MLS MasterClass - 2002

Build a 2-6-6T / 0-6-6T Mason Bogie
An Adventure in 1:20.3

By David Fletcher

Chapter 5 - Tender Benders

Background

This is the final sub-assembly chapter. At the conclusion of this chapter, you'll have all the main assemblies of the Mason Bogie built - effectively a whole loco, without valve gear and pipe work. This is also the final chapter in which you can build Mason components without actually having the BBT chassis on hand. From Chapter 6 onward, you will need to have the BBT chassis to complete the model. Hopefully shortly after this chapter is on-line, we'll start to see the BBT chassis distributed. When you receive your chassis, you can immediately install the assemblies from Chapter 2 through to Chapter 5, and enjoy the instant transformation from metal chassis to a completed Mason form.

Background: - This month, Steve Conkle, long time MasterClass member, model maker and supporter, has provided a unique insight into the history of the Boston Revere, Beach and Lynn RR, an interurban line from Massachusetts that owned the single largest collection of Mason Bogies. These bogies were dramatically different from the Masons of the South Park, but were thoroughbreds throughout, and-

represent the ultimate development of the Mason Bogie concept. The Bogie roster was widely varied in types, sizes, and wheel arrangements, and offers much scope to the Bogie model builder. After completing your South Park 2-6-6Ts, or similar locos, do consider reviewing this chapter, and think about building an early 0-4-4T Mason, or a high wheeler, 2-4-6 or 2-4-4T. This article is top notch, and we are most thankful to Steve for his in depth research in bringing the story of the BRB&L RR to us.

Steve will also be building a BRB&L Mason after his South Park 2-6-6T is complete. For this reason, Steve and I have developed a set of CAD drawings of BRB&L #4, a 2-4-6T that shares the majority of its components with that of the Heavy South Park 2-6-6T. All the major assemblies are the same as the Heavy 2-6-6T, but the boiler rides higher, atop the large two-axle chassis with 48" drivers. This loco is gorgeous!

For those interested in the Conkle/Fletch BRB&L 2-4-6T, refer to the PDF links later in this intro.

Construction: - This month we build the tender tank, hungry boards and tender details. We also build that classic under slung firebox unit, with bracing members to complete the sub floor structure of the Mason.

The Mason Bogie Archive

Keep reviewing the Mason Bogie Archive.

http://www.ironhorse129.com/

The site is constantly being updated as more photos of Masons come in. Keep searching your books, old photos and magazines, and send us any Mason Bogie photos you might find that don't appear to be in the current archive. Also send us pictures if your images are clearer than the many we have in the current archive. E-mail the images as a jpg scan; 300 bit-per-inch images preferred.

We deliberately withheld the photographs of the BRB&L Masons, until Steve's story went on line with this chapter. Should any of you find photos of BRB&L Masons not shown in this chapter, please do send them in to Tom Farin for the archive.

The Mason Bogie and Mason Era Paint Scheme Archive

Now a permanently part of this class is our historical paint scheme archive. These colour schemes have been worked up by Jim Wilke, a professional railroad historian. We are honoured to have Jim's support and advice in this project. The colour schemes generally fall into two categories:

1. Mason schemes - Those historically used by William Mason at different periods, and his philosophy of elegance through the use of a limited pallet, including a base colour that it is used throughout the loco.
2. Period Schemes - Those used by William Mason and other builder's during the 1870s period, but not necessarily used on Mason Bogies.

Please keep referring to the colour web site for up-dates:

http://www.frontiernet.net/~scottychaos/ON_LINE/

This site has been generously created, supported and updated by Scot Lawrence, with web space provided by Tom Farin.

The MasterClass Forum

Please direct your discoveries, discussions and questions to our MasterClass and Articles forum at myLargescale.com.

http://www.mylargescale.com/forum/forum.asp?FORUM_ID=46

Updated Mason PDF Options Drawings

OK time for an update! Way way way back in Chapter 1 of this MasterClass, there were six popular Mason Bogie options to choose from, with links to a collections of PDF drawings that allowed you to down load the side view of these Mason Bogie drawings at full size for a 1:20.3 model. The drawings were good and well proportioned, but did not contain the fine detail that has since been revealed within the chapters that followed. Here at the end of Chapter 5, the whole Mason superstructure is now fully detailed through the 5 chapters. I decided to take all the elemental PDF drawings done through the chapters and insert those details back into the Chapter 1 side view drawings. What has emerged are highly detailed Mason Bogie drawings that serve as an update of where you model has come from and where it is going.

So at this time, please take down your chapter 1 side views and put them away. They have served you well up to now, but it's time for you to down load your Mason options again, and stick the new side view on your wall! Also, as this Masterclass has shown time and again, this thing has the tendency to grow....really grow! What was formerly 6 options, are now many more!

Download your Mason Options update now, Click on the relevant link:

Option1 - 1878 DSP&P, 'As Photographed' 2-6-6T at the Mason plant - Short Tender only

Option 2A & 2B - 1878 DSP&P 'As Built' and delivered 2-6-6T - Long and Short Tender options

Option 3 - 1883-1885 DSP&P 2-6-6T #8 and #44, arched windows and air brakes, Congdon Stacks

Option 4A, 4B - 1883-1885 DSP&P 2-6-6T, Long and Short Tenders, Congdon Stacks

Option 4C - 1886-1889 DSP&P 2-6-6T #42 with Diamond Stack

Option 5 - 1877 NPC 0-6-6T Bully Boy, 'As Built'

Option 6 - 1880s NPC 0-6-6T Bully Boy, Modified

Option 7 - 1878 Version AA Denny, 0-6-4T (Originally 0-4-4T built 1875)

Option 8 - 1880 DSP&P 'As Built' Big 2-8-6T

Option 9 - 1874 NPC 0-4-4T 'San Rafael'. (developed with Tom Farin)

Option 10 - 1875 Peach Bottom #3 0-6-6T 'As Built'

Option 11 - 1875 Mason Works Sample 'Taunton' 0-6-4T 'As Built'

Option 12 - BRB&L #4 2-4-6T 'As Delivered' (developed with Steve Conkle)

Option 13 - U I & E RR, 1875 0-6-6T 'Leviathan' as built./ also good for New Bedford 0-6-6T 'WM Mason' (developed with Scot Lawrence, kit bash of MC2002)

Please Note these Cad drawings were developed from the details in the MC2002 chapters. The details were developed from the 1:8 scale reconstructed engineering drawings by Art Wallace in 1985. These drawings are dedicated to the DSP&P light and heavy 2-6-6T only. As such, the DSP&P drawn options above are the most accurate. All other options are developed from photos and using the Mason technology in Art's drawings. Also all 6 wheel versions are based on the BBT nom. 36" driver size. This makes the wheel size a tad small for the DSP&P Masons, and a tad large for the AA Denny, Taunton and the Peach Bottom #3. The BBT wheel sits snug in the middle of the Mason wheel sizes. The non South Park Mason drawings are developed to create the correct look of the prototype in the model, but could not be considered 100% accurate. Close, but not 100%.

We will most probably update the drawing set again at the conclusion of this adventure.

The Ghosts of Mason Bogies Past, Present & Future

The first MasterClass Master takes a look at building the Bogie locos of Robert Fairlie BY Chris Walas

The Mason Bogie is the American development of the double-ended Bogie locos originally designed and patented by Robert Fairlie in the 1860s. Please refer back to MasterClass 2002, Chapter 1 for some background on Robert Fairlie.

Chris Walas recommended we look at building the Mason bogie as the prototype loco for MC2002, and the overwhelming response from so many model builders suggested the Mason was the perfect selection for MC2002- the rest is history.

No one was more enthusiastic about building the Mason than Chris, but his fortunes lay else where for a time, while recovering from a bad thumb and shoulder injury that virtually excluded Chris from building any models. But that just wasn't going to stop him! NO WAY! Instead, Chris has focused on writing a background chapter for MC2002, dedicated to Robert Fairlie, and has experimented in building Fairlie inspired locomotives, using a variety of cheap, easy to obtain chassis elements.

Fairlie Locomotives By Chris Walas - A Bit of Fun
THE PALINDROME:

The PALINDROME began, of all things, as a hopeful Mason Bogie! Somewhere during the MasterClass 2001, I e-mailed Fletch about his original Mason Bogie built on a Lionel 0-6-0 chassis. I'd had an internet download photo of that engine on my bulletin board for quite some time and it had been a hope that someday I could build one for myself. Armed with the knowledge and confidence imparted to me by the MasterClass, I questioned Fletch about the Lionel chassis. He told me that it wasn't really the right size and that there were a couple of things to be done to them to make them run better. I casually mentioned that there was a difference between the two 0-6-0's I had. TWO! Fletch immediately suggested an articulated and e-mailed me a photo of William Mason's JANUS. Now, I had been a fan of this engine for quite some time, but the thought of building it had previously been too intimidating. Well, a little looking and fiddling revealed that the Lionel chassis were just too darn small.

But the seed had been planted and there was no stopping me. I was going to have my version of the Janus no matter what! I immediately attacked an innocent pair of Bachmann ten-wheelers as set to the job at hand. I had to make allowances for my version being narrow gauge and that my approach was one of "make do with what's on hand" and also that it would be longer than it should be (I wasn't about to shorten the chassis). A pair of New Bright tenders were sacrificed for the tanks, and domes, pilots, and bells were also appropriated from battery locos. A lot of it was scratc-hbuilt and I had to do a "Rogue County arched roof" for the cab. They're a pain in the butt to do, but I love the look. It was a rush job and there are a lot of fairly obvious irregularities and non-prototypical qualities, but the PALINDROME was the first engine I made that really came out pretty much the way I wanted it to. Decals from my friend Stan Cedarleaf really completed the picture. I have to say that of all the locomotive models I've built so far, The PALINDROME is my favorite.

The name PALINDROME comes from an old Monty Python skit about "the Norwegian Blue" parrot. I'd never heard the word Palindrome before. It means, "something reading the same backwards or forwards". So began my infatuation and obsession with the Fairlie engine design!

LEFTY:

LEFTY is my second attempt at a Fairlie double-ended engine. I had become obsessed with double-enders and wanted to do another. The idea with LEFTY was to try and imagine what might have come out of a locomotive builder like H.K. Porter if the Fairlie design had taken root in the States. Porter built all sorts and sizes of engines, but specialized in smaller industrial types. I took the approach of the Pechot-Bourdon double-enders and built only one, central, steam dome.

At the time, the only motor blocks I had on hand were some old REA Rogers units. I had originally conceived of LEFTY as an 0-4+4-0, but I was intent on using stuff I already had. So, LEFTY became a 2-2+2-2! There was a considerable amount of work in chopping down the motor blocks and building the new chassis, but most of the work was in the cylinders! As I was using what was on hand, I reworked four Scientific Toys Mogul cylinders. This was a lot more work than it might seem. I had to shorten the length overall and cant the steam chests for that Porter inclined look. The hardest part was adding a working piston rod! As purchased, these units have no piston rod and for good reason, the interior of the cylinder is almost solid plastic!

The name LEFTY comes from the fact that this model was built at a time that I was going through some severe shoulder problems and had to do most of the work left-handed. This was challenging all right, but not as bad as I'd thought!

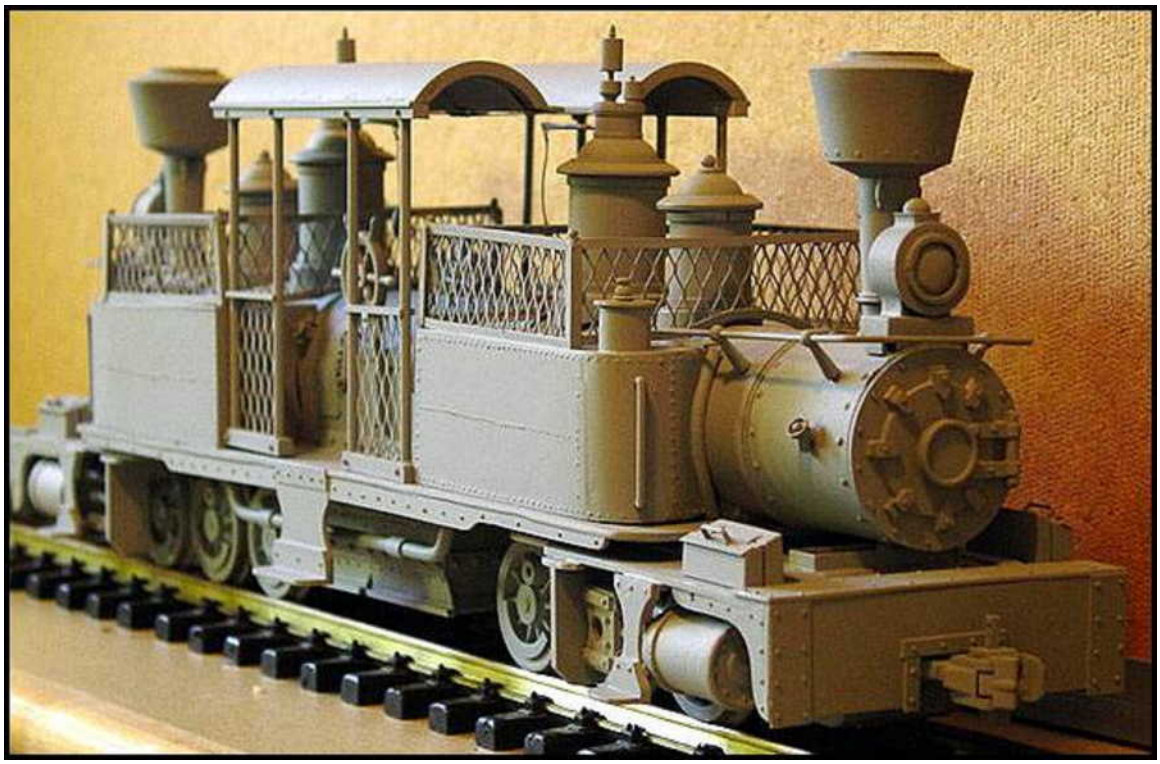
In the end, I think I wound up with a fair and even passable concept for a Porter-Fairlie. She runs well, but her two single axle drives are prone to slipping with a heavy load. Maybe I'll fix that…on the next one.

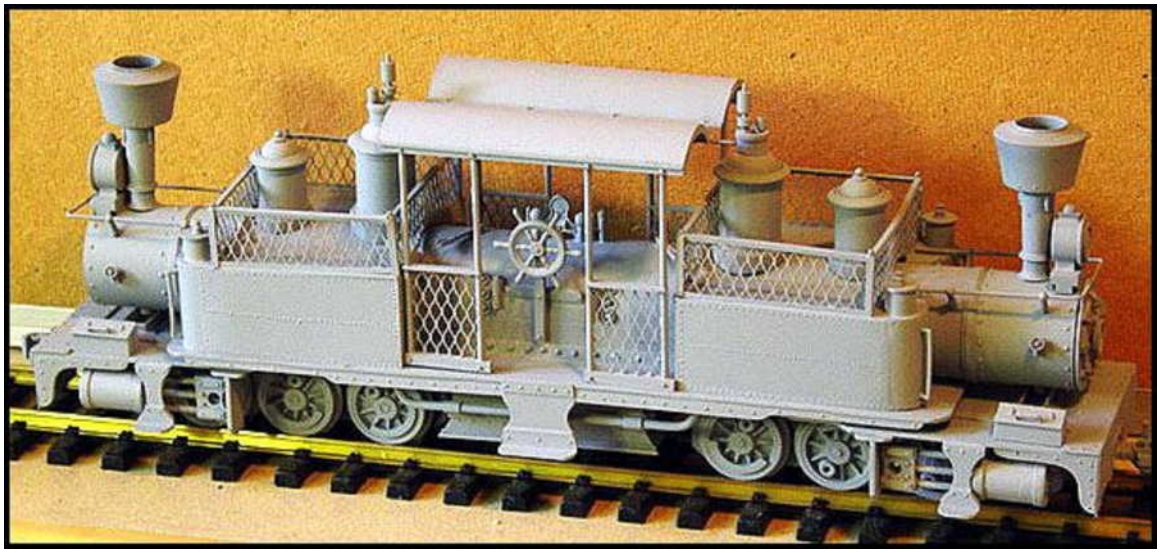
ANNA:

Oh, and those two Lionel chassis? They kept nagging at me, but I just couldn't find the right project for them. I finally found something to do with them!

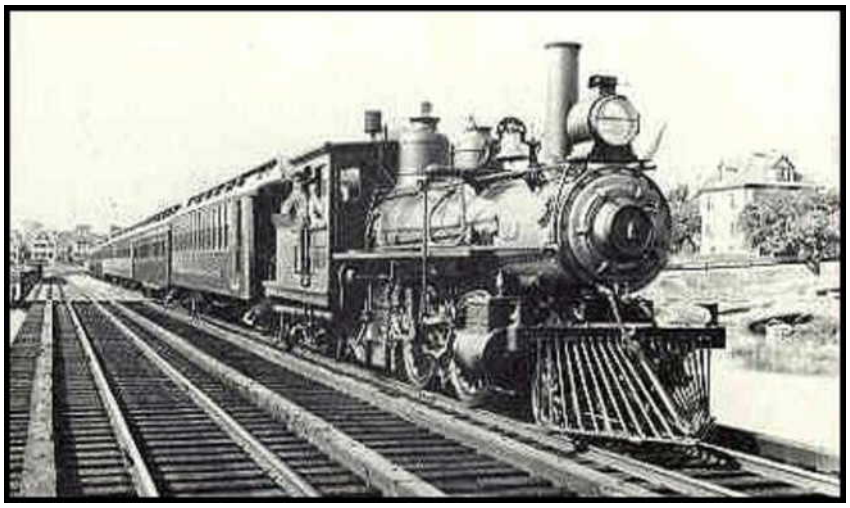
ANNA is Rogue County's excursion engine and is patterned after some of the South American Fairlies with their open cabs and latticework. After all, if I'm going to keep building Fairlies, I may as well try and get a few different looks! My daughter Dana calls it the "Picnic Engine".

Anna is built and painted in the typical joyful looks of a Fairlie loco, but there is something to enjoy just seeing the Fairlie in the basic gray primer coat. Looking like a Fairlie painted up in preparation for her builder's photo in builder's gray, here is Anna ready for the paint shops.





I love these Fairlie models. I love the way they snake through the curves. I like having the pulling power of two engines in one. I like the built-in whimsy of the symmetrical look. I like the fact that they're just an oddball prototype. Hmmm, I wonder what a Baldwin-Fairlie would look like?



Background: "The Coffee Roasters" of New England

OR

The Mason Bogies of The Boston, Revere Beach & Lynn Railroad

By Steven Conkle

The Boston, Revere Beach & Lynn Railroad officially started life on May 23, 1874, with the granting of its corporate charter by the Commonwealth of Massachusetts. Alpheus B. Blake of Hyde Park was named as its president and John G Webster of Boston its treasurer.

The life of this three-foot-gauge New England railroad, or simply the "Narrow Gauge" as the BRB&L patronage affectionately referred to the railroad, was destined to span 66 years, ending when the line was finally abandoned on January 27, 1940.

One of the many unique characteristics of the BRB&L was that, very early on, management decided to standardize the railroad's motive power on one locomotive type, the "Mason Bogie." Because of this choice the BRB&L was destined to become the single largest user of this locomotive type in the United States, owning and operating no less than 32 Bogies from 1874 until 1928, when steam reigned supreme.

Another uniqueness surrounding the BRB&L, as a consequence the circumstances of its demise, was that when final approval for abandonment of the railroad was granted, all of the BRB&L Railroad company records were ordered burned by the Federal Court in 1940. So, unlike many other railroads, whose records have survived many mergers and are still at hand today, very little remains to document the existence of the BRB&L.

In the origins of a railroad, as with most things in life, many seemingly unrelated events must take place in the right sequence and time frame for an opportunity to present itself. So it was with the events leading up to the existence of the Boston, Revere Beach & Lynn Railroad.

Wars of One Kind or Another

As the Civil War in the United States was coming to an end in 1865, the clouds of another conflict were gathering over Lynn, Massachusetts. While the "The Great Lynn Depot War", as this conflict was later to become known, was nowhere near as costly to the country as the Civil War, this conflict took very nearly ten years to resolve, caused the Massachusetts state legislature to enact laws governing how and when railroads could abandon their stations, and finally made it all the way to the United States Supreme Court in 1871. The court rendered the following decision: The Eastern Railroad would be required to build two railway stations in Lynn, one to replace the original depot in Central Square and a second new depot at the proposed Market Street location. By the middle of 1872 both of the depots had been built. After a short period of time (just enough to let the warring factions cool down) the Eastern Railroad asked and received permission from the state legislature to abandon the Market Street station. In 1873 the Market Street station was torn down and the materials sold for scrap, approximately $1,500. Allegedly, "The Great Lynn Depot War" had cost the Eastern Railroad $300,000 overall.

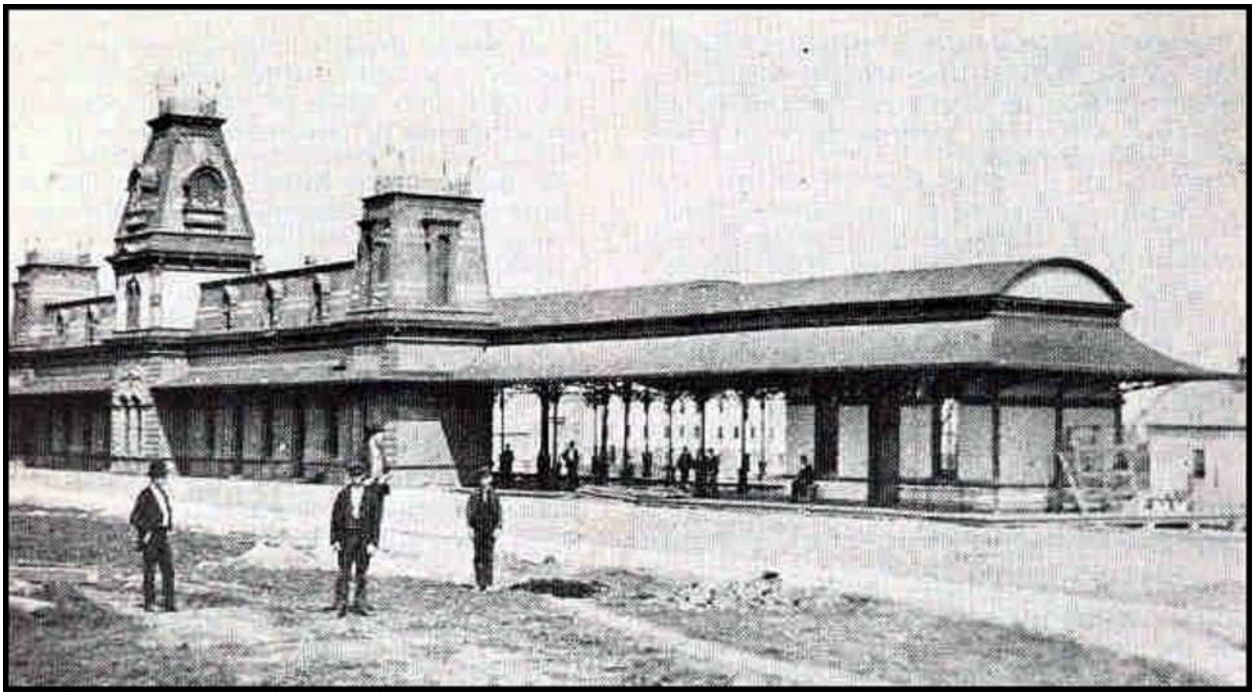


Figure 1 - *The Market Street Station in Lynn Mass. built by the Eastern Railroad as the result of the Supreme Court decision in 1871. The station, having been completed in mid-1872, was in use for only a few months before being torn down in 1873. (RFM)*

Klugemanship

As fate would have it, early in the 1870s Mr. Alpheus P. Blake and associates of The Boston Land Company were looking for opportunities to develop the immense tracts of land that the company held title to along the shore between Boston and Lynn. Perhaps it was the result of a previous experience that caused Alpheus Blake to harbor such a strong belief in the viability of the rail-land methodology in land development. It seems that, in 1855, Alpheus had resolved a transportation problem that was hindering the successful development of land in which he held interest when he purchased an abandoned but intact railroad and a used rail car having an engine in one end, thereby providing direct access to the land by the public.

Ever the enterprising entrepreneur, Alpheus recognized in the Lynn depot dispute an opportunity that could sustain his land development plans for many years into the future. So, in 1872, Alpheus Blake held a meeting in Boston, the purpose of which was to create a corporation which would build and operate a steam railroad covering a 9-mile direct route between Lynn and East Boston. In the bargain, the interested parties in Lynn would finally get the Market Street station they wanted. I guess that the truth will never be known, whether it was Blake's interest in building a railroad between Lynn and Boston that prompted the Eastern Railroad to request permission to abandon the Market Street depot or the other way around. Anyway, by May of 1874, Alpheus had obtained the charter for the railroad from the Commonwealth of Massachusetts. Next, Blake and the Board of Directors of the BRB&L, through the instrument of a convention held in December of 1874, raised more than half of the railroad's $300,000 capital stock. The rest was raised between January 1875, when stock of the BRB&L first started being issued, and May 1875, when construction began in Lynn. On the 29th of July 1875, a scant three months after construction began, the BRB&L Railroad would commence full revenue service.

For the next two years the BRB&L would run smoothly. Then in the summer of 1877, rumors of the railroad's financial instability surfaced. Warranted or not, the Massachusetts Railroad Commissioners launched an investigation. Its finding was that the railroad's debt far exceeded what was shown on the books. When pressed for an explanation, then President Blake is reported to have responded, "Your information is drawn from the books of the company, and only shows the financial conditions as they appear on the books." It was likely the combination of these financial troubles and the high-handed manner that Alpheus took with the Directors which caused them to call for his resignation as President in 1878. During the years 1879 and '80, Blake divested himself of all holdings he had acquired in the BRB&L.

In the latter part of 1880 Alpheus Blake was eager to continue taking advantage of the booming land development the BRB&L had fostered along the shore. Mr. Blake brought together a few other like-minded individuals and mapped out an idea for a summertime excursion railroad, of standard gauge this time. After gaining the charter for the Eastern Junction, Broad Sound Pier & Point Shirley Railroad (EJBSP&PS) or, as one newspaper had referred to it, "the short railroad with a long name," Alpheus approached the Eastern Railroad, a one-time enemy now seen as the most likely candidate, having both the money and resources needed.

The development of the EJBSP&PS progressed slowly through one negotiation and another. Then in December of 1883 a merger of the three railroads operating in Winthrop took place, resulting in the Boston, Winthrop & Shore Railroad.

On Thanksgiving Day in 1885 the BW&S railroad was devastated by a really bad storm. Having sustained damage in excess of $10,000, the BW&S couldn't recover. This was the end of Alpheus Blake's active participation with any railroad. Ironically, although Alpheus retired from an active business life in the mid 1890s, through his association with the BW&S railroad and other shrewd business dealings he once again had acquired a sizeable amount of BRB&L stock. Seeking to stay out of the limelight, Alpheus lived quietly and finally passed away in 1920 while living in Revere, Massachusetts.

After the granting of the corporate charter on May 23, 1874 by the Commonwealth of Massachusetts, the railroad's newly elected president Alpheus P. Blake had a long way to go before the Boston, Revere Beach & Lynn Railroad would become a reality.

Now the always-difficult task of funding an enterprise would begin in earnest. In December of 1874, Blake, the board of directors and other backers held a convention, the purpose of which was to raise the monies required to build the railroad. It was estimated that it would take $270,000-plus dollars to accomplish the task. During the proceedings, it was announced that the capital stock of the company had been set at $300,000. Ironic, isn't it, that this was the same amount that the Eastern Railroad supposedly had expended during the "Great Lynn Depot War"? Mr. Blake personally pledged $50,000 of his own money to purchase stock in the railroad. It seems that Blake's strategy of making a public demonstration of such a good faith gesture worked, because by the end of the convention more than half the entire capital amount had been raised.

The first day of construction on the BRB&L railroad occurred on the 22nd of May 1875 in Lynn, Massachusetts. From all accounts, it was a real gala affair, commencing with a parade composed of bands, a Police detachment, dignitaries on horseback and in carriages, a contingent of Civil War veterans dressed in the blue of the Grand Army of the Republic (G.A.R), and last but not least, a group of men with picks and shovels. The parade proceeded through town to a place on the BRB&L right-of-way, where the men with picks and shovels began work, contributing a day's worth of volunteer labor. Later on in the day, after a sufficient amount of work had been performed, the festivities began again; the parade reassembled and marched to a nearby saloon where the G.A.R. had prepared a banquet. The enthusiasm exhibited on this first day, although waxing and waning at times, remained in force for the whole 65 years of the BRB&L's existence.

Construction on the road continued in earnest. As a matter of fact, the sole focus of Alpheus Blake and the Boston Land Company was the rapid completion of the railroad. Work progressed through varying levels of adversity such as ties sinking in the shifting sand, cave-ins at the twin-tube tunnel being dug at East Boston, and the incident near Point of Pines in Revere, where residents who opposed the railroad interfered with the track gangs and temporarily stopped construction. Work continued and remedies for each were found in due course, until a calamity of such major proportions occurred that it caused a two-day strike. The workers would not tolerate "sand in their beer". Eventually, even this was resolved and construction continued.

While Alpheus Blake decided to build the Boston, Revere Beach & Lynn railroad to the narrow gauge three-foot standard, it's not certain whether he was a true advocate of the narrow gauge doctrine, or merely-

used the arguments for it as selling points for his railroad. In any event, it didn't take long for him to come face to face with economic reality. For example, when ordering ties it was found that if he wanted the ties cut to match the three-foot gauge of the railroad, the cost would be greater than if he just ordered the standard gauge ties.

This economic reality was also the most likely the reason for yet another of the unique characteristics of the BRB&L railroad's rolling stock. Though the railroad's track was laid to the narrow gauge three-foot standard and the trucks were narrow gauge, all of the revenue passenger coaches were built to the dimensions usually found on standard gauge railroad cars of the time.

Figure 2 - Here we see the interior of a typical BRB&L railroad passenger car. (BSRA)

As you can see, the passenger coaches of the BRB&L differed from the usual Narrow Gauge cars. First, in Figure 2, note that instead of the three abreast seating configuration (i.e., one seat, the aisle, then two seats), the BRB&L coaches had the luxury of Standard Gauge cars, with two-position seating on both sides for the full length of the car. Second, in Figure 3, notice that no accommodation for a privy can be seen. What the heck, the whole railroad was only 9 miles long and while I realize that at times this short distance could well seem like a million miles, there were also twelve depot stops between Boston and Lynn.

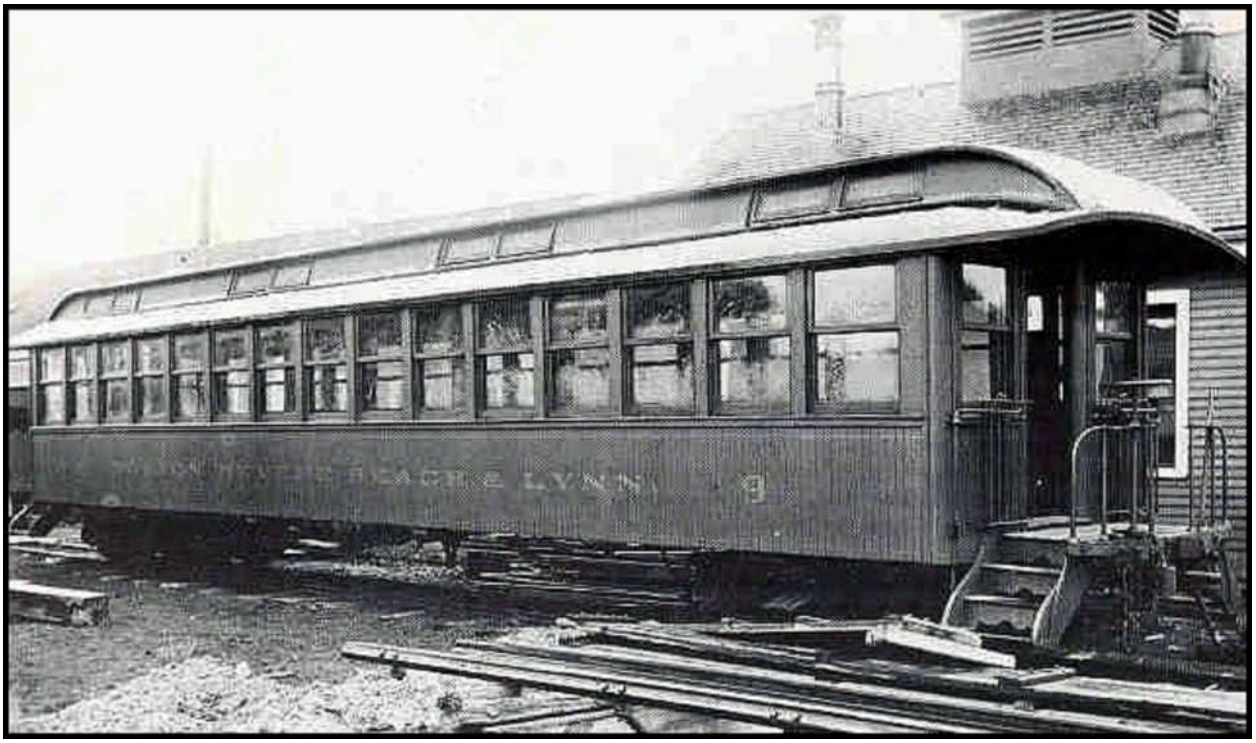


Figure 3 - Picture of an early BRB&L coach, numbers 14 and 15 of this series are preserved and still in service at the East Broad Top Railroad. (LHS)

When on July 29, 1875 at 6:00AM, the Boston Revere Beach & Lynn Railroad began regularly scheduled service between East Boston and Lynn; it did so with three Mason-built Bogie locomotives, seven first class passenger coaches and two baggage cars built by Gilbert & Bush of Troy, New York.

The Gilbert Car Company started out in business building carriages in Troy, New York. They built their first railroad passenger cars in 1835 for the then new Rensselaer & Saratoga Railroad. Sometime in 1852, the Gilbert Car Company's manufacturing facilities in Troy were destroyed by fire after which, in 1853, the company relocated across the Hudson River to Green Island and built new a manufacturing complex that would eventually occupy 12 acres. Sadly, by the turn of the century this builder of fine railroad coaches would find itself out of business.

In those first few months of operation, the original patrons of the BRB&L were rewarded with many an exciting ride between Lynn and East Boston. At speed, the coaches would sway badly side to side as the track followed the undulations of the terrain. Since scarcely one hundred days had elapsed between the start of construction and the beginning of regular scheduled service, the roadbed hadn't had time to settle to anything like a solid base. However, as quickly as the imperfections were reported, road crews were dispatched to remedy them.

The day following the opening of scheduled service, the BRB&L directors announced that, contrary to their best efforts, the trains were not running on time and anyone wishing to ride did so at their own risk. As with most narrow gauge railroads, the trackage and roadbed were marginal at best, cost being the overriding concern. The BRB&L's track was originally laid with 2,640 ties to the mile and 30-pound rail. It was upgraded in 1885 with 50-pound rail, and again in 1904 with 60-pound rail.

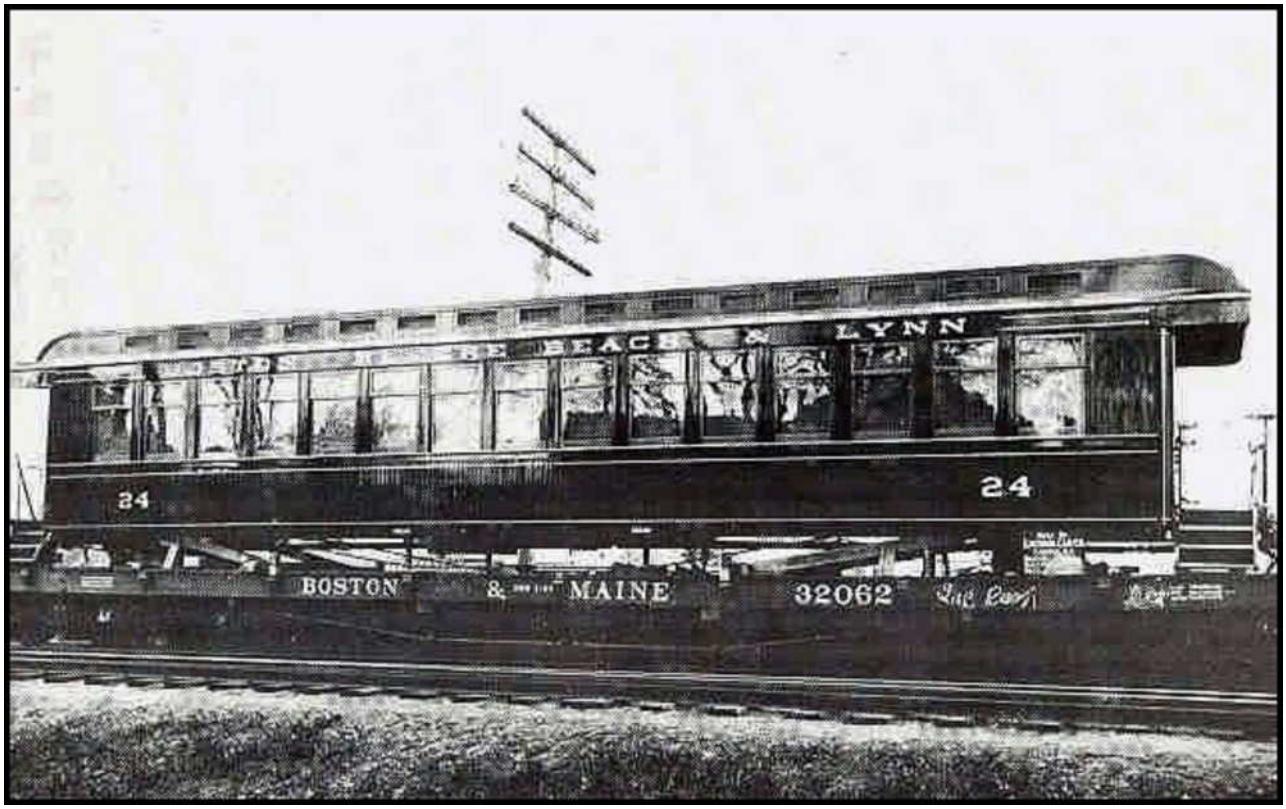


Figure 4 - *Here's coach No. 24, brand spanking new from the Laconia Car Company of Laconia, New Hampshire. It was one of 11 coaches ordered in 1911 that caused such a ruckus when they were put into service on the Winthrop Loop and not on the main line between Lynn and East Boston. (WEH)*

A very short while after the initial purchase of rolling stock for the railroad, it seems the BRB&L made a decision to switch its supplier from the Gilbert & Bush Company to the Laconia Car Company of Laconia, New Hampshire. No reason was stated for the change; it could have been simply that the Laconia Car Company had its headquarters in Boston at No. 50 State Street, while the Gilbert & Bush Company maintained its headquarters in New York City. In any event, once the BRB&L found something to its liking it stayed with it, and at the railroads demise its rolling stock was exclusively Laconia-built.

If you look closely at the coach in Figure 3, you'll see that it doesn't use the old style "loose link and pin" coupling method that killed and maimed so many railroad brakemen. Nor do you see the more modern Janney style automatic knuckle coupler that we are used to seeing today. All of the BRB&L rolling stock used the "Miller Platform, Coupler, and Buffer" design invented and patented by Colonel Ezra Miller in 1863, with additional patents being granted in 1865 and 1866. The images pictured in Figures 5, 6,and 7 are excerpts from the original U.S. Patent # 56,594 granted Colonel Miller on 24 July 1866. The BRB&L used the "Miller Platform" throughout its existence, until the railroad's abandonment in 1940. Since the BRB&L didn't engage in interstate commerce or interchange rolling stock with other railroads, it didn't need worry about the general shift to the Janney type coupler when the Master Car Builders Association selected it as the standard design for the railroad industry in 1887, or when President Benjamin Harrison signed the Railway Appliance and Safety Act in to law on the 3rd of March 1893, making the switch to the Janney style coupler mandatory for all railroads engaging in interstate commerce.

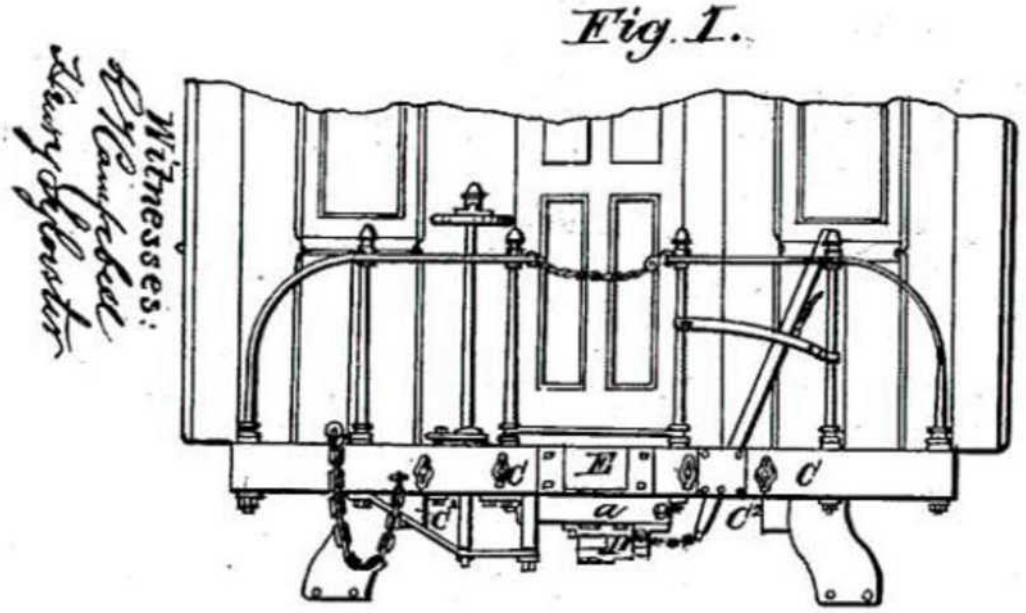


Figure 5 - *Patent drawing for Miller Platform, Coupler, and Buffer.*

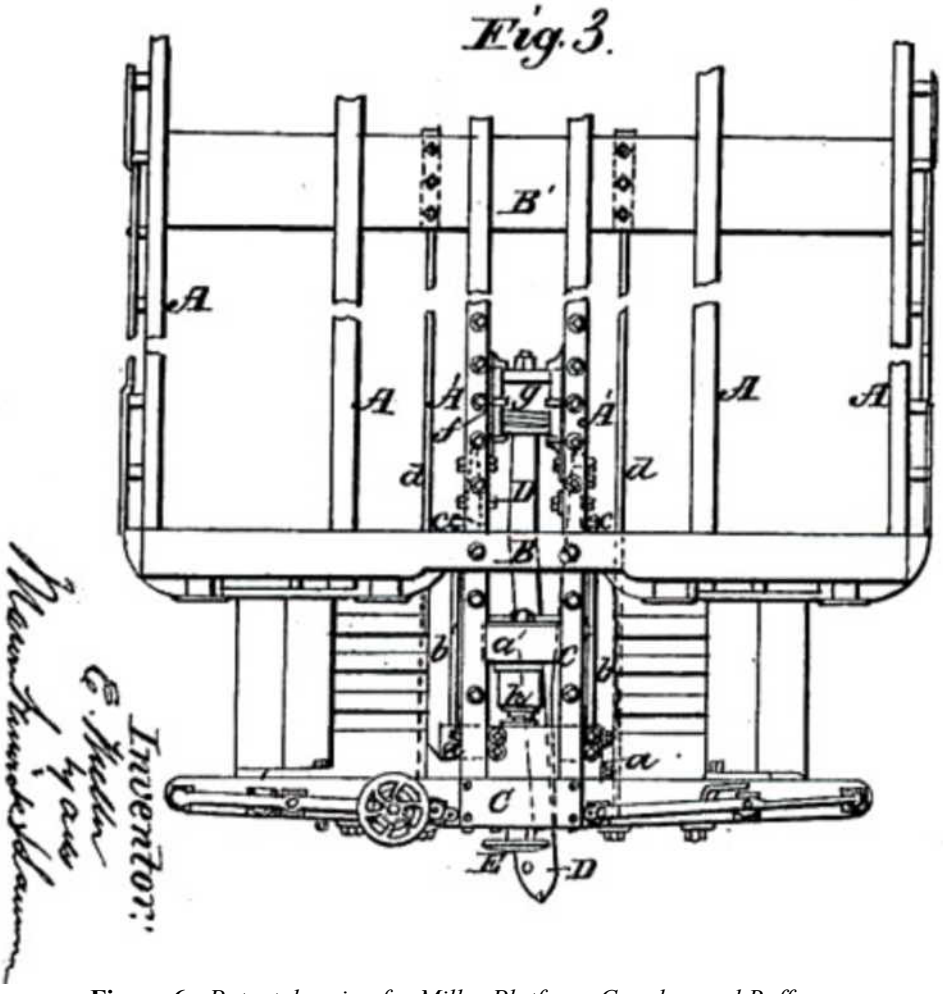


Figure 6 - *Patent drawing for Miller Platform, Coupler, and Buffer.*

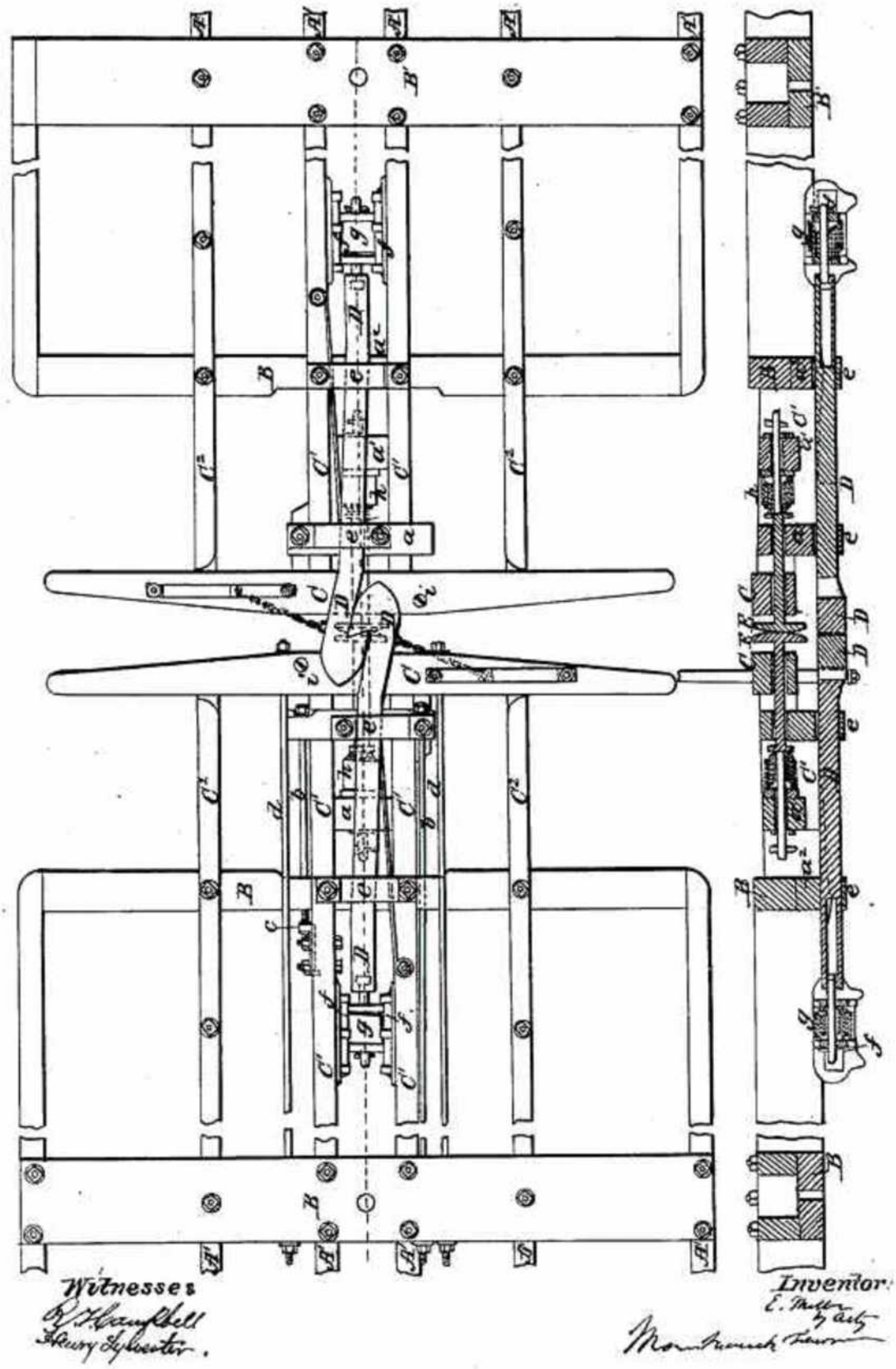


Figure 7 - *Patent drawing for Miller Platform, Coupler, and Buffer.*

BRB&L's choice of motive power

From the very beginning, the management of the BRB&L chose to standardize its motive power on a single type of locomotive, the Mason Bogie. The very first Mason Bogie of the BRB&L (Road No. 1) was purchased as a rebuilt used locomotive. Originally built for the North & South of Georgia Railroad in 1873 (Builder's No. 508), the locomotive had accidentally fallen through a trestle while on its way to Georgia for delivery and was returned to the Mason Machine Works in Taunton, Massachusetts to be rebuilt. This same engine is listed again in the R.A.S. Abbott book without a works number when sold to the BRB&L. As yet, I haven't been able to locate a photograph of this engine in the BRB&L livery.

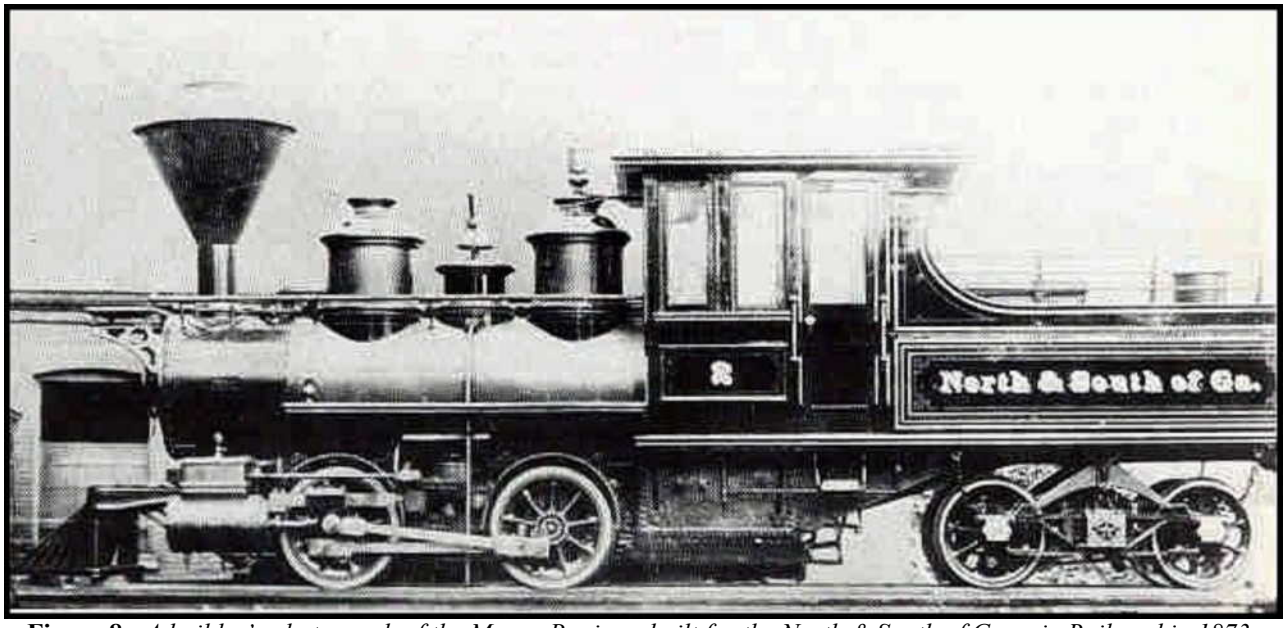


Figure 8 - *A builder's photograph of the Mason Bogie as built for the North & South of Georgia Railroad in 1873, destined to become the No. 1 locomotive "Orion" of the Boston, Revere Beach & Lynn Railroad. (BSRA)*

Pictured above in Figure 8 is the locomotive destined to become the first Mason Bogie the Boston, Revere Beach & Lynn Railroad was to own, looking here more like the first cousin of the "Onward", built by Mason for the American Fork Railroad in 1871. It has the earlier Mason cab design, sporting square-topped windows, and the bunker is faired directly into the rear of the cab, taking the place of the third window found in most of Mason's later era cabs. Although built in 1873 for a narrow gauge road, note the lack of the Walschaert's valve gear and the Mason signature reversing linkage traversing the top of the boiler. Both of these Mason enhancements would not be introduced until the following year, 1874.

The one real oddity to be noted about this particular Mason locomotive is the use of two steam domes. After researching all of the photographs that I have gathered and all the photographs and lithographs on Tom Farin's web site (**www.ironhorse129.com**) in the "Mason Bogie Project" and "Mason Bogie Archive" areas, as far as I can tell, this is one of only two Mason Bogies documented thus far (i.e., as of Oct. 2002) as being built with two steam domes.

Great, now how do I explain this, since I'm a total novice in matters regarding steam locomotives? The first thing I felt needed doing was to insure that I wasn't nuts. What else? "Fletch! HELP!" So I conferred with David and found out that, while the use of two steam domes is not an unheard of practice, its use is from a time frame earlier than 1873, when this locomotive was built. Well, heeding David's council and doing some research into locomotive engineering practices of the time, here is what I've discovered.

It seems that there were two basic boiler designs favored in the United States for railroad locomotive use; one was the Stephenson or "straight" boiler and the other was the Bury or "domed" boiler, both of British origin. The Stephenson boiler, built with a sloping rather than vertical connecting plate, would become the familiar wagon-top boiler of later years.

As with all products of engineering design, both the Stephenson and Bury boilers were the result of trade-offs, or decisions made by the engineers during the design process that seemed to best address the problems they were trying to overcome at the time.

In the case of the Bury boiler, Edward Bury of Liverpool, England was attempting to increase the area available in a locomotive boiler to collect steam, which he accomplished by designing a large hemispherical chamber over the firebox (to become known as Bury's Copper Knob boilers!). While this design had the one advantage of more than ample steam room, which allowed for a generous supply of dry steam. It created many disadvantages at the same time. Because of the complex and expensive methods required to build this type boiler, only the most skillful in the boilermaker's trade could be employed in its manufacture. Another of the design's shortcomings was the dome, it was next to impossible to jacket, and thus was usually left bare, free to radiate the boiler's heat into the atmosphere. Although a few of the major builders such as Norris, Rogers, and Baldwin used the Bury design between the 1830s and 1850s, by the mid 1850s the design had fallen from favor due to its many drawbacks, not the least of which was the inherent small grate area restriction. While this small grate area fit well the needs of wood firing, as the shift to coal as the primary fuel became more pronounced, and with coal's need of much larger grate areas to burn efficiently, the small grate area restriction became just another nail in the design's coffin. For additional on-line information covering the development of Bury boilers, refer to MasterClass 2001, Chapter 3, and 4, Background.

At this juncture, it would seem a good idea to explain the reason for placing such a high level of importance on "steam room." The reason is simple: bad water. Most railroads in America were cursed with muddy or impure water. Some had such poor quality water that one-eighth to three-sixteenths of an inch of scale would be deposited inside the boiler per year. None of the railroads would begin to find an effective way of treating boiler water for impurities until around 1885.

Impure water will foam or "boil up" if the boiler experiences a sudden drop in pressure, possibly caused by a rapidly opened throttle, the safety valve popping off, or even the excessive use of the whistle. Foaming in a boiler drastically increases the chances of "priming", the carryover of water to the cylinders. Priming not only reduces the engine's power, but can also cause severe damage to the pistons and cylinders if enough water is carried over. The most effective insurance against priming caused by boil up is a large reserve of dry steam.

The Stephenson boiler, being of a simple, sound, and straightforward design, had remained one of the favored designs, especially among the New England builders. However, with the advent of the Bury boiler and its enhanced steam room and greater capacity to capture dry steam, ways were sought to modify and improve on the design of the straight boiler. Increasing the diameter and/or length of the boiler would seem, on the surface at least, to be the clear-cut solution to this problem of less than adequate steam room. In fact, it wasn't an available option at all. The main reason for this was weight. American railroads of the time were notorious for their weak trackage. As a mater of fact, locomotive weight was of such an overriding concern that, until the early 1870s, the diameter of an American locomotive boiler was basically restricted to a maximum of 48 inches. The customary practice of locomotive boiler construction in America at the time was the use wrought iron plate five-sixteenths inch in thickness, assembled using single riveted lap-

joints, normally operated at a pressure of 100 pounds per square inch or more. For additional on-line information covering the background and theory of boilers, refer to MasterClass 2001, Chapter 4.

Just as a point of reference here, the British standards of the time considered three-eighths or one-half inch thick boilerplate, operated at 50 pounds pressure as the safe operational limits for this style of boiler. Operating boilers of this type construction at a pressure of 100 pounds plus was, to say the least, pushing the materials of which they were made to their upper limits. So, any increase in boiler diameter to enhance its steam room capacity would have required a change in materials to three-eighths or one-half inch thick boilerplate. This one change would have brought with it such a drastic increase in weight that the resulting locomotives wouldn't have been able to run on any railroad in America. Making the boiler waist or barrel longer was another possibility. This option carried with it two undesirable characteristics. First, the increase in overall wheelbase of the locomotive would have presented problems negotiating the many tight radius curves common on American railroads. Second, most of the increased weight would have wound up being placed on the pilot truck, not a desirable idea either.

Enter, the "Double Dome" idea, considered by many to be by far the most desirable choice, again an idea of British origin with a patent being issued in 1837. The idea did not gain great favor in America until the mid-1850s, then being used more on wagon-top than straight boilers. The two-dome approach provided more steam room, plus the additional advantage of two points of collection over just one. It also carried the liabilities of a weaker boiler vessel, caused by the two holes required to mount the domes, and the forward dome was particularly difficult to rigidly secure to the boiler. As to the origin of the wagon-top boiler there are many opinions, but regardless of which point of view one follows, the wagon-top boiler was definitely a compromise between the Stephenson and Bury boiler designs. It provided the required additional steam room, and the single domed version won out in the end.

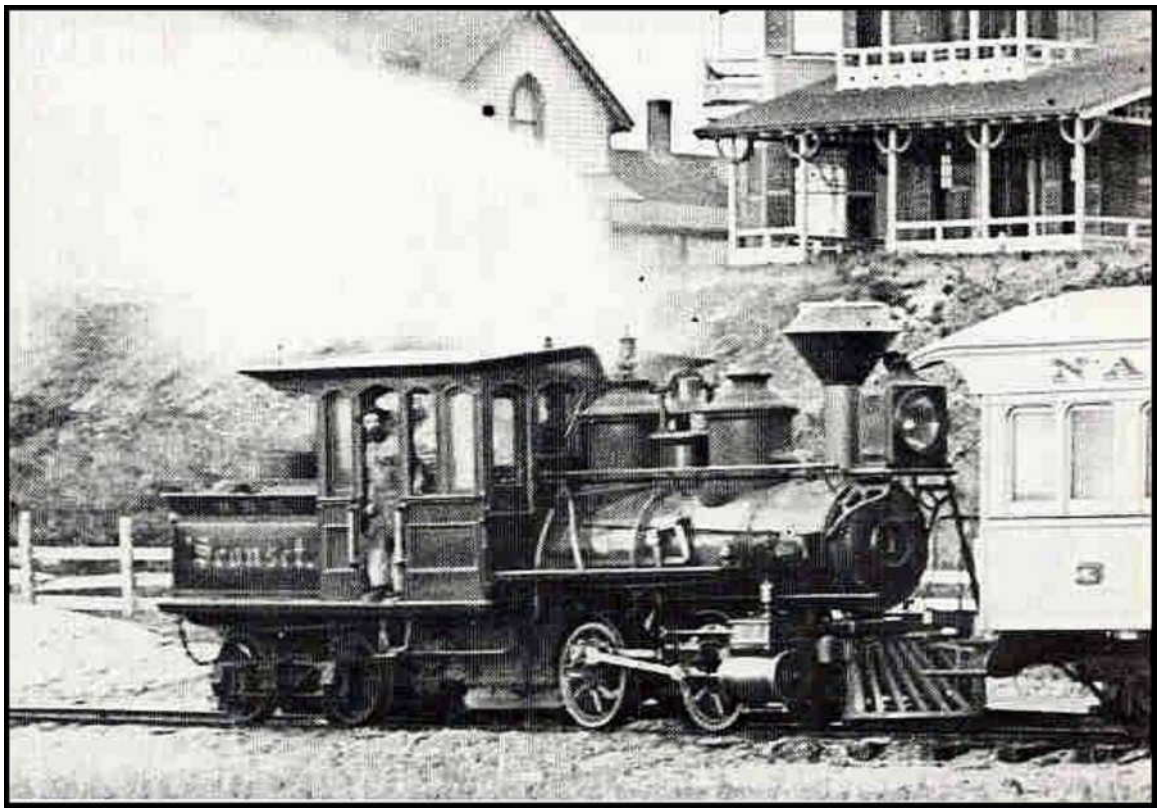


Figure 9 - *A picture of the Nantucket Railroad's No. 1 the "Sconset." Originally the first Mason Bogie owned by the BRB&L Railroad, having been retired from service and sold in 1888. (BSRA)*

The locomotive pictured in Figure 9 as the Nantucket Railroad's No. 1 the "Sconset" is actually the BRB&L's very first Mason bogie the "Orion". Which, depending on the narrative you read, was either leased or sold to the Nantucket Railroad in 1888. Notice, however, that even after being rebuilt by Mason after the accident, the engine retained both her double steam domes and Stephenson valve gear. However, the cab, bunker (or tender) and its associated truck seemed to have been updated in the rebuilding process to the newer styles then in use by Mason.

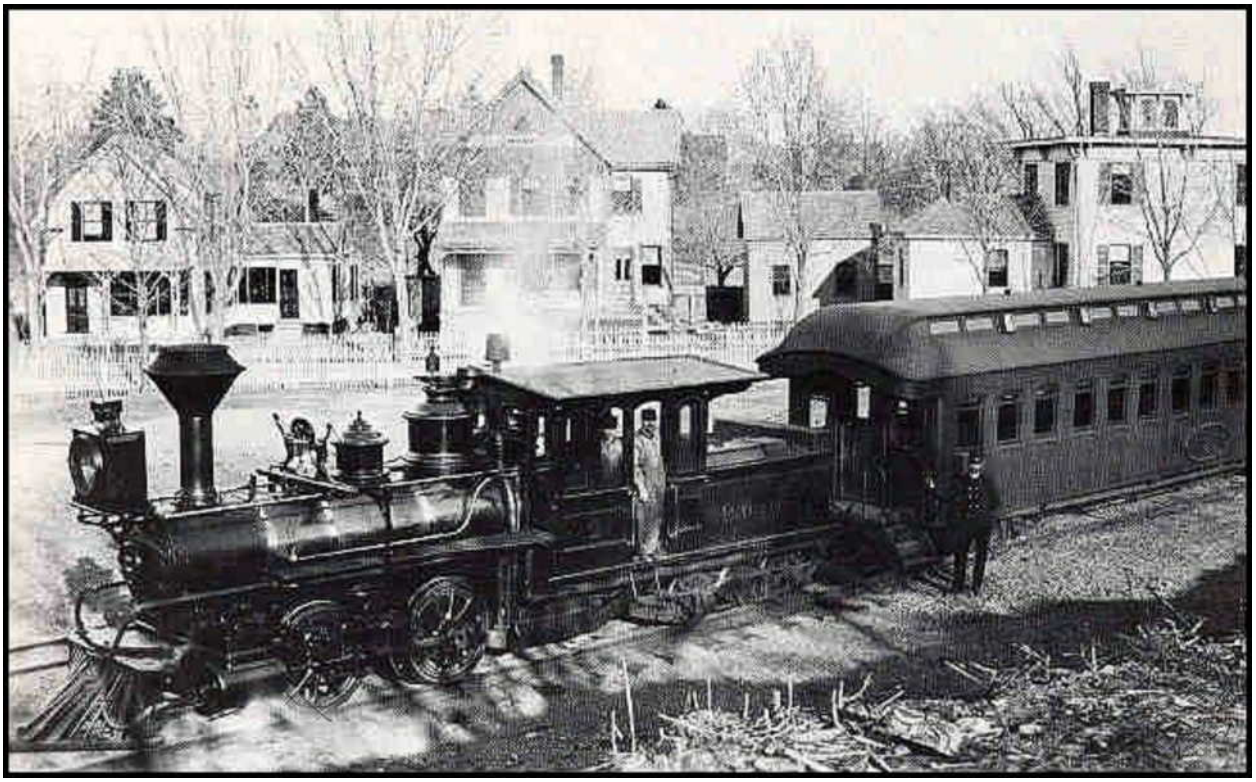


Figure 10 - *The BRB&L's No. 2 the "Pegasus" at Winthrop Center in 1888, the second of the original Bogies built by Mason Machine Works in Taunton, Massachusetts. (WPL)*

Caught at work in 1888, Figure 10 shows the "Pegasus", the original No. 2 engine of the BRB&L, awaiting orders to clear the depot at Winthrop Center. This engine was built by the Mason Machine Works as a 0-4-6T under works No.549, and was sold to the BRB&L in 1875 for $7,000. This locomotive was one of only three Mason Bogies that would be built by Mason for the BRB&L with a six-wheeled tender truck. The engine was leased to the Boston, Winthrop & Shore Railroad in 1883, and then returned to the BRB&L in 1892. It was burned in a fire at Winthrop Junction in 1896 and wound up being scrapped that same year.

Most of the BRB&L's Mason Bogies would wind up being of the same general design pictured above, save for the addition of a two-wheeled leading truck and four-wheeled tender truck. Notice the longer smokebox, common to all but the first Mason Bogie "Orion", and the small diamond stack, later to be exchanged for the typical straight-capped stack of coal burning locomotives. Also evident on this engine is the use of the Walschaert's valve gear and the Mason signature reversing linkage traversing the top of the boiler.

Notice how the passenger cars have a low-slung look, yet tower over the top of the locomotive. Additionally, here and in other photographs within this document it can be seen that the cars are wider than the engine, the result of the car bodies being built to standard gauge dimensions, but being run on Narrow Gauge trucks.

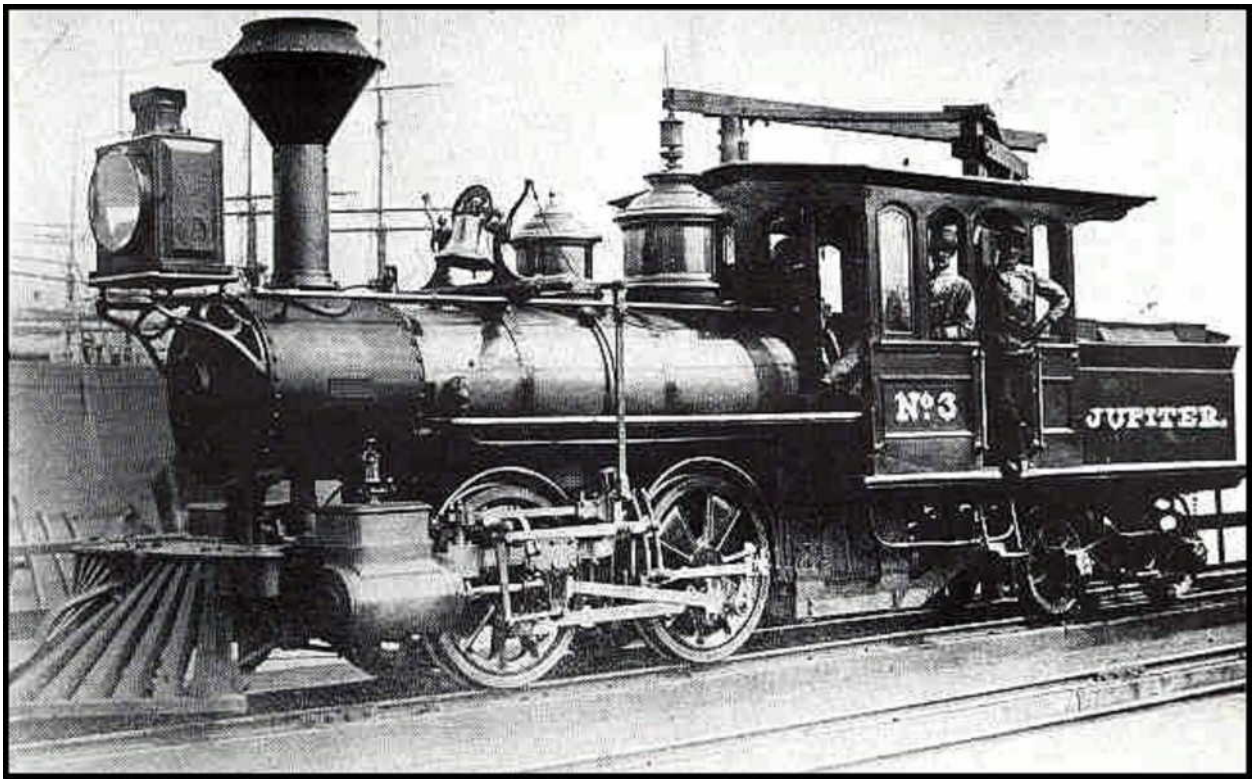


Figure 11- *The BRB&L's No.3 the "Jupiter" at the Jeffries Point terminal in East Boston, the third of the original bogies built by Mason Machine Works in Taunton, Massachusetts. (WEH)*

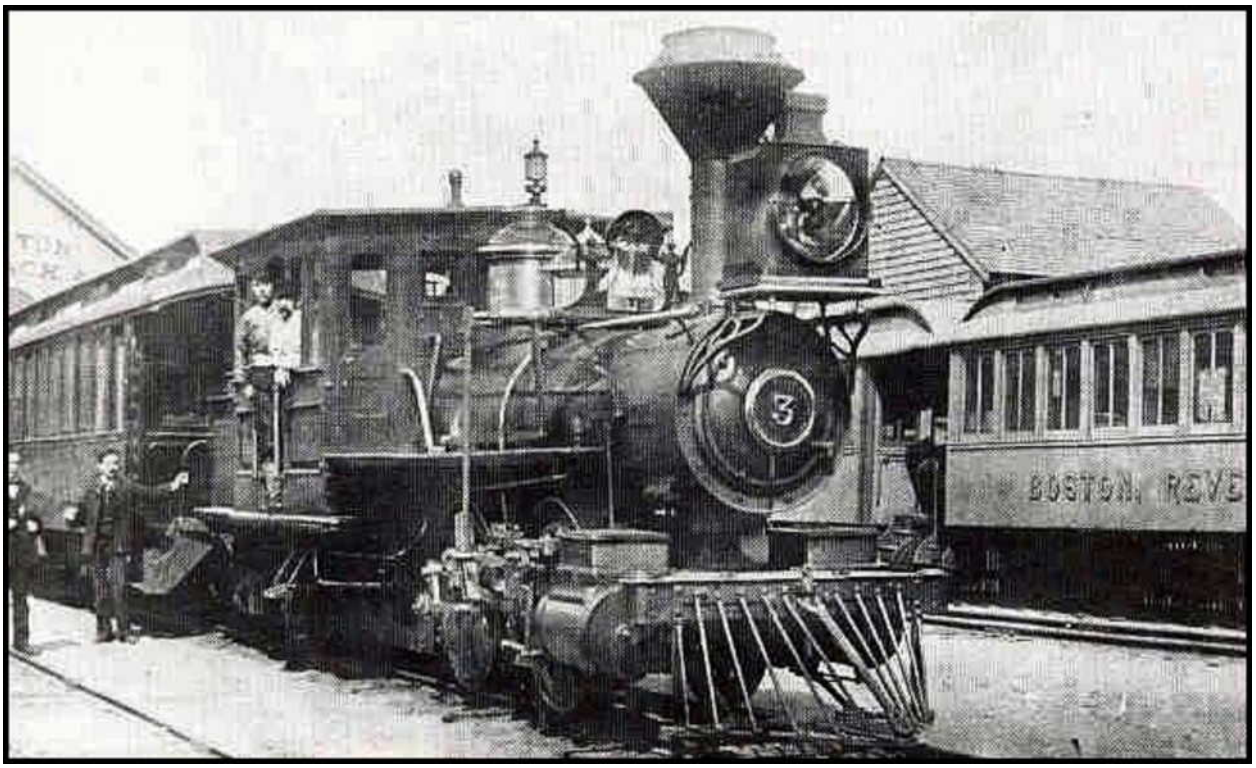


Figure 12 - *Another picture of BRB&L's No.3 the "Jupiter" at the Market Street depot in Lynn, Massachusetts in 1878. (RCS)*

Captured here at Jeffries Point with the sailing ships of the Boston harbor as background, Figure 11 depicts the newly delivered "Jupiter", the third of the Mason Bogies (Mason Builder's No.550) purchased by the BRB&L in 1875, ready for service.

In this photograph two additional facts about an original Mason-built cab can be confirmed. First, the doors on the cab front leading to the running boards did in fact open in and were hinged on the outboard side of the jamb, folding against the forward window. Otherwise you would be able to see it here opened against the back end of the boiler. Second, the side doors are said to have opened in and hinged so they would swing toward the rear of the cab, which can be discerned here since the door is open and isn't blocking the gentleman's access to the window.

In Figure 12, Engine No.3 is shown again at work, this time preparing to leave Lynn depot for East Boston. The big black "3" that can be observed on the engine's headlight lens is not a duplication of the engine number; it signifies this to be the third train of the day. Being that this photograph was taken in 1878, it could be said that it's a picture of the locomotive on its third birthday. Although it been in service for only three years, a major change has taken place. While retaining the original Mason peaked cab design, the rest of the Mason signature accents are gone. Usually noticed first are the square-topped windows. Next, notice that the replacement cab has been noticeably widened to match the width of the standard gauge car dimensions. Also, the doors on the cab front are hinged on the inboard side of the jamb and now open out. Gone are the steam chest mounted oil cups, but no replacement lubrication lines from cab mounted hydrostatic lubricators can be seen (Yes, I too have read MasterClass Chapter 6 many, many times). So, how do you run an engine without lubrication?

While not easily seen in Figure 12, note that in Figure 13, taken in the late 1880s, the single rear window has now become two, that along with the trim panel below the windows being more rectangular than square, indicating to me that this cab has been lengthened, too. In looking closer at the cab-front door on this cab, and seeing it's back to an arch or round-top style window has me thinking this may be a third generation cab for this engine.

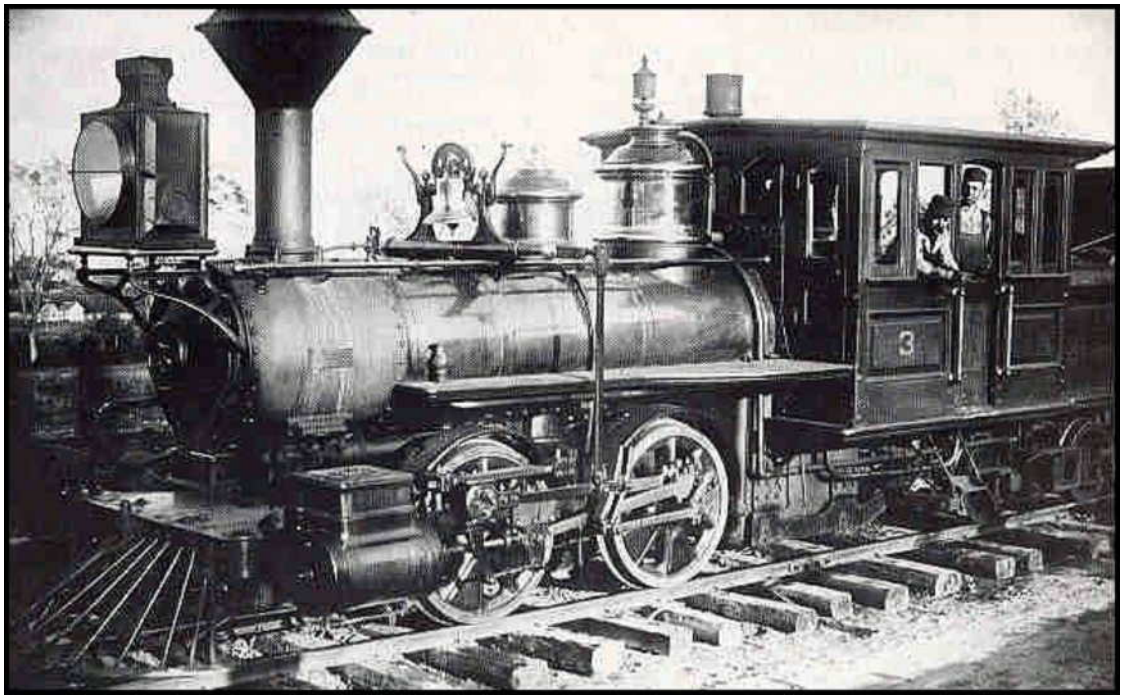


Figure 13 - *Yet another picture of Engine No.3 taken in the late 1880s, while sitting on a "shoo-fly" or temporary track in Winthrop. (WPL)*

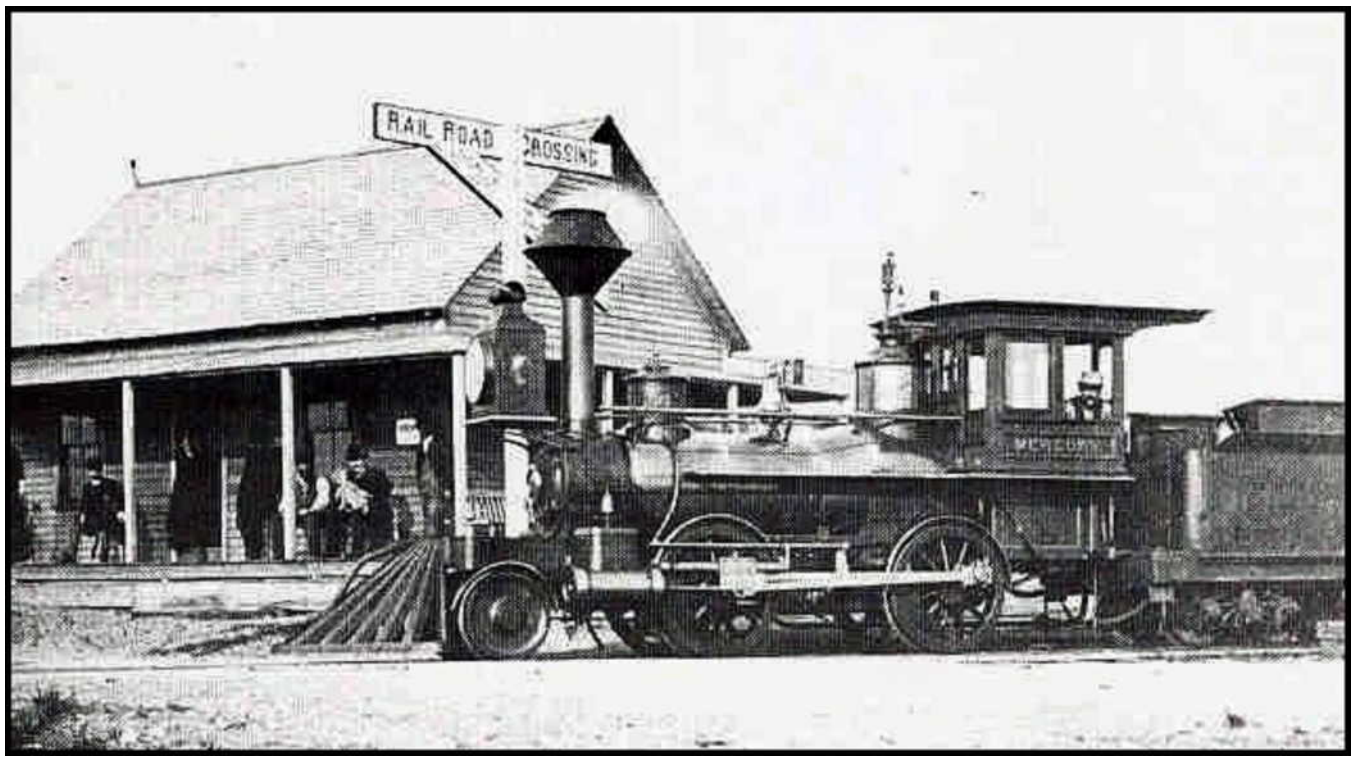


Figure 14 - *Pictured here is the "Mercury" a Porter, Bell & Company 2-4-0, BRB&L's No.4 the first of the three non-Mason Bogie locomotives to be purchased by the railroad. (BSRA)*

The BRB&L Railroad began full revenue rail and ferry service on the 29th of July 1875. On July 30th, 1875, the day following the railroad's opening for general revenue service, management announced that the trains were not running on time. This was due, in part; to the fact that as soon as a train could negotiate the road from Lynn to Boston, Blake let the trains roll even though construction was still in progress. The other reason was that no one expected the turnout for ridership that occurred. For example, on Aug. 1, 1875, its fourth day of operation, the railroad carried more than 15,000 passengers and ran 77 trains between Boston and Lynn. As would be expected, due to the phenomenal success of the railroad in its first few days, Alpheus Blake and the other directors were at their wits' end trying to acquire additional motive power and rolling stock to keep pace with demand.

After approaching the Mason Machine Works and finding that only one of the three locomotives they desired could be accommodated on such short notice. Blake and the other directors went in search of the additional two locomotives elsewhere. First, they happened across the Porter, Bell & Company 2-4-0 pictured in Figure 14, which they purchased as the BRB&L's Engine No.4, the "Mercury." Next, an available Hinkley Locomotive Company 4-4-0 (Builder's No. 1240), pictured in Figure 15 and 16, was located and purchased. This was to become BRB&L's Engine No.5, the "Leo." Both engines were put in service immediately. After a short while, in the opinion of the railroad, both of these locomotives were found to be lacking in the constant stop-and-go environment in which they were required to operate.

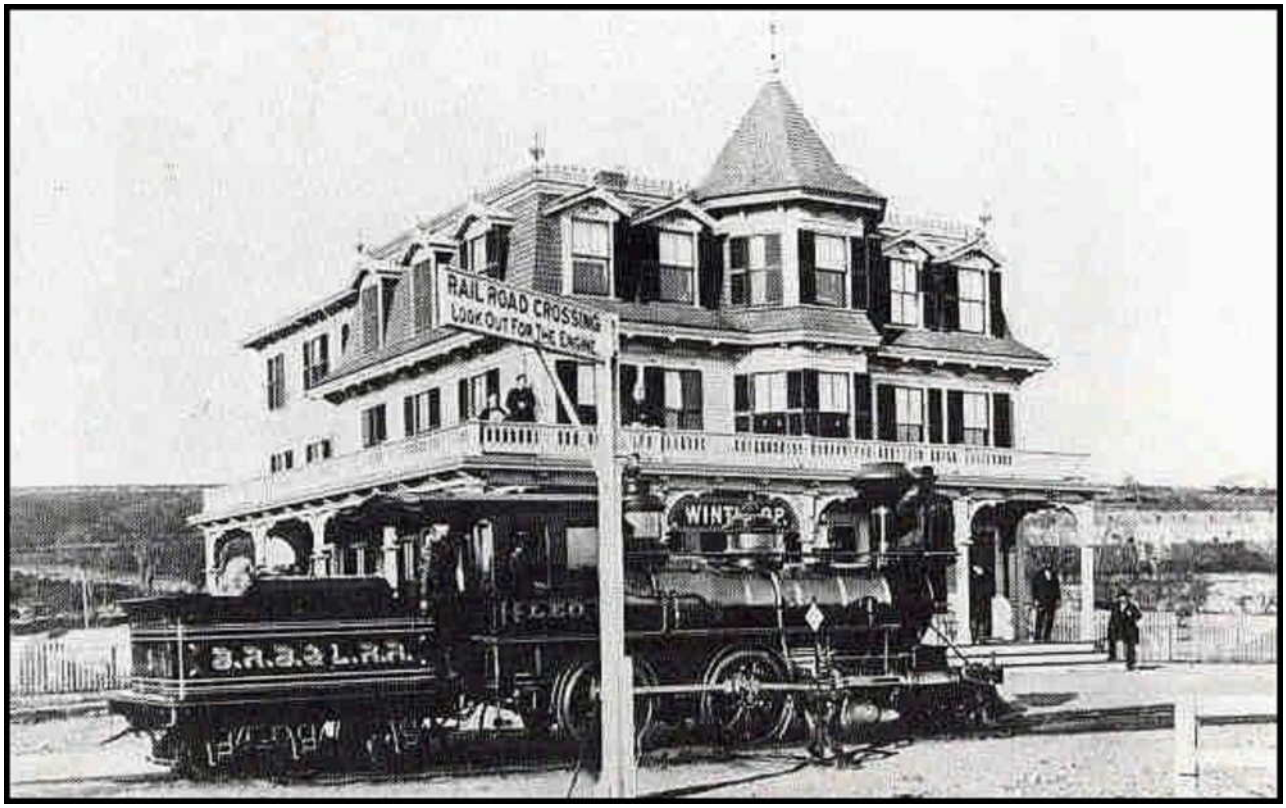


Figure 15 - *Pictured here is the original No.5 named the "Leo" a Hinkley 4-4-0, one of the three non-Mason Bogie type locomotives purchased by the BRB&L RR in 1876. (RCS)*

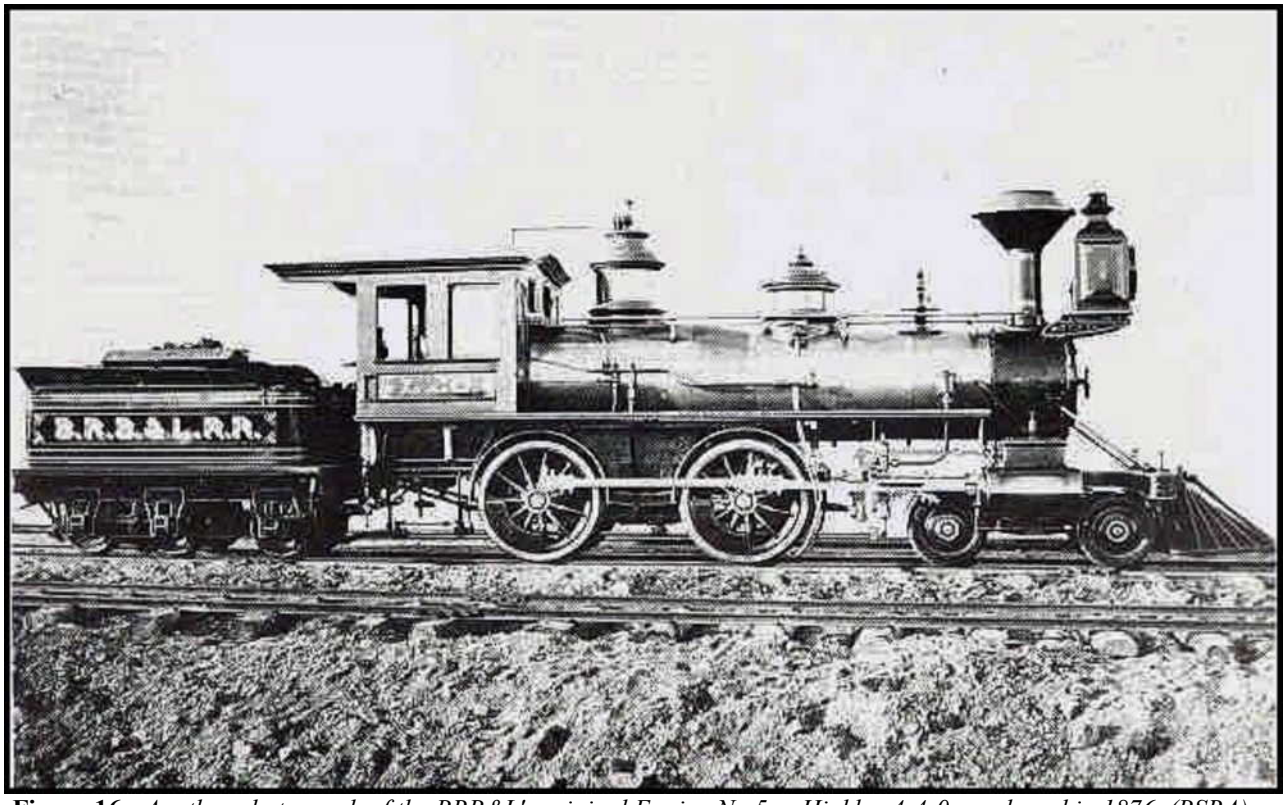


Figure 16 - *Another photograph of the BRB&L's original Engine No.5, a Hinkley 4-4-0 purchased in 1876. (BSRA)*

In 1878 Engine No.4, the "Mercury", was leased to the Boston, Winthrop & Point Shirley Railroad. This engine was eventually reacquired by the BRB&L on 1 July 1891, the day that the Boston, Winthrop & Shore was officially taken over by the BRB&L. The BW&S Railroad was the end result of the merger in December 1883 of the Boston, Winthrop & Point Shirley, the Eastern Junction, Broad Sound Pier & Point Shirley, and the Boston & Winthrop railroad companies. The photograph of the "Mercury" in Figure 14 could easily be mistaken for a picture taken of a Narrow Gauge railroad in the western United States. The ironic part of the preceding statement is the photograph was taken on Nevada Street in Winthrop, Massachusetts just a few miles from the Atlantic Ocean. Being one of the engines involved in the engine house fire of 1896 at Winthrop Junction, the "Mercury" was severely damaged and scrapped later that same year.

Engine No. 2 of the BRB&L, named the "Pegasus" and pictured in Figure 10, was leased in 1883 to the Boston, Winthrop & Shore Railroad. Like the "Mercury", it too was eventually reacquired with the BRB&L's take over of the BW&S Railroad in 1891. This is another of the locomotives involved in the engine house fire at Winthrop Junction in 1896. Although maybe not as severely damaged as Engine No.4, it was nonetheless scrapped later the same year.

The lone Bogie ordered from the Mason Machine Works (Builder's No.559) and delivered in 1876 became Engine No.6 of the BRB&L and was named the "Draco." This was the last locomotive on the BRB&L to be named. By the time the next locomotives were ordered from the Mason Machine Works in 1882 the practice of naming locomotives had fallen from favor. It was also the last Mason Bogie with the 0-4-4T configuration; all of the following locomotives would incorporate a two-wheeled leading truck. One last distinction held by the "Draco" is that it's sometimes referred to as the BRB&L's "mystery Locomotive", for there is no known photographs of it.

The engine pictured in Figure 17 was the replacement for the BRB&L's very first Mason Bogie the "Orion." Another Hinkley 4-4-0, built in 1879, was purchased used in 1899 from the Boston & Maine Railroad. Proving to be as much a mistake as the first Hinkley, it quickly went the way of its predecessor and was sold to the Nantucket Railroad in 1901.

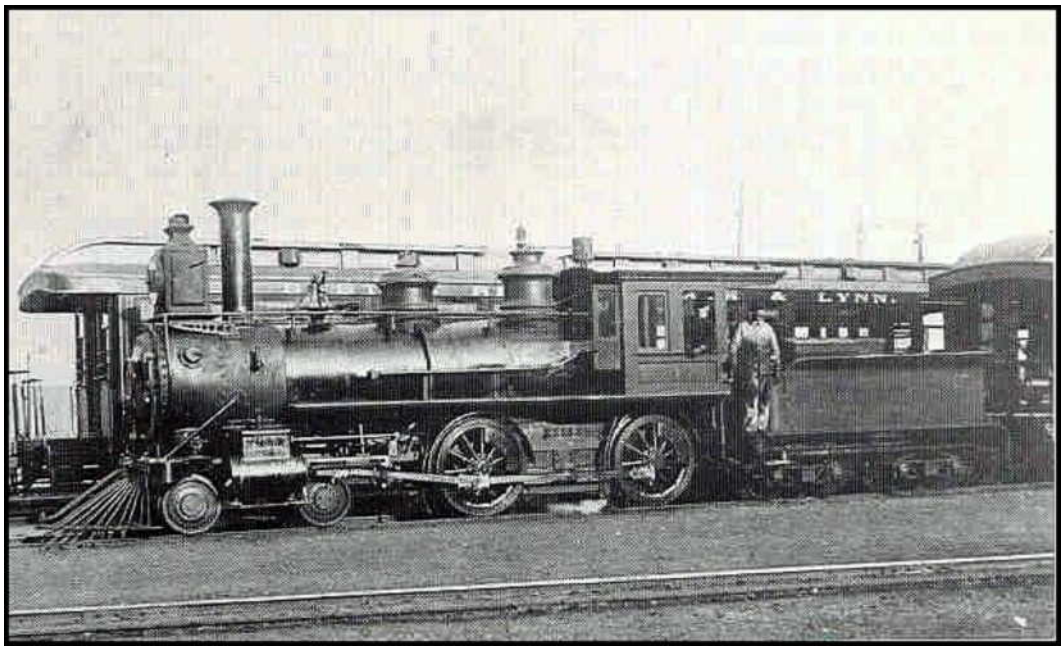


Figure 17 - *This is a Picture of the engine that replaced the BRB&L's original Engine No. 1 the "Orion." A Hinkley-built 4-4-0 built in 1879 and purchased used from the Boston & Maine Railroad in 1899. (BSRA)*

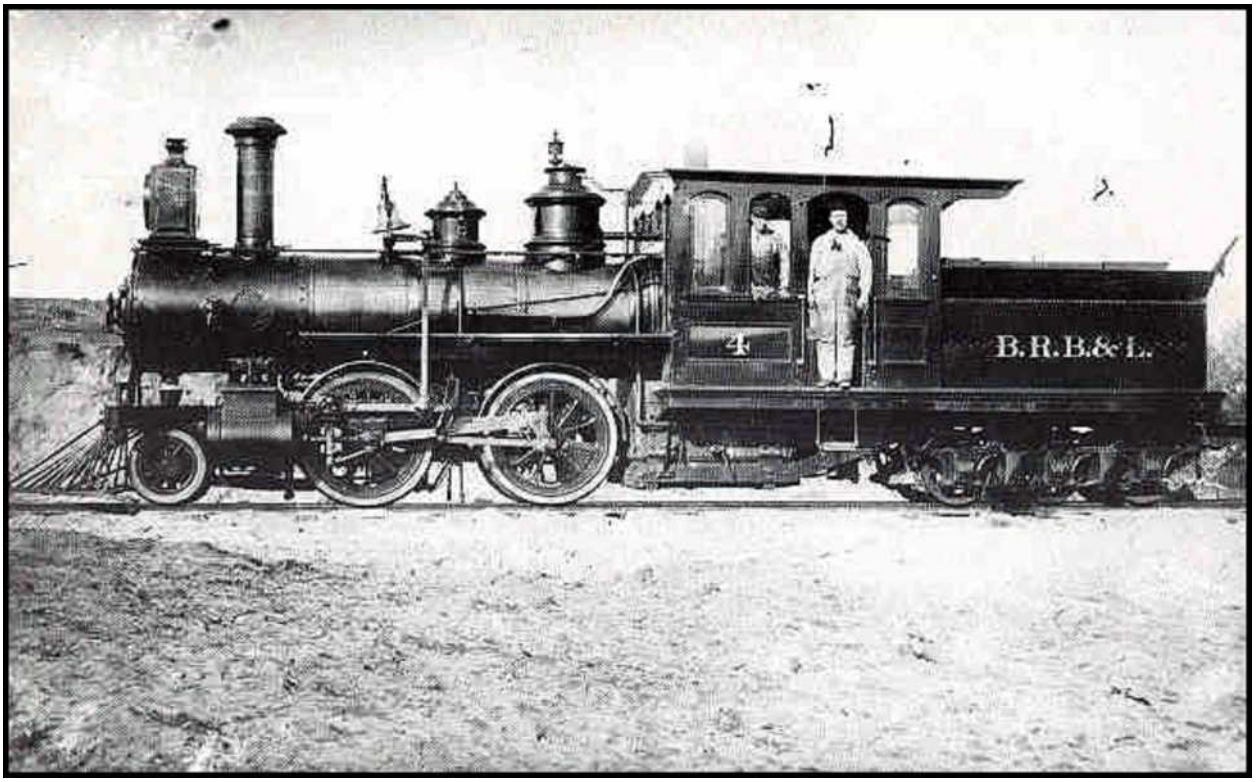


Figure 18 - *Pictured here is the Mason Bogie purchased in 1882 from the Mason Machine Works as a replacement for the original BRB&L Engine No.4, a Porter Bell 2-4-0. This shows the engine as received just prior to being placed into service. (BSRA)*

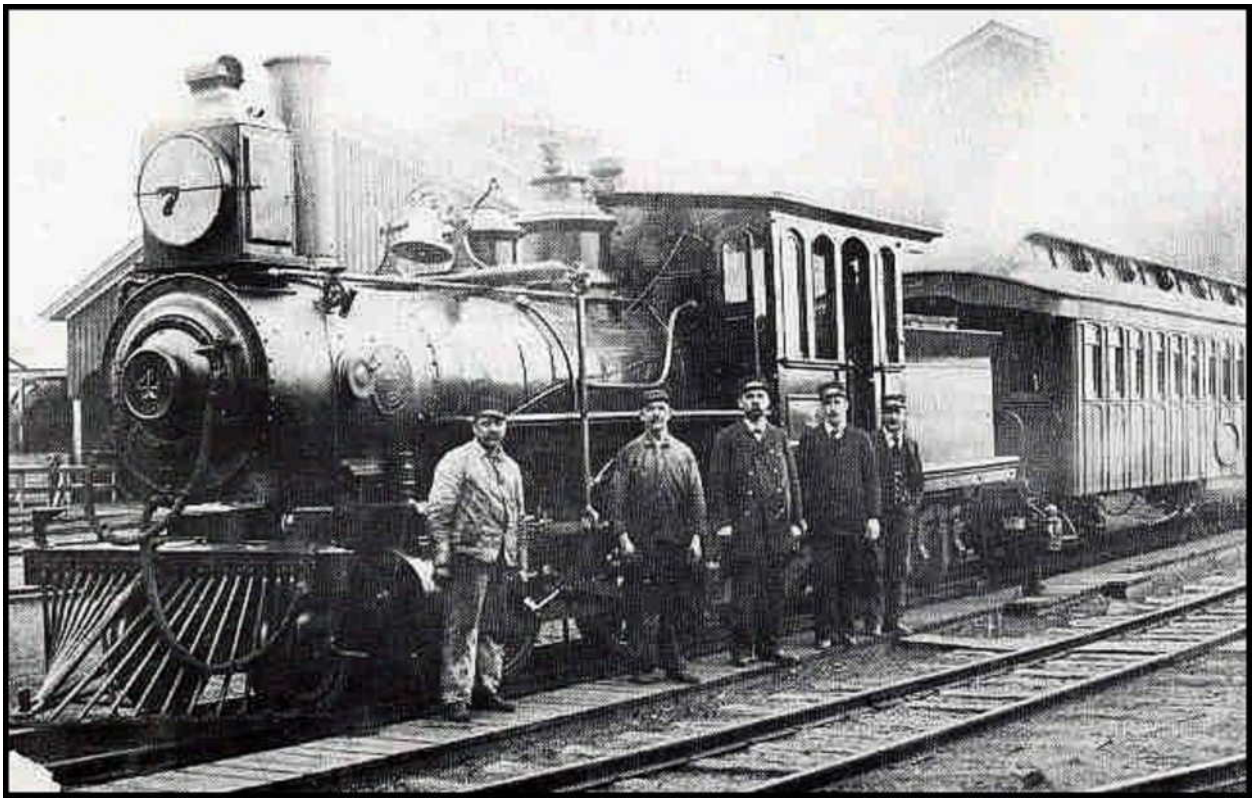


Figure 19 - *This is another picture of the BRB&L Engine No.4, built by the Mason Machine Works, taken some time after being placed into service. (BSRA)*

The photographs in Figures 18, 19, and 20 picture the second Engine No.4 at different times during its active service on the BRB&L Railroad. This second Engine No.4 was built by the Mason Machine Works (Builder's No.683) and was purchased in 1882 as the replacement for the original engine, a Porter Bell 2-4-0. This engine was the second of three Mason Bogies having a six-wheeled tender truck (i.e., 2-4-6T) that the BRB&L would own. This engine would ultimately be replaced, after being all but destroyed in the 1904 Orient Heights fire, by a 2-4-4T configuration, which was to become the BRB&L standard. The photograph in Figure 18 pictures the Mason-built engine as it looked upon delivery in 1882. Note the many unique touches found in a Mason execution of the Bogie design, e.g. arched or rounded-top windows and doors, cantilevered overhang over the bunker (tender), doors on the front of the cab being hinged on the outboard side of the jamb and opening inward, the use of Walschaert's valve gear, and the reversing linkage traversing across the boiler top. Also note the use of a straight stack. One departure from the usual Mason locomotive accessories is the lack of the iron headlight bracket projecting out in front of the smoke-box. Instead, the headlight is mounted directly on top of the smokebox. The photograph in Figure 19 shows the Mason-built engine in service some time later, with an obviously proud crew preparing for a days work at Jeffries Point in East Boston. A few changes can be observed in this photograph: one is the plain straight stack; another is the modification to the doors on the front of the cab. They are now hinged on the inboard side of the jamb and clearly open outward. Also note that it seems the small windows between the doors seem to be blacked-out with paint or boarded in.

The photograph in Figure 20 is purported to be a picture of the third Engine No.4, a Bogie built by the American Locomotive Company's (ALCO) Manchester Works in 1904. However, in comparing this photograph with the photographs of the Mason engine in Figures 18, 19, and the photograph of the Manchester engine in Figure 21, I've found that the sand and steam domes, the builder's plate and the rivet patterns on the smokebox just don't line up with what can be observed in the photograph of the Manchester engine. Additionally, while not easy to see in Figure 20, in comparing the placement of the handrails relative to the domes and the daylight between the boiler top and the handrail with Figure 18, I'm pretty certain that this is a straight-top boiler. The photograph in Figure 21 plainly shows the Manchester built engine was a wagon-top boiler. One final reason I don't think this is a picture of the Manchester engine is that the photograph in Figure 20 plainly shows the tender truck to be a six-wheeled type, which the Mason-built engine had, while the Manchester engine is listed in the BRB&L roster as being a 2-4-4T configuration. So, for the reasons stated above, I believe Figure 20 is a photograph taken of the Mason-built engine after having a new cab built or the existing one modified by the BRB&L shops. Note the missing cantilevered overhang, the cab front doors still opening outward, and the new small electric headlight replacing the old large oil-fired headlight.

The photograph in Figure 21 the shows the third BRB&L Engine No.4, as built and delivered by the American Locomotive Company's (ALCO) Manchester Works (Builder's No.30125) in 1904. While maintaining the peaked cab of the Mason design, gone are the arched or rounded-top widows and doors on the front of the cab. Gone, too, are the ornate sand and steam domes, quickly being replaced by the more utilitarian (that is, less costly to manufacture) design now in vogue. Using the photographs in Figures 19 and 21, compare the down-to-earth Mason smokebox front, having only the door hinge assemblies on the fireman's side and the respective latching mechanism on the engineer's side, with the more complex design used by other builders, with multiple clamps, spaced equidistant around the perimeter of the smoke-box door rim. Also note the difference in the number of rivets used. Between 1899 and 1912 the Manchester Locomotive Works/ALCO Manchester Works built 16 Mason Bogie engines for the BRB&L Railroad.

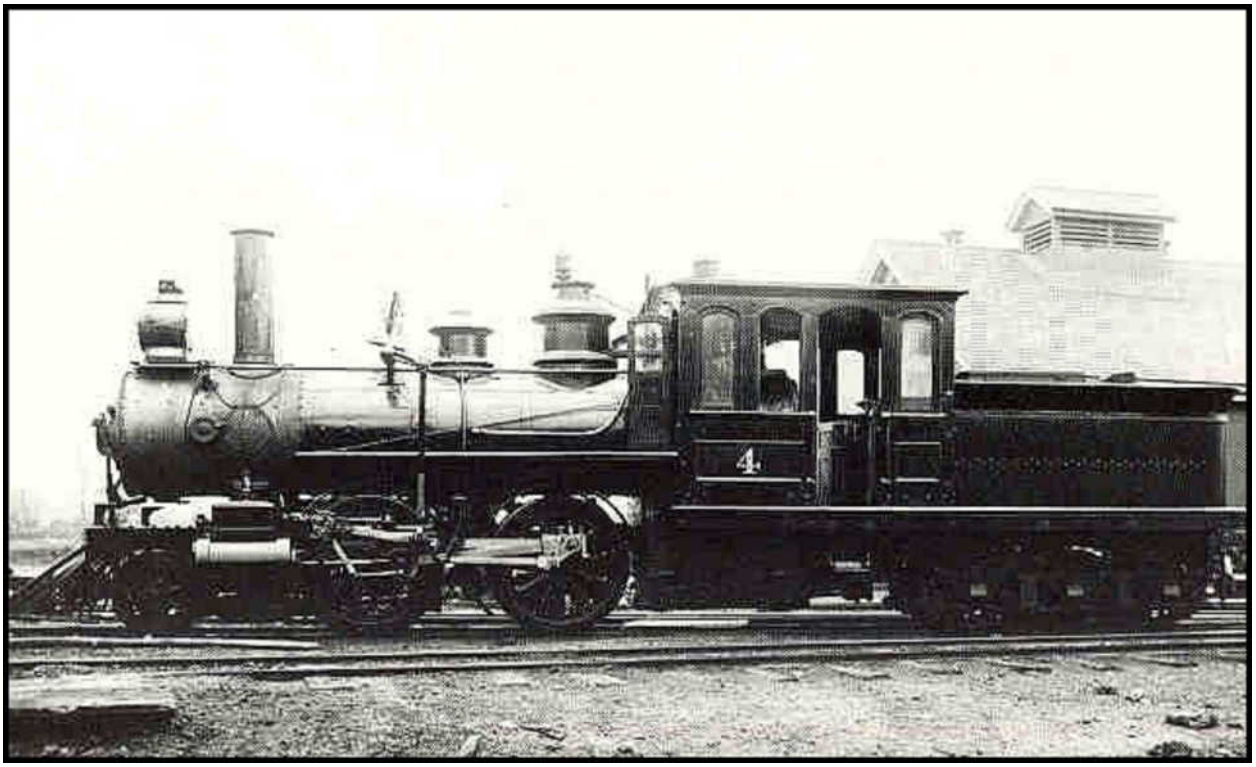


Figure 20 - *Another picture of the Mason-built Engine No.4. I believe this photograph to have been taken after a fairly major overhaul by the BRB&L shops. (BSRA)*

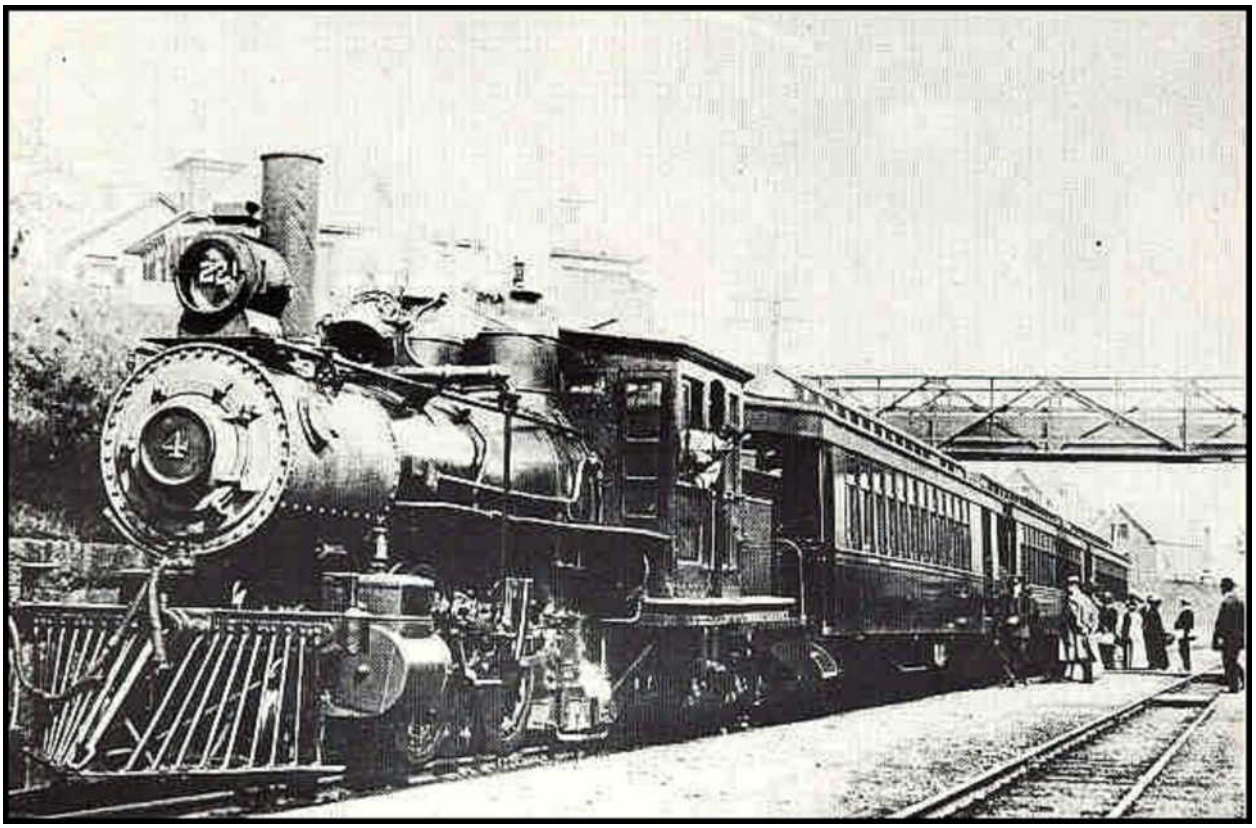


Figure 21 - *This is a picture of the Manchester Works BRB&L Engine No.4, also taken some time after being placed into service. (BSRA)*

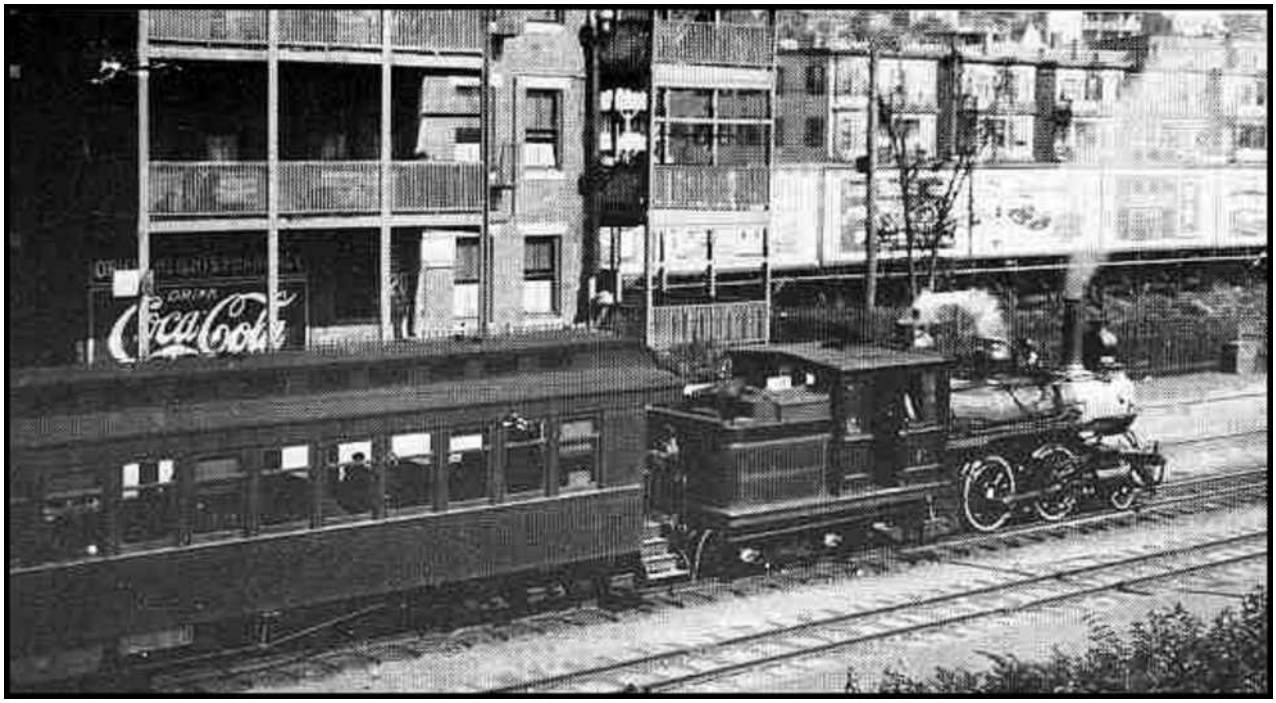


Figure 22 - *Caught at work in Orient Heights; is the second Engine No.6 a 2-4-4T Mason-built Bogie (Builder's No.727) purchased in 1886. In 1920, this engine was shipped to the ALCO-Manchester Works for rebuilding, along with three other locomotives (i.e. BRB&L No.7, 11, and 12). If you look closely at the rear of the bunker you can see a headlight mounted there. (BSRA)*

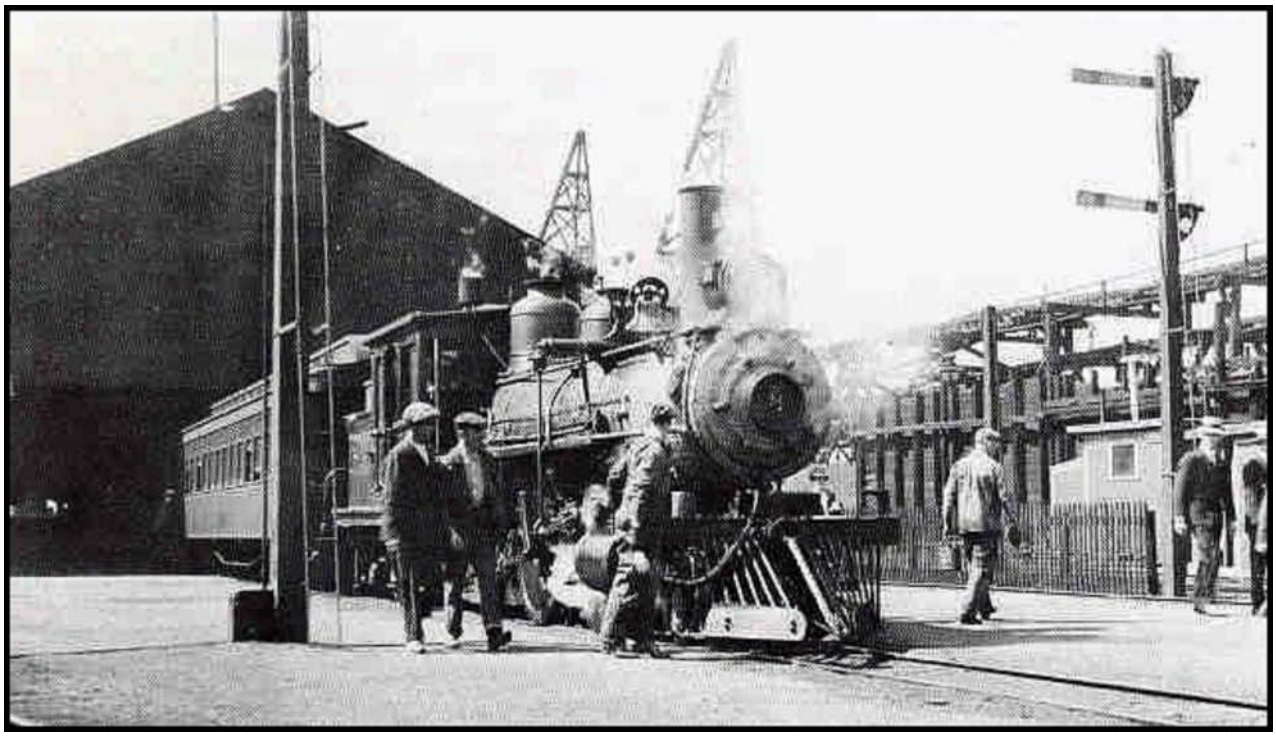


Figure 23 - *Here's Engine No.8, pictured at the BRB&L East Boston terminal awaiting passengers from one of the BRB&L's ferries. This engine is the second Engine No.8, an ALCO-Manchester Works built Bogie (Builder's No. 1741), that underwent extensive rebuilding in 1904-05 after surviving the 1904 fire at Orient Heights. (RCS)*

Engines Nos. 9 and 10, pictured in Figures 24, 25, 26, and 27, were purchased in 1887. They were the last two Mason Bogie locomotives purchased by the BRB&L from the Mason Machine Works (Builder's Nos. 740 and 741 respectively), which ceased construction of steam locomotives in 1889. Take note of the general shift away from the ornate and decorative designs common to the 1800s, towards the more utilitarian design considerations of the 20th century. For example, gone are the decorative dome beads and polished brass jackets of the sand and steam domes. Gone, too, are the arched-top windows and cantilevered overhang extending over the bunker (or tender). It seems that the changing norms in American locomotive construction practice had even penetrated the aesthetics of the William Mason design. These last two Mason-built locomotives even incorporated the new style "wagon-top" boiler design.

In 1890, the BRB&L found itself once again in need of additional motive power and the railroad had deemed the Mason Bogie as the only acceptable option. With the Mason Machine Works having gone out of business in 1889, some acceptable solution to the dilemma had to be found. In some manner, arrangements were made for the defunct Mason Machine Works to hand over its patterns and drawings for the Mason Bogie design to the Taunton Locomotive Manufacturing Company. After building the two Bogies required, the Taunton Locomotive Manufacturing Company itself went out of business in 1890, but not before the forward-thinking management of the BRB&L had acquired a complete set of drawings and patterns for the design of their locomotive.

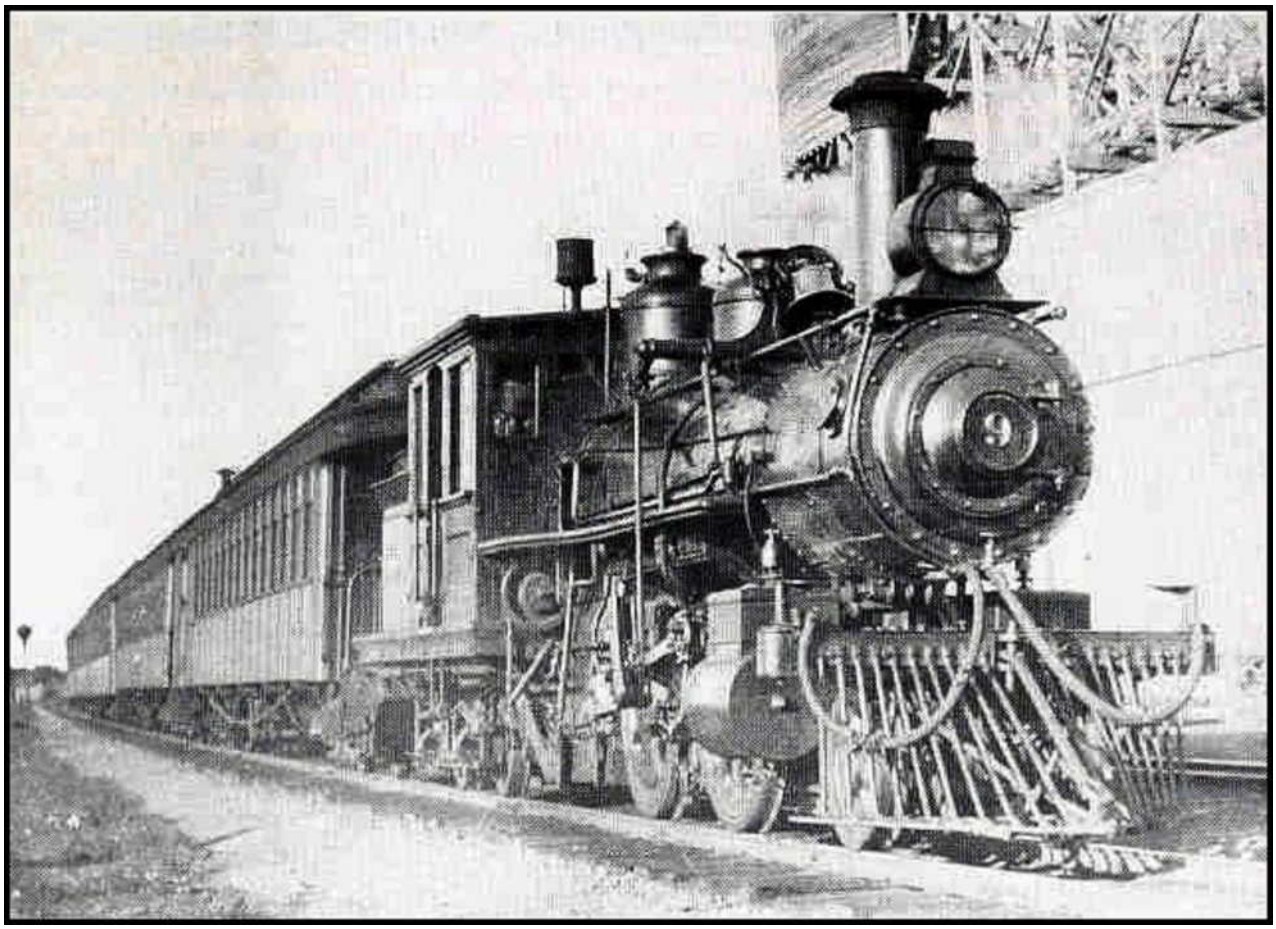


Figure 24 - *Engine No.9, one of the last two locomotives built by the Mason Machine Works (Builder's No.740) in 1887. Note the Eames vacuum brake diaphragm just below the running board and the muffler projecting above the cab. (BSRA)*

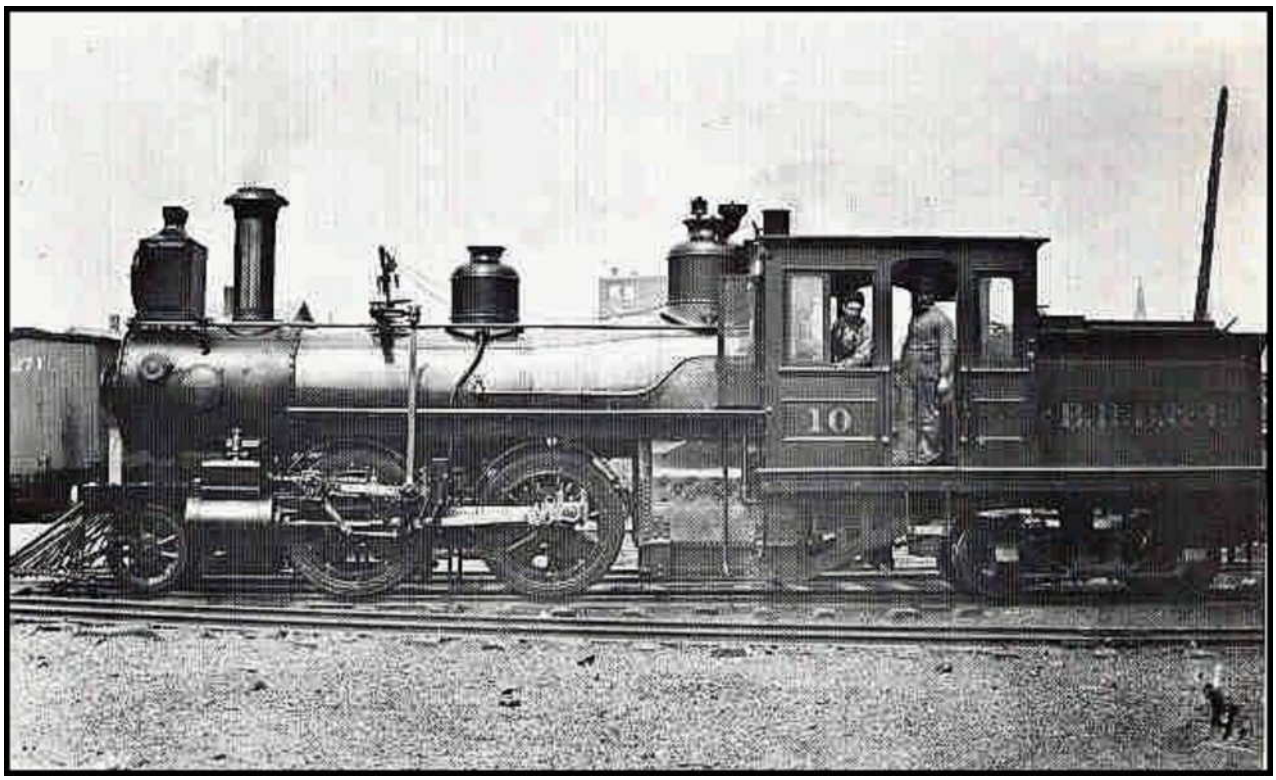


Figure 25 - *Engine No. 10, the last Locomotive built for the BRB&L by the Mason Machine Works (Builder's No.741) in 1887. (RCS)*

Figure 26 - *Here is a photograph of Engine No. 10, having only been in service a very short time. Pictured here with her proud crew, this newly out-shopped Mason-built Bogie awaits passengers to board at the Lynn depot. Man! Will you look at the shine on that new Russia iron boiler jacket? (WPL)*

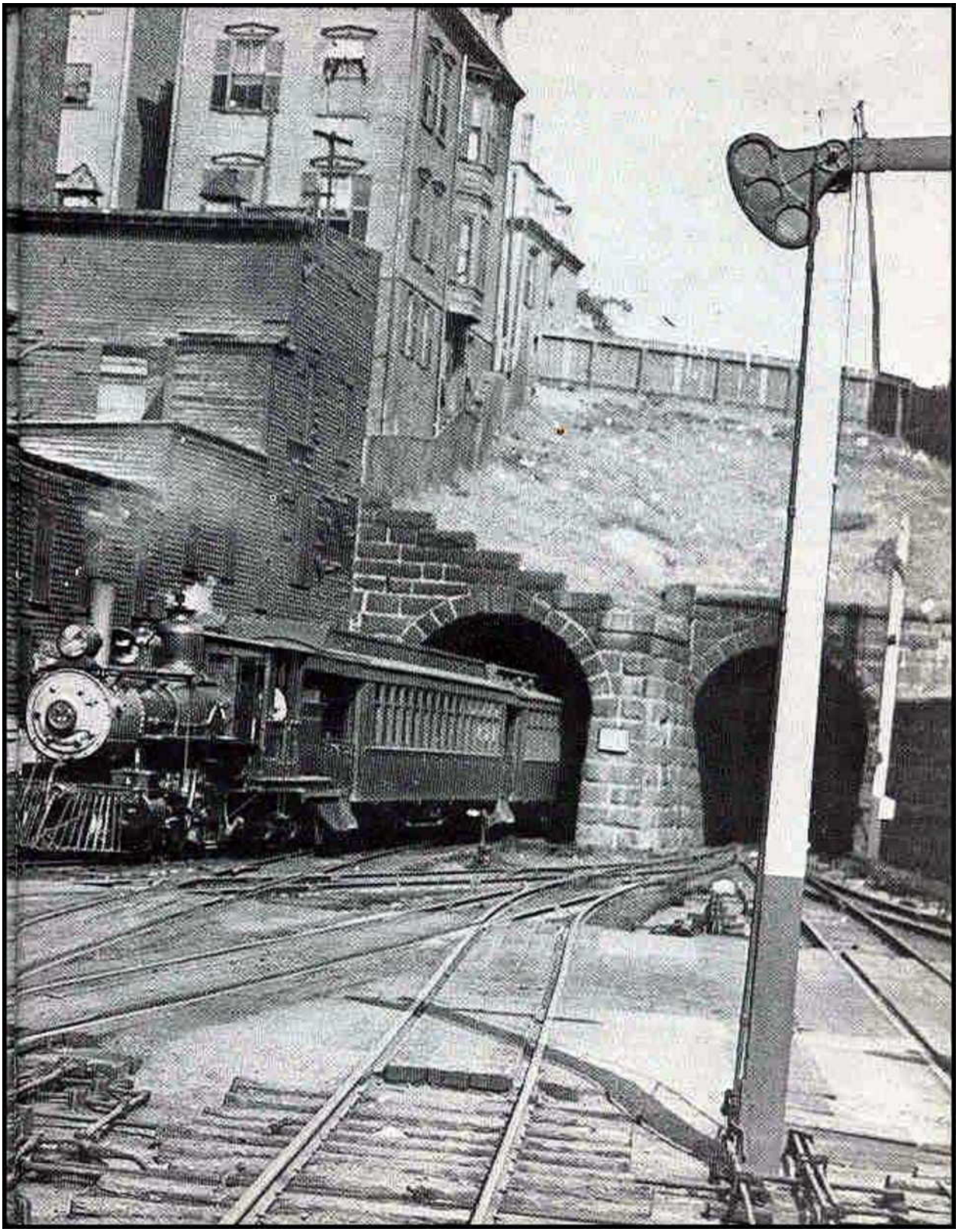


Figure 27 - *Caught here just exiting the Sumner Street tunnel on its arrival at East Boston is Engine No. 10, the last of the BRB&L Mason-built Bogies (Works number 741). This engine isn't listed as having been rebuilt by ALCO or overhauled by BRB&L at Orient Heights. And yet, if you look at the smokebox front, it sure isn't pushing the nose it was built with by Mason, as can be seen in Figure 26. Missing is the graceful Mason bead; also the number of rivets has just about doubled and an additional four door clamps have magically appeared. (BSRA)*

Beginning in 1900 and continuing for the next 12 years, all of the BRB&L Mason Bogies were erected at the Manchester Locomotive Works (1873 – 1901) located in Manchester, New Hampshire. To assure the manufacturer built what the railroad wanted, the BRB&L provided the original Mason Bogie patterns and drawings they had acquired from the Taunton Locomotive Works in 1890.

With an eye toward maintaining historical accuracy, I must further clarify the circumstances surrounding the Manchester Locomotive Works during this period. Only the first two locomotives erected in 1900 (Builder's Nos. 1741 and 1742), out of the 16 total locomotives built at this facility, were actually built under the Manchester Locomotive Works company name. On June 24, 1901 the Manchester Locomotive Works, along with six other American locomotive manufacturers, were amalgamated with the Schenectady Locomotive Works of Schenectady, New York, under the company name American Locomotive Company (ALCO). From this time forward, technically the remaining 14 engines were built by the American Locomotive Company at their Manchester Works facility. All of the Mason Bogies pictured in Figures 28 through 37 were built at the Manchester location.

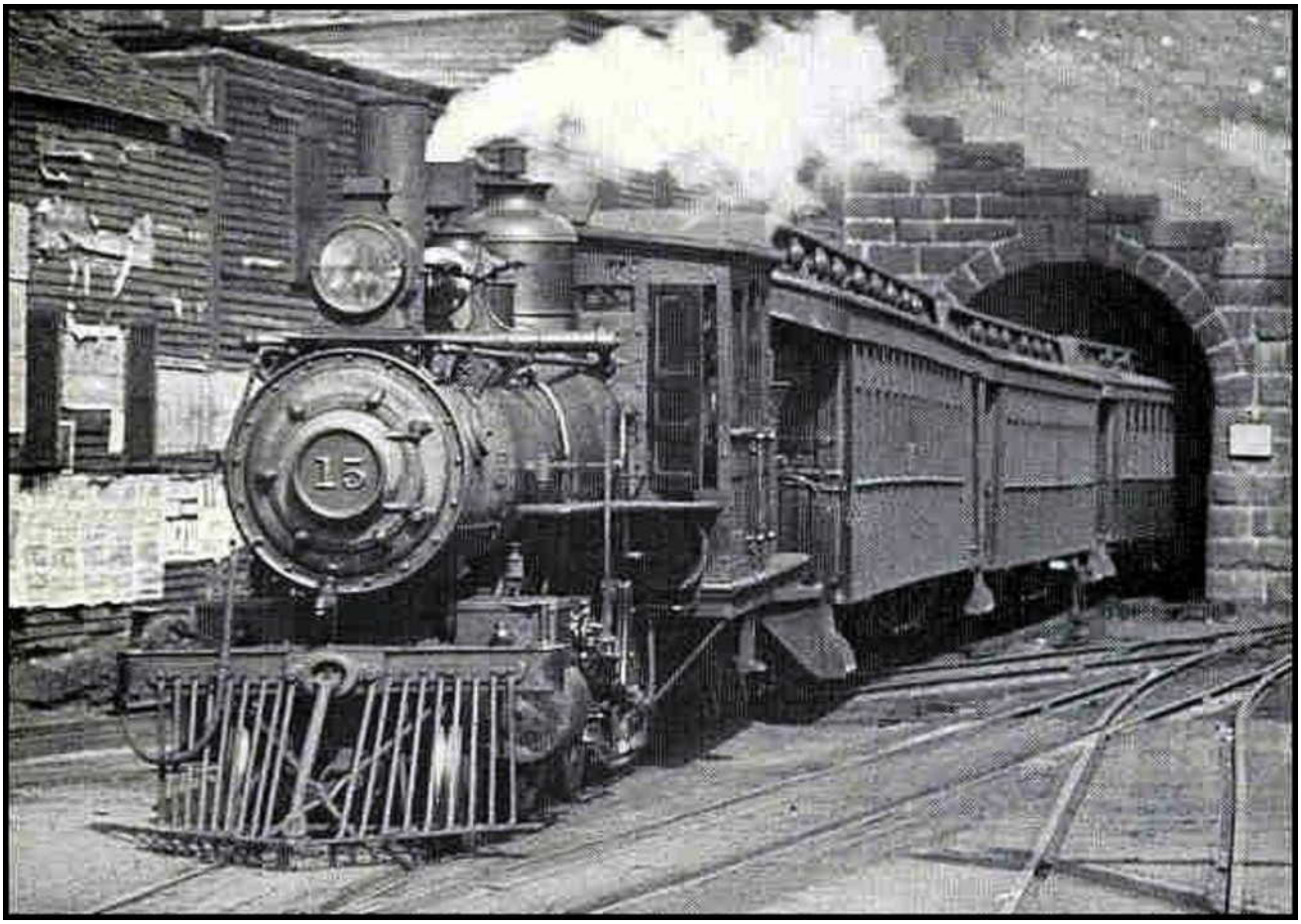


Figure 28 - *Here's Engine No. 15, pictured exiting the twin-tube tunnel under Sumner Street at Jeffries Point, just prior to arriving at the East Boston BRB&L depot. Engine No. 15 is an ALCO-Manchester Works built locomotive (Builder's No. 27802) purchased in 1903. (BSRA)*

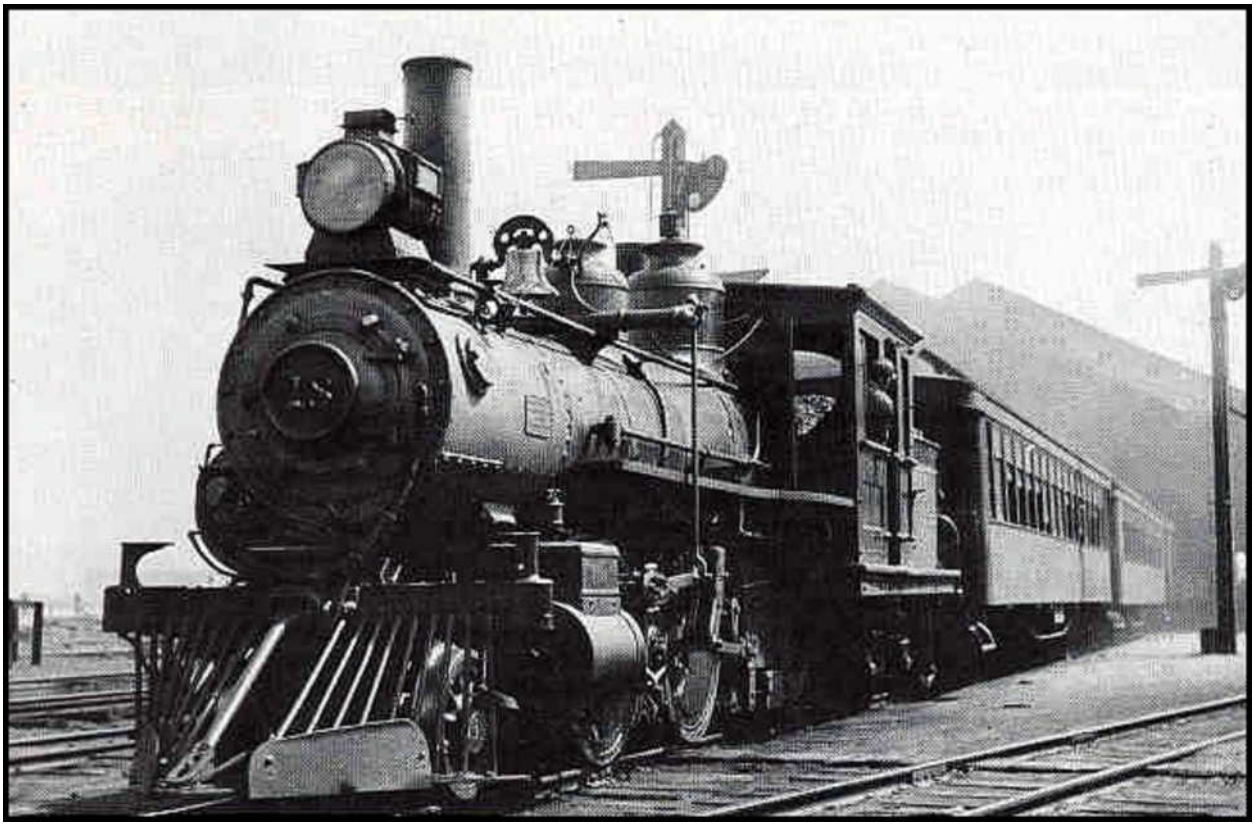


Figure 29 - *Here's BRB&L Engine No. 18 shown backing into the East Boston terminal. It's another of the ALCO-Manchester Works built engines (Builder's No.42268) purchased in 1907. It was this little spirited locomotive that tried running away and going to sea when, on May 11, 1928, she ran a bumper and plunged headlong into the East Boston harbor. Maybe she was just trying to escape the impending doom heralded by the railroad's electrification, which would be finalized on Dec. 2, 1928, the day the last steam powered train would traverse the BRB&L's route from Lynn to East Boston. (RFM)*

Engine No. 19, pictured in Figures 30 through 34, was either the BRB&L's "Super Model" of the day, or Lady Luck just happened to smile on this engine. There are more surviving photographs of this locomotive than any other of the BRB&L's motive power. This is another of the ALCO-Manchester built locomotives (Builder's No.42741), purchased in 1907 along with her three sister engines, BRB&L road numbers 18, 20, and 21.

The Boston Revere Beach & Lynn Railroad shops overhauled engines 5, 11, and 19 around 1917. All three of these engines were supposedly outfitted with steel cabs at that time, however, Engine No. 19 is the only one with surviving photographs showing both the wood and steel cab configurations. Figure 30 pictures Engine No. 19 in her pre-steel-cab era, as the Manchester Works built her, but before the characteristic BRB&L ice scrapers have been applied to her pilot. Then, in Figures 31 through 34, Engine No. 19 is captured at various points in her working life sporting her steel cab.

Another of the uniquely BRB&L Mason Bogie characteristics, even found on the early Mason-built engines, was the manner in which the shops of the BRB&L early on found a way to integrate the locomotive's bell with the reversing linkage on top of the boiler. In doing so, they acquired automatic bell ringing anytime the locomotive changed direction for next to nothing. Note the line connecting from the reverse lever across to the bell ringer in the next photo.

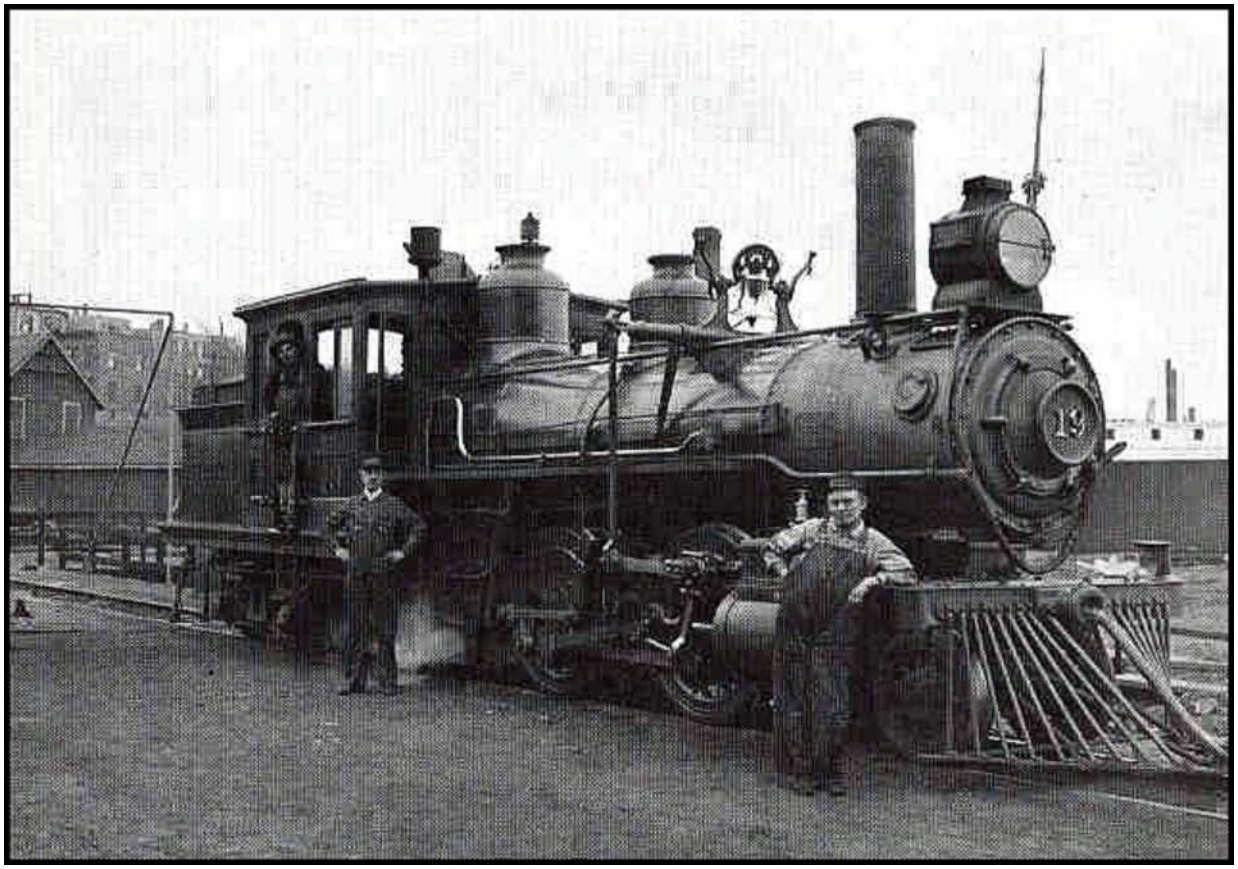


Figure 30 - *Here's a photograph of Engine No. 19, fresh off the turntable. In this photograph, the engine is seen pretty much as she was built by the ALCO-Manchester Works in 1907. (RFM)*

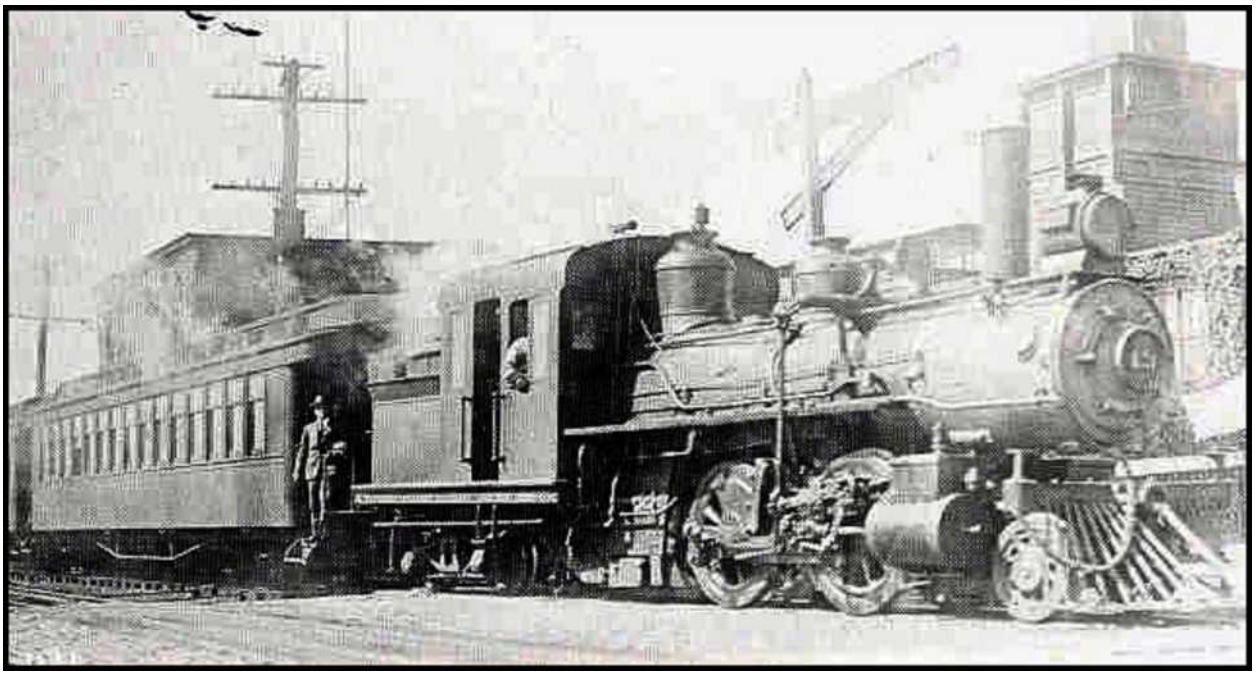


Figure 31 - *Here's a picture of No. 19, sporting her new all-steel cab, retrofitted in the BRB&L shops at Orient Heights during the engine's rebuild of 1917. Notice the large counterweights cast as part of the drivers, not a typical Mason detail. While the Eames brake diaphragm can be seen just below the running board in front of the cab, missing or hidden in the steam is the characteristic muffler on top of the cab. (RCS)*

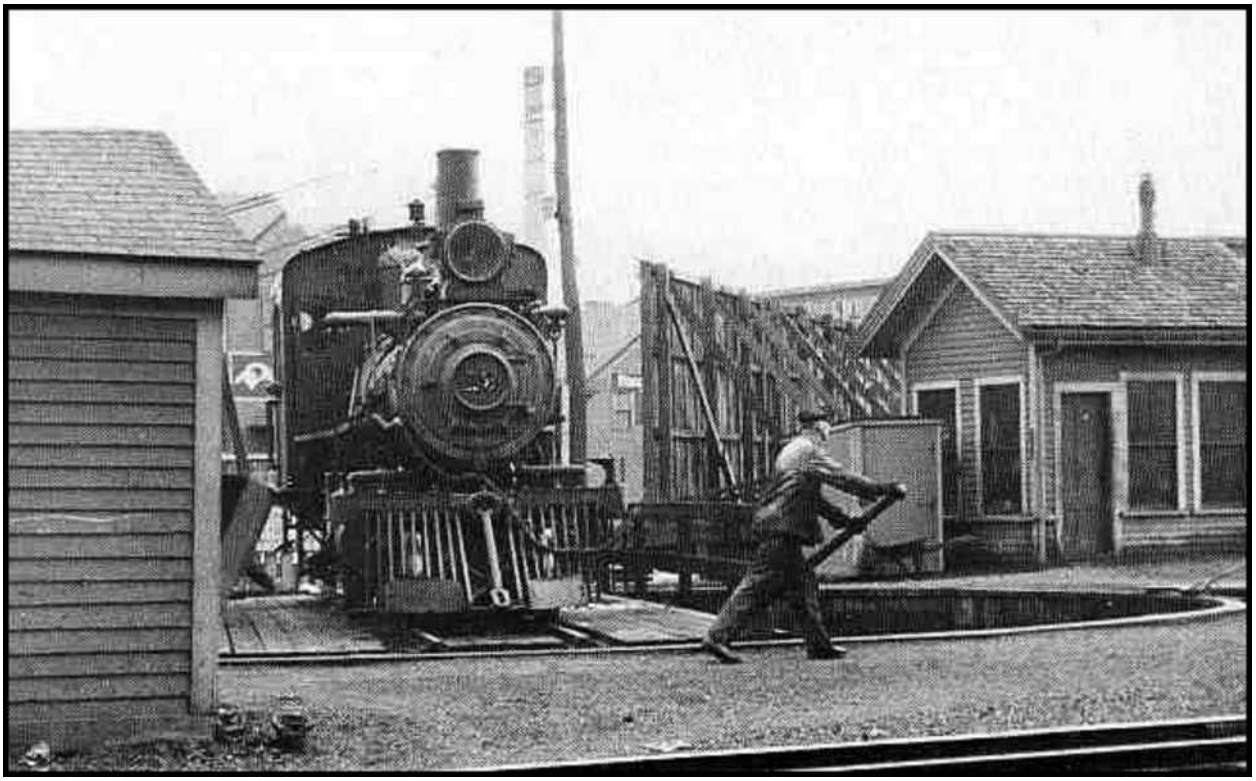


Figure 32 - *Here we catch No. 19 being taken for a ride on the Lynn turntable, getting ready for her return trip to East Boston. The BRB&L had three turntables (at Lynn, Orient Heights, and East Boston), all of which were hand-operated. (BSRA)*

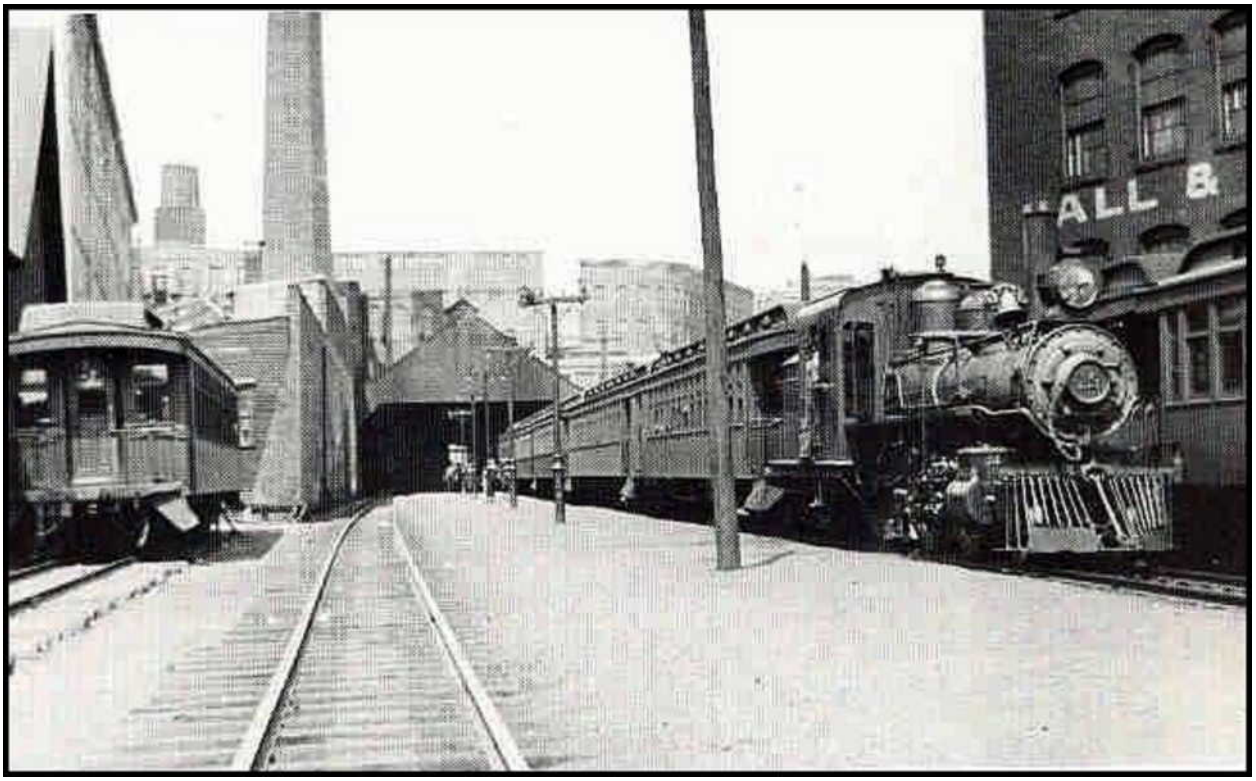


Figure 33 - *Here, Engine No. 19 is shown pulling out of the Lynn depot on her way to the East Boston terminal and the ferry slips. (WEH)*

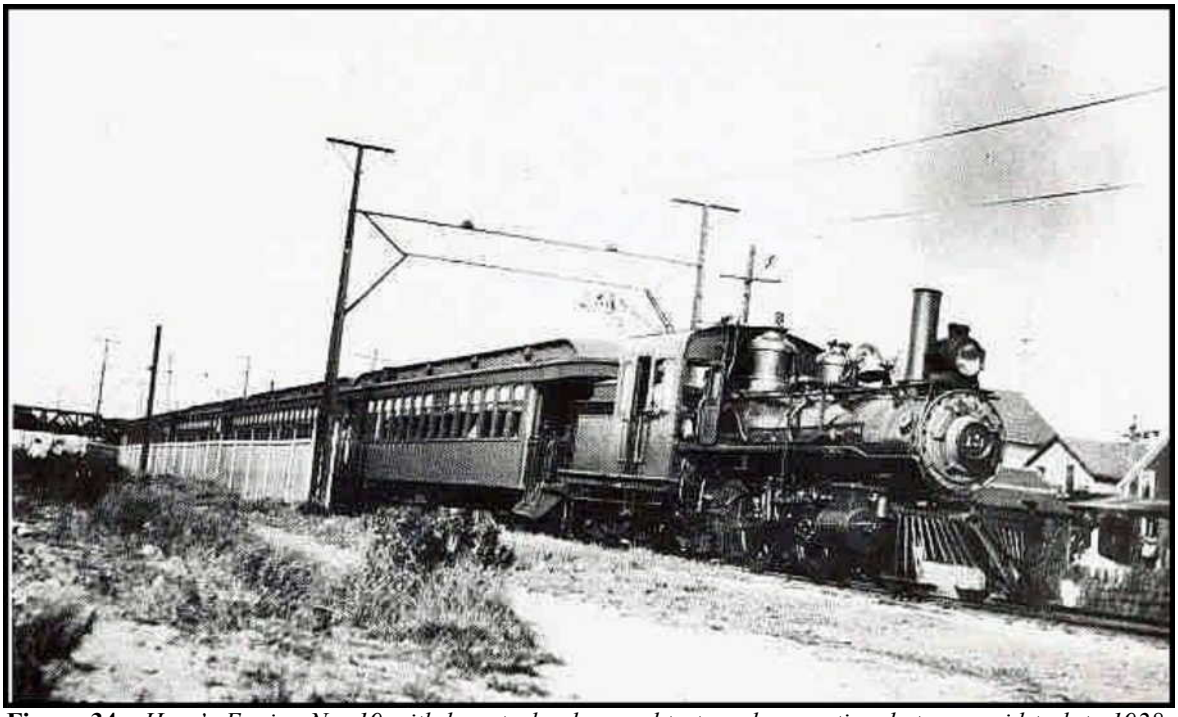


Figure 34 - *Here's Engine No. 19 with her steel cab, caught at work some time between mid to late 1928. She's pulling out of Revere, with the catenary's ominous 600-volt kiss-of-death serpent looming just overhead, so to speak. (RFM)*

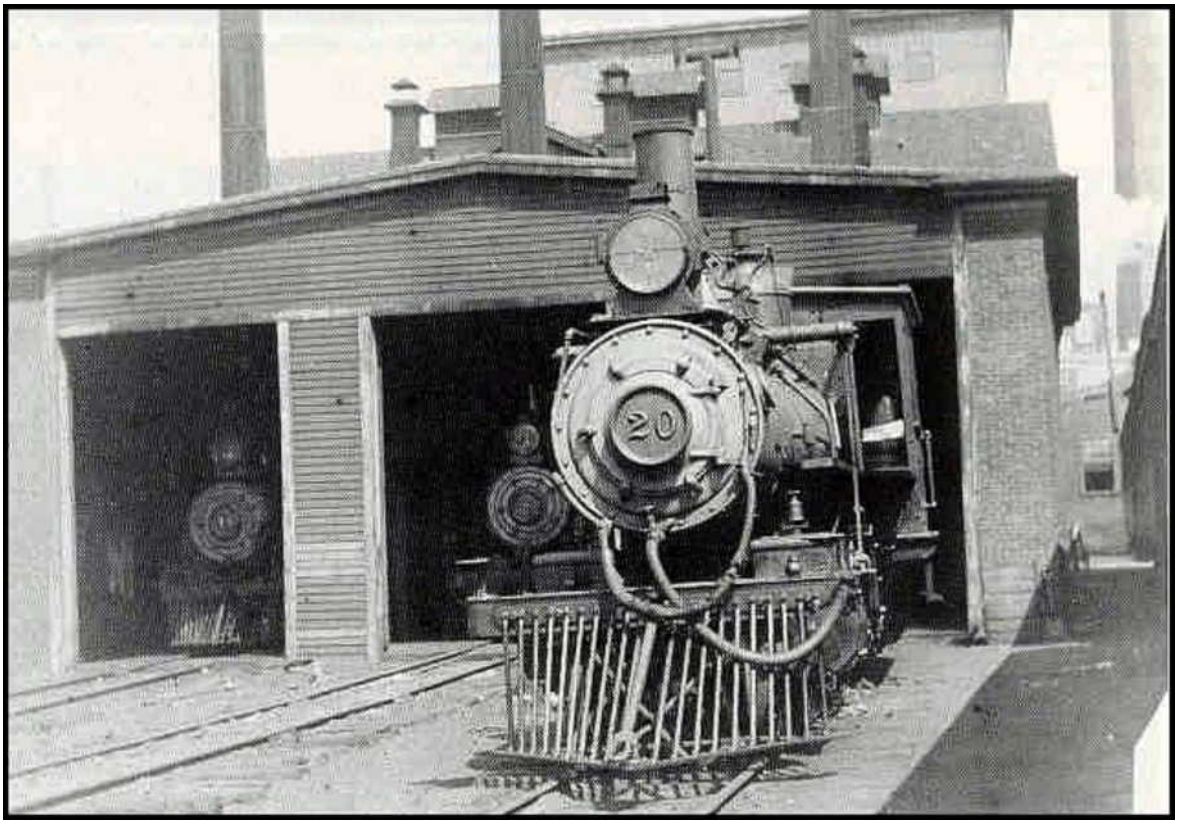


Figure 35 - *This is Engine No. 20, an ALCO-Manchester Works built locomotive (Builder's Number 42742) purchased in 1907. It is pictured here at the Lynn engine house, along with Engines No. 18 (far left) and No.8 (center), also ALCO-Manchester-built locomotives (Builder numbers 1741 and 42268 respectively). How can you tell it's a Manchester built engine? Look at the smokebox front. (HB)*

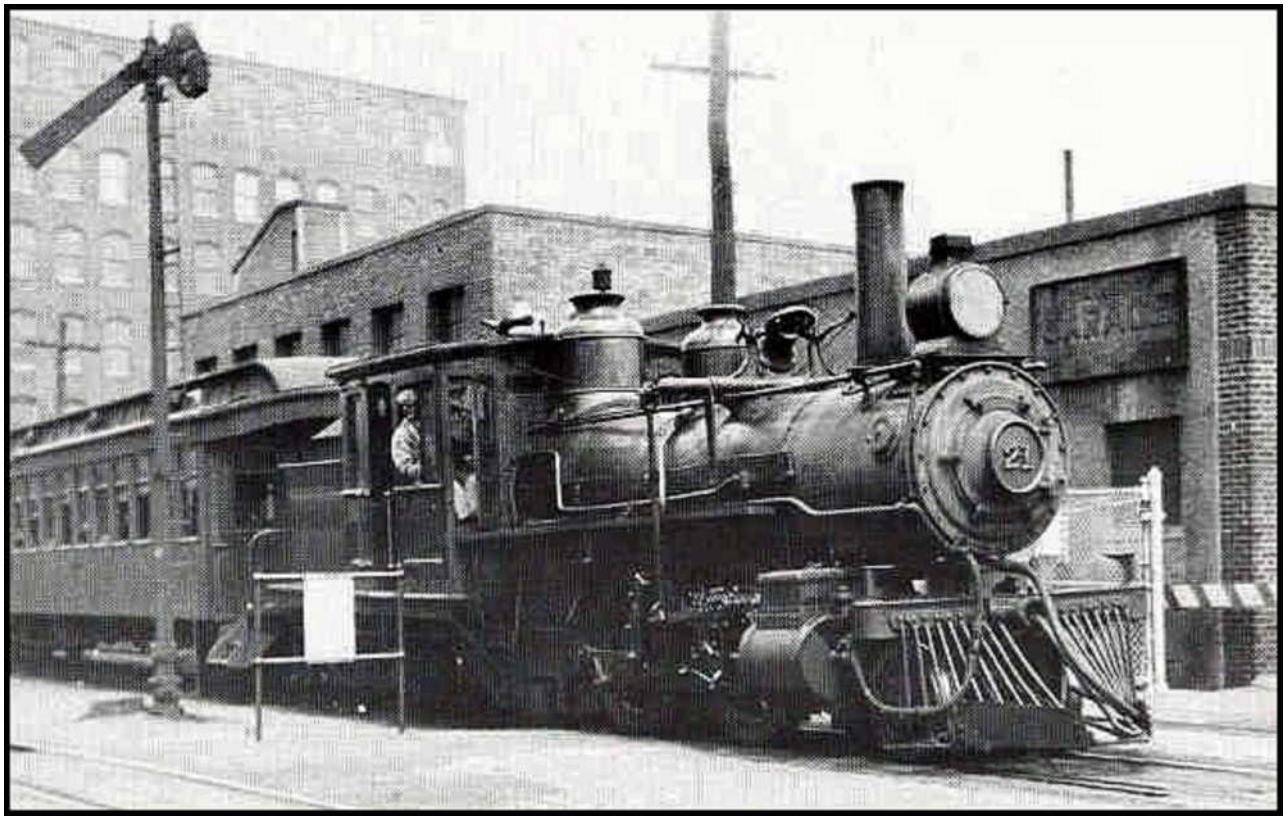


Figure 36 - *Here's a picture of Engine No. 21 taken during a normal day's routine. An ALCO-Manchester built Locomotive (Builders number 42743) purchased in 1907. (RFM)*

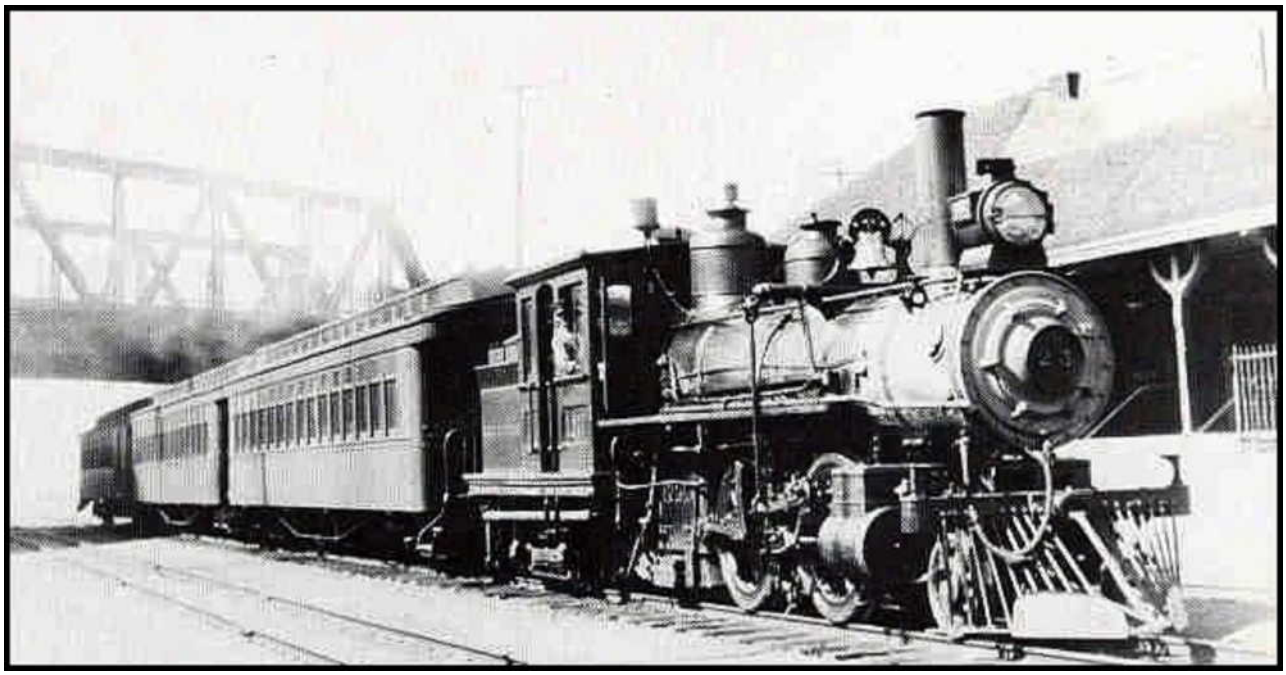


Figure 37 - *Here Engine No. 23 is pictured at Orient Heights. The last of the BRB&L Mason Bogies built at the ALCO-Manchester Works (Builder's number 50831). (RFM)*

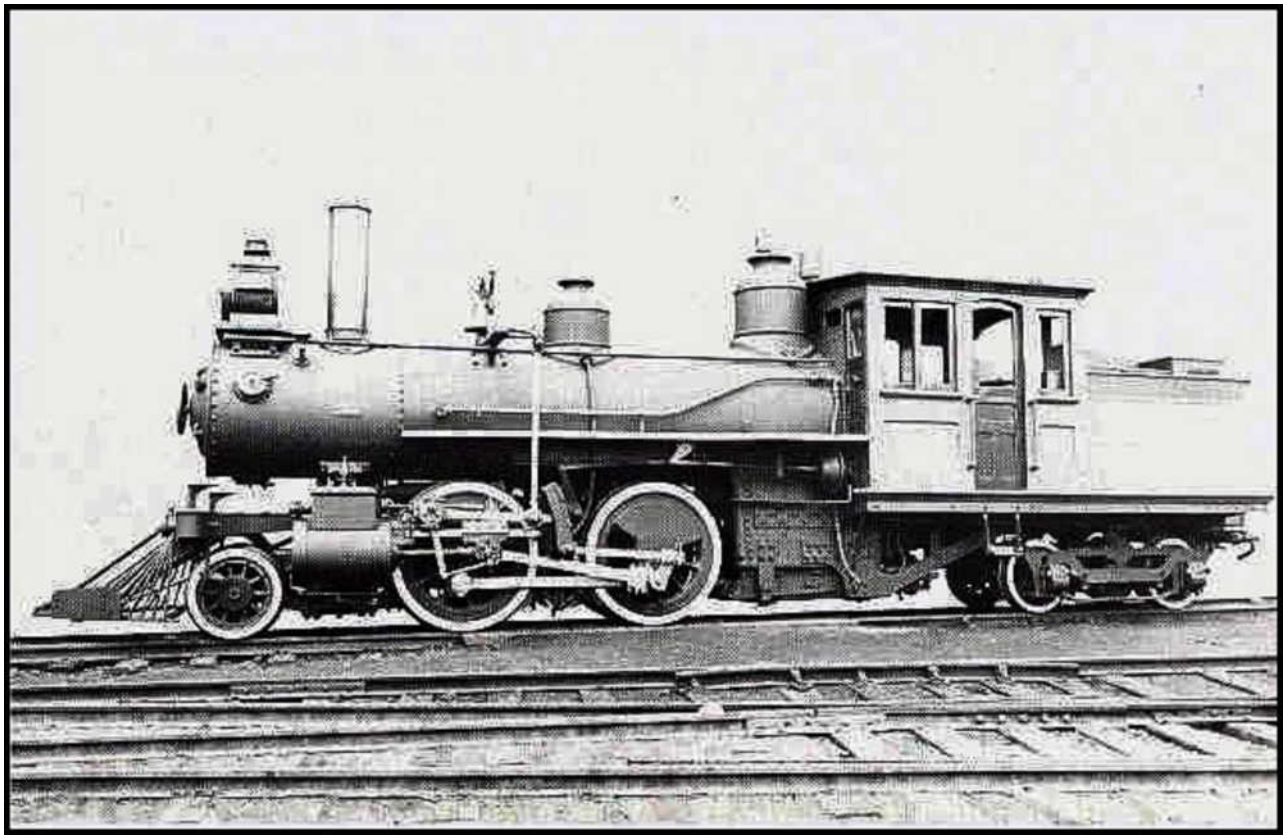


Figure 38 - *Pictured here is the BRB&L's Engine No. 24, an ALCO-Schenectady Works built locomotive (Builder's No.54590) purchased in 1914. (BSRA)*

The ALCO-Schenectady Works located in Schenectady, New York built the last three Mason Bogie style locomotives purchased by the BRB&L in 1914. These were BRB&L Engine Nos. 24, 25, and 26, erected under the Schenectady Works numbers 54590, 54591, and 54592 respectively. While these engines were built in 1914, they generally followed the original Mason patterns and drawings the BRB&L had acquired from the Taunton Locomotive Works prior to that company going out of business. Notice the spoked wheels have been maintained on the pony and tender trucks; however, the drivers have very large non-typical Mason counter weights. As can easily be seen in this photograph, the BRB&L engines still used the Eames vacuum brakes. While these are handsome locomotives, sporting their spiffy white-walls, to me they just don't have that quiet elegance that a Mason original carried about itself.

The photographs in Figures 39 and 40 show the Mason Bogies of the BRB&L struggling around the Winthrop Loop during the winter of 1919-20. While this was a bad storm, possibly the most severe winter storm encountered by "Narrow Gauge" was the blizzard of 1898. This winter storm, a real classic, once-in-a-century, New England "Nor'easter", struck the coast of Massachusetts around 10 PM on the 26th of November and hung around till the end of November 27th. Even with almost every employee of the railroad out working, full service on the BRB&L didn't resume until a full week later, on December 2nd. It took a long time to clear the snow off the line, but the most difficult part was removing the 2 to 3 feet of salt water ice that encased most of the trestles and bridges which accounted for almost 14 percent of the railroad's 8.8 miles of trackage. The storm was so treacherous that the steamship Portland, on her normal run from Boston, Massachusetts to Portland, Maine, foundered and is believed to have saunk somewhere off the coast of Cape Cod with 192 souls aboard. A total of 500 deaths and 155 vessels sunk or destroyed are attributed to this storm.

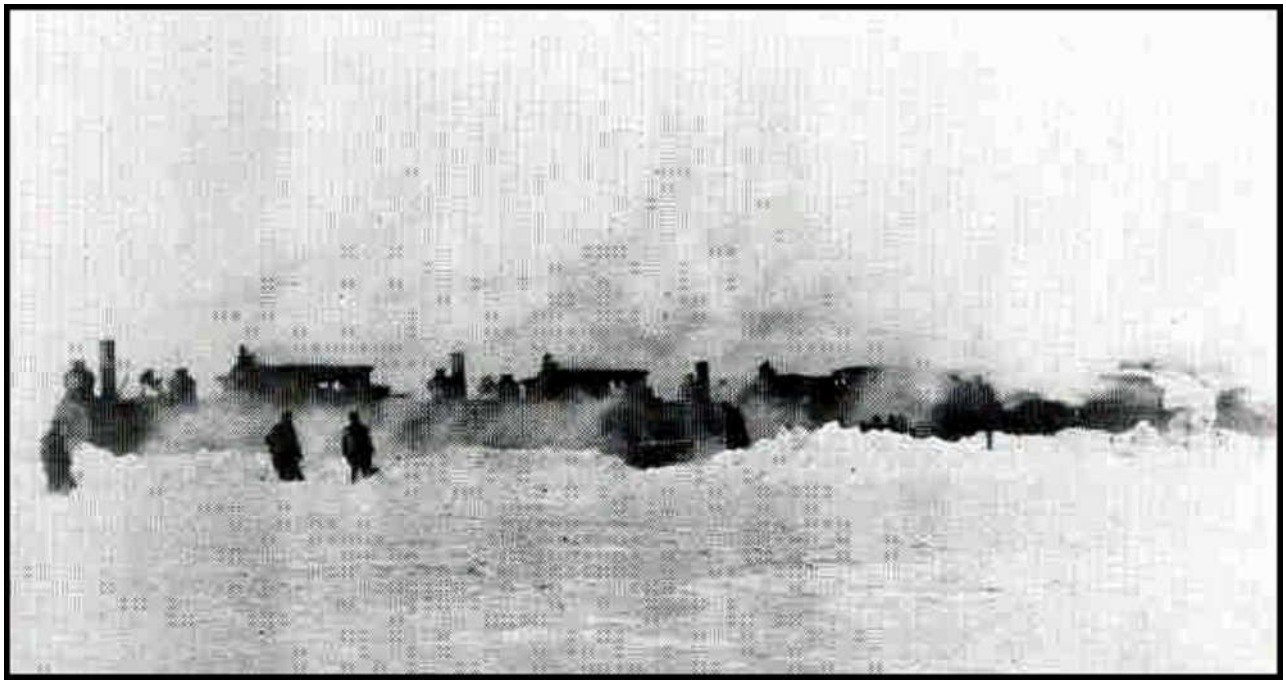


Figure 39 - *Pictured here are three Mason Bogies stalled for the moment at some point in their attempt at clearing the Winthrop Loop during the 1919-20 blizzard. (RFM)*

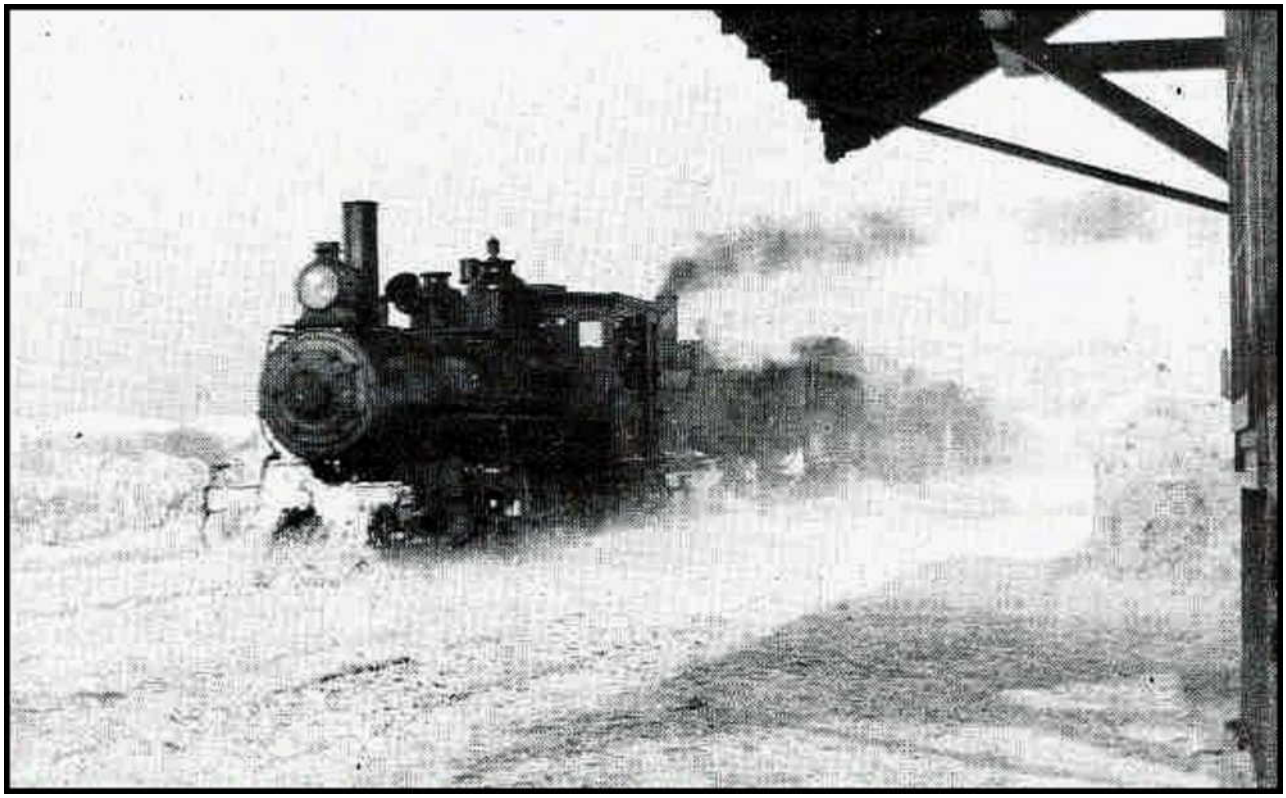


Figure 40 - *After having finally been successful in clearing the Winthrop Loop for traffic, here we see two Mason Bogies working in tandem to keep things moving around the Loop. (BSRA)*

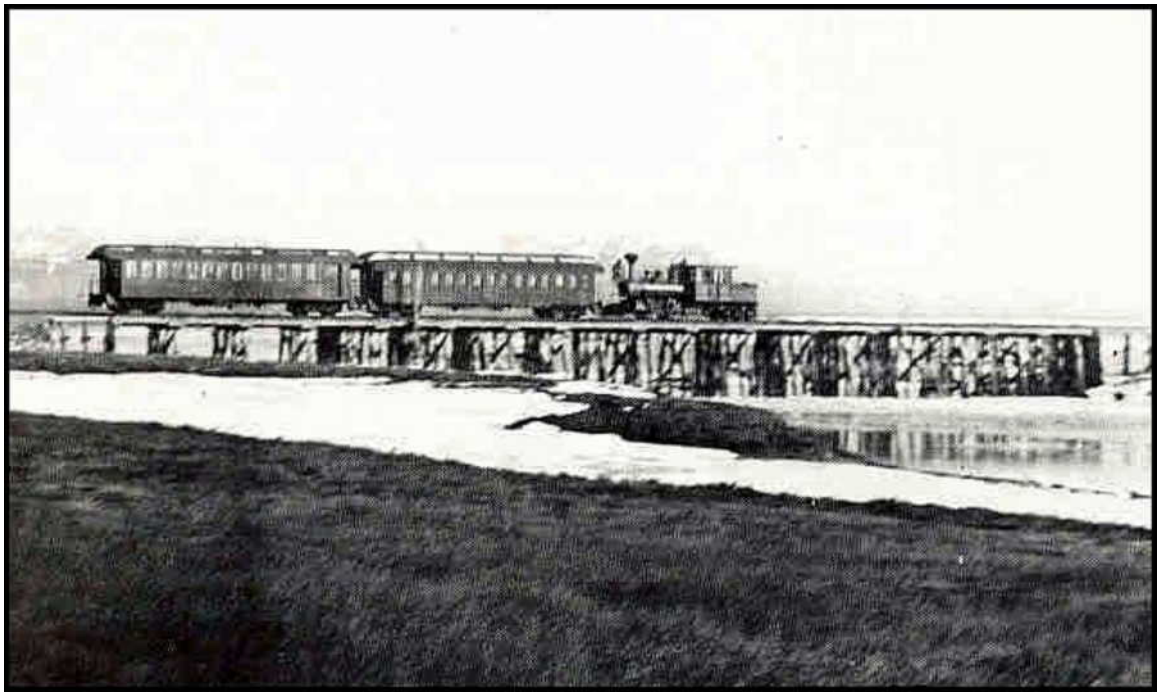


Figure 41- *Here, Engine No. 2 the "Pegasus" is seen hauling a two-car train across the Bell Island Inlet trestle. (WPL)*

After the dismal failure that William Mason had experienced with the "Janus", a European style double Fairlie locomotive, Mason continued undaunted with his adaptation and development of Robert Fairlie's design, which came to be referred to as "Mason-Fairlies" or "Mason Bogies." One of the advantages that Mason envisioned with his design was that the engine could be operated running the bunker first, thus the lack of a pony truck in the early Mason Bogie engines. Most of the railroads just didn't seem to see things the way Mason did and engineer's preferred to operated the engines in the same manner as their other locomotives, that is, boiler first. This is what I feel caused the Mason Bogie to gain the reputation of having a problem with the driver truck always hunting for curvature in the track. The problem was later addressed by William Mason with the introduction of the equalized pilot truck first used on the DSP&P RR.

Figure 41 shows the original Engine No. 2, the "Pegasus", a Mason-built 0-4-6T hauling a two-car train in the manner that Mason had envisioned. Running the Mason Bogies in this bunker-first manner was not standard practice on the BRB&L, since the railroad maintained turntables at the three terminus points, i.e. East Boston, Winthrop Junction (Orient Heights), and Lynn, where engines could be turned around when needed. However, in 1891 the turntable at the engine house in Winthrop Junction was removed and the BRB&L Superintendent issued the following circular.

Boston, Revere Beach & Lynn RR Superintendent's Office
Special Notice No. 23
Time-Table 43
The turn-table at Winthrop Junction locomotive house will be removed and discontinued on and after today, Wednesday, October 7, 1891. Locomotives, which put up at Winthrop Junction locomotive house at night will make their last trip with locomotive headed so that it can be run pilot first on the first trip in the morning.
C. A. Hammond, Supt.

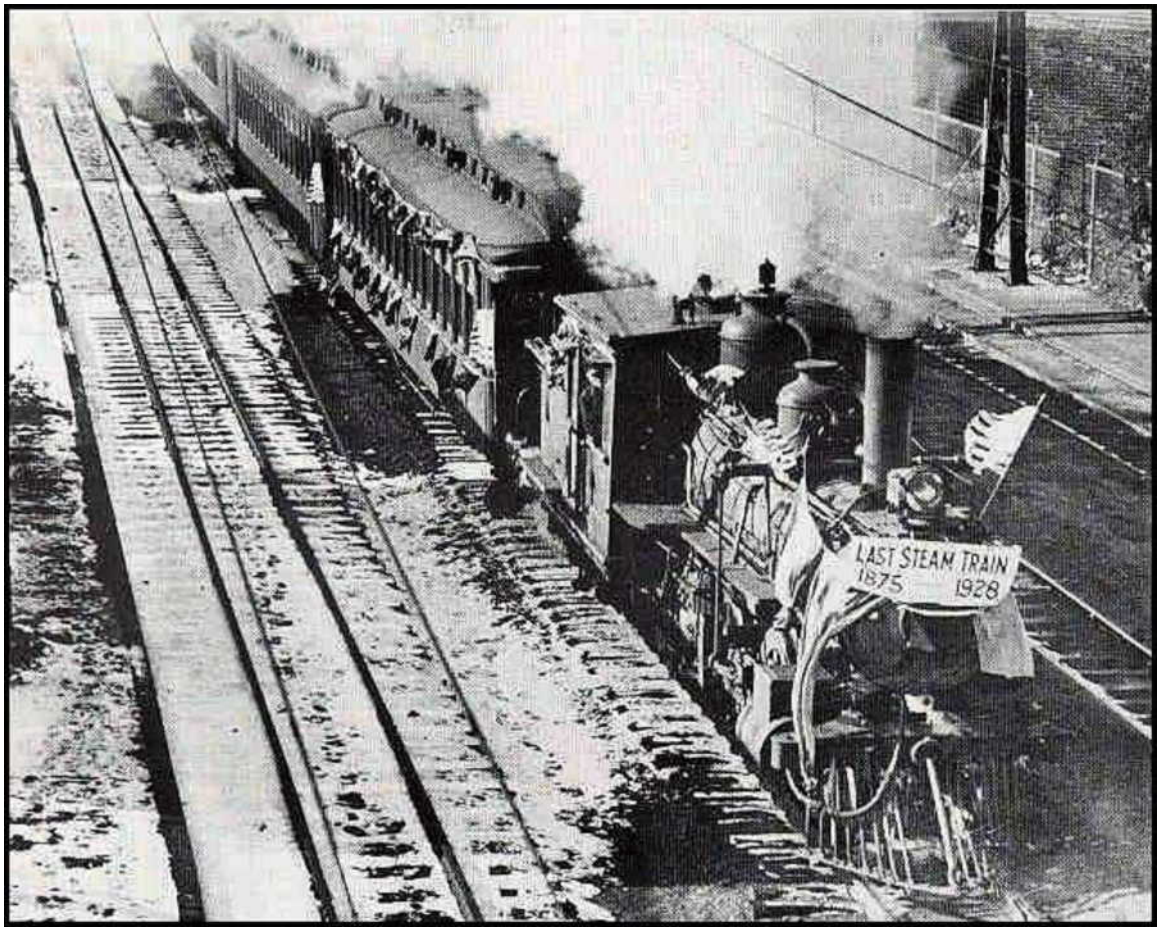


Figure 42 - *Engine No.5, an original Mason-built Bogie purchased in 1885, gets the dubious honor of being the motive power for the last steam powered train on the BRB&L Railroad, December 2, 1928. One thing to note about this engine is that it was supposed to have been overhauled by the BRB&L shops at Orient Heights in 1917, at which time it was said that she was outfitted with an all-steel cab like Engine No. 19. However, this photograph was taken in 1928 and it sure doesn't look like it has an all-steel cab. (BSRA)*

On November 16, 1927 it was announced that the then president, one Karl Adams, had sold his 5,000 shares of BRB&L stock to the Eastern Railway Associates, a holding company owned by the engineering firm of Hemphill & Wells. These 5,000 shares represented 58.8 percent of the outstanding shares, so control of the BRB&L was no longer in the hands of the Massachusetts residents that had held it for almost 50 years.

The BRB&L Board of Directors announced their plans to electrify the railroad in the Dec., 1927 issue of the "Electric Railway Journal." Have you noticed that most of the major changes that have taken place on the BRB&L occurred in either November or December? Anyway, construction paving the way for conversion to an electric railway began in April of 1928. By November 1928 full electric service was in force on the Winthrop Loop. From this time forward the steam locomotives were almost non-existent. It wasn't uncommon among long-time riders of the Narrow Gauge to let several of the Electrics pass, waiting for a train headed up by one of their loveable Mason Bogie "Coffee Roasters." That lasted until December 2, 1928, when Engine No.5 and three coaches were made up into the "Last Steam Train." Engine No. 5 and her consist of cars, done up in red, white, and blue bunting and flags, traversed the line all the rest of the day. At the end of the day when the train was retired, the era of both steam and the Mason Bogies on the Boston, Revere Beach & Lynn Railroad were over.

Figure 43 - *In this photograph, you see all the Mason Bogies the Boston, Revere Beach & Lynn Railroad had in 1928, save for one. That's 20+ locomotives, friends. They are pictured here, resting on flat cars and lined up on a siding behind the General Electric plant in Lynn, awaiting their fateful trip to the blast furnaces in Pennsylvania. (BHS)*

After Engine No.5 made its historic trips of the "Last Steam Train" on December 2, 1928, the era of the steam powered Mason Bogies was declared "Officially Obsolete" by the BRB&L's management. Next, the railroad's management investigated both the domestic and international market for their used Mason Bogies. Finding the market to be virtually non-existent, arrangements were made to sell them for their scrap value, this being woefully less than the meager $60.000 that had been estimated when the decision to electrify the railroad was being made. As shown in Figure 43, after being sold for scrap all of the BRB&L Mason Bogies were loaded on flat cars and shipped to the Bethlehem Steel Company in Pennsylvania, where they were fed to the giant steel furnaces and melted down. Contrary to the rumors that some of the BRB&L engines surfaced on other railroads both here and abroad, they're just aren't any facts to support this.

Regardless of that fact, after the electrification of the BRB&L, business on the Narrow Gauge was better than had been expected. The decision by management in favor of the electrification was a bad business decision. For the remaining 11 years of its life the electrified BRB&L railroad ran antiquated, narrow gauge, rapid-transit trolley trains, unlike anything anywhere else in the world. I guess it would be fair saying the management of the BRB&L wouldn't have floated over a million dollars in bonds and notes to foot the expenditures required to electrify the railroad if they had foreseen the "Great Market Crash" that was to come in October of 1929. Needless to say, with the U.S. economy in shambles, the BRB&L ridership drastically declined in the 1930s. In an effort to survive, fares were raised from 10 to 15 cents for through trips to Lynn, service was cut back and deferred maintenance on all of the railroads assets had its eventual effect. In 1936 the Eastern Railway Associates sold $1,057,300 worth of BRB&L stock at far below the face value. On July 13, 1937, the Boston, Revere Beach & Lynn Railroad filed a petition to reorganize under the Corporate Bankruptcy Act. Things just kept going from bad to worse and on October 3rd, 1939 the lawyers for the BRB&L filed a petition to liquidate the company's assets. The Federal Court accepted the petition and an adjoining petition requesting permission to abandon service.

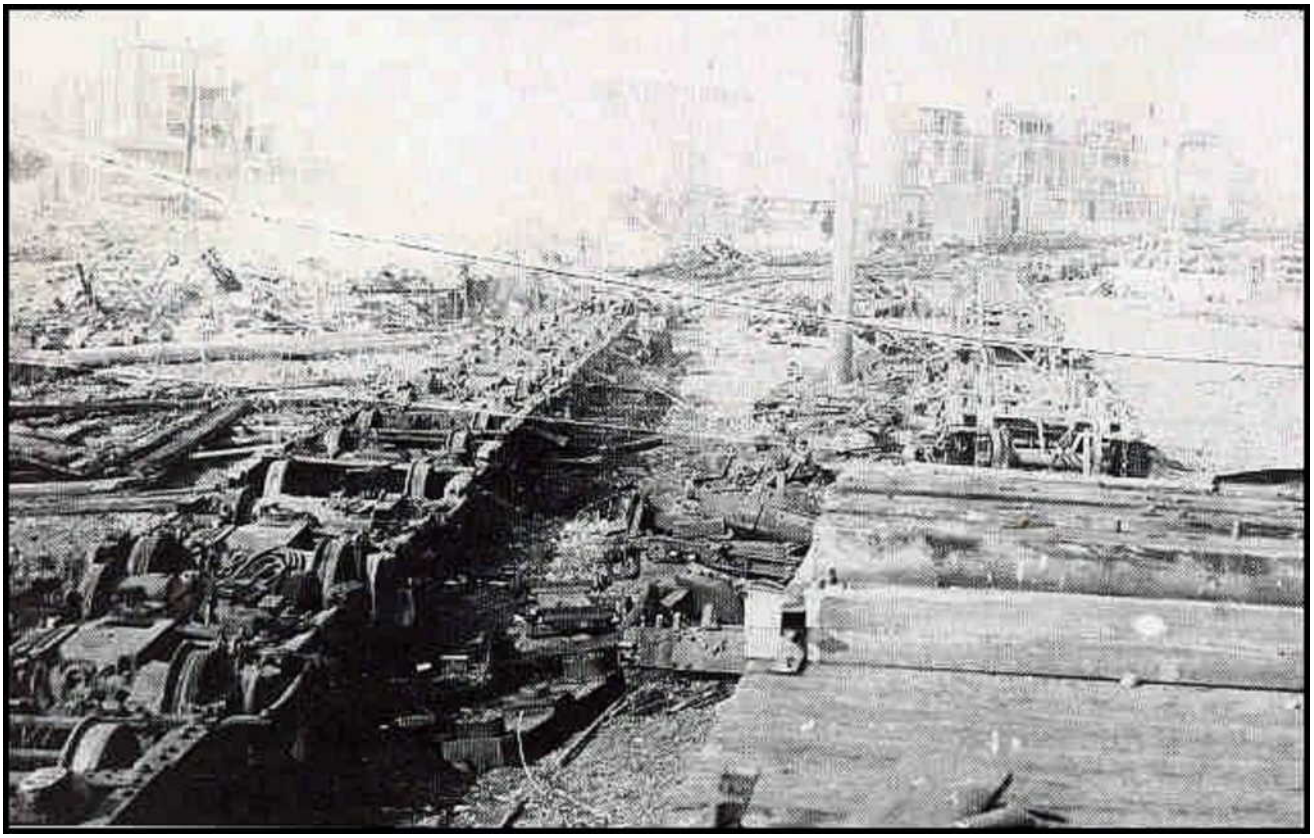


Figure 44 - *Pictured here at the Orient Heights yard, are the remains of the BRB&L electrified steam coaches after the coach bodies were removed and burned, a really sad end to a great Narrow Gauge railroad. (BSRA)*

On the 5th of January, 1940, the U.S. District Court in Boston, Massachusetts authorized the Boston, Revere Beach & Lynn Railroad to suspend service on January 27, 1940. Just before midnight on the 27th of January, two trains met just East of the BRB&L East Boston terminal, one was the last outbound train headed for Winthrop; the other, a train originating in Lynn that was to be the final train to arrive at the depot. As the ferry Brewster pulled away from the slip headed on its last voyage across the Boston harbor, things were being shut down and put away forever at the East Boston terminal.

On May 20, 1940, the BRB&L physical assets were sold to Samuel Gordon & Sons, a Chelsea dealer in scrap, for the amount of $118,756. The Samuel Gordon & Sons Company held a public auction at the BRB&L East Boston terminal, where everything from fare-boxes to ferryboats was sold.

Now, scrap dealers aren't ones noted for their interest in historical value or the aesthetics of picturesque railroad coaches. They deal only in the stark reality of the current value of copper, brass, steel, and anything else that's salable. So, the methods they employ to gain access to the things that are of value to them are usually very direct and drastic. The quickest, and maybe more importantly the cheapest, way to remove all the unwanted wood was to burn it. The usual method was to place the cars some place safe, and then by either simply tipping it over or by lifting it up with a crane, the car bodies were removed from their trucks. Next the trucks were moved out of the way, and then the coach would be doused with a flammable fluid, usually coal oil or kerosene, and set ablaze. Boy, aren't they lucky the Environmental Protection Agency didn't exist back then? Figure 44 shows the result of the scrapper's handiwork; that's smoke out there, not steam. Some say that most of the electric motor trucks were saved and stored across the street from the General Electric plant in Lynn, because of the money owed to GE by the BRB&L at its demise.

She, who chuffs last, chuffs best! December 2, 1928 had been a sad, cold, and miserable day for "Old No. 14." That was the day the last steam-powered train traversed the 8.8 miles of the Boston, Revere Beach & Lynn Railroad. The day that steam locomotives had been officially declared obsolete. Furthermore, this was the day insult was to be added to injury. No. 14 had been singled out from her sister locomotives and parked on a spur behind the Orient Heights car sheds. Here, No. 14 was destined to sit for the next twelve years, eventually loosing her bell, headlight, builder's plate, and brass front numbers. All the while suffering the indignity of performing the mundane chore of providing steam heat to the car house buildings, where those upstart electrified steam coaches she had once lovingly pulled now lived.

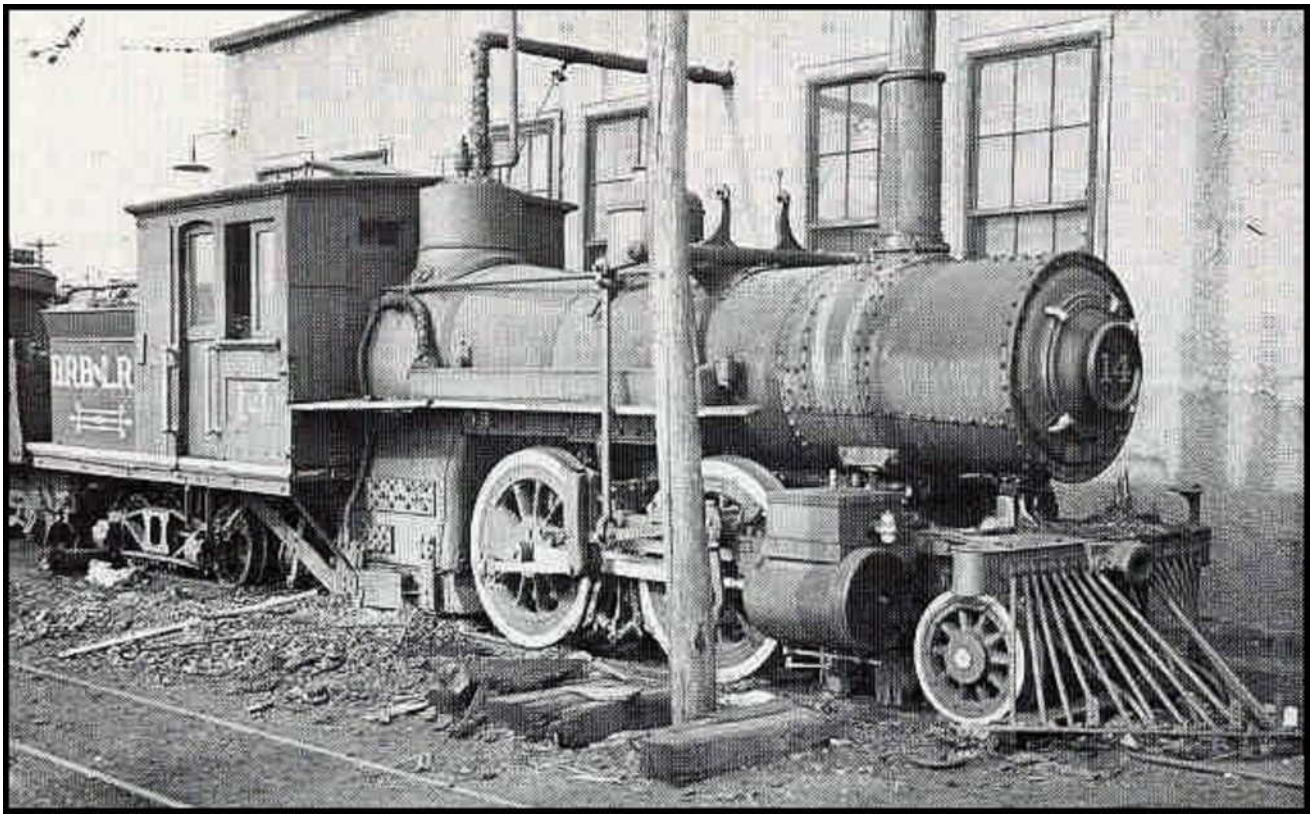


Figure 45 - *Pictured here is Engine No. 14 the sole Mason Bogie of the BRB&L that survived the scrapping of 1928. This ALCO-Manchester built locomotive was singled out and exiled to this spur behind the car-sheds at Orient Heights. (RCS)*

As shown in Figure 45, Engine No. 14, an ALCO-Manchester built Mason Bogie purchased by the BRB&L in 1902, was the sole surviving locomotive of the steam era on the Narrow Gauge. After being hidden behind the car-sheds in Orient Heights and regularly neglected for 11 plus years, except that is, for the steam heat her boiler could supply for the sheds, late in 1939 someone decided that the veteran locomotive deserved a smidgen of fixing up. So the "BRB&L RR" lettering was once again applied to her bunker, her wheels sported whitewalls, and from somewhere her brass front numbers were found and restored to their rightful place on her smokebox door. Then on the 20th of September, 1940, with a newly painted face and all the dignity the grand old lady could muster, she passed into oblivion, under the scrapper's torch. A sad end, 'tis sure. But wait! Revenge is sweet, for strangely enough, Engine No. 14 wound up being the last piece of the Boston, Revere Beach & Lynn Railroad's motive power in existence. With the last of the electric cars having been burned the month before. Like I told ya', you upstart electrics, "steam rules!."

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