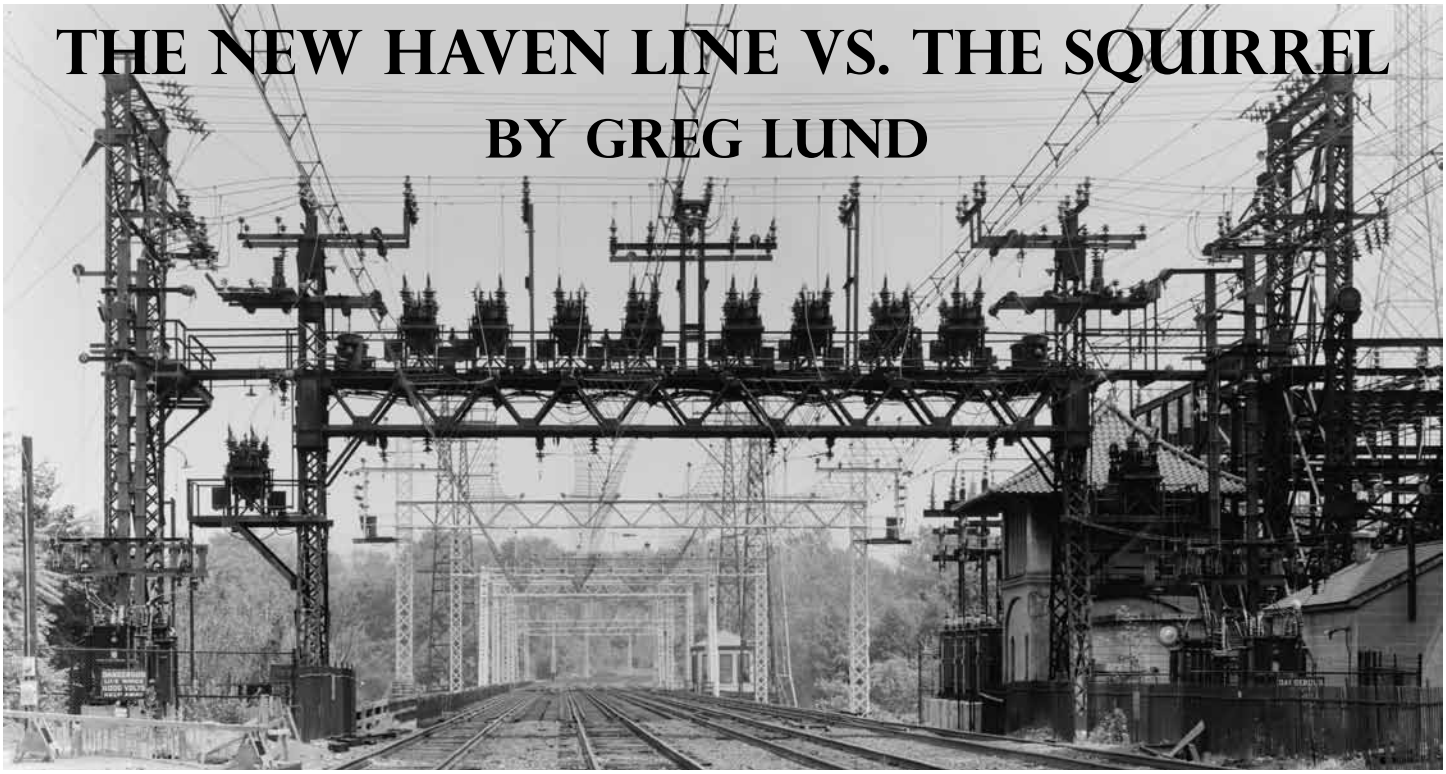
THE NEW HAVEN LINE VS. THE SQUIRREL

BY GREG LUND



An eastbound view down the New Haven RR main at the ancient Cos Cob, Connecticut power substation. Photo by Thomas Brown from the Library of Congress Prints & Photographs Collection, HAER CONN,1-STAMF, 2--21.

In Issue #166, former train dispatcher Greg Lund shared a story of setting up a race between Amtrak's Lake Shore Limited and the Empire State Xpress Roadrailer on Conrail's Hudson Line. Greg also dispatched the Harlem and New Haven sides in the early 1980's, out of the Madison Avenue office in New York. The once modern electric traction system installed by the New Haven Railroad at the beginning of the 20th century was beginning to show its age, after being handed off to Penn Central, Conrail, and finally Metro-North Commuter Railroad in 1983. Power problems regularly caused delays to passenger trains, and as Greg relates to us in this edition, something as small as a squirrel could bring rush hour to a grinding halt.

Up until about 1987, the New Haven Line was overhead catenary single, phase 11,000 Volt/25 Hz electrification. Until its conversion to a more modern setup, the system had been in use for almost a century, including the substations and load dispatchers at West Farms (near Oak Point, NY on the Hell Gate Line) and Cos Cob, CT. West Farms was notable, as it was an external supply point with Con Ed supplying the additional power that was needed as the trains, and thus the motors and loading on the wires, became heavier.

The catenary replacement project on the New Haven was complete when this photo at Rye, NY was taken in 2003.

At times, these substations would have troubles which would affect operations, most often when electric power was in peak demand in the summertime. Radio traffic such as "Woodlawn Tower to all New Haven Line trains: P2, P2 is in effect on the New Haven, P2, and key off on temperature control," would then be heard. This meant that New Haven Line trains could only use a maximum notch of "P2" (Power Notch 2, of which there are four on the M2/M4 cars that were in service) and turn off any temperature control for the cars, such as air conditioning or heat. It made for a miserable rush hour for railroaders and passengers alike.

Well, West Farms Substation had troubles one day, trouble that was kind of unbelievable. It seems that some critters had made homes inside the substation; perhaps they were urban squirrels, perhaps they were squirrel electricians, I don't know, but they caused quite the commotion on the New Haven Line that evening. Ever see a squirrel or a bird on a high tension power line and wonder how they don't get electrocuted? I wondered the same thing, but it was explained to me that as long as they don't ground themselves to anything, they're OK. The trouble comes with higher voltages and AC power where there are fields surrounding the wires and connections.

Well, old Rocket J. Squirrel (minus Bullwinkle) managed to ground himself in amongst the many transformers and electrical connections at West Farms during a peak time in rush hour, knocking out the entire substation (and Con Ed's contribution of electrical power) in the process. This in turn caused overload situations at the other substations, and as each one started to shut down, it created an increasing overload on the ones still online,

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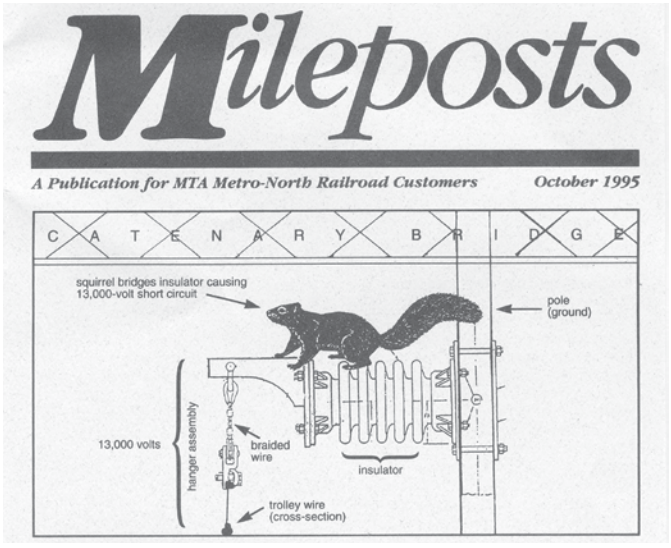
until they too shut down. The trains soon came to a stop on the 70+ miles of the New Haven Line between the junction with the Harlem Line at Woodlawn, NY and New Haven, CT, and the signals died or went to poorly maintained battery backup.

Ordinarily, this isn't a huge problem as some circuits/lines get de-energized for maintenance all the time, but when they *all* go down at once trying to bring them back online is a form of organized chaos that is better not to be experienced. Remember that we were dealing with old equipment, and some portions hadn't *ever* been de-energized completely since the New Haven started the electrification. There was no backup system; only a plan to use diesels in place of electrics should it ever happen.

There was no electricity to power moves in Motor Storage in New Haven, no electric to power the yard at Stamford, CT (Cherry Street), no power for the Amtrak Hell Gate Line from Penn Station to New Rochelle, NY (and lead us not into Penn Station....) and no signal power to move switches and signals. Towermen were literally in the dark. This went on for about two hours: that was two hours of high tension in the dispatchers office, two hours of "what the hell happened and what do we do," stranded trains, no crews (because they're on those now stopped trains), two hours of HELL. All because of a squirrel.

I was working another desk (A-Desk) that day, thankfully, but there were residual effects on my territory, as I controlled to Woodlawn where the New Haven Line started and what to do with trains from Grand Central Terminal enroute to the NH side was an issue. The Vice President of Operations (Nelson) would eventually demand to see evidence of the miscreant who shut down the entire New Haven Line rush hour, and he had the charred remains of a squirrel on his desk the next morning.



The Adventures of the Flying Squirrel

or "Giving Credit Where Credit is Due"

By David Hamilton

The adventures of the squirrels on the New Haven Line have always been an ongoing problem for Metro-North, with the animal even making an appearance on the cover of the railroad's customer newsletter. The October 1995 issue of *Mileposts* featured an article that placed the blame on squirrels as a cause of major service disruptions.

As explained by the railroad, a squirrel taking a shortcut across the catenary wire is large enough to bridge the gap between the live wire and the pole, over a section that is normally protected by an insulator. Unfortunately for the squirrels, the short circuit that they create is comparatively small in railroad terms, and local circuit breakers are not set to trip at that level (a breaker with that amount of sensitivity would be tripped by the power surge from an accelerating train). The result is one cooked squirrel, and a damaged catenary wire, which in turn causes a power outage.

Metro-North's electric traction department developed a solution to this particular aspect of the squirrel problem, by replacing a braided wire section of the hanger with a solid piece of steel. The difference in conductivity was expected to create a larger power surge during a rodent intrusion, and trip the breaker before the animal could create a short circuit. Certainly a better situation for the squirrel, and for commuters on the New Haven Line.

The article also noted that efforts were then underway to replace the old New Haven Railroad catenary system with a more modern constant tension arrangement. The conversion of the section of the line in New York State had been completed in 1993, and plans were underway to make the change in Connecticut. The remainder of the project was finished by the end of the decade, with the classic three-wire catenary (pictured at the top of the facing page) giving way to a two-wire line. During the same period, the long-time New Haven Railroad goal of extending electrification to Boston was realized by Amtrak.

Squirrels still roam the length of the Northeast Corridor, and occasionally wreak a little havoc on the electric traction system, but fortunately there are now fewer days where they cause the train dispatcher's blood pressure to rise.