



THE TREVITHICK SOCIETY

KOWETHAS TREVITHICK NEWSLETTER 159 SPRING 2013



Renaissance of Trevithick: Arthur Young assembling parts for the Puffing Devil.

CHAIRMAN'S ADDRESS

Patience

As we come to the Annual General Meeting of 2013 we can look back onto some achievements that have eventually come to pass.

I have a file that goes back ten years and deals with the previous owners of the former Holman Bros No. 3 site in Trevu Road, Camborne. They were sympathetic to our needs and we hoped that their development of the site would enable us to acquire a property for the Trevithick Society. That was not to be but the subsequent owners of the site kindly stepped in and suggested our use of the former Holman showroom building close to Camborne railway station.

This Society made an offer that was very kindly accepted and solicitors are now discussing the terms of a 99-year lease. While the Cornish Engines Preservation Society owned a number of buildings, this will be the first 'home' for the Society in 78 years; now the work really starts.

After a false start when a funding application failed, we have looked forward to regularising the listing and storage of tens of thousands of items acquired by this Society over the years. The current digitisation project funded by the Heritage Lottery Fund will enable us to assess what we have, where it is and put the results on-line so that we can share the remarkable industrial history of Cornwall with researchers and educationalists everywhere.

The recent recognition on BBC2 television of Richard Trevithick's contribution to the advance of industrial and transport development has placed him amongst the most important inventors of all time. This has taken a long time but I must thank all those who built the replica of Trevithick's 1801 Camborne road locomotive and demonstrated it to the world. That's something that has also taken over ten years but the results have been very worthwhile.

We have a lot of work ahead of us and always appreciate any assistance our members can provide.

Philip M Hosken

EDITORIAL

This is such a bumper edition of the Newsletter that there is no room for a report on the Puffing Devil's winter sojourn. In actual fact there is little to report because the next outing for the engine is on Trevithick Day and the crew only need to assemble a week or so before that in order to give the engine a steam clean, a fresh coat of black heat-resistant paint, and sort out any minor maintenance issues.

Colin French



TM

Copy date for next newsletter: June 15th 2013

Established 1935

LETTERS TO THE EDITOR

Dear Editor,

It was good to read Kingsley's excellent report on the London meeting of the European Federation of Associations of Industrial and Technical Heritage in the latest very interesting and informative issue of the newsletter (no 158).

He went to the heart of the matter in pin-pointing the clear message from the presentations given at the meeting that volunteers are to be appreciated as playing a vital role in the preservation and running of industrial heritage sites all round Europe and we might add essential in the preservation and running of supporting associations such as the Trevithick Society, the fore-runner of similar societies elsewhere in the UK and on the Continent. He himself showed his appreciation of the role of volunteers in acknowledging the unstinted generosity of the Greater London Industrial Archaeology Society and its volunteers in supporting the meeting. I should add that hire of the Toynbee Hall, where the meeting took place and where appropriately Marconi first demonstrated his wireless in the UK, was made possible through the support and generosity of the Association for Industrial Archaeology, with which the Trevithick Society has a fraternal, one might even say parental, connection.

The AIA represents the IA sector at national level, as E-Faith does at European level, and has a conference with associated visits each year. This year this event is to be held in Dundee from 8th-15th August and Trevithick Society members are welcome, indeed urged, to attend. The AIA also arranges visits to IA sites abroad - <http://www.industrial-archaeology.org/> click on 'events' and 'overseas visits' - and this year is 'Roaming the Ruhr' from 13th-18th May.

Paul Saulter.

Q and A

Is there still mining in Cornwall?

Yes there is! And the people who know were in Liskeard....

Margot Saher "WOW..... What a fascinating night the South Crofty presentation hosted by the East Cornwall Branch of the Society was".

Chris Davie, Kevin Williams, Keith Russ and Sue Bradbury of Western United Mines gave members an amazing insight of the work being carried out to bring tin mining back to Cornwall.

At the end of the presentation there was an absorbing question and answer session that many of the audience felt would be appreciated by other members; so here is a summary of those questions.

I apologise if I have missed anyone's question. It doesn't mean to say they were not important, just that I was too absorbed by the answers to take all the notes! The South Crofty Question and answer session:

Will old infrastructure be re-used?

Much of the existing infrastructure is unsuitable for trackless mining. Therefore, the majority of the infrastructure will be new but there will have to be work undertaken to make the old workings safe.

Will minerals other than tin be extracted?

The primary source of income will be tin, but also possibly associated copper, zinc and tungsten. Other minerals exist but are unlikely to contribute to the project economics.

Are radioactive minerals an issue?

There are no issues in the new development area, but parts of the old workings will be sealed off due to high levels of Radon.

Will Roskear Shaft be used?

Once that section has been de-watered it will be used as a ventilation shaft. Williams shaft will also be re-opened as a ventilation shaft.

What will happen to the mine waste?

The waste rock will be processed by a contractor to be used as aggregate, waste tailings from the mill will be used to back fill workings. (paste fill)

How many personnel will be employed underground?

There are 45 people employed currently at the site. This will be increased to 85 during the development phase and then rise to 200-300 when production starts. Of these 80-100 will be working underground.

What is the situation regarding UNESCO opposition to mining within the World Heritage site?

The mining permits were issued to South Crofty after a long period of consultation when no objections relating to the heritage site status were raised. Therefore, the permits issued by Cornwall

county council are valid and mining can be undertaken despite concerns raised by UNESCO. There may well be a misunderstanding at UNESCO about the nature of the mining operation, and once this has been clarified there should be no conflict between the heritage status and mineral extraction at South Crofty.

How will the ore be transported from the mine?

There will be approximately one container a week leaving by road to a port.

Will renewable energy be used?

A power survey will be conducted but it is probable that the mine will have to provide a major part of its demand on site. Because of the nature of its power requirements the base load will best be met by gas or diesel generators, although the feasibility of using wind power as a supplement will be considered.

How about using hot rocks?

Unfortunately, the temperature gradient at the depths to be worked will be too small to provide power. Drilling



An impression of the planned future of Cornish Mining, the new mill at Tuckingmill.
Note that:

- There are no new head frames as all the ore will come up an incline into the mill building.
- There are no waste tips as all the deads will be converted to aggregate.
- There will be no tailing dams as the mill waste will be backfilled underground.
- The Iconic South Crofty headframe will remain unused as a landmark.

deeper to utilise geothermal energy will require prohibitive capital investment that will make it uneconomic with the current technology.

Will further financing be needed to enter production?

Yes, this will be raised through the Canadian markets once the status of the reserves have been confirmed.

Are you prospecting other sites in Cornwall?

The company holds mineral rights to many other sites in Cornwall which could be economic to mine. However, South Crofty has such a high potential that the company will focus its efforts on that operation and leave other companies to develop reserves elsewhere. It is aware that other companies are conducting investigative drilling on other sites.

What's next?

Chris Davies explained the three phases of development that will be required before the above images become reality. In summary the next phase of operations will be:

- Reconcile current and historic resource data.
- Water discharge testing.
- Commence de-watering Dolcoath.
- Advance the decline 250 metres.
- Drive cross cuts to the south at three levels to intersect resources in South Entral and Dolcoath Main lodes.
- Cross cut to north for drill access to Roskear lodes. Continue drilling to north and south as decline advances.
- Cut levels and commence and longitudinal sampling in each of the two lodes.
- Metallurgical test work.
- Resource update.
- Assess potential for early production.

The evening was a fantastic opportunity for the Society members to gain an insight in to what could become a new chapter in Cornish engineering. Many thanks from the members must go to Sue Bradbury for arranging the talk, and to Chris Davies, Kevin Williams and Keith Russ of Western United mines for their very interesting presentation.

Cheryl Manley



An artist's impression of the new mine from the air.

MEMBERS' INTERESTS

During recent weeks, while the BBC has been broadcasting its view of the rise of steam power and development of the railway system, the Society's in-trays have filled with interesting e-mails from the membership. While we know they have an interest in Cornwall's industrial history, they have revealed very catholic interests. These have ranged from Scott two-stroke motorcycles to aircraft, orchestral music, wherries, hot air engines, an Alvis 12/50 and twins; and, at the time of writing, we haven't looked at the many returned questionnaires that note your other interests. We thought you might be interested in the following.

P.M.H.

TREVITHICK AND THE DAKAR RALLY

You may not know this. There is a US web site devoted to motorcycling up to Dakar Rally standard that surprisingly includes a great deal about steam engines and Trevithick. It wholeheartedly supports the Cornish inventor and tok-tokkie has accumulated one of the greatest sources of contemporary drawings and illustrations on the planet for anyone interested in the evolution of steam power, Trevithick or even motor cycles. See:

<http://www.advrider.com/forums/showthread.php?t=759395>

Highly recommended.

P.M.H.

PERRANPORTH ATTRACTION

Members attending this year's AGM might like to know there are a couple of attractions that were not available to

them during previous annual meetings. Perranporth is the birthplace and last resting place of the car designer, Donald Healey. Our AGM weekend coincides with the 25th anniversary of his death and the Healey family, of cider farm fame, will host the Healey Drivers' Club annual international meeting based at the Ponsmere Hotel, Perranporth.

Petrol head members will be aware that there are significant differences between the earlier Healeys and the Austin-Healeys. The first were frequently powered by Riley engines whilst the Austin-Healeys, of course, used the A90 engine. The difference extends to the allegiance of the owners and the different clubs to which they belong; it can sometimes be a little confusing. While details of this event can be found at:

<http://www.healeydriversclub.co.uk/Events.html>

the Austin-Healey Owners' Club International Weekend event is in Scotland, see <http://www.ah2013.eu>

P.M.H.

NEW MUSEUM

The Classic Aircraft Trust has outgrown its premises at Coventry and is currently moving its Air base Museum to the Aero Enterprise Zone near Newquay in Cornwall.

There will be 33 operational aircraft in the collection and they are flying in as I write. They will include a de Havilland Vampire, formerly from the Swiss air force but now in RAF livery, a Venom, a Gloster Meteor and a Nimrod. There will be pleasure flights in a de Havilland Dragon Rapide biplane, the type that used to fly to the Isles of Scilly, and enthusiasts are invited to become members and join delivery and event flights.

The museum is set to open at the end of March and there are details at <http://www.bbc.co.uk/news/uk-england-cornwall-18614897>

Of course, there are more aircraft

at Flambards, near RNAS Culdrose, Helston.

P.M.H.

MONTHLY MEETINGS AT KING EDWARD MINE

Our 2013 season got off to a good start with Anthony Power, the National Trust's manager at Levant. Anthony had previously held a similar position at Morwellham, and his illustrated talk outlined the origins of the working port and its industries, and its subsequent rise and fall as a heritage museum. A question and answer session explored the width of the subject. 21 people enjoyed the evening, and probably all of us learnt something we hadn't known before.

On 8 February Lesley Trotter introduced us to the Cornish wives 'left behind' when their menfolk emigrated – a hitherto unexplored dimension of the Great Migration. Illustrations of people and references to letters revealed the extent of the research Lesley is doing – and she would like to hear more. Anyone with possible information is asked to contact, in the first place, the Programme Secretary, details inside the back cover of the Newsletter. On the evening Colin Short was delighted to see his family name among a Liskeard list – and recalled a family tradition that some distant relatives 'had gone'. But most of us who had roots in the area soon realised we had a good chance of having someone in this category. One member visiting from up-country recalled direct ancestors within living memory. A new and important dimension of social history captured our imagination. 27 people came this time.

We're hoping more and more people will want to come to the monthly meetings. It would be nice to have the problem of how to fit everybody in!

Our meeting on 8 March will have gone by the time you are reading this: Eric Rabjohns will have spoken, we trust, on ... "A typical day on the Redruth & Chasewater Railway."

One small disappointment is that Dr. Tehmina Goskar's talk on 12 April is having to be postponed until January next year. However we are delighted that Pete Joseph, our curator (and author of our Society publication, "So Very Foolish: a History of the Wherry mine, Penzance"; do buy it!) will fill in with his talk "Sark's Hope Silver Mine." It's a second outing, but few heard it before (very bad weather I seem to recall).

K.J.T.R.

OWEN BAKER

After editing eight issues of The Journal of the Trevithick Society, Owen Baker has decided that the time has come to move on. Sadly for many of us, who have come to value his thoughtful approach and sage advice, he has also decided to leave the Society's Council. He has assured us, however, that he will remain an active member and will be available for consultation. I am sure that he will not hesitate to make his views known when he feels it necessary.

It is no exaggeration to say that since taking over the Journal in 2005 Owen has transformed it. Under his care it now has a glossy cover, colour illustrations throughout and costs the Society no more than it did when he took it on, despite an increase in the number of pages. The quality of the Journal was recognised by the Association for Industrial Archaeology who awarded the 2009 issue the accolade of best in the UK.

Owen has been a tower of strength to the Society and has made a great contribution as Editor and a member of Council. We understand his decision to reduce his commitments but we shall miss him greatly. It falls to me to maintain the high standard set by Owen with the Journal, a task that is a little daunting but lessened by the fine fettle in which Owen leaves it.

Graham Thorne

RICHARDS II AND III

The recent controversy over the final resting place of Richard Plantagenet III has raised the inevitable issue about the repatriation of Richard Trevithick II.

The incredibly fortunate find of King Richard III's bones in a Leicester car park is very unlikely to find an equivalent in East Hill Cemetery, Dartford. For those who have thoughts about Trevithick's last resting place they should consider that the location of his grave is unknown. There was a great deal of controversy in the local press at the turn of the Twentieth Century and I can give details to anyone who is interested. He was not buried in a pauper's grave. There are regular records available for the burials from 1856. Community records can be consulted prior to that date, see <http://www.dartford.gov.uk/by-category/community-and-living2/deaths,-funerals-and-cremations/cemeteries/grave-location>

The cemetery is bounded by a hillside road and was contained by an earth retaining wall that collapsed many years ago. The story is that many of the gravestones, graves and bones cascaded down the hill. The bones were re-interred and the graveyard converted into a park with the remaining gravestones set against the surrounding wall.

As far as we can ascertain Trevithick was happy in Dartford. The people there are very proud of their adopted son although he was there less than two years. There are several plaques to his memory in the town; he has a peaceful final resting place. Dartford has a rich industrial history but now shows signs of industrial decay. It holds an annual Industrial & Trevithick Day, this year in May. Put 'Dartford Industrial Trevithick Celebration' into Google and several web pages will come up.

P.M.H.

CORNISH FILM FEATURES TREVITHICK AND LOCO

As we go to press we learn of a forthcoming pay film on-line made in Cornwall that features Trevithick and the Puffing Devil. This is just for your information and we haven't web-site details. We haven't seen it but it is called 'Pawl Dunbar's Cornwall' and, knowing some of the characters involved it is likely to have a political bias. It might have some good steam footage though.

P.M.H.

LEVANT REPORT

During the winter period Levant is only open to visitors on 'Greasy Gang' day on Fridays. On these days the Whim may run but this depends upon any maintenance that needs to be done to the engine. The Greasy Gang has always evolved over the years with new participants coming and going, but is still very active in keeping Levant up and running. We have many other volunteers that help with numerous aspects of running the mine site and we are grateful for all the assistance that we can get. The site is now open three days a week for the start of this season's steaming.

The repair to the dump valve mechanism for the condenser has proved to be satisfactory and various valves have been re-packed in readiness for the upcoming season. The level indicator made by Adrian Felix some years ago is currently undergoing a modification to the gearing so that a counter-rotating hand can also be fitted as per the original device. A clever automatic reversing ratchet arrangement driven from the valve gear gear was also made by George Smillie at the same time, but it still remains a mystery as to how the level indicator was originally driven. It was one of the items taken by the scrap man in 1935 before Jack Trounson and Tregonning Hooper could stop him! We would love to hear from anyone that could

enlighten us to the original form of drive as it doesn't seem to match any of the usual methods used on winding engines.

An expanded and up-to-date edition of the John Corin Levant book is now ready for publication which will include details of the whole site including the dressing floors and equipment. Thanks are extended to Pete Joseph for his help in arranging this.

Ron Flaxman.

HAYLE SLUICE GATES

Readers will no doubt appreciate that Hayle is a linear settlement situated at the confluence of two small rivers joining together to create the Hayle estuary. The eastern arm formed the waterway access for Copperhouse with its famous engineering company, originally the Cornwall Copper Company later becoming Sandys, Carne and Vivian. The western arm of the estuary formed the waterway for access to Foundry with its equally famous company Harvey & Company. The estuary, however was very prone to silting thus preventing access for shipping. To solve the problem the Copperhouse company constructed a barrier within which were two sluice gates and at high tide the water was let in to form Copperhouse Pool. At the top of the tide the sluices were closed thus trapping a considerable volume of water,

which when released at low water caused the offending silt to be washed away and creating a channel for shipping. The down side to this ingenious scheme was that a quantity of the silt was deposited on to the Penpol or Foundry side of the harbour and so blocking that arm and access to Harvey's quays. Harvey's retaliated by building a similar pound on their side and so created Carnsew Pool with its sluice gates. Needless to say when Harvey's operated their sluice the reverse action took place and they in turn blocked the Copperhouse access. This almost comic state of affairs lasted for many years with much legal wrangling. It is hoped to bring the Harvey's sluices back into use for occasional demonstrative purposes in the not too distant future. When the Copperhouse sluices were replaced in 1971, by the then National Rivers Authority with modern equipment, the old gates were buried as they were of no use. During the recent excavations for the new road along the North Quay they were re-discovered. Much thought was given to their future by various organisations in Hayle but nothing came forth. It was even suggested that the Trevithick Society might like to have them, but at eleven tonnes each, and given their size, we declined. The gates were then moved to the far end of North Quay to the contractors' compound to await their fate. It looked likely they would be cut up and disposed of but at the last minute it was decided to move them to the Memorial



Walk, the original Hayle Railway line of 1837, where they are now standing in the near vertical roughly half way along Copperhouse Pool for all to view.

TORDOWN QUARRY ENGINE

In the list of credits acknowledging the help received during the project in the last newsletter the name of Peter Stanier was unfortunately omitted. Back in 1999 Peter's volume *South West Granite* was published on the history of the granite industry. During his researches for the book Peter visited Tordown Quarry, took photographs of the engine and noted the details on the engine plate. Subsequently the plate was removed, and its whereabouts are now unknown but he was able to furnish us with the engine details shown in article. Many thanks Peter.

K.J.T.R.

JOURNAL MAILING

Members with a fetish for weird facts and figures, and I suspect there are several, may be interested that the last mailing containing the newsletter, journal, membership cards etc. amounted to twenty four Post Office sacks weighing in at 276kg. or in real money, just under five and a half hundredweight.

KING EDWARD MINE

The winter weather has not stopped progress at King Edward although at times one was left wondering if any trees would be left standing or if the roof would be still in situ. Fortunately no major damage was suffered; the worst being a couple of branches brought down from the trees giving the field crew a happy hour with the chain saw.

Progress is being made spending the "Your Heritage" grant with some preliminary archaeological investigation

being made and pedestrian or kissing gates have been introduced in a number of places to allow access for the public to explore the flora and fauna. The volunteers are also finding them useful, not for kissing you understand, but it means when traversing the site it saves climbing over the field gates. Many of the volunteers are not in the first flush of youth so climbing over or possibly limboing under was not popular, especially if carrying tools!

The refurbishment of the dippa wheel is nearing completion. Using greenheart timber has certainly put strain on one or two tools as it is a very dense, therefore heavy, wood to use. Eric Rabjohns, Tony Clarke and the mill manager Nigel MacDonald have put in a huge effort, and many hours, into the rebuild but the end is now in sight.

On the western side of the Home Field, or the left hand side field as you drive in to KEM, runs the Mineral Tramway. Cornwall Council have recently given this the "once over" and it is now resurfaced and re-profiled in an attempt to control surface water. Adjacent to this path runs a small stone surface flue which has interested us for some time and over the last few weeks Alan Bingley and Tony Bunt have beavered away with slasher and strimmer and cleared the area for access and investigation. The flue ran next to the pathway for some hundred and fifty feet which, in working days, disgorged its toxic contents into the chimney it shared with the nearby stamps engine house. This chimney has sadly been removed save for, we hope, the footings which are currently camouflaged by a heap of spoil and stone. It is hoped to excavate this and make it a feature for the viewing public. At the other end of the flue it is known there was a calciner or roaster, used basically to remove any arsenic contamination in the tin ore. With recent research we have now learnt it was a Brunton pattern calciner and introduced into Cornwall circa 1835. The Brunton was the first calciner to allow continuous production, a big step when introduced as, up to that time, ore had to be treated in batches. We now

know the calciner's rotating hearth was of eighteen foot diameter, surprisingly large for our site. It was hoped that it would be discovered under the large dump at the site but recent investigation has proved it has been removed, or possibly much of it having been bulldozed to one side when an access was needed. As we go to press two of the tie bars have been discovered, a particular feature of the Brunton. Further excavation will hopefully produce some more of the ironwork and maybe evidence of the waterwheel which drove it – but that is for the future.

The Harvey compressor in the winder house as now been largely refurbished and assembled by Frank Kneebone. Once the routing and fitting of the exhaust is achieved the machine will then be operational on compressed air.

K.J.T.R.

CAN YOU HELP?

As we go to press we have received a large granite stone at King Edward Mine which, so far, has defied all explanation. Referring to the photograph the stone is five feet long but has suffered damage to the right hand side as about five inches has been removed or fallen off. The three main recesses are nine inches in diameter at surface reducing to seven inches at five inches deep. No wear is apparent within these recesses but tool marks are. Each hole has an overflow with a two inch high weir to retain a certain amount of liquid. At each end there is a smaller recess of five

inches diameter and a depth of four inches but again with an overflow. The left hand recess has largely vanished due to the aforementioned damage. The footprint of the stone as it stands is 55in. x 19in. and 11in. in height. The three main recesses are not equidistant apart so probably did not accommodate machinery.

Any ideas folks? Answers to be written on the back of a cheque payable to the writer!

K.J.T.R.

PUBLICATIONS

We have been overwhelmed by the success of our book, *From Holman Brothers to CompAir*, and the first print is now exhausted. If you see a copy, snap it up. We now need to consider whether to reprint the book and, to help us come to a decision, would those who still want to purchase a copy, please let either Kingsley Rickard or myself know. This will help us to establish future demand.

A new Society book about Levant Mine should go on sale in the next two to three months. This incorporates much of the content of John Corin's book, which first appeared as long ago as 1992 and has been in print ever since. The new book contains more information about the mine's history and the archaeological remains on the site. It also includes new maps and a self-guided walk. Full details will appear in the next Newsletter.

Graham Thorne



INTERESTING STEAM IN THE EAST MIDLANDS

Among the many steam-related Industrial Heritage locations throughout the East Midlands there are four sites worthy of a visit by anyone interested in steam winding and pumping engines. These sites are Abbey Pumping station at Leicester, Papplewick Water Pumping Station & Bestwood Colliery Winder near Nottingham and Pleasley Pit Winders near Mansfield. Both Abbey and Papplewick Pumping Stations hold steaming days several times a year when engines can be seen in steam. Bestwood and one of the Pleasley engines can be seen in operation driven by an electric motor in a similar fashion to Michell's Winding Engine at Pool. All four sites are situated a short distance east of the M1 motorway with easy access from it.

Abbey Pumping Station



Abbey Pumping Station is located north of Leicester city centre, OS Grid Ref. SK588067, adjacent to the National Space Centre, and accessible from junction 21A on the M1. The station was built in the grand Victorian style by Leicester City Corporation to pump raw sewage to the treatment plant at Beaumont Leas about 1½ miles away on the northwest side of the city. Opened in 1891 it continued pumping until 1964 when electric pumps took over the duty.

Within the imposing engine house are four rare examples of Woolf compound rotative beam engines built by the local Leicester engineering establishment of Gimson & Company. The engines are rated at 200 HP within an operating range of 12 to 19 RPM pumping 208000 gallons of sewage per hour. Steam was supplied by two Lancashire type boilers to each engine from the adjacent boiler house, now housing a modern Cochrane type boiler, which is used on steaming days.

Upon closure the station underwent renovation and opened as a museum in 1972 displaying the original pumping engines and displays connected to the water and sewage treatment industry in the old boiler house. Within the pumping station grounds there is a collection of items of industrial archaeology including a narrow gauge railway and a steam driver Ruston Bucyrus excavator.

Entry to the museum is free on non steam days with a fee payable on steaming days. Car parking is available just a short walk away in the adjacent National Space Centre car park; minimum fee £2.00 (June 2012). Check website www.abbeypumpingstation.org for latest information concerning opening times, etc.

Bestwood Winding Engine House



Bestwood Winding Engine House is all that remains of the once vast coal and iron/steel complex of the Bestwood Coal & Iron Company. The engine house is situated on the eastern outskirts of Bestwood village, OS Grid Ref. SK556476, at the entrance to Bestwood Country Park with easy access from junctions 26 or 27 of the M1 motorway. Bestwood village is located on the northern outskirts of Nottingham, approximately 5 miles from the city centre.

The ironworks closed in 1928 with the mine, sunk in 1872, still in operation right through to closure in 1971. It was Nationalised in 1947 forming part of the East Midlands Division, South Nottinghamshire Area, of the National Coal Board.

After closure the mine site and dirt tip were cleared and landscaped forming Bestwood Country Park under the joint administration of Nottinghamshire County Council and the local Gedling Borough Council. The only buildings not demolished were the downcast shaft engine house and headgear together with one of the old electric sub-stations.

Bestwood Winding House contains the sole remaining example of a vertical twin cylinder winding engine in the UK and has been restored to running condition by the Bestwood Colliery Winding House Volunteers. The refurbished headgear which stands over the capped downcast shaft has been equipped with an endless rope driven by the winder drum to give the impression of winding in operation. The sub-station has also been refurbished and contains photographs and memorabilia of Bestwood mine and iron/steel complex.

The vertical twin cylinder was supplied by R.J. & E. Coupe, Worsley Mesnes Ironworks of Wigan, Lancashire, in 1876 and is still in its original location. The two cylinders, directly under each end of the winding drum shaft are 36 inch bore by 72 inch stroke operating at a steam pressure of 80 lb/sq inch, rating the engine at 1500 horsepower. The drum diameter is 18 feet winding from a depth of 220 yards

(110 fathoms) with a payload of about 3 tons per wind.

The engine ceased to be used for coal winding when a drift, equipped with conveyor belts, was sunk during the NCB years to transport coal to the surface for processing. The downcast shaft was then used for winding men and materials.

The Bestwood Colliery Winding House Volunteers have refurbished the engine to operating condition and have installed an electric motor allowing the engine to be slowly rotated via the winding rope. Long term plans are to return the engine to steam using a boiler similar to Levant. A glass sided lift has been installed to give easy access to most parts of the engine house. The engine house is open Saturday mornings during the spring and summer months manned by the volunteers. Free parking is available just yards away from the engine house in the Country Park car park. Google 'Bestwood Winding House' as several websites give the latest details re opening times, news, etc.

Papplewick Pumping Engine



Papplewick Pumping Engine is located about 4 miles north of Bestwood Colliery Winding Engine and is north east of Papplewick village with easy access from junction 29 of the M1 motorway. OS Grid ref. SK583520.

The station was built by the Nottingham Corporation Water Department between 1881 and 1884 to pump water from a 200 foot well sunk into the Bunter Sandstone supplying drinking water to the then growing city of Nottingham and was part of a network of reservoirs and pumping stations located around the county.

The engines finally stopped pumping after 85 years in 1969, but kept on stand-by until 1971, when four submersible electric pumps took over the duty. In 1974 a Trust was formed to conserve the site as a static museum which included the Gothic Revival engine house complete with original beam engines, carriage shed & stables, workshop & forge, storehouse, complete steam raising plant with 120 feet high chimney, Victorian covered reservoir with impressive vaulted roof, covered coal store & weighbridge, a 1250000 gallon cooling pond and extensive grounds.

Since 1974 the Trust have developed the site to include all the original features plus new visitor facilities including café & toilet block, several other steam engines and related equipment and a miniature railway. Check www.papplewickpumpingstation.co.uk for full

details of steaming days.

The two identical low pressure double acting rotative beam engines were supplied by James Watt & Co. at a cost of £5525.00 each, including installation. Each engine has a cylinder bore of 46 inches with a stroke of 7 feet 6 inches rated at 140 HP at 11.5 rpm at a steam pressure of 50 psi. The beam is 25 feet long with a weight of 24 tons connected to a crank with 20 feet diameter flywheel weighing 24 tons. Both engines are installed side by side in a grand Victorian Gothic Revival engine house complete with elaborately decorated columns, stained glass windows and polished brass & mahogany woodwork. The pumping capacity of each engine was 15000000 gallons of water per day. It is thought that these two engines were the last to be built by the James Watt Company.

Steam was supplied by six hand-fired horizontal Galloway Lancashire boilers operating at a pressure of 50 psi when pumping, about 25 psi during present steaming day operations when one boiler is used to supply steam. When pumping water three boilers were in steam with three on stand-by or maintenance. The boilers were built by the Manchester company of W. & J. Galloway supplying number 1 & 6 boilers in 1881 with the remaining four installed in 1883. Each boiler is 29 feet long by 7 feet diameter with hand-fired hearths. The boilers are connected by an underground



flue to the brick and stonework chimney which is located across the yard from the boiler house. Steam Experience Days are available to carefully supervised groups which include operating the beam engines and firing a Lancashire boiler. The original store/workshop/forge units are located adjacent to the stables and carriage shed and have displays of tools & mechanical equipment used when the steam pumps were in operation together with several small steam engines that are in operation on steaming days.

Also located at Papplewick is a horizontal twin cylinder winding engine from nearby Linby Colliery which is in operation on steam days. The colliery was sunk by Linby Collieries Ltd around 1870 with production commencing in 1875 continuing until closure in 1988. The mine was Nationalised in 1947 forming part of the East Midlands Division, South Nottinghamshire Area of the NCB. The engine was installed at No.2 shaft at Linby in 1922 winding at about 300 tons per hour from a depth of 450 feet (225 fathoms) until replaced by an electric winder in 1982. Over 4 million tons of coal were raised during its working life. Upon closure and with generous assistance from British Coal the engine was dismantled at Linby and re-housed at Papplewick in a new winding house. The first steaming day at its new home was on 21st August 1990.

Manufactured and supplied by Robey & Co of Lincoln the twin cylinder engine has a bore of 24 inches with a stroke of 40 inches at a steam pressure of 120 psi producing about 900 horsepower when winding coal. Steam is admitted to the cylinders via Robey Patent Drop Valves and exhausts directly to atmosphere. The engine layout is standard for a twin cylinder horizontal with each engine connected to the winding drum by conventional connecting rod and crank. The drum is 72 inches wide with a diameter of 108 inches weighing in around 24 tons. Rope speed, when winding coal, was 32 feet per second.

During steaming days the engine is operated as it was during its working

life at Linby. The winding engine man, responding to the correct shaft signals starts the engine from rest, admitting steam to the cylinders and "driving" the engine to the shaft depth indicator, bringing the engine to rest in line with the landing marks on the drum rim and applying the brakes. The engine is then put in reverse and another winding is started, again to the correct shaft signals. Visitors to the engine house are allowed to walk around the engine, within the safety barriers, when it is in operation.

Adjacent to the Linby winder house are other examples of steam engines including a Stanton Triple Expansion Engine, which is also in operation during steaming days, together with several small steam engines located in the stores and workshop.

Pleasley Pit Steam Winding Engines

Pleasley Pit is located on the north-western outskirts of Pleasley village just off the A6191 Mansfield to Chesterfield trunk road, about 3 miles to the east of junction 29 of the M1 motorway. OS Grid Ref. SK500644.

Pleasley Colliery was sunk by the Stanton Iron & Coal Company in 1872/4 and closed in 1983. The mine was Nationalised in 1947 forming part of the East Midlands Division, North Derbyshire Area, of the NCB.

The two winding engines installed initially were horizontal twin cylinder with a bore and stroke of 40 inches X 72 inches for the north engine and 32 inches X 72 inches for the south engine, both built by Worsley Mesnes Ltd of Wigan. Both engines were installed back to back in a single engine house built between the two shafts. In 1904 the north winding engine was replaced with one supplied by the Lilleshall & Co Ltd, Oakengates, Shropshire. The south engine was replaced in 1922 by one supplied by Markham & Co Ltd, Chesterfield, Derbyshire.

North Engine – Lilleshall horizontal twin cylinder with a bore of 40 inches X 72 inch stroke developing around



1500 HP at a steam pressure of 90 psi winding from the 520 yard (260 fathoms) deep North or downcast shaft.

South Engine – Markham horizontal twin cylinder with a bore of 36 inches X 72 inch stroke developing around 3000 HP at a steam pressure of 150 psi winding from the 862 yards (431 fathoms) South or upcast shaft.

Upon closure in 1983 the site was cleared except for the winding house complex, although some demolition had started on the roofs of the winding house with complete removal on the North winder and two thirds removed on the South. The site was officially abandoned in October 1993. Grade 2 Listing was obtained in October 1986 on the remaining surface buildings and scheduled as an Ancient Monument in 1996.

The Friends of Pleasley Pit Preservation Group was formed in 1995 with a view to restoring the engines and winding house complex. With the aid of Lottery grants, aid from the local authorities and hours and hours of hard graft by the restoration team the winding house complex is being restored to its former glory.

The state of the interior of the winding house complex that greeted the restoration team, when they first entered

it, was one of utter chaos with years of accumulated debris and plant life, including a tree growing in one of the engines which had to be removed before restoration work could commence. The Lilleshall engine has been fully restored and fitted with an electric motor to enable the engine to be worked during Open Days. The Markham engine has been stripped down and is in the process of being restored to a working engine, hopefully powered by an electric motor. See www.pleasley-colliery.org.uk for latest information on restoration progress and events.

All four sites offer the enthusiast an insight into the design and manufacturing methods for pumping and winding applications of the late 19th and early 20th century. To walk into these engine houses and experience the smell and noise of an engine in motion by steam is unforgettable.

Norman Tarry



RENAISSANCE OF TREVITHICK

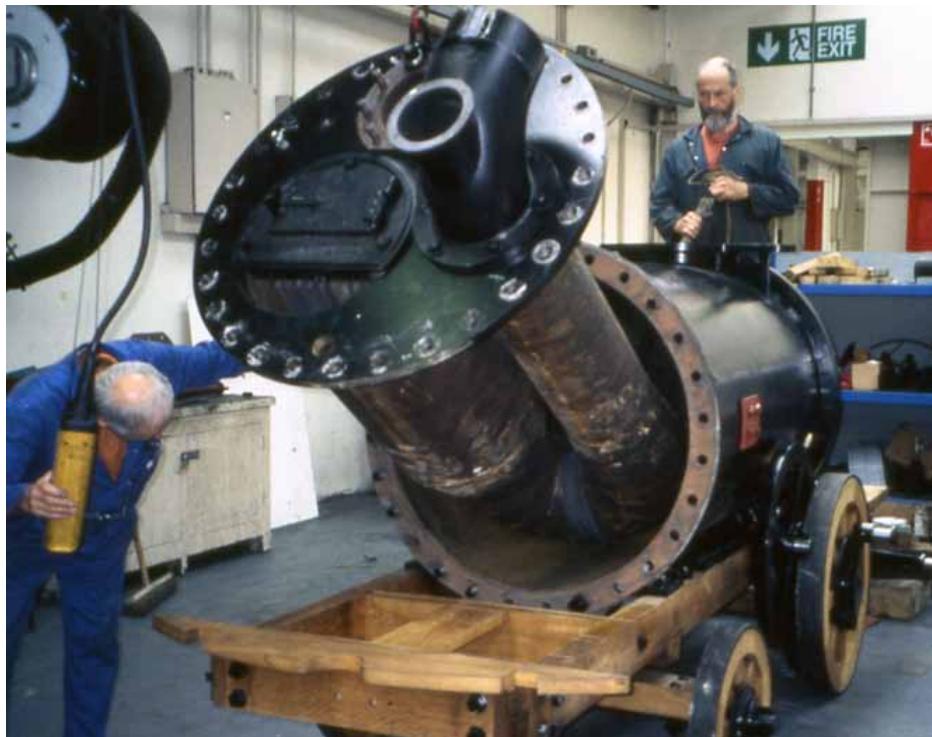
It is now thirteen years since the boiler of this Society's replica of Trevithick's 1801 steam carriage first appeared in Camborne on Trevithick Day 2000. On that occasion Jon Eastman stoked it to simply produce steam. The following year the completed vehicle climbed Camborne Hill for the first time and, on Christmas Eve 2001, it celebrated Capt'n Dick's 200th anniversary by climbing it again and patiently burbling outside Tyack's Hotel while its crew and their friends enjoyed a traditional goose dinner.

The purpose of the replica was to commemorate the genius displayed by Richard Trevithick, the Cornishman who invented the successful high-pressure steam engine. The books and pamphlets a couple hundred years ago

credited Trevithick with his tremendous achievement but the underhand deeds of Humphry Davy and Davies Gilbert robbed him of the fame that accrued to James Watt and George Stephenson.

While not detracting from the ingenuity and work of these two great men, the first improved the atmospheric engine of Thomas Newcomen and invented a number of remarkable things while the other was responsible for much of the railways system in this country, we must not overlook Trevithick's supreme contribution to transport and the Industrial Revolution. Without Trevithick's individual invention of a complete high-pressure steam engine it is very likely that the world would have had to wait some time before such an engine evolved from the combined work of others.

We found that even in the streets of Camborne the significance of Trevithick's genius was not fully appreciated. His climb of Camborne Hill was understood more





from the folk song that celebrated the event than from anything that was taught in schools. There was little knowledge of the importance of the Cornishman's contribution to the advance of technology.

So, how has the Society begun to restore Trevithick's credibility? While his work is well documented in contemporary books and leaflets it was necessary to build a replica of his first steam carriage. If we were to lobby for Trevithick's recognition a solid, full-sized working demonstration was essential. The people we wished to impress were very unlikely to read or appreciate the content of the true history books.

The Society formed a separate company called Cornish Steam & Engineering Co Ltd to undertake this work and, following an appeal by the writer on BBC Radio Cornwall, John Sawle was appointed as its designer and chief engineer. Accountants and solicitors were

selected and appointed. John Sawle was a director of the company, the others being Frank Okuno, a direct descendant of Trevithick, Colin French and the writer. The company needed funding and the major portion (c. £40k) came from the Government Office of the South West. This was supplemented by the Tanner Trust and Kerrier D.C. However, the majority of the funding came by way of time, skill, facilities and equipment from about forty suppliers who sought no recompense for their work other than the feeling of well being that one day their contribution would see the name of Trevithick suitably placed in the Hall of Fame. We must not overlook the immeasurable contribution made by the directors and staff of CompAir-Holman, the loss of their facilities means that it is unlikely that

such a vehicle will ever be built again in Camborne.

As no drawings existed of the original steam carriage (were there ever any?) John Sawle went to the Science Museum in London armed with a tape measure, note book and camera to record details of the 1806 Trevithick 'puffer' engine that had been built at Bridgnorth. From those details he prepared the drawings from which the conceptual replica was built. An essential contribution were the wooden patterns for the moulds crafted by Nigel Watts and the wheels that were made in Somerset.

The volunteer engineers who worked alongside the engineers in the Holman No 5 works included Arthur Young, David Bray and the late David Jenkin. It was a proud day when the machine was connected to an air line and it worked! Soon after that it went, as Trevithick had

intended but never achieved, on a journey that had taken 200 years to complete. At Tehidy it was televised and sound recorded by Chris Blount of BBC Radio Cornwall.

Following its debut on Camborne Hill it was a popular attraction at all manner of gatherings from a village fete at Bal West to a trip though the streets of Falmouth in connection with the Se-Tec 2001 conference on the future use of steam. We went to an air day at RNAS Culdrose but, try as we might, it never took off. We started going as far as the Kew Bridge Steam Museum in London. It was not long before we could list fifty such outings. This meant a lot of hard work shovelling and oiling for a crew that included John Sawle, Arthur Young, Bill Carter, Colin French and Kingsley Rickard. There was a demand for information and soon we had given a hundred lectures about it

2004 saw the celebrations of the world's first railway journey in South Wales. The Camborne locomotive went to Penydarren where it was joined by Tom Brogden's replica of Trevithick's 1803 London Carriage and the local replica of his 1804 tram track locomotive. This was a grand event with a pilgrimage to the

other end of the line at Abercynon. Our link to officialdom was Glyn Bowen.

The National Railway Museum chose to recognise Trevithick's 200th anniversary with an event called Railfest200. We were there with our road-going loco amongst all the engines that ran on rails. There was amazement among the railway folk who could not believe that the road locomotive, or motor car, predated their railway engines. It was a ten day visit by Kingsley and me. Let us call it a period of very smoky enlightenment in York that lost some of its thinly veneered Trevithick coating when news came in that the Flying Scotsman was on its way from Euston. All attention was immediately diverted away from the bicentenary until loco number 4472 broke down, had to be towed in and restored for the nation, something the nation is still patiently awaiting. Trevithick technology came in for some criticism when the axle of the 1804 replica broke while it was being driven. This was miraculously replaced by a spare axle that arrived overnight; they'd had that trouble before.

On leaving York we travelled with the Camborne locomotive to the





celebrations at Penydarren, an event made memorable by the loco going through the wooden floor of the low loader. On another occasion it was invited to Lichfield at the request of JCB and now we're making plans to take it to France!

Maybe because it represented the oldest Trevithick locomotive or because of the media attention it attracted, the 1801 replica has been one of a significant trio with the 1803 London Carriage and the 1804 Penydarren loco. These replicas had been painstakingly built by their enthusiasts but languished far apart, connected by the strange but until recently unappreciated

name of Trevithick.

The interest created by Fred Dibnah, MBE was a great help. As soon as he came to Camborne, rode on the replica and realised that the first steam engines were built in Cornwall he became an enthusiastic advocate for Trevithick's genius. He enjoyed the bit of information that had been passed up by other presenters and, whenever he had the opportunity, he would drop in the fact that 'the first high-pressure steam engine were invented by a Cornishman called Richard Tre-viv-ick'. People listened to Fred, enjoyed his programmes and knew that he spoke with authority. It was now for others to follow.

About this time John Woodward took over control of the locomotive and with Colin French recruited his crew of Mark Rivron and Sean Oliver.

Over the years a number of books had been written to record the work of Trevithick. Jim Hodge's little book went some way towards explaining the story but still the world believed that James Watt had invented the steam engine.

As the years went by the replicas of Trevithick's early steam locomotives made their way onto the little screens in people's sitting rooms and Tony Burton produced a successful book about Trevithick, the Giant of Steam in time for the 2001 celebrations. In 2004 the Royal Mint struck nine million pounds worth of £2.00 coins to commemorate the world's first railway journey and last year Trevithick's birthday was celebrated with an amusing



Google Doodle. All this recognition helps but the impression still lingers in people's minds that Watt had invented the steam engines we all recognise and love and that Stephenson was the father of the railway locomotive.

Meanwhile the little team that supported the activities of the Camborne steam carriage carried on climbing Camborne Hill and performing for the various television companies. The arrival of the book entitled 'The Oblivion of Trevithick' was received in muted approbation by the engineering and railway press; disturbing long held beliefs is very difficult.

No book is now written or television programme made about early steam power without a reference, no matter how small, to Richard Trevithick. An example was Dan Snow's television programme concerning the rise of the railways that only made a fleeting mention of the man who made the locomotive possible. This was followed by the BBC2

series of four programmes entitled the 'Genius of Invention'. In this Dr Michael Mosley and his companions presented the background to the technology we take for granted today. Their first programme, entitled 'Power', concerned the use of energy to do work. In this they leapt from Watt's atmospheric engine to the production of electricity by a Parson's steam turbine. They completely omitted the steam powered reciprocating engine that drove the Industrial Revolution and produced the first supply of commercial electricity. These programmes came soon after Michael Portillo's journey into the history of rail travel that started from Merthyr Tydfil without a mention of the most hallowed length of track in the world.

Readers will just have to imagine the indignation expressed in e-mails from friends and members (some are both!) that arrived in my In Box. All this annoyance can be laid at the door of the programme planners, the presenters are only the

messengers; if it makes good television the true history goes out the window. The BBC2 Genius ... programme the following week was entitled 'Speed' and dealt with the rise of powered transport. In this Trevithick and the Camborne locomotive took centre stage. His invention of the cylindrical boiler was heralded as the contribution that made all forms of transport possible. Of course, the same boiler could have been included in the previous week's show about power but it would have spoilt the programming to have allowed Trevithick to dominate both shows, as we believe he should rightfully have done.

But let's look on the bright side. If similar programmes had been made ten years ago it's very unlikely that Trevithick would have been mentioned. As it is, Mike Mosley said in the Radio Times, 'Everyone believes that James Watt was responsible for the modern engine, but he wasn't. ... basically, it was dead-end technology. Trevithick's invention, however would become the father of the steam train and the father of portable steam power.'

On the programme he said that Trevithick was his hero out of all the inventors – 'nuff said.

It will take a long time to successfully assert Richard Trevithick's rightful place as the inventor of the high-pressure steam engine that powered transport and industry but we'll keep trying.

P.M.H.

NORTHERN MINES RESEARCH SOCIETY

The Northern Mine Research Society is a group of people dedicated to the preservation and recording of mining history. Judging by their website, they are similar to the Trevithick



Society in many respects, by organising a programme of field meetings, and by publishing books on mining, a quarterly newsletter and *British Mining*. They also have a substantial library and an archive of mining plans and photographs, etc, which are available for research purposes. They are also members of the National Association of Mining History Organisations, as is the Trevithick Society.

Further details can be found at: www.nmrs.org.uk

PETER EMBREY 1929-2010

The Trevithick Society has only recently learned, with regret, of the death of life member, Peter Embrey, on Christmas Eve 2010.

Following a private education Peter graduated in chemistry and mineralogy from Oxford in 1951. He was to become a considerable figure in the field of mineralogy almost from the time he joined the Mineralogy Department of the British Museum (Natural History) (BM[NH]), now the Natural History Museum, in 1956. None other than Sir Arthur Russell had drawn the post to his attention.

Born in Birmingham to a family of bakers from Stoke-on-Trent, Peter's family had strong Cornish connections and the county was dear to his heart. His book, *Minerals of Cornwall and Devon*, written with Bob Symes, was published by the Mineralogical Record and BM (NH) in 1987. He also contributed a foreword to the reprint of Greg & Lettsom's *British Mineralogy*, and was a consultant on mineralogical terms to the *Oxford English Dictionary* and the *Encyclopaedia Britannica*.

Peter had been a Life Member of the Society since 1956. I am indebted to a memorial article in *Rocks and Minerals* by Alan D Hart and Chris J Stanley for details of Peter Embrey's life and career.

Graham Thorne

SOCIETY MEETINGS

Society Programme

Friday 12th April. KEM.

Sark's Hope Silver Mine. by Pete Joseph.

Saturday 20th April. ECB.

1.30pm Calstock Station Car park.

Calstock a Victorian Inland Port. A walk around the Danescombe Valley and Calstock. by Steve Docksey, experienced guide and local historian. Stout footwear recommended.

Saturday 27th April.

Camborne Trevithick Day.

Sunday 28th April.

King Edward Mine open day. Free entry and entertainment for all the family.

10-12th May AGM Weekend.

St. Agnes Area. A weekend of talks and walks.

Friday 14th June. KEM.

The Luxulyan Valley and its friends. by Hazel Harradence.

Saturday 15th June. ECB.

The Industrial History of Moorswater.

A walk by Iain Rowe of the Caradon Hill Area Heritage project. Stout footwear recommended. Meet 1100 at Coombe Station, Moorswater, Liskeard

Tuesday July 9th. ECB.

William West - The last great Cornish engineer?

An illustrated talk by John Manley. This talk will be followed by a walk on Caradon moor illustrating some of West's work.

Friday 12th July. KEM.

Members Symposium: The Tin Smelting Industry.

Saturday July 13th. ECB.

Memories of machines and men

A walk amongst the remains of a Cornish mine by John and Cheryl Manley. Meet 1100 at the Crows Nest Inn car park. Stout footwear recommended.

The West Cornwall Branch meets at King Edward Mine (KEM) at 7.30pm on the 2nd Friday of the month.

The East Cornwall Branch (ECB) meets at the Public Rooms at Liskeard and start at 7.30pm, unless stated otherwise.

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<http://teammanley-ts.blogspot.com>

Non members are welcome to all talks.

AGM 2013

The AGM weekend for 2013 will be centred on St. Agnes and the AGM and the Annual Dinner will be at the Tywarnhaile Inn at Perranporth on Saturday, May 11th. 2013.

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The Trevithick Society, a registered charity, is a recognised body of the study of industrial archaeology in Cornwall. Membership is open to all who are interested in the region's great industrial past, whether or not they live in Cornwall. The Society takes its name from one of Britain's foremost inventors and pioneers of the Industrial Revolution, Richard Trevithick, a Cornishman whose name is inseparable from the development of steam power. This newsletter is published quarterly and, together with the annual journal, is distributed free to members. Letters and contributions are always welcome and should be sent direct to the editor.

The views expressed in this newsletter are those of the authors and not necessarily those of the Trevithick Society.

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