



Our mining culture
shaped your world

cornish mining

newsletter of the Cornwall & West Devon Mining World Heritage Site

Summer 2015

King Edward Mine workspaces open for business

Tamar Valley
'Helping Hands
for Heritage' update

Wellington and the World Heritage Site

Derbyshire lead mining:
the Cornish Connection

Conservation complete at Wheal Busy



Poldark piques interest in Cornish Mining

www.cornishmining.org.uk

www.facebook.com/cornishmining

www.twitter.com/cornishmining

Cornish type engine house at
Magpie Mine, Sheldon, Derbyshire



WELCOME

There has been much activity at King Edward Mine since the last edition of Cornish Mining and here we update the ongoing conservation which includes the creation of nine workspace units as part of an extensive refurbishment of this Grade II* Listed mining museum.

It has been a year since the Tamar Valley AONB Helping Hands for Heritage project got underway and here Sam Barnes gives an update to this conservation volunteering project, which introduces volunteers to the area's rich heritage while using their generous help to conserve historically important sites.

At a time of much commemoration of the 200th anniversary of the Battle of Waterloo we take a look at our own World Heritage link with Arthur Wellesley, the 'Iron' Duke of Wellington.

This edition also includes a round-up of the completed conservation works at Wheal Busy, how the new series of Poldark is benefitting mining heritage attractions locally, and an introduction to the links with metal mining in Derbyshire, courtesy of Keith Gregory of the Peak District Mines Historical Society.

Ainsley Cocks, *Editor, WHS Research & Information Officer*

The Cornish Mining World Heritage Site,

4th Floor (West Wing), County Hall, Truro, Cornwall, TR1 3AY, United Kingdom

www.cornishmining.org.uk

<http://whc.unesco.org/en/list/2015>

We want to ensure your needs are met. If you would like this information in another format or language please contact us at the above address.

All content, unless where specified, © Cornwall Council, 2015.

Photos Ainsley Cocks / Cornwall Council unless stated.

Cover image: Cornish round frame on display at King Edward Mine

© Cornwall Council 2015

Design The Communications Unit, Cornwall Council, July 15



CONTENTS

**KING EDWARD MINE
WORKSPACE OPEN
FOR BUSINESS** 3

**HALF-WAY FOR THE
HELPING HANDS
FOR HERITAGE
PROJECT** 7

**WELLINGTON
AND THE WORLD
HERITAGE SITE** 10

**CONSERVATION
COMPLETE AT
WHEAL BUSY** 14

**DERBYSHIRE
LEAD MINING:
THE CORNISH
CONNECTION** 18

**POLDARK PIQUES
INTEREST IN
CORNISH MINING** 21

**100 YEAR OLD
GRAFFITI SHEDS
LIGHT ON KING
EDWARD MINE** 23

**ASDA SUPER STORE
IN HAYLE WINS
PRESTIGIOUS RIBA
AWARD** 24





KING EDWARD MINE WORKSPACES OPEN FOR BUSINESS

King Edward Mine – the complete Edwardian training mine and ‘gateway’ to the mining Great Flat Lode

The workspace development project at King Edward Mine (KEM) has continued a pace since this featured in the previous edition on Cornish Mining, with the work on the range of buildings at the northern end of the site moving towards completion. Here the Count House, the Smithy, and the Miners’ Dry and Mess Room formed part of the only purpose-built training facility for students of metalliferous mining in the UK. Since 2001 KEM has operated as a popular mining museum and has secured the support of many enthusiastic volunteers over the years.

For a more detailed background to the origins and development of KEM please see the summer 2014 edition of Cornish Mining however, in summary, the site was initially developed as

a training complex following its acquisition by the Camborne School of Mines in 1901. Created utilising part of South Condrrow Mine (1864-1896), KEM was to successfully function in this capacity until 2005. As a complex of mostly Grade II* Listed buildings, the site is also a key element of the Outstanding Universal Value, or international significance, of the Cornish Mining World Heritage Site (WHS), in recognition of the important role played in the development of the Cornish mining industry.

The ongoing KEM Workspace Project is the first of two significant capital schemes on site part financed by the European Regional Development Fund Programme (ERDF) 2007 to 2013 that will secure the long-term future of KEM, now the

oldest complete mine site in Cornwall. ERDF Convergence is investing a total of £1,126,248 to the project, with Cornwall Council contributing £800,000 in match funding. The construction company Midas Group Ltd. have been delivering the project which will see the Count House and Carpenters’ Workshop complexes housing nine affordable workspaces for local businesses.

KEM was purchased by Cornwall Council in 2009 and is leased to the managing charity, King Edward Mine Ltd., to run as a mining heritage attraction. The workspace project is the result of considerable planning and consultation, and is the first of two major capital developments for the site that Cornwall Council is engaged in. The second is focused on



Rag frames and round frames (for separating tin ore from waste - above and right, respectively) can be seen on display within the museum at King Edward Mine



the core museum buildings including the replacement of the existing cement-asbestos sheeting with a modern cement-fibre equivalent, the creation of a new exhibition space in the Boiler House, and the installation of a much-needed café within the former mine Assay Office. PDP Green is the architect leading on this phase of the development.

St Ives based architects Poynton Bradbury Wynter Cole has been providing conservation architectural services for the workspace project which has posed many challenges for those involved. Site investigation revealed that mine workings existed immediately below the Mess Room creating a serious headache for the project contractors. Following extensive consultation with English Heritage (now Historic England) the Mess Room was carefully dismantled, following detailed recording, so that a mine shaft and shallow stope could be safety capped. This required the numbering of individual granite quoins in order that the building could be reconstructed in its original form.

As is often the case with historic mine buildings, the structures within the Count House range show signs of being extensively modified and patched - not always in the most effective ways - to suit changing requirements over the years. The fabric of the Count House itself was found to be in a worse state of repair than originally thought which has required a greater commitment of time and resources than envisaged. The interior of the Miners' Dry was much modified following the removal of the large Cornish boiler, with the mezzanine level being infilled to provide greater space on the first floor. The structural competence of the floor supporting timbers was questionable necessitating the addition of some bracing steelwork. The later patching of the floor boards here has also used the timber slats from old blasting safety fuse boxes, and the maker's name 'ICI' [Imperial Chemical Industries, 1926-2008] can clearly be discerned along with the dire warning of 'gunpowder'!

The building work has also revealed something of the hidden history of the site before the establishment of KEM. The removal of redundant cladding from what was previously the exterior west wall of the Count House has exposed a tall door-like opening framed by rough-hewn granite quoins and lintel. Though infilled with rubble masonry and covered for probably over a century, this feature may have been associated with the function of the Count House on mine setting day. On this day the management of the mine would auction the pitches demarcated underground where groups of miners (pares) would either work to extract payable ore, or advance levels or stopes. The process of auctioning usually required the use of a balcony or other elevated vantage point from where the management could conduct the business of the day, and allocate the working pitches in the form of a series of 'Dutch'

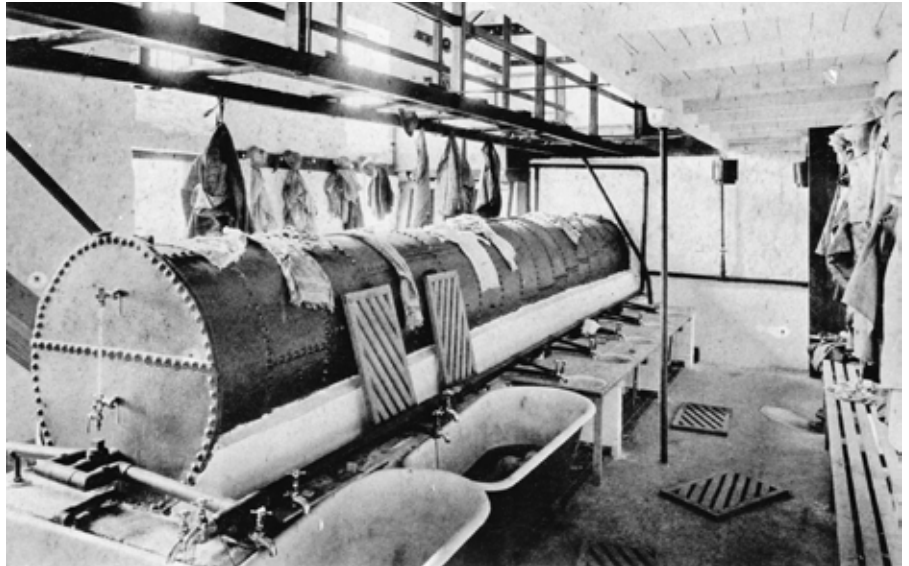
auctions. The unusual height of the opening, considerably in excess of a standard doorway, may have served to accommodate the timberwork for a balcony of sorts above a small door. Another surprise was revealed from within what was formerly the photographic dark room for KEM – please see the article by Tony Brooks on page 23 for more on this.

The extensive works at KEM will also have the benefit of removing a number of structures from the Historic England 'Heritage at Risk' register. This records features of historic importance Listed at GII* which are under serious threat from neglect or other issues. The Count House, Blacksmiths' Shop, Miners' Dry, Weighbridge Stores, Assay Office, Brass Machining Shop, and the Boiler House to the Winding Engine House will all be thankfully removed from the register once the project is concluded.

Tamsin Daniel, Cornwall Council Culture Programme Officer, is extremely excited about the improvements at KEM: "The mine is very highly regarded by many and has won awards for the quality of the restoration and interpretation offered by the volunteers and Friends of King Edward Mine. Its location on the Great Flat Lode not far from the A30 - with access to beautiful walks and cycle rides - makes it an inspiring place to run a business. We have seen a lot of interest in the nine units on offer; three units have already been taken up by Cornwall Wildlife Trust, Kernowspa, and Scribble & Nonsense, and the last unit within the Carpenters' Workshop is now available. The remaining units on site will be ready to occupy on 1st September.

The WHS team very much welcomes the conservation work taking place following the construction of the new winder and compressor houses funded through the WHS 'Discover the Extraordinary' project in 2010. Deborah Boden, World Heritage Site Co-ordinator, says:

"the World Heritage Site team was pleased to instigate and

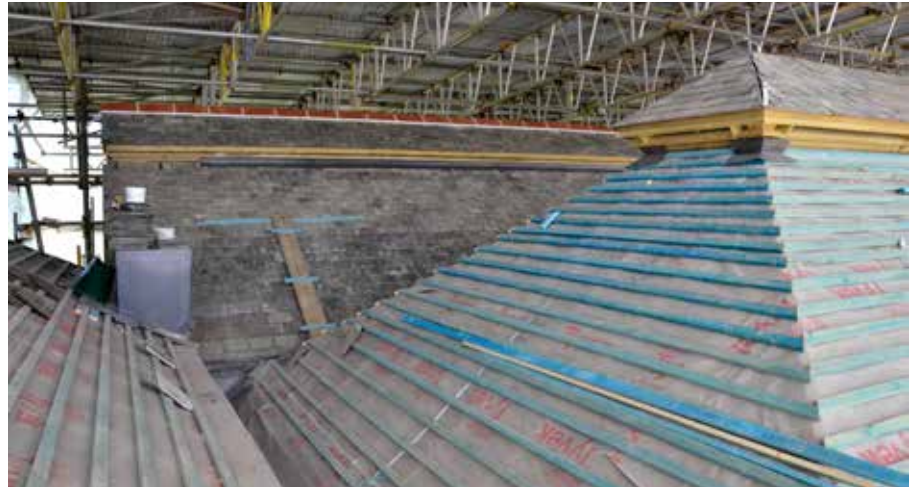


The Miners' Dry (the wash and change house), while in use (top) and during renovation. The cylindrical Cornish boiler provided both heating and hot water. The ceiling has been patched in former times using the timber slats from old packing cases of ICI safety fuse

fund the process of business planning for the site in 2010, and the Partnership is delighted that this Convergence funded project is delivering an economically sustainable future for the mine and supporting its dedicated volunteers."

Councillor Julian German, Cornwall Council Cabinet Member for Economy & Culture and the World Heritage Site Partnership Chairperson, welcomed the development, adding that:

"Conserving historic buildings and bringing these back into use is often the only way to ensure their survival and projects such as this preserve important features within the World Heritage Site, while also providing excellent training opportunities in traditional building skills." ■



The roof over the mine smithy with reconstructed clerestory ventilator based on that shown in historic photographs



Two views of the completed workspace units within the weather-boarded Carpenters' Shop and Machine Room; original features such as the overhead line-shafting here – formerly providing machine power – have been retained

activities on offer, please see:
<http://www.kingedwardmine.co.uk/>

Details of the Convergence funded project can be found here: <http://www.erdconvergence.org.uk/investments/king-edward-mine/>

The upper section of the infilled wall opening possibly associated with the operation of the Count House when auctions were held on setting day





HALF-WAY FOR THE HELPING HANDS FOR HERITAGE PROJECT

Above:
Volunteers at a weir
on the Tamar

In the previous edition of Cornish Mining, Sam Barnes – Helping Hands for Heritage Project Officer – took up the story of how the Helping Hands for Heritage Project is working to develop conservation volunteering within the Tamar Valley Area of Outstanding Natural Beauty (AONB). Much has been achieved since then and here Sam provides an update on how volunteers and the Valley have gained from this exciting project, which is benefitting the AONB and the WHS also.

This May signalled the half-way point of the project which is supported by the Heritage Lottery Fund. The project aims to to expand volunteering opportunities across the Tamar Valley, building on communities' enthusiasm for and interest in what makes the Valley landscape and its components special.

The project aims to attract and train volunteers to help research, survey, conserve and enhance parts of the Valley's remarkable heritage that are known to be at risk – and also discover the unknown – for better, informed management into the future. Alongside this volunteers are being given the chance to survey our rich wildlife resource, including otters, dragonflies, butterflies, ancient trees, woodland plants and much, much more.

Throughout the last 12 months the heritage focus has been on engagement, raising awareness, participation and training. Below is a summary of some of the things the volunteers have been up to.

COMMUNITY ARCHAEOLOGY

Fieldwalking on the Pentillie estate in September 2014 was our first community archaeology event of the project. Led by local volunteers and members of Cornwall Archaeological Society, and attracting 37 people from across the Valley, we discovered evidence of two nineteenth-century cottages formerly on the site, a number of medieval pottery shards; but the star finds were two Mesolithic flint blades! Finds washing and ID was given a hand by the volunteers, many of which have since gone on to get involved in other heritage activities through HH4H.

Keep an eye out for more community archaeology events for all the family, coming up this autumn!



Cornwall Council Senior Archaeologist Colin Buck leads Heritage Watch volunteers at Holmbush Mine

RAISING AWARENESS

In order to inspire and engage, the end of 2014 involved a number of visits to archaeological and industrial heritage sites, including a guided tour in November with Colin Buck of sites within the Cornwall and West Devon Mining Landscape World Heritage Site. Many of the attendees have gone on to help establish a 'Heritage Watch' group to record and monitor the condition of otherwise undesignated archaeology on the Historic Environment Record. Regular catch up meetings - often including a site visit and a free lunch - have maintained enthusiasm and participation. To ensure a legacy for 'Heritage Watch', we will strengthen and continue the scheme with more volunteers, resulting in informed management and a positive future for our remarkable heritage.

CONSERVATION TASK FORCE

Volunteer days have continued on the Tamar Trails ensuring that good access to, and interpretation of, the industrial archaeology is a significant legacy of the Tamar Valley Mining Heritage Project. The task force have also had an input on Kit Hill - clearing the Neolithic long barrow and several mining features, and at Wacker Quay where one of the military railway turntable pits was cleared by volunteers in order for it to be surveyed. Volunteers have also helped build new raised beds outside the Tamar Trails Centre; given a helping hand to install replacement interpretation boards at Okel Tor Mine; and taken part in traditional skills including apple grafting and hedge-laying. The opportunities continue a-pace, with the programme now in place until September 2015.

OUR WATERY HERITAGE

One of the themes we are required to deliver through the project is focused around historic weirs. Following an introductory session in February 2015, it soon became clear that local interest in our river heritage is much greater than in just weirs! A talk from conservationist Martin Watts on historic mills and other river structures confirmed this, and a small group of volunteers have been happily researching stretches of the rivers Tamar, Tavy and Lynher to discover the location of any historic structure spanning or using the river. This information will be shared with the Historic Environment Records in Cornwall and Devon to ensure that the significance of these structures – which are so intrinsic to the historic industries of the area – is considered in any development proposals.

We have so much more coming up over the final months of the project, and are always looking for new volunteers to get involved. ■

EVENTS COMING UP:

- Wednesday 26th - Sunday 30th August - Tamar Trail Festival to celebrate 20 years of designation of the Tamar Valley AONB; including heritage walks on the Bere Pensinsula, at Blaxton Quay, Kit Hill and Okel Tor
- Saturday 12th and Sunday 13th September - Community archaeology weekend (further details to be confirmed)
- Saturday 26th September - Fieldwalking at Pentillie

Sam Barnes

Helping Hands for Heritage Project Officer,
Tamar Valley Area of Outstanding Natural Beauty

To get in touch about any of these events, and to sign up to our monthly volunteer e-bulletin, please email: volunteering@tamarvalley.org.uk or call 01822 835030.

You can also find out more about the project on our website: www.tamarvalley.org.uk/hh4h, where there is also a link to all our upcoming events.

Follow us on Twitter (HH4Heritage) and also like us on Facebook!



Fieldwalking on the Pentillie Estate - the smaller aspects of our heritage don't get overlooked by our enthusiastic volunteers!



Volunteer co-ordinator Dave Readman gives a guiding hand to a volunteer replacing a bench at Okel Tor Mine



Heritage Watch volunteers on the Neolithic long barrow on Kit Hill, recently cleared by a volunteer task force and ready for condition monitoring



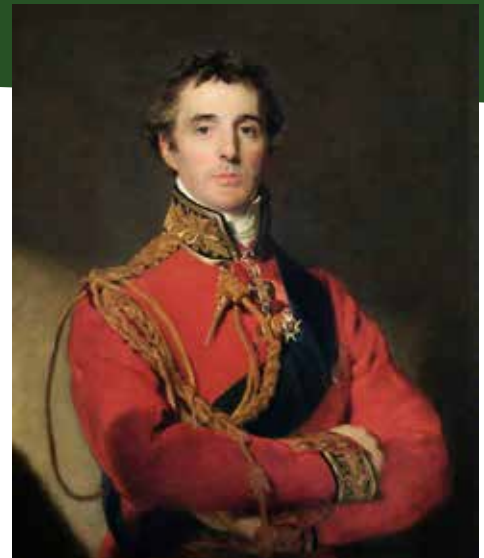


WELLINGTON AND THE WORLD HERITAGE SITE

Above: The Luxulyan Valley, part of the World Heritage Site due to its associations with copper and tin mining. Austen's Engine House at Fowey Consols Mine can be seen in the foreground

This year marks the 200th anniversary of the Battle of Waterloo, which saw the defeat of Napoléon Bonaparte (1769-1821) - Napoleon I - Emperor of the French - by an Anglo-allied army led by Arthur the 1st Duke of Wellington (1769-1852) fighting alongside Prussian forces. The battle took place on Sunday 18th June 1815 at the eponymous site in Belgium, then formally part of Dutch territory. Many events were held to commemorate this historic conflict which did much to reshape the future of northern Europe, including large scale re-enactments of the battle's pivotal stages.

Cornwall while being far removed from the battlefields of Belgium has its own, little known, historic link with Wellington, which also has significance for the World Heritage Site. The final resting place of the 'Iron Duke' in the Crypt of St Paul's Cathedral, London, is carved from a rare form of granite. Luxulyanite, a 'pink-tinged



The Duke of Wellington (as painted in 1814)

granite' comprising 'schorl, flesh coloured orthoclase and quartz' (Keast, 1982), is so named after the location where it was first discovered, this being the Luxulyan Valley in mid Cornwall. The Valley now forms part of the A8 area of the World Heritage Site,

principally through its associations with copper and tin mining in the eighteenth and nineteenth centuries.

Upon the Duke of Wellington's death on 14th September 1852, following a long, distinguished and often controversial career in politics, the search was undertaken for a stone which could be used to create a suitably impressive sarcophagus, the Duke's last resting place. The sarcophagus would need to be cut from a single block, the rock capable of being polished to a high decorative finish, and be suitably striking in appearance.

On the day of the funeral, 18th November 1852, a reported 1.5 million people are said to have viewed the solemn procession from Apsley House, the Duke's London home, to the West Door of St Paul's, with the Duke finally being laid to rest in the Crypt alongside Admiral Nelson and the architect of the great cathedral, Sir Christopher Wren (1632-1723).

It was to be some years however before a sarcophagus was created for Wellington, and precisely how Luxulyanite came to be proposed for this is uncertain. It appears most probable that the estate of the then recently deceased Cornish industrialist Joseph Thomas Treffry (1782-1850), of Place House, Fowey, was influential here. Treffry's direction of the industrial affairs of mid Cornwall was decisive throughout the first half of the nineteenth century, with major business interests held in local metalliferous mining, shipping, canal and rail transport. Treffry's copper mines in the area around Par Bay, principally Fowey and Par Consols*, employed thousands at their peak in the 1850s, with many businesses locally being largely dependent on the earnings of the many underground and surface mineworkers. When Treffry died in January 1850 he left an extensive business legacy which was to be managed by a cousin the Reverend Edward John Treffry (1809-1880).

The Luxulyanite is thought to have been discovered as a large outcrop at Trevanney Farm, on the north western fringes of the valley. Details of the process of cutting and polishing the



The Wellington Memorial (right), and the Luxulyanite sarcophagus (above) within St Paul's Cathedral



block selected are uncertain, however, a letter dated 29th April 1858 by Edward Treffry, originally published in the London Times and reprinted in the Royal Cornwall Gazette of 7th May that year, sheds some light. Within this Edward counters the assertion made in a previous Times' article that the block was polished in London, by the stonemasons Malcott and Co. This was most likely the trading name of the stonemason, John Rowles Malcott - descended from a long line of monumental masons active in London throughout the latter eighteenth and nineteenth centuries;

'Now, Sir, I have no wish to say one word in disparagement of Messrs. Malcott and Co., or to take away one grain of the work after the sarcophagus was placed in the Duke's chamber in St Pauls; yet I think it due to my county and to my estate to let the world know, by means of your world-spread journal, that the great Duke's sarcophagus was wrought and polished by steam power in the parish of Luxulyan, in this county, in the field in

which the huge "boulder" stone of porphyry, weighing upwards of 70 tons, nearly the whole of it above the surface of the ground, had been standing for ages. It is not a figure of speech, but a fact, that the continent had been searched in vain for a sepulchral stone sufficiently grand for a sarcophagus that should contain the mortal remains of the great Duke. That stone was a last found in Cornwall, and the whole of the work was executed by workmen in the employ of the Treffry estate, whose representatives were intrusted with the matter throughout.'

(Royal Cornwall Gazette, 7th May 1858)



A closer view of Austen's 80 inch cylinder engine house at Fowey Consols

Treffry continues his response stating that the sarcophagus

'...had received a very high polish before it left its native county,' and concludes that the involvement of Messrs. Malcott and Co. was limited to a final clean and polish of the sarcophagus and the addition of two inscriptions and other, minor, gilt detailing.

Although Edward Treffry was understandably eager to establish the Cornish credentials of the sarcophagus, his assertion that the stone was cut and polished within the field where it was found is almost certainly in error. Not two miles east from this site at the time was a granite

cutting workshop, or 'porphyry works', located within the confines of the Fowey Consols copper mine. Located at Lanescot, on the high ground above the village of St Blazey, Fowey Consols was then notable for possessing the Cornish beam pumping engine with the highest ever recorded 'duty', or efficiency, (Austen's Engine) and is ranked by the mining historian D. B. Barton as the fourth largest producer of copper ore in Cornwall and Devon (319,790 tons).

Located within the ore dressing floors of the mine, the Porphyry Works had been in operation for some years by the 1850s and is understood to have comprised two buildings – one for cutting and the other polishing. The latter was overseen

by a Mr Pearce and the works was instrumental in cutting and finishing the impressive decorative stonework of the 'Porphyry Hall' and 'Porphyry Arch' at Place in the 1840s. It appears most likely that it was this impressive demonstration of the stonemasons' art which convinced those concerned to have the sarcophagus produced in Cornwall. Keast notes in this regard that the Luxulyanite used was discovered around 1842, presumably in connection with the above works, and that this was set aside for later use. This writer also asserts that the stone was gifted by Treffry (presumably the Treffry Estate as Joseph Treffry had passed in 1850) while Lewis (1997) states that the block in question was purchased from the Rashleigh family (another major local landowner) for £1,100.

Whatever the precise origins of the Luxulyanite, it is presumed that a steam powered 'waggon' style polishing machine was used whereby a flat-bed rig on rails moved to and fro under rotating flat cast-iron rings, acting on abrasive sand with water. This technique is understood to have been developed in the Scottish granite industry in 1832 by Alexander MacDonald (1794-1860). This became the standard means of conducting polishing work of this kind until the introduction of the gate type, or 'Jenny Lind', articulated radial polisher from the USA in the latter 1800s. The particular location of the Porphyry Works within the Fowey Consols dressing floors is uncertain although the present writer can remember broken fragments of polished granite in the area between Austen's and Union shafts, in the 1980s. This approximates the position of the mine count house, the miners' dry, and the blacksmiths' and fitting shops as shown on the mine surface plan included in Sir Henry de la Beche's Report of the Geology of Cornwall, Devon & West Somerset, of 1839.

An interesting tale of local folklore states that following the completion of the sarcophagus, it was conveyed to an out-building of a house within the nearby village of Par to await shipment from Par Harbour. The house in question is located at the junction of Par Lane, Harbour

Road and St Blazey Road, and is known - appropriately enough - as 'Wellington House'. Local lore adds that a particularly adventurous young girl took the opportunity to lie down in the open sarcophagus while it was in storage, but it is not recorded as to what became of her subsequently! While this tale is almost certainly one of fiction, as the owner of the property is recorded as one Richard Wellington in 1840, it says much of the importance of the event in local memory.

Today the Wellington sarcophagus sits atop an unpolished plinth of Peterhead granite with four sleeping lions carved in repose, one at each corner. This was created by the stonemason F. C. Penrose, most probably of Cornish descent, who also produced the four surrounding candlesticks and the decorative mosaic floor. The gilt inscriptions added to the sarcophagus by Messrs. Malcott and Co., to which Edward Treffry referred, proclaim 'Arthur Duke of Wellington', with his birth and death dates in Roman numerals on the

reverse: Born May I MDCCLXIX - Died St Paul XIV MDCCCLII.

Many thousands of tourists visit St Paul's annually to be awed by the splendid architecture of Wren, but how many realise that the imposing sarcophagus holding the remains of a principal figure in British military history was created on the dressing floors of a copper mine in Cornwall?

Further reading

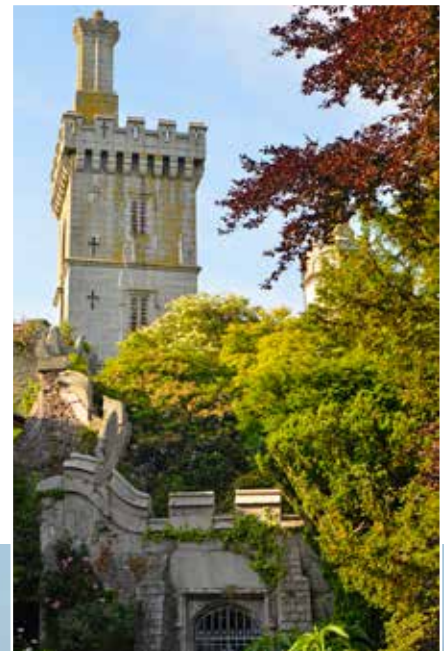
Keast, J. (1982) *"The King of Mid-Cornwall" The Life of Joseph Thomas Treffry (1782-1850)* Redruth: Dyllansow Truran

Lewis, J. (1997) *A Richly Yielding Piece of Ground St Austell: Cornish Hillside Publications*

Stanier, P. (1999) *South West Granite: a history of the granite industry in Cornwall and Devon St Austell: Cornish Hillside Publications* ■

*The World Heritage Site team would be extremely interested to see any early photographs of Fowey and Par Consols mines - please contact Karen Willows at: kwillows@cornwall.gov.uk

For information on all of the highlighted ACE events and initiatives: <http://www.artscouncil.org.uk/news/arts-council-news/we-highlight-top-stories-2012s-remarkable-year-art/>



Views of Place House, Fowey, the home of Joseph Thomas Treffry (formerly Austen) - a principal shareholder in Fowey Consols Mine

CONSERVATION COMPLETE AT WHEAL BUSY

Wheal Busy forms part of the World Heritage Site through its importance to tin and copper mining during the eighteenth and nineteenth centuries, it is also one of the historic mine sites on the Mineral Tramways Coast to Coast Trail, which links Devoran in the south with Portreath to the north.

The extensive conservation work at Wheal Busy detailed in the previous edition of Cornish Mining is now complete, which was facilitated by Natural England's land management team in Cornwall, working in partnership with the land owners the Tregothnan Estate. The works were funded through a Higher Level Stewardship agreement.

Wheal Busy is thought to have its origins in the latter 1600s and during the following two centuries the mine was to experience important innovations in steam pumping technology. A Newcomen Atmospheric Engine was put to work by around 1726 and a Smeaton improved atmospheric engine was on site by the latter 1770s. The renowned Scottish engineer James Watt was also to personally oversee the installation of the first Boulton & Watt separate condenser engine to work in Cornwall, which started in September 1777. Watt was accompanied by his wife Ann on the trip to Cornwall, who noted of the mine that the "The face of the earth is broken up in ten thousand heaps of rubbish and there is scarce a tree to be seen." Hopefully Ann would be impressed to learn that today the mine has international importance as part of a World Heritage Site.

The conservation consultants PWH secured the contract to oversee the building renovation which has seen extensive repairs to the impressive Cornish high-pressure type pumping engine house, dating from 1856, along with its associated chimney and boiler house. The latter is a rare survivor as



The engine and boiler houses with chimney at Wheal Busy, Chacewater, during and after conservation



Foundry 90 inch cylinder machine in 1872, this working for only six months before being decommissioned in July the following year. Finally, a reconditioned 85 inch cylinder Perran engine was installed c.1909, this working until 1924. As was often the case with large beam engines on redundant mines in Cornwall, this was to stay unused in its house as there was no longer a commercial demand for steam pumps in mining. The engine was left to deteriorate and only succumbed to the attentions of the scrap man 28 years later, in 1952.

Careful inspection of the engine cylinder bedstones (its foundation) reveals that these were most probably left in situ and reused from the brief working of the 1870s. The scaffolding erected to enable the consolidation of the chimney and engine house also afforded an excellent 'aerial' view of the bedstones, and close inspection of the photograph (below) reveals that these have been modified at some stage. Two of the six holes cut to accommodate the engine cylinder hold-down bolts appear to have been cut or roughly reshaped using a series of adjoining drill steel holes (see below). Presumably this was done to accommodate the smaller 85 inch cylinder at the time of the final working.

The site consolidation works were undertaken by the conservation builders Kingston Construction Ltd., which commenced work in early August 2014. Following the careful

it retains its original roof timbering. The importance of Wheal Busy was first acknowledged nationally in 1974 when it was designated as a Scheduled Ancient Monument.

This engine house, as is the case with many others across Cornwall, has held more than one engine during its operational lifetime, as the mine sett (the area leased from the land owner) was reworked by successive companies. A Harvey's Hayle Foundry engine with an 85 inch diameter steam cylinder was first installed in 1856, this pumping from the Engine Shaft for 10 years until the partial closure of the mine in 1866. The house was next occupied by the Perran



Vertical view of the engine cylinder bedstones showing where the mounting bolt holes have been cut or reshaped (within the red circles), presumably to accommodate the smaller diameter steam cylinder of c.1909

clearance of vegetation and tree ivy the boiler house was the first to receive attention with the extensive rubble-built walls being re-pointed using a tested and approved lime-based mortar, chosen to match the original. The adjoining engine house and adjacent chimney were to be tackled next, with the repair to the boiler house roof being one of the last jobs undertaken. Here most of the original timbers survived intact though some joints of the roof trusses had rotted where water had penetrated the corrugated iron roof covering. Fortunately new timber was able to be scarf jointed onto the existing truss ends thereby preserving as much of the original fabric as possible.

Brickwork within the chimney and engine house also needed attention and for the former, the upper courses required careful resetting where the mortar had been substantially lost. The red brick arch to the cylinder door at the rear of the engine house probably required the most work overall however, as the inner courses had been lost causing cracking of the adjacent structure. Kingston and their building subcontractors, from Redruth, were tasked with the careful, staged, dismantling of the arch, which was then reconstructed using matching site-won bricks from elsewhere, when required.

The work now complete forms part of a ten year Higher Level environmental stewardship agreement between the Tregothnan Estate and Natural England, which has seen some £280,000 allocated to undertake the works at Wheal Busy and also to enhance natural habitats across the site. Carpenters of the Tregothnan Estate also made a significant contribution to the project by constructing replacement windows and doors for the boiler house - skilfully matching these with surviving timberwork and features shown in historic photographs.

More recently news of the conservation work has come to the attention of Fuji Television in Japan. Fuji TV journalist and presenter Ayaka McGill visited Wheal Busy from London in June, to film a news piece on the restoration of the brickwork within the engine house and chimney. Fuji TV are highlighting Japan's bid for World Heritage Site status this year for the 'Sites of the Meiji Industrial Revolution', which includes a number of nineteenth century brick built structures.

While on site Ayaka and her colleagues had the opportunity to meet with Matt Vale of the project management team PWH Conservation Consultants, and also David Wilkinson and Tony Lambert of Kingston Construction Ltd.,



The restored chimney after repointing and the resetting of the uppermost brick courses



The boiler house doors, skilfully reconstructed by craftsmen of the Tregothnan Estate



Carpenters' marks on roof trusses dating from the construction of the boiler house c.1909



The boiler house roof ventilator – before and after rebuild



who were able to explain in detail how decaying brickwork is assessed and repairs made to affect a historically appropriate conservation. Terry Herron of Tregothnan was also on hand to set out the Estate's support, and its substantial involvement in the project.

Wheal Busy is the latest in a number of World Heritage Site conservation projects to be generously funded through a Higher Level Stewardship agreement and the World Heritage Site Partnership Board thanks Natural England, the Tregothnan Estate, PWH Conservation Consultants, Kingston Construction Ltd., Cornwall Council Strategic Historic Environment Service, and Historic England, for their considerable support.

Specifically, thanks are extended to Ann Reynolds (Cornwall Council Senior Archaeologist); Simon Leather and Nick Coley (Tregothnan Estate); Matt Vale and Shaun Watts (PWH Conservation Consultants); Ann Preston-Jones (Historic England); and last but certainly not least, Beth Tonkin and Hugh Tyler (Natural England) for without their continued support it would not have been possible to secure such an excellent outcome.

The next World Heritage mine site to be conserved as part of an HLS Agreement is that at Wheal Tye, on the cliff top just west of Porthtowan, and this will be covered in a future edition of the newsletter. ■

For more on Wheal Busy and the Coast to Coast Trail, please see:

http://www.cornish-mining.org.uk/sites/default/files/Wheal_Busy_Chacewater.pdf

www.sustrans.org.uk



The Magpie Mine at Sheldon
in Derbyshire

DERBYSHIRE LEAD MINING: THE CORNISH CONNECTION

In February 2015, the Cornish Mining World Heritage Site team travelled to Derbyshire to discover first-hand how Cornish technology and mineworkers from Cornwall and west Devon influenced the mining industry.

Derbyshire miners found that, as in Cornwall, water limited the depth of working even in their relatively shallow shafts. From primitive rag and chain pumps through various types of steam pump including the Newcomen engines all were used in the mines, but it was not until the advent of the Cornish engine that huge volumes of water could be pumped from depth. What are known in Derbyshire as 'soughs' (drainage levels) were first driven in the Cromford area by Vermuyden in 1632 but these could drain no lower than their 'tail', or discharge point. The steam engines utilised the old soughs by pumping into them from lower levels. In the Derbyshire orefield these engines were not generally used for winding duties and never for man engines, i.e. to convey mineworkers to and from underground.

Of the once many Cornish type engines on the Derbyshire lead mines, and many more on the coal mines to the east, some traces remain. The most well known engine house is that at Magpie Mine, Sheldon, which stands amid other 19th and 20th century buildings. The site belongs to the Chatsworth Estate and is leased to the Peak District Mines Historical Society (PDMHS). As the best-preserved example of a lead mining site in Derbyshire, Magpie is statutorily protected as a Scheduled Monument.



The head of a small mine shaft within the remains of its original enclosure building or 'coe'

The former Agent's House and smithy was built in 1840, at the same time as the original steam winder, and was the home of Captain Paul, a Cornishman naturally. This steam winder was removed in 1846 and sold to High Rake Mine at Windmill and later still went to Mixon Mine just over the border in Staffordshire. The square chimney was retained at Magpie and a new flue connected it to the new boiler and winding houses, both of which remain; of the machinery only the winding drum survives.

High Rake Mine was excavated a few years ago by PDMHS members to reveal not only the remains of the winding engine house and its chimney, but the rare sight of the ruins of a Sims engine house whose 36" / 70" combined cylinder engine, built at Milton Ironworks, Elsecar, was the largest outside Cornwall.

There were three pumping engine houses at Magpie at various times over the years with a Newcomen pump being followed by two Cornish engines. The first of these two was brought in 1840 from South Wheal

Towan, at Porthtowan in Cornwall, and had a 40" cylinder and a 9 feet stroke - 7 feet at the pumps. Water was lifted from the surface cistern for the dressing floor and for house water. Producing about 38 usable horsepower, this represented about double the performance of the Newcomen. Steam was raised for this in two Cornish cylindrical boilers.

The second Cornish engine was purchased in 1868 from Calver Sough Mine. The 70" engine had been built in 1858 at the Bowling Iron Works near Bradford. It had a stroke of 12 feet, 11.5 at the pumps. Steam came from three boilers at 35 psi and 50 tons of coal was consumed each week, rising to 80 tons at times of heavy load. At a fast work rate its output was thought to be 200 horsepower but there is some dispute about this figure. It was necessary to remove over 800 gallons of water per minute from the mine to maintain satisfactory working conditions.

Magpie Sough was the last to be driven in Derbyshire and the latest technology of dynamite and

compressed air drills ensured that it was only five years driving and was large enough to allow a boat to be used during and after construction. The sough was finished in 1881. The engine house is one mile from the River Wye and the sough still empties around 8 million gallons of water into the river each day on average. On completion of the sough, the pumping was revised as water only needed raising 28 fathoms to sough level plus some house water pumped to the surface.

In yet one more barren period the engine was sold in 1883 to Manners Colliery near Ilkeston but the bulk of the house still stands, together with its miners' dry and chimney, although the boiler house has gone.

Of the rest of the site, the only obvious Cornish building is the small, round powder house of 1840, standing remote from the other remains near the reservoir.

Not far away, in Lathkill Dale, may be found what is left of the engine house of Mandale Mine which once held a 65" Cornish engine built by Milton Ironworks, Elsecar. This mine closed to all but minor production in 1851.

After leaving Magpie, the WHS team called to see the stump of the engine house at Watts Shaft on Old Mill Close Mine, Darley Dale. This is also a Scheduled Monument but consists of little more than an impressive bob wall of honey-coloured stone, an engine cataract pit, shaft and boiler flues. The mine was reopened in 1859 by Edward Miller Wass who succeeded the previous Quaker controlled company which had been defeated by an excess of water and inadequate pumps.



The adjoining mine agent's house and blacksmiths at Magpie Mine



: The later steel winding headframe at Magpie (above left) with a reconstructed timber horse 'gin' (centre), and (right) the house of the original steam powered winder with surviving drum



The bob wall at Millclose Mine, all that survives of the Cornish engine house here

The engine for Old Mill Close was of Cornish design with a 50" cylinder and was made by Thornewill and Warham of Burton on Trent. After much fruitless work, the miners discovered a vein of galena (lead sulphide) which ultimately led to the rich Mill Close operation of the 20th century. As the workings moved further away from Watts Shaft, over the years two more engine houses were built at Warrencarr, one containing not only the original engine but a second 60" from Wakebridge Mine, Crich within the same house. The other building housed an 80" engine from Harvey's of Hayle. The three engines were to be named after three elephants at London Zoo, Baby, Alice and Jumbo. The engines went out of use in the late 1920s to be replaced by electric pumps. The lower part of the Jumbo house still stands on private land but the other double house was demolished around 1970 with only the pump rods in the shaft remaining visible. All three pumps fed their water into a pumpway leading to Yatestoop Sough and hence into the River Derwent.

Richard Trevithick - the renowned Cornish engineer and inventor - is remembered for introducing the first water pressure engine to the Alport mines in 1803. The engine of this type to be found in the Peak District Lead Mining Museum at Matlock Bath was built at Coalbrookdale and started life at Alport before being moved to Wills Founder Shaft at Winster.

A working Cornish engine, although not on a mine, may be seen at Leawood on the Cromford Canal from Easter to October. Both engine and pump are within the engine house and two loco boilers are on display in the attached boiler house. This 50" engine was installed in 1849 and was built by Graham and Co of Milton Ironworks, Elsecar. It is still capable of pumping water from the River Derwent into the canal which is also fed by drainage from local mines.

Many men from the Southwest moved to the Derbyshire mines over the years, as they did around the world, and we thank them for the mining skills and mechanical knowledge which they brought. ■



The interior of the pumping engine house at Magpie – testimony to the impact of the Cornish in the winning of lead

Keith Gregory
Peak District Mines Historical Society

To find out more about the Society and mining in Derbyshire, please see: <http://www.pdmhs.com/>

POLDARK PIQUES INTEREST IN CORNISH MINING



Mammoth productions Ltd. filming scenes from 'Poldark' at West Wheal Owles (top) and Botallack Mine (above), and Poldark Mine in 2014. Left: the Poldark locations guide produced by the Cornish Mining World Heritage Site (Images: Mammoth Productions Ltd. and David Edwards)

The recent reboot of the 1970s BBC television series Poldark, based on the very popular novels by Winston Graham, has achieved major success and been a real hit with viewers since the new series aired in March. The Poldark stories first enthralled readers in the 1940s, before being brought to a new audience as a serialised BBC television drama, first in 1975 and again in 1977.

Poldark is the stirring tale of a British Army officer, Captain Ross Poldark, returning to his Cornish homeland from the American War of Independence in the 1780s. Upon his arrival, Poldark finds the life he knew changed utterly, with his home in ruins and his fiancée, Elizabeth Chynoweth, now betrothed to his cousin, Francis. In order to rebuild his fortunes, Ross toils to reopen one of

his family's tin mines and the scene is set for much drama as a long running feud ensues with his arch-enemy, the banker George Warleggan.

Like its predecessor, the current BBC adaption uses many stunning locations throughout Cornwall including former metalliferous mines within the World Heritage Site.

Poldark provides a window into the eighteenth century lives and landscapes of Cornwall, at a time when the local copper mining industry was in turmoil through the overwhelming competition from the Welsh Anglesey mines. The Poldark stories owe much to Cornish history and heritage, which forms the backdrop to the characters' eventful and often turbulent lives.

Today the metal mining landscapes of Cornwall and west Devon have World Heritage Site status, and it is certain that Ross would have approved of the international recognition now afforded to his homeland.

The original 1970s programme was to make international stars of its principal leads Robin Ellis and Angharad Rees, who portrayed the brooding Ross Poldark and the striking Demelza Carne. The current series features two internationally prominent actors in the form of Aidan Turner, an Irish born star who has appeared in *The Hobbit* and the series *Being Human*, and Eleanor Tomlinson, whose roles include the block-buster *Jack the Giant Slayer* and the BBC drama *The White Queen*. Both have become a huge hit with viewers.

While the Bristol based company Mammoth Productions had high hopes that their new interpretation of the stories would be a success, no one knew if the inevitable comparison with the original series, extremely popular in its own right, would serve to limit its appeal. There has been no such problem in this regard however as interest in Cornwall as a tourist destination has increased notably in recent months. Visit Cornwall, the tourism body for Cornwall has noted a 65 per cent increase in web traffic to their site, and one of the mines depicted in the series, Levant in West Penwith, has recorded a suitably dramatic increase in public interest. Attendance figures for the Easter period were up by 90 per cent over the same period in 2014, with coach parties attending all eager to absorb the Poldark atmosphere.

The Cornish Mining World Heritage website has similarly recorded an astonishing surge in web traffic recently, up 341 per cent when comparing the figures for the months of February, before the series aired, and May, with the majority of these being new users. While this figure is indeed very impressive, it is mostly due to the peak in publicity generated concerning the World Heritage Site commissioned feature film 'TIN'. Produced by Cornwall's Miracle Theatre, this tale, which is at once atmospheric and at times surreal, went on release in April and garnered excellent audiences across Cornwall and beyond. Regardless of the success of TIN, it is certain that the World Heritage website and mining heritage attractions have significantly benefitted through the current 'Poldark effect'.

Malcolm Bell, head of the Cornish tourism body Visit Cornwall, very much welcomes the exposure Poldark has given and comments that

"The opportunity is there to be seized. Poldark looks set to be a massive hit and with twelve novels in the series there is potential for it to run and run."



Levant Mine (Image: Barry Gamble)

It has now been announced that the principal lead actors have signed for a five year production, so there is much potential for sustained interest.

Three former mines owned by the National Trust in west Cornwall were selected for use in the series: Botallack Mine portrayed the fictional 'Gambler Mine' - with the aid of much computer graphics - while West Wheal Owles was set dressed as 'Wheal Leisure' - the tin mine which Ross rehabilitates on his return to Cornwall. Levant Mine was also pressed into use as the setting for 'Tressider's Rolling Mill'. Much attention has also been given in the UK print media - no stranger to frivolity - to Ross Poldark's topless scything scenes outside his home Nampara, and it is understood Levant Mine has considered introducing

scything 'workshops' for volunteers to help manage its on-site vegetation!

In recognition of the considerable popularity of Poldark, the World Heritage Site team have produced a free pictorial guide which sets out the various filming locations in Cornwall, including the mine sites used. The new guide has been generously part funded by Cornwall365, a two year project to build a network of all the major cultural players and tourism businesses across Cornwall. Part of the Arts Council and Visit England Cultural Destinations initiative, Cornwall365 is creating new ways to identify and promote Cornwall's cultural experiences to the visitor market.

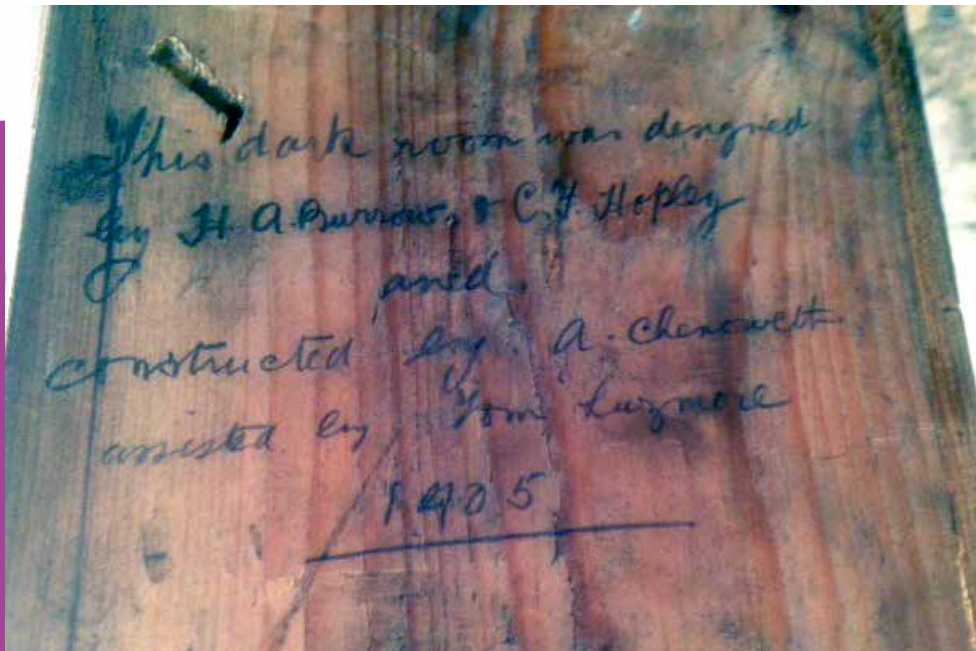
Mammoth Productions have also been very supportive of the guide and now that filming of the second series has started, it is hoped the lure of Poldark will bring new audiences to Cornwall and west Devon's international recognised mining heritage. ■

To find out more about Cornwall365 and its activities, please see: www.cornwall365.org.uk



West Wheal Owles at sunset, June 2015

The fascinating inscription as discovered within the former darkroom at King Edward Mine



100 YEAR OLD GRAFFITI SHEDS LIGHT ON KING EDWARD MINE

The extensive conservation work currently taking place at King Edward Mine is described elsewhere in this edition but here Tony Brooks, a dedicated supporter of the mine for many years, describes a fascinating discovery.

In November 2014 during the ongoing renovations, one of the builders working on the Darkroom end of the Carpenters' Shop found a small pencilled note underneath some panelling on a door support. It read as follows:

"This darkroom was designed by H. A. Burrow and C. Hopley and constructed by A. Trenoweth assisted by Tom Luzmore, 1905"

Research by volunteers at King Edward Mine has fortunately revealed the identity of two of the men involved. Charles Hopley and Henry Arthur Burrow studied at the Camborne School of Mines (CSM) at the start of the 20th century and, in 1905, were both employed in the Survey Department at the School. H. A. Burrow was the son of J. C. Burrow, the well-known photographer with premises in Camborne, who captured the much-reproduced iconic scenes of the Central Mining District around Camborne and Redruth. The last surname is thought to be 'Luzmore' but the script is a little too faded to be sure.



The door to the former darkroom is shown on the right (Image: T. Brooks)

Why a darkroom at KEM? William Thomas, who was Head of Mining at CSM and Manager at KEM, was a keen photographer and often accompanied J. C. Burrow on photographic trips around Cornwall, both underground in mines and at surface. So for William Thomas to have his own darkroom, supplied by CSM, was perhaps a logical step.

The inscription has since been carefully recovered awaiting its rediscovery in... 2123?

Tony Brooks



The completed ASDA store at South Quay, Hayle, November 2014 (Image: Matt Timbers)

ASDA SUPER STORE IN HAYLE WINS PRESTIGIOUS RIBA AWARD

It has recently been announced that the new ASDA superstore at the South Quay site in Hayle has won a number of design awards from RIBA – the Royal Institute of British Architects.

This eye-catching, although controversial, building was constructed atop South Quay within the town which is historically linked with the business operations of Harvey's – one of the foremost engineering foundries in Cornwall and Devon, and indeed - in terms of steam pumping engine development - the whole of Britain.

South Quay and its immediate surroundings had been experiencing a slow decline since the end of WW2 and the site had been the focus of a number of regeneration initiatives through the decades since, but none of

these were to come to fruition. Over the years the substantial quay walls were to deteriorate which was to lead to a number of holes in the facing including a major breach in that adjoining Penpol Terrace.

The ASDA store is the work of the architects Feilden Clegg Bradley Studios who were contracted on behalf of the developer Bowmer & Kirkland to design a building which would not be of the usual





South Quay, Hayle, before conservation and construction of the store; note the significant breach in the quay wall here



Following completion of the store and extensive wall repair



supermarket kind but which took its influences from the rich industrial history of the area. Feilden Clegg Bradley was to arrive at a design which uses brass sheet cladding and mat black brick to striking effect, echoing the copper mining and smelting which so influenced the town.

The development, estimated to have cost some £15million, also included a £4million consolidation of the extensive quay walls in addition to the conservation and replacement of the Carnsew Pool sluicing system. Historically this was constructed to periodically flush accumulated sand from the Hayle Estuary, thereby keeping the channel open to shipping. Last used in the 1970s, the southernmost sluice gates had substantially collapsed with the adjoining granite-built channel being filled with a mix of soil, random rubble and rubbish. In time the Hayle Estuary

was to become silted to the point where the permitted safe access draft for shipping had to be reduced to 2 metres, thereby excluding all but the smallest vessels from entering.

Part of the planning conditions applied to the superstore consent required the developer to fully reinstate the sluicing system which necessitated the construction of two replacement oak timber gates, the cost of which is estimated near £100,000. With the gates now in place the system is now awaiting an operational trial before being brought into regular service, hopefully later in the summer.

Much has been said of the visual impact of the new store and whether this harms the Outstanding Universal Value (OUV), or international significance, of Hayle and the wider World Heritage Site. While the store has impacted on views in the



Views of the sluice gates at Carnsew Pool before and after reinstatement, with the sluice training wall at Carnsew Dock below



World Heritage Site interpretation within the store including the Harvey's and South Quay timeline conceived by the World Heritage team and designer, Dave Taylor



immediate area, these have existed only since the surviving historic quay buildings were demolished in the 1980s and do not, therefore, relate to OUV as this is defined within the Site's inscription. There are mixed opinions on the structure's impact on the contemporary character of Hayle Harbour, with the RIBA award reflecting one end of the spectrum; UNESCO's advisory bodies remain critical.

Whatever perspective taken on the visual impact of the store, the development has enabled the quay to be extensively conserved and has formalised public access for the first time. The store also now plays an important role in the interpretation of the quay by means of a specially commissioned timeline display along the interior of the eastern wall. Created by the World Heritage Site team and Dave Taylor, Design Lead within Cornwall Council, the 15 metre-long timeline sets out important dates in the history of both Harvey's and South Quay. Funded by the store's owners ASDA, the timeline has proved to be very popular with shoppers as they work their way through the various checkouts.



(Image: Matt Timbers)