - Type of treatment varied based on location and intended use
- Vacuum or pressure treatment
  - Added preservative chemicals
  - Draws the chemicals into the wood cells & fibers

Customers

- Railroads
  - Many treatment plants were located based on the growth of the Railroads
- Utility Industry
  - Electrical poles
- Marine
  - Retaining Walls – pilings & lumber
- Home /Building market
  - Foundation piling, Decks, Landscaping
- Mines

Customers

- Railroad Chronicle
  - 1838 Chestnut cross ties laid on the Northern Central Railroad of Maryland
  - 1840 Oak ties laid on the Chesapeake & Ohio Railroad
  - 1842 Oak ties laid on the B&O
  - 1849 NYC begins using treated ties
  - 1856 Vermont Central begins treating hemlock ties
  - 1861 Erie Railroad builds a treating plant
  - 1887 Southern Pacific Railway builds plant to treat Texas pine
  - 1904 Big Four (Cleveland, Cincinnati, Chicago & St. Louis Railroad) used ties treated with creosote
  - 1905 Delaware, Lackawanna & Western Railroad installed creosoted bridge ties
  - 1906 ATSF Railway erected a creosoting plant at Somerville, TX
  - 1907 Northern Pacific Railway erected plants at Brainerd, MN, and Paradise, MT

- Source: Handbook of Wood Preservation, American Wood Preserver’s Association, 1916
### Railroad Built Plants

- **1904**: Oregon-Washington Railroad & Navigation Company
  - Location: Wyeth, OR

- **1906**: Atchison, Topeka & Santa Fe Railway
  - Location: Somerville, TX

- **1907**: Northern Pacific Railway
  - Location: MN and MT

- **1907**: Chicago, Burlington & Quincy Railroad
  - Location: Galesburg, IL

- **1909**: Pennsylvania RR
  - Location: Mt. Union, PA

- **1909**: Union Pacific
  - Location: Topeka, KS

- **1910**: Buffalo, Rochester & Pittsburgh Railroad
  - Location: Bradford, PA

- **1912**: Philadelphia & Reading and Central Railroad of New Jersey
  - Location: Port Reading, NJ

- **1912**: Baltimore & Ohio Railroad
  - Location: Green Spring, WV

- **1912**: Atlantic Coast Line Railroad
  - Location: Gainesville, FL

- **1913**: Louisville & Nashville Railroad
  - Location: Guthrie, KY

- **1915**: Chicago & Northwestern Railway
  - Location: Riverton, WY

Source: Handbook of Wood Preservation, American Wood-Preserver’s Association, 1916

### Chemical Preservatives

- **Water-borne Preservatives**
  - Chromated copper arsenate (CCA) – green stuff
  - Copper compounds, fire retardants, etc

- **Oil-borne Preservatives**
  - Creosote
  - Pentachlorophenol
  - Linseed oil
  - Organic Solvents
    - White spirits

### Typical Applications

<table>
<thead>
<tr>
<th></th>
<th>CCA (light green)</th>
<th>Penta (light to medium brown color)</th>
<th>Creosote (dk brown or black)</th>
</tr>
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<tbody>
<tr>
<td><strong>Marine Installations</strong></td>
<td>✓</td>
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<td><strong>Utility Poles</strong></td>
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<td><strong>Timbers</strong></td>
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<tr>
<td><strong>Consumer</strong></td>
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<tr>
<td><strong>RR Ties</strong></td>
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</tbody>
</table>
Basic Components

- Wood yard
- Retort
- Storage Tanks
- Drip Track
- Rail sidings
- Drying areas

Typical On-Site Operations

1. Dry lumber placed into the cylinder
2. Initial vacuum pulled to remove air and open wood pores
3. Dilute treatment solution introduced and fills
4. Liquid is pumped into wood voids under pressure
5. Excess liquid is pumped out to storage tanks
6. Final vacuum to remove excess preservative

Koppers, Green Spring, WV
Modeling Ideas

- Size of layout available
  - Easily the largest modeled structure
  - Support Industries (electrical power generation, chemicals)
  - Yards and Trackage
- Operations have not changed much with time
Trackside Industries
Atlanta, GA
Creosoting Plant Kit $4.95
Modeling Resources

- Google Earth software
- Aerial photographs
  - Soil Conservation Service
  - DOT
- Historical library photographs
- Sanborn fire insurance maps
- Web photographs