



EUROPEAN FEDERATION OF MUSEUM & TOURIST RAILWAYS

Fédération Européenne des Chemins de Fer Touristiques et Historiques

Europäische Föderation der Museums- und Touristikbahnen

International Heritage Railway Conference

Edinburgh, Great Britain

19-21/04/2018

Conference Proceedings



Conference 2018

Edinburgh, Great Britain

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Heimo Echensperger, Editor & Layout

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Historic Environment Scotland



Mechanical Modules Syllabus

Richard Gibbon & Tony Simons

January 2018

Mechanical Syllabus



BESTT were approached in 2017 to explore the possibility of producing a syllabus for the mechanical repair, overhaul and inspection of Steam Locomotives.

This was to follow on from the very successful Boilersmith Scheme supported by the HLF in 2014 -16

Mechanical Syllabus



After an initial meeting with the Severn Valley Railway, it was agreed that Richard and Tony would write 2 exploratory modules for evaluation.

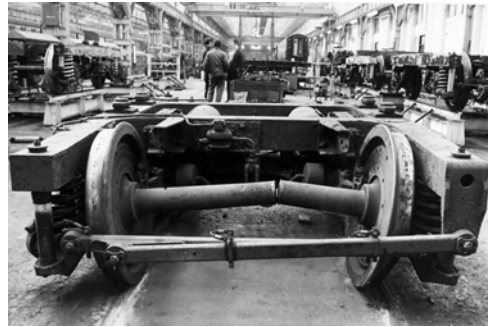
We would trial one of the modules with volunteers from the Severn Valley Railway & Keighley and Worth Valley Railway

Wheels Module @ KWVR
May 2017



Images used in the Wheels and axle module

images courtesy of John Reddyhoff



Tender Bearings



Module Trial



7 Candidates attended the trial held at KWVR
3 from SVR and 4 from KWVR

The module was delivered by:

John Reddyhoff, Richard Gibbon & Tony Simons supported by Gordon
Newton

Feedback received was excellent with all candidates experiencing
something new

The Team



Modules



- Wheels & Axles
- Axleboxes
- Frames
- Pistons and Valves
- Valve Gear & Motion
- Springs and Bogies
- Brakes
- Fittings and Pipework

HLF



Having put a bid into HLF to develop the course we learned that we were successful in achieving Stage 1.

The BESTT Team decided we hold taster days and they were held at the Epping and Ongar, Kent and East Sussex and Embsay & Bolton Abbey Railways

They were 2 day events and allowed candidates to experience the type of tasks they would experience on a Heritage Railway

Taster Days



Taster Days



Taster Days



Recruitment Days



Syllabus



Given the successful format of the previous syllabus we followed the principle of it 'ain't broke don't fix it!' The modules are arranged with both Classroom and Workshop activities

Document MT276 gives excellent instructions to examine for defects but make no mention of why they occur and the principles behind the practical checks.



In constructing the modules we first had to 'write the manual' and then construct learning outcomes based on around the text and the information contained within MT 276.

The learning outcomes are arranged in such away that the practical tasks are clustered together at the end of the Learning Outcomes.

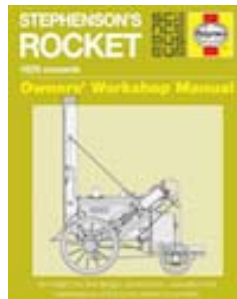
This allows the modules to be used by candidates who just wish to gain practical knowledge but also provides the opportunity for those who wish to expand their theoretical knowledge and can be used by those on an apprenticeship scheme.

Quiz



We have put together a quiz, the answers are in the modules. We would welcome feedback on the modules and the quiz is to encourage you to do that.

The prize is a signed copy of Richard Gibbon's Haynes Workshop Manual on Stephenson's Rocket



The easiest way to describe the modules is to look at them!

They are all on the BESTT Microsite which is currently on:

<http://www.tonysimons.me.uk/bestt>

Delivery



The 'on the job' training will be delivered by appropriate persons in the host organisation

Residential training session would be provided by qualified trainers. Could be local college/training organisation or a trainer with appropriate knowledge and skills

'Masterclass' sessions

Visiting BESTT trainers

Local groups - sharing of expertise

Quality Assurance



We will follow the same basic principles as used in BESTT 1, which are:

To ensure high quality teaching and learning BESTT should:

issue a Service Level Agreement to the host organisations laying out what is expected of them and how BESTT will support them

appoint an assessor(s) who will quality check portfolios and assessment and act as an independent person in listening to the views of the trainee and their host.

encourage trainee feedback on the review forms which is of vital importance and trainees should feel free to express their views



John Reddyhoff

Current Industry Practice



Best use of current railway industry knowledge

- We rightly trust long-established railway engineering practice
- Most historic practice is still valid
- But.....
- Engineering knowledge keeps growing
- Some materials and processes are no longer available
- Our locomotives and people are getting older
- The industry has relied on tacit knowledge
- The infrastructure on the national network continues to change
 - e.g. raised check rails



Sources of knowledge

- Information published by RSSB
 - Railway Group Standards
 - Railway Industry Standards
 - Technical Reports on SPARK – limited access
- RAIB Reports
- Technical Papers
- MT276 Examination Schedule for Preserved Steam Locomotives Running on BR Lines
- Sharing Experiences



Rail Industry Standard
RIS-2766-RST
Issue: One
Date: December 2017

Rail Industry Standard for Wheelsets

Synopsis

This document supports GMRT2466 and sets out requirements for the design, manufacture and maintenance of wheelsets and their components.



Figure 41: Flange toe radius build-up



Figure 42: Display of measured wheel profile with flange toe radius build-up



RAIB Reports

- Various heritage railway reports
- Reports on heritage operation on the National Network
- Reports for modern vehicles that are relevant to the heritage sector

2. URGENT SAFETY ADVICE	
USA DATE:	28 July 2014
TITLE:	Derailment risk to hopper wagons
SYSTEM / EQUIPMENT:	Hopper wagons with uneven residual load
SAFETY ISSUE DESCRIPTION:	Hopper wagons, in a nominally empty condition, are running over infrastructure with a residual load distributed in a way that makes them susceptible to derailment on track twists that the infrastructure maintenance standards allow to be present for a limited period of time, while trains are running.



Henry Cleary

BESTT 2

BESTT 2 – Delivery 2018-20



- HLF grant of £594k for 16 one year traineeships (awaiting permission to start)
- *Like BESTT 1* based on syllabus modules, portfolio of evidence and independent assessment
- *Keeps* Training agreements with workshops/railways
- *Keeps* Pay of £11-15k for trainees plus £3k completion bonus ; no upper age limit
- *Objective* – “Foundation Fitter”



BESTT 2 – New features



- 2 stage training – basic then specialist
- Basic = 3 months, broadly NVQ 2, performing engineering operations; *HLF will fund a dedicated trainer*
- Specialist, on the job training working through modules, broadly NVQ 3
- Recruitment priorities to widen the heritage workforce and attract under-represented groups
- Also on line learning and BESTT teaching weeks



BESTT 2 – Without training, working steam will finally disappear – delivery needs you!



- We are dependent on partner railways and workshops for placements – can be either basic or specialist
- We want road and marine steam experience also
- Paid posts of Training and Trainee Manager (c.March 18) and Assessors
- Other roles are volunteer (but with travel etc expenses) – eg help with interviews and recruitment
- Whatever your level of engineering skill, we need you!



**Have you any:
Questions?
Comments?
Suggestions?**



Thank you

21st Century Boilersmith

Nathan Wilson



Introduction

- ▶ I've always had a lifelong interest in steam
- ▶ My Grandad was a fireman for British Railways
- ▶ Regularly enjoyed visits to the National Railway Museum in York and Heritage Railways around the UK
- ▶ In 2011 became a volunteer at The Nene Valley Railway near Peterborough joining the locomotive crews and the Engineering Dept.



Nene Valley Railway

- ▶ Since joining the railway in 2011 I have:
- ▶ Progressed from Cleaner to Fireman in February 2014
- ▶ Helped on the overhaul of Bulleid Pacific no. 34081 '92 Squadron'
- ▶ Formed 'The Small Loco Group' and have cosmetically restored one steam engine and part way through another
- ▶ Helped to overhaul 'Thomas'!



BESTT (Boiler Engineering Skills Training Trust)

- ▶ One year placement at the North Norfolk Railway
- ▶ Learnt many new skills (and still learning today!)
- ▶ Residential week at Barrow Hill Roundhouse
- ▶ Working visits to other Boilershops
- ▶ Made lots of new friends!
- ▶ Opened up many new opportunities
- ▶ Given me a lifelong career doing something rewarding!



BESTT (Boiler Engineering Skills Training Trust)

- ▶ I found the course:
- ▶ Well thought out
- ▶ Covered a wide variety of topics
- ▶ A good selection of theory and practical tasks
- ▶ Visits to other sites beneficial to see how others work
- ▶ Regular catch ups with an assessor to see how I was getting on positive and helpful
- ▶ An all round very enjoyable and worthwhile experience!

Where has BESTT taken me too

- ▶ I spent 16 months working at the North Norfolk Railway
- ▶ I then moved to Locomotive Maintenance Services in Loughborough where I've now been for 18 months
- ▶ I'm now involved with the maintenance and running of A1 Pacific 60163 'Tornado', and I'm training to be a duty engineer for the A1SLT



Final Thoughts

- ▶ The BESTT course was by far the best thing I could have done, it has given me many new skills, a job that I love and have a real passion for, made many new friends, and has provided me with a career for life.
- ▶ It is extremely rewarding to see something you've spent many months working on coming back into life and the happiness it brings to people who see them!



EUROPEAN YEAR OF CULTURAL HERITAGE 2018, AND INDUSTRIAL HERITAGE FEDERATIONS

MARK WATSON

INDUSTRIAL HERITAGE TEAM,
HISTORIC ENVIRONMENT SCOTLAND

FRIDAY 20TH APRIL 2018

WHY NOT JOIN OR FOLLOW:
SCOTTISH INDUSTRIAL HERITAGE SOCIETY (SIHS)
@SCOTINDUSTRIA

ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY (AIA)

THE INTERNATIONAL COMMITTEE FOR THE
CONSERVATION OF THE INDUSTRIAL HERITAGE (TICCIH)



HISTORIC
ENVIRONMENT
SCOTLAND

ARAINNEACHD
EACHDRAIDHEIL
ALBA

EUROPEAN HERITAGE VOLUNTEERS

Creative Europe

EUROPA NOSTRA

"Keeping the European Year of Cultural Heritage on track"

2018 EUROPEAN YEAR OF CULTURAL HERITAGE #EuropeForCulture

Member of European Route of Industrial Heritage

ERIH www.erih.net

FEDECRAIL EUROPEAN FEDERATION OF MUSEUM & TOURIST RAILWAYS

HISTORIC ENVIRONMENT SCOTLAND

ARAINNEACHD EACHDRAIDHEIL ALBA

What is industrial heritage?

= The remains of material culture which are of

- historical
- technological
- social
- architectural or
- scientific value

(TICCIH Nizhny Tagil Charter for the Industrial Heritage 2003)

Who decides? Communities of interest or of place?



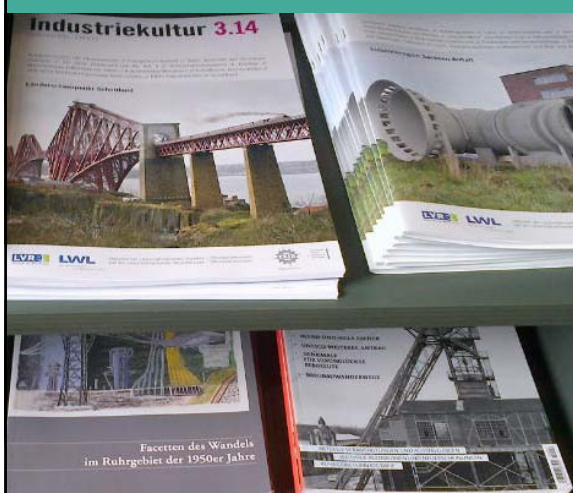
HISTORIC
ENVIRONMENT
SCOTLAND

ARAINNEACHD
EACHDRAIDHEIL
ALBA

Industrial Heritage consists of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing

- industrial processes of production,
- the extraction of raw materials,
- their transformation into goods, &
- the related energy and **transport infrastructures**

(the Dublin Principles, ICOMOS/ TICCIH 2011)



HISTORIC
ENVIRONMENT
SCOTLAND

ARAINNEACHD
EACHDRAIDHEIL
ALBA



Dublin Principles -industrial processes

- (1) depend on natural sources of raw materials, energy and **transportation networks to produce and distribute products** to broader markets.
- It includes both material assets – immovable and movable– and intangible dimensions such as technical know-how, the organisation of work and workers, and the complex social and cultural legacy that shaped the life of communities and brought major organisational changes to entire societies and the world in general.
- (2) ... systems whose many components are inter-dependent, with different technologies and historical periods frequently present.
- The value of industrial heritage is intrinsic to the structures or sites themselves, their material fabric, components, machinery and setting, expressed in the industrial landscape, in written documentation, and also in intangible records contained in memories, arts and customs.

Does Industrial Heritage matter?

Olympics Opening Ceremony, London 2012, Director Danny Boyle reminds Britain that the industrial revolution was ours first.
Yet the legacy is across Europe, and the world, and often better appreciated there.



Some conservation projects in Europe far exceed the UK in scope, ambition and delivery. We can learn from them, and we can choose to act strategically in filling the gaps.

Bassin Minier World Heritage Site, Nord Pas de Calais, France



Anina Coal Mine, the Banat, Romania





Beringen coal washer, Flanders, one of 12 on the shortlist for Europa Nostra's most endangered site, 2018

Kolenwasserij steenkoolmijn #Beringen in shortlist 12 bedreigde sites Europese campagne "The 7 Most Endangered" industrieelerfgoed.be/content/kolenw...
 @vioe @europanostraBE @europanostra @heritavl @stadBeringen @LimburgBe
 @etwie @archeonet @IndustrAtrium @m2015jvdm @Erfgoed2015
 @vlaamseoverheid

Translate from Dutch



Evening programme - Citizens' activism to save industrial heritage



A heritage tram from 60's will take us to a tour.

18:00 A guided tram ride: The House of Nobility - Kallio - Konepaja area - Kaapelitehdas (free of charge)

19:00 Guided tour of Kaapelitehdas, an old Nokia cable factory transformed into a modern office space by architect Pija Ilonen (free of charge)



European Year of Cultural Heritage 2018



European Heritage Days @JEP_EHD · 23h

.@PlacidoDomingo as president of @europanostra has challenged Europeans to celebrate #EuropeanDay and #EuropeForCulture with #Ode2Joy. How will you celebrate? bit.ly/Ode2JoyChallen...





2015: EUROPEAN YEAR OF INDUSTRIAL AND TECHNICAL HERITAGE

1975 EUROPEAN YEAR OF ARCHITECTURAL HERITAGE HAD LASTING IMPACT, NOT LEAST IN EDINBURGH, WOULD 2015 OR 2018 HAVE THE SAME IMPACT?

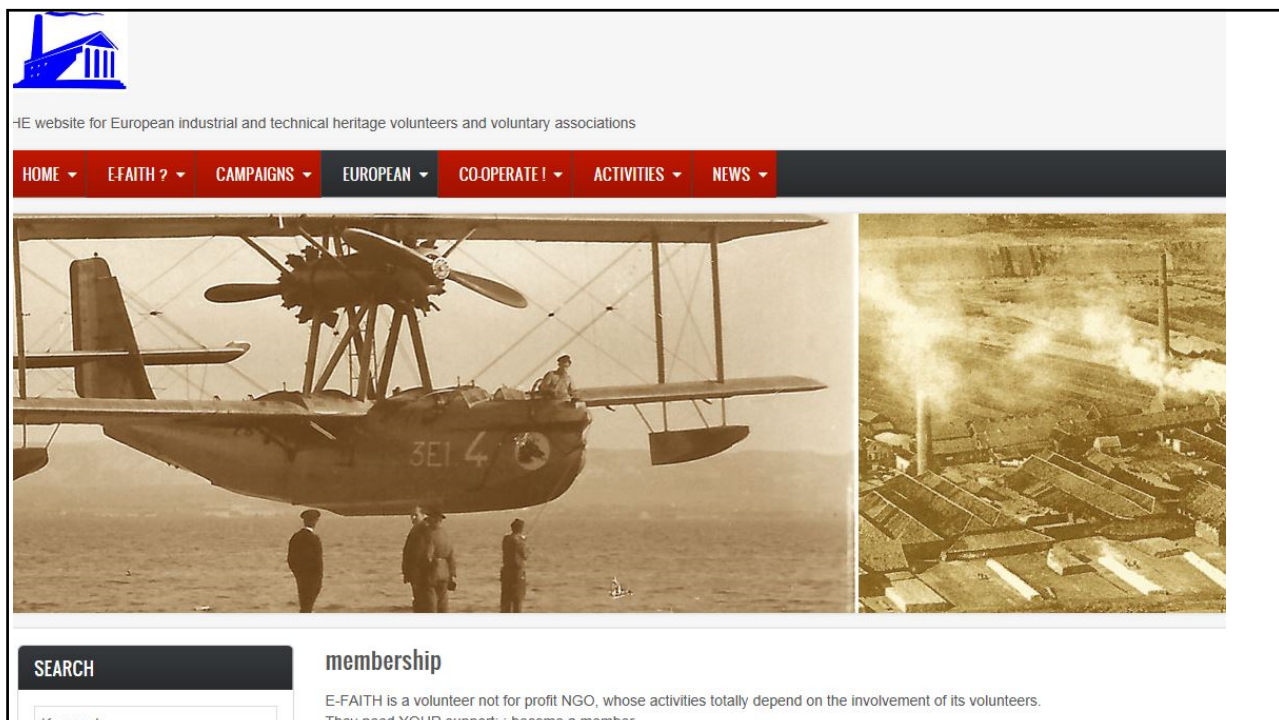
EFAITH - European Federation of Associations of Industrial and Technical Heritage was the promoter, and @EFAITH2015 is still the twitter hashtag

What did it mean in practice in the UK?

- a big conference in Manchester on adaptive re-use of factories (Historic England and HLF)
- European Heritage Day /Journee du Patrimoine might focus in some places, such as Glasgow (lectures, guided walks, a leather works), on industrial heritage

Also in 2015, coincidentally:

- TICCIIH Congress in Lille, France (occurs in different places every three years)
- World Heritage listing achieved at the Forth Bridge, Rjukan and Notodden hydro electric power company towns (and railways) in Norway, amongst others.





Cross border projects Twinning: a match-making service

2018
EUROPEAN YEAR
OF CULTURAL
HERITAGE
#EuropeForCulture

INDUSTRIAL HERITAGE CROSS-BORDER PROJECTS



Since its establishment EFAITH promotes cross-border cooperation and exchange of experiences and information between associations and volunteers.

Our common industrial history and industrial heritage bear witness to the growth and development of our continent, the way in which not only technical equipment, machinery and techniques went from one country to another, but also people, technicians and workers, capital. It is a story in which the boundaries through the evolution of science, technology and trade had to become more and more open. Industrial history is a story of globalization avant la lettre.



The Industrial Heritage calendar for 2018, #EYCH18

- March: prime movers
- April: mining
- May: chimneys
- June: urban environment / infrastructure
- July /August: transport / travel
(September: European Heritage Days)
- October: Adaptive re-use
- Any relevant activity that month can claim the EYCH label from EFAITH as it will be doing something in common with activities elsewhere in Europe.
- Outside of those months, you must meet more stringent cross-border criteria to qualify: consult your national EYCH coordinator

March 2018 Prime Movers
- an engine in Belgium, plus live
steam in Markfield, London



onze koude start van
de campagne
industriële erfgoed
van het
**Europees Jaar van het
Cultureel Erfgoed 2018**

roterij Sabbe, Kuurne
stoommachine 'Phoenix'
17 en 18 maart 2018

beelden en montage
Adriaan Linters

VVIA vzw
@Industr_erfg_VL
Follow
Het was ijsig koud toen we op 17-18 maart de stoommachine van de roterij Sabbe in Kuurne openstelden voor het publiek Watch "The Phoenix steam engine at the former flax retting mill 'Sabbe' in Kuurne" on #Vimeo vimeo.com/262815026?ref=... #EYCH2018 #EuropeForCulture #vimeo
Translate from Dutch



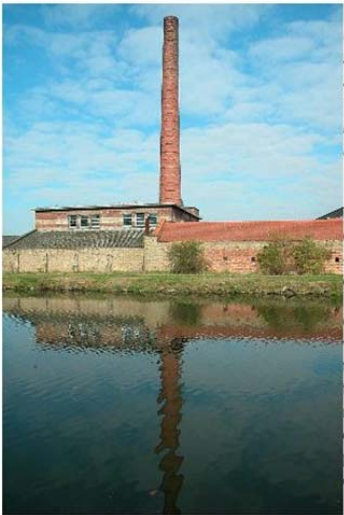
CHIMNEYS

MAY 2018



EUROPEAN CO-OPERATE ACTIVITIES NEWS

Factory Chimneys and collective memory



Old factory chimneys are landmarks advertising the industrial heritage site below. They are symbols for the labour which took place at their feet. They are part of the identity of a town, a village, a former industrial area. They can be seen from a large distance, thus promoting local industrial heritage sites at night as well as during the day by the judicious use of lighting - and also when cleverly used promoting the locality itself

The steering group "Cheminées d'usine - Factory Chimneys", which was established during the 2015 European Industrial and Technical Heritage Year, continues its activities - approaching the industrial heritage through the values and the landmarks of factory chimneys, and

develops a network of European partners prepared to invest sustainably in the (re) valuation of factory chimneys, as well locally as on a European level to incentivise local projects and to incorporate these in a common European network to contribute, through the topic of factory chimneys, to developing awareness and recognition by the public and institutions of 1) the central role of industry in the construction of European territories, 2) the importance of the saving and keeping, the protection and valuation of industrial heritage as a historic marker and witness of the dynamics of these territories.



Views from
drones:
Cox's, Dundee;
Shaddon Mill,
Carlisle, and
Le Creusot iron
works, France



CRANES GROUP IN EFAITH JULY/ AUGUST 2018: TRANSPORT AND TRAVEL

EUROPEAN ▾ CO-OPERATE! ▾ ACTIVITIES ▾ NEWS ▾

European Crane database and heritage campaign



For the general public, but also for a lot of heritage organizations, cranes are a much overlooked part of our industrial heritage and their knowledge of horizontal transport is much more than their knowledge of vertical transport. Steam locomotives and ships are already part of our common heritage, in contrast to our ancient wooden city cranes, steel Fairbairn cranes or shipyard and harbour cranes. Without these cranes there would have been no high-rising buildings, nor had the enormous development of ports been possible. Our daily life and the landscape, we live in, has dramatically changed due to cranes.

The aims of this campaign are :

- Prepare a list and a database of involved organizations
- An internet site and database have been set up at www.harbourcranes.eu
- To exchange information on historical cranes and best practices of restoration and conservation

Cranes in the collection of the Antwerp Maritime Museum





October: Adaptive Re-use conferences on this theme in England and Scotland


- adaptive re-use is a necessary and vital process that will enable many industrial buildings to convey their heritage, and economic, values. And they enable people to engage with heritage in new ways
- (Right) Railway Warehouse now the Place Aparthotel in Manchester




Hamburger Bahnhof in Berlin. Now an art gallery





**ERIH - European Route of Industrial Heritage** shared World Heritage Grimeton Radio station's event.
7 mins · 🌐


Great programme on 1 May at the ERIH Anchor Point WHS Grimeton Radion Station
#erihworkitout #grimeton




MAY 1

WORK it OUT - Industriarvsdag 2018
Tues 10:00 UTC+02 · World Heritage Grimeton...

★ Interested


**ERIH - European Route of Industrial Heritage** shared Weltkulturerbe Völklinger Hütte's event.
11 April at 07:40 · 🌐

Auch hier wird getanzt #erihworkitout
See Translation




MAY 1



Work it out! - Im Takt der Maschinen | T...
Tues 15:00 UTC+02 · Weltkulturerbe Völklinger
Jacopo likes this place



Anchor Point of
European
Route
of Industrial
Heritage
www.erih.net


**ERIH - European Route of Industrial Heritage**
15 April at 10:40 · 🌐

Erilh-Germany meeting: successful exchange of ideas in the UNESCO World Heritage Fagus-werk
Last week the third erih meeting was held for the German-speaking area. This time we were at the erih anchor fagus factory in alfelfeld near Hanover. A really great location with incredible bauhaus architecture and a very beautiful museum.
Thanks to all participants for the exchange and the many good ideas and feedback about our projects. And especially thanks to the team of the fagus fact... See more
⚙️ · See original · Rate this translation




ERIH-Deutschland-Treffen 2018: Die

ERIH-Deutschland-Treffen

**ERIH - European Route of Industrial Heritage**
2 hrs · 🌐

On Labour Day, 1 May 2018, it is going to happen: Under pithead gears, in engine halls, in front of technical giants of the past ERIH will start its continental dance event "Work it Out".
The pan-European dance performance is our contribution to the European Year of Cultural Heritage. Dozens of ERIH locations will offer special programmes to turn the day into a big party. We look forward to your visit!
#erihworkitout
Find out more at <https://www.erih.net/eych-2018/erih-dance-event-work-it-out/>



ERIH Dance Event "WORK it OUT" - ERIH

European Route of Industrial Heritage, the tourism information network of industrial heritage in Europe

4 ERIH anchor points in Scotland



- National Mining Museum Scotland
- Verdant Works, Dundee
- New Lanark
- Stanley Mills



New Lanark, World Heritage Site, 2001

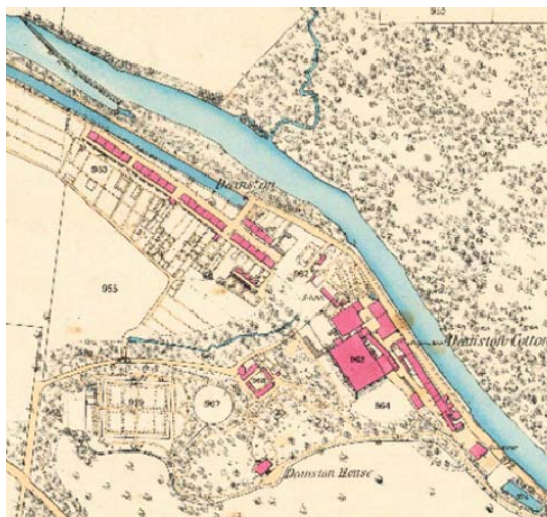


- And ERIH anchor Point, 2002
- Still nothing else is anchored to it



Two other C18 water-powered cotton mill villages in Scotland: Catrine and Deanston

- Catrine Mill burned down: Deanston Mill now a distillery. Together they help explain New Lanark

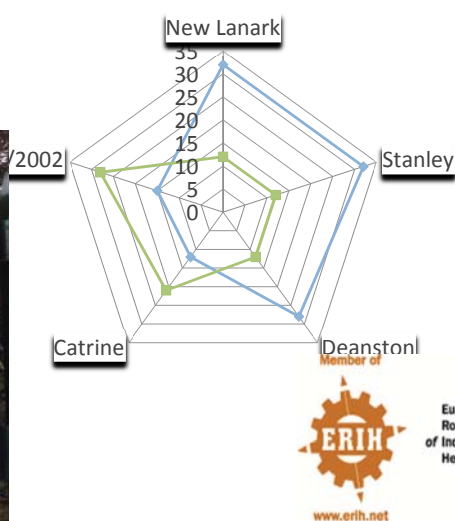


How about a cotton mill villages cultural route?

How to share values with a WHS without requiring multiple or serial WHS? (there must be a limit)

How to spread tourist business and deepen understanding?

ERIH - European Route of Industrial Heritage



Other new Historic Environment Scotland points on the ERIH route

- Still to do: create networks linked to the Anchor points

Bonawe Historic Iron Furnace

Key things to remember when visiting this site.



Facilities



Site contact number

01866 822 432

Parking

There is a rough gravel-surfaced car park, with no accessible spaces marked.

Approach to site

Visitors approach the site along a gravel-surfaced path.

Visitor centre

The shop has step-free access.

Monument

Bonawe is on a hill. The main circular route round the buildings is on gravel

and grass surfaces and is approximately 250m. The ground is uneven in places.

The main exhibition room has a set of eight wooden stairs with handrails on both sides, joining two levels.

Both levels can be accessed from outside without using the stairs.

Toilets

The nearest adapted toilet is 9.5 miles away at Tesco, Lochside, PA34 4HP.



Dallas Dhu Historic Distillery

Key things to remember when visiting this site.



Facilities



Site contact number

01399 626 545

Parking

There is a level tarmac car park. Accessible bays are marked.

Approach to site

Approach to site is 60m along a level tarmac and paved path.

Visitor centre

Visitor centre has step free entry. There is an audio visual presentation with an induction loop.

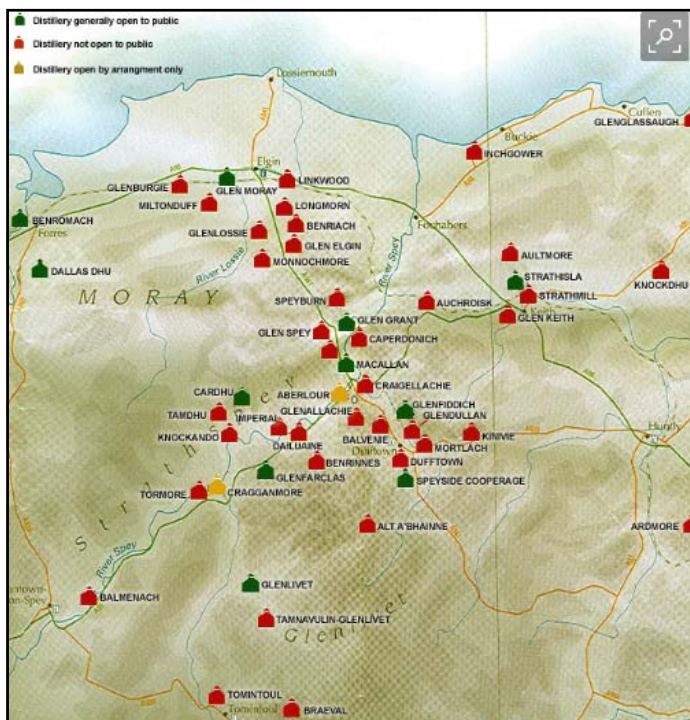
Monument: The ground floor is generally level, with some raised thresholds.

It consists of the Malting floor, Kiln, Mash House, Yeast room, still house, receiver room, warehouse. Some areas in these rooms are only accessible up steps.

The barley loft on the first floor is reached via a set of 14 steps outside the shop entrance. They are timber, open risers and have a handrail on both sides.

Toilets

There is an adapted toilet on site near the visitor centre.

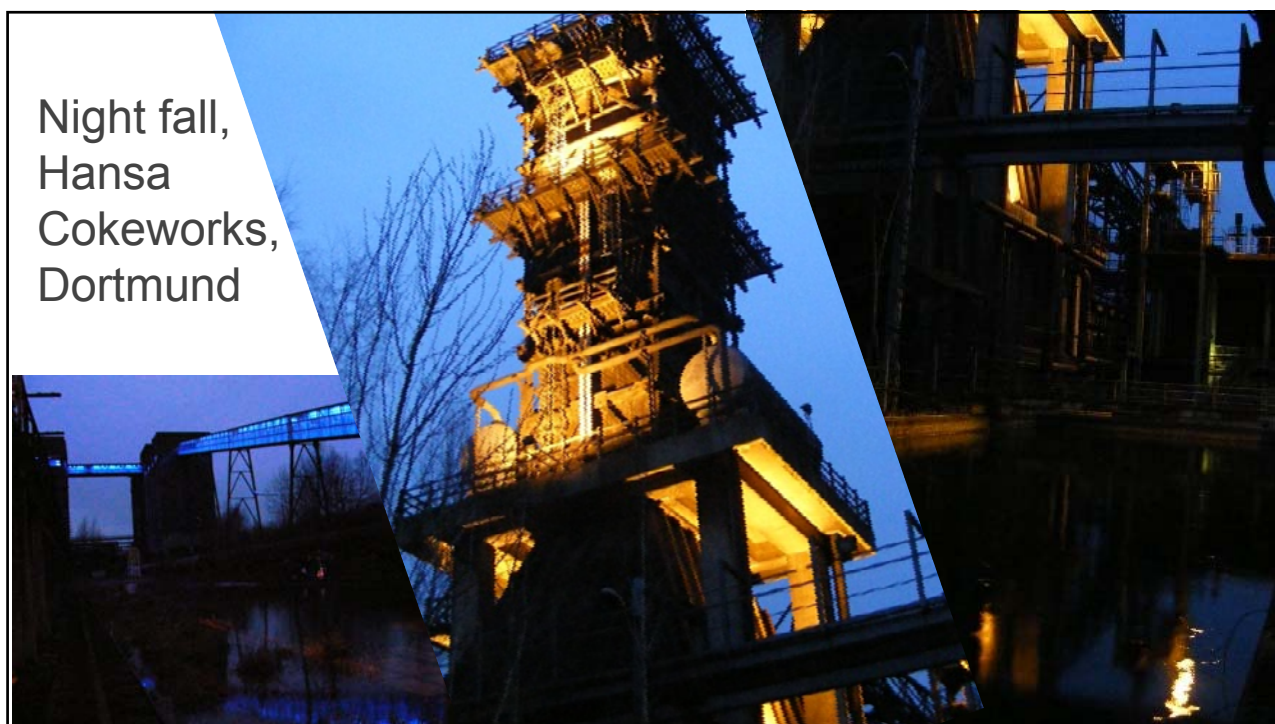


Speyside Whisky Trail

- Lets tap into an established tourist and connoisseur market.
- And there is the Keith-Dufftown railway too!



Night fall,
Hansa
Cokeworks,
Dortmund



Member of
European
Route
of Industrial
Heritage



www.erih.net

National Mining Museum Scotland

Created 1984 during the Miners Strike in an already closed pit, formed by

- Mid and East Lothian District Councils
- Lothian Regional Council
- Help in kind by NCB
- MSC funding for work experience = many former miners


 A large, complex industrial machine, likely a steam engine or pump, with a large flywheel and various pipes and valves. It is painted in green and yellow.


 A large, dark, industrial structure, possibly a mine entrance or a large wheel, with a red frame and a large wheel.

Lady Victoria Colliery, Newtongrange

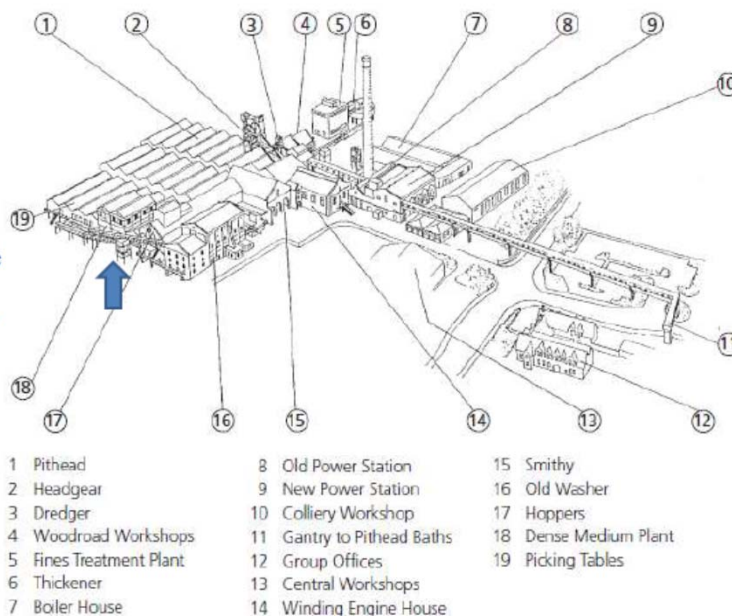


Conservation Plan for Lady Victoria Colliery

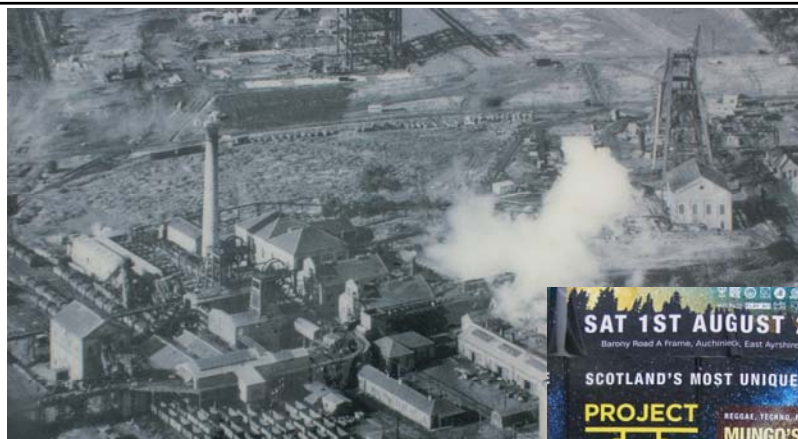
What to keep when part of its value is completeness?

Can any part be leased out to raise income?

With short-term government revenue funding comes the advice of a working party, hoping to identify savings (in reality, few)



Barony Colliery Ayrshire 1910-1989



CLOSURE

In 1989 the miners hit a 'stane dyke' — a fault in the seam. Work stopped and British Coal decided the pit was no longer viable. A ballot was held to decide on the future of the pit, with most men voting for closure. Some younger men transferred to other mines but many others never worked again. For a few years the area thrived as miners spent their redundancy money but eventually harsh reality set in. Mining had been the key industry in the area for over 100 years. Its demise had devastating social and economic consequences for the community. Future employment opportunities for young people in Galloway and Doon Valley were destroyed.

RESTORATION

The 'A' Frame
In 2007, after stripping off the lead based paint, the steel was repainted with long life paint. The result is an iconic structure standing proud in memory of the area's rich mining heritage.

Heritage Garden

The heritage garden is designed as a memorial to those who worked and lost their lives at Barony Colliery as well as a source of information on the site's mining heritage. The black granite memorial stone.

SAT 1ST AUGUST 2015
Barony Road A Frame, Auchinloch, East Ayrshire, KA18 2LP

SCOTLAND'S MOST UNIQUE VENUE

PROJECT A FRAME

CAMPING = £27 + BP
NON CAMPING = £33 + BP

REGGAE, ROCK, FUNK & SOUL

MUNGO'S HI-FI
THE HOSTILES
QUAIL (ANIMAL FARM)
REBECCA VASMANT
THE SKARSOLES
CRYPTIC • TREMORS
BIRDEZAK • KILLER KITCH
ANDUTRONIK • PUSSEY POWER
CORRY TAND • SPEEDY ACTION
INTERGALACTIC PUNK DRIBBLES
LOMA GLEDISH • VICE • ALEXY
SYNTHESIS • P.J. COYLE • 8 SOUND
OK MACHINE • ANGLES • RAY VOSE

LICENSED BAR • HOT FOOD
3 STAGES • LIVE STREET ART
THE PSYCHEDELIC SPEED BOAT
CART STALL • PRAWN COOKERY
projectaframe.co.uk
facebook: ProjectAFrame



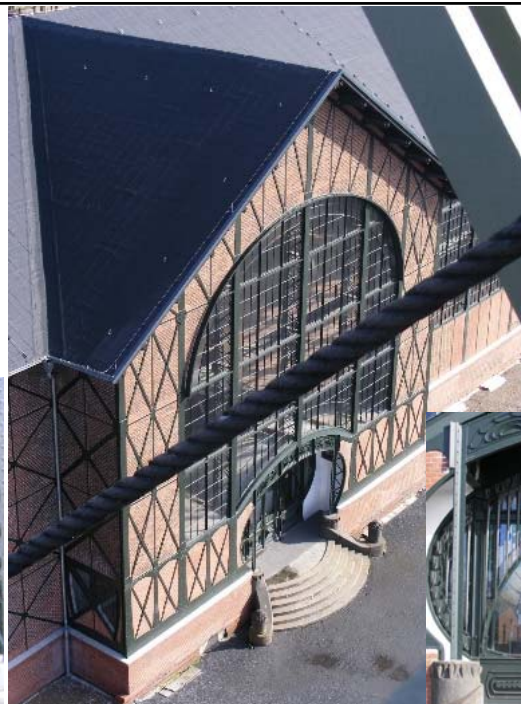
Zollverein XII, 1932 by
Schutz and Kremer.
World Heritage Site 2001,
Now aiming to expand
into a big Ruhrgebiet
cultural landscape World
Heritage Site



Zollverein Coke Works, Essen, Germany



Zeche Zollern II/ IV
power hall,
originally an
exhibition hall



Member of
European
Route
of Industrial
Heritage



Zeche Zollern





Oberhausen: tallest gasholder in Europe, now an exhibition hall



Member of
European
Route
of Industrial
Heritage



- Now ERIH has rolled east and has an impressive route in Silesia, Poland

Ostrava, Czechia:
Michal Colliery is one of a group winning the European Heritage Label

- Here with a steam locomotive provided for a TICCIH post-conference tour





And railways were instrumental in bringing Europe together, as EFAITH reminds us



175e verjaardag eerste grensoverschrijdende spoorlijn ter wereld
175e anniversaire du premier chemin de fer transfrontalier du monde
175th anniversary of the world's first border-crossing railway



MAY
5

Celebrate first border-crossing railway in Europe

Public - Hosted by European Industrial and Technical Heritage

05.05.2018
vertrek: station Kortrijk / départ: gare de Courtrai / departure: Kortrijk
railway station
13:30 (1:30 pm)
vtbkultuur Leie en Mandel
Handelskaai 1c bus 51
<http://www.vtbkultuur.be/kortrijk>
kortrijk@vtbkultuur.be
Contact:
Jan Dhaene, T. (+32) (0)475776990, jandhaene@telenet.be

Dès novembre 1842, l'exploitation partielle avait commencé sur les deux chemins; sur celui de Lille, entre Roubaix et Courtrai; sur celui de Valenciennes, entre Saint-Saulve et Quévrain; à deux voies.
FONDS VOTÉS. 10 millions, dont 6 pour Lille et 4 pour Valenciennes.



Heritage railways have, almost uniquely among industrial sites, attracted the passengers and the volunteer staff to be safe and viable. I look forward to learning from FEDECRAIL how it's done.

Bringing the several railways across Europe together in a loose federation, to share ideas and know-how, seems to be the way forward for other industrial heritage too.

Thank you for coming!

Mark.Watson@hes.scot



HISTORIC
ENVIRONMENT
SCOTLAND

ARAINNEACHD
EACHDRAIDHEIL
ALBA



Engaging with the Next Generation and how your Elected Representatives can help Railway Heritage

Richard Lord Faulkner of Worcester
President Heritage Railway Association

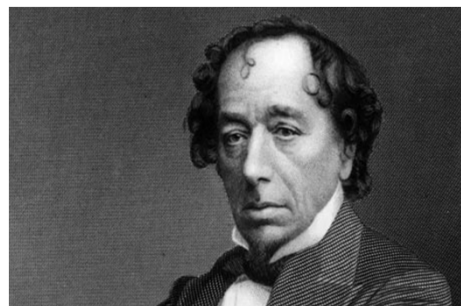
01.03.2020

Richard Faulkner - Edinburgh 2018

1



- “The railways will do as much for mankind as the monasteries did.”



01.03.2020

Richard Faulkner - Edinburgh 2018

2



National Railways



- More passengers than at any time since 1922
- Huge investment in new infrastructure and HS2

01.03.2020

Richard Faulkner - Edinburgh 2018

3

BRITAIN'S HERITAGE RAILWAYS



- 11 million visitors
- 8 million passengers
- 567 miles of track
- 500 stations
- £130 million earnings
- 14 million journeys, 114 million passenger miles, 1.3 million passenger train miles

01.03.2020

Richard Faulkner - Edinburgh 2018

4

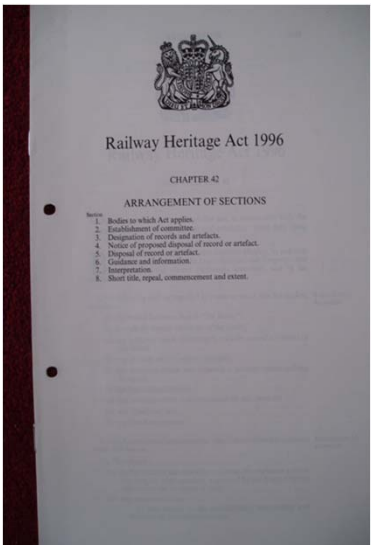


BRITAIN'S HERITAGE RAILWAYS



- 3,089 employed
- 22,211 volunteers
- 124 working heritage railways and tramways
- 60 steam museum sites
- 500+ miles of track (King's Cross to Dalwhinnie)
- More stations than London Underground
- 749 preserved steam locomotives

Railway Heritage Act 1996





Signals at Stirling



01.03.2020

Richard Faulkner - Edinburgh 2018

7

**350 lantern slides from Brighton M&EE
1930s to 1950s**



01.03.2020

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8



Lion and Wheel flag



01.03.2020

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9

Blizzard plaque at Lochgorm Works



01.03.2020

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10



Eurostar uniforms



01.03.2020 Richard Faulkner - Edinburgh 2018 11

Sudbrook Pumping Station



01.03.2020 Richard Faulkner - Edinburgh 2018 12



Cuneo painting



01.03.2020

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13

North British Railway Window



01.03.2020

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14

The Royal Train



01.03.2020

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15

Class 306 EMU



01.03.2020

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Model of Stanler Pacific



01.03.2020

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17



01.03.2020

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18





01.03.2020 Richard Faulkner - Edinburgh 2018 21



01.03.2020 Richard Faulkner - Edinburgh 2018 22



Value study



- Value of railways to the community
- Economic,
- Tourism
- Local goods/ services
- Employment
- Training and Skills - apprenticeships
- Health
- Transport

01.03.2020

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01.03.2020

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Report findings



- **Economic benefits:**
 - for every £1 spent, benefit of £2.70 to local economy
 - national benefit of £250 million
- **Employment and skills training**
- **Health benefits of steady exercise**
- **Subsidy free and self-sustaining**
- **Potential for providing public transport**

01.03.2020

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Young people Inquiry



- **Pathway to permanent employment – national railway opportunities**
 - **Important life skills – self-discipline, team working, sense of purpose**
- BUT**
- **Problems caused by Employment of Women, Young Persons and Children Act of 1920**

01.03.2020

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Heritage Railways and Tramways (Voluntary Work) Bill [HL]



- A BILL TO
- Permit young persons to carry out voluntary work on a heritage railway or tramway
 - BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:-
- Permitting young persons to carry out voluntary work on heritage railways and tramways
 - Nothing in section 1(1) of the Employment of Women, Young Persons and Children Act of 1920 shall be taken as preventing a young person from undertaking voluntary work on a heritage railway or a heritage tramway.
- Interpretation
- For the purposes of this Act -
 - "heritage railway" and "heritage tramway" have the same respective meanings as in regulation 2 of the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006;
 - "voluntary work" means an activity carried out unpaid (except for any travel or other out-of-pocket expenses) on a heritage railway or a heritage tramway with the aim of benefiting that body; and
 - "young person" has the same meaning as "child" in section 558 of the Education Act 1996, save that the person concerned must have attained the age of 12 years.
- Extent, commencement and short title
 - This Act extends to England and Wales, Scotland and Northern Ireland.
 - This Act comes into force on the day on which it is passed.
 - This Act may be cited as the Heritage Railways and Tramways (Voluntary Work) Act.

Severn Valley floods 2017





APPG on Severn Valley



01.03.2020

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APPG benefits



- Greater political profile
- Engagement with ministers
- Raising awareness of benefits
- Supporting work of HRA
- Encourage local MP to come along
- HRA members welcome

01.03.2020

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01.03.2020

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SPEECH TO THE FEDECRAIL CONFERENCE

EDINBURGH13 APRIL 2018

Ladies and gentlemen, it is a huge pleasure and privilege for me to be invited to make this speech to the FEDECRAIL conference.

Like all of you, I am really looking forward to the visits and journeys this weekend, and I offer my warmest congratulations to the organisers for preparing such an impressive programme.

We British have a rather complicated relationship with our railways. This prophecy was made by the 19th century Prime Minister, Benjamin Disraeli.

The relationship can sometimes be a bit hostile, particularly when things go wrong. But it's generally pretty positive, and evidence of that has been the extraordinary growth in the number of passengers on our trains – doubled over the last 10 years, with totals now higher than at any time since the 1920s.

The railway created by our 19th century ancestors has never ceased to play a vital role in the life of our country – whether it's the standardisation of time, the development of seaside resorts, giving working people the opportunity to take holidays, the invention of commuting, allowing people to live in pleasant suburbs some distance from their places of work and travel in each day, essential logistical support in times of war, and right up to today when they provide popular and environmentally friendly alternatives to carbon emitting gas guzzling short haul aircraft and unnecessary car driving.

We take a particular pride in their history, and that is one reason why our heritage railways are popular and successful. Here are some statistics about our heritage railways and tramways in the UK. The public seem to appreciate the services that they provide, as the around 11 million visitors and 8 million passengers a year on these railways and tramways. Here are some more figures. I'll say more about the contribution they make to our tourist and regional economies in a moment.

First though I want to explain how we protect our railway heritage by using laws passed by our Parliament – I believe Britain is the only country in the world that has passed legislation specifically to ensure that we secure the preservation of evidence which is significant to the railway's history. Rail is the only industry in the UK which is viewed in this way.

Enshrined in the legislation which privatised Britain's railways in the 1990s is a series of requirements about the treatment of railway items of historical interest.

In the days when we had one large state industry, life was simpler. Britain's national record offices and the National Railway Museum could readily judge what they considered important for their collections; and simply request the British Railways Board to hand items over once they were no longer needed.

But that approach could not work with the privatised network. For one thing, The National Archives has no remit – other than in special circumstances – to take the records of private companies. A new approach was needed.

The solution lay originally in the creation of a new statutory body called the Railway Heritage Committee. The Committee was given the power to 'designate' – and subsequently agree the disposal of – significant railway records and artefacts that justified long-term preservation, which since 2005 have included the military railways owned by the Ministry of Defence. These powers are set down in the 1996 Railway Heritage Act. Its mission is to secure the preservation of evidence which is significant to the railway's heritage.

The range of items and records designated – and thus saved from unauthorised sale or scrapping – is enormous. There are over a thousand artefacts protected in this way.

Here are some examples.

- A Caledonian signal gantry from Stirling in Scotland.
- A unique collection of Mechanical and Electrical Engineering lantern slides dating back to 1930s.
- A British Railways flag from the 1960s
- A plaque from the general manager of British Rail Scotland congratulating the maintenance engineer and his staff for keeping open the railway in blizzard conditions.
- A set of uniforms for the staff on the international Eurostar trains
- Nineteenth century equipment for pumping out water from the Severn Tunnel on the Great Western main line into Wales
- A painting of a Eurostar by Terence Cuneo at Waterloo station – one of a large number of designated paintings produced for railway publicity purposes

- A pre-1923 North British railway window
- The locomotive and coaches of the Royal Train
- An electric commuter train
- A model of a railway locomotive made by apprentices at Crewe Works
- The clock from Queen Victoria's waiting room at Windsor station
- The swingbridge for luggage at a station on the South Western main line
- And lastly in this section, the old turntable from Aberdeen – an artefact much sought after by heritage railways.

All these items – and a thousand more – are protected as a result of the Railway Heritage Act.

It nearly went wrong in 2010. We had a change of government in Britain in that year, and the new administration were determined to abolish the Railway Heritage Committee, as they wanted to reduce the number of public bodies sponsored by the Department for Transport.

Fortunately though I was able to persuade ministers that even if the RHC were abolished, it was vital to retain the powers of designation. The powers were passed to the trustees of the Science Museum group, which has within its family the National Railway Museum in York. I am deputy chairman of the board of trustees and chair the Railway Heritage Designation Advisory Board.

We have significant power and authority given to us by Parliament and can insist that an item is preserved, and that it can't be got rid of without our approval. We use these powers carefully, and I hope with common sense.

We have the job of agreeing which institution will hold designated records or artefacts when no longer required by the railway business that owns them, and the terms under which they will be offered to those institutions. Often we direct that they are put in the hands of tourist and heritage railways, and thus enhance their appeal to their passengers.

We have no budget to acquire artefacts or records ourselves. Neither do we run a single heritage railway.

What we have is something much more powerful than a big budget. We have influence, authority, and the backing of the British Parliament.

The relationship between the railway heritage movement and Parliament is something we have worked hard to create. In 2011 we held a reception in the

House of Commons whose purpose was to bring Heritage Railway Association members and their Members of Parliament together.

That was such a success that we decided to establish the heritage rail all-party parliamentary group, with officers mainly from constituencies home to heritage railways and tramways, and with members drawn the House of Commons and the House of Lords and from all political parties.

The value of these groups is that they allow members to go into detail on a subject that interests them, or is important to their constituents. They can do this in much greater depth than they would otherwise be able to do, and can also call upon expert advisers to help. It is also a unique opportunity for interested members of the public to attend and to participate in the discussion.

In our case the HRA supports the work of the group and an HRA volunteer acts as our secretary. We encourage HRA members from individual railways to join in the discussion and provide evidence for the two big inquiries we have undertaken.

The group's first significant initiative was to launch an inquiry into the value of heritage railways. This had the various objectives listed, of which the four most important were:

- To establish the current and future value of heritage railways to the local and national economy.
- To identify the contributions they make to their local community including education and training, employment, sustainable tourism and health and wellbeing.
- To establish best practice amongst heritage railways.
- To identify and advise on current and future Government policy affecting the heritage railway industry.

We published our report in July 2013, and this was something of a milestone, partly because it is the first ever produced by a parliamentary group on heritage railways, but also because it was effectively the report of the heritage railways themselves. Whilst it represents the views of us - MPs and lords - who make up the group, it is based on evidence provided by HRA members and other experts with a great deal of practical experience of heritage railways and their effect on the communities they serve.

The report's value is that it provides an authoritative reference point for discussions with local authorities and politicians, and enjoys the status of a paper by a parliamentary group. The railways are making full use of it when debating their value to the community, or in making the case for planning consent or for funding for a project. The material is there to be used.

There are eight main findings, and I'll mention just five. You can read about the remaining ones in the full report.

The first, and most important one concerns the economic benefits of heritage railways. We make the point that they make a huge contribution to the economies of the areas they serve, both in terms of attracting tourists and in stimulating spending on local services. Research undertaken for a number of railways told us that for every pound that is spent on a heritage railway there is a benefit to the local economy of around £2.70.

This suggests that the economic benefit nationally is just under £250m. That is a great figure to use when talking about what they contribute to the nation.

Secondly, we drew attention to the part heritage railways play in providing employment and skills training - especially apprenticeships for young people. We make the point that heritage railways are typically in areas of the country where employment opportunities, particularly for skilled workers, are low. They also offer a productive use of the time of 19,500 volunteer supporters who devote their own time and money to running, maintaining or developing their railway.

Third, for some younger volunteers, they provide a valuable training ground for subsequent jobs on the main line network or elsewhere. For older volunteers, they offer a sense of achievement and the health benefits of steady exercise – something we could all benefit from.

Fourth, we show that heritage railways are not a drain on the taxpayer. From railway preservation's beginning in the 1950s it's been subsidy free and self sustaining. Over 100 railways operate throughout the United Kingdom today with no financial support from central or local government.

One further recommendation we made was about the role of heritage railways in providing public transport. We were impressed by evidence that the transport role is not necessarily about providing a "commuter" service to take people to work but may be to provide a "tourist transport" service to take people, without their cars, into sensitive areas such as national parks, areas of outstanding natural beauty or small coastal towns that are gridlocked with traffic.

The report had a good response from Government, and we discussed it with four separate ministers.

One of the benefits of an all party group is that dialogue can be two way. The report tells heritage railways what we think. Equally, it's a chance for

parliamentarians to know what they think, so that if they have any issues that they would like us to consider in the future, or any successes that they want to tell us about, then they get in touch.

One notable success – on the Helston Railway in Cornwall - was to hear the planning inspector quoting from the report in his decision to support planning consent for an extension of the railway.

Following the production of that first report we turned our attention to young people and heritage railways, and the evidence we received revealed some interesting and important issues.

Looking around me now, I can recognise the venerable grey heads of so many colleagues who have helped to create the amazing range of heritage railways and museums that we have in all Fedecrail member countries. But, of course, all of us need a lot more younger people to carry the baton forward in the future, and to engage with them for the long term health of the sector.

On the positive side, our report found that most of our member railways actively encourage the interest of younger people and many are able to provide an interesting and varied programme for them, with a clear career path to training in the competencies required when they are old enough.

Most railways have examples of young volunteers who have gone on to permanent employment on the national network, and it is clear that heritage railways are a great recruiting base for tomorrow's railway men and women.

Our work with volunteers supports social cohesion in the divided and fractured society we have in Britain. Most revealing has been the evidence given of the social benefits for young volunteers. For many, their time with a heritage railway has taught them important life skills including self discipline, team working, interpersonal skills and has provided them with a sense of purpose and direction.

On the down side, we heard how out of date legislation from 1920 is a constraint on involving 14 to 16 year olds in volunteering on our railways, and the evidence we have shows that this is an important period when many young people decide which interests they want to follow.

At this stage, working on a preserved railway – as many of us did at that age – is closed to them. The law does allow work experience for this age group, but we need it changed so that it extends to volunteering generally.

Unfortunately, there is no appetite within Government to change the law, or to make room for future changes in a legislative programme that is dominated by

the government's efforts to leave the European Union, so we have to explore what else can be done to deal with this problem. I have myself introduced what we call a private member's bill to change the 1920 Act, but this won't be achieved easily or quickly. So this is very much a work in progress.

Having the all-party group report will certainly help though, and provide the basis for taking the issue forward with ministers.

Apart from volunteering, our report will also highlight the important role that all heritage railways play in encouraging school visits and the sort of links that can be made between our railways and the school syllabus. The all-party group's chairman, Nicky Morgan MP, is a former education secretary and much enthused by this aspect, as railways can offer such a rich variety of experiences all linked to the syllabus. History and geography are of course part of this, as are the STEM subjects – Science, Technology, Engineering and Maths.

As a trustee and deputy chair of the Science Museum Group and a member of the National Railway Museum's advisory group, I know that STEM is high on the list of priorities, and at York and Shildon railway museums 45,000 youngsters take part in organised school visits each year. The NRM's expansion plans will encourage this further with a special focus on engineering. There is scope here for many member railways to follow a similar path and enjoy the benefits in terms of higher visitor numbers and, all being well, plenty of return visits too.

From all this you can see that in its eighth year of operation the all-party group is in excellent health.

We have regular programme of meetings in Westminster, and this has been supplemented by well-attended visits to heritage railways around England.

The principal economic benefits of heritage railways derive from tourism and it is here where heritage railways have been so successful. Today, the railways are the principal tourist attractions in numerous areas in Britain, and even in popular tourist areas such as the North York Moors, Exmoor or Norfolk, heritage railways are a mainstay of the local economy.

As an example of how important they are, let me tell you about the experience of the Severn Valley Railway in the English West Midlands. It's one of our UK's longest established heritage railways.

The line was closed in the 1960s but has since been reopened in stages and now extends to a length of around sixteen miles through attractive countryside

in the English West Midlands. It is a railway which has an air of prosperity and permanence.

But all that was undermined – literally – in June 2007 when storms and heavy rain hit the area. Embankments were completely washed away in several places leaving track spectacularly but expensively suspended in mid air. Elsewhere, landslides left stretches of track buried under debris. All but a short section of the line had to be closed altogether and early estimates put the cost of restoration at around £1.5 million.

A public appeal for funds to carry out repairs was launched almost at once. But even as the money started to come in, the cost of repairs was being revised upwards and eventually stood at nearer £2.5 million. I never underestimate the ability of the railway preservation sector to raise unlikely sums for causes dear to its heart, but this was clearly a daunting sum.

It was at this point that the towns in the area began to make their voices heard. They had all begun quickly to feel the effect of the line's closure. And they began to realise, perhaps for the first time, just how important the railway was to the local economy.

Such was the level of concern that it came to the attention of Advantage West Midlands, the Regional Development Agency for the area. I don't need to take you in detail through their deliberations. Suffice to say that they eventually came up with a contribution of £750,000 towards the cost of repairs.

I don't think you can have a much more graphic illustration of the extent to which government organisations can be made to realise the importance of heritage rail projects to their regions. And, crucially, this was not simply a case of the railway itself asking for money. Local businesses and others in the area realised what they stood to lose if the railway folded. And Advantage West Midlands – an organisation with an economic remit but no explicitly heritage one – recognised the case for making a very significant financial contribution.

I am pleased to say that the story has a happy ending. The line reopened throughout in March 2008 and is now faring as well as it has ever done. And here's a picture of the all-party group members paying a visit to the Severn Valley Railway in April 2012.

And here's a slide demonstrating what the value is in engaging with your parliamentarians.

As you can see, I list these as:

- Greater political profile for your heritage railway
- Engagement with ministers
- Raising awareness of benefits
- Supporting work of HRA
- Encourage local MP to come along
- HRA members always welcome to attend APPG meetings.

So to conclude, I would say this. Just as railways were Britain's gift to the world, so too was the concept of the heritage railway. We have more heritage railways and steam museums than other countries, the season tends to be longer and the scope of the operation tends to be more ambitious, quite apart from the programme of main line steam excursions, involving over 500 trains a year on the national network. It is something that Britain does particularly well and attracts a lot of overseas visitors.

This is a strong platform on which to build, but I believe there is a lot of building to do, and I am sure this applies to many of your railways too. We have a very good product to offer visitors although we can always think of ways of improving it. This is demonstrated by the long list of projects to extend lines, build new stations and restore more locomotives and rolling stock to meet growing demand.

But I believe we are still only at the starting gate, and that the potential remains huge. We have to be smart about this and we have to get better at marketing ourselves. A few railways do this well, and most have improved enormously since the arrival of the world wide web, but there is still a long way to go. Websites need to improve, and in particular to offer other languages for overseas visitors.

In the near future it will become essential to be able to offer versions for foreign language speaking visitors, for example. 'Virtual tours' can give a really good idea of what will be a different experience to many overseas visitors. We need to get better at offering packages with local hotels, restaurants or other tourist attractions. For many visitors there needs to be more than just the train ride.

We need to give more thought as to how people are going to get to us other than by car, and help them with through rail tickets or bus links.

These are good times for heritage railways, and I am determined to do all I can to help ensure that they get better. You have great stories to tell, are immensely important to your tourist and regional economies, and are playing a huge part in introducing young and the not so young to the delights of train travel, to the history of the greatest invention in most modern societies, and to a family which is overwhelmingly a power for good in our society.

The more you can demonstrate how important you are to the economic life of the areas you serve, the stronger will be your case for support – financial, material and political – from the people who take decisions and influence opinion in areas which affect you.

I want our successors, perhaps 50 years from now, to be able to judge our stewardship, and say that not only did we succeed in preserving the best of our own railway heritage, and in ensuring that we also made a difference to the way that railways were generally perceived, but also our efforts encouraged others to realise what a vibrant, important, and ecologically sound form of transport they are. Tourist railways are an essential part of that heritage.



SRPS YOUTH GROUP



INTRO

- I am Mark Adamson, I'm 18 years old and a trainee Guard and secondman on the B&KR.
- I started my railway passion at 6 months old at a Day out with Thomas event in 1999.
- I signed up for the SRPS 20th February 2013 at the SECC Model rail Scotland. 5 years ago
- I started my first day at Bo'ness in June 2013 aged 14 making fire bricks for locomotives.



- My first day working in the youth group was the Diesel gala 2013.
- My “graduation” day was 2nd May 2015
- My aim in the future is to work on the National Railway Network.

ABOUT THE RAILWAY

The railway is a 5 mile stretch from Bo’ness to Manuel. It was built in 1978 in a large “S” bend over a BP pipeline. Originally, the line was used by the North British on trains to Glasgow and Airdrie, the line the rest is existing track bed used by BR up to the mid 1970s linking Kinneil colliery to the main line between Linlithgow and

- Polmont. This stretch was later bought by the SRPS in the aim of restoring the line
- for demonstration trains up the line. The line ran to Birkhill from 1990 and to Manuel
- from 2010. It passes the Antonine wall, Birkhill Clay mine, Grangemouth and Longannet
- power stations. The facilities at Bo’ness include 2 steam sheds, a diesel TMD, a carriage
- shed, a goods depot, a Museum and a station with a shop, model railway and café.

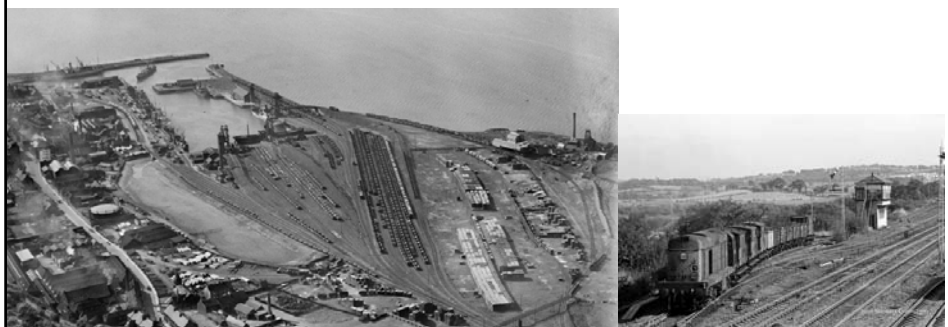
BIRKHILL STATION IN WINTER AND SUMMER 2015: pictures m adamson





ABOUT BO'NESS TOWN

- Historically, the biggest trading port for cargo in the East of Scotland. The line from Bo'ness used to transport coal, timber, chemicals, salt, metal work, fish, gas and clay from Birkhill Clay mine. The station we currently use is situated on the old harbour dock which was used as a goods yard by the North British Railway Company. Coal mining was a common trade in Bo'ness and Kinneil from the medieval era all the way to the early 1980's when the mine closed. The town had an ideal history and story to tell for the railway to be set.



COAL PRODUCTION

Coal mining was the main trade in Bo'ness and Kinneil from the medieval era all the way to the early 1980's when the mine closed. Tunnels from the mine went under the River Forth. Trains would leave the colliery on the current track-bed that is used by the SRPS line today.





SHIP-BREAKING



[America Liner "Columbia"](#)

[SS Belgenland](#)

[SS Empire Advocate](#)

[SS Metagama](#)

[HMS Lagos](#)

[HMS Scorpion](#)

[HMS Liverpool](#)

[HMS Wheatland](#)

[HMS Newark](#)

[HMS Ramsey \(G60\)](#)



CLAY MINING

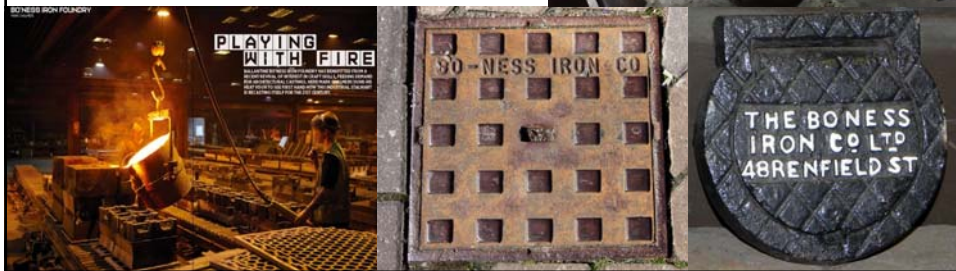
Situated in the Avon gorge, the mine is situated next to an old steam mill dating back to 1906. In the 1950s production reached its highest with 6 miles of tunnel dug under the Forth Valley. The mine shut in 2010 along with the destruction of the buildings. Many relics such as the Haulage, bridge and the mine shafts along with a couple of wagons.





BO'NESS IRON WORKS

The Bo'ness Iron Co have an Iron casting foundry across the road from the railway. They have cast many objects that have made their way all over Scotland from Man-hole covers in Edinburgh to Street-lamps in Rothesay.



PURPOSE OF THE YOUTH GROUP

The railway run a youth group in order to allow young people to participate in the up-keep and running of the railway. The groups aim is "To foster an interest in Scotland's railway heritage amongst young persons and to provide a working training experience based at the SRPS at Bo'ness that will be useful throughout their adult life. The roles of the youngsters are varied, with 12-14 year olds taking on Railway related projects non trackside, this is mostly customer service roles on the train or minor jobs in stations or car parks. 14-16 year olds take on basic tasks whilst supervised or shadowing staff. In relation to the railway side, trips and activities include visits to museums, National Rail departments and other heritage railways.

ABOUT THE AWARD WINNING YOUTH GROUP

<https://www.youtube.com/watch?v=tbx9cHT5c0Q> .

THIS IS A SHORT VIDEO ABOUT THE PURPOSE, ORIGINS AND DAILY WORKINGS OF THE YOUTH GROUP WHICH WON THE YOUNG SCOT OF THE YEAR AWARD 2013 AND WERE PRESENTED WITH THE AWARD ON NATIONAL TELEVISION.

HOW TO GET INVOLVED

- Sign up at:
- Bo'ness Station office
- Sign up at the head office, 17 North Street
- Model Rail Scotland at SECC
- Contact the youth group leader, Linda Batchelor
- BUT!!! There is a waiting list
- The age required to join is 12 to 16 years old



KEY JOBS OF THE YOUTH GROUP

- Helping on trains by collecting litter, stewarding trains and helping on Thomas and Santa trains.
- Cleaning steam locomotives.
- Help overhauls in the Romney hut.
- Painting and cleaning facilities on the railway.
- And scaring folk on Halloween specials.



MY WORKINGS IN THE PAST 2 YEARS





STEAM AND SCREAM EVENTS 2013. The Youth Groups main jobs were to hand out chocolate and colouring sheets to youngsters. But most important of all SCARING people young and old.



EASTER SPECIALS 2014. The youth group work mostly as train stewards which involves handing out Easter eggs, colouring sheets and collecting rubbish and cleaning the train. One member has to dress up as the infamous Easter bunny which gets very warm on a hot day in April.



STEAM GALAS



For Steam galas, jobs mostly consist of on-train stewarding or helping coaling and Watering in the shed dependant of age.

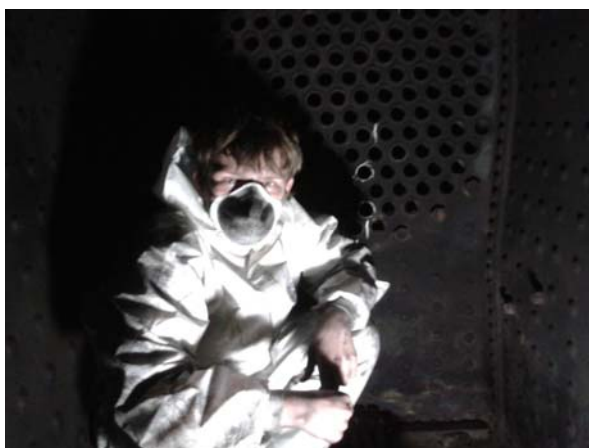
THOMAS DAYS



Jobs range from speeches on the train to being Fireman on Thomas.



Carriage and Wagon Department: Many projects are on-going in the carriage Department such as work on a new Gresley Teak, a Gresley sleeper and a North British saloon car intended for functional uses.



BOILER CLEANING. The most unpleasant job going in steam department. The mission is to clean all 181 pipes in the boiler whilst sitting in the firebox (an area around 3.5 feet tall by 2 feet wide).




OVERHAUL OF 4MT 80105. owned by SLOG this is under overhaul for the 5th year running. The tanks and boiler have since been removed.


SINCE LEAVING THE YOUTH GROUP







My debut as a film star on the BBC's "the secret agent". Set in the 1890s I'm playing a coal boy on the engine and spent several hours filming last September.



TRAINEE FIREMAN




Trainee fireman duties on D49 62712 "Morayshire" Just before the end of service in October 2015.

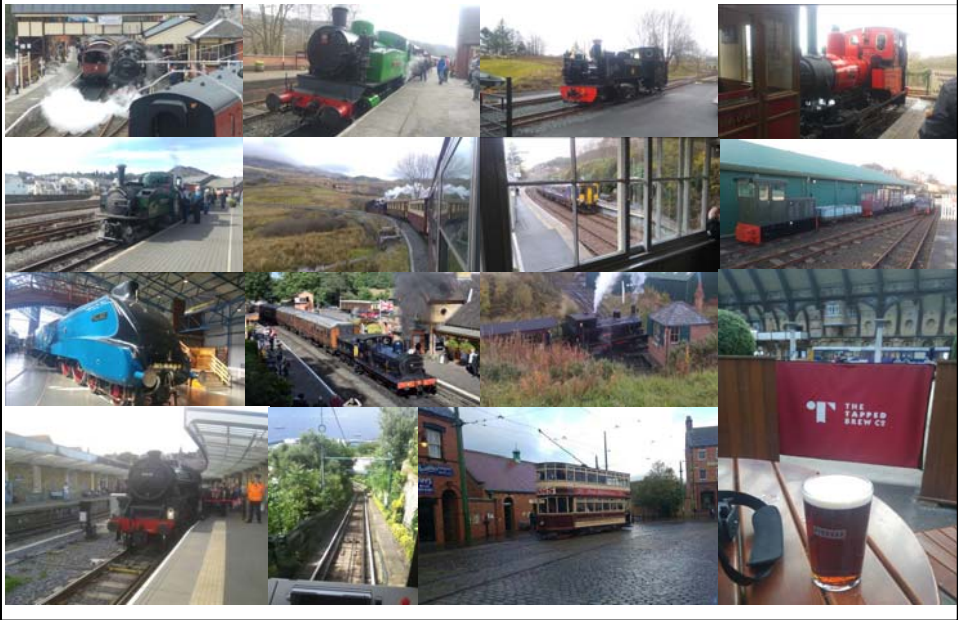


DIESEL DEPARTMENT





DAYS/WEEKENDS OUT



THE HOME FLEET





LNER D49 4-4-0 No.246 "MORAYSHIRE". This engine is the last of the class in existence and is in its last year in service before overhaul. The Youth group clean this engine often. It's seen here on the vintage Carriage day hauling the teak set.



North British 0-6-0 J38 No.673 "MAUDE". Currently in the Museum of Scottish Railways it is awaiting a major overhaul before being sent off to France for The great war centenary in 2018. It is currently awaiting a grant from the heritage Lottery. Seen here at NRM York.



CALEDONIAN RAILWAY McIntosh 4-4-0 No.419. The SRPS flagship, currently under overhaul in the Running shed. The boiler has been repaired and is planned to be back in service in 2017.



NCB No.1 "LORD ROBERTS" (Thomas the Tank engine). Also under overhaul, it is awaiting its boiler return and is expected back early 2016. the photo on the right is of the youth group Cleaning it before Day out with Thomas. Its replacement in recent years has been an converted Austerity from Llangollen.



BRITISH RAILWAYS STANDARD 4MT 2-6-4T 80105. This is owned by the Locomotive owners group. Also under overhaul came out of service in 2012. The youth group are involved in dismantling the engine which in April had the water tanks removed.



NCB No.19 & WD No.75254. Two of four Austerities on site number 19 came into service in 2015 and number 7 in 2011. number 7 is fitted with a Lempor type exhaust. Both worked for NCB in Comrie colliery until the early 80's.



TURKISH STATE RAILWAYS 8F 45170. The youth group are involved in cleaning the wheels of the tender. The pictures taken on 15th November 2014 on the "Bringing her home day" by Ann Glen.



Here it is in its temporary home in the museum workshop. We have officially reached Target for the purchase and the tender is currently being overhauled in the Running Shed.



WPR 0-6-0 No.20



This is next in line to go under restoration after 80105 in the Romney hut. One of the largest designs of 0-6-0 it is one of two survivors working in life. The mechanism is in poor condition because it has sat out of the shed for years.

NCB No.5 & 17



Awaiting restoration the locos are needing heavy overhaul. No.17 worked at WD LONG MARSTON and NCB POLKEMMET. No.5 worked at NCB COMRIE and currently had its boiler given to number 19 as it was in poor condition. There are no plans to restore these yet as the railway has 2 operational austerly's.



FAMOUS VISITORS



UNION OF SOUTH AFRICA. Before hauling the forth Circle 60009 was serviced at Bo'ness Running shed. It took 6 hours to finally make Steam. These pictures show me as a fire lighter.



ROYAL SCOTSMAN: down in Bo'ness every April for repair and stocking of Food, drink and sleeping utilities. When this photo was taken a window was being replaced after being blown out its frame by a passing pendolino on the WMCL at a passing speed of over 200 mph.



Midland Railway 4-4-0 compound 1000 leaving the Museum of Scottish railways. Picture by Lewis Dawson



THOMAS THE TANK ENGINE. Up for Thomas day from Llangollen in Wales, went onto travel to Denmark and Holland afterwards. There were talks at one point of it making an trip to China for Thomas days.



LNER Gresley A4 4-6-2 60007 "sir Nigel Gresley." Seen in the station loop at Bo'ness station



LNER Peppercorn A1 60163 "TORNADO." Seen at Burntisland
On the summer 2016 "Forth Circle" rail tour through Fife.
NOTE Tornado Has never visited the B&KR itself.



LMS PRINCESS CORONATION 4-6-2 6233 "DUCHESS OF SUTHERLAND."
Outside the Running shed next at the coaling stage on Thomas day.



LNER Gresley K4 2-6-0 "THE GREAT MARQUESS." Outside the running shed before hauling a late volunteers memorial train. On the right was the day number 19 had its first steam test in over 20 years out of service. On the left was the Steam gala as it became a temporary resident.



English Electric class 55 "ROYAL SCOTS GREY." Here in disguise as 55 003 "MELD" it also wore 55 007 "PINZA."



QUESTIONS???



THE FORTH BRIDGE: RAILWAY WORLD HERITAGE

Dr Miles Oglethorpe, Historic Environment Scotland



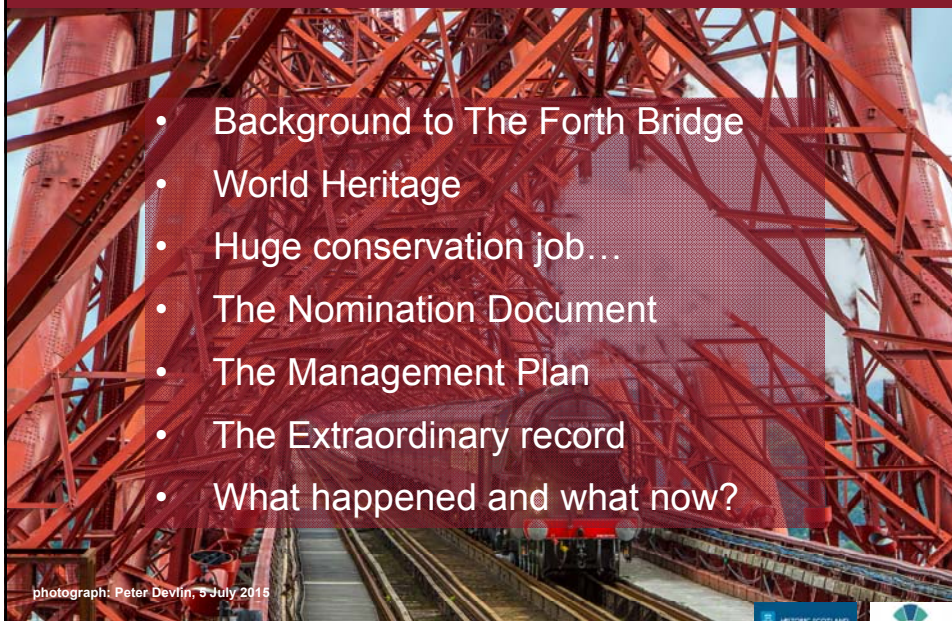
photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018



THE FORTH BRIDGE: RAILWAY WORLD HERITAGE

Dr Miles Oglethorpe, Historic Environment Scotland



- Background to The Forth Bridge
- World Heritage
- Huge conservation job...
- The Nomination Document
- The Management Plan
- The Extraordinary record
- What happened and what now?

photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018



FORTH DEMOLITION LIMITED

Contact us: 0131 445 2788

HOME ABOUT PROJECTS SERVICES GALLERY BLOG CONTACT

Planning

Full and proper consideration taken to all aspects of the work from the compilation of hazard elimination risk assessments to full plans of works.

Professionalism

Forth Demolition's team is amongst the best trained and experienced in the industry today with qualified managers, supervisors and well rounded site operatives.

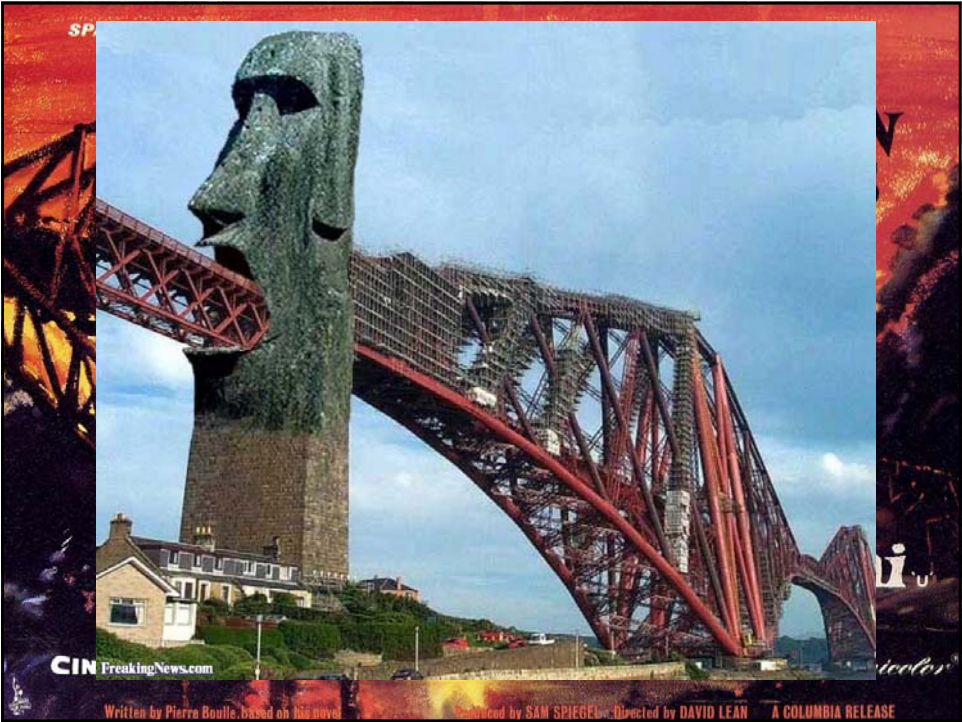
- ☒ Contracts delivered on time
- ☒ Contracts delivered on budget
- ☒ Contracts delivered with no H&S issues
- ☒ Contracts delivered to your satisfaction

CONTACT FORTH DEMOLITION TODAY AND GET YOUR PROJECT STARTED

**Forth Bridge
Brewery**

**Forth Bridge
Distillery**

Fife
COUNCIL







A good place to make a political point:
UK General Election, May 2015



The Custard Revolution, May 2015









THE FORTH BRIDGE: RAILWAY WORLD HERITAGE
Dr Miles Oglethorpe, Historic Environment Scotland

Background to The Forth Bridge

- World Heritage
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photograph: Peter Devlin, 5 July 2015

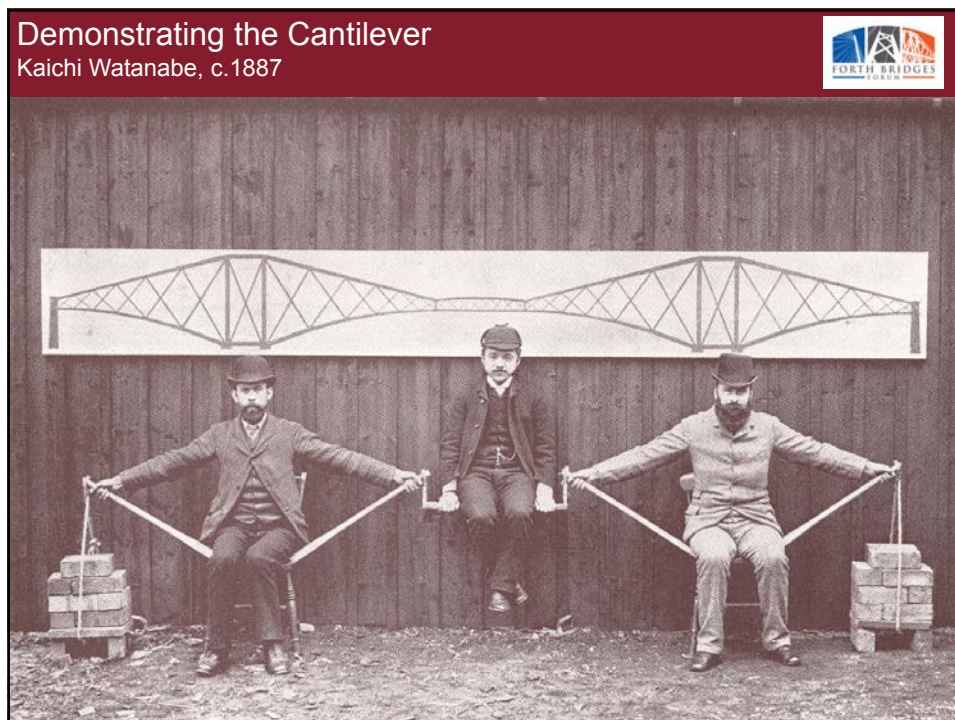
FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018

leisure & culture DUNDEE

OLD TAY BRIDGE DISASTER, FALLEN GIRDERS.

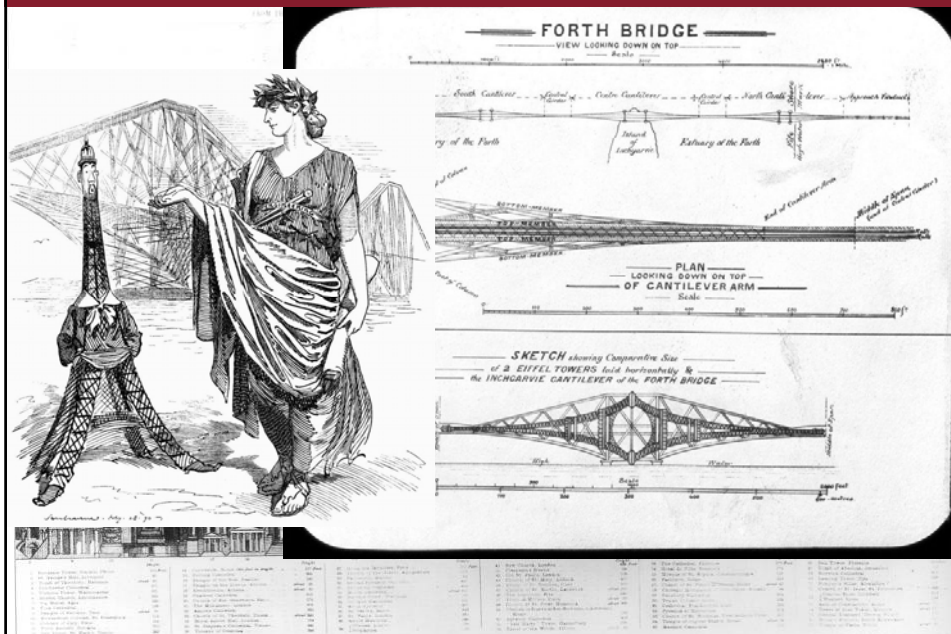
Scottish Scribe
60 KILLED IN TAY BRIDGE COLLAPSE
TRAIN PLUMMETS INTO RIVER - ALL PASSENGERS ARE LOST

The Tay Bridge disaster in 1879 greatly influenced the Forth Bridge design



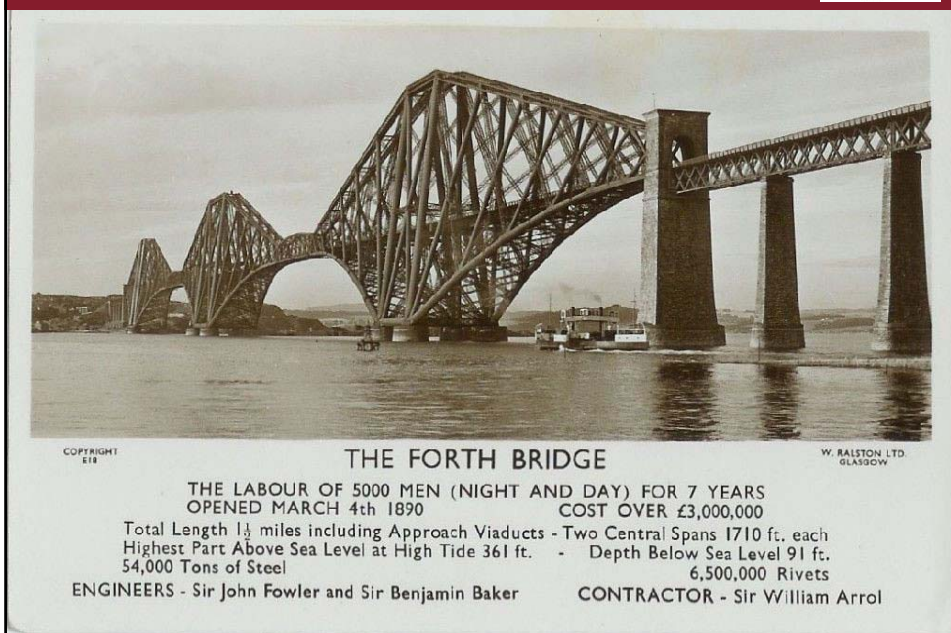
Engineering Wonder, Major event, widely reported

Contemporary reports from *Engineering*, *Punch* magazine...



THE FORTH BRIDGE: widely quoted statistics

Example of a Ralston's postcard





THE FORTH BRIDGE: RAILWAY WORLD HERITAGE
Dr Miles Oglethorpe, Historic Environment Scotland

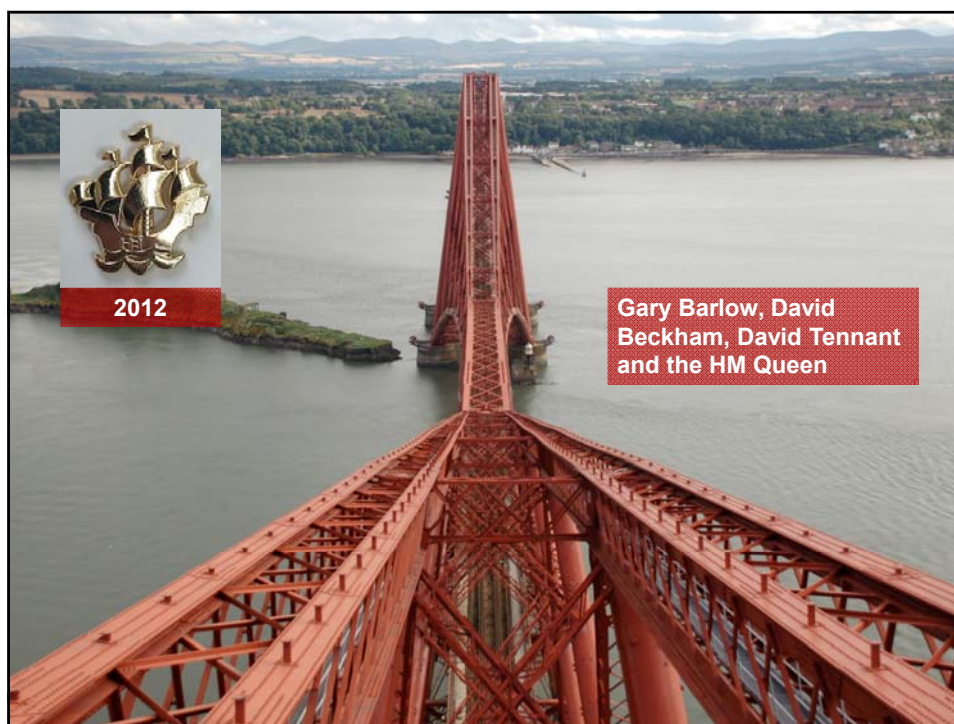
 

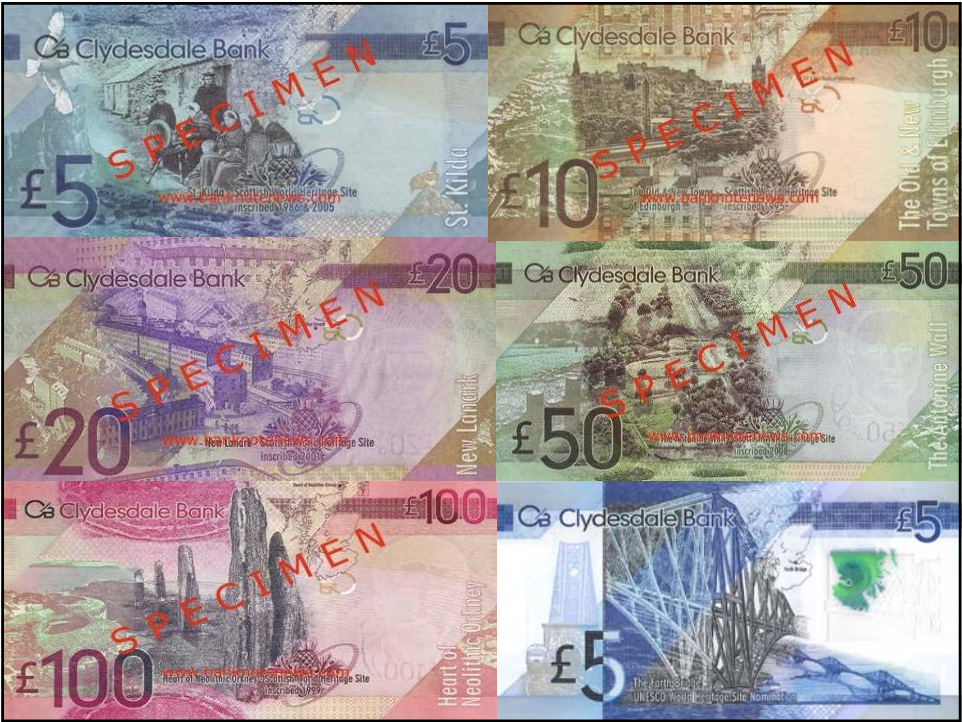
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photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018







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photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018

Biggest Restoration Job in the World?
View in 2011 looking north from the Queensferry tower



photograph: Miles Oglethorpe, August 2011



Scaffolding & Encapsulation

Images from Network Rail, Balfour Beatty & Edinburgh Photographic Society



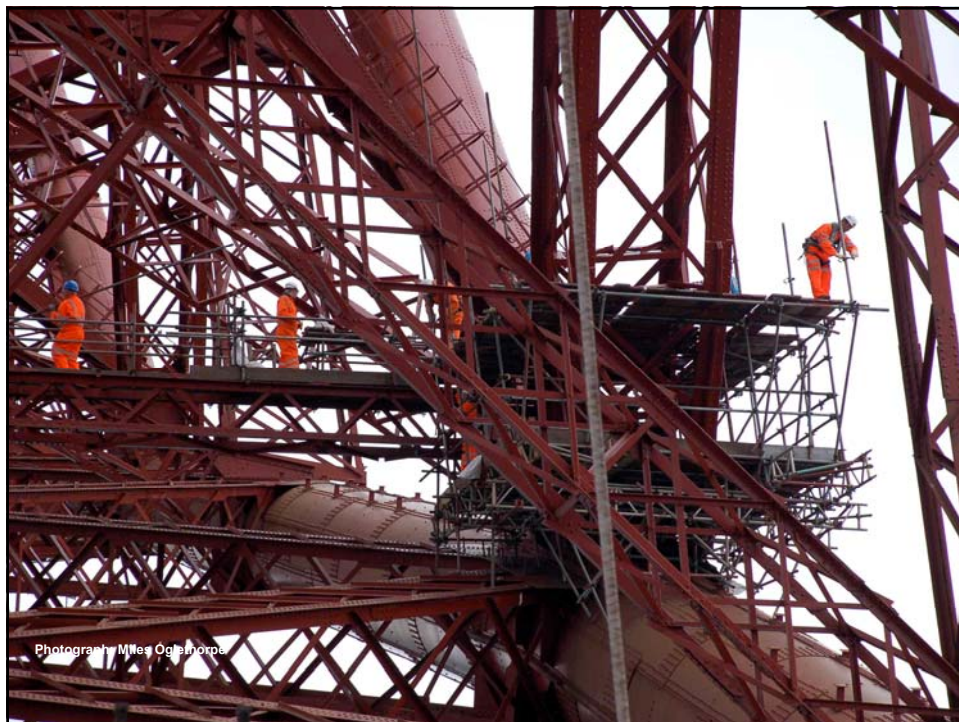
Some statistics from Network Rail....(Duncan Sooman)

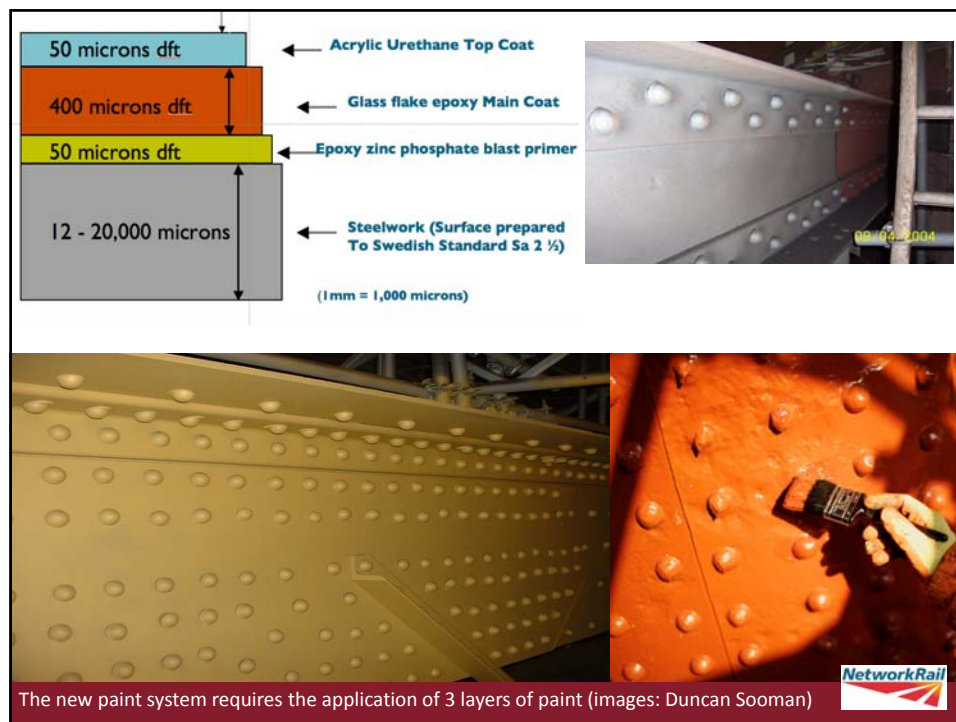
Work completed in 2012, routine low-level maintenance thereafter



- 4,000 tonnes of scaffolding deployed
- 4.5 million working hours
- 1,500 people employed since 2002
- 240,000 litres of paint
- 200 trains a day never disrupted
- Completed in 2012 after 12 years
- Nomination process commenced 2012

Photographs: Miles Oglethorpe.







Awards for Restoration Project

National Railway Heritage and Saltire Engineering Awards, 2012



Photograph: Miles Oglethorpe

From left to right are Duncan Sooman, Network Rail, Magnus Linklater, President of the Saltire Society, John Ellis, Chairman NRHA, and Hector MacAulay, MD (Regional) for Balfour Beatty in Scotland, 1 May 2013. .

THE FORTH BRIDGE: RAILWAY WORLD HERITAGE

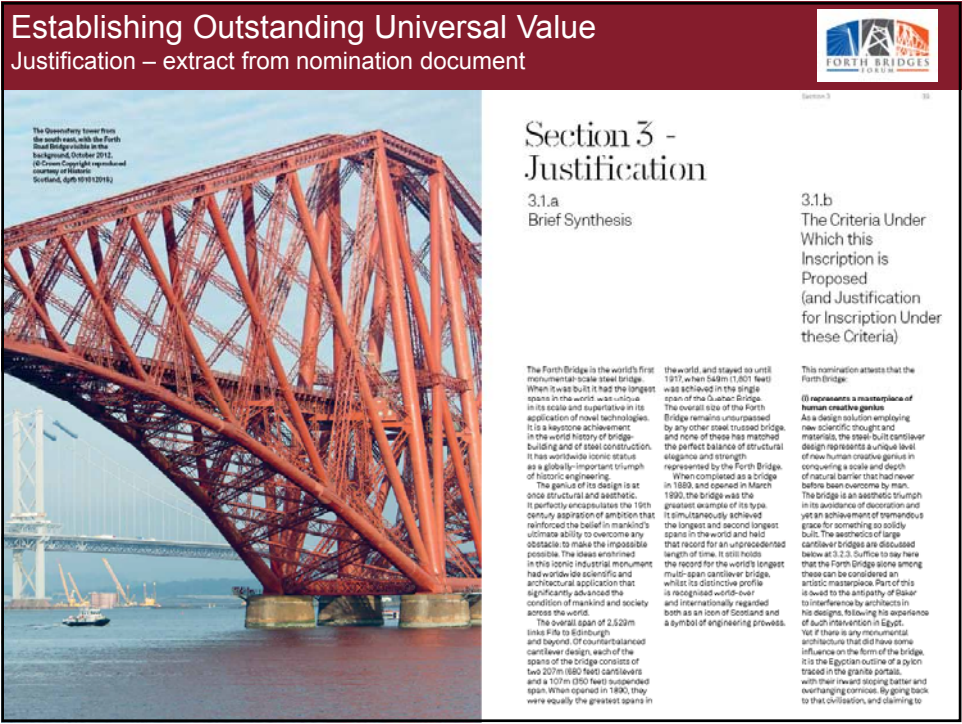
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photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018



Outstanding Universal Value

Nominated under Criteria i), ii), and iv)



Criterion i): *represents a masterpiece of human creative genius*

Its steel-built cantilever design represents a unique level of new human creative genius in conquering a scale and depth of natural barrier that had never before been overcome by man.

Criterion ii): *exhibits an important interchange of human values on developments in architecture and technology*

The Forth Bridge was a crucible for the application to civil engineering of new design principles and new construction methods. It therefore exerted great influence on civil engineering practice the world-over and is an icon to engineers world-wide.

Criterion iv): *an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history.* The Bridge is revolutionary in its design, its concept, its materials and in its enormous scale.

Photographs: Miles Oglethorpe

Establishing Outstanding Universal Value

The Comparative Study – extract from nomination document



3.1.d Statement of Authenticity



The Forth Bridge maintains a very high level of authenticity. As both a wonder of its age and as an iconic symbol of industrial achievement, the bridge has been described, drawn, painted and photographed throughout its existence. The original plans, drawings and documentation relating to its commission, design and construction are all still in existence, appropriately archived, and permit its design to be compared in exacting detail with today's bridge. Thus, based upon the high degree of documentation and the numerous last studies conducted on the bridge in its 125-year lifespan, it is possible to state with complete confidence that the structure as it appears today makes a near-exact match to its original form and finish.

Key factors demonstrating authenticity include:

- **Form/Design** - high
- **Materiality/Substance** - very high percentage of the steel and

stone fabric is as built. Only a few rivets and sections of steelwork have had to be replaced, and only a tiny proportion of the weight of the bridge comprises new material added to carry floodlights, support points, a temporary lift and platform rack to facilitate scaffolding for future maintenance.

- **Use/Function:** continuing in use
- **Trade/Technology:** new steel, new paint system, matching the original colour but providing longer-term protection, see below and section 4
- **Management Systems:** adapted to meet current requirements, especially those stipulated by the UK's Health & Safety Executive (HSE)
- **Location/Setting:** unharmed despite or because of the fact that it stands out in views from great distances and sets a standard to the Forth Road Bridge (1964), and Queensferry Crossing under construction 2013-2016

View of approach viaduct, and the three piers under construction, 2 August 1987.
© Crown Copyright, National Records of Scotland, DAI/PC046/04/003.

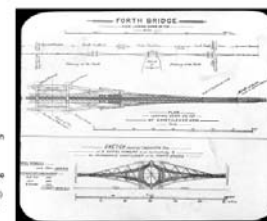
3.2 Comparative Analysis

"The Forth Bridge shattered records. The volumes of masonry for its piers, the height, length and depth of its cantilevers, the scale of its free spans, the volume of steel in the whole structure were all world beaters and even today it remains one of the world's biggest and most famous bridges."

David J. Brown, Bridges, Inc.; Michael Smiley, 1983

This section sets out to identify ways in which the site can be compared with others around the world and to identify, as far as possible, the most appropriate geo-cultural area a global in the case of steel bridges because of the wide scope of the work within the engineering profession meant that any advance made in one part of the world would be of benefit to the rest.

Comparisons are made first (2.1) according to the construction materials and second (2.2) according to its form and span. From this derives the aesthetics of the bridge and the scope of cantilever bridges, bridges of the world are next compared (2.3) against each other by span length, first all types of bridge, and then all types of bridge, and then all types of bridge made span, and then all types of bridge made span, and then all types of bridge made span. The form bridge features in each of the world's bridges are drawn with bridge now on the World Heritage List, individually (2.4) or in urban landscapes (2.5). The world's bridges are then compared to World Heritage sites, as elements of cultural landscapes (2.6), and then to World Heritage sites (2.7). The comparison concludes with a table of the iconic and other values attributed to the bridges already listed.



Plan looking down on top of a cantilever arm and a sketch depicting the comparative size of two Eiffel Towers laid horizontally within the Inchingave (central) cantilever of the Firth Bridge, Register: CAAW, Trademark, [Lancaster slide 18]. Courtesy of RCAHMS. Licensee: www.rcahms.gov.uk/Shop/Shop.asp

The comparison concludes with a table of the iconic and other value ascribed to the bridges already discussed (2.2.8).



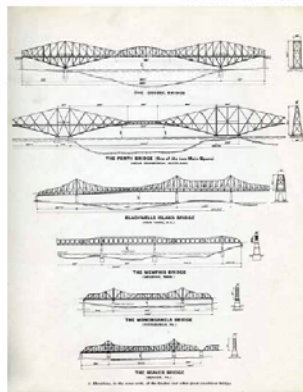
Photograph: Miles Oglethorpe



3.2.3 Historic Cantilever Bridges, 1880-1916, and the Aesthetic Question

To celebrate the final completion of Quebec Bridge, a scaled comparison was made with single spans of other bridges of the type, but not of their overall length. The drawings appear to be adapted from Waddell (1916), but are to scale and with the addition of cross-sections. Next in size is what is now known as Queensboro Bridge—this, Manlyville and Taconic Bridges still exist, but not Monongahela Bridge in Pittsburgh. Of the Quebec Bridge, 1917 image sourced in ICE Library)

In his two-volume masterwork *Bridge Engineering* (1916) J.A. Waddell gives a critique of each large cantilever bridge then in existence. Waddell offers an American perspective on what was considered state-of-the-art. The table opposite compiles the bridges listed by Waddell and ranks the world's largest cantilever bridges in 1916 with spans of over 150m. As many bridges were named after the date at which they were published in contemporary engineering periodicals, later names had to be deduced and are given in the second column. Bridges that no longer exist are in square brackets.



Rank and Name Given by Waddell	Later Name and Town if Appropriate	Longest Span	State (in USA) and Country	Year Completed (Date/label)
1 Arch of Forts	Arch, Canterbury	82m (270 ft)	UK	1860
2 Bixbeut's Island	Guantanamo, Saint, Spain	360m (1182 ft)	NY, USA	1915
3 Lundebro	Sulbu, Norway	250m (820 ft)	Norway	1889
4 (Monrovia)	Pittsburgh, Waddell, RI	247m (812 ft)	NY, USA	1900
5 Memphis Old and New	France, Iran	247m (812 ft)	NY, USA	1892 and 1917
6 Bixbeut's Island	Guantanamo, Saint, Spain	240m (787 ft)	NY, USA	1915
7 (Sweden)	Swedish, Highway	230m (754 ft)	NY, USA	1915 (1960)
8 Mingo Junction	Mingo Junction	215m (705 ft)	NY, USA	1906
9 Thores	Thores	180m (591 ft)	NY, USA	1909
10 (E. Am.)	Admiral Schuyler, New York	205m (672 ft)	Germany	1907 (1948)
11 (E. Am.)	Admiral Schuyler, New York	205m (672 ft)	Germany	1907 (1948)
12 (Manning)	Manning, Manning	200m (656 ft)	OWB, USA	1901 (1992)
13 Germania	Angela, Belgium, Bremen	190m (623 ft)	Germany	1898
14 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	Canada	1901
15 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901
16 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
17 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
18 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
19 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
20 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
21 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
22 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
23 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
24 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
25 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
26 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
27 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
28 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
29 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
30 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
31 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
32 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
33 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
34 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
35 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
36 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
37 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
38 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
39 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
40 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
41 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
42 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
43 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
44 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
45 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
46 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
47 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
48 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
49 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)
50 (E. Am.)	Right, Amherst, Ontario	170m (558 ft)	NY, USA	1901 (1992)

Source: J.Waddell, Bridge Engineering 01916, cross-referenced against Bridge Hunter, Structures, NAEJ Library of Congress and individual websites. The Marston or New Memphis Bridge is combined in the ranking with the adjacent Fraiss Bridge as it opened in 1916, is discussed by Waddell, and has the same spans. Tyrone (now Young's) bridge has moved up in the ranking because its span is greater than Waddell gives it in his text. Long Lake Highway Bridge has disappeared without trace, "a very light highway structure built as cheaply as possible" and the bridge now throws its built-in TWB, but images were obtainable of all of the other bridges.

Thus, out of 20 of the largest built after 1916, 16 have been demolished. Eleven are in use for traffic (55%), some of them having switched from railway to road vehicles (e.g. Royal Alexandra and Victoria bridges in London are in use for traffic (19%), but are open for use by pedestrians. (Poughkeepsie) and proposed bungee jumping - Youngs Bridge, which is 86m - 282 feet - high. This is a record for the highest live load rating for any bridge. The study also includes a cost-benefit analysis for bridges, showing that bridges of that scale have a certain robustness if they make it through the hazardous construction phase.

Wardell makes subjective points about the safety of the arches of some of the bridges he discusses, and he acknowledges that these are from an American perspective. Accordingly bridges that are built in the United States are not other parts of the World - London's

in what is now Pakistan, by British engineers, and Luckow in China, by German engineers - are considered defective in terms of their economy. Admiral Scheer-Drücke at Ruhrort over the Rhine in Germany, 1907, was destroyed in 1945. Every span was a different length and to Waddell its true depths were "far too small for economy and appearance." Attempts to influence design for aesthetic purposes are looked at with some disdain, but nevertheless he does not shrink from the aesthetic issues that can arise with cantilever bridges. American bridges could be the worst offenders in this respect,

Establishing Outstanding Universal Value The Comparative Study – extract from nomination document



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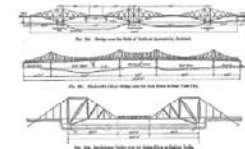
Section 3

great humps stood out from a distance 52m (170 feet) high, and the suspended span between them is relatively long and low. "Contemplating the modesty of the design" exerted engineers even before it was built, and The Engineer (July 11 1884) was among the "somewhat unimpartial critics of the appearance of the bridge" (Husband, 1899).

"The appearance of this bridge is bizarre in the extreme, and the structure is economic in neither weight of material nor in cost of equipment" (U.S.A. Standard Bridge Engineering, 1976). However, that is a consequence of being a prototype, and also of an erection process that had no access to on-site fabrication shops or hydraulic machinery.

Fruehauf Bridge, New York State, USA. has no structure rising above the deck, as the bridge settles downward at its three cantilever spans, each of 167m, reliant on two 160m anchor spans. At the time of opening, the spans had already been surpassed by Lansdowne Bridge in India (also 1908, see above), but are barely one third the size of those of the Forth Bridge. They were each strengthened by a third line of trusses in 1912. Its function has changed from railroad to a pedestrian route, the Hudson Valley Greenway. So it is comparatively and has many approach spans, but crosses a much smaller river, has been more altered than the Forth Bridge, and its long-term maintenance facility depends on local volunteers. The bridge sets a good example of the value of local conservation efforts, but it can lay very little claim to anything approaching a pleasing appearance, whilst the third [the Forth Bridge] is infinitely more graceful than either of the other [Lansdowne] bridges. "On the Aesthetic Treatment of Bridge Structures" Minutes of the Proceedings of the Institution of Civil Engineers, Volume 145 (1901).

Below: in the illustration taken from Husband, Bridge Engineering, 2 (1891) 34-6 the three largest cantilever spans of the Forth Bridge, named there as Blackwell Island, and Lansdowne were drawn with by side but not to scale. In reality, Lansdowne bridge is equal one span of the Forth Bridge, rather than the other way around.



Quebec Bridge, Canada saw the only attempt made to challenge the Forth Bridge in form and pose. The supervising engineer had considered the Forth Bridge to be over-engineered. "The clumsiest and most awkward piece of engineering in my opinion that was ever constructed" – is the verdict on the Forth Bridge of Theodore Cooper. The words would haunt him as he approved the design of the first Quebec Bridge, which collapsed with the loss of 76 lives during construction in 1907.

A second collapse as the suspended span was hoisted into position on a new and less elegant bridge in 1916 cost a further 13 lives. This may have been a consequence of extending the length of design stage from 400 to 545m, without compensating for the need to balance the ends. The failures here show just how far cantilever bridges were pushing at the boundaries of what was possible.

When finally completed in 1917, Quebec took the record from the Forth Bridge for a single span. But the Forth Bridge is much longer

overall, and its arches form elegant curves, whereas Quebec Bridge is angular, looking as though it should pivot on its piers. The suspended span is comparatively large and ungainly compared to the cantilever arms and to those of the Forth Bridge. If the overall spans were measured and compared between the centres of the piers, just one span of the Forth Bridge would be the larger. This is demonstrated even in the publicity put out on the opening of Quebec Bridge, comparing the spans of cantilever bridges. See 3.16.

No further cantilever bridge would ever challenge the record span. One was designed by Charles Evan Fowler in 1914 to cross the East Bay at San Francisco by 2,000-foot spans, and drawings bear a strong resemblance to the Forth Bridge in its four piers acting as a central anchor span and its curved undersides, but no better. The larger section compressive members – one to be a diagonal not tubular, to ease fabrication off site and simply connections made in situ, but it was not to be built. A table of the largest truss bridges, all of them cantilevers, is given at 3.2.4.

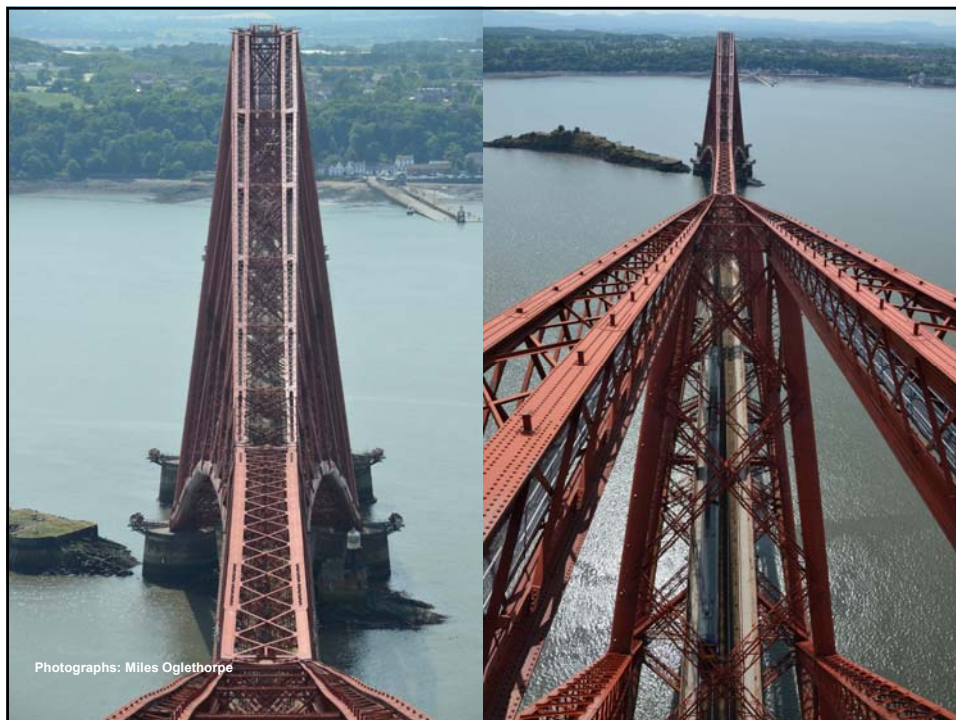
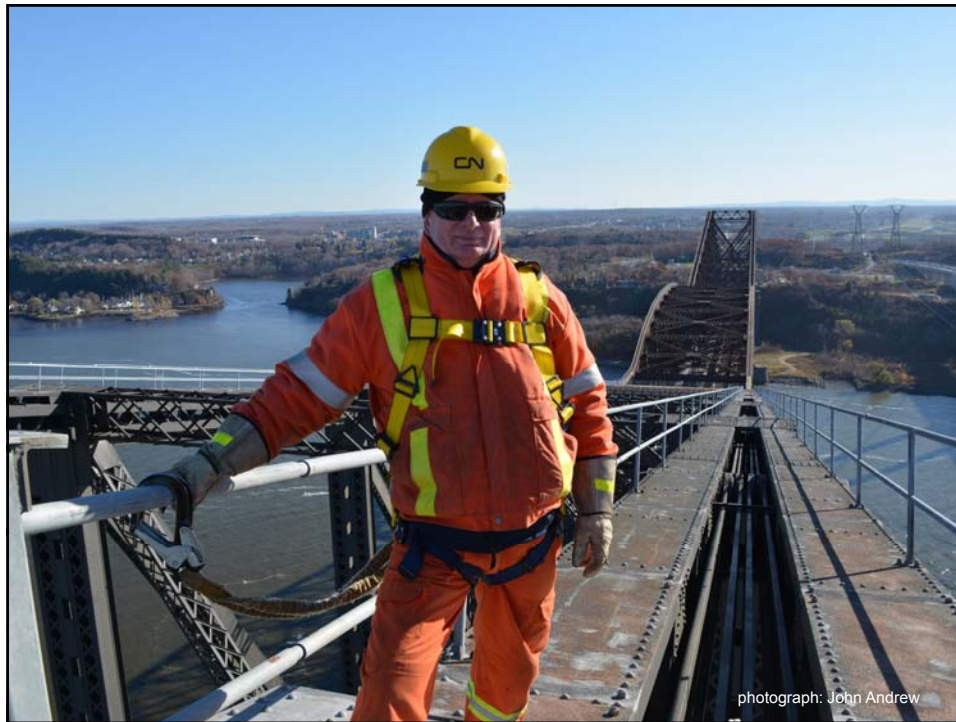
Artistic impression in a postcard published for the Canadian Pacific Railway Co. (1914). Montreal. The caption in the title states to be 60 feet longer than the Forth Bridge, but omits the fact that this is just the span, not the length overall (in metre) collected.



Establishing Outstanding Universal Value The Comparative Study - Puente Vizcaya, Bilbao



Photograph: Miles Oglethorpe





THE FORTH BRIDGE: RAILWAY WORLD HERITAGE
Dr Miles Oglethorpe, Historic Environment Scotland

- Background to The Forth Bridge
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- Huge conservation job...
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- The Extraordinary record
- What happened and what now?

photograph: Peter Devlin, 5 July 2015

FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018

The Management Plan
Completed and submitted to UNESCO, January 2014





photograph: Duncan Peet

The Forth Bridge
Nomination for Inclusion in the World Heritage List
Management Plan

The Management Plan

The Signatories representing the main partners



Foreword

Many would argue that the World Heritage listing of the Forth Bridge is long overdue, and others mistakenly believe that it is already a World Heritage Site. Add to this the fact that the bridge will in 2018 see its 125th birthday, and that it is in as good condition as it has ever been after a massive restoration project, and it becomes clear that this is an excellent time to be putting forward a nomination for World Heritage inscription.

With this in mind, we, the lead organisations within the Forth Bridges Forum, are delighted to be able to take forward this World Heritage nomination. There is, in addition, the added excitement of the neighbouring Forth Road Bridge reaching its 50th anniversary in 2014, and the prospect of the completion of the new Queensferry Crossing in 2016. These consecutive years from 2014 to 2016 will therefore celebrate major engineering achievements spanning three centuries, and the aspiration is that World Heritage inscription in 2015 will provide a major focus within this celebratory festival period, providing a solid foundation for the future conservation and promotion of the Forth Bridge.

There is no doubt that the Forth Bridge is hugely important for Fife, the City of Edinburgh, Scotland, and for the UK, both as a major piece of operational transport infrastructure, and as an icon of a great industrial age. The bridge has now been operating for 125 years, a fact which demonstrates beyond doubt the success of its design, which was born in the most difficult circumstances – the aftermath of the Tay Bridge disaster. It is also a testament to the quality of the maintenance regimes and staff of the various railway companies and contractors that have cared for the bridge over the last twelve and half decades. The fact is, especially following the most recent period of investment and restoration, the bridge is in remarkably good condition, and with the help of this Management Plan, should remain so for many decades to come.

Whilst potential inscription of the Forth Bridge will not itself impact on its operational function as an essential part of the UK's mainline rail network, it is likely to have a significant effect upon the areas adjacent to each end of the bridge, and potentially on the region, Scotland and the UK more generally. The bridge is already a tourist attraction in its own right, and the publicity generated by potential inscription as a World Heritage Site has the potential to attract many more visitors and create challenges and opportunities for the adjacent communities in Fife, Edinburgh and elsewhere. This Management Plan will therefore seek to identify ways in which the benefits of inscription can be maximised beyond the management and care for the bridge itself, whilst also considering ways of minimising or preventing some of the problems that might arise as a consequence of an increase in visitors to the area. It will also look beyond the regional confines of the bridge and its setting, and consider wider benefits that may ensue, not least in the context of education and skills, and in the promotion of engineering amongst our younger generations in particular.

This Management Plan is being implemented with the assistance of many partner organisations and local people. It is encouraging that the nomination has received such strong support from the public and all the member organisations of the Forth Bridges World Heritage Steering Group, and we very much look forward to working together over the next six years to ensure both the successful management of the Forth Bridge itself, and the impact of inscription more broadly, should the nomination be successful.

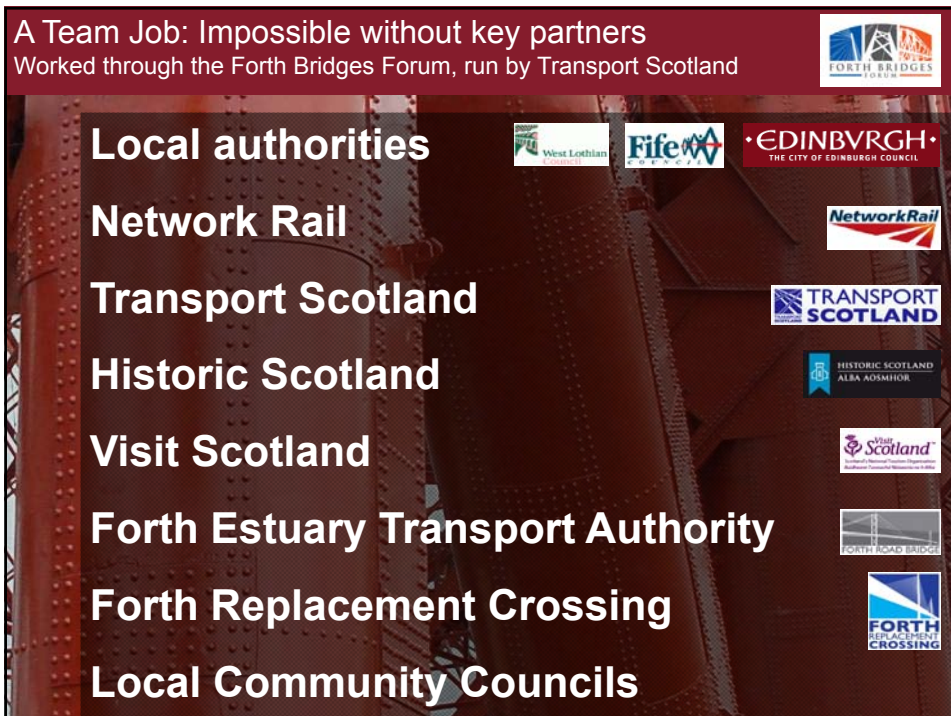
Signatories:

- David Higgins, Chief Executive, Network Rail
- David Morrison, Chief Executive, Transport Scotland
- Iain Wilford, Chief Executive, Historic Scotland
- Steve Thomson, Chief Executive, Fife Council
- Sheena, Chief Executive, City of Edinburgh Council
- Malcolm Macgregor, Chief Executive, Visit Scotland

The Glasgow & North Ayrshire Railway (built in 1831) is the oldest railway in Scotland, and the Forth Bridge is the only railway bridge in Scotland. The Forth Bridge is a World Heritage Site. © Crown Copyright. Reproduced by permission of the Controller of Her Majesty's Stationery Office. All rights reserved. Printed in Scotland. 2015.

A Team Job: Impossible without key partners

Worked through the Forth Bridges Forum, run by Transport Scotland



Local authorities

Network Rail

Transport Scotland

Historic Scotland

Visit Scotland

Forth Estuary Transport Authority

Forth Replacement Crossing

Local Community Councils

West Lothian Council

Fife Council

EDINBURGH THE CITY OF EDINBURGH COUNCIL

Network Rail

TRANSPORT SCOTLAND

HISTORIC SCOTLAND ALBA AOMHÌOR

Visit Scotland

FORTH ROAD BRIDGE

FORTH CROSSING



The Management Plan

The need to establish a monitoring system

Section 6 – Monitoring

Monitoring the State of Conservation

In accordance with Article 29 of the World Heritage Convention the Department for Culture, Media and Sport, must on behalf of the United Kingdom Government, produce periodic reports on the legislative and administrative provisions, and state of conservation of the World Heritage Site. They will be undertaken within the five-year time scale of the World Heritage Convention periodic reporting exercise and guided by best practice. The results will be used to assess the implementation of the Strategic Action Plans detailed in Section 7 of the Management Plan.

6.a Key Indicators for Measuring State of Conservation

Key indicators are established in the Management Plan for measuring quarterly and qualitatively the state of conservation of the Forth Bridge. A principal means of achieving this will be via Network Rail's GARS (Civil Asset Register and electronic Reporting System) which is tailored to the maintenance and monitoring needs of the Forth Bridge. In addition, the company has an asset management plan which is currently under full review, in line with Network Rail's Strategic Major Structures Policy (comprised for 2013-2016). This will include annual care and maintenance budget statements along with assessment for the need for theoretical major works based on the expected serviceable lifespan of the new protective coating systems recently applied to the bridge as part of the restoration project. GARS was developed as a structural asset management system to operate at a national level, allowing Network Rail to replace the multiple local systems previously in operation throughout the network, thus having a single view of the national structures asset portfolio. The GARS system is a work flow system which holds records in a common format (file folder) providing the ability to schedule and receive updates of examination reports reactively into a reporting (document) management system and also allow for the electronic sign-off of reports that will generate work items which can be exported to the people and organisations responsible for carrying out the work.

The Management Plan

The need to demonstrate that we are looking after the Bridge

Section 6 – Monitoring

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Managing the Setting Bufferless Buffer Zone and Viewpoints



Photographs: Mark Watson



THE FULL SHOPPING LIST OF POTENTIAL BENEFITS

Potential national benefits

- Positive PR for Scotland PLC – Raises international status of a Scottish icon – a 'must see' attraction
- An opportunity to showcase Scottish design and engineering – Year of Design
- Adds value to Scottish heritage portfolio – one more reason to come to Scotland, see multiple WHSs
- Potential for spotlight on Scottish design and creativity – we did this and we're doing other great things, come see!

Potential regional benefits

- Raise (international) profile of a regional cultural asset – Why should inward investors take Fife seriously? Liveability/culture.
- Adds value to the Edinburgh cultural offer – cultural tourism etc. – Showcase Edinburgh to China, India etc.
- Can become an excellent satellite attraction from Edinburgh – Stay longer, there's more to see and do.
- A gateway to the rest of Scotland (North) - have you thought about leaving Edinburgh and travelling North?
- Raise profile of Fife – for tourism, for relocation and for tourism
- Potential to develop packages/itineraries to translate interest in bridge into wider regional experiences
- Potential to develop a package of WHSs in and around Edinburgh for international market
- A focus for the region as a centre of engineering and design – selling the region to others with this interest.

Potential local benefits

- Potential to raise profile of area relative to Edinburgh – not peripheral but critical
- Potential for tourism growth in South and North Queensferry – Make the whole tourism product ready for the opportunity
- Potential for developing the bridge as a visitor attraction - climb the bridge, hear its stories, adrenalin experiences etc.
- Potential for translating car driver eyeballs into £££ - major visitor centre off main road linked to town (cars contained)
- Potential for increasing footfall on trains from Edinburgh – the best day trip from Edinburgh (foot passengers) – new services?
- Potential for increasing cruise visitor footfall – WH 'sells' for cruise ship passengers – gear up for footfall
- New focus for conservation fundraising – Lottery etc.
- New opportunities for socio-economic investment – E.g. EU trans-national projects with other WH partners
- New focus for community heritage projects – the story of the communities needs to be part of this WH
- New focus for infrastructure developments in communities – car parking etc.
- Potential to market these communities and businesses to wider world
- Cultural glue for Forth communities – use the bridge to tell the story of the Forth through the ages
- Potential for major education benefits – school/college/FE focus on bridge and links to other WHSs
- Opportunities for private businesses to translate and make accessible the OUV narrative – tours etc. – entrepreneurs be ready!
- Boost to civic pride – "this thing in our community is as important and special as the pyramids"

Photograph: Mike Oglethorpe

Managing the local Impact of World Heritage

Maximising the benefits and minimising negative impact





Sustainable Public Transport Strategy

Forth Bridges Forum well-placed to realise this



photograph: Duncan Peet

THE FORTH BRIDGE: RAILWAY WORLD HERITAGE

Dr Miles Oglethorpe, Historic Environment Scotland

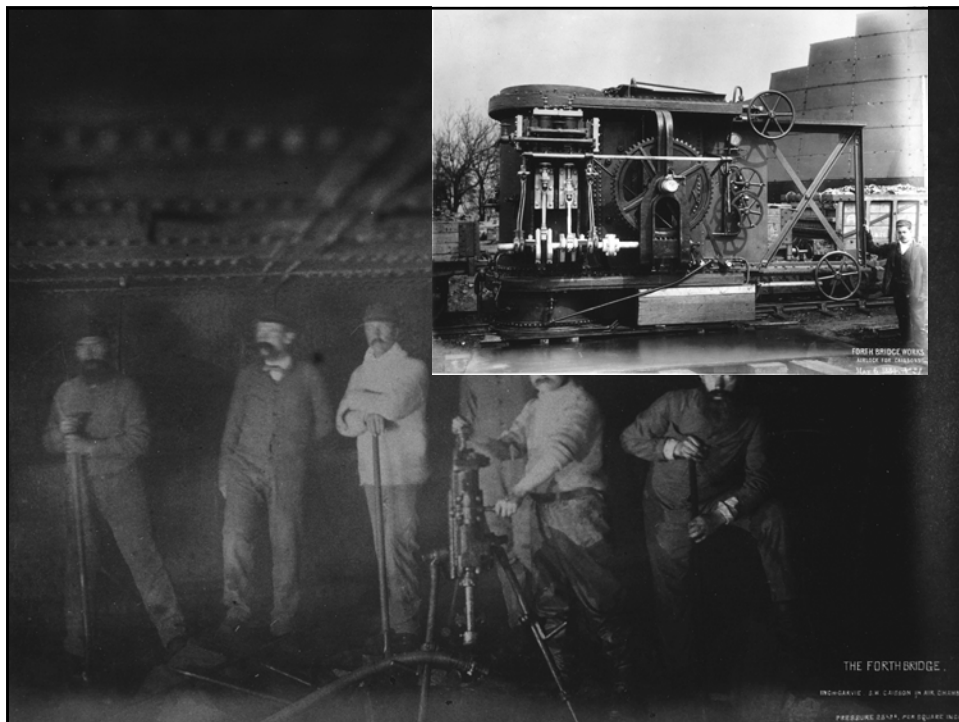


- Background to The Forth Bridge
- World Heritage
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- The Nomination Document
- The Management Plan
- The Extraordinary record
- What happened and what now?

photograph: Peter Devlin, 5 July 2015

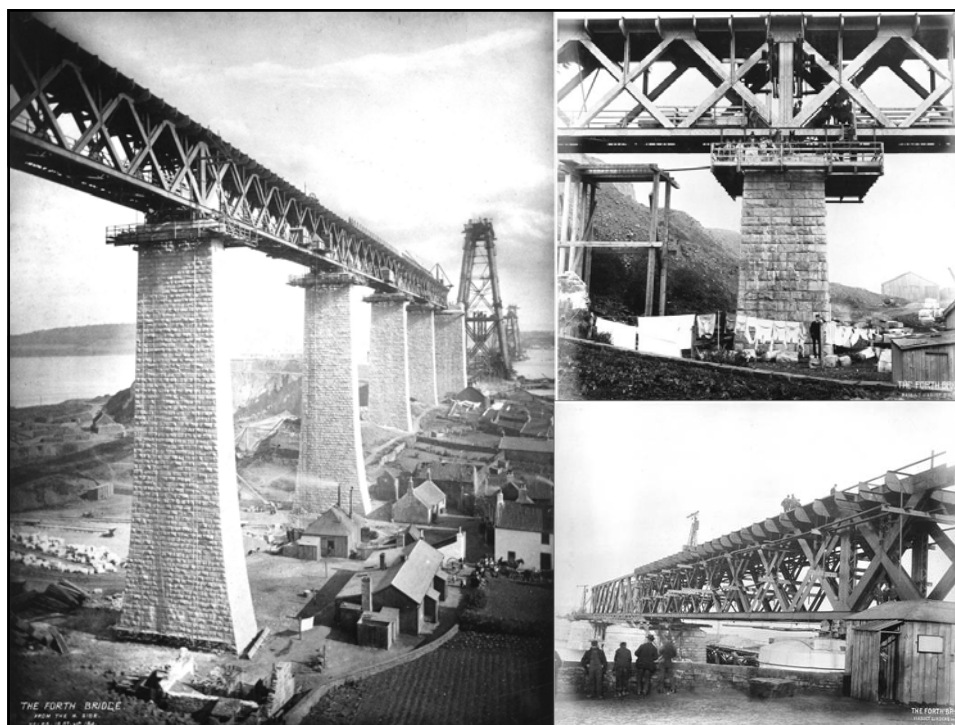
FEDECRAIL International Conference, National Museums of Scotland, Edinburgh, 20th April 2018





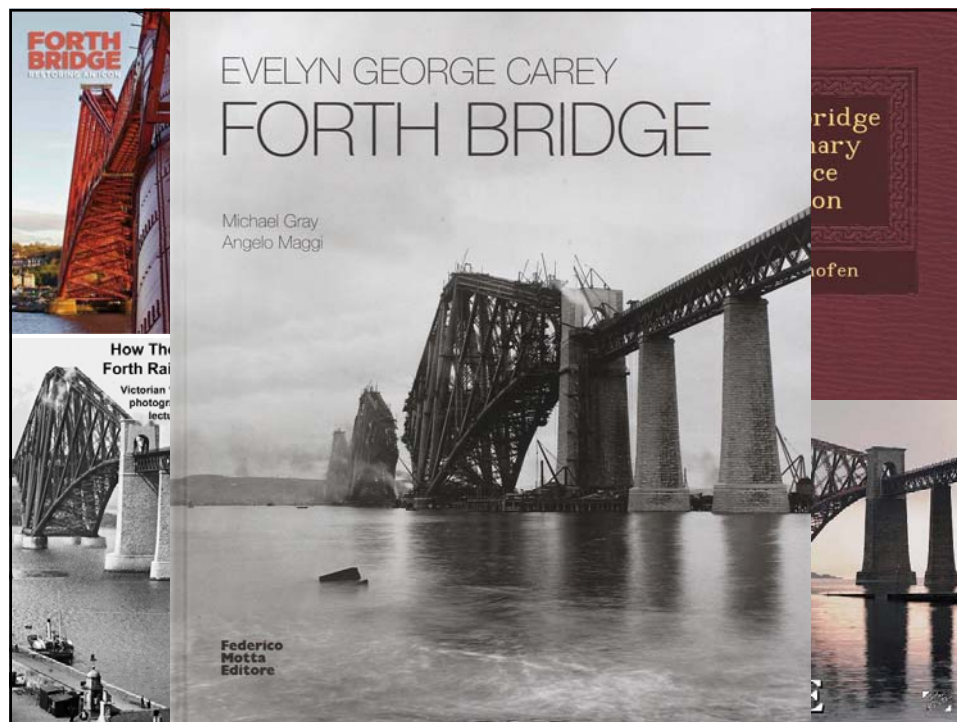














THE FORTH BRIDGE: RAILWAY WORLD HERITAGE

Dr Miles Oglethorpe, Historic Environment Scotland



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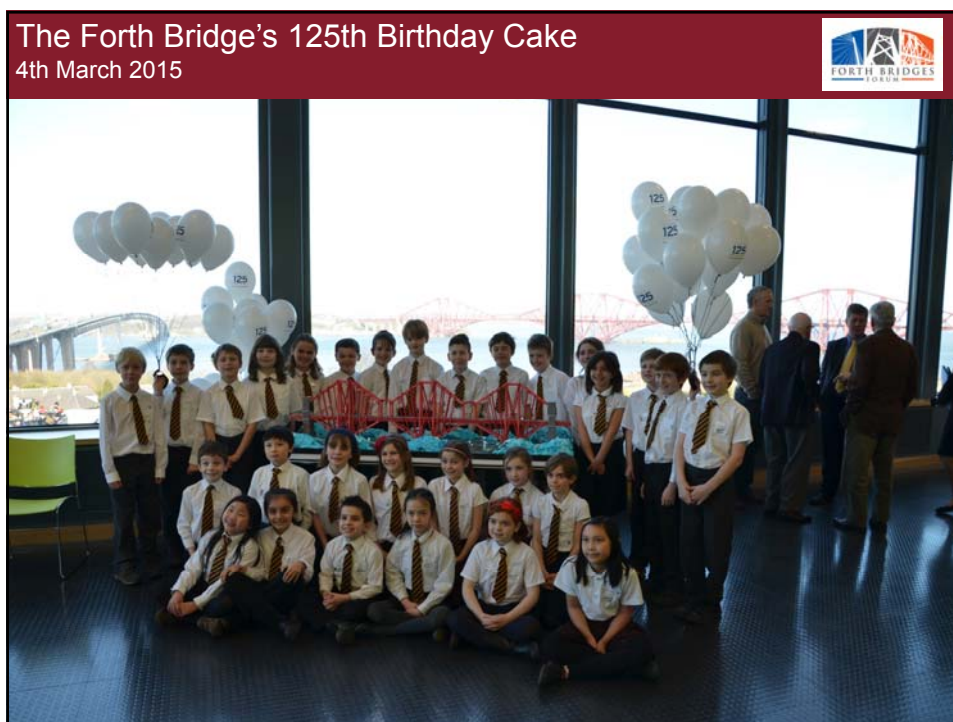
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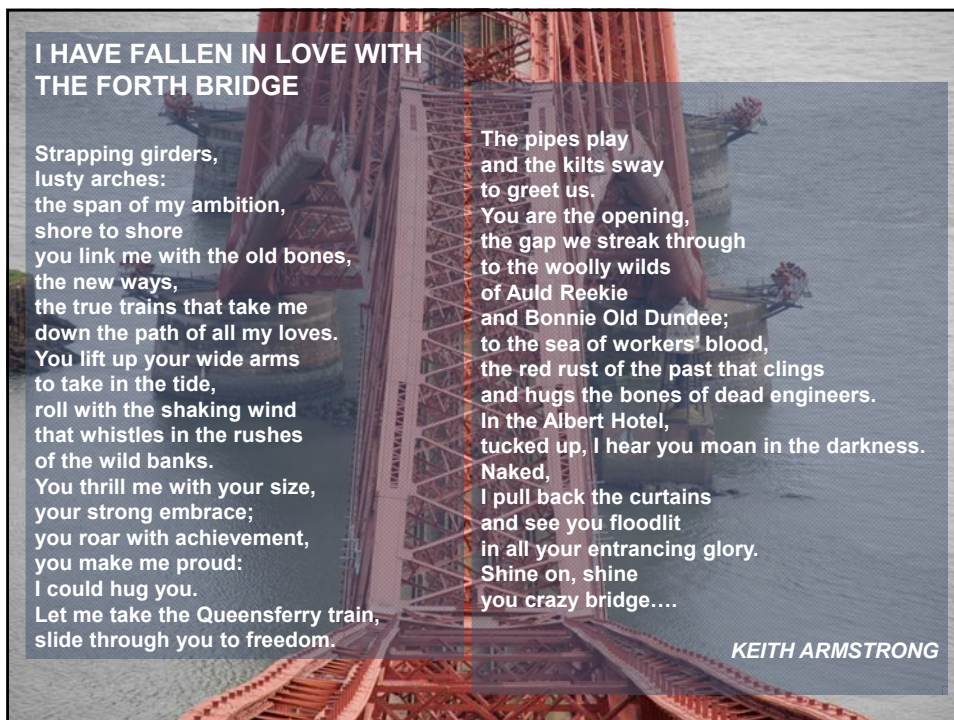


Public Consultation Process

Public meetings and publicity campaigns







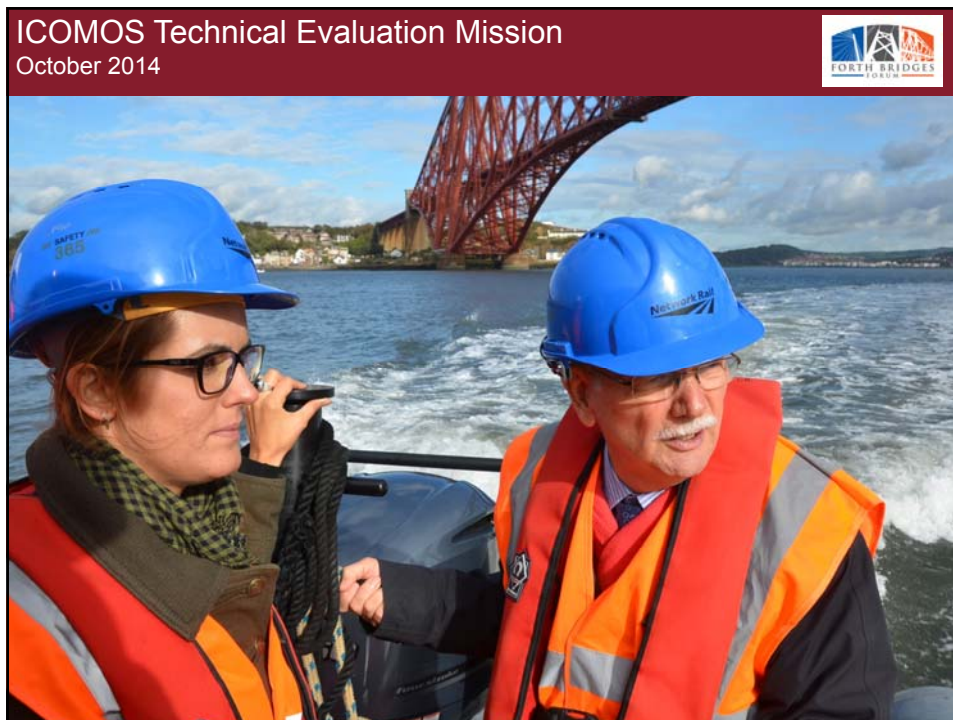


The nomination team at Historic Scotland receives the dossier from the printers, January 2014



Celebrating the submission of the Nomination
20 January 2014









Session 39, UNESCO World Heritage Committee
The UK Permanent Delegation's view of the chamber



Session 39, UNESCO World Heritage Committee
Members of the World Heritage Committee at work...



Session 39, UNESCO World Heritage Committee

The Forth Bridge nomination was presented by ICOMOS in French



Le pont du Forth



Vue du pont du Forth depuis South Queensferry

Brève description

Ce pont ferroviaire enjambant l'estuaire du fleuve Forth, en Écosse, est le plus long pont cantilever à travées multiples du monde. Ouvert en 1890, il fonctionne encore aujourd'hui et reste un important pont ferroviaire pour le transport des passagers et des marchandises. Cette structure de grande envergure, longue de plus de 2,5 km, a été élaborée et réalisée grâce à des principes de conception et des méthodes de construction de pointe du génie civil. Son esthétique industrielle caractéristique résulte de la présentation franche et dépouillée de ses éléments structurels. Le pont du Forth, novateur dans son concept, son style, ses matériaux et son envergure, marque une étape importante dans l'histoire de la construction des ponts.

Catégorie de bien

En termes de catégories de biens culturels, telles qu'elles sont définies à l'article premier de la Convention du patrimoine mondial de 1972, il s'agit d'un monument.

ICOMOS



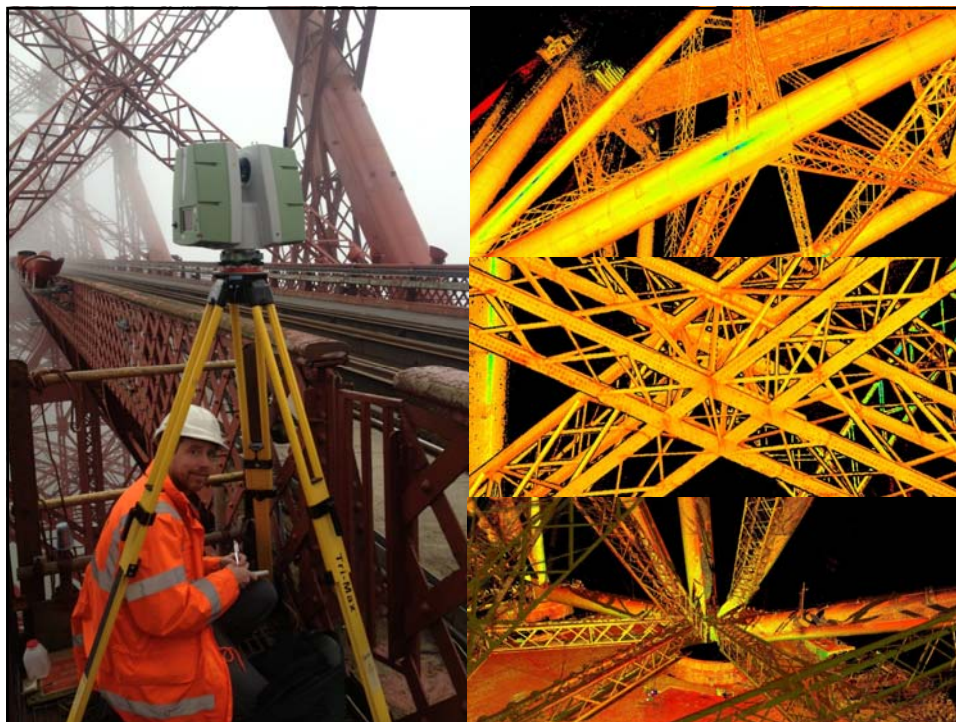
39th Meeting of UNESCO's World Heritage Committee, Bonn, Germany, 5th July 2015



United Nations Educational, Scientific and Cultural Organization

The Forth Bridge
inscribed on the World Heritage List in 2015

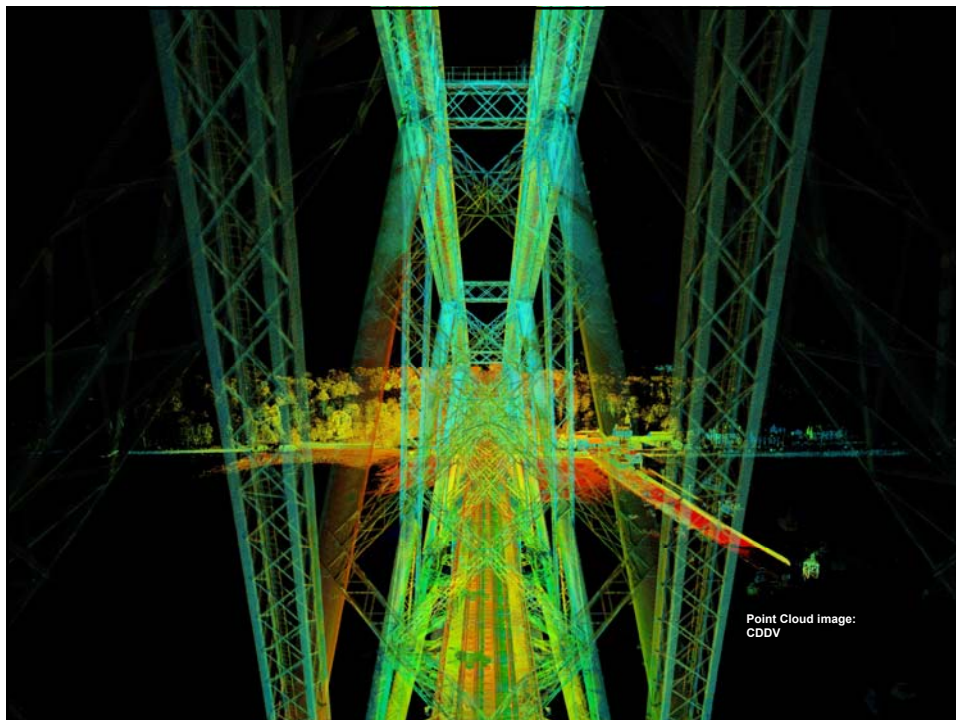


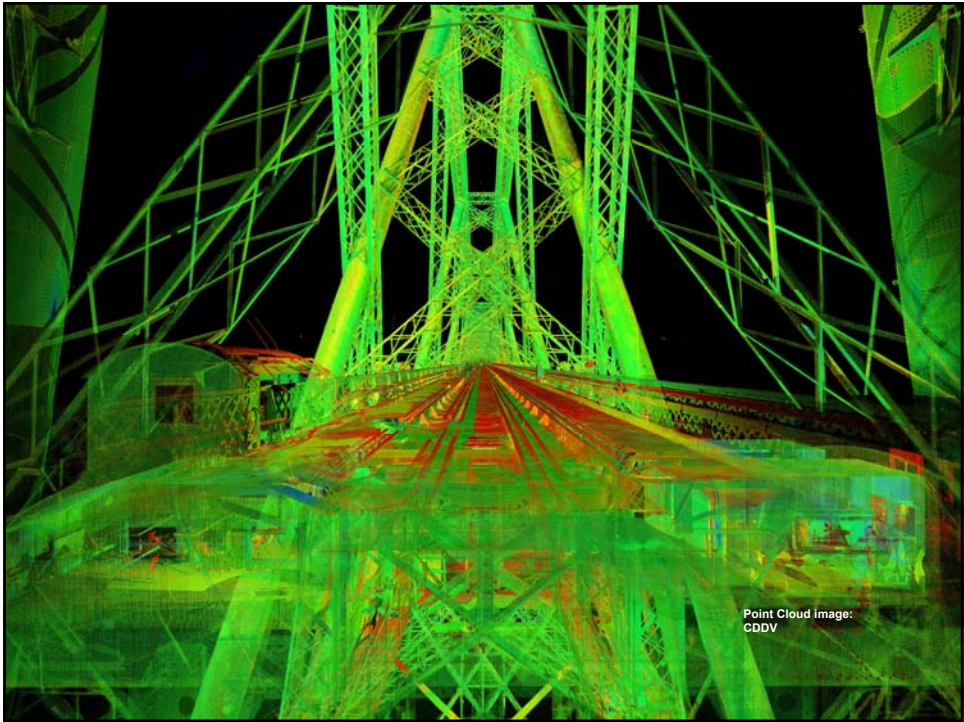






- Jenni Mackay Seconded from Dundee
- Working 2 days pw with HES and GSA
- 5 themes in the project
- Particular thanks to the Briggers
- Will be available to all schools via GLOW







Railway Heritage Skills for The Engine Shed? Scotland's Building Conservation Centre



THE FORTH BRIDGES

Queensferry Crossing ▾ Forth Road Bridge ▾ **Forth Bridge ▾** Plan your journey ▾ Visit ▾ News Gallery

What can we help you find?

Last updated: 19:40 on 28 Feb 2018

34 MPH

Current Conditions: Wind direction **East South East**

20 mph 30 mph 40 mph

Forth Bridge

Bridge status: **Open**

Weather Web Cam


RAILWAY
Railway service information

For live updates and news, follow @TheForthBridges on Twitter

Construction gallery [View all](#)







THE FORTH BRIDGE

EXPERIENCE

04 APR 2017

FORTH BRIDGE POISED TO GIVE VISITORS THE CLIMB OF THEIR LIFE

Network Rail is progressing plans to take visitors onto the bridge for the first time, focussing on delivery of a 'bridge climb' experience in South Queensferry.

The exhilarating plans are expected to attract 80,000 visitors a year to climb the 127 year old structure.

Access will be provided via an existing walkway under the south approach span and a new steel walkway positioned discreetly within the top member of the southern suspended span. Visitors will be pulsed in groups of up to 15 from a new hub building near Hawes Brae and will be hooked on to

NEWS ARCHIVE

2015

MARCH

2014

JANUARY

MARCH

JULY

DECEMBER

