NEWS

Issue 7 - November 2019

Winner of The Herbert Crow Award 2019

Bestt
Boiler & Engineering Skills Training Trust

www.bestt.org.uk

HERITAGE FUND

Patrons - Lord Faulkner of Worcester - Judy,Lady McAlpine - Dame Margaret Weston, DBE - Brian Greenwood

"Heritage Engineers of the Future"

New Trainee intake..

We are very pleased that, following an intensive recruitment process over summer 2019, a total of 8 new trainees were selected for our second year of the BESTT one year Mechanical Repair course, funded by National Lottery Heritage Fund. We had just under 100 applications, with 22 taking part in work trials. As agreed with NLHF, the Bestt one year project prioritises recruitment from underrepresented groups. To help achieve this we developed short employability courses with the Princes Trust in both Leeds and Leicester, and 5 of this year's 8 trainees came via this route. After an introductory week at York (included a guided visit to NRM with Bob Gwynne, Assistant Curator) the hard work now begins with 3 month basic training at Haworth Workshops, KWVR, including one day each week at Keighley College, and teaching provided by KWVR volunteers and the BESTT Training Manager, Martin Wadeson. All this with the huge help provided to BESTT by Keighley and Worth Valley Railway, the Princes Trust and this year Great Central Railway, with a Taster Day at GCR Loughborough.

Henry Cleary, BESTT Project Director

Photo: *Our 2019 trainees on a visit to National Railway Museum - Martin Wadeson.*

Jobs for current BESTT Trainees

Good news for BESTT Trainees who started in summer 2018: 4 have secured paid employment with one working at LMS Loughborough, another at North Norfolk Railway, one at West Somerset Railway and one with Network Rail (while continuing as a volunteer at NYMR). Another trainee is looking for a job in general engineering in the Bradford area and another is completing a second short placement on carriage work to widen experience. These 4 brings to 16 (out of 24) the number of BESTT one year trainees who have secured paid relevant employment on completion

Interested in a new short course on white metalling?

Thanks to BESTT Trustees Colin Hatch and Lawrence Donaldson a new short course (probably 4 days) is being developed on white metalling. We want to gauge interest for this -

please email to enquiries@bestt.org.uk

What next for BESTT?

Do you have a training need which BESTT could help meet? BESTT is looking for views and suggestions from the steam heritage sector on where it can most usefully contribute on steam engineering training into the future. We will be addressing this in depth at a seminar in Spring 2020 (date to be announced)by the BESTT Deputy Chairman, Nick Beilby. Please send your views to enquiries@bestt.org.uk

Keep the Date

BESTT AGM
The Bar Convent, Blossom Street, York.
18th January 2020. Commencing at Il:00am.

First Year Mechanical Overhaul 2019 Certificates will be presented by Lady McAlpine, followed by primary speaker. Dr Paul Shelton who will give an illustrated talk on digitising heritage components.
Refreshments will be provided.

If you wish to attend please email enquiries@bestt.org.uk giving your details and guest.

BESTT gets afloat at last!

***Photo**: Steam Launch Shamrock (credit Dot Bullough).*

For some time BESTT has been talking to the new Windermere Jetty Museum, a spectacular new project re-housing the Windermere steamboat collection and other craft - see https://windermerejetty.org/

The Windermere collections seemed to provide an excellent opportunity to host a trainee and we collaborated on recruiting such a trainee this summer, who will start in January following the Haworth/KWVR basic training. To help develop this aspect of BESTT a marine steam session was held at Windermere for current trainees in July with sessions on maintenance and operation of the working museum launch Osprey, introductions to marine steam and marine boilers, the steam cycle, discussion of what can go wrong.

***Photo**: Bob Garnett passing on knowledge (Henry Cleary)*

Practical exercises on stripping down a water gauge glass and assessing unrestored engines and other components in the museum collection to see what work was needed and feasible for restoration. The team of presenters included Windermere senior curator Stephen Beresford, BESTT Trustees Gordon Newton and Bob Garnett as well as Peter Winebloom (BESTT Training Support Manager) and Kevin Slater, chairman of the Steam Boat Association - we are very grateful to each. One of the highlights was an evening cruise on the Lake in Osprey and Shamrock, a very similar vessel, very beautifully preserved by the SL Shamrock Trust https://www.shamrocktrust.org.uk/ A magical experience with evening sunshine after a day of rain.

***Photo:** Trainee Chay Mclean giving an assessment (Henry Cleary)*

Klondyke

BESTT Road Steam Day at Klondyke Mill, Derbyshire

Thanks to North Staffs and Cheshire Traction Engine Club http://www.nsctec.co.uk/, and their hospitality and help in making engines available, BESTT trainees were able to get a good introduction to road steam. This included a driving and operating experience with a steam road roller and an 1882 McLaren agricultural engine. Classroom exercises on valve gear and what happens inside the cylinders of a steam engine and the importance of precise valve events using examples from a steam indicator and planimeter, as well as short sessions on other key aspects including boiler fittings and lubrication complimented practical and theoretical learning.
The day was brought to a close with the trainees having the opportunity to make a souvenir bolt on the club's capstan lathe using a coventry die box.

***Photo:** Photo: Group picture credit Bob Cooper*

Thanks in particular to Philip Jeffs, Steve Arrowsmith and Bob Cooper and Liz Greenwood at Klondyke Mill and a BESTT Team including Andrew Semple, Gordon Newton and the Training Managers

New dates for short courses on riveting and boiler washout

For course details and dates

email *enquiries@bestt.org.uk*

John Reddyhoff

Training makes all the difference

Incident at Wheatsheaf, BR Western Region, 22nd December 1952
Firebox Crown Collapse on ex-GWR Grange Class 4-6-0

This incident occurred on a Grange Class 4-6-0 working a Birkenhead to London fitted freight. The firebox crown collapsed due to low water as a result of a false water gauge reading. The train was travelling slowly on a 1 in 80 rising gradient at the time, so the gradient would have contributed to uncovering the front of the firebox crown.

The fireman sustained severe burns and shock and was still off work at the time of the Inquiry five weeks after the incident. The driver escaped injury but was severely shaken. The guard received bruises due to the sudden stopping of the train.

Damage to locomotive

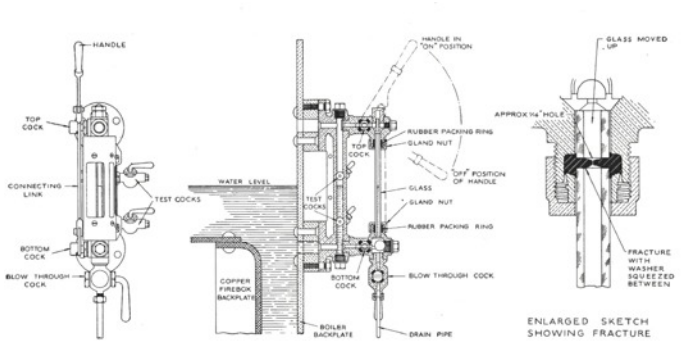
The boiler had been overhauled in June 1952 at Swindon and was considered to be in good condition. On inspection after the incident, the front fusible plug had melted but the rear plug was still intact.

The copper firebox had a weld along the centre line of the crown. This had failed for a distance of 2 feet 6 inches from the tubeplate, with the widest gap being nearly 4 inches. The crown had bulged downwards 9 inches and the plate had pulled over the heads of 22 of the 30 crown stays in the first three rows, which had riveted heads. The nuts were stripped from a further 12 stays in the next three rows. Other stay heads and nuts in the area showed signs of giving way and the tube plate had started to peel off the ends of the top row of tubes.

The evidence was consistent with shortage of water. There was no evidence of defective materials or workmanship.

Gauge glass

The locomotive was fitted with a single gauge frame with test cocks in accordance with normal GWR practice. The gauge glass had broken inside the top rubber, which had squeezed into the bore of the glass, reducing the opening to 1/16 inch.



The effect of this would be a false water level reading. The crew believed that the water level was near to the top of the glass and thought that the noise in the firebox was a leaking tube, not the fusible plug.

The glass had been fitted four days before at an X Exam. The subsequent examination established that the top and bottom cocks were slightly out of line and had been in this condition since the overhaul at Swindon as the gauge frame is supplied as a complete unit. The misalignment was relatively minor but the apprentice who had fitted the glass after the X Exam had probably over tightened the top gland nut and had broken the glass inside the rubber.

This fault had not been noticed at first but several footplate crews had reported that the glass was slow to refill after the drain cock had been operated. Two fitters at two different depots examined the gauge frame as a result of the driver's reports but neither carried out a thorough examination even though they were aware of the potential consequences of a false water level reading. In one case, the driver described the repairs that he thought were required "the water gauge frame wants changing" rather than the symptoms and this may have misled the fitter and resulted in the wrong action. The locomotive was returned to traffic on both occasions for further attention at its home depot.

Only one of the several fitters and footplate staff interviewed by the MoT Inspector had used the test cocks on the gauge frame despite this being a requirement in the instructions for footplate staff on the Western Region. Had the test cocks been used, it may have helped to identify that the gauge glass was giving a false reading as well as being slow to refill after draining down.

The defect was repeated during the investigation. Excessive tightening of the top gland nut caused the glass to break inside the top rubber without any sound or external evidence.

Conclusions

The report concluded that the top and bottom cocks on the gauge frame had been out of line since its last overhaul at Swindon and the glass broke when it was fitted four days before the incident as the top gland nut had been over tightened. The rubber had been squeezed into the fracture in the course of the next couple of day's operation so the defect was not obvious at the time that the glass had been fitted.

Subsequently, the driver's reports were not investigated thoroughly by fitting staff so the defect was not found. If the fitting and footplate staff had used the test cocks as laid down in their instructions, they would have been more likely to realise that the gauge glass was giving a false reading.

Recommendations

The report makes four recommendations:

1. Where locomotives are only fitted with one gauge glass, the test cocks must be used regularly.

2. Footplate crews and fitting staff need to be aware of the significance of slow return of water when a gauge glass is refilling.

3. Drivers are reminded of the need to provide as much information as possible when filling out Repair Cards and must try to describe the symptoms rather than what they think needs to be done.

4. Fitting staff need to be aware that a gauge glass can break inside the rubber with no sound or leakage.

Points to note

The incorrect alignment of the top and bottom cocks had been missed at overhaul but the failure only occurred when the gland nuts was over tightened.

The slow refilling of the glass was a symptom of a potentially serious problem but this had not been recognised by the footplate and fitting staff involved. This risk is greater with a locomotive with only one gauge frame.

Source: Ministry of Transport Report on the Accident which occurred on 22nd December 1952 at Wheatsheaf Junction in the Western Region of British Railways.

David Morgan -Tales from the Hat

BESTT Trustee and director - *achievements include; Chairman of the North Norfolk Railway 1973-2010, Heritage Railway Association - retired in 2014 also having chaired West Somerset Railway and Great Central Railway at various dates.*

Founded FEDECRAIL in 1994 and WATTRAIN (World Alliance of Tourist Trams & Trains) in 2009 now President Emeritus.

HANDING OVER TO THE NEXT GENERATION

BESTT Trainees at The Bluebell Railway

In the JUNE issue of this Newsletter, I wrote about the need to train future generations traditional skills in heritage engineering. I feel that, largely due to the activities of BESTT, this issue is starting to be addressed, with some of the large heritage railways starting their own apprentice schemes beside the new training project on mechanical repair of steam engines being initiated by BESTT itself as well as its "Rivetting Courses."

The late Gordon Reed

One of the problems facing the heritage sector is that many parts of it are volunteer led and in some cases are entirely reliant on volunteer input and/or labour. This is particularly true of steam railways and locomotive groups. Many heritage lines nowadays often employ paid staff, not only to maintain their trains, but also to manage the business of a tourist attraction that is increasingly commercial. After all, many lines operate on over 240 days a year or more, which is more than the number of days that we do not run. Even so, there is still a predominance of volunteer input including at board level.

We have also formed umbrella organisations which I think have been surprisingly successful in achieving their aims, such as the National Traction Engine Trust (NTET), the Heritage Railway Association (HRA), the Maritime Heritage Trust (MHT) and BESTT itself, which are all volunteer led, although HRA has now appointed a paid Chief Executive, who was himself the honorary chairman of a steam railway until his appointment. Many of these volunteers are reaching an age when they are summoned to the Great Marshalling Yard in the Sky and have to relinquish their earthly activities.

I believe that this may present an equally acute problem, approaching that moment myself (albeit probably in a downward spiral to the fiery furnaces of hell, sad to say). The difficulties in finding successors in the next generation are exacerbated by the fact that many of the organisations have themselves grown into large businesses with turnovers of multi-millions of pounds, and therefore running then becomes much more complex, frightening away some of those who would be best suited to take over.

This in turn has directed my attention to the problem of succession and the need to plan for it. This was brought into sharp relief this year when I attended the Fall Congress of the Heritage Rail Alliance of North America in Canada in September. The dynamic volunteer, Don Evans, who was a director of both HRA (North America) and the West Coast Railway Heritage Society, which hosted the conference; he was key to the organizing of the conference.

In May this year, Don died suddenly of a heart attack while visiting Machu Pichu in Peru; he was only 72. As a result both organisations had a real problem plugging the gap, which they did very well, but it caused huge stress to those who had to pick up the reins. As a result, the West Coast Railway Society carried out a review of their succession planning to draw up a strategy not just to address the problems caused by a sudden demise but also to identify future replacements who had the skills fit for purpose. I think there is a lesson for us all.

"BESTT concentrates on passing traditional skills to future generations. To remain relevant to the future and to address the training needs of the heritage sector, I believe that it is important that those currently involved in maintaining, restoring and operating historic equipment, be it on water, land or tracks, should engage in BESTT activities and speak up at our meetings.
Please attend our AGM and the proposed conference

"What Next For BESTT?"

We really do want to know your views and hear your ideas."

DAVID MORGAN

The Boiler and Engineering Skills Training Trust



Bestt

Boiler & Engineering Skills Training Trust

Membership and Donation Form

The Boiler and Engineering Skills Training Trust is a charity entirely devoted to the training of new heritage boilersmiths and mechanical engineering to maintain the working steam fleet of railway locomotives, steam vessels and road vehicles for future generations to enjoy.
We have raised substantial Heritage Lottery Funding for our training schemes but we can only continue if we have a base of donations from those who support us. To learn more about BESTT visit: www.bestt.org.uk

☐ **Corporate Membership** - Heritage railways, Museums, Preservation Groups, Clubs & Societies and professional organisations — **£75 per year**

☐ **Associated Membership** - Limited individual. One — **£12 per year**

☐ **Donations** - Donations are a great help and can be made on a single or yearly basis. You will receive an acknowledgement and details. **£**

☐ **Gift Aid** - Please fill in the form on the back of this page

NAME

ORGANISATION
CORPORATE MEMBERS

ADDRESS

TEL. NO. DATE

EMAIL ADDRESS

GDPR - Please add me to the mailing list ☐ Please remove me from the mailing list ☐

(To view our Privacy Policy - Please visit our website - www.bestt.org.uk)

To join BESTT and support our work, please provide the information and send by post, with your subscription to:

BESTT, 14 Greenfield Lane, Idle, Bradford, West Yorkshire BD10 8PT.
You can also email: enquiries@bestt.org.uk.

Cheque's made payable to - "**Boiler & Engineering Skills Training Trust**"

Data security - Your data will not be used without permission June 2019

Charity Gift Aid Declaration – single donation

Boost your donation by 25p of Gift Aid for every £1 you donate

Gift Aid is reclaimed by the charity from the tax you pay for the current tax year. Your address is needed to identify you as a current UK taxpayer.

In order to Gift Aid your donation you must tick the box below:

☒ I want to Gift Aid my donation of £_____ to:

Name of Charity _____

I am a UK taxpayer and understand that if I pay less Income Tax and/or Capital Gains Tax in the current tax year than the amount of Gift Aid claimed on all my donations it is my responsibility to pay any difference.

My Details

Title _____ First name or initial(s) _____

Surname _____

Full Home address _____

_____

_____

Postcode _____ Date _____

Please notify the charity if you:

giftaid it

- want to cancel this declaration
- change your name or home address
- no longer pay sufficient tax on your income and/or capital gains

If you pay Income Tax at the higher or additional rate and want to receive the additional tax relief due to you, you must include all your Gift Aid donations on your Self-Assessment tax return or ask HM Revenue and Customs to adjust your tax code.

Become a member of BESTT.

- Membership gives the opportunity to be involved with BESTT.
- Keep up to date with newsletters and web site.
- Receive first hand information regarding opportunities for both trainees and mature students.
- Receive information regarding technical training modules.
- Have the opportunity to get behind the scenes and look at what we do.
- Offer your own skills and expertise.
- Know that your subscription / donation is keeping BESTT alive and enable the scheme to continue into the future.
- Notice and invitation to the AGM.

Thank you for your support - keeping steam alive…

Supporting Organisations

SAFed
NTET
LLANGOLLEN
MARITIME HERITAGE TRUST
National Railway Museum
HERITAGE RAILWAY ASSOCIATION
AVON VALLEY RAILWAY
L&DTC
UK-WIDE NETWORK for SHIP CONSERVATION
Locomotive Maintenance Services Ltd
Locomotive Owners Group (Scotland Ltd)
WORTH VALLEY
NYMR NORTH YORKSHIRE MOORS RAILWAY
WSR
SEVERN VALLEY RAILWAY
YORK COLLEGE
Keighley College
North Staffs and Cheshire Traction Engine Club
WINDERMERE JETTY Museum of Boats, Steam and Stories
MIDDLETON RAILWAY
EMBSAY & BOLTON ABBEY STEAM RAILWAY
NORTH NORFOLK RAILWAY

Bestt

Boiler & Engineering Skills Training Trust

HERITAGE FUND

Registered Office:
York Civic Trust, Fairfax House
Castlegate, York YO1 9RN

Registered Company Number 05677191
Registered Charity Number 1153592

Bestt

Boiler & Engineering Skills Training Trust