MODELING THE CEMENT MILLS OF THE BANGOR & PORTLAND BRANCH
Background
Portland Cement Process
Traffic In and Out of the Mills
Modeling Examples
Resources
The Bangor & Portland Railway was formed to Tap the Growing Slate Industry
  - Portland Cement came later

Found in May, 1879
  - Extended to Nazareth in 1880 to access the burgeoning Portland Cement Industry
  - Completed the Branch to Martin Creek, PA and Martin’s Creek, NJ in 1885

The DL&W purchases the B&P on July 1, 1903
  - Becomes the Bangor & Portland Division
  - Fully merged into the Lackawanna on July 1, 1909
Cement Mills

- Alpha Cement
  - Martins Creek
- Hercules Cement
  - Stockertown
- Nazareth Cement
- Lone Star Cement
  - Nazareth
- Penn Dixie (aka Dexter) Cement
  - Plant #4 Nazareth
  - Plant #6 Bath
- Keystone Portland Cement
  - Bath

Map Lackawanna’s Bangor & Portland Branch
PORTLAND CEMENT PROCESS

1. Limestone, shale, silica, and iron oxides are quarried from the ground. (Some limestones already contain enough silica).
2. Rock materials are run through a crusher that turns rock into smaller pieces.
3. Crushed limestone + silica + shale + iron oxides are mixed together and run through a rotary kiln.
4. Rotary kiln continuously mixes ingredients and "calcines" limestone so that CO₂ is driven off, forming clinker.
5. Clinker is ground to fine powder and mixed with gypsum (helps moderate how fast the cement "sets"), then bagged for sale.

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FLOW THROUGH THE MILL
TRAFFIC IN AND OUT OF A MILL

- **Inbound Traffic**
  - Coal
  - Empty boxcars
  - Empty covered hoppers
  - Empty bulk cement container (bottle) cars

- **Outbound Traffic**
  - Empty coal hoppers
  - Full boxcars of bagged cement
  - Full Covered hoppers of bulk cement
  - Full bulk cement container (bottle cars)
CAR TYPES NEEDED

- Bulk Cement Contain Car (Bottle Car) Used Air Activated Bottles to contain Cement

- Covered Hoppers - ACF 1970 Cu Ft
  - DL&W, L&NE, LVRR, ...

- 40ft Boxcars
  - L&NE, DL&W, LVRR, PRR...

- Coal Hoppers
  - B&O, DL&W, Reading ...
Valuation Maps show track location in One Mile Segments

Train Sheets Contain details on:
- Number of trains and crews on duty for a given day or weekend
- Weather condition of a given day or weekend
- Number of loads and empties moved by trains
- Number of cars delivered and received by the customers served
- Number of cars handled per day or weekend

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FULL DISPATCHER’S SHEET
L&NE Railway  CNJ Alco RSD-4
1604 switches the Alpha Cement Mill on October 15, 1963

Alpha ceased cement production in 1968
MODELING ALPHA CEMENT

- Combination of Commercial Kits and Scratch Building
  - Walther’s Red Wing Milling kit used as based for the bag house
  - The power house and kiln where scratch built
VIEWS OF ALPHA CEMENT

L&NE at Alpha Cement

Alpha Yard
Walther’s Red Wing Mill cut down to two Stores

- Constructed a mold from a customer master for two window insert in each bays
- Structure painted Grey with a wash of burnt umber and grey to simulate aged concrete
Storage Silos built with 1½” PVC pipe cut on a power chop saw.

Back row of PVC pipe not needed because you can’t see it from the normal viewing point.
POWER HOUSE AND KILN

Scratch built styrene walls and cast resin with Grandt Line/Tichy Train Group casting
HERCULES CEMENT (BELFAST JCT)
DL&W H1644  #933 moves west through Belfast Jct as the Nazareth Drill on March 5, 1955. The Lackawanna interchanged with the Lehigh Valley here but did not service Hercules Cement.
Hercules Cement is off scene

- Belfast Jct is model and needed for operations
  - Crews would store empty hoppers on siding and use to fill empty requests at Nazareth, Lone Star and Penn Dixie #4 Mills
NAZARETH CEMENT
MODELING NAZARETH & LONE STAR CEMENT

- Nazareth Cement in Planning Stage
  - Will be a Shelf with a Stub end Spurs
  - Mill Building will be a Photo Backdrop of Building Flat
- Lone Star Cement is off scene
  - Car set out and picked up on two tracks representing the DL&W West Yard
LONE STAR & PENN DIXIE #4 MILLS

Dexter Portland Cement (Penn Dixie #4)

To Tadmor & Bath

Dexter Spur

Dexter Hill

Lone Star

DL&W West Yard

DL&W

L&NE

Joint Trk
EL’s Nazareth Drill works
Dexter Spur (Penn Dixie #4)
on October 14, 1962

Both the Lackawanna and
L&NE serviced the old
Dexter Portland Cement
Plant

Dexter Spur crosses the
L&NE at grade in the
foreground
Stock House modeled against Photo Backdrop of Storage Silos
  - Stock house is scratch built using black Gator Board

Hand Laid Track work used for Dexter Spur, Dexter Spur crossing, Dexter Hill crossing and DL&W West Yard
DEXTER SPUR WORK IN PROGRESS
June 29, 1964 and CNJ RSD-4 #1601 operating the L&NE Railway pulls through Dexter Hill interlocking.
KEYSTONE CEMENT

To Nazareth

To Bath
Upper deck would extend, back to front, over the lower level.
MODELING KEYSTONE CEMENT

Modeling work of Robert Stafford
Former Freight Agent on the B&P Branch during EL & Conrail
KEYSTONE MODEL COMPONENTS

Stock House: Walther’s Stock House kit
Scratch built using leftover window and door casting

Walther’s Red Wing Milling

Storage Silos: Two Walther’s Grain Elevator kits with scratch built roof

Modeling work of Robert Stafford
Former Freight Agent on the B&P Branch during EL & Conrail
RESOURCES

- DL&W 1918 Valuation Maps
  - DVD copies available from the ELHS: [http://www.erielackhs.org](http://www.erielackhs.org)

- Penn Pilot Photo Center
  - Areal photographs from various decades: [http://www.pennpilot.psu.edu/](http://www.pennpilot.psu.edu/)

- Dispatcher Train Sheets from the Bangor & Portland Branch

- Morning Sun Books
  - Trackside in the Pennsylvania Cement District by Mike Bednar & Ken Bealer

- Arcadia Publishing
  - The Lehigh Valley Cement Industry by Carol M. Front, Joan Minton Christopher & Martha Capwell Fox

  - Image editing and annotation software free for home use.