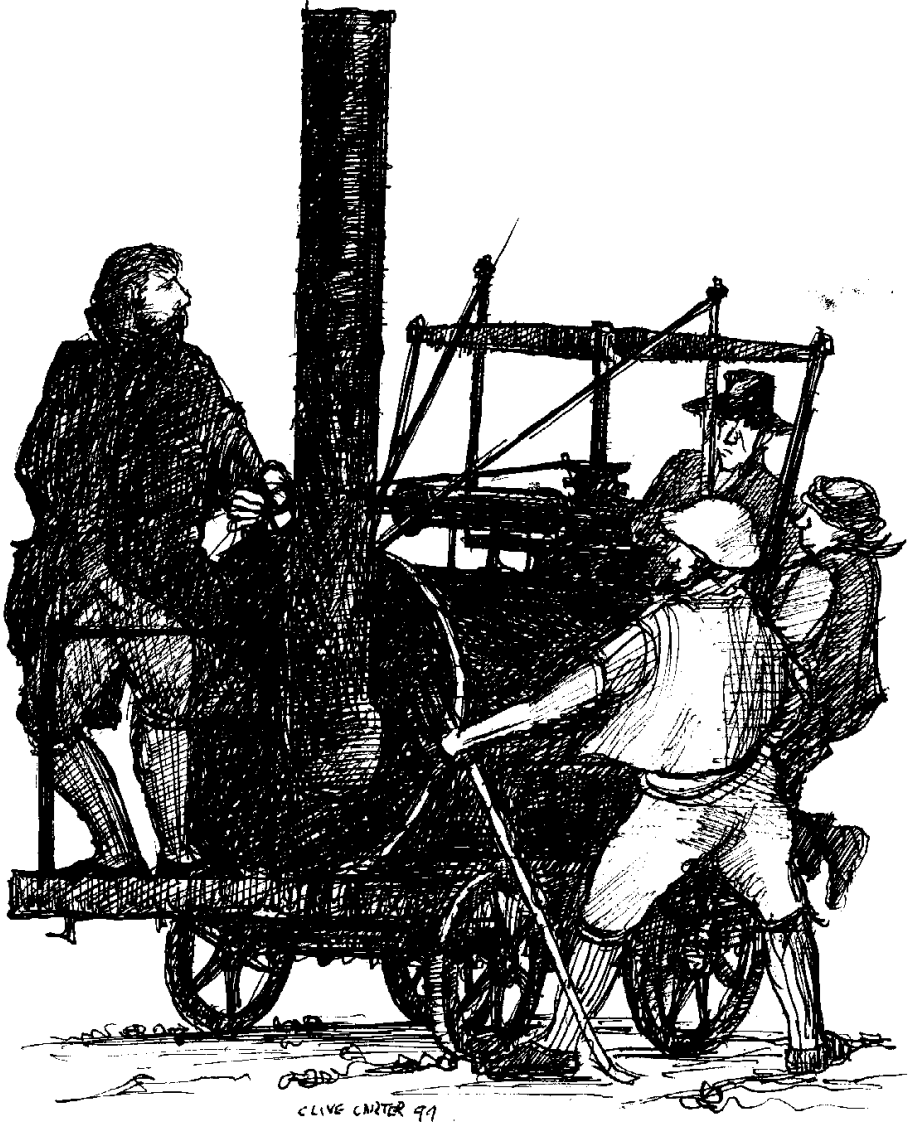
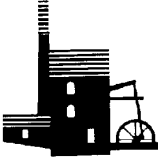


THE TREVITHICK SOCIETY



CHAIRMAN'S ADDRESS

CLIVE

You combined the qualities of an historian, author, artist, family man, raconteur and all round good Cornish engineer in a unique manner. No one can recall anyone quite like you and it is certain there won't be another. That is sad because many of the particular traditional qualities you cherished have been lost to the spread of government led commercialisation.

You were a proud man; proud of your family, your work, the subjects you studied and the achievements of your skilled Cornish colleagues. You abhorred the dilution of Cornish spirit, attainment and distinctiveness. You had no time for those who lived off the labours of others and we, who were fortunate to enjoy your company, will fondly remember your colourful descriptions of those you considered did not fully appreciate the privileges of living in Cornwall.

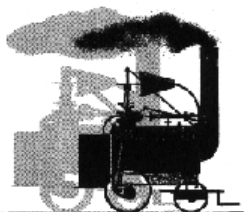
You took your interests to heart. These included your days at Holman Bros, a lifelong devotion to their products and sadness in the decline of the engineering industry in Camborne. They were accompanied by an unsurpassed knowledge of the Cornish coast, its ships and their wrecks. There were few subjects connected to Mankind's achievements from the ancients to the American Civil War that did not attract your attention and blessing.

You were a fervent member of this Society for many years. You were its Chairman and encouraged many of the changes that strengthened the Society to what it is today. We, and especially myself, are grateful for the support and advice you gave us.

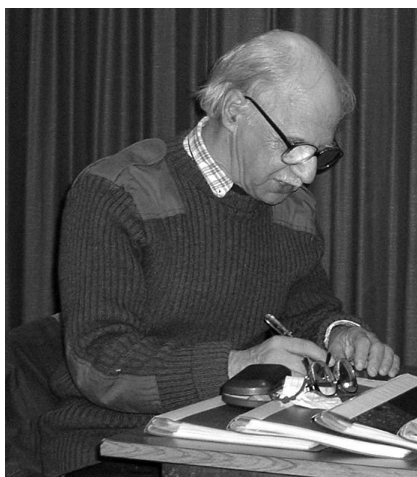
Clive, you will never know just how much we have been stunned by your departure or just how much we will all miss you.

'Good on ya, pard'

Phillip M. Hosken



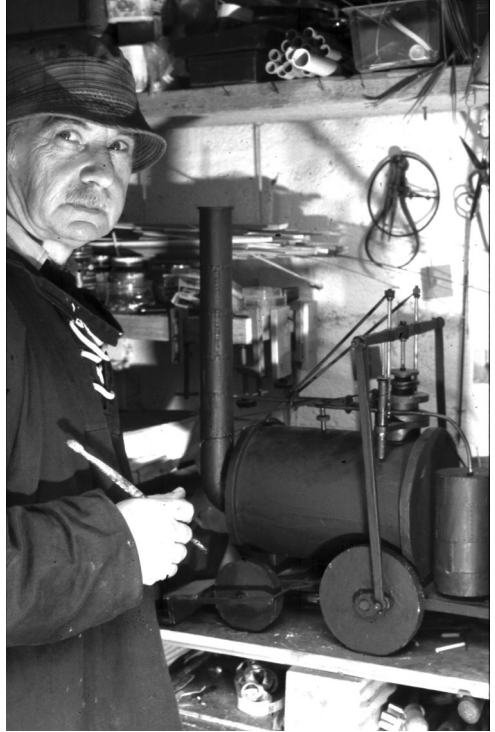
Copy date for next issue is February 15th, 2007



OBITUARY

The death of Clive Carter has profoundly shocked us all. The expressions of 'one off' and 'unique' are vastly overworked terms, but when applied to Clive they really are appropriate. Few people have left such an indelible impression upon those who knew him, as has Clive Carter. It would be impossible to enumerate his multitude of talents and skills, and it would take forever to list his many acts of unselfish kindness and generosity to his many friends. I first knew Clive when we worked in PT at Holmans, 42 years ago, which was when he had written his first couple of books and was becoming known as an author. He wrote about the great blizzard which struck Camborne over 100 years ago and, with Richard Larn, about the shipwrecks around the coast of Cornwall. Many will have known Clive from his extensive writings, which covered a variety of subjects, all of which he seemed to have an amazing knowledge of. Others knew him from his sketches, drawings and paintings, which are unique in their detail and atmosphere. The scenes sometimes appear almost alive! Members of the Society knew him from the many acquisitions he gained for the Society as Honorary Curator, and for his many talks — and nobody could lecture quite like Clive. His original ideas, unusual way of expressing them, and his extremely colourful language, will long be remembered by all. His knowledge of engineering, his skill with the pencil and sketch pad, his rare talent for expressing his ideas in words that brought his descriptions to life, his love of the sea, ships and the men who worked on, and sailed in them, all contributed to Clive's character and personality.

Clive was born and brought up in Camborne and his family were Dolcoath miners for many generations: his father worked at Dolcoath and Tincroft. Clive was very proud of his Camborne roots and constantly spoke of his childhood, exploring the many mining remains around the town. In his youth he studied art at Falmouth College of Art, before working at Devonport Dockyard, Holman Brothers and Nicholas



Holman's dry dock, Penzance. He travelled around Ireland, with David Jenkin, on an old motorbike and later he loved to relate the great times he, David and Peter Hughes enjoyed together. He was married twice, to Sarah, with whom he had his oldest son, John, and to Karen, with whom he had Marie and James. Although he spent his first two decades at Camborne in the mid-1960s he and Sarah moved to Sancreed, where he stayed for many years. Eventually, after marrying Karen, Clive moved to Gwavas Street, Penzance, where he lived until recently.

Clive's enthusiasm for all things nautical — particularly the Confederate blockade-runner the *Cornubia*, built in Hayle and captured by the Yankees — is well known. He wrote about it, built a model of it, lectured on it! My particular favourite piece of his writing, and one which I believe captured his feel for, and love of, the sea and the ships which sailed the dangerous

north coast of Cornwall, was an article he wrote for the Trevithick Society Journal in 1992 — 'The Long Career of Rolling Reggie'. It is a wonderful piece of descriptive writing and it demonstrates everything about Clive and his quite unique ability to express himself in words which capture your imagination and thrill you.

Most of all we will miss Clive's sense of humour, frequently irreverent, often outrageous and sometimes insulting, but always accompanied by a smile and a laugh. Patsy and Peter Hughes, two of his oldest and closest friends, summed up the loss of Clive with the words: 'The world is now a greyer place.' All those who knew him will echo those words.

JAB.

This Society is conscious of its responsibilities towards Cornish industrial archaeology and is very aware that the constant nibbling at its core resources of

CORNISH NAMES ARE BEING SWEEP AWAY WITH THE BUILDINGS

mining and engineering in the name of progress are denuding Cornwall of much of its distinctiveness.

The retention and development of Cornish distinctiveness is claimed as one of the merits of all the present regeneration teams. This Society sees the retention of existing names and their use in future developments as an essential part of the area's distinctiveness.

A panel has just been set up under European auspices to foster the Cornish language. Commercial concerns such as B&Q and Wetherspoons are sensibly using its services to further their interests. However, opportunities to use Cornish names on former industrial sites could be overlooked. Architects and planners suggest names on drawings for identification purposes but, if nobody notices, these names are carried forward by the thoughtless into new road signs.

Very often the Cornish language names not only add a touch of distinctiveness but explain, when translated, what was on the

site before industry was established.

The Robinson's Shaft area at Pool has become known as Heartlands, a name probably originating from Texas and done to death throughout the UK. Since the C14th it has been recorded as Penhellick. At the former Holman Bros factory, a rich site to conjure up distinctive names connected to its products and illustrious international past, Wheal Harriet has become Harriet Green and is accompanied by The Avenue and The Broadway. There are many more. We believe that Clive left this world without experiencing the sadness this would have caused him.

The Society has written to various local authorities in this matter expressing the hope that their planning policy will follow their aims to support the Cornish distinctiveness that was articulated in their regeneration plans. At the time of writing the CPR URC has responded saying it has brought the letter to the notice of the architects working on their behalf.

P.M.H.

The planned re-use of the former CompAir Holman Number 3 building and rock drill works between Trevu Road and Trevenson Street, Camborne includes an area on the corner that can have community and heritage use.

The Society has written to the Camborne

HOLMANS NO. 3

Town Council, the CPR Regeneration Co and Kerrier District Council in respect of the joint use and responsibility of this area. We await the outcome of the planning application before any further plans can be made.

Activity at the former Robinson's Shaft site at Pool is raising some hopes for display opportunities but we've been thinking that for years!

P.M.H.

CROFTY HAS BEEN QUANGOED

Perverse as it seems, the South West Regional Development Agency (SWRDA) has announced that it intends to compulsory purchase South Crofty, putting an end to any realistic future prospect for the mining of the substantial reserves of tin that lie beneath Camborne and Pool. Tin is such a rare metal within the earth's crust that all reserves need to be kept available for extraction for the future of mankind. To do otherwise is a crime against humanity.

Quite why the SWRDA, a body that is set up to support local industry, should be putting the miners out of work, who are actively developing the site to resume mining, appears to be beyond the bounds of reason. Certainly, no sensible explanation has been offered by the SWRDA that can justify its actions.

The South Crofty site is adjacent to the large part of Pool that is earmarked for re-development. Developing that land for jobs, housing and recreation would be a welcome boost to the area and would happily co-exist with mining at South Crofty. So why the SWRDA, an un-elected Quango, are destroying jobs instead of supporting the resumption of mining, is all the more perplexing. One would have thought the real prospect of several hundred highly-skilled and well paid mining jobs deserved support. One thing is certain, if the SWRDA is successful, the South Crofty mine site will never again provide employment for hundreds of people.

CNF.

Members who attended Peter Tutthill's lecture to the Society earlier this year may be interested to know that his book on the

THE CORNISH MOTOR INDUSTRY

subject will be published next spring. It will be launched at a gathering on April 1st 2007 at Rowe's Garage, Trispen.

We are anxious that as many Cornish built road vehicles as possible are represented at the launch. If you have a vehicle built in Cornwall that moves under its own power and you are interested in bringing it along next April, please contact Peter Tutthill on 01208 812358 or Graham Thorne on 01621

892896. If you have any information on Cornish vehicle builders please do the same. More details on the April 1st gathering will be available in the New Year.

Graham Thorne

The position of South Regional correspondent for the Association for Industrial Archaeology News has been vacant for some time. This vacancy has now been filled by Society member Graham

A.I.A. CORRESPONDENT

Thorne. Members who have anything to report may contact Graham direct on the following email: thornes@22totham.freeserve.co.uk. or at 11 Heriot way, Great Totham, Maldon, Essex. CM9 8BW.

He will be delighted to hear from you.

It is hoped to hold the 2007 Annual General Meeting in the Redruth area and one possible outing we have in mind is to South Crofty Mine to sample their underground visit. This is an extremely

A.G.M. 2007

interesting and worthwhile experience and does involve a cost. To get a measure of members' interest and to help plan the visit please contact Kingsley Rickard, if you would like to attend, on the Society chatline (01209 716811) or Pete Joseph (01736 364619) or email either - addresses on the website. Please do it soon!

Cornish Institute of Engineers Programme

Jan. 18th. *Corporate Responsibility in the mining Industry.* By John Eyre.

Feb. 15th. *Industrial Minerals, Past, Present & Future.* By Prof. Peter Scott.

Mar. 15th. *A Documentary of the Restoration of Rosevale Mine.* A John Potter film.

CANT'S WIN 'EM ALL

In mid October the Curator, Pete Joseph had a request to identify a piece of ironwork uncovered by the rough seas on the south Cornish coast and retrieved by the enquirer relatively close to old mine workings. Enlisting the help of the writer the two then journeyed to the home of the enquirer, by appointment, to examine the artefact. The much battered object was dutifully examined and the poser was answered...it was a refrigerator compressor. As I said, you can't win 'em all!

K.J.T.R.

WHATEVER NEXT?

Members Meriel and Chris Gore have brought our attention to Geoff Hudspith, an engineer from Christchurch, Hampshire. Readers may remember a visit to Cornwall by Geoff a few years ago complete with his steam powered bicycle. He has now turned his talents to something quite different by creating what is probably the world's first steam powered gramophone. Using parts from two old players, one being a 1922 Winner model, it plays the old fashioned 78rpm records through a fifty year old horn he found in a garage. The single cylinder steam engine has a paraffin fired boiler with the feed water pump being hand operated as and when required.

As Chris Gore remarked, "We have all heard of steam radio but..."

Some while ago Roger Leathlean of

BEAM ENGINE MODEL

Clacton-on-Sea, Essex, contacted Kingsley Rickard to say he had a model beam engine he would like the Society to have on loan. Kingsley, a Past Chairman of Tunbridge Wells Cornish Association, was intending to attend their Annual Dinner the following March and this was to be coupled with a presentation on Trevithick to Romford Engineering Club, plus a further

presentation at Walton-on-Thames later the same week. It seemed a practical proposition to also collect the model from Clacton during the same trip. Instead, a better proposition was made by member, Russell Titford of Upminster, an experienced model engineer, who volunteered to collect the beam engine from Roger and overhaul it. This was done on 20th September 2006 and the engine was taken into his workshop for examination and evaluation for restoration.

MODEL HISTORY

Roger Leathlean's recollections of the model are as follows:

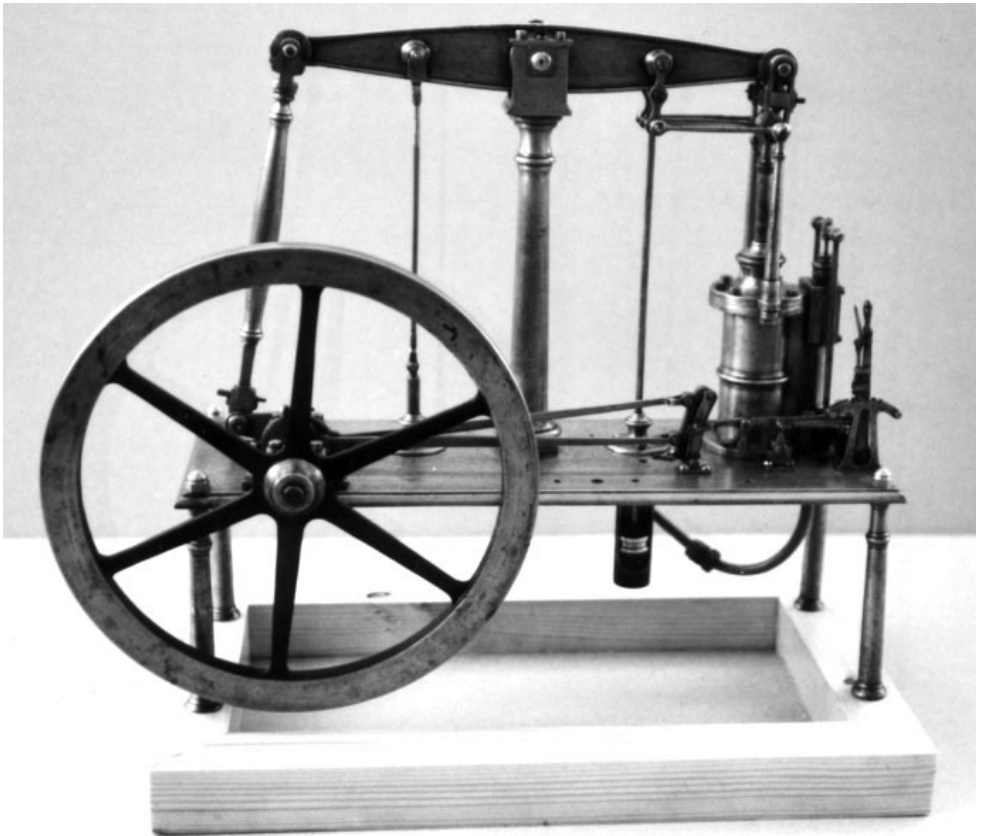
The model was constructed by my great-grandfather, Walter Beverley Bennett, assisted by his son (my grandfather) Frederick Bennett. My grandad's birth certificate indicates he was born in 1869 at Bridge, Illogan. His father is described as a 'fitter', who I understand married into the Holman family. From memory of family tales, turned parts were made using a treadle lathe and, if my grandad did not hold the candle steady he would receive a cuff. I therefore guess the model is dated about 1880.

INSPECTION

The following is the report by Russell Titford on the engine and the work he has carried out.

Before inspection, the model was believed to be that of a Cornish beam engine "used to pump water from the mines". It had also been seen to run on steam and had also been partially dismantled and re-erected at some time.

First inspection showed it to be a double acting rotary engine fitted with a pole reverser and not a pumping engine. So, if employed in a mining situation, it would most likely have been used as a winding engine to raise and lower cages and skips. The model measures about 16½" overall long (including flywheel) by 13" high, which includes 4 X 4" tapered columns supporting the base or bedplate. The builder had been a competent engineer and the manufacture



had been to a high standard. The model as presented was quite messy, as one would expect after 100 or so years, but underlying the surface of congealed oil, grease and general muck, the metalwork was in quite good condition and had that lovely patina that only age can genuinely provide.

Starting at the top, the beam has been fabricated, but had been done so well that it could well be taken for a well finished casting. The web is made from 6SWG (.192") material and is 9 $\frac{5}{8}$ " overall length by 1 $\frac{1}{4}$ " maximum depth at the centre. The flange is $\frac{3}{8}$ " wide x 14 SWG (.080") thick. It has been skilfully constructed and appears to be affixed by blind riveting (this was only discernible after cleaning and microscopic inspection). The beam has 4 bosses, the extreme ones for the sweep rod and piston gear respectively, whilst the inboard ones operated the boiler feed pump and air pump (to exhaust the condenser)

respectively. The one for the boiler feed pump was broken at the connection with the fork end. The feed pump and air pump were both missing but the pistons were still in situ. The Watt's parallel motion had been well made with the rods being nicely fish-bellied and well fitted tapered cotters being cosmetically provided (non functioning). The sweep rod has been very well turned out with nice fish bellying and turned finials, the fork end appears integral and would indicate much skill and ability in making.

The cylinder is 3" to the bottom of the top cover which, in turn, is 1 $\frac{3}{16}$ " to the top of the gland which is screwed in. The O.D. of the cylinder is 1.3" indicating a bore of 1" (although the cover has not been removed to prove this) the stroke is 2 $\frac{1}{8}$ ". The beam centre bearing is 3/8" 0 made of brass and appears to be split, the top plate being secured by hex head screws, the prototype would most likely have had studs

and nuts. The method of affixing the bosses to the beam has not really been determined but it would seem to be with male and female halves fixed through the beam and drilled to take the trunnions. The rod for the feed pump trunnion had obviously been lost and had been replaced by a 5/32" 0 set screw which the restorer removed and fitted a fixture hopefully more appropriate to the original. The fork end had been soft soldered to the operating rod and this had given way. An attempt was made to drill and re-tap the fork but a broken tap was found embedded in the hole which rendered this impossible, so it was dismantled and the rod was silver soldered in place. The cylinder top cover is retained by 5 bolts, one of which had broken off in its hole. The broken part was removed and the hole tapped 5/32" and a matching bolt made and fixed. The valve appears to be of the long 'D' slide valve type with what amounts to inside admission. As I managed to get the engine to run (and reverse) on compressed air, no attempt was made to dismantle it to prove this point. The centre column had been well made with an elegant taper and embellishment in keeping with the period.

The flanges guiding the pump rods through the base plate are made in 2 pieces screwed together internally. The builder seems to have had difficulty here as, in both cases, the securing bolts are not equidistant on the P.C.D. and without exception the bolts have been drawn over by filing. The original fitting bolts had been lost and replaced with anything that could be forced into the holes!! including round head, slotted, and countersunk screws. These were all removed. The holes tapped 5BA and more appropriate studs fitted. The flange for the air pump must have given great difficulty as, at some stage, the original screw holes in the base plate had been filled with brass plugs, then re-drilled, and even then they did not match up very well!!! The base plate also served as the bottom cover for the cylinder, which is secured to it by 4 hex head screws to which someone had sawn screwdriver slots. It would appear that a further 3 screws had been intended as 3 holes exist which have been plugged with grey material, probably

soft solder.

The flywheel is a bit of an enigma. It is 8³/₄" in diameter with a rim thickness of 3/8" and appears from the surface of the rim to possibly be built up but no fixings can be seen. The spokes are again of 6 SWG material and are flat. No attempt had been made to dress the sawn edges and the surfaces were pitted and generally in poor condition, not at all in keeping with the rest of the workmanship. It would be almost beyond belief that a flywheel of this diameter could be turned on a treadle lathe, but it does run quite true. The hub bosses appear to have been fixed separately, probably by the same method used for those on the beam. No method of fixing the flywheel in its shaft, i.e. keyway, grub screw taper etc., has been found.

The base plate measures 13³/₄" x 4³/₄" x 1/4" thick and contains a number of holes which are not at present being used. Behind the flywheel is a "V" grooved pulley 9/16" 0 which would indicate that it could have driven either a governor or a P.T.O. pulley attached to the bed plate utilizing some of the extraneous holes. The plate appears to be in 2 long pieces, a frontal piece of about 1" wide being fixed by a form of welding or brazing and located by a dovetail insert 6¹/₈" from the end. The edges of the plate have a "round-over" moulding and long internal scratches suggest this was formed with a shaper, which was a common machine in workshops at this time. The 4" columns supporting the bedplate are tapered and protruded through the plate to be secured by nuts about 1/4" diameter, a suitable threaded portion being provided. These nuts had evidently been lost and the thread on the column ends so abused by inappropriate ones being forced on that I had to re-cut them to 1/4 BSW and made domed nuts to cover up the mangled remains.

It was decided to provide and section a cylinder to demonstrate how the air pump would have worked. The piston is of a plate valve type made of gun-metal. The cylinder is fixed to and retained by the piston rod flange bolts.

In restoring a machine of this age, great care must be taken not to put too much of the "restorers" license into it. It would be

too easy to have polished it and put on bits that might have been on the original. On the whole I have tried to treat it sympathetically and to produce a model which not only is pleasant to see, but is still worthy of its builder.

Russell Titford.

European Federation of Associations of Industrial and Technical Heritage

The Society's Chairman and Curator have attended the First European Industrial and Technical Heritage Weekend at Hasselt in Belgium. The conference was centred on the former coal mine at Beringen.

E-FAITH provided an opportunity for nearly fifty delegates from as far away as Sweden and Catalonia, Scotland and Hungary to recount their experiences in

E-FAITH

how to regenerate their local industrial archaeology. The conference was more suited to the activities of the society as it took in the whole of European industrial archaeology instead of the more usual approach that dealt with a particular aspect. The main speakers gave papers relating to their difficulties and successes.

It was interesting to note how the same EU funding was handled differently by governments in various countries. The UK IA was seen as successful but it was clear that we faced considerable problems obtaining funding from a government that was not sympathetic to IA at a grass roots level.

The group visited the mighty mine at Beringen where 5,000 men once worked underground. It also examined a water wheel driven flour mill and a distillery that had both been renovated to a fine production and exhibition standard.

A report is being prepared and it should be available shortly. In the meantime details of E-Faith and some of the papers that were presented can be found at www.e-faith.org. Members wishing to have a copy of the Society's report should drop a line to the Chairman.

The Heartlands project is the somewhat uninteresting name under which the regeneration of the Robinsons area of South Crofty Mine is being planned. The local regeneration company recently hosted a seminar for landscape architects from all over the country who are interested in being involved in the project. The Society was asked to attend along with representatives from the World Heritage Office of the County Council, the Gorseth Kernow, local botanical experts with specialist knowledge in layout for public

HEARTLANDS PROJECT

areas, a mining expert and local authority planners. The idea was to give the visitors a feel for the Cornish identity which will hopefully help in formulating their thoughts when submitting their plans for the future of the site.

PROGRAMME CARD CORRECTIONS

**The date for the January 2007
meeting at the Opie Building is
incorrect and should read
Friday, 19th. January.**

**ALSO THE FEB/MARCH
MEETINGS HAVE BEEN
SWITCHED. SEE BACK PAGE
FOR CORRECTIONS.**

is welcome but please ring in advance on 01209 715561.

John Woodward

King Edward has now closed for the winter although the volunteers will be in

KING EDWARD MINE

attendance every Sunday morning and members are always welcome to call in. You never know you may even feel like helping! It's not all hard work. Some of the happenings certainly provide light relief.

David Blight, Willie Uren and Gerald Bodilly have done further work on the Frue vanner and the garden gang have moved one of the big flower tubs on the left hand side above the entrance gate. We were happy with its position until we had a party visit recently and we then found there was insufficient swing room to enable a bus to enter the car park. The gardeners have also begun to clear the accumulated weeds and debris from the old spalling floor.

When the Holman winder was brought back and installed on site, some parts were missing and amongst them was one of its matching pair of shaft depth indicators. Peter Benbow has been busy using his metalwork skills and has made another to match the existing.

One of the major projects to be done during the close season is the cleaning, updating and general refurbishment of the Survey Office. Being a listed building everything has to be done in keeping which provides an interesting challenge. Another thing needing attention are the classifiers which require a rebuild. The constant drying and wetting over the years during use has meant they have become rotten.

Although closed to the general public we are still having one or two school parties on educational visits during the autumn.

That's all this time folks but as you can see we have a variety of tasks to achieve before next season and I am sure we have members out there who can help.

K.J.T.R.

A friend Bill Owen, who lives on the Wirral, frequently walks in the hills of North Wales. He was intrigued to re-discover the iron work of a waterwheel, with gearing and

GILFACH WATERWHEEL

crank, on the site of the former Gilfach Copper Mine. This is in Cwm Pennant, some 7 miles north of Crickieth, at O.S. 527477 on the 500ft contour.

The Snowdonia Park Authority are maintaining paintwork and the name DINGY & SONS, TRURO is clearly visible. The wheel apparently came in two sections and was likely transported to the hillside after shipping from Truro to Portmadoc. Bill adds "the only reason this artefact has survived is the remoteness of the site, as all other mine ephemera in the valley has long since been removed for scrap".

Angela Broome of the R.I.C., in Truro, has the record that Dinky and Son (or Dingey) were in Truro 1878-90, when closed by bankruptcy. However, the firm re-appeared a few years later as an ironfounder in Mexico.

I wonder if the photograph suggests over-shot operation from launders on stilts.

R.M.Heard
Kilkhampton.



THE CORNISH RANGE

The end of the first quarter of the nineteenth century saw the evolution and production of a large number of enclosed cast iron cooking appliances. Just about each county had its own type, all of different design and levels of efficiency. The "Cornish Range" (more commonly known as "Slab" or "Apparatus") was the most efficient and decorative of them all.

My interest in the subject started around 1990 when I bought the remains of a pre-1880 John Holman "Cornish Range" and restored it. For many years it took pride of place in my home as a non-working exhibit. I now realise I still had a lot to learn on the subject.

About 6 years ago, my engineering business went through a quiet patch and I decided to build a "Cornish Range" from scratch. This was relatively simple because the foundry at Hayle used the original castings as patterns and although 1/8 in every foot was lost in shrinkage, they all shrunk by the same amount. The oven was made by David Prout, a local blacksmith, and the internal brickwork built by Eric Berry (all 160 of them!).

Although I had now succeeded in building the first new "Cornish Range" in 70 years, if I wanted to make any more, I had to overcome a few problems. I couldn't risk using my 120 year old castings again in the foundry as they had buckled and become brittle with age and heat. To top it all, the Victorians had a very different approach to manufacturing, not least the fact that all holes were drilled where they fell.

There was no other

option – a new set of patterns were required! I started with some of the simple small ones, i.e. fire bars, grates, doors, hinges, etc. I then progressed to the hotplate (slab) pattern. Finally, when I couldn't put it off any longer, I had to make the main front casting pattern, this being the most decorative and complicated of them all. 12 months of spare time later it was finally completed. I now realised that I should have made the main front casting first, as I had to modify all the other patterns to fit.

An example of one of the countless problems I faced was the decorative relief on the castings which, where possible, I took cold rubber moulds off an old casting. From these, I cast fibreglass inserts which I





could claim to be the first completely new “Cornish Range” in 70 years. I have now built No. 4 but since finishing it in the summer of this year, I have now embarked on a complete internal redesign, doing away with all the red bricks.

As you can see, this has been a story of original design evolving. As a problem was solved it normally created a new one. The effort required to design, make and fit 17 castings together with over 120 other components has made me appreciate what must go into designing something like a jumbo jet.

There appears to be very little published information on the “Cornish Range” and apart from Ferguson’s “Forged and Founded in Cornwall”, there is only foundry and sales catalogues etc. A matter that one day I would like

then machined up and inlaid into an aluminium base. Some of the new reliefs had to make from scratch and this was overcome by a chance meeting with a stone carver, Peter Martin. He produced some exquisite carvings in slate and sandstone to my requirements from which I then took the cold rubber mouldings as before. By this time, I needed to see something for my efforts, so I build No. 2 which I installed in my house as a working appliance. This one was a hybrid, half the patterns being new and half old and still it raised more production questions than it answered, so it was back to pattern making.

Just as I finally finished the complete set of patterns, I received my first order. No. 3 was duly built, installed and flashed up in October 2005. As this “Cornish Range” was made with a new set of patterns, it

to rectify if I ever get the time.

More information on the operating arrangements and history of the “Cornish Range” can be found on my website www.jw-eng.co.uk.

John Woodward

On the evening of the second day of the Society’s exhibition of artefacts from the Redruth Brewery, Bryan Earl gave a lecture not on the brewing and consumption of alcohol, but explosives manufacture in

BEER WITH ATTITUDE

Cornwall. Just short of sixty came to the Cornish Studies Centre and were given a treat and the audience was far from all Trevithick Society. Carn Brea Mining



artefacts included items such as photographs, signs, bar equipment, workwear, artwork, letters and paperwork and some hardware. Needless to say it also included a wide variety of bottles and cans, some quite old. This was all supplemented by the considerable personal collection of the last manager at the brewery John Baughan. When John joined the Brewery in 1995 he found there was no written history and set about the task and at the

Society, Cornwall Institute of Engineers and others were represented together with a number who could not be specifically placed. Bryan, as always, gave us an interesting and informative lecture, which was not without its humorous side. Few were aware that Bryan was hardly up to 100% fitness since this did not show and sincere thanks must be given to him for turning out and to Gillian, his lady wife, for doing the driving and letting him come. The occasion marked the publication of Bryan's new edition of his book "Cornish Explosives" and gave those present an opportunity to have a signed copy. Also on show were copies of the latest half a dozen Society publications, details of which were in the October 2006 Society newsletter. Thanks go to Kim Cooper and her staff for letting us use the room and apologies to those who thought there might be some free beer.

Vernon Baldry
Publications Secretary

Following on from the Society's surveying, recording and recovery of artefacts at the now closed Redruth Brewery site during the summer of 2005 an exhibition of effects was held at the Cornwall Centre, Redruth

REDRUTH BREWERY EXHIBITION

from 6th. November to the 18th. The

same time collecting much memorabilia in the process. His knowledge was also invaluable last summer when conducting us around the site and explaining the flow diagram and the use of the various buildings.

Visitor numbers were higher than expected as the exhibition did not get much advance publicity due to the short lead in time we had to stage it as we obviously had to fit into an existing window in the Cornwall Centre programme. Many past employees visited and many of the stories and discussions which ensued were amusing and illuminating but not for publication! They did, however, fill in many gaps in our knowledge of the site. Many brought in photographs, booklets and newspaper cuttings which we were able to scan and add to our collection and some brought artefacts to be loaned for the display. The exercise was useful publicity for the Society and was well received by the public and the press. We also did good business in selling mementoes. Beer mats to Australia for Christmas seemed popular, light in weight and easy to post.

One sad aspect on the subject of the brewery was, that during the second week of the exhibition, the demolition order was issued for the site which has become badly vandalised since closure. The old brewhouse dates from the early 1800s and has some excellent granite coins and floors in it and it also contains cast iron support columns complete with the foundry mark



“Redruth Foundry”. The company offices, Chymbra House as the brewery named it, was originally part of The British & Foreign Fuse Company’s works complete with the remains of the chimney outside forming a pleasant feature on the frontage. The porch protecting the main entrance to Chymbra House is supported by a circular granite column on each side which were originally part of Redruth Market House.

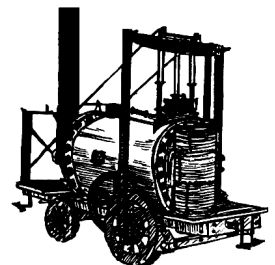
Our efforts to get the buildings listed were unsuccessful on the grounds they were not of sufficient national interest and unfortunately they are located just outside the Redruth conservation area. At the time of going to press the future of the site is unclear but it is hoped that the possible demolition of Chymbra House does not give it the dubious honour of being the first mining connected building to be lost since Cornwall and West Devon were awarded World Heritage Site Status.

The Society wishes to thank past brewery employees who loaned artefacts and photos and Kim Cooper and the staff of the Cornwall Centre who made us welcome

and to the (few) members who helped with the logistics and manning over two weeks, namely Colin French, Pete Joseph and George Wilson.

The January 2007 meeting at the Opie Building, Cornwall College, on the 19th. (not as printed on your card) will be featuring the Brewery project.

K.J.T.R.



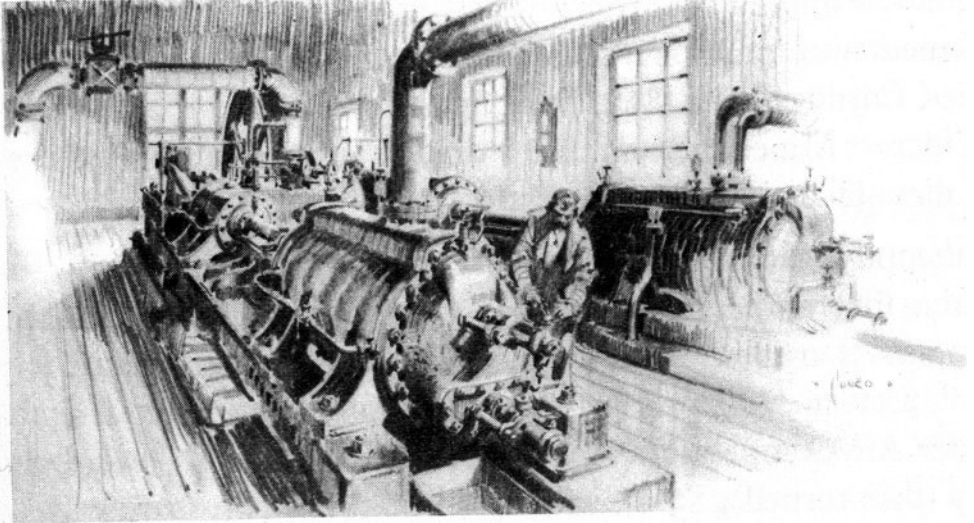
CUNEO DRAWINGS

Sixteen of the Terence Cuneo drawings commissioned by Holman Bros. for their 150th anniversary book, *Cornish Engineers*, have been purchased by the Royal Cornwall Museum. These drawings complement the collection of paintings, including other Cuneo originals, that the museum

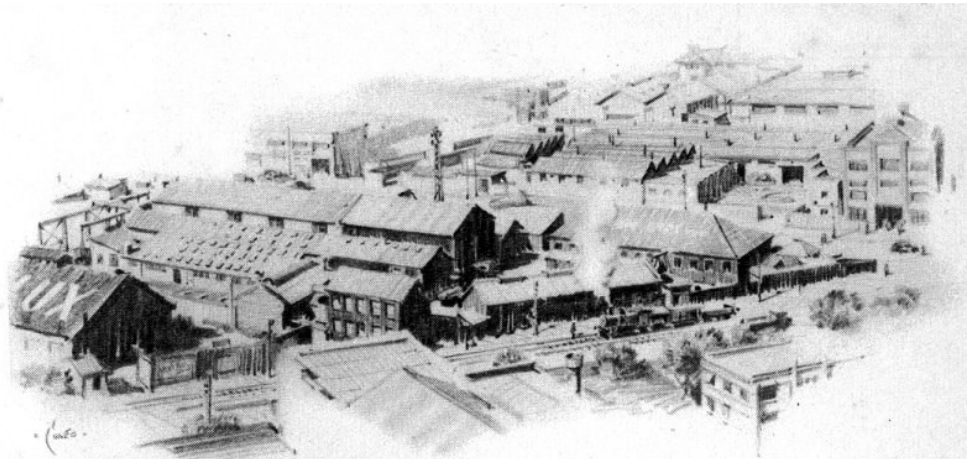
purchased in 2004 when the Compair Holman factory was closing down.

These drawings and paintings vividly bring to life many key moments in the industrial history of Holman Bros, and are a tremendous asset for the museum.

Terence Cuneo, who was the official artist for the Queen's Coronation, died in 1996.



Compressor at the Dolcoath mine, installed in 1902.



The Holman Works at Johannesburg

BROS. LTD.
Holman

SCILLONIAN WRECK

Last year My associates and I found a shipwreck, circa 1850, carrying a cargo of mining equipment. This year English Heritage sent their Marine archaeological contractors to assess the site. They concluded that the site was very rare being the only shipwreck carrying such remains in British waters. The wreck fits the criteria for a Government protection order but they have decided that, unless the wreck can be linked with the world heritage site in Cornwall it is unlikely to receive the status. The wreck needs to be identified and this appears impossible as only the cargo of mining equipment remains on the seabed to study. I am wondering if anyone in your Society could take the time to study any records of mining equipment leaving Cornwall but was lost at sea or whether any was actually destined for Scilly. I have taken as many measurements to produce sketches of individual components of the cargo and can supply the file should the information be helpful. This needs to be researched in Cornwall and, as I live in the Isles of Scilly where the wreck is, I cannot do it. If anyone is interested in taking this on I would like to hear from them.

Todd Stevens

Colossus, Pilot's Retreat,
St. Mary's. ISLES OF SCILLY
TR21 ONA. 01720 423361

The late summer and autumn visitor

LEVANT REPORT

numbers have been higher than average, and this has boosted the lower than average attendance figures we experienced at the beginning of the season.

The Whim has performed very well this year with the exception of the loose outside winding drum and the unreliable Fulton steam generator. Now that the Whim is closed down for the winter maintenance period, work is progressing with the removal of the winding drum bolts, and

although the bolts are only three years old they are rusted solid due to the constant exposure to salt air. The drum will then be removed to decide what remedial work is necessary to secure it to the shaft, and then new galvanised bolts used to complete the work. With the exception of the sealing of a few minor steam leaks there is very little else to do on the engine, other than coats of paint to ironwork and engine house.

It is also intended to make a reconstruction of the depth indicator, but we are unsure of how it was originally driven. There is no remaining evidence that we can find as to how it was done, and we would like to make it as original as possible. Anyone with this knowledge will be gladly welcomed!

The model Man-Engine is almost complete and is now run by a timed push-button operated by visitors. The twelfth scale model pumping engine is running well under compressed air, and both models are very popular with visitors and especially children.

A survey has been conducted at Geevor Mine with a view to acquiring more exhibits. They are prepared to offer us more artefacts including a locomotive, and we are very grateful to the management there for their ongoing co-operation.

Construction of the new toilet block is well under way and there will be separate ladies, gents and disabled toilets complete with baby changing facilities and a cleaner's store. It will be in a timber-framed building adjacent to the old Drawing Office and it will feed into an underground 27,000 litre (6,000 gal) Klargester cess-pool. A 3,000 litre pressurised grey-water system will be used for toilet flushing fed by existing launders from the office, and hand washing will be from mains water. The whole system will be monitored electronically and the lighting controlled by photo-electric cells. Completion is expected soon after Christmas at a cost just exceeding £100,000.

Ron Flaxman

BOOK REVIEWS

James Watt. Volume 3: Triumph through adversity, 1785-1819. Rev. Dr. Richard L. Hills. Landmark Collectors Library. 286 pages, hardback. £26.99. ISBN 1 84306 193 7.

This is the final volume in Richard Hills' biographical trilogy of James Watt, which covers the latter years of his partnership with Matthew Boulton, his retirement, in 1800, until his death in August 1819.

As this title of the book suggests this was the period when he finally achieved financial security and widespread recognition, but in this quest he was beset by a succession of tribulations. These included the intense anxiety of seven years of patent protection trials, the death of three of his children and a disastrous fire at the Albion Mill.

The first section of the book deals with Watt's later engine patents (1781-5). These patents brought important improvements, such as the rotative engine and double-acting cylinders using expansive steam, but also appear to have been a concerted effort to monopolise steam engine development and manufacture, by giving other inventors little room for manoeuvre. To this end these patents included numerous ingenious contrivances, many of which came to nothing, such as William Murdoch's steam carriage, which was included in the 1784 patent. Indeed, after careful consideration of Murdoch's steam carriage experiments and his relationship with Boulton and Watt during this sensitive period, the author concludes "Murdoch's model was a fine toy for chasing the vicar of Redruth up the churchyard path but nothing more".

The rotative engine, family tribulations and the manufacture of Chlorine and medicinal gases are each given chapters. These are followed by one discussing piracy by such rivals as Bull and Jonathan Hornblower, and a meticulous account of the patent trials that practically consumed the last years of the life of the 1775 patent.

Finally, Watt was able to enjoy a very active retirement with the financial security to indulge himself. For instance he purchased, and set about improving,

estates in Wales, developed a machine to copy sculptures, and was interested in the use of cast iron in civil engineering.

James Watt has certainly left a lasting legacy. As every school child will tell you Watt invented the steam engine and Stephenson the railway locomotive, which of course they didn't. And yet, through rigorous experimentation, Watt did make a huge contribution to the development of the steam engine and innovated in other fields of science, all of which deserves due recognition and fuller understanding. To this end, this three part biography has made a major contribution, and has succeeded in presenting Watt's life in a thorough, well researched and well balanced manner with a consistently high standard of explanatory text, plus includes previously untouched aspects of Watt's life.

CNF.

Cornish Explosives by Bryan Earl. Trevithick Society. 365 pages £35.00.

This is a new edition of *Cornish Explosives*, greatly expanded with many additions, new photographs and revised material. The original book, published in 1976, quickly became seen as the 'bible' of the Cornish explosives industry. It was distributed throughout the world and became a collector's item. Bryan Earl's total understanding of the subject and authoritative explanations of the technical developments and historical narrative was superb — this new edition surpasses even his earlier achievement. His involvement with mining goes back to his time as a 'Bevan Boy' coal miner. He attended Camborne School of Mines and gained a Masters degree from Cranfield. Bryan worked for ICI and travelled all over the globe sorting out blasting problems. His great love of Cornish hard-rock mining and his study of this specialist area made him a recognised authority on the ancient industry. Eventually, he retired to Cornwall, and became a mining consultant. His subsequent researches have again carried him to far-flung places like Turkey in search for answers to his many questions.

This book details the first successful use of gunpowder in shothole blasting, first

used in Cornwall before in England, and the way its use developed in the hands of the innovative Cornish miner. He describes the development of gunpowder manufacture in Cornwall and the invention and development of fuse-making at Tuckingmill and elsewhere. He deals with the technical and chemical side of high explosives invention abroad and the building of factories at Hayle and Perranporth to make it. There is hardly an area of this crucially important industry that Bryan Earl does not cover in this book.

This book is an elegant account of an integral part of a once key British industry, which played a vital role in enabling mining and quarrying to flourish. Without these developments and Cornwall's role in them, the first industrial revolution would not have succeeded, enabling this country to lead the international community into the modern world. Once again, Bryan Earl has produced a work of enormous significance, and members of the Society should be proud to have such a distinguished author as its President. At £35 this book is a gift and should be purchased by all who love Cornwall and its unique contribution to mining and industry.

JAB.

Bickford, Smith & Co. Limited 1831-1931. Reproduction copy of 1931 centenary book. Trevithick Society. 26 pages of text plus many photographs. hardback. Price £14.99.

The story of how a devout group of Wesleyan Methodists from Tuckingmill invented a safety fuse, which saved hundreds of lives, is fairly well known. These four men, William Bickford, leather merchant, his son-in-law, George Smith, a miner called Thomas Davey and a rope maker called Bray, revolutionised mining practice, creating a safety fuse design, which is still used today. Bickford patented his invention in 1831 and within a few years his safety fuse was being used throughout the world. Tuckingmill became the centre of a world-wide industry and within a short time Bickford Smith factories were established in America (1836), France (1843), Saxony (1844), Austria (1879) and

Australia (1884).

The book details the many uses Bickford's safety fuse was put to in war and peace. It explains the many modifications and improvements in manufacture and safety at the factory. The men who ran the plants, designed new fuses and sold them world-wide were also described — some famous local men like Colonel Barbery and Colonel Smith. It also describes the connections with such works as Bennett's fuse factory at Roskear and the Kennal Vale works at Ponsanooth.

One of the interesting and significant facts about the success of Bickford Smith was the continuing family involvement at all levels. Nepotism is a dirty word nowadays and the fact that so many successful companies (like Holman Brothers and Harveys at Hayle) were operated on the principle of father to son and uncle to nephew is frequently played down or derided. The family of William Bickford and George Smith continued to manage the firm throughout the first hundred years and beyond. Not only that, but the factory at Rouen, France, established in 1843, and ran by Simon Davey, also continued under his family thereafter. The American factories also operated under the direction of Cornishmen who employed their families and passed on the management to their sons, nephews and son-in-law: Eales, Toys, Urens, Dunstones and Evas were all involved in the American fuse-making industry, many of them sent from Tuckingmill to do so! The same is true on the factory floor, with daughters following mothers, grandmothers and aunts into fuse making at Tuckingmill.

This reproduction of the 1931 centenary book of Bickford, Smith & Co. Ltd is well worth the £14.99 it costs — it is an excellent read!

JAB.

TREVITHICK SOCIETY EVENTS AND CONTACTS

Jan. 19th - C.C.

The Redruth Brewery Project.

By Peter Joseph.

Feb. 16th - C.C.

The National Explosives Works.

By Bob Cleaves.

Mar. 16th - C.C.

Industries of Charlestown.

By Charles Thurlow.

*Meetings are held in the Lecture Theatre,
Opie Building, Cornwall College at 7pm.*

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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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