
Modeling the New Haven's
Electrification in HO Scale
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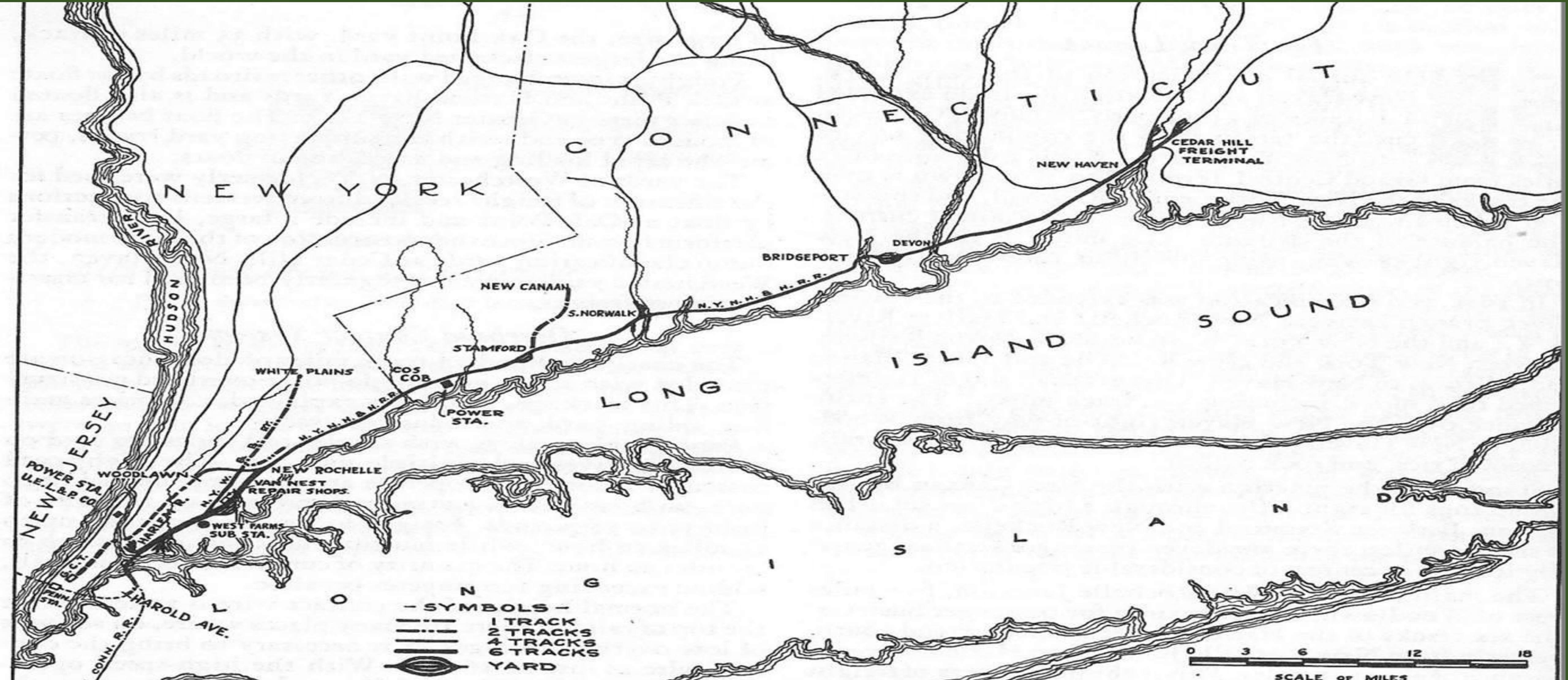
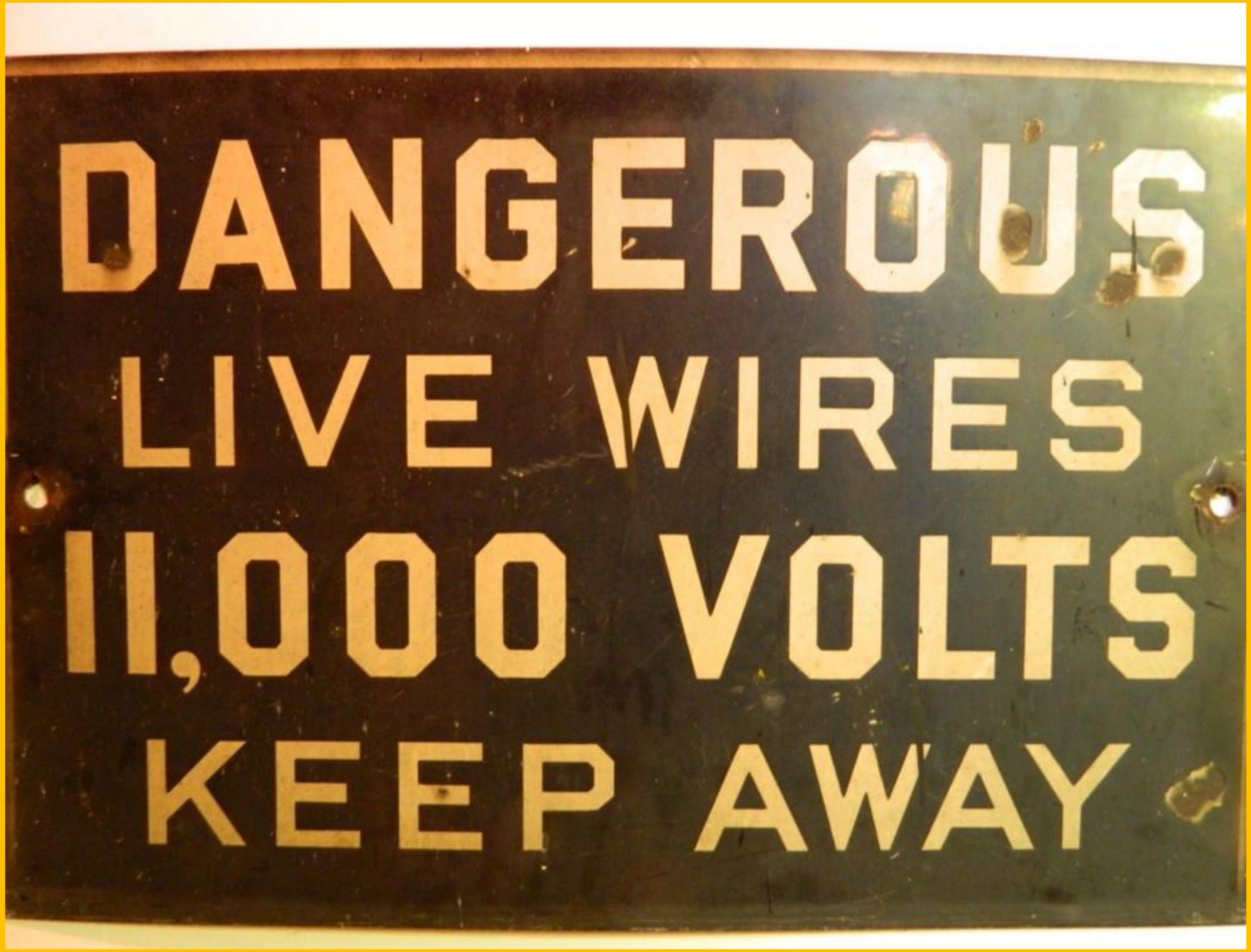
Where did the New Haven electrify and why?



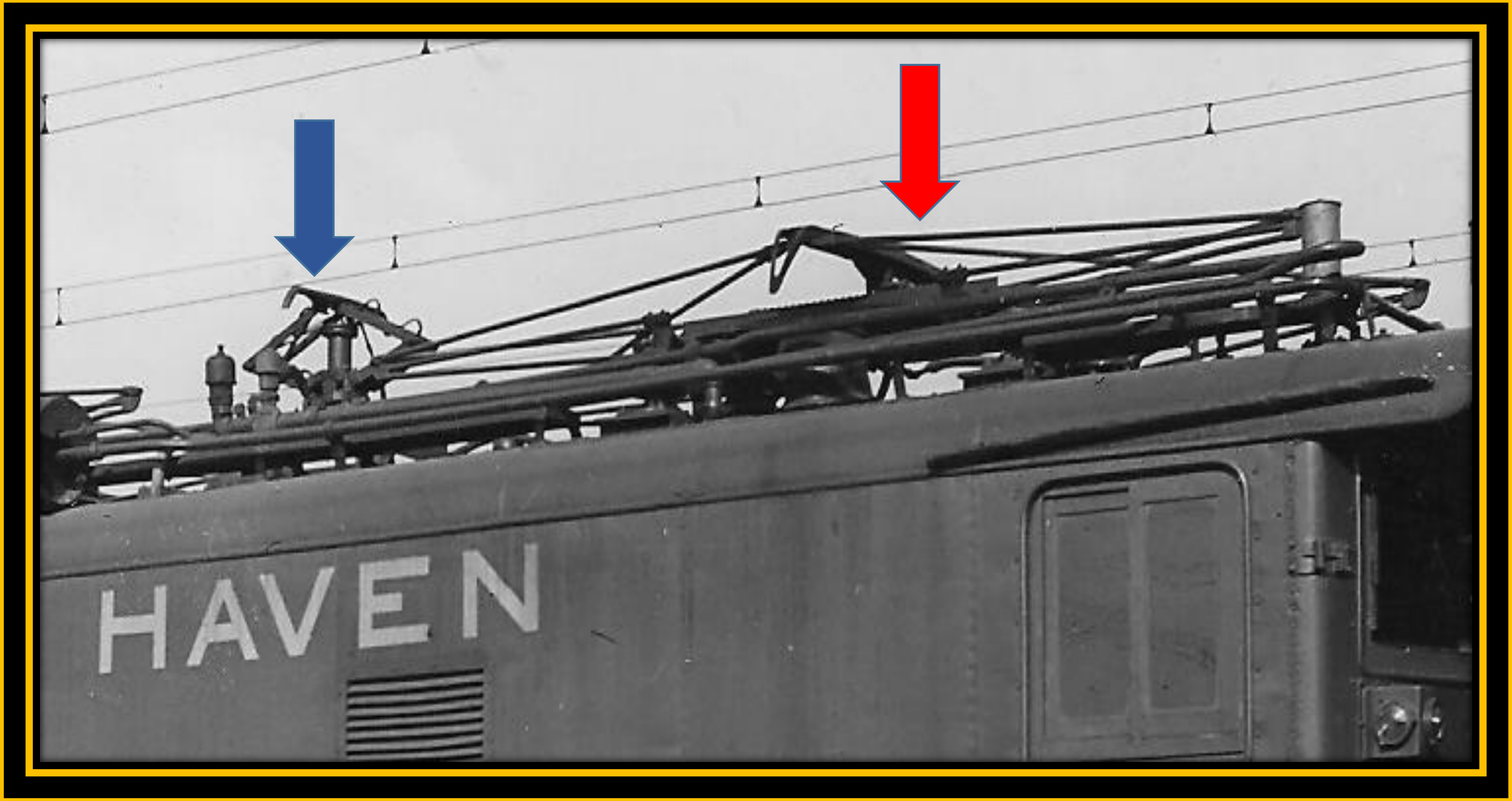
The main reason was an ordnance passed in 1902 in NYC prohibiting steam locomotives from operating in tunnels; this meant Penn Station and Grand Central Terminal.

Why did the New Haven decide on high-voltage AC?

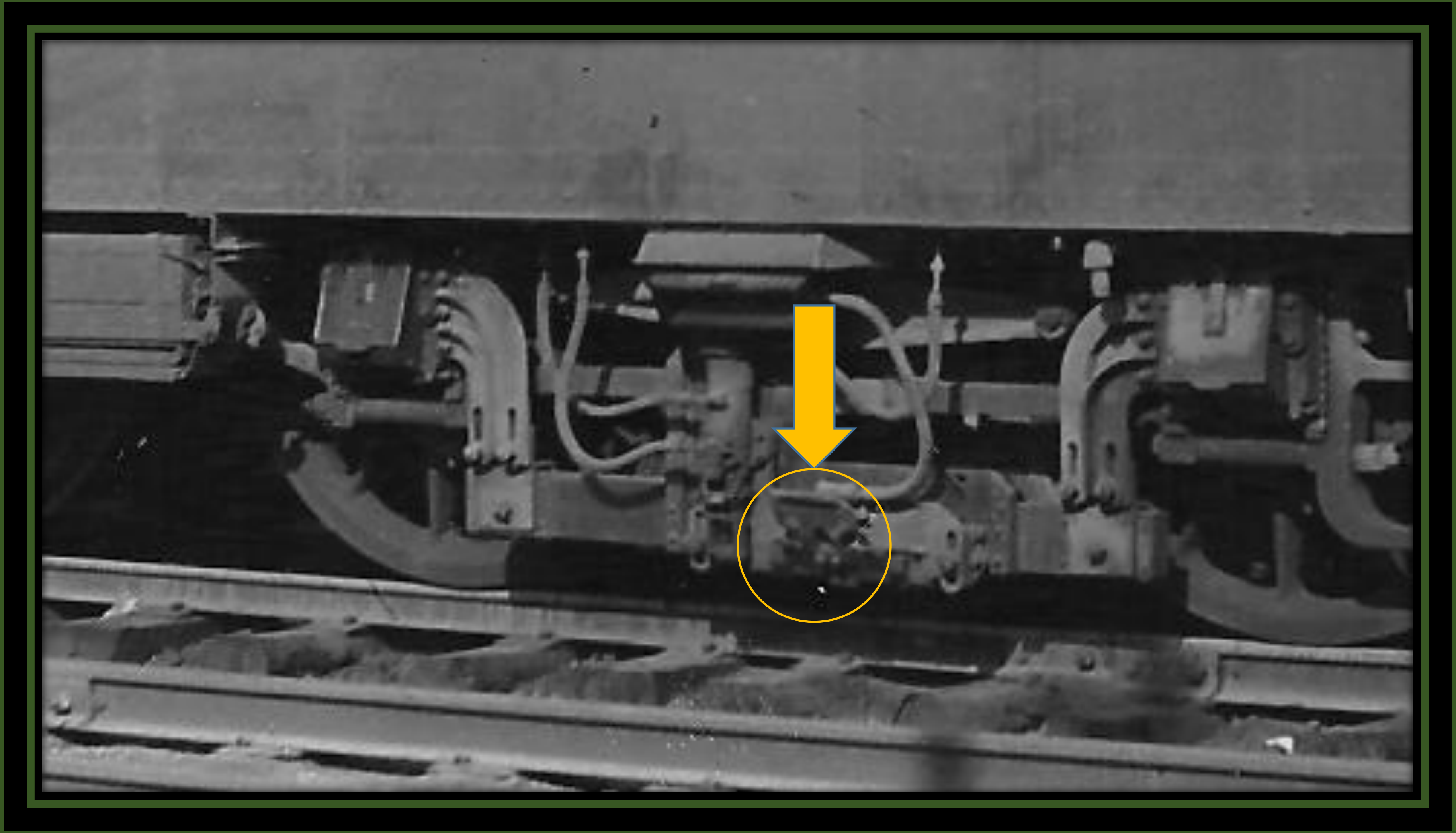


The New York Central decided on what was essentially a suburban electrification and opted for GE's preference of 600 volts DC 3rd rail. On the other hand, the New Haven opted for a main line, heavy electrification utilizing the high-voltage AC Westinghouse catenary system for both passenger and freight. DC has a short transmission range which resulted in voltage drops requiring numerous step-up sub-stations. AC has a very low voltage drop and can be transmitted over greater distances. The New Haven was THE pioneer in high-voltage AC electrification. Since the NH operated over 12 miles of NYC trackage between Woodlawn,NY and Grand Central, the NH motors had to deal with both 11000VAC overhead and 600VDC 3rd rail.

DC pantograph on a NH EP-1 for overhead 3rd rail in GCT and the *AC pantograph.*



3rd rail shoes on NH EP-1



The NH utilized 3 types of catenary systems;
The famous triangular system for the original electrification in 1907, the floating beam suspension in the 1914 installation from Glenbrook-New Haven and PRR style in 1927 on the Danbury Branch.

Triangular installation; Woodlawn,NY to Glenbrook,CT

Floating beams; Glenbrook, CT to New Haven, CT

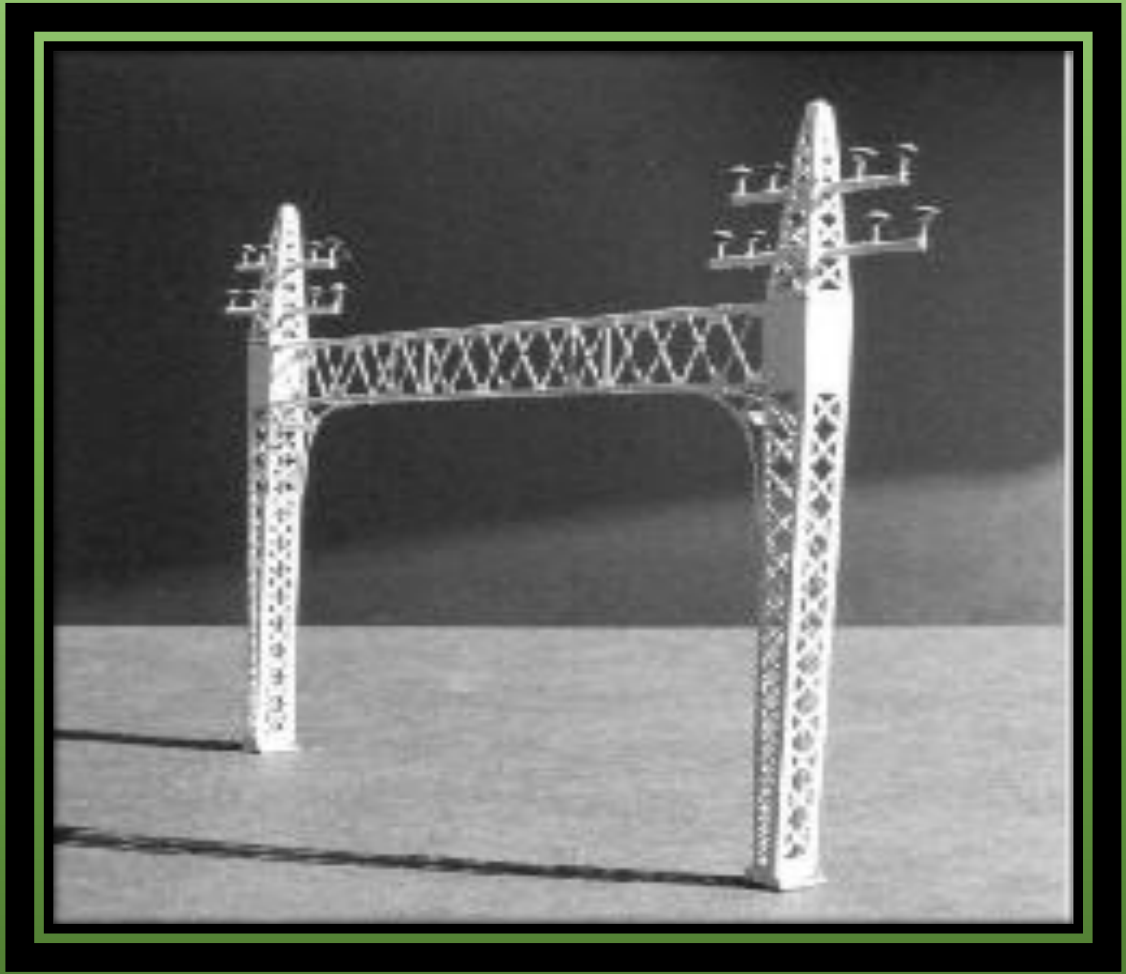
The section of the electric zone that I modeled is New Haven to Bridgeport. That meant, floating beams.

Needless to say, not a walk in the park; but easier than the triangular wire.

The areas to have wire on the layout would be the main, E. Bridgeport yard and various sidings.

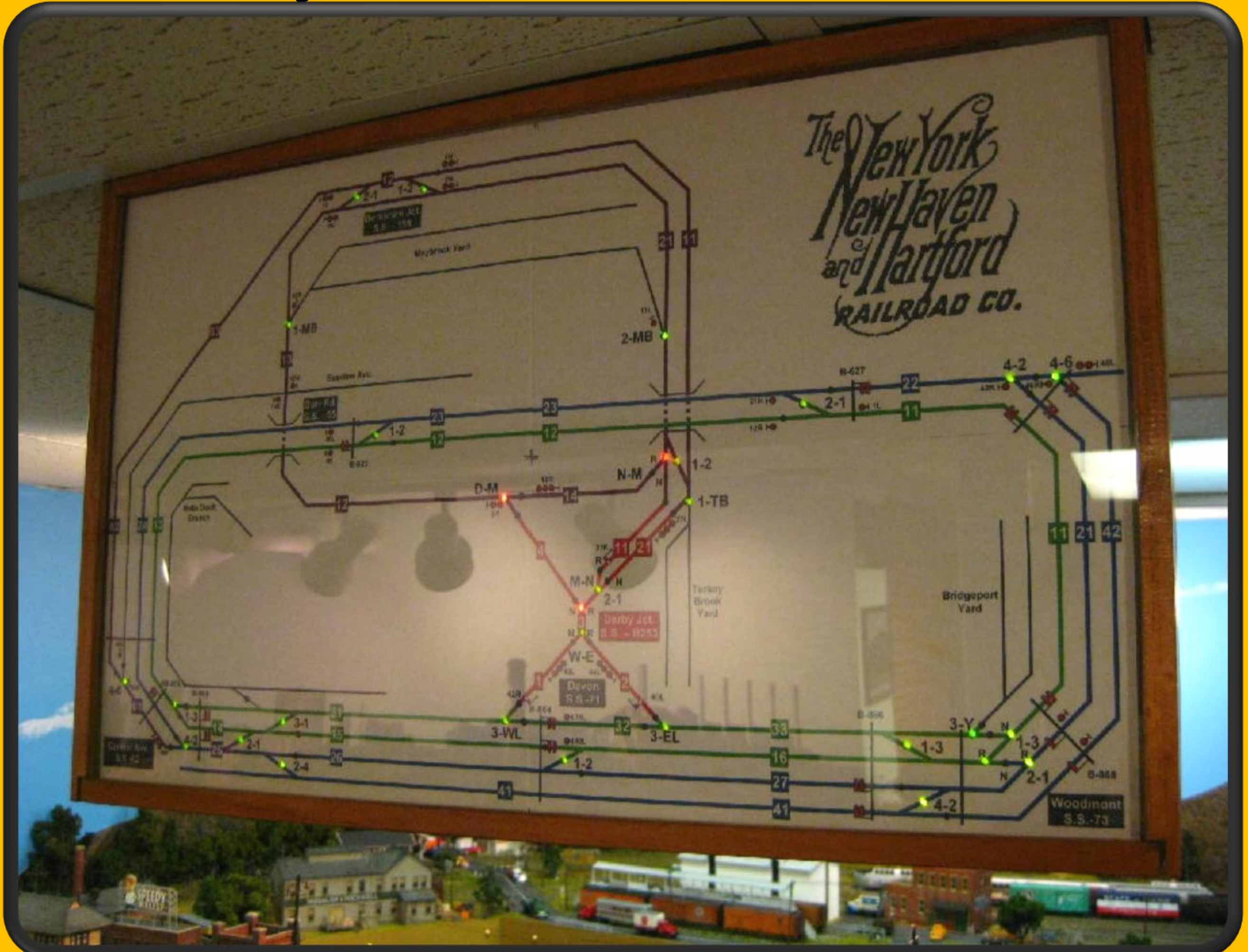
Catenary bridges and necessary wire would come from Model Memories

Model Memories brass catenary bridge.



One "small" detail. Before stringing wire. . .

Establish your track plan and add ballast first. You don't want ballast and ground foam in the wires. On the other hand, you don't want to string wire and then lay the track underneath it. . .



Basic tools needed to string the wires:

Solder

Soldering iron

Flux

Pliers

Wire cutters

Dremel tool

A Tylenol I-V pole

The proper positioning of the wire above the track while critical, does not have be centered on the pantograph shoe. . .

PRR MP54 in Wilmington, DE.

Learning to work around the wires can be dicey at times. . .

The New Haven didn’t want this. . .

. . . Or this!!

Just as much as I didn’t want this!!

Here are the floating beams as I re-created them in HO Scale


301
NEW HAVEN
301

What happens when you "complete" your railroad and then discover several years later you goofed!!

Do you correct it, or hope no one will notice it. . .including yourself?

Well, if you noticed you goofed, guess its safe to say you noticed it.

You then must determine what your pain-tolerance level is.

This was Jenkins Curve on my layout. Then, 18 years after I built it, I discovered Oh No!! I did it incorrectly.

One week before Christmas with obviously nothing to do, out came the tools of mass destruction.


NATIONAL

Before

After

But wait. . .there’s more! After re-doing Jenkins Curve, I then discovered I hung the catenary incorrectly.

So, out came the soldering iron, etc. I took down all the wire and hung it correctly; what a “treat” that was!

Since this would involve taking down the wires and erecting more catenary bridges,a heavy-duty torch was needed. .

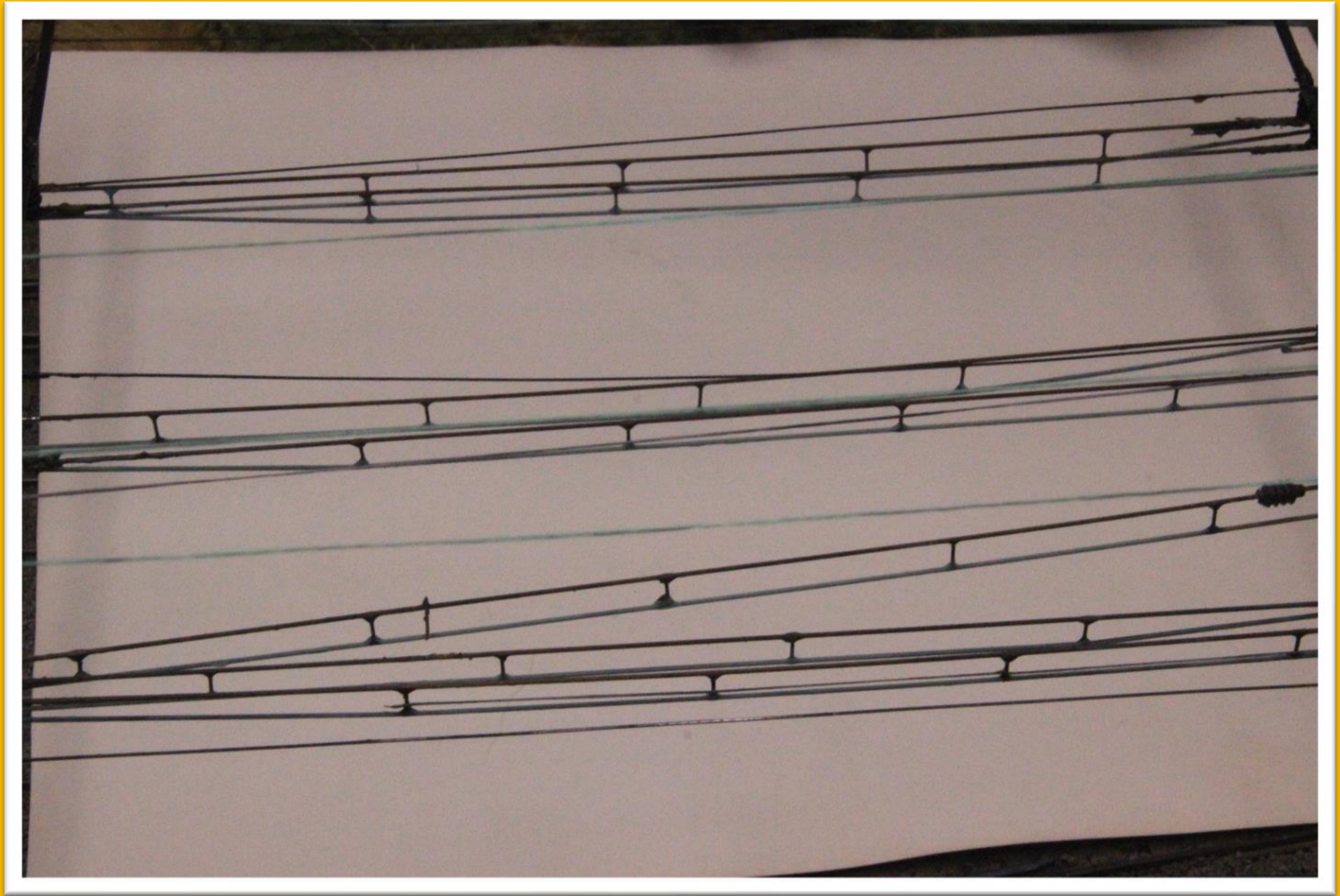
Wire hung incorrectly with floating beams.

NH EF-3b on Jenkins Curve, Bridgeport,CT. No floating beams on the curve.

Wire re-hung with add'l catenary bridges and no floating beams.

Putting up the wire with a phase break.
What is a phase break? On an electric RR its where two power feeds must be separated with an air gap.

Phase break hi-lighted for clarity. Note the air gap separating the parallel wires.



Phase break as it looks over the tracks. Note the floating beams.

Phase Break light at Devon, CT.

CL&P power feed tie in at Devon, CT

Anchor bridges

- *The anchor bridges were massive catenary bridges where the catenary was anchored to keep the tension in the wires.*
- *They also had numerous oil filled circuit breakers to sectionalize the wires for maintenance.*
- *The following photos are anchor bridges that I built for the layout;*

Anchor Bridge in 12"=1' scale; Greenwich, CT.

Anchor bridge at Devon

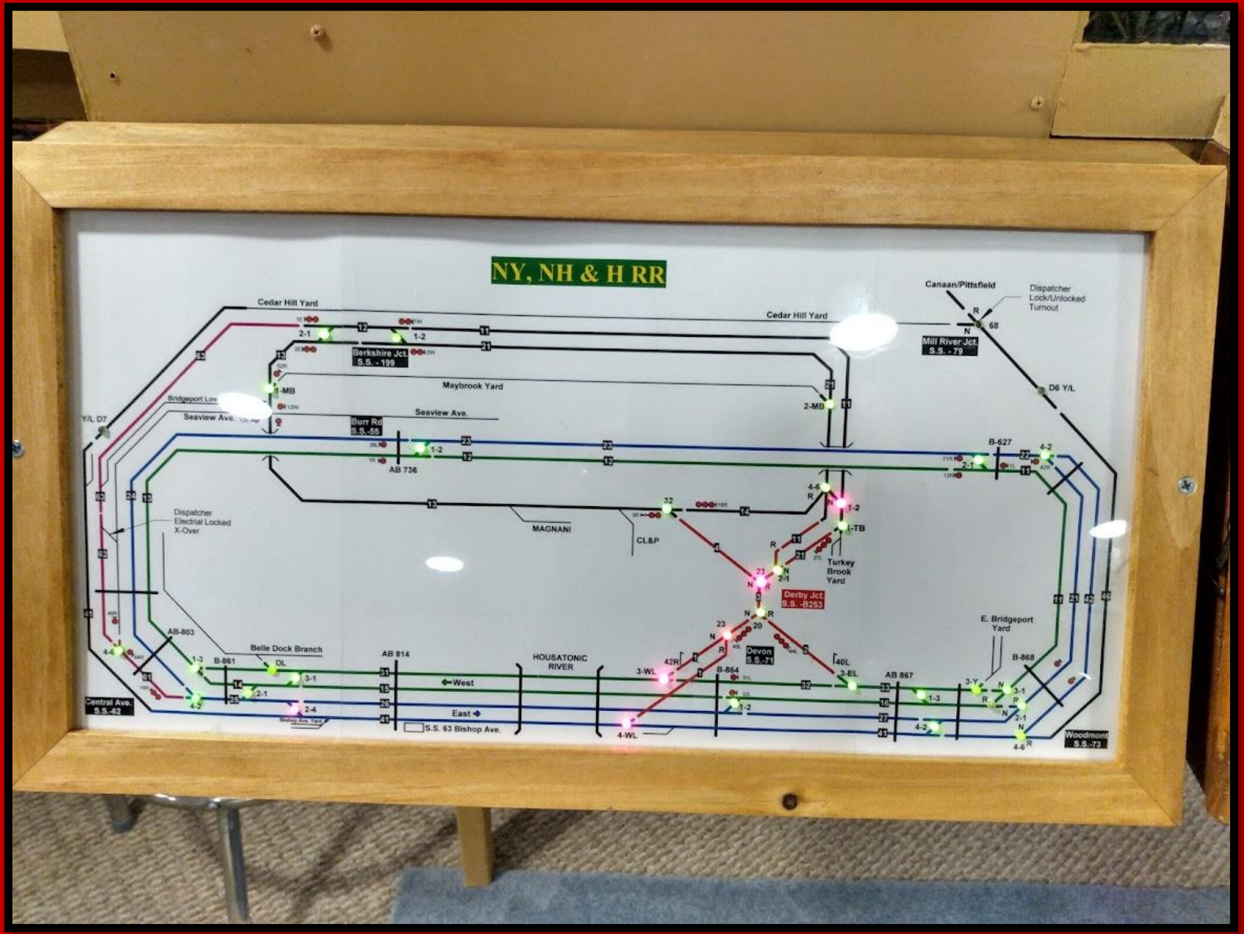
Anchor bridge at SS 55, Burr Rd.

Circuit breakers and bus wires.

Anchor bridge at Central Ave. (SS 62)

The main control panel

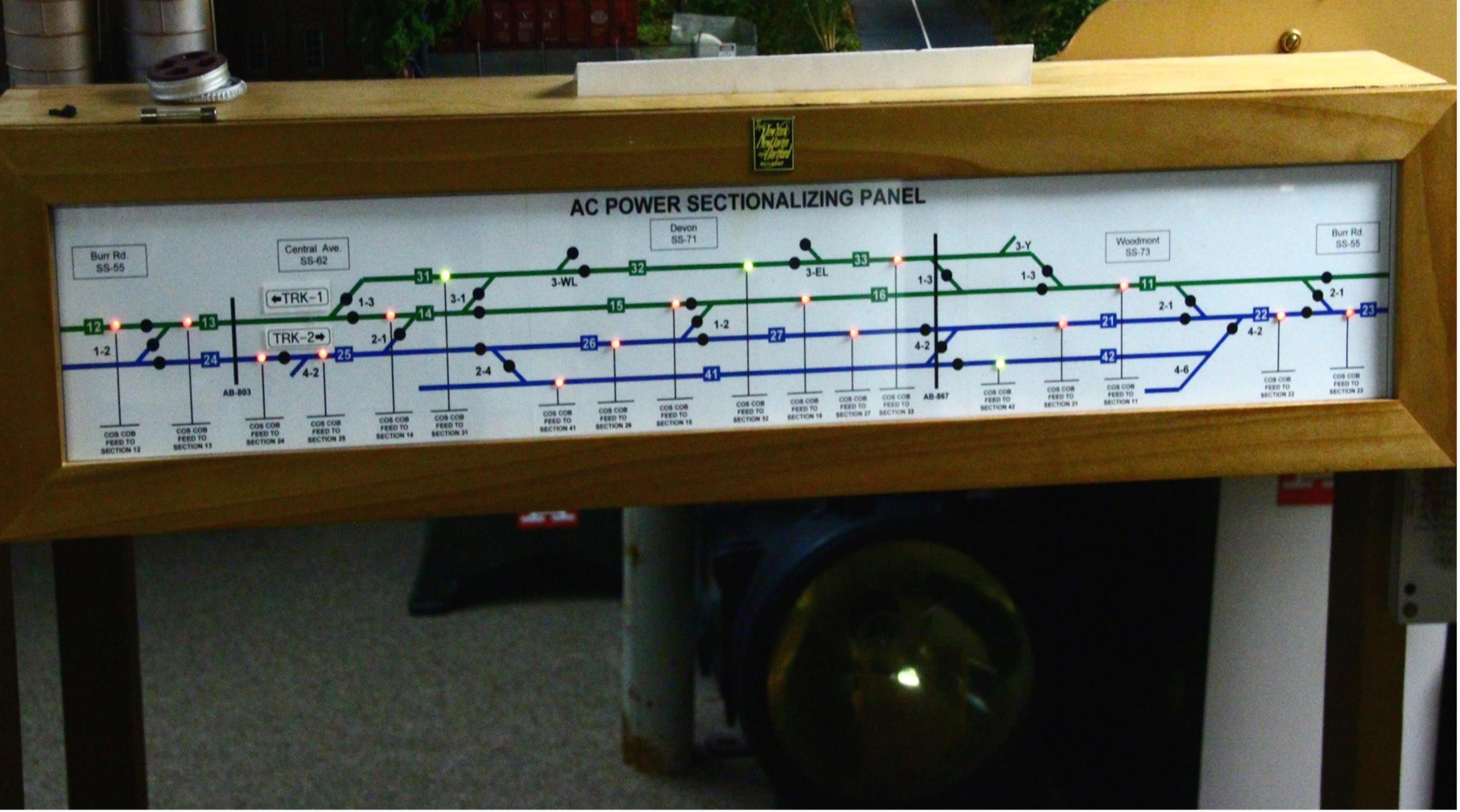
Model Board for the layout.



Indicating panel showing what mainline tracks are energized and de-energized.

RED indicates energized

GREEN indicates de-energized


AC POWER SECTIONALIZING PANEL
Burr Rd. SS-55
Central Ave. SS-62
Devon SS-71
Woodmont SS-73
Burr Rd. SS-55
←TRK-1
TRK-2→
AB-803
AB-867
COS COB FEED TO SECTION 12
COS COB FEED TO SECTION 13
COS COB FEED TO SECTION 24
COS COB FEED TO SECTION 25
COS COB FEED TO SECTION 14
COS COB FEED TO SECTION 31
COS COB FEED TO SECTION 41
COS COB FEED TO SECTION 26
COS COB FEED TO SECTION 15
COS COB FEED TO SECTION 32
COS COB FEED TO SECTION 16
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COS COB FEED TO SECTION 33
COS COB FEED TO SECTION 42
COS COB FEED TO SECTION 21
COS COB FEED TO SECTION 11
COS COB FEED TO SECTION 22
COS COB FEED TO SECTION 23

The wire train

The tower car


WT 48500
CH 9-54
T-13

Cable reel car

Live action on the New Haven in Bridgeport, CT


Swift's Premium

Action at S.S. 71, Devon, CT


71

EF-4s on Jenkins Curve; Bridgeport, CT ca 1966

Examples of HO Scale NY,NH&H motors.

Overland EY-2 switcher

Railworks EF-1

Custom Brass EF-2

Overland EF-3b

Railworks EP-2

Overland EP-3

Overland EP-5

EF-4s and FL9s pass at Devon.

Railroads that followed the New Haven’s lead in pioneering
AC 11,000 volt, 25 cycles.

BOSTON AND MAINE CORPORATION

GREAT NORTHERN RAILWAY

NORFOLK & WESTERN RAILWAY

PENNSYLVANIA RAILROAD

READING COMPANY

Reading Lines

VIRGINIAN RAILWAY

0908 - Virginian Logo w/Stripes

THE END; THANK YOU!