

Atlantic Shore Railway Locomotive 100

Curatorial Report no. 13

24 July – 21 October 2008

by Donald G. Curry

Manager Town House Shop

With the beautiful fall weather it was too nice to leave the '100' bus box closed so we opened the big doors at the back to allow the clean dry Maine air blow out the dust and dampness of the previous few weeks.

What your eyes would have first seen would be a brand new pilot (cowcatcher in the vernacular), in place but not screwed together. This had been made by our newest member **Jim Mackell**, who is a self-described amateur woodworker and resident of Arundel, Maine.

Using the pieces of vintage red oak cut to dimension (*i.e.* cross-section) but not to length, Jim has cut them out and laid them against the heavy supporting brackets at the no. 2 end of the body (deck). Because of its shape the 'teeth' of the pilot are have different angles on their ends. Also the supporting framework has half-lapped joints.

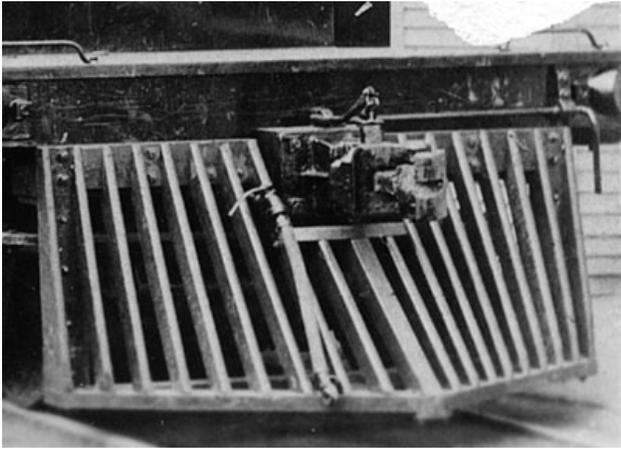
For whatever reason, all that was left of the original pilots was the barest number of pieces to copy and derive the correct size and construction of the pilots. We aren't sure if it was by design or intent but these were just the right pieces to give us the necessary information.

The pilot on the no. 1 end was totally missing as were the cross timbers which would have supported it on that end. On other end the two heavy supporting brackets were still attached (just barely) by two long $\frac{3}{4}$ in. bolts coming vertically through the end frame. To the frame at the top was one of the two 2 x 6 in. cross pieces to which the tops of the 'teeth' were screwed. To the front of each bracket was bolted a vertical 2 x 6 piece, half-lapped at the end over the cross piece. By a strap bolt a 6 x 6 x $\frac{1}{4}$ in. steel angle bracket was fastened the end of the vertical piece to hold up the bottom frame pieces.

The bottom of the pilots are triangular with a long 2 x 6 extending across directly under the body end frame but about 6 in. above the rails. From the centre of this, extending straight forward, is the center bottom support, also half-lapped over the cross piece. From each end of the crosspiece, extending to the point at the end of the center bottom support is the bottom support for the ends of the 'teeth'.

In the centre of this, under the coupler, is a sort of 'step-like' framework with three short teeth. The 'step' is a 2-in. piece rounded in the front. The supporting sides (teeth) are held together by a horizontal $\frac{3}{4}$ in. rod. The bottom diagonals also appear to support another 2 x 6 piece, which doubles their width, forming the footboards.

We only had the two end 'teeth', those two on the 'step' and one or two intermediates. With the four pieces forming the bottom and the three (of four) forming the mounting frame and a number of good pictures, it was relatively easy for Jim to figure out how it all went together as well as what was missing. The style on 100, when Seashore acquired it in 1949, had 17 'teeth'. The 1906 version had 19 'teeth' and no foot board. The centre 'tooth' was actually twice the thickness of the others.



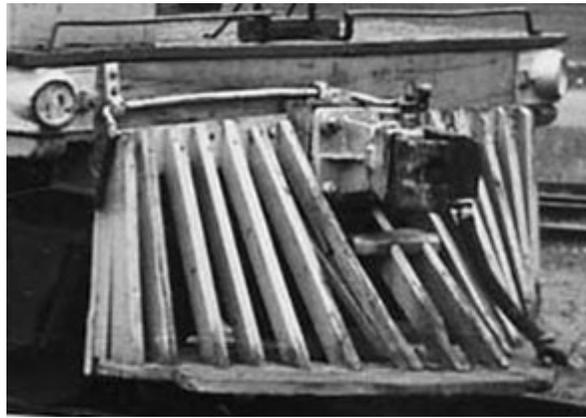
Original 1907 19 Teeth



9 April 1949 17 Teeth
With footboards

We still have to establish the width of the footboards. But, to be consistent with all the rest of the framing, 2 x 6 in. would be appropriate. Nothing exists from the original and the photos aren't clear. We assume they were held in place by steel plates. Using Bernie's blacksmith's coal forge, he and Randy corrected an over-bend in one of the original pilot support brackets. (This would have taken far longer and might not have even been possible with our usual propane burners, even the 'rosebud'. [a large style of torch tip])

Jim fabricated all the pieces a bit long to ensure there is enough material for a proper fit when they are assembled. Using West System epoxy and sawdust filler, he has filled the voids in the recycled wood. These are the inevitable screw holes from their former 'life' and cracks that formed when it dried in its first use. One great advantage of recycled timber is its stability. It doesn't warp!



27 April 1947
17 Teeth



Jim Mackell & trial assembly, 9 October 2008

The next step will be to prime and paint all surfaces, especially the ends. It will be fastened together with 4 in. no. 16 galvanized slotted steel wood screws. The originals were not galvanized; hence most of them have disappeared long ago. In a 'curatorial compromise', where it's necessary, we favor longevity (preservation) over slavish accuracy.

There is a pair of steel straps about ½ or 5/8 in. x 2 in. extending down and out toward the front of the pilot. These are bolted under the spacer block behind the coupler. They, in turn meet a similar strap which goes across the bottom. The original metal still exists for one end, albeit becoming somewhat bent. (The pilot on the no. 2 end must have fetched up on something when the locomotive was moved.) We will fabricate new ones for the no. 1 end from steel stock now on hand.

Other wood work: The oak decking on the no. 1 end from the cab out to the end is nailed in place except for the end-most piece which will have to be cut to width. Also it is fortunate that it wasn't nailed down with the rest of the boards as it became necessary to move the pilot mounting bracket bolts which it would have covered. The rest of the decking will be nailed down shortly. (**Phil Morse** gave more than his all when he did the first section and we don't think he'd mind if somebody else came along to finish it!) The location for the piping to the engineers' brake valves had to be firmed up so the pipes would go through the original holes in the decking. (We will use only original decking in the cab.) Phil also filled all the defects in the decking before applying Cabot's 1000 waterproofing. From what we can tell, the decking was never painted. Possibly it was treated with linseed oil but any traces of that have disappeared. Phil also cleaned up (and/or blasted) the air piping and fittings that would be exposed or hidden then the cab and floor are finally installed. In the meanwhile, only the no. 1 end of the deck is nailed down.

Cab repairs – The cab's woodwork, once you remove the many coats of paint, appears to be in good shape. There are only a few repairs that have to be made. Jim has already pieced in a new section of ash in the 'right-right door post. The right-hand belt rail (window sill) piece was about 2/3 original ash and 1/3 latter day pine. We'll replace it with a new one 100% ash. There are a couple of other defects that can be patched with small pieces of wood and/or epoxy.



He is in the process of repairing some small rotted areas around the right-hand doorway. There he pieced in new ash.

There are two poplar facing of the posts which need patching or replacement. We purchased a piece of poplar from Deering lumber from which Jim will piece in what is needed. Before any is put on, the many oversized nail holes will have to be filled. Jim also found in stock sufficient 5/4 poplar to do the job.

The tongue-and-grooved wainscoting from both sides has been removed and partially scraped. It appears to be in good shape with only small repairs necessary.

The edges of the roof have been replaced, primed and are now in excellent condition. We still have to figure out how to remove the spring tension on the trolley base so it and its supporting board and cleats can be taken off. That will clear the actual roof boards. Some of these will probably need repair or replacement and all re-nailed with galvanize ring nails. Jim will soon be fabricating the half-round moulding which goes around the periphery of the roof. Best guess is it's about 3/4 in. wide and about 3/8-1/2 in. thick.

Trucks – Truck no. 1 is largely assembled and is next to truck no. 2, the latter is also in the process of assembly. As of this afternoon (21 Oct.), the heavy transom channels (a pair) are installed and work is proceeding on fastening all their appurtenances such as wear plates, brake hangers, etc. **Randy Leclair** had been collecting various parts and the correct hardware. We have set a tentative date of mid-late November for completion as we would like the space to be occupied with Birney 1. We propose to roll the trucks and motors outside and tarp them for the winter when they can be rolled under the completed locomotive cab and deck.

What color was it?? Exterior colors - During the process of scraping the many layers of paint from the cab we gained a new perspective on the sequence of colors that 100 had during its 43-year operating career.

Layer 1. From what we can tell and from BAC's analysis, it was originally black or blackish gray. This layer was quite thin. Was this because it had weathered away or because it was just a thin coat? **Refer to report** Because of the way it soaked evenly into the wood it is obvious this was the original color.

Layer 2. Thick layer or layers of a nut brown. This seemed to have been the heaviest layer and probably had been repainted. It's not pretty but it is quite utilitarian. Because of the relationship of these layers and their thickness, we feel this is the color that 100 had during the period to which we're restoring it.



Brown layer over sash



RAL 8011 Nut Brown
Fine Paints of Europe

Layer 3. Cream. Very likely York Utilities.

Layer 4. Bright red. Also thin. This was found not only in the red areas which show in the photographs of the 1947? Period but over the entire cab exterior. It's not easy to tell whether it was then painted over with the cream. Anyway there are no photos of its being entirely red so, whoever was making color decisions must have decided it was too bright and applied cream over that. (It should be noted that when the writer rode the Sanford

and Eastern 44-ton diesel in 1957, it was painted about the same shade of red as was its sister the 70-tonner and the wooden cab rail crane. This was the color scheme of the Pinsley RR properties.)



There is a possibility that the red, when first exposed to the paint remover, appears much brighter than it would if it were exposed to the air over time. On the inside of the doors on the ends of the hoods, red has spilled through ventilator holes and shows up more as a maroon, but this was exposed to the air. Anyway, this was one of YUCo's short-lived paint schemes.

Layer 5. Forest green. This was the last layer of paint before it came to STM in 1949. It is quite thin. It seems strange that YUCo would have painted 100 so close to the time they were to abandon electric operation but the photos of the period show it as a uniform dark colour, both in operation and on the trailer on its way to the Seashore Electric Railway.

Layer 6. Also forest green. This was also applied by Seashore about 1955. It has soaked into the wood where there were bare patches.

Excerpts from the Building Conservation Associates Paint Analysis of July 2007

Exterior The original exterior treatment of Locomotive appears to have been an extremely dark brown which would have appeared black to the eye. The paint was finished with a varnish, which appears not to have been pigmented. (Enamels did not become popular for some time after 100 was built so all paints were varnished at the time of 100's construction to give a glossy appearance-ed.) This treatment degraded badly, appearing in the sample as discontinuous islands of paint under the light base paint of the subsequent treatment. (It is very likely that the layer was also scraped and/or sanded in repainting, contributing to the loss of early evidence.) On repainting, the light base layer was applied, then another very dark, black-appearing paint with an upper varnish, followed by a third treatment with the same layering. The varnishes appear as light, bluish white layers in the ultraviolet view.

Another blackish treatment (the fourth) follows, applied in two coats but not given a finishing varnish. The coatings up to this level in the sequence show alligatoring and slight cupping. The next layer, a red, was applied thickly and evenly. Its surface shows no sign of weathering or decay. The layers that follow it also show very even surfaces, and seem at a glance to plausibly date to the years after the Locomotive was taken out of service. (Actually they are probably the last 3-4 years of service-ed.)

Donald Curry's reconstruction of the locomotive's paint history showed that very dark and probably monochrome treatments were used while the engine remained in used, and that a treatment with a red body and white trim was applied by 1945, when it had been retired. (again as above-ed.) This provided excellent guidance on the interpretive period treatment, being the finish layer below the red, which was very clear both in cross section and in the un-cast samples. The paint is a very dark brown.

Interior- No pictures of the interior during the Locomotive's working life are known. Nor can it be assumed that the interior was always painted in tandem with the exterior. Therefore it has been necessary to deduce from the cross-sections, the layers most likely to have been exposed during the target period.

The wainscot was first primed in a light color before being given a finish coat which appears in cross-section to be a dark red. The early layers are somewhat jumbled, but it can be seen, especially in the ultraviolet view, that this treatment was repeated, probably once, and allowed to age, such that a very distinct dirt layer appears over the thin varnish covering the (probably) second dark red. This was followed by a treatment which appears as a dark ocher in the visible light photograph (but which is actually a darker brown color when isolated and matched). This paint appears to have remained exposed for many years, based on the grime which accumulated on it. It is followed by only two treatments, a gray and a red which, though disturbed appear very fine grained and plausibly recent.

Comparing this evidence broadly to what is known of the exterior, it seems very consistent that the wainscot may have been maintained in treatments matching the original for some time; then re-painted in a different color during the Locomotive's service years. Certainly the dirt layers support this. The absence of signs of signs of aging on the subsequent paints suggests that they were applied during the engine's Museum period. Therefore we have chosen the brown as the interpretive period paint.

The window post samples show lighter paints than the wainscot. They also preserve much more even layering and less dirt. Starting with a treatment that might be, if isolated and matched, a rosy tan, is a yellow applied in two coats, then a buff colored treatment (again, as it appears in cross section), then another yellow. No appreciable dirt or evidence of aging appears on the surfaces of any of these treatments except the last-named yellow, which accrued much dirt. After this appear the gray and the red which were judged to be (relatively) recent on the wainscot samples. Therefore, it seems very likely that second yellow treatment accompanied the brown wainscot during the Locomotive's last service years. This is the treatment whose color we have replicated. It is a dull ocher.



River Street Carhouse 1940, Our 'model'

The proposed final color scheme (revision of summary of 21 May 2007)

- Trucks, pilots, air tanks and other under-body equipment: gloss black (*Awlgrip* Super-Jet Black)
- Other black components: uncoupling hardware, cab handrails
- Aluminium coloured components: coupler, ladders, pole pockets, headlight bracket, hand rails on deck
- Side sills: Nut brown
- Lettering and numbers: White
- Body: Nut brown
- Doors and windows: tile red or deep maroon (exterior), interior - ocher
- Roof, including overhang & trolley boards: tile red
 - Hooks, trolley base and pole: gloss black
- Cab interior
 - Window posts and areas above windows: ocher (per BAC sample)
 - Ceiling: probably ochre but may be something else.
 - Wainscot: olive brown (per BAC sample)
 - Hardware: wainscot brown,

Our new member and active woodworker, Jim Mackell. A few weeks ago Jim came by where I was working in Wheeling 639. He said he was recently retired and was an amateur woodworker and wanted to know if we could use his talents. I showed him the various woodworking projects we had underway or anticipated doing with ASL 100 being the most prominent.

He lives on the Old Post Road (nee Rt. 1A) in Arundel, not far from where the late Norman Gregoire lived. As a boy he had visited Seashore's operation at the "Terminal" on Rte. 1 and visited the present museum a number of times since. He grew up in Biddeford. It turns out he has an interesting connection to the Atlantic Shore Line. His great granduncle, Patrick Mackell, was killed by an ASL trolley as related in the news article below. From reading above you can see how involved he's become with the project (and others in the shop). Coincidentally Tom Dow, who pushed 100's underframe reconstruction way ahead last year, also had the connection of being the great grandson of Sterling Dow, who was General Manager of the A.S.L. (So we guess they were both qualified by inheritance but also both are excellent and energetic craftsmen.)

From microfilms in Biddeford's Macarthur Library, Jim transcribed what was a hard to read copy. The misspellings were as found in the original.

Biddeford Journal July 2, 1923

Patrick Mackel Struck by Atlantic Shore Line Car and Dies at Hospital

Accident Happened on Granite Street Sunday Morning - Claimed that Mr. Mackel, Who Was Hard of Hearing, Walked in Front of Car Near Home of Carl Richards - Had to Jack Up Car To Get Man from Under.

Patrick Mackle, aged about 80 years, who lived at 239 Granite Street, died at the Webber Hospital, Sunday morning as a result of injuries sustained when he was struck and run over by a car on the Atlantic Shore line road, about 10:30 o'clock Sunday morning on Granite Street, near the residence of Carl Richards.

The car was in the charge of Motorman Perkins and Conductor Whitlock and was coming towards Biddeford. It is said that Mr. Mackie was very hard of hearing and walked from the sidewalk directly in front of the approaching car. Both of his legs were cut off and he was pinned under the car in such a way that it was necessary to jack up the car in order to remove the body.

A call was sent to the Police Station and Dr. George C. Precourt was notified and went to the scene of the accident. Dr. Charles F. Traynor was also called and upon his arrival Mr. Mackie was placed in the W.1. Dennett ambulance and hurried to the Webber Hospital. He died about 15 minutes after arriving at the hospital.

The Motorman of the car is said to have stated that he did not see Mr. Mackie until he was directly in front of the car and that he was too late to do anything to avoid striking him.

Mr. Mackie has lived in Biddeford for the past 53 years, coming here from Ireland.

The funeral will be held at 8:30 o'clock Tuesday morning from St. Mary's Church.

We transmitted this to O. R. Cummings, author of the N. E. E. R. H. S. publication *Atlantic Shore Trolleys* of 1966 and asked him if he'd ever heard of this. (We don't want to embarrass him but he said he hadn't. Jim then pointed out that it was mentioned on page 54 but the name of the victim was incorrect, most likely because of the quality of the original from which the information was gained.)

ACCIDENTS

The York Utilities Company had been in business only five months when it recorded its first fatal accident. This occurred on the morning of July 1, 1923 when Car 57, bound from Biddeford to Town House struck Patrick Michael, 75, of Biddeford, on Granite Street on the easterly side of Staples Hill. The elderly man was thrown under the car and his legs were crushed. Motorman Nelson Perkins and conductor Andrew Whitlock extricated him from under the car and he was removed to Webber Hospital, Biddeford, where he soon died from his injuries.

Jim said Patrick was as 'deaf as a post'.

Another Accident As we read further in Cummings' book we noted the following. Could it have been 100 that was the locomotive in question?

A somewhat bizarre fatal accident occurred on the afternoon of Dec. 30, 1926 when one of the locomotives, towing two carloads of coal from the Springvale interchange to Sanford, became stalled on a slight rise near the River Street carhouse. The motorman backed the train down the grade and made another try. This was unsuccessful and he tried again. About this time, it was noticed that Magloria Morin, 83, the foreman of the railway's track crew, who had been working nearby, had suddenly disappeared. The train was checked and Morin's mangled body was found on the rear truck of the second coal car.

And yet another locomotive-related accident:

Pneumonia was the cause of the death of a veteran motorman, Thomas Chaisson, on Dec. 8, 1935, but a contributing factor to his demise was a collision between 88 or 90 and a freight train on River Street, Sanford, near the pumping station, in the late afternoon of Nov. 12. It appears that the freight train had been forced to stop because a broken down motor truck was blocking the railway track. A flagman was sent out but he apparently was not notice by Chaisson, who ran into the rear freight car. The vestibule of the trolley was demolished and Chaisson suffered a broken right arm, a dislocated knee, cuts and bruises. Several passengers in the car were injured. The elderly operator never fully recovered from the accident and was unable to fight off the pulmonary infection which claimed his life less than a month later.