# 201

# Kowethas TREVITHICK Society

NEWSLETTER

AUTUMN 2023

LETHER NOWODHOW

## COVER STORY 201

**Naomi sets the fuses underground at South Crofty in 2022.**

***Photo © Cornish Metals and Steve Tarrant, Mine Manager, South Crofty. Photo used with kind permission of the Camborne School of Mines Association.***

Naomi is a 2023 Camborne School of Mines Graduate in Mining Engineering. She will be taking up a graduate training placement in Australia. We wish her every success in her mining career.

Naomi is a 21st-century representative of the great Camborne tradition of excellence in mining education and training. The sector in which she has launched her career is both specialised and diverse, and it makes heavy demands on a diminishing educational resource. To secure the workforce alone, promotion of careers in the mining sector needs to be in place for 13– to 15– year olds, as they make their life choices.

The continued and urgent search for the minerals we need—so-called 'rare earths' among them– will depend upon Naomi and her colleagues and the education system that sustains them.

**The help of Carol Richards, Secretary of CSMA, in preparing this caption is fully acknowledged.**

## About

We foster the study of the technological heritage of Cornwall and its region and we take our inspiration from Richard Trevithick of Camborne and the Cornish innovators who helped to drive the Industrial Revolution in Britain and abroad.

The Society is a Charitable Incorporated Organisation (No.1,159,639) and membership of it is open to everyone, everywhere. Members receive this quarterly Newsletter, a copy of the annual *Journal*, and gain …….

Free entry* to *King Edward Mine*, Newton Moor, Camborne https://www.kingedwardmine.co.uk

Free entry* to *Geevor Tin Mine*, Pendeen, St Just https://geevor.com

Free entry* to *Levant Mine and Engine*, Pendeen, St Just (pre-book) https://www.nationaltrust.org.uk/visit/cornwall/levant-mine-and-beam-engine

Free entry* to *East Pool Mine and Engines*, Pool, Redruth (pre-book) https://www.nationaltrust.org.uk/visit/cornwall/east-pool-mine

….And 10% discount on purchases of *Tor Mark Press* books https://www.tormark.co.uk

*** You will need to produce your TS Membership Card on-site to claim the discount.**

## Information

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***Subscriptions are due on 1 January***

The Trevithick Society, PO Box 62, CAMBORNE TR14 7ZN

https://www.facebook.com/trevithick.society/

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TS Chatline 01209 716811



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## People

**CHAIRMAN Brian Jones**
8 Orchard Court, Penzance TR18 4SX brian@baljones.com

**VICE CHAIRMAN/PROMOTIONS OFFICER Kingsley Rickard**
k.rickard@talktalk.net
01209 716811

**TREASURER**
**Jerry Rogers,** 17 Chiltern Road, Sandhurst GU47 8NB
jerry_rogers1@outlook.com
01344 775946

**MEMBERSHIP/SUBS SECRETARY**
**Sheila Saunders** PO Box 62, Camborne TR14 7ZN membership@trevithicksociety.info

**TALKS PROGRAMME SECRETARY**
**Dave Crewes** 2 Hillcrest Close, St Columb TR9 6BP
crewesy@aol.com
01637 881556

**PUBLICATIONS SECRETARY/JOURNAL EDITOR**
**Graham Thorne** 11 Heriot Way, Great Totham, Maldon CM9 8BW
trevpub@thornemail.uk
01621 892896

**NEWSLETTER EDITOR**
**Alec Kendall**
5 Offenham Road, Evesham WR11 3DU
editor.tsnews@btinternet.com
01386 442143

**CURATOR/WEBMASTER**
**Pete Joseph**
curator@trevithicksociety.info

**MINUTES SECRETARY**
**Rod Clarke**

# Editor's Desk

*Alec Kendall*

**Hello, everyone, and welcome to *Newsletter* 201.**

Come on in. You probably know your way around, but you'll see that some of the furniture has been rearranged and one or two new rooms have been added. This is a place to meet some of our neighbours and, now, our independent columnist *Onlooker. Onlooker* is a long-term resident of the Duchy and is well-placed to comment on heritage and community issues; they will remain anonymous of course but their column is yours to read. My regards go to the generous people from Bridgnorth to Bude and beyond who have supported the production of Edition 201, and members of the Society who, like me, cannot attend 'live' presentations, will wish to thank *Sheila Saunders and Rod Clarke* who , via their Zoom relays of our Talks Programme, enable us to join the virtual audience. Congratulations, too, to *Graham Thorne and Pete Joseph* whose remarkable Golden Jubilee of ***TS Journals*** has just been reached.

Before I go, let me just say that I'd like to be able to print more from more of you. So—**please email me your contributions for *Newsletter 202*, to be issued in Spring 2024, by noon on Friday 1 March 2024.**

*Alec K*

***In this edition***



***In the Spring 2024 edition***

*Pioneering Buses, Power sources, Rosevale Mine, Beam Engines in the Caribbean, AGM News, Onlooker ….and more.*

# Stop *Catch Me Who Can* !

*Brian Jones and Charles Lamont, Trevithick 200*

**The near-complete replica of Trevithick's *Catch Me Who Can* locomotive of 1808, seen at Bridgnorth, Shropshire on 11 May 2023.**
Photo © John Titlow and used by kind permission of him and David Williams, Editor, *Severn Valley Railway News*

The team who are reconstructing the working replica of *Catch Me Who Can* not far from the site of the Hazeldine Foundry at Bridgnorth, where the original was manufactured, are on the last lap. The only major outstanding work is the fitting of the braking system. There were no brakes on Trevithick's original nor does his design lend itself for these to be fitted, and so today's engineers are squeezing a braking system under the boiler on the driving axle. In line with other such working replica railway locomotives, air braking assistance is also being installed.

The work on *Catch Me Who Can* is being undertaken by the seven Trustees of Trevithick 200, the charity set up to construct and steam the locomotive. Unfortunately, overtaken by *anno domini,* the Trustees now urgently need skilled help to fit the brakes and complete the engine. There is an important link between the Trevithick Society and the replica of *Catch Me Who Can,*

for the patterns for the latter's cylinder are those created for the *Puffing Devil,* and Society members who would like to offer practical assistance to the team at Bridgnorth would therefore be warmly welcomed.

**Please make contact through the project's website at www.catchmewhocan.org.uk or by writing to The Honorary Secretary, Trevithick 200, 70 Wellmeadow, BRIDGNORTH, Shropshire WV16 6DE.**

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## The Third International Early Engines Conference (IEEC3)

*Preliminary Announcement by the Early Engines Team*

Theme: Ensuring Scottish contributions to early engine developments are recognised and celebrated

We are delighted to confirm that ***Summerlee Museum of Scottish Industrial Life*** at Coatbridge near Glasgow have kindly agreed to host IEEC3 from **22 March to 24 March 2024**. Summerlee is Scotland's flagship museum of industry and amongst its many attractions is the UK's only surviving rotative Newcomen Engine, from Farme Colliery outside Glasgow: https://www.summerleetg.co.uk/summerlee.html
The Conference's venue in Coatbridge may require delegates to travel, but we believe this will be more than compensated for by the range and variety of local sites related to our topic.

The Conference will kick off at midday on Friday 22 March and will run through to midday on Sunday 24 March. We are working with appropriate local bodies to arrange a series of excursions to local sites on the Thursday and Monday , with an excursion/buffet planned for the Friday evening at one of Scotland's significant early engine locations. Further details will follow. Prices will be in line with previous events and will be confirmed in due course. Tickets will be available for all, or part, of the event and partners are actively encouraged to attend too.

Most importantly, we are determined that IEEC3 remains true to its non-elitist and welcoming culture - plus of course delivering a series

of the highest quality papers. Reflecting the theme, these are expected to include:

- The history of the Caprington Colliery Engine and its reconstruction at National Museums Scotland
- Some lesser-known early engines in Scotland.
- Carron Ironworks' contribution to early engines
- The history of Farme Colliery and its Newcomen Engines

We invite further papers on Scottish as well as on English, Welsh, and European engines.
**Contacts for the 2024 Glasgow Conference**: admin@earlyengines.org
**For information about IEEC**: https://www.earlyengines.org/

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## Fire! Bude Gasworks

*Richard M Heard, TS Member, and Janine King, Heritage Development Officer, Bude-Stratton Town Council*

A newly-colourised press photograph of a crowd outside the smoking ruins of a small building at Bude Gasworks in July 1937, and made by Roger Pike of Launceston, caused me to search the newspaper files at Bude Library. I copied out the following clipping from the *Bude and Stratton Post* of the 24 July 1937:

**FIRE AT THE GAS WORKS, BUDE**

Prompt action prevented what could have been a serious fire at Bude Gas Works on Sunday evening. PC Harris was in Station Road along with Mr A Bishop, a local tradesman, when they were attracted by clouds of smoke issuing from the gas works. PC Harris hurried to the scene and discovered the engine room, 15 yards from the gasometer, well ablaze. PC Harris signalled to Mr Bishop to phone, and also used the gas works phone, to phone the Fire Brigade himself. Within 5 minutes the Brigade in charge of Vice Captain A Parsons arrived with the assistance of many willing helpers and had the fire under control in half an hour.

The roof of the engine room collapsed and its estimated damage amounts to £40 or £50. It is thought the fire was caused by the backfiring of the engine.

There was little discomfort experienced by consumers on Monday although housewives found the gas pressure rather low.

Mr Preston of Oxfordshire became the Manager of Bude's new Gas Company in 1908, with a contractor engaged to construct the works on marshland owned by the Hon Francis John Thynne, between the Canal and

the river. A new larger gas holder was provided in 1931. In my opinion, the vertical retort Gasworks was an ugly blot on the landscape.

Readers may assess Richard Heard's view of the attractiveness or otherwise of Bude's Gasworks from the photograph below, kindly provided by Janine King of Bude-Stratton Town Council.

**Bude Canal, Gasworks and Railway Station**
© and by permission of Bude-Stratton Town Council

Janine records that Bude Gasworks was authorised by an Act of Parliament of 1907 and completed in 1909: the *Bude Heritage Centre* at The Castle holds the original legal documents and blueprints relating to the construction of the works. 1946, adds Janine, saw the first deliveries of Calor Gas to the area. Bude's was one of over thirty local Gasworks in Cornwall constructed to serve industrial, domestic, and private estate needs, but it is the house in **Redruth's Cross Street** occupied in the 1790s by the brilliant Scottish engineer William Murdoch which is the home of the British gas industry. Murdoch installed an iron retort in his garden to produce coal gas, and by 1794 his home had a piped supply for gas lighting– a world first.

**Resources**
**Bude Heritage Centre,** The Wharf, BUDE EX23 8LG
01288 357304/ thecastle@bude-stratton.gov.uk
**Historic England: *Gas Works and Gasholders/*** https://historicengland.org.uk/research/results/reports/8018/TheManufacturedGasIndustry_Volume3 is the work of Prof. Russell Thomas, to whom the Editor is grateful.
**Historic England: *Official List Entry for Murdoch House, Redruth***
https://historicengland.org.uk/listing/the-list/list-entry/1161666?

# Beam Engines in America XVIII: Relocated and Stored Engines of the Henry Ford Collection

*Damian Nance, TS Member*

**By far the largest collection of beam engines in North America is that of the Henry Ford Museum in Dearborn, Michigan** (see Newsletters 92, p. 10 -14; 93, p. 11-14; 96, p. 7-12 and 97, p. 8-10), which the celebrated automaker acquired between 1928 and 1935. A description of the engines on display at the museum was published in 1972 by Dr. W. James King (Senior Curator, Communications and Power) in *The Herald*, the Henry Ford Museum and Greenfield Village magazine (v. 1, n. 4, p. 2-26), and a more complete hand-written list was compiled by William D. Sawyer in 1981 and updated in 1983. These lists, however, are not identical; the discrepancies between 1972, 1981 and 1996 reflect the museum's auction of some of their engines in the interim. This article is an attempt to complete the list published in 1996-97 by providing brief descriptions, photographs, and information on the current whereabouts of those beam engines that are no longer with the Henry Ford collection, or which the museum holds in storage. Those formerly with the museum are arranged in the chronological order of their departure. In compiling this information and for providing all of the photographs, I am indebted to Chris Allen (Editor, ISSES), John Bowditch (former Curator of Industry, HFM), George Drake (Halifax, West Yorkshire), Bill Hazzard (Plymouth Meeting, Pennsylvania), Brian Hillsdon (Ashford, Surrey), Brad Kelley (Fredericksburg, Virginia), Gregory Leifel (Executive Director, Sanfilippo Foundation), Stephanie Lucas (Research Specialist, HFM), Rick Sawyers (Curator, WMMI) and, especially, Brad Smith (Franklin, Wisconsin) and Greg Johnson (Lakeside, California).

### Vaucluse Engine

The single-cylinder, 30-inch (6-foot stroke) Vaucluse engine, which together with one of its originally two 16½-foot flywheels and 6-foot 8-inch diameter Cornish-style boilers, was displayed outdoors in Greenfield Village ***(Fig. 1),*** was sold in 1983 to the Western Museum of Mining and Industry in Colorado Springs, Colorado ***(Fig. 2).*** The A-frame rotative engine with slide valves, a single eccentric, and no governor, was erected at the Vaucluse gold mine near Wilderness in Orange County, Virginia, in 1844, where it operated both stamps and Chilean mills, and pumped (by way of a balance bob and flat rods) from several shafts (see Newsletter 127, p. 4-8). It was salvaged by Henry Ford in 1931. In the mine's 1847 prospectus the engine is described as a 120 horsepower, condensing Cornish engine imported from England, and both King and Sawyer claim it was built in

Cornwall. If so, it is almost certainly the 30-inch entablature engine (also with paired flywheels and two boilers) built by Harveys of Hayle for the Union gold mine, just 7 miles north of the Vaucluse property, in 1835 and offered for sale the following year.

**Howe Engine**

The maker of this small, single-cylinder, ca. 8-inch (20-inch stroke), braced single-column rotative engine with slide valve, a Watt governor, and a single eccentric is unknown, but according to its current owner it was built in 1832. Both King (mid-19th century) and Sawyer (ca. 1840) were less certain. The engine was acquired by Henry Ford from the Howe Dye and Colour Company near Manchester, where it worked until 1931. It was housed at the museum until 1984 ***(Fig. 3),*** when it went to the late Bob Johnson's Whistles in the Woods Museum Services in Rossville, Georgia, in exchange for a ca. 1850 beam engine by Merrick and Son, which remains in the museum's storage. Following restoration and an automotive-like finish, the Howe engine was sold to Finlay Matheson in Miami, Florida, who subsequently sold it to the American TV celebrity and former "Tonight Show" host, Jay Leno. Further restored, the engine is now fully operational on steam at Jay Leno's Garage in Burbank, California: www.youtube.com/watch?v=zoBWAE0win0

**Coalbrookdale Engine**

This early single-cylinder 20½-inch (4-foot stroke) rotative A-frame beam engine with plug rod gear, a Watt governor and four drop valves ***(Fig.4)*** drove mixing machinery at the Coalbrookdale Company's tile and brick works in Lightmoor, Shropshire, from 1854 until 1929, when Henry Ford acquired it. It was built for the company's coal mine in Wellington, Shropshire, but exactly when is uncertain. Sawyer gives a date of ca. 1805, but King is more cautious and dates it only to 1800-1825. Uncertainty also exists as to whether it was built by Boulton and Watt, as King claims, or by the Coalbrookdale Company itself, as Sawyer adds as a possibility. The engine was repatriated to the Ironbridge Gorge Museum in 1988 where it forms part of the Enginuity interactive centre and can be turned by hand using a wheel driving onto the flywheel rim **(*Fig. 5*).** Disassembled during the summer of 1988 by John Bowditch with the help of Brian and Sue Waterson from Ironbridge, the cost of the engine's return journey was borne by the Ford Company in the UK.

**Thorne Engine**

Obtained by Henry Ford (Acquisition No: 31.783) from a waterworks (likely for an estate rather than public water supply) in Thorne,

Yorkshire, where it worked until 1931, this crude, single-cylinder, 8¾-inch (20-inch stroke), A-frame rotative engine **(*Fig. 6*)** was offered for auction (along with the Barningham engine) in 1991. The engine is of unknown manufacture but dates to about 1840 and has slide valves, a single eccentric, a single-acting (ca. 5- by 10-inch) pump and governor. The flywheel is 10-feet in diameter with a cast iron rim and hub, with wrought iron spokes cast in. It was originally sold in 1991 to a private collector in Texas and later resold to a private collector in Ramona, California, where it is set up on a brick foundation but still in need of some rebuilding ***(Fig. 7).***

**Barningham Engine**

This engine was acquired by Henry Ford in 1930 (Acquisition No: 32.125) from Barningham Mill in West Suffolk, where a new corn mill was added to the original maltings in 1826. According to the Science Museum (George Drake, pers. comm., November 2022), the engine was supplied to Messrs. Fison's Barningham flour mill in 1850. The single-cylinder, ca. 16-inch (40-inch stoke) A-frame rotative engine (12 hp) has a 14-foot flywheel, slide-valves, a single eccentric and a manually controlled valve for adjusting the steam cutoff point **(*Fig. 8*)**.

The engine's maker is unknown, although the late Rodney Law drew attention to its likeness to the Woolf compound engines at the Ram Brewery of Young and Co. in Wandsworth, London, both of which were built by the Wandsworth company of Wentworth and Sons, the older of the two in 1835. According to Chris Allen, the similarities with the Ram engines, as well as with the 1845 Woolf compound engine at Beeleigh Mill near Maldon in Essex, also by Wentworth and Sons, are most notable in the side frames, the parallel motion link designs, the flywheel arrangements at hub and rim junctions, and the beam end designs with swivelling spigots. The Barningham engine was offered for auction along with the Thorne engine in 1991 and removed from display the following year. Purchased by a private collector in Texas, together with a ca. 1825 John Braithwaite table engine (18-inch stroke) that had been used at a brewery near London and was offered for auction at the same time, it was subsequently repatriated to the UK. It is now owned by George Drake and is in disassembled storage awaiting a suitable building. The Braithwaite engine was subsequently purchased by a private collector in Ramona, California.

**Middleton Engine**

Along with the vastly larger, 84- and 144-inch (10-foot stroke) Cruquius engine in the Netherlands (and the cylinder block from another Middleton beam engine in storage at the Science Museum in London), the ex-Ford Middleton engine **(*Fig. 9*)** is the only other surviving annular compound beam engine, in which one cylinder sits inside the other. This 7- and 19-inch A-frame engine (2-foot stroke), with an 8½-foot flywheel cast in two halves, one slide valve for both cylinders, a single eccentric and a Watt governor, was made by Thomas Middleton in Southwark, London, in about 1850, and was used from ca. 1893 until 1931 to drive roller mills in S.R. Anscombe's Weir corn mill in East Mailing, Kent. It was acquired by Henry Ford in 1933 (Acquisition No: 33.704). Purchased by a private collector in Texas during a phone-in auction in 1991 but never set up, it was later re-sold to Greg Johnson in Lakeside, California, who has restored it to working condition. A video of the engine's first steaming since leaving the UK can be seen at: www.youtube.com/watch?v=m5_Acq3WB-o It has since run many times with no steam leaks!

**J & E Hall Engine**

Erroneously attributed by King (later corrected by Sawyer) to an unknown maker and a flour mill in Barningham, Kent, this Woolf compound engine ***(Fig. 10***) was manufactured by J. and E. Hall of Dartford, Kent, and was obtained by Henry Ford from the Swanton Mill in Mercham, Kent, in 1932 (Acquisition No: 32.1.1). As such, it is one of only two surviving beam engines by J. and E. Hall, a company that continues to this day as a manufacturer of refrigeration equipment. The other (slightly larger) is on display at the Science Museum in London. The Swanton survivor is a tank bed engine with 5¼-inch (ca. 18-inch stroke) high-pressure and 9¾-inch (2-foot stroke) low-pressure cylinders, two slide valves with bevel gear, layshaft, "boxheater" cam drive, and a jet condenser. Sawyer dated the engine to ca. 1840, and in its description of Swanton Mill, Historic England notes that the single-storey extension on the south side (in which the engine was housed) was added 1841. The engine was sold to a private collector in Florida during a phone-in auction in the early 1990s but was badly damaged during transit. Apparently, the block holding the beam in mid-stroke position for transport came away, allowing the beam to tip up, whereupon it struck a bridge, breaking several large castings. It was subsequently repaired and is now restored and on display with elaborate filigree paintwork ***(Fig. 11)*** in the late Jasper Sanfilippo steam engine collection at the Sanfilippo Foundation's "Place de la Musique" in Barrington, Illinois, where it can be operated with compressed air.

**Windsor Engine**

On display at the time both King and Sawyer described the museum's beam engines ***(Fig. 12),*** the Windsor engine (so called because it was acquired from a brewery it powered in Windsor, Berkshire, in 1932) is now in the museum's storage. The single-cylinder, ca. 15-inch (2-foot stroke) A -frame rotative engine (Acquisition No: 32.167.2) is of unknown maker and was thought by Sawyer to date to ca. 1840. It is equipped with a flywheel and belt wheel, a long D slide valve, a single eccentric, Watt governor, and a decorated tank bottom. On the basis of the similarity of the slide valve to Matthew Murray's long-D slide valve design of 1810, it was tentatively attributed by King to Murray's shop in Leeds and given a date of 1810-1826. But as George Drake has pointed out, it bears no similarity to known beam engines by Murray and Sawyer clearly did not share this view.

**Merrick Engine**

The museum procured the American-built Merrick engine in 1984 from Bob Johnson's Whistles in the Woods Museum Services in Rossville, Georgia, in exchange for the Howe engine now on display at Jay Leno's Garage in California, having failed to purchase it in the late 1920's because its original owner apparently took a dislike to Henry Ford. The engine had been used in a New Jersey sawmill until the mill burned down in 1924. Johnson acquired the engine in 1972 and restored it to operating conditions. However, it was never reassembled following the exchange and has been in the museum's storage since its acquisition ***(Fig. 13*)**. The single-cylinder, A-frame rotative engine (8-inch cylinder, 2-foot stroke) was built by the Philadelphia firm of Merrick and Son in 1850 and furnished with a slide valve, Garner governor and box bed, and a flywheel with curved spokes held in place on a cast iron crank shaft with iron wedges. The date and maker's name are cast into the base.

Merrick and Son's (later Sons') Southwalk Foundry in Philadelphia was an important producer of American steam engines, including the 60-inch (10 -foot stroke) Cornish engine erected at the Mid-Lothian coal mine near Richmond, Virginia, in 1858 and the 72-inch (10-foot stroke) side-lever Cornish beam engine started at Philadelphia's Spring Garden waterworks in 1869 as well as "The President," the massive 110-inch (10-foot stroke), twin-beam pumping engine designed by Cornishman John West and set to work at the Ueberroth zinc mine near Bethlehem, Pennsylvania, in 1872 (see Newsletter 162, p. 8-15).

An additional Merrick engine similar to that in storage at the museum is on display at the Burden Museum and Gardens in Baton Rouge, Louisiana, and two larger rotative beam engines by Merrick and Sons (36-inch cylinder, 7-foot stroke), built in 1851 and 1854 to raise water for the Chesapeake and Delaware Canal (now part of the Intracoastal Waterway), also survive on their original foundations in Chesapeake City, Maryland (see Newsletter 89, p. 13-15).

***Figure 1*: The Vaucluse engine** on display in Greenfield Village prior to its sale in 1983 (photo by Brad Smith).

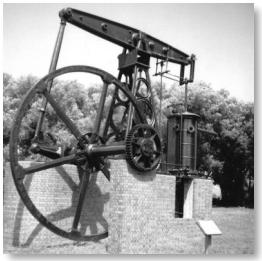

***Figure 2*: The Vaucluse engine** on display at the Western Museum of Mining and Industry in Colorado Springs, Colorado (photo by Brad Kelley).

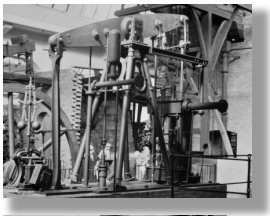

***Figure 3*: The Howe engine** on display at the Henry Ford Museum. The six-column, ca. 15-inch (1½-foot stroke) and 18-inch (3-foot stroke) McNaught compound engine (Acquisition No: 32.167.1) built by Harrison and Clayton in Northampton in 1873 stands to the rear (photo by Brad Smith).

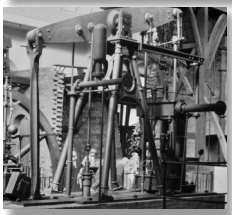

***Figure 4*: The Coalbrookdale engine** on display at the Henry Ford Museum prior to being repatriated in 1988, with the museum's replica of Watt's 1788 Lap engine in the background (photo by Brad Smith).

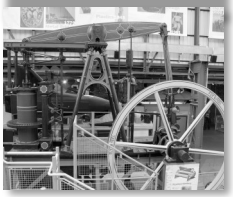

***Figure 5*: The Coalbrookdale engine** on display at the Ironbridge Gorge Museum (photo by Chris Allen, 2006).

***Figure 6*: The Thorne engine** on display at the Henry Ford Museum prior to being sold in 1991 (photo by Brad Smith).

***Figure 7*: The Thorne engine** on display in Ramona, California (photo by Greg Johnson, 2021).

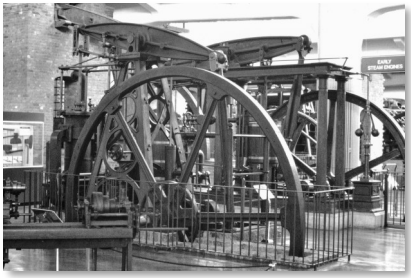

***Figure 8*: The Barningham engine** on display at the Henry Ford Museum prior to its sale in 1991, with the six-column McNaught compound engine (Acquisition No: 32.167.1) built in 1873 to the rear (photo by Brad Smith).

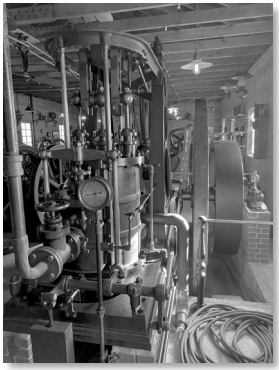

***Figure 9*: The Middleton engine** on display at the Henry Ford Museum prior to its auction in 1993, with the Thorne engine standing behind (photo by Brad Smith).

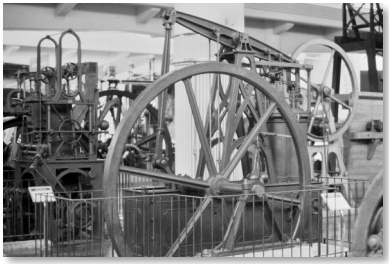

***Figure 10:*** **The J. and E. Hall engine** on display at the Henry Ford Museum prior to its purchase in 1991 (photo by Brad Smith).

***Figure 11:*** **The J. and E. Hall engine** on display at the Sanfilippe Foundation's "Place de la Musique" in Barrington, Illinois (photo by Gregory Leifel, 2021).

***Figure 12:*** **The Windsor engine** on display at the Henry Ford Museum (photo by Brad Smith).

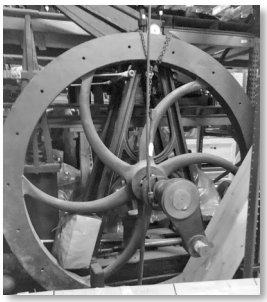

***Figure 13:*** **The Merrick engine** in storage at the Henry Ford Museum (photo by Bill Hazzard, 2019).

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**Next in this series**
***Beam Engines in the Caribbean I***

# Diary Dates

*Talks Programme by Dave Crewes*

**FRIDAY 06 OCTOBER 2023**: **ZOOM-ONLY** presentation at 1930 by David Dundas – *Why Hydrogen?*

**FRIDAY 13 OCTOBER 2023**: presentation at **KEM** at 1930 by Ben Sumpter – *Heavy Metals: what were Cornwall's most unusual metallic exports?*

**FRIDAY 04 NOVEMBER 2023**: presentation at **LISKEARD** at 1930 by Mike Griffiths – *Listening to The Enemy [as recently seen on BBC TV]*

**FRIDAY 10 NOVEMBER 2023:** presentation at **KEM** at 1930 by Ivor Corkell – *The Life and Times of William Murdock*

**KEM** King Edward Mine, Troon, CAMBORNE TR14 9HW
**LISKEARD** Emily Hobhouse Room, Public Hall, LISKEARD PL14 6BW
*Non-members are welcome to attend*; please pay £2.00 per head at the venue.

**FRIDAY 01 MARCH 2024:** Copy deadline for the *TS Newsletter*

**TUESDAY 05 MARCH 2024:** *St Piran's Day*

**SATURDAY 27 APRIL 2024:** *Trevithick Day, Camborne*
https://www.trevithickday.org.uk

**FRIDAY 03 MAY 2024- SUNDAY 5 MAY 2024**: **Trevithick Society AGM** at Tricky's @ The Tolgus Inn, Tolgus Mount, REDRUTH TR15 3TA. Please make your bookings for accommodation at the venue direct with Brenda on **01209 219292.** **https://www.trickyscornwall.co.uk**

**ROYAL CORNWALL MUSEUM, TRURO: *UNTIL 9 DECEMBER 2023***
***Landscapes with Ruin:*** exhibition centred on abandoned remains of buildings, structures and landscapes transformed by mining in Cornwall and West Devon. With Graham Warren and Duncan Rice.

# Rescuing Lock 21 on the Liskeard & Looe Union Canal

*Peter Murnaghan*


**Members of the volunteer team who rescued Lock 21 : initial work under way in November 2019. Peter Murnaghan is on the left of the group.**
Photo © Peter Murnaghan

In 1828, a canal opened between the Cornish towns of Looe and Liskeard to provide for the conveyance of sand and seaweed for farmers inland to improve the quality of their acidic soil. Limestone and culm was also brought in to feed the limekilns in the East Looe river valley. In the return direction, boats would carry agricultural produce and granite from the Cheesewring quarries to the sea port. The *Liskeard and Looe Union Canal* started with water from Bodmin Moor in a basin at the appropriately named Moorswater and ran down to the tidal reach at Terras Causeway, by means of 25 locks.

In the 1840s rich lodes of Copper were discovered around Caradon Hill and 25 mines were established in the area. The horse-worked *Liskeard and Caradon Railway* provided a link to the canal basin at Moorswater in 1846. The traffic grew. By 1856 the Canal was working to capacity, carrying 48,000 tons, not only copper ore and granite down to Looe for export, but also coal and timber up to the mines, as well as limestone. The canal was struggling and, because the water supply was now proving insufficient, it would take 8 hours for a boat to complete the 7-mile journey to Looe Quay.

To provide extra capacity, the canal company built a railway alongside the canal, which opened in 1860, when the *Liskeard and Caradon Railway* was upgraded to provide a through route from the mines to the port, worked now by steam locomotives, in place of horses. The canal rapidly fell out of use, alongside the parallel railway. The canal locks were neglected and the route became little more than a drainage channel. In 1901 what had become the *Liskeard and Looe Railway* was linked with the Great Western main line at Liskeard, by means of a sinuous link line, rising from the valley at Coombe Junction. The new line severed the route of the old canal to the north of Lock 21 and spoil from a railway cutting was dumped into its disused lock chamber.

This breach turned out to be the saviour of Lock 21, becoming the only lock to remain 'dry' into the present century. The railway that killed off the canal in 1860 also saved it from completely disappearing into obscurity. Why was this? Because the railway company built its railway alongside the canal, both ended up within the land holding of the railway. Through the Liskeard & Looe Railway and later, GWR, British Railways, Railtrack and now Network Rail, the railway boundary encompasses the alignment of the old canal.

**Lock 21 : Chamber and Downhill Gates mountings, 2018**

**Lock 21: Chamber and Downhill Gates mountings, October 2022**

Photographs © Peter Murnaghan

One of the delights of a train trip down to Looe is trying to spot traces of the old canal and its 25 locks on one side of the train or the other, as it switches between left and right. Some years ago, the author was part of a Caradon Heritage walk in the Moorswater area and the leader, Iain Rowe, pointed out the jungle of trees that had overtaken Lock 21 and was progressively threatening to destroy the stonework of the lock chamber. The benefit of the canal being within the railway boundary fence was now a hindrance to rescue efforts. Contact with the railway authorities over the years had proved fruitless.

Knowing something of how the transport industry works, I offered to try and break through the invisible barrier and engage with the railway authorities.

Many encounters followed with Network Rail in an effort to find a legitimate way to climb over their boundary fence to arrest the tree growth. On rare occasions I would find an individual who would come out to meet me on site. Sadly, none of these meetings bore fruit - it was all 'too difficult' for an organisation that was busy running a railway.

Then one day, a friendly councillor advised me of a meeting involving the local MP and Network Rail to resolve a residential problem in Liskeard. I took her advice and used the meeting to raise the issue of the overgrown lock.

Success - I was pointed in the direction of a very open minded Asset Engineer, based in Swindon, who came out to meet me at the lock and understood our desire to clear the vegetation. A way forward was agreed in principle. The big trees would need to be dismantled in sections (as opposed to being felled) by a qualified tree surgeon. This would require the railway line to be blocked. Fortunately, the 2019 winter timetable was approaching, with no Sunday trains until the following April. So, our blocking the line wouldn't need to inconvenience travellers.

To make any progress, I had to fit into Network Rail's mind-set. There is a great deal of form-filling that needs to satisfy the safety conscious Network Rail. Any work on railway land, whether it is building a new bridge or digging

**Major tree-felling at Lock 21 by Network Rail-approved staff, Winter 2019**

Photograph © Peter Murnaghan

**Resource**

**https://moortosea.org.uk/the-moorswater-trail/**

up weeds near the track, has to be accompanied by a *Risk Assessment and Management Statement* (RAMS). Firstly, the trees would have to be cut down by professionals, with insurance. By good fortune, a couple of Network Rail employees were identified, who carry out tree work, in their spare time. They could do the work and arrange the necessary Line Block and RAMS. But they would need paying.

So a search for funding got under way and my begging bowl produced sufficient money from heritage organisations, councillors and others to meet their costs. The big trees came down in late 2019. Next, to clear the vegetation, I needed to produce a RAMS that was acceptable to the railway's requirements. A small volunteer army followed the tree fellers, equipped in orange high viz jackets (procured with the money raised) and requisite blue safety helmets, kindly donated by a local employer who was updating their safety wear. Regular de-vegging sessions followed, each requiring a RAMS, although these became easier with practice.

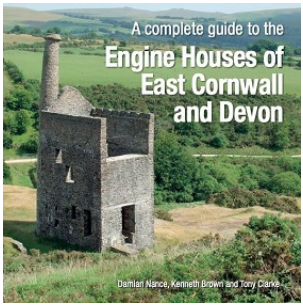
After 3 years, it was suggested that we apply for a *Community Licence*, as we had demonstrated that we were responsible volunteers who played by the rules and had worked without incident.

**Work in progress: 2020** Photograph © Peter Murnaghan

A further site meeting produced a new round of railway contacts, who proposed enclosing the lock in a secure fence, with a lockable gate, so that we could carry out our work, without any of the requirements to be working 'trackside'. The Community Licence came at no cost to us and a new set of high viz tabards were provided (pink, this time, with *'Community Volunteer'* printed on the back). No more need for RAMS and subject to an informal safety briefing, we could come and go, whenever we wished to. The Licence restricted the volunteers to using hand tools only, with no mechanical assistance and forbade any excavation of the infilled lock. It was felt that nobody would be able to assess the structural strength of the lock chamber's high walls after nearly a century and a half of disuse. So the work today involves occasional days of de-weeding, removing the invasive Himalayan Balsam, whose seeds blow in from the railway and cutting back the brambles and saplings that try to reassert themselves. The site is easily visible from the adjacent lane and the railway line that brought about its downfall. Volunteers working on the cleared site with its wild flowers, enjoy appreciative feedback from passers-by on the lane and cheery waves from the train crews on the line to Looe.

***New faces are always welcome at our working days; contact can be made through the Liskeard Old Cornwall Society: https://kernowgoth.org/member-societies/liskeard-old-cornwall-society/?sfw=pass1692127590***

# Bookshelf



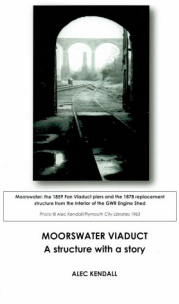

**A Complete Guide to the Engine Houses of East Cornwall and Devon**

***Damian Nance, Kenneth Brown and Tony Cane***

Published in July 2023 by Lightmoor Press at £22.50; printed in full colour on gloss art paper with 152 pp in square format of 210mm by 210mm. ISBN 13: 9 781915069 2 69

https://lightmoor.co.uk/new.php

This book introduces the remarkable engine houses of the UNESCO Cornwall and West Devon Mining Landscape World Heritage Site by providing an illustrated guide to those in East Cornwall and Devon. Contemporary and archival photographs are supplemented with brief descriptions of the engines the buildings once contained, simple interpretations of some of their key features, and short histories of the mines of which they were part. It is not an exhaustive treatment, nor is it meant solely for the enthusiast. Rather, it provides an overview intended for all those interested in these historically important structures.




**Moorswater Viaduct: A structure with a story**

***Alec Kendall***

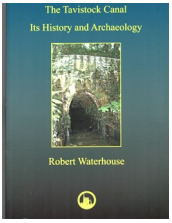
Published in April 2023 by the Caradon Heritage Partnership; printed in colour with 28pp in A4 portrait format.

Brunel's 'fan viaduct' across the East Looe River valley west of Liskeard was troublesome from the start, and lasted in service for only 22 years. Its masonry replacement, the construction of which began in 1878, was the responsibility of a promising young civil engineer from Plymouth, Henry Gandy Cole, and it would cost him his life. This book sets out the full story of the railway viaducts at Moorswater, some of the engineering processes involved in their construction and their human, social and financial costs. A limited issue of the book has been completed, and spare copies are available to TS Members on a first-come-first-served basis at a cost of £10.00 each, postage included. The income from sales will be donated to the Society. *Please contact the Newsletter Editor,* ***by email only,*** *to obtain a copy.*

***Graham Thorne,*** **Publications Secretary and *Journal* Editor, brings news of the Society's in-house publishing.**

**Forthcoming Titles**

We have two exciting new books in progress. Roger Burt's history of the Cornish tin industry in the early to mid-twentieth century, ***Decline, Fall & Resurrection*****,** is an incisive treatment of its period with relevance to the industry today. It will be available as a hardback and a large format paperback. Railway historian, Roger Langley, plugs a gap in Cornish railway history with a newly researched, original history of the **Hayle Railway**. This will come in a large format soft cover format. Both should be available before the end of this year.




**Low Stocks of Current Titles**

Stocks of the following titles are now running low:

- ***Drawings of the Levant Whim***
- ***Mine Pumping Engines***
- ***Great Wheal Vor***
- ***Tavistock Canal***

Now is the time to fill that gap on the shelf!

**Autumn and Christmas Sale Offer**

The following book prices have been reduced with effect from 1st September and will be held to the end of 2023:

- ***Levant Mine: An Anthology***; Hardback £25 [~~£35~~], Paperback £15 [~~£25~~]
- ***Wheal Basset*****;** £10 [£14.99]
- ***Cornwall's Fuse Works***; Paperback £12 [~~£20~~]
- 'The Joseph Bundle'; ***Ding Dong*** [£15.99] and ***Trewavas*** [£10] for £16
- 'The Mines Bundle'; ***Ding Dong*** [£15.99]***, Trewavas*** [£10] and ***Wheal Basset*** [£14.99] for £25

All sale orders will also be entitled to one free copy of ***Levant: A Champion Cornish Mine*** and additional copies for £5.

**The Journal**

With this Issue of the Newsletter, comes **Journal Number 50.** We have tried to make this Golden Jubilee edition something special to mark the occasion. We hope you like it and perhaps it may spur some members to put pen to paper. Feedback on the Journal is always welcome as are potential contributions.

## Welcome/Dynnargh!

*Sheila Saunders, TS Membership Secretary*

We offer a warm welcome to four new members—**John Jasper and Robin Tweed,** both of Hayle, **Jamie Gill**, of Fraddon, and **Daniel Buxton** of Camborne—and we look forward to meeting them at Society events.

## *Puffing Devil* on tour

*Colin French, TS Council Member*

**The *Puffing Devil* was on display at the West of England Steam Rally, held from Friday 18- Sunday 20 August this year at Stithians Showground**.

The cancellation of the grand parade of Tall Ships leaving Falmouth on the first day of the Rally certainly boosted numbers attending as quite a few visitors said they had intended to see the Tall Ships instead. Following an excellent morning at the show, the expected and incessant rain arrived and by mid-afternoon the showground was like a ghost town. Storm conditions struck during the night and, not only was the showground thoroughly drenched, but the craft marquee suffered some damage. Consequently, on Saturday the decision was made not to charge anyone an entrance fee and instead, to ask for a donation to charity. This reflected the reduced number of exhibits and the fact that the moving vehicles were to be static displays due to the waterlogged soils. Thankfully, though, the weather was pleasant, the number of visitors was very good, and the *Puffing Devil* crew (John, James and Dylan) had an excellent day showing off the engine.

**This year the layout of the rally had been substantially altered and the Puffing Devil enjoyed a prime site overlooking the main arena**. Not only did this ensure a steady stream of interested visitors but it gave the crew plenty to watch whilst operating the locomotive. On Sunday, Sean, Molly, Martin and Joshua tended the *Puffing Devil* and also had an excellent time. Many people came to look at the engine as it puffed and clattered on its trailer and a multitude of questions were answered about the *Puffing Devil* and the work of the Society by the crew, and the supporting Society members.

One person decided to join the Trevithick Society on the Sunday, and several other people took away membership forms, which was really promising.

In addition, one person showed keen interest in becoming a member of the *Puffing Devil* crew. It was lovely when existing Society members, who were attending the event, came forward and introduced themselves to the crew. The photo of Fred Dibnah riding on the *Puffing Devil* during Trevithick Day 2003, as always, was of great interest to members of the public.

Many thanks, then, are due to:
*those crewing the engine:*
Martin Burn, Joshua Card, Colin French, John Goodyear, Dylan Mockett, Molly Oliver, Sean Oliver, James Woodward, and John Woodward.
*the busy people with collecting buckets and stickers*:
Sonia French, Sarah Goodyear, Peter Saunders, and Sheila Saunders.

**Molly, Joshua and Sean crew *Puffing Devil* on Sunday 20 August 2023**
Photo © Colin French

**John, James and Dylan crew *Puffing Devil* on Saturday 19 August 2023.**
Photo © Colin French

**The next outing for the *Puffing Devil* is scheduled to be on Trevithick Day, 27th April 2024.**

## Seeking Answers

*Graham Thorne, TS Publications Secretary and Journal Editor*

- A lady in Peterborough is seeking information about her ancestor **John Darlington (1799-1879)**. He was a mining engineer from the St Austell area who worked in Cornwall and, later, with John Taylor at Alport in Derbyshire, and Minera, near Wrexham. He had a son, also called John, born in 1827, who followed in his father's footsteps and was known, among other things, for the *Darlington Rock Drill.*
- A Society member would appreciate any information about the use of the **Carn Marth Quarry** in Cornwall for the use of rock drills. We know it was used by *Climax Engineering,* probably from the 1880s, but are less clear about its possible use by *Holmans* after their takeover by Climax.

Any responses regarding the above will be gratefully received by Graham Thorne on trevpub@thornemail.uk

**Resources**
CARN MARTH: https://explorecornwall.org/carn-marth/
DARLINGTON ROCK DRILL: https://www.quarriesandbeyond.org/pdf/rock-drilling_machine-scientific_american_supplement_103-dec_22_1877_p1634.pdf

## Summer's End at Levant

*Oliver Wright, Welcome Manager , The National Trust: Levant Mine and Beam Engine*

There are no real updates to provide about the engine as all has been running smoothly with it. With the added engine tours we have been running through the summer holidays we have allowed more people to see the engine than last year. The engine has been running every day we have been open this year so every visitor has been able to see it operating on steam. *Engine visits will come to an end by the end of September but the full tours will continue, and like last year the site will remain open throughout the winter months. Levant will still be open for five days a week in October before dropping down to Mondays and Wednesdays in November and December.* Access to the site will still be by pre-booked guided tours in the winter, so if you plan on visiting, **please book** as a National Trust member and write *'Trevithick Society'* where you would otherwise write a National Trust membership number.

## *Onlooker's* Column

Many of us, and especially the readers of this journal, are fascinated by history and heritage. We arrive at this point by many roads.

Some start on a personal quest to understand their own family and origins and then progress into the lives and achievements of their ancestors. Some have their interest sparked by a landscape with a story to tell or by the wonder of a leap in man's knowledge and ingenuity.

However, as we learn more and research more, our focus generally widens to other areas which may impact our chosen path. We become aware of other peoples' work and interest, of newer ideas and projects and all too often try to prevent any activity which may cause the least little change in the status quo.

I love my area for its prehistory and the record in the landscape of the achievements and inventions of those who have lived and worked here since.

The buildings record the changing fortunes and fashions over the years in both domestic and industrial architecture and the reasons for those changes. I want to help preserve that record of past work but I also recognise that nothing ever remains exactly as it was- it is either kept in good order or dilapidates to ruin.

A plea then to preserve what is our precious heritage without seeking to deny that as the world moves on, what surrounds it cannot always stay the same.

## Trevithick Links

**The Hazeldine Foundry of Bridgnorth in Shropshire (p5)** was favoured by Trevithick for the manufacture of components to his design. This is remarkable in the light of Trevithick's close relationship to the Harvey dynasty of iron founders at Hayle; he had married Jane Harvey in 1797, and her brother Henry somewhat understandably viewed Trevithick's use of the Hazeldine Foundry as a slur. When Trevithick's high-pressure plunger-pole pumping engine of 1816 at Herland Mine, near Gwinear, developed faults with some castings, neither the Harvey Foundry nor the Fox Foundry at Perran would supply him with replacements.

The Hazeldine Foundry supplied ironwork of an outstanding quality for Thomas Telford's Mythe Bridge over the Severn in Gloucestershire, completed in 1826 and regarded by Telford as his finest bridge. Every cast element of the structure, from the ornate parapet railings to the six sets of ribs comprising the single span over the river, was carried by boats downstream to the site from Bridgnorth. Fabricated using William Hazeldine's 'No.2 Shropshire Iron', Mythe Bridge – HE Grade II* Listed - today carries light road traffic on the Tewkesbury to Ledbury Road.

Hazeldine cast railings: Mythe Bridge, 2018 Pic © Alec Kendall

**The firm of J and E Hall of Dartford (p12)** offered the impoverished Richard Trevithick the last engineering commission of his life in 1832, when he was invited to develop a high-speed engine for a new vessel under construction at Dartford. Trevithick, unattended by friends or relatives, died of pneumonia on the morning of 22 April 1833 at his lodgings at the *Bull Hotel* in the town. His colleagues at J and E Hall's works met his funeral expenses, acted as bearers of his coffin, and paid for a night watchman to guard his unmarked grave at St Edmund's Burial Ground in Dartford.

**Henderson's Mining School students at one of the Basset Mines, Illogan, ca 1906.** *Photo © and Licensed by the Royal Cornwall Museum.*

Reginald Colwell James (1890-1974) is on the left; Webb, with a hoop from a pail adorning his hat, is in the centre; Graves, carrying mining candles, is on the right. Captain Thomas Jenkin, the Mining School's Chief Underground Surveyor, was based in the office wing on the right of the main building. James himself would achieve Associate Membership of the IME, and lived until 1925 in St Columb Minor.