

NEWSLETTER 148 JULY 2010



Established 1935

THE TREVITHICK SOCIETY



Reg. Charity No. 246586

Society President, Bryan Earl, describes explosive manufacture, in intimate detail, on Upton Towans at Hayle

CHAIRMAN'S ADDRESS

The few of us who were privileged to see and hear a recent Friday evening's lecture by Andy Millar about communicating the fun of engineering to young girls and boys at school, came away with a great deal of respect for Andy and a feeling of frustration on behalf of the kids in Cornwall.

Andy Millar is an accomplished engineer in Plymouth with considerable enthusiasm for any opportunity to share his remarkable ability with school children. Andy developed his ingenuity for making things as a team leader in the television series, Robot Wars. From there he inspired children to make a number of things that actually work.

Having discovered that the children had no idea what was the purpose of the mighty engine houses that surrounded them, Andy has rightly encouraged children to design and make replicas of the engines and pumps. It was clear from the smiles and interest displayed on the faces of the children at work, they thought it was play, that they thoroughly enjoyed the experiences and were learning a great deal. This work is something that Cheryl Manley is doing so well for many children in East Cornwall.

Andy's work is mainly in Devon and the South Western Area offices that administer his work are in Exeter. At a time when this country is losing its mechanical engineering edge and when teachers are being stymied by the petty restrictions of the H. & S.E., we need to develop the latent talents of our Cornish children. Andy said that if you wait until they are in their late teens it can be too late.

Can the Trevithick Society front (or is it 'back'?) a move to develop the latent skills that were once so successfully displayed by the Cornish ancestors of today's children? We will need support from officialdom, will it be forthcoming?

Philip M. Hosken

EDITORIAL

Due to work commitments this newsletter has, by necessity, been put together with extreme haste, so I apologise now for any typos you spot.

At the end of February, Irene Wellington, the longest standing member of the Society, died. She was in her 90s and had been keeping well until quite recently. Irene and John were members W002. It is not known who member W001 was.

Colin French

Copy date for next newsletter: Sep. 20th



LETTERS TO THE EDITOR

Dear Editor,

I wonder if any of you can help me or know someone else in the same field who can. Basically, I am having terrible trouble identifying a shipwreck that carried a cargo of mining equipment - circa 1840. I discovered this wreck while diving near my home on the Isles of Scilly in 2005.

After investigating the site and producing drawings and measurements of the individual components of the cargo of iron parts (wheels and cogs of varying sizes, clack valves, pipes, etc.) I sent all the information I gathered to Cornwall County Council's archaeology department. Upon reading my file on the wreck, they immediately contacted English Heritage requesting the wreck to be designated under a Government protection order. This the Government promptly did in 2006 after sending contracted archaeologists over to view the find. They said the site and its cargo was unique and nothing like it is known to survive from this period anywhere in the world.

They also said that the cargo came from one of the large foundry's in Cornwall and was therefore linked to both the Cornish migration period of the early to mid 19th century and therefore, subsequently, also linked to the now designated World Heritage site in Cornwall. This is clearly an important piece of mining history and something I personally know very little about.

My problem is I have no idea what ship this was, or from exactly where it originally set sail; or to where it was bound. I believe the answers to these questions lay in knowing where the cargo was originally made and for whom. Only with that information can a trail to the name of the ship, and/or whom was on board when it was lost, be traced. All these questions need answering and this is extremely difficult from where I live in the islands, with no expertise in this field.

I am happy to supply all the

information I have, drawings of the individual items of cargo, etc., to anyone who thinks they may be able to help me; with what must be viewed as an important project within the historical world of the Cornish mining industry.

Thank you for any help you may be able to give.

Todd Stevens.

scillydiver@googlemail.com

Dear Editor,

With reference to Kenneth Brown's letter within the April newsletter, he stated that I tried to tell him that the Kawau Engine went to Bon Accord Mine.

This is a totally untrue statement, and therefore refer to my letter within the November 2008 newsletter where I stated "there is no documentary evidence from New Zealand on the 36" engine that was installed in Australia that proves it was the Kawau engine". Likewise no documentation has come to light since publishing my Nov. 2008 letter confirming that the engine for auction was the returned Kawau engine. Furthermore, nowhere in any of my letters have I stated that this engine went to Bon Accord Mine.

The basis of my letter was to demonstrate that the application of conjecture, theory and relatively loose timeline facts and coincidences, lacking documentary evidence, do not constitute historical record.

References:

Brown, K. 1994. *Halfway around the world and back*. Trevithick Society Journal, No. 21.

Thompson, I. *Letter 5th para*. T.S. Newsletter 139. March 2008.

Brown, K. *Letter*. T.S. Newsletter 140. July 2008.

Thompson, I. *Letter*. T.S. Newsletter 141. November 2008.

Ian Thompson

CHAIRMAN'S REPORT AGM 22nd MAY 2010

I am pleased to record that your Society has had a very successful and constructive year as a prelude to its 75th Anniversary. The achievements of this Society over previous years are a great credit to all those who have worked so hard in the past.

Over those years, the methods of communication have considerably advanced and, not only can we talk to people at a distance but we can now see them and explore documents on the other side of the world. This Society has commissioned a feasibility and options study to determine how we can fund the wider dissemination of our resources. It is anticipated that an extended website could be more widely used by researchers, educationalists and others to broaden the study of Cornwall's industrial history and archaeology. Whatever course we will take will involve co-ordination with Cornwall Council who have already offered the services of an archivist. A meeting was held yesterday with senior officers of the Council and the consultant who prepared the study to plan how this project can move forward.

Much of this Society's considerable collection is due to the hard work of Pete Joseph, its curator over a number of years. Sadly, he has had to relinquish this post of curator. I would like to record this Society's indebtedness to Pete whose quality work will remain a permanent asset of the Society. I refer you to his article in our recent Journal that details his curatorial duties over recent years.

With Pete's help in its compilation, Owen Baker has edited and overseen the publication of this year's notable annual Journal. Other publications have been in the hands of Graham Thorne and the Society's re-publication of *The Harveys of Hayle*, his major task for the year, has received much acclaim. Publication to the standard achieved by this Society is highly

demanding work and we thank Graham, Pete Joseph and Owen Baker. Somehow, during this year, Pete has also managed to write *Hard Graft*, an outstanding book depicting life at Botallack.

The activities of this Society are numerous and the appearance of its tent accompanied by volunteers in matching livery is a well-known, regular feature at events as far away as Bude and Launceston. These appearances are usually financially rewarding and our thanks are due to Kingsley Rickard, our tent master and his volunteers.

One notable event this year was the input of the Society to the Phoenix 100 Celebrations at Minions, high on Bodmin Moor. Our main links there were John and Cheryl Manley who joined in the planning with enthusiasm and determination. The appearance of John Woodward and his crew with the Puffin Devil stole the show.

The locomotive is in constant demand and on Tuesday of this week it appeared on the BBC's international History of Science programme. The Society's members have also worked with other television and media companies throughout the year.

At future events, the Society's tent and equipment will be transported in a distinctive box trailer, something to improve handling on site and our image everywhere we go.

John and Cheryl Manley have provided this Society with a much-needed foothold in East Cornwall. They have organised evening lectures and introduced the principles of mine pumping at many junior schools. Over sixty model pumps have been constructed by children with the use of simple materials.

This has been an important year for the Trevithick replica and it passed its important ten-year boiler test with flying colours, a credit to those responsible for its maintenance, its construction by John Sawle and his team and, of course, the original design by Richard Trevithick.

Council members have undertaken numerous lectures over a wide area to a variety of audiences ranging from

junior schools to the AGMs of learned societies.

In September of this year, we host the AGM of the Association of Industrial Archaeology at Tremough. A sub-committee has been planning this for some months and we are anticipating a notable event.

Good things come to those who wait and the public showings earlier this year of just a little from the considerable archive of the Holman – Climax film archive revealed how important and appreciated is this collection by people with an interest in Cornwall's industrial past. About 1,000 people attended the showings and the subsequent Memory Shops to share reminiscences. They were hosted by the Society and Ted Gundry, a former Holman employee and BBC Cornwall presenter, with the coordination handled by Azook. Work will continue on this important film archive.

Over many years, it has been my job to report the planning disputes concerning a building that was formerly a part of Holman's No 3 Works which had been earmarked as a possible home for this Society. As you have seen in the Newsletter, thanks here to Colin French for another year of keeping us in touch, the site was sold to another developer and the buildings pulled down. However, there are some remaining structures and they were the subject of talks with architects earlier this week.

During the year, the Society rented space within a former WW2 hanger at Nancekuke near Portreath and installed a 20' lockable container. This relieved some of the pressure on the storage of the Society's resources in the homes of its members.

We welcome Keith Letchford to the Council of this Society but have to balance his arrival against the sad loss of Vernon Baldry, Geoff Smith-Grogan who, for the time being at least, has had to relinquish active participation on the council, and the departure of Sue Maunder for a new life in the Oxford area.

Sue has been our well-known,

hard-working and much appreciated Membership Secretary for many years. She has frequently been the first contact new members have with the Society and one with whom they subsequently created a friendly link. She has introduced many improvements to the way in which we organise our records and keep in touch with the members. Sue will be very much missed and we wish her every success and happiness in her new life.

This forthcoming year is one in which I expect we will see some fundamental improvements in the manner in which we communicate with members and the world at large. This will all depend upon adequate funding being available and the sustained work by our volunteer members. As in previous years I must end with an appeal for willing helpers – you don't have to have any particular skills.

You've really no idea how much you will be appreciated!

Philip M. Hosken

COUNCIL FOR BRITISH ARCHAEOLOGY, SW

We expect you will find a newsletter from the CBASW enclosed with the Society newsletter. This is an opportunity to advise you that CBA AGM and Weekend Event, 15th-17th October will be centred on Truro this year. The programme is aimed to cater for a variety of interests ranging from field trips on Bodmin Moor to an examination of King Edward Mine and other features of Cornwall's industrial archaeology. There will be lectures and a visit to the Royal Cornwall Museum. This Society is involved in many of the events and full details can be found by clicking onto the weekend on the CBA website at www.britarch.ac.uk/cba/weekend or by phoning 01904 671417 or emailing marketing@britarch.ac.uk and asking for a copy of the weekend flyer.

P.M.H.

BROOKSBANK FILM ARCHIVE

Following the successful showings of some Holman archive films in Camborne and Redruth, the Society is delighted to have received a remarkable stock of film from the Brooksbank Film Archive. It comprises of many reels of 9.5 and 16 mm film taken by the late Mr T. J. Brooksbank of Trefula House, near Redruth. We are grateful that he had his own cinema and took his cinematography very seriously. He had the experience and resources to produce quality films. In addition to a number of feature films taken in Cornwall in which he directed his family, friends and members of staff, there is a quantity of probably unique film taken in the early 1930s below ground at East Pool & Agar, the steam operated winder, electric trams with other processing equipment, scenes in the Climax factory and the Cutty Sark at Falmouth, a true feast for the future. The collection also includes a quantity of Standard 8 film taken by Mr Brooksbank's son Peter at Anglo-American Clays in Georgia, USA in the 1950s.

We have also been pleased to meet Mr David Jewell of Camborne who has been collecting similar film and supporting equipment for many years. David is helping us to recover the Brooksbank Archive and we look forward to seeing some of his collection.

The Holman Archive is still the subject of recovery and formatting by Azook who arranged the preliminary film showings.

P.M.H.

KING EDWARD MINE

Due to good weather the annual Open day was a great success with a good number of public attending and a fine display of old vehicles, miniature steam engines and stationary engines on display. We even had an unscheduled visit by two

full size steam rollers during the afternoon. A popular addition this year was a hog roast.

The winder house is now being fitted out internally with the carpenters doing an excellent job in re-creating the Victorian style panelling to clad the walls. Much thought is now being given to the format of how we display the various pieces of hardware, models and information boards. The Harvey & Co. compressor which will be on display alongside the Holman winder is currently having "a severe coat of looking at". The machine suffered some engineering abuse during its life and there were some problems in stripping it down but as "the boys" often say, "If life was easy there would be no King Edward!" It is planned to have an official opening ceremony in the morning of Monday, July 26th. which will be performed by the Chairman of Cornwall Council. Members are welcome to be present.

By the time you read this King Edward will have also been host to another ceremony. Member Diane Hodnett, who has lived in Ireland for many years has been researching the metal mines of West Cork, mines which have many Cornish connections. Diane's book on the subject has now been published and the book launch ceremony, attended by the Irish Cultural Attache, took place at King Edward on July 1st.

K.J.T.R.

TREVITHICK DAY

With the prospect of a fine day weather wise the Society's "canary crew" were out in their now well known distinctive yellow tops at seven in the morning getting the tent prepared for a busy day of trading, answering questions and generally promoting the Society and its work. It turned out to be a very successful day and thanks to helpers Phil. Hosken, Nigel Kendall, Keith Letchford, Dave Mann, Sue Maunder, and George Wilson.

K.J.T.R.

A.I.A. CONFERENCE 2010

The Association for Industrial Archaeology's annual conference comes to Cornwall this year for the first time since 1978. The Trevithick Society is proud to be organising the lecture and visits programme.

Members are welcome to attend the lectures at the Tremough Campus, Penryn as follows:-

Fri. 3rd. Sept., 8pm.

"Early Cornish Mining". by Allen Buckley.

Sat. 4th. Sept., 9am.

"New Revelations on Richard Trevithick". by Phil. Hosken

10am. "Carclaze Old Tin Pit - Recent Findings". by Prof. Colin Bristow.

11-20am. "Cornish Mining and Methodism". by Doug Luxford

Sun. 5th. Sept., 8pm.

"China Clay". by Ivor Bowditch

Tues. 7th. Sept., 8pm.

"Conservation and the National Trust in Cornwall". By Jon Brookes

Wed. 8th. Sept., 8pm.

"H.M. Steam Vessel Echo and her High Pressure Steam Trials 1832".

PORTREATH TRAMROAD BICENTENARY

On August 1st. 2009 the bicentenary of the Portreath Tramroad was celebrated at Portreath. A local committee was formed to organise the event and Richard Williams of Scorrier, whose great grandfather was one of the instigators of the scheme was on hand to meet Stefan Mastoris, Director of the Welsh Industrial Museum. The two men then had a ceremonial swop of a piece of Welsh steam coal and a piece of Cornish copper ore to

celebrate the great trade across the Bristol Channel. Richard Williams also unveiled a replica tram in Greenfield Gardens. The day was also filled with a parade, Cornish music and the arrival of a lugger in the harbour. On Saturday, October 24th. the committee organised an evening of talks. The first was member Michael Messenger, well known for his research into industrial railways, who presented "The Portreath Tramroad" which was followed by fellow member Ainsley Cocks with "Copper and Coal – The Welsh Connection" and lastly Rose Lewis with "Bringing the Tramroads up to Date".

TRAMLIN SETTS

During recent excavation works in my back garden, a large amount of granite was uncovered; some of these have two holes bored in them with a centre line of 4½" and a few still have the remains of iron hooks. I believe that these may be tramline setts or sleepers.

My home is the former farm house to Polstrong which was built by the Thomas's of Dolcoath Mine. It is therefore possible that these stones were once used for either the mine's tramlines or possibly on its extensive narrow gauge steam railway.

I would be interested to hear any member's views on this matter.

John Woodward

john@jw-eng.co.uk

Tel: 01209 711315



STORMSDOWN MINE

Following my appeal for information about Stormsdown Mine, I have plodded on with my research into the mine but after twelve months of effort I still have huge holes in the 'database'! I still do not know exactly when work at the mine was suspended nor the reason for the suspension! Examination of the owner's obituary following his death in 1912 and subsequent, very complicated, will provided not a single mention of his mining involvement at Stormsdown and Devon Friendship mines. The current owner of the property is known not to encourage visitors and my polite letters requesting a visit have been ignored. I have walked the adjacent public roads but the heavy wood growth makes viewing difficult.

There is little information on the mine in the public domain. The Devon Records Office holds nothing at all - including no plans of the mine workings despite at least three workings of the mine during the 20th.C. The Cornwall Records Office, surprisingly, holds a long report by the mine manager, Mr. Ernest Terrell, a report by Mr. Josiah Paull on behalf of a prospective purchaser and a large engineering drawing by Harvey's of Hayle depicting the pitwork in the shaft from angle-bob to pump and cistern in the shaft sump. Presumably Harvey's supplied and installed the whole of the pumping system. An appeal via the Old Glory magazine yielded a large amount of information on the Hathorn Davey company in general and on their engines and the differential



Mine engineer's house

valve gear fitted to the pumping engine at Stormsdown. Same also with the Campbell suction gas engine installed in the mine power station - a great deal of general information and, eventually, the serial number and date of manufacture of this particular engine. Ken Brown is aware of the engines but had no detailed knowledge of the Hathorn Davey.

The mine could be described as having been a 'model mine' in its time. No expense appears to have been spared in creating a brand-new mine on a green field site. In some ways it is strikingly similar to the Clitters mill of the early 1900s but appears to have incorporated even more up-to-date features. But I am now up against a brick wall. Tony Brooks supplied a great deal of information but I am hoping that other members may have knowledge of the following machinery.

Helmholtz magnetic separators, Blake Marsdon jaw crushers, Holman two-head pneumatic stamps batteries, Buss swinging tables, Buss round frames, spitzenkastens and spitzenlutens. These latter four items were, I believe, of German design and manufacture and had been used very successfully on complex ores at Clitters. Hopefully, somewhere 'out there' there is an expert who knows all about these things. If I can obtain drawings, illustrations and descriptions I can then 'build' an illustrated picture of what the Stormsdown mill would have looked like when in operation.

Douglas Westaway.

douglas.pembridge@tiscali.co.uk



Discharge from Deep Adit

'AGMs ARE BORING'

We have frequently heard that our AGMs are boring. Is that not the established feature of all AGMs? We also heard, after about seven years that some members did not like the change of date from September to May, something that was necessitated by the Charity Commissioners accounting procedures and confirmed in the Constitution of 2002.

George Wilson, our secretary, who worries any subject or person until he gets an answer, sought the opinions of the membership by means of a questionnaire. The subject was raised and explained at this year's well attended AGM and prompted a lively discussion. The vote of those who chose to attend the AGM firmly reversed the postal vote so we will be holding next year's AGM along with a social weekend again in May. We will also circulate more annual reports prior to the meeting.

The weekend in Hayle got off to a good start with a lecture by Brian Sullivan, a time-honoured Hayle boy who was able to give us an amusing insight into the commercial, planning and, sometimes, personal activities in the town during the past century.

Next morning Kingsley Rickard conducted one of his inimitable tours of the former Harvey & Co. enterprise. He explained much of the past, present and



possible future of what was once the prosperous noisy, dirty industrial Foundry area of Hayle. One mystery that has since been clarified by David and Nita Osborne, who were on the walk, was that the purpose of the tunnel was to acquire mould-making sand.

After a pasty lunch in the sunshine, Chris Quick entertainingly explained the poor working and social relationship between those in the Foundry area of





Hayle and their rivals in Copperhouse. A walk around the waterways and railways revealed how extensive and important had been Hayle's manufacturing base to the international development of steam engines and mining machinery.

Saturday evening was spent at The Watermill in nearby Lelant, a former gristmill and a delight to the waterwheel devotees as the recently repainted old wheel still revolves driven by water flowing from a nearby stream just as it and its predecessors have done for hundreds of years. Members packed the upstairs room in the little mill as an excellent meal was served promptly and graciously to a background of laughter and cheery banter.

Next morning we were out again in the sunshine and our President, Bryan Earl, conducted us around the former National Explosives works on Hayle Towans. His impressive knowledge of the frightening subject was delivered with equal humour and the occasional reference to a book he had written on the subject.

Good food, good company, a

truly significant location complemented with excellent lectures and the occasional pint combined to create a truly memorable AGM Weekend. Looking back at the smiles around me, I sought a description of what members had experienced; would 'thrilling' be too strong a word for use in connection with an AGM? See you next year.

PMH.



CÔR MEIBION ABERCYNON

To commemorate the 40th anniversary of the Côr Meibion Abercynon each of the male choir will receive an uncirculated Trevithick 2004 Royal Mint £2.00 coin in a presentation box. The people of Abercynon are very aware that they live at the end of the first steam railway journey in the world and the choir's blazer badge bears an impression of Trevithick's locomotive.



PUBLICATIONS

The errata sheet for *The Harveys of Hayle*, to which I referred in Newsletter 147, is now available. I can now send a copy at no charge to any member who requires one. Contact me at the address below or at thornes@totham22.freemove.co.uk to request a copy.

Diane Hodnett's book, *The Metal Mines of West Cork*, is being launched at King Edward Mine on 1st July. I am delighted we have been able to bring this book to publication and we have secured part of the print run for sale by the Society. There was a strong Cornish presence in this mining field and, although none of the mines was particularly successful, readers will find that Diane has told a rollicking good tale, containing a good deal of interest and humour. *The Metal Mines of West Cork* is a 280 page large format paperback and costs £16.99.

Graham Thorne

11 Heriot Way, Great Totham,
Maldon, Essex. CM9 8BW.

PUFFING DEVIL

This year's Trevithick Day started as normal at 6.30 am in the Council car park where the engine had been parked overnight. A young lad, who lived nearby, heard the commotion, donned a boiler suit and assisted the crew in getting the engine ready. Meanwhile, I took the spare coal and fencing etc. around to our position in the engine line in Basset Road.

At that time of the day, without a lagged boiler, it takes over 2 hours to get sufficient steam to move so consequently, as usual, we were last to take our place in the engine line. Our new assistant was given a lift for part of the way.

On the way down to the bottom of Camborne Hill, and the subsequent run up the Hill, the engine performed well. Each year it seems to be slightly more powerful. This year Sean, the driver, was able to

hold her at half throttle up Tehidy Road and then open her up to full throttle for the steeper Fore Street incline. Perhaps after 10 years The Puffing Devil is finally run-in!

Keltek Brewery brewed a special Puffing Devil real ale to celebrate Trevithick Day. Only a couple of dozen bottles were produced - a precious tippie indeed!

The following day the engine was in steam at King Edward Open Day. Once more we had good weather and everything went smoothly until Colin and Sean started to pack up. Having heard a knocking sound, on investigation they found that a bolt had sheared off. This was holding a flange to the rear axle in behind one of the main drive wheels. It had broken in the middle and the two protruding ends were stopped from falling out by them hitting the outside of the fly wheel as the axle turned. Mark and myself have now repaired the engine, replacing the mild steel bolt with a standard 5/8 x 6" long high tensile bolt.

Forthcoming Outings

Hayle Vintage Rally – 2nd August
West of England – 20, 21 & 22 August

John Woodward



CASTING A BEAM AT HOLMAN'S FOUNDRY

The beam (bob) cast at Holman Bros' foundry in 1906 for the Grenville Mine engine was a remarkable feat to say the least, and may well have stretched the works to its absolute limit. A few technical problems would have had to be overcome before it was achieved, mainly the smelting of the more than 40 tons of iron required to reach every part of the mould at a reasonable temperature. It can be assumed that the smelting was done in two or three coke-fired cupolas, the type of which had been in use since 1794. Cupola furnaces are usually blown in and out within the same day, maximum efficiency being reached regarding output and temperature, on the 4-5 tapping. The average foundry cupola yields about 1.5 tons per tap, maintaining about 4.5 tons per hour. It is most likely that two larger than average cupolas were used, each with a capacity of about 8 tons per hour. This would mean that the required 40 odd tons of metal could be smelted within a three hour period. The main problem during this time, would be heat retention, which means the metal having to be kept hot enough to run to every part of the mould. This would be done by pre-heating the ladles, which in this case there would be two, each with a capacity of 20 tons. Each tapping of metal into the ladles would be covered by dry foundry sand or coal-dust, this would create an insulating skin over the molten metal, the process being repeated after each tapping. Of course, this all added to the difficulties of de-slugging the metal before pouring, but it was a tried and trusted method.

Iron melts at 1221°C, but it is not suitable for pouring into moulds until it reaches about 1300°C, even then, it will only be suitable for heavy section castings of limited detail. The beam of the Grenville Engine can be classed as heavy section, and a good deal of thought had gone into its design - which all helped to make a

good casting by minimising the running problems. In particular the heavy section around its outer edges; its inner plate supporting the bosses for the shafts and connecting rods is probably 3-4 inches in thickness, very substantial indeed. The mould for this casting was made by bedding the pattern into the foundry floor - a skilled process requiring the pattern to be removed several times before a good reproduction could be made. The mould would also have been made over a bed of spent coke, deep within the foundry floor; this was to allow gasses generated from the ingredients of the sand to escape during the casting process. These gases were expelled through pipes protruding from the foundry floor around the edge of the mould. It is most likely that this type of mould was pre-dried rather than cast "green", which is the natural state of the sand. A dry-sand mould is much stronger, and resistant against "scabbing", also there are other benefits such as the reduction in the "chill factor", which allows the molten iron to flow more freely, the end result being a better casting requiring less finishing. The top section of the Grenville Beam was contained in a grid type moulding box called a "cope".

On the appointed day of the casting of the Grenville Beam, there would have been quite a difference in the day-to-day running of the iron foundry. The morning would have been spent, by those closely involved with the making of the beam, ensuring the mould was properly closed and weighted, and made secure against a "ss out" - a foundry expletive when metal escapes from a mould. If the mould has been properly closed, with no slack places, and is held down by enough weights, then an escape of metal should not occur in theory. As a further precaution, sand would have been banked up around the edges of the mould. The foreman would have been close at hand all day to see the proper attention had been paid to these matters. The furnaces would have been fully charged and lit before noon, with blowing commencing at mid-day. From then on, the two ladles would gradually

begin to be filled with molten iron, tapped at a steadily increasing temperature of 1300-1450°C. During this period there would be a mixed feeling of pride and apprehension amongst the work force, especially the younger workers who had not seen a job of such size and importance before. The older workers would have been more concerned with the safety aspects of the job - knowing full well what could go wrong. There would have been discussions of, "is there enough weight on the job to safely hold it down?", and, "do you think those ladles can hold enough metal?", etc. A miscalculation of the weight of metal required to fill every part of the mould, is the greatest sin amongst foundry men. A safety margin of about 5 tons of excess would have been allowed for the Grenville Beam.

As the time of reaching the required amount of metal drew near, there would have been a gathering of other workers around the job to lend a hand should things not go according to plan. Also, senior management would have made their presence known, along with a few V.I.P.s, and perhaps the Grenville Mine owners themselves. When it was decided that there was enough metal available, the de-slagging process would begin. This entailed the removal of all the impurities which had formed into a skin on the surface of the molten iron. It was now a time to have an indication of the temperature of the metal. Given the fact there were no pyrometers * available in 1906, other means would have to be used. This was done by casting an expert eye over the colour of the molten iron. For example, a deep cherry red would indicate that the metal was of low temperature, possibly around 1250°C, and not suitable to pour into the mould. The colour bright orange would mean a temperature around 1320°C, and suitable for pouring into some jobs. Various shades of yellows-white would mean that the metal was 1360-1460°C. After de-slagging the metal for the Grenville Beam, the two ladles would be lifted into position at each end of the mould, assuming there were two cranes

available. At this moment in time there would be almost complete silence, except for the voice of the foreman giving orders to deal with the job in hand. When everyone was ready the order would be given to commence pouring, the temperature of the metal would be around 1330°C, the later tappings may have been around 1500°C to compensate for the loss of heat. The metal entered the mould through two runner boxes and into the downgates and ingates connected within. "Stoppers" would have been placed over the downgates to allow the pouring team to gain control over the flow of the metal, these would be removed when the runner boxes were full. As the pour progressed and the ladles began to empty their contents, smoke would start to appear from the vent pipes as the gases began to be released. The youngest apprentices would then be given the order to ignite the gases with burning torches, a task which gave them a feeling of importance. At this stage, anxious eyes would be checking the contents of the ladles, smoke coming from the risers would give them some comfort that the cast was nearly complete, and all was well. As soon as metal entered the risers, pouring would cease, and the metal would find a natural level between the runner boxes and risers. For a few seconds a close watch would be kept around the outer edges of the mould to check that there was no signs of an escape of metal visible. There would now be a feeling of relief and satisfaction, and maybe a little applause from the onlookers, who no doubt had rarely seen such a spectacle in any other type of industry. The foreman would then compliment his workers with "well done men, etc., get yourselves a brew". Apart from the pouring of any excess metal into other jobs, and the dampening down of the furnaces, there would be little else done that day, just a sense of relief and satisfaction that the "big job" was hopefully behind them.

Footnote.

The alternative to the casting of the Grenville Beam other than the one described, would be direct from an air

furnace. There is some risk to this method as the contents of the furnace cannot always be guaranteed. There was a stark reminder to this in the form of a 144 inch cylinder weighing 255 tons, which stood in Harveys yard for many years. The cylinder had been "short runned" and "topped up" from another furnace. It was of course rejected by the customer, but put to good use by impressing customers of the capacity of the works, leaving Harveys reputation undamaged.

* Pyrometer - an electrical device for measuring the temperature of molten metal.

H. Hodson

REQUEST FOR INFORMATION

I am researching information and compiling photographs in order to write a book about Bibiani Gold Mine on the Gold Coast. The period 1947/57 particularly interests me which covers the time when my late father worked there.

I would appreciate hearing from anyone who has knowledge of Bibiani Gold Mine.

John Woodward
john@jw-eng.co.uk
Tel: 01209 711315

LEVANT REPORT

Visitor numbers were low during the winter maintenance period and is normal for this period. The beam engine has been thoroughly inspected by John Treloar, assisted by members of the 'Greasy Gang' with some adjustments carried out to bearings, glands and valves. The annual boiler service and safety valves inspection has been completed by Fultons and new pipework fitted to the steam blowdown pipes for the sight glasses. The engine is now running very well and ready for the forthcoming summer season.

Our well-respected Custodian, Eric Mason, will be taking forced retirement this summer as he will be 65 years of age. He is a man of great experience in the mining field and has a wealth of knowledge for mechanical and electrical machinery. He can turn his hand to practically anything that needs attention at Levant, whether it be managing the volunteers, taking a school or visitors on a guided tour, fixing the steam engine or getting the oil fired boiler to fire so that we can open on time. This is all as an aside to managing the whole site for the National Trust, and he will be greatly missed. We wish you well Eric, and please come and see us regularly.

Ron Flaxman

LAUNCESTON STEAM FAIR

The Society's yellow tent with its colour-coded attendants is a familiar sight at many events within Cornwall and occasionally beyond. During three days of the Spring Bank Holiday, it was at Five Lanes for the Launceston Steam Fair.

These outings present excellent opportunities for members to meet the public, answer questions explain our aims and generally enjoy some friendly banter ('networking' in executive jargon). We sell books and other items and, weather permitting, those taking part have a good time.

This year Stephen Docksey from Gunnislake was with us for a couple of days and Sue Maunder called in. When it was over the two septuagenarians loaded our new trailer with the tent and gear in a manner carefully devised by Kingsley so that it will be ready for use at the Bude Stratton Heritage Weekend on Sunday

8th August. We need all the help we can get, experience is not necessary. We look forward to seeing you there.

P.M.H.

CHILDHOOD MEMORIES

During the 39/45 war my mother, sister and I lived with my grandmother in St. Ives while my father was in the army. In what was called "The Billiard Room" (now the Barbara Hepworth Museum) was my Uncle Bernie's model mine and what's more everything worked just like the real thing! So you can imagine as a small child, one of the events I really looked forward to was my Uncle Bernie (Charles Bernard Trehwella) coming on holiday and the chance that he might get steam up and run all the models. Sadly I have no pictures of the models in their original home. When one is young the world seems permanent



The Society's tent in the thick of it at Launceston Steam Fair, 2010



The pump in the basement was a plunger pump and it pumped water to a sump at floor level. From here the water was then pumped by a model of a typical Cornish pump to the tank providing water for the mill. The photo below is a picture of this pump as it is today. Alongside the beam engine was a very handsome horizontal engine which drove a plunger pump via a reduction gear train and angled bob. Sadly this engine is missing though the pump is in the store a Geevor. The exhaust of all the other steam engines was fed into

and nothing will change. Sometime in 1946 or 7 my uncle retired to Restronguet Mylor Bridge and of course the models were moved and re-assembled in his workshop. My uncle lost his right arm in the 1914-18 war and all the models were built with this handicap. They were of machinery that would be found at mines in Cornwall from the end of the 19th century up till sometime after the 39/45 war when stamps were replaced by ball crushers and pumping became all electric, mostly centrifugal pumps, but ore separation using shaking tables continued to be used, however steam as a motive power virtually disappeared though some of the beam engines continued to pump well into the 50s. I will give you my childhood memories when the models were in St. Ives. First of all there was a Beam Engine! (photo above). This pumped water from the basement to a tank which provided the water feed for the Mill. I have since worked out that this engine is about 1/36 scale so actually a much smaller scale than the rest of the models that I believe to be about 1/12. I also believe that this engine working on the Cornish cycle is possibly the smallest model engine of this type to work satisfactorily. There were three dummy boilers alongside the engine which were fed from the main boiler via a pressure reduction valve to give approximately 30 p.s.i. When the engine had settled down the condenser produced a good vacuum and it pumped well without manual help.

a condenser at floor level and the hot water from this was pumped into the main boiler by a pair Stuart Turner water feed pumps mounted near the beam engine. The photo





This model I do not think survived the move from St. Ives to Restronguet. While my uncle and perhaps my elder cousin William were getting every thing ready for steaming we were given a large hammer and bits of ore stone gleaned from local mine dumps and sent out to smash them into small enough bits to feed the stamps. My earliest memories of the mill were that it consisted of a single Holman air cushion stamp, a set of rather crude Cornish stamps and eight head of brand new Californian stamps. Sadly no pictures exist of this set up. It finally finished up with a pair of Holman

to right shows these two pumps as they are today. One now has a double acting water pump you might notice. I never remember these pumps working very hard so I think most of the water feed was delivered by the water feed pump on the mill engine . Alongside there were two enclosed single acting twin cylinder engines each driving a dynamo both charging batteries that provided power for the electric winder, lights and an electric motor driving one of the shaking tables. Adjacent to this was a simple headgear and winder. The headgear had an ore bin into which two auto emptying skips, one up one down, deposited their contents. The winder was I think of simple design with two drums one for the skip coming up and the other for that going down. They were driven by a reversing electric motor via a worm and wheel. Photo below shows this which is sadly no more.

Patent Air Cushion Stamps and the Californian Stamps. The only picture I have of this set up is of them displayed at Geevor (photo overleaf at top). The Californian stamps are two sets of 4 head and were built by my uncle from drawings he made from the new mill at Levant mine when they were being dismantled in the 1930s. A few years ago I found out from Tony Brooks that these stamps were actually Nissen as the ore boxes are cast singly and not in sets of five. The new mill at Levant, I am told, actually consisted of a mixture of Nissen and Californian stamps hence the mix up. The pair of Holman stamps that replaced the single unit were a bit special as my uncle being a friend the Holman family obtained a set of original drawings from which this model was made. Geevor had a battery of Holman stamps

I think this is because my uncle thought it was too much of a simple toy which I think shows in the picture. Anyway when he eventually gave the models away it was destroyed. Alongside the headgear was a man-engine driven by a small single cylinder steam engine and a reduction gear. Much time was spent moving lead toy men from-step to lift and vice-versa and hence moving them up or down the "shaft".



before they changed to ball crushers and I notice from pictures at Geevor that they seemed identical to my uncle's model. The mill was driven by a single cylinder mill engine which is now in the possession of my uncle's grandson as it was replaced by a new compound twin cylinder mill engine at Restranguet. The treatment plant consisted of a set of four shaking tables of somewhat crude construction operated by a very long belt drive from the stamps counter shaft and also one scale model shaking table. I found out recently that this model is of a James narrow deck sand table. This was driven originally by a small single cylinder steam engine but finally by a small electric motor. This change was fairly early on as the steam engine was running at a fairly light load and had a long steam feed pipe resulting in very wet steam and the engine frequently stopping. Below and in front of the shaking tables, in my earliest memory, there were three buddles driven by a water wheel fed from the tailings of the shaking tables. They were not installed at Restranguet. It was very exciting to see the silvery gold line of the iron pyrites on the shaking tables and occasionally the dark grey line of tin. All things come to an end my beloved grandmother died and our her home was sold the models went to Restranguet. My parents my sister and I



went to live in Somerset and my childhood became a memory. Some time in the late 70s or early 80s my uncle gave or lent the Holman stamps for display in the Holman Museum and the rest of the models a little later to Geevor Tin Mine where they were on display in, I think, the back of the shop / café in the Geevor club house near Wethered Shaft just at the entrance of the mine. I am told that when the mine closed the models or some of them were taken into safe-keeping by members of Geevor staff. In the early 1990s after the mine was finally closed for good, a group of local volunteers, headed by Bob Orchard developed the museum. In 1996 the Cornwall county Council, who were now the owners of the mine, commissioned the Trevithick Trust to manage the museum on their behalf. This was taken over by the Pendeen Community Heritage in 1998 who have continued under contract from The Cornwall County Council to run and develop Geevor Tin Mine Museum ever since. When the Holman Museum was closed the Holman stamps found their way back via the Trevithick Society to Geevor to join the other models. I would like to thank Tony Brooks for his help regarding technical names and dates and details of the closure of the mine and the founding of the Geevor Museum.

Richard Fishwick



Richard Fishwick

SOCIETY MEETINGS

West Cornwall Branch

Meets at King Edward Mine at 7.30pm.

Programme to be announced.

East Cornwall Branch

Meets at various places, please check the programme for details.

5th July – 16th July

Stuart House: Weekdays 9.30am-3.30pm, Saturday 9.30am-12.30pm

William West Reflections

A display showing the imagery of a photographic competition, images depicting William West's influence around East Cornwall, the sites, landscapes and industrial remains that can be seen in and around Caradon Hill, Callington, and Gunnislake.

5th July- 30th July

Liskeard Museum: Weekdays 11am-4pm, Saturday 11am-1.30pm

An exhibition showing the life, the works, and influences of William West.

He was an innovative and inspiring engineer whose career was sparked as a boy when holding a candle for Trevithick as Trevithick worked on plans of the Catch-Me-Who-Can Locomotive. This exhibition is in celebration of The Trevithick Society's 75th anniversary.

Tuesday 13th July

Liskeard Public Hall 7.30pm

Inscribing a Landscape: the Cornish Mining Heritage Site, an illustrated talk by Ainsley Cocks, World Heritage Site researcher.

Saturday 7th August

11am-approx 2pm

A walk, discovering Phoenix United Mine by John Manley, local historian.

Meet at Minions car park, near Houseman's Engine House. You will need footwear to

suit rough terrain, and suitable clothing for moorland weathers.

Tuesday 7th September

Liskeard Public Hall 7.30pm

Caradon Hill Project

A talk by Andy Robinson, Principal Officer, Caradon Hill Project - straight from the horse's mouth, find out about the project which plans to preserve and present the industrial archaeology of the Caradon Hill area.

Tuesday 19th October

Liskeard Public Hall 7.30pm

Making the Connection....the Liskeard to Looe Canal

An illustrated talk by Mark Camp, a blue badge guide, author and local historian.

Society Appearances

The Society has plans to be represented at the following venues:-

Camborne Show on July 17th.

The West of England Steam Rally, Stithians 20/21/22nd. August.



TREVITHICK SOCIETY OFFICERS AND OTHER REPRESENTATIVES



President: Bryan Earl



Chairman: Philip Hosken

3 Park Road
Redruth TR15 2JD
chairman@trevithick-society.org.uk



**Vice-chairman/Promotions Officer:
Kingsley Rickard**

k.rickard@trevithick-society.org.uk
Tel: 01209 716811



Hon. Secretary: G.B. Wilson

1 Hill House, Tehidy Park,
Camborne, TR14 OTH
Tel: 01209 711685
gbwilson@macace.net



**Membership & Subscriptions:
Pennie Hallows**

The Maytrees, 14 Steppy Downs Lane,
St. Erth Praze, Hayle.
TR27 6EF
Tel: 01736 790569
membership@trevithick-society.org.uk



Journal Editor: Owen Baker

Tamarisk, Lowertown, Helston,
TR13 0BU.
Tel 01326 560970
o.baker@btinternet.com



Newsletter Editor: Dr. Colin French

12 Seton Gardens, Weeth Road,
Camborne, Kernow. TR14 7JS.
Tel: 01209 613942
cnfrench@talktalk.net



**Publications Officer:
Graham Thorne**

East Cornwall Branch

John and Cheryl Manley
28 Fairfield
St Germans
Cornwall
PL12 5LR
01503 230768
teammanley@hotmail.com



Curator/Webmaster:

curator@trevithick-society.org.uk

Treasurer: Stephen Thomas

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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PO BOX 62, Camborne. TR14 7ZN

The Chatline: 01209 716811

<http://www.trevithick-society.org.uk>