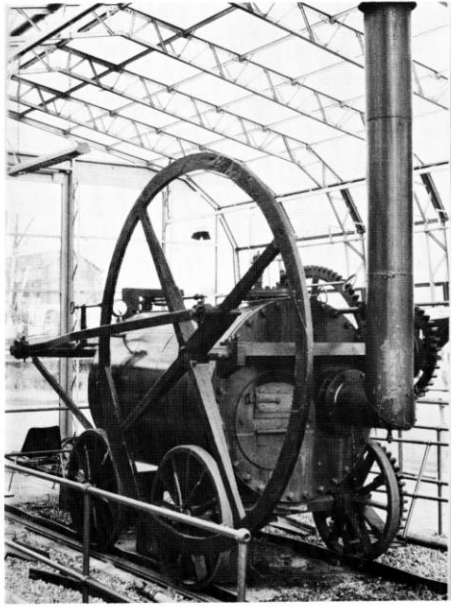


THE TREVITHICK SOCIETY

NEWSLETTER No.43

Price to non members 30p

NOVEMBER 1983



Of Richard Trevithick's locomotive and one of his grandsons

Snapped last month—the 1981-built replica of Richard Trevithick's Pen-y-Daren locomotive in its greenhouse-style shed at the Welsh Industrial and Maritime Museum, Cardiff. It is steamed occasionally on a short length of track.

The British Tourist Authority is researching the life of Richard Francis Trevithick, grandson of the famous Richard, who was born in 1845. He spent part of his life in Japan where he was associated with railway development and was responsible for the first locomotive built there.

Our Secretary has sent the following information to the BTA: "Richard Trevithick has a great-great-grandson alive and well in Japan. He is the son of Captain Francis Henry Trevithick who married a Japanese lady. Although he was christened Richard Trevithick he later became Yoshi Okuno, adopting the name of his mother on assuming Japanese nationality.

His father, who is said to be the son of Richard "Trevithick (the second) went to Japan in 1876 as adviser on the construction of Japan's first railways. Captain Okuno's son, whose name is not known to us, is now working for Lloyds Insurance in Yokahama."

Any member having further information is asked to write to Mr W. Bowen Aylmer-Pearse, 20 Brookland Rise, Hampstead Garden Suburb, London NW11 6DP.

Approaches to ancient and mediaeval tin

A one-day conference on the above subject is to be held in the University of Exeter on Saturday, 3 March 1984. Trevithick Society members are welcome.

Topics will include: tin deposits of South West England, evidence for tin extraction, early tin ingots and cassiterite, tin plating, tin dressing and blowing.

Cost: £4 Full programme and further details from Andy Brown, Archaeology Section, Queen's Building, University of Exeter, EX4 4QH.

Coming Events

25 November *The Thomases of Camborne* Lecture by Prof. C. Thomas

27 January 1984 *The evolution of the rockdrill in Cornwall* by Clive Carter

Both the above are shown in the blue programme card and will take place at the Camborne Community Centre, South Terrace, Camborne at 7.30 pm.

24 February 1984 *Newlyn, its development as a fishing port* by John Corin, Queen's Hotel, Penzance at 7.30pm.

The above talk has not previously been announced so members should note the time and place in their diaries now.

Additional visit

27 December (Tuesday)

Your editor plans to lead a tour through the eastern part of Dolcoath, Old Cooks Kitchen, South Tincroft and Carn Brea Mines—just the thing to cure the after-effects of the Christmas festivities! If the weather and local bus service permit, it is hoped to do the bulk of the tour on foot. Meet 1 pm. in the car park in front of Dolcoath New East whim house (at the top of the hill at the west end of Dolcoath Road, Camborne).

1984 programme

The Society's blue programme card giving details of the 1984 meetings and visits will be sent out with the February 1984 newsletter. Highlights next year will include a visit to the Port of Bristol in mid-May, including the SS *Great Britain* and Bristol Industrial Museum; and the AGM weekend will concentrate on the mines in the St. Just area.

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Editorial

This editorial is being written in the wake of the Society's AGM weekend, the high spot in its annual calendar. For the benefit of those who rarely, if ever, manage to reach the AGM it is worth pointing out that the Friday evening lecture, the Saturday field trip and the meeting itself are deservedly popular. This year, for the first time, we had two additional field trips run by individual members, one on the Friday afternoon and one on the Sunday. Members could partake of three days of suitable entertainment if they so wished—and several did.

Instead of simply reporting the Friday and the Sunday additional visits, on pages 4-7 I have reproduced the handout sheets given out to participants, with additional notes and grid references. This should help members unable to visit Cornwall for the AGM to do the tours at their leisure. I would be pleased to hear from members if they like this approach, or whether they regard it as a waste of space. We could carry similar written guided tours through the more interesting areas as a regular feature in the newsletter, if members so wish.

The amount of space devoted to coverage of the AGM weekend in this issue has meant holding over two articles until February; one by Justin Brooke and the other by Dicon Nance; my due apologies to both authors.

Our Treasurer, Marcus Trinick, informs me that the wording of the new Constitution is now finalised and members requiring a copy are asked to write to the Secretary enclosing a foolscap s.a.e. All members are referred to the changes in the list of the Society's Officers on the front page.

Press date for the February 1984 issue will be 5 January.

Kenneth Brown

Society Journal No 10: Corrections

Please note the following corrections which need to be made in the 1983 *Journal*.

In the Editorial, Mr. A. Hitchens Unwin is wrongly described as a practising miller. He is in fact a mill-wright.

On p 72, the top photograph (gearing of the new mill) is upside down; the bottom left photograph (detail of gearing) is on its side, and needs to be turned through 90° clockwise.

On p 74, line 17 should read "metal vertical shaft (dia. 4 3/8"), not (3/4").

On the same page, line 29, the first word should read "moorstone", not "moonstone".

I do apologise most sincerely for these errors.

Richard Acworth, Journal Editor.

Members' research

Peter Stanier, 49 Breach Lane, Shaftesbury, Dorset, SP7 8LF. The Cornwall and Devon granite quarrying industry from 1800 to the present day. Mr. Stanier will be grateful for any material on the subject with a view to eventual publication by the society.

W.H. Pascoe, The Cottage, 18 Keveler Road, Exmouth, Devon. Mr. Pascoe, who is author of "CCC, a History of the Cornish Copper Company" is now engaged on the research for a book on "The Mines and Miners of Phillack & Gwithian". Any member who has something to assist, particularly photographs of the mines, their engines, count houses or buildings or of the people involved, is asked to write him with brief details in the first place. All expenses will be reimbursed.

Cornish mines' output up

Tin production in 1982 was the highest since 1917 and Cornwall is now producing 40 per cent of the nation's requirements, according to the latest report of the Cornish Mining Development Association. Last year's production figure of 4,174 tonnes of tin concentrate saved Britain about £35 million in metal imports.

In addition, Cornish mines employ some 1,500 people directly, a figure which could increase by another 700 if the AMAX tungsten mining proposal at Hemerdon, near Plymouth, goes ahead. Our President estimates that the Hemerdon project would keep Britain self sufficient in tungsten for 20 years.

Friends of Morwellham

We have received a copy of *Tamar*, annual journal of the Friends of Morwellham (which is printed, incidentally by Penwell who produce our own newsletter).

The close affinity between the interests of the Friends and our-

selves is reflected in the editorial content. Four of the articles are related to mining—*The Mines of Tamarside and South Hooe Mine* by G.A. Rowe, *More about Drakewalls* by the late Frank Booker, *Trading in Ores 1600-1900* by R. Chadwich and *Copper Production in the Tamar Valley in the 18th Century* by Amber Patrick.

The Budge Iron Foundry and Morwellham power station are also the subjects of articles; while a description of the latest developments at Morwellham, including the restoration of Quay Cottage and Workshops, reminds those of us who have not been there recently that development of the port complex is an on-going process.

The Hon. Secretary, Mrs. H. Loze, is always pleased to hear from Trevithick members: her address is 17 Venn Crescent, Hartley, Plymouth (Tel: 779703).

Being out of work, 19th century style

An ever-present shadow on the working miner was the fear of the workhouse or 'Union' upon losing his job through sickness or injury, and a consequent separation from his wife and family.

Life in the 19th century Union, as it was commonly known, was stark indeed; the working day commenced at 6 am from Lady Day to Michaelmas, and continued until 6 pm—meal times and time for 'reasonable recreation' being excepted. Any refusal or neglect of work—however trivial—such as leaving the house without permission, disobedience or disorder, attracted punishment by what was termed 'alteration of diet'. This literally meant bread and water or confinement to the house for an indefinite period, subject to the discretion of the Governor.

Moreover, the Governor was empowered to see that . . . no waste of fire or provisions took place (these were just sufficient to sustain life), all candles were put out by 8 pm (Michaelmas to Lady Day) and by 9 pm at other times. Intoxicating liquor was strictly forbidden!

Once at the dreaded workhouse gates, families were split up, males entered by one gate, and females another . . . only those of most 'tenderest years' being excepted. Old farm labourers who had given their lives to agriculture, were upon reaching retirement summarily evicted from their tied-cottage home—the husband kissing his wife farewell at the dreaded gates.

Inside the Union inmates were accommodated in large, poorly lit, barn-like dormitories with long narrow windows through which daylight barely penetrated. The only source of heat was a small fire at one end of the room. At first, prior to 1860, inmates slept on straw scattered on the floor with only a single blanket for cover. After 1860 straw palliasses were introduced and two blankets given out . . . by generosity of the Governor. Breakfast even in the depths of winter consisted of a crust of bread with dripping, a plate of thin porridge, and tin mug of weak tea. Inmates unfortunate enough to become sick had to await the monthly visit of the local doctor; whilst those who had contacted an infectious disease—diphtheria, smallpox, cholera, scarlet fever etc—were immediately carted off to the Isolation Hospital where conditions were so bad, that large numbers never returned.

From 1870 and the collapse of the copper market, mine after mine closed down, rendering whole villages and parishes destitute. Notices " . . . mine closed last week . . ." were everywhere to be seen. In the chapels pastors' reports ended with phrases like 'one of the most trying years the Circuit has known', 'the unparalleled mining depression', 'a still further collapse of mines', 'the . . . family have been evicted from their home'. Such were the numbers who were claiming parish relief at this time that disputes arose over payment of rates, cases occasionally going to the High Court: 'The Court of Queen's Bench yesterday affirmed in a case brought before them in which the Liskeard Union Assessment Committee had rated the surface works of South Caradon mine, that such buildings were liable to be rated for the relief of the poor?'

Until 1837, the administration of poor relief was through the parish. Each parish annually elected two overseers of the poor, and they were responsible for raising the rate on the property in each parish and expending it for the relief of those unable to support themselves, the aged, the sick, the orphans, the unmarried mothers, and able bodied adults unable to find work.

Overseers were supervised by churchwardens, the Annual Vestry Meeting, and the local Justice of the Peace, this was the Old Poor Law to distinguish it from the system of Poor Law 'Unions' introduced in 1837. I have in my possession an original Union chest—brass bound, circa 1837—wherein rates/monies were deposited. It has three locks labelled: Treasurer, The Master and Overseer; a good check against fiddling the books!

Roy Shambrook

Footnotes

- 1 Liskeard Union Assessment Committee
- 2 'Western Morning News' 21 Nov 1874

Correspondence

Dear Editor,

The Firefly project

I have read with interest about the appeal to raise £400,000 to build 'a working replica broad-gauge locomotive and carriages scaled down... to standard gauge track'. This seems a very laudable endeavour until one examines the projected dimensions, which give rise to doubt.

	Original	Projected design	True scale
Gauge	7ft	4ft 8½in	4ft 8½in
Driving wheel dia	7ft	6ft 1½in	4ft 8½in
Cylinders	15½ by 18in	13 by 15in	10½ by 12in
Boiler dia & length	48 by 102in	42 by 90in	32 by 68in

The table reveals that the disparity between the projected design and a true scaled-down replica is very great and much to the detriment of proper proportions.

The promoters may end with a splendid locomotive, but should they call it the *Firefly*?

Yours sincerely,
David Bick,

The Pound House, Newent, Glos GL18 1PS.

★ ★ ★

Dear Editor,

Copper Tokens

I have the well known Cornish Penny of 1911 with the stack, pumping house and horse whim. The other side the fish and ingots of tin and copper, wording around "For the accommodation of the County."

Another, Prince of Wales feathers and around the edge a belt with a buckle at base, the words "Cornish Penny." The other side the mine picture as above and "One pound for 240 Tokens 1912" around upper three quarters "Payable at Scorrier House" around upper three quarters.

Another with a coat-of-arms and on the side "Payable in cash at Dolcoath Mine" around "Cornish Penny."

The same arms again with on the other side "Success to the Cornish Mines 1812" around "Penny Piece."

I also have one 1911 with the arms of Bristol and another 1913 with "Flint Lead Works."

Yours sincerely,
Douglas Vosper,
"Bostraze", Saltash, Cornwall.

★ ★ ★

Dear Editor,

Allithies copper mines

I have recently been making enquiries concerning the Allithies (or Berehaven) copper mines in South West Ireland which worked during the period 1812-1883 and at their height employed something over 1,000 persons. There were five separate workings or "mines" within a small area and at least five engines of various types were installed. These included a man engine. I am trying to find out if any member of the Society may have come across any references to the working of the mines in published or private sources. Information as to the sources of engines, mineral statistics or newspaper references would be most appreciated.

Yours sincerely,
Paul Stephens,

Prospect Villa, Greenbank Road, Devoran, Truro.

Subscription increase

Please note new subscription rates from 1 January 1984, as agreed at the recent AGM:

Single members	£6.50
Family (Man & Wife)	
Overseas	£8.50
Corporate	

An amendment mandate for members paying by Bankers Order is enclosed with this newsletter. Please fill it in and send it to your Bank, not the Membership Secretary, before 1 January.

For those who pay direct, and anyone else with queries about membership, please note the new address for the Membership Secretary on the front page.

Summer Weekend, 5-6 August

The Summer Weekend of the Society was designed as an introduction to the recording of historic sites in Cornwall, of which 7,000 have already been identified. The programme comprised a series of three short lectures on the Friday evening followed by an instructional session of field work at the Basset Mines the following afternoon.

The lecture session commenced with a powerful plea from Bill Newby for members to engage in a programme of recording historic industrial sites throughout the Duchy. He said that listing had been carried out by the Cornwall Committee for Rescue Archaeology in association with the Institute for Cornish Studies. There were undoubtedly more sites still unlisted and the great task remaining was to record sites. Two years only were available for the compilation of a national register. The task might sound very formidable but in fact a determined group could achieve a great deal in a relatively short time. In Liverpool a Society with a total membership of only 130 had surveyed the Maritime Museum site with its considerable complex of dock buildings in a few weekends.

Bill Newby emphasised that for the purposes of recording sites it was not necessary to produce architectural drawing reconstructions. It would suffice to produce sketch ground plans with the aid of a tape measure, two-meter rods, a clip board and someone to hold the other end of the tape. The inside and outside of the building should be measured and the positions of all doors and windows shown. Showing the height of elevations obviously presented a difficulty but with the aid of a profile photo and a measuring rod against the wall a reasonable estimate of height could be given on the drawing. Photo-recording, preferably on permanent black and white film, was a major element in the whole recording effort. He hoped that recording would become a major activity within the Society's declared objectives.

Justin Brooke and Ken Brown outlined the business and engineering history of the mines respectively. Their contributions were designed as summaries to provide the background for the recording session of the following day. In fact their papers could be judged to be notable contributions in their own right to the history of Basset mines.

Based on the Great Flat Lode, the mines which ultimately became fused into one mining concern represented mining on a grand scale. The remarkable buildings around Marriott's Shaft in the South Frances section distinguish them from any other enterprise in Cornwall. Nevertheless outputs were not on a grand scale in quantity, although at their best the tin values were some three times those found in present day Cornish mines. To achieve the output coal consumption was enormous, as much as for the whole city of Truro. A hundred tons of water was raised for every ton of rock.

Skip winding, using wire ropes was introduced in 1857, early for Cornwall, but power drilling remained to the end confined to development work. On the one hand there were pumping and winding engines of revolutionary design for Cornwall; on the other, whim arrangements which seemed to show that Heath Robinson in some previous incarnation stalked the mines.

The papers were followed by some of our President, Jack Trounson's, inimitable supplementary information and reminiscences. And a major mechanical failure in an 80 inch pumping engine was the prelude to closure in 1918. On any detached view, Cornish mining history must appear as an amalgam of engineering brilliance and sheer eccentricity, originality and conservatism, the highest standards of workmanship and curious improvisations. Add to this the vagaries of the Cost Book system of partnership between adventurers and one can only conclude that, with hindsight, there could have been more enterprises surviving through to the present day, given a different approach in the past. In one year the Basset Count House consumed 45 gallons of spirit so at least they enjoyed themselves while the going was good.

The Field Trip on the following day did not go exactly as planned, though this was at no detriment to the pleasure of the occasion. Under a warm August sun, some twenty members assembled at Marriott's Shaft to be met by Jack Trounson, primed to the hilt with more stories handed down to him by Cornish men of mining. Apart from some photography, no recording was done that day. But those who attended learned something of mining long ago, and much more besides. JC

Inquiry from Australia

Information wanted about Wm Pollamounter (or Polmounter), miner born c1803 who married Ann Cundy c1822. Their children were born at St. Stephen though he may have come from Penzance. Wanted by Mrs. Fay Mannaert of 16 Alfred Street, Wandin North 3139, Victoria, Australia.



Society's Summer Weekend: Participants being entertained by Jack Trounson in the shadow of the Frazer & Chalmers Reidler compressor house, Marriott's Shaft, Basset Mines. Beyond can be seen the bob wall of Thomas' 60, West Basset, and in the far distance Carn Brea monument.

AGM weekend

This year for the first time we had two additional visits, one on the Friday and one on the Sunday, to supplement the Society's official programme. An account of each event follows but, as in former years, that of the Annual General Meeting itself has been kept deliberately brief since the full Minutes will be published in the August 1984 issue of the Newsletter.

King Edward Mine, Lecture 23 September and Field Trip 24 September

This year's subject was King Edward Mine, near Camborne, in the hands of Tony Brooks, who is on the staff of the Camborne School of Mines, and both the lecture and the field trip were deservedly popular. Some 60 members and friends attended the field trip in the course of which 52 were taken underground at nearby Great Condrurrow, now used by CSM for training purposes. Since only 14 members in the hands of two guides could go underground at a time, the shift system was adopted. Those not actually underground divided their time between the surface buildings and plant at King Edward, which included the very fine set of Californian stamps, and the splendid engine-house of the 80-inch pumping engine on Neame's Shaft, Great Condrurrow.

Mr. Brooks well-illustrated lecture covered the period 1895-1921. In 1895 a slump in tin prices caused South Condrurrow Mine to close whereupon the Camborne School of Mines—then seven years old—purchased the central part comprising the surface buildings, plant and workings in the vicinity of Engine Shaft for £325. This provided a rare example of a mine being purchased which was never intended to make any money! The names of Wm Thomas and J.J. Berringer are closely associated with CSM's pioneering work at this time.

Teaching mining and underground surveying, also producing limited amounts of tin, was made possible by the fact that Wheal Grenville was taking all the water, but after about 1900 no work was carried out below the 40 fm level. Early on, a single cylinder steam air-compressor by Holman Brothers was installed to supply rockdrills. The name King Edward was adopted in 1901. In 1902 the mill was set up with the Frazer and Chalmers' five heads of Californian stamps driven by a Holman single cylinder horizontal mill engine. Two years later a calciner was added so that students were thus able to practise a full range of treatment processes.

Meanwhile in 1903 Wheal Grenville took over the rest of South Condrurrow which included the stamps and engine just to the west of King Edward. Grenville had recently installed its own new stamps and dressing plant on the other side of the valley so



AGM Field Trip: Leader Tony Brooks explaining a point underground at Great Condrurrow with the aid of a walking stick; our chairman is on the left. (Photo: Jan Verbruggen).

use of the South Condrurrow stamps was confined to treating the Great Condrurrow dumps in 1906-7.

King Edward's old plug-handle beam whim and boiler were replaced in 1908 by a new Cornish boiler and a Holman 2-cylinder geared hoist of which only the foundation remains. In 1941 this hoist was bought by S Crofty for Castle-an-Dinas wolfram mine in mid-Cornwall, later returned to South Crofty and eventually scrapped. The house of King Edward's beam whim survives but all trace of Engine Shaft has disappeared, along with the house of the 55-inch pumping engine (enlarged from a 45-inch) which stood there.

Closure of Wheal Grenville in the slump of 1921 brought about the flooding of the underground section at King Edward. By this time mining education was becoming more technical with less emphasis on the practical experience element and it was found possible to transfer mining operations, albeit on a far smaller scale, to a section of the Great Condrurrow Mine which lay above the natural drainage level. King Edward was retained as a surface field station: the situation which obtains today.

The section of Great Condrurrow taken over by CSM, where the Society went underground, is on Landower Lode which lies just to the north of Main Lode. It is believed that Landower Lode was mined down to a depth of about 300 ft. Only the top section

of the mine down to the 100 ft. level is in use today, the deeper workings being inaccessible.

The mine is used for underground surveying, ventilation, geological mapping, support and geotechnical studies. A certain amount of drilling and blasting is done on a small scale for research and demonstration but unlike the old King Edward, no ore is hoisted for mineral production purposes.

Great Condurrow Mine was a major copper and tin producer, the main lode being mined down to some 1700 ft from surface. Operations ceased in the early 1880's. Attempts were made to reopen the mine in 1906 and the engine house which now dominates the area was built at this time to house the Harvey 80-inch pumping engine which was originally Batters' at West Chiverton, (where the Society went on the 1982 Field Trip) and later Garland's engine during a short-lived working of the burrows at United. Great Condurrow finally closed in July 1914.

Annual General Meeting

This was attended by some 50 members and opened with an address of welcome by our President. Members were presented with the Society's new Constitution, final except for a few changes suggested by the Charity Commissioners. Our Treasurer Marcus Trinick, who is also the Society's legal advisor, will sort out the final wording with the Commissioners.

All four Council members retiring by rotation were reelected en bloc but there are some changes on the Council. Justin Brooke of Marazion has retired and a new member John Robinson of the Science Museum, whose home is in Cornwall, elected. Mary Smyth has resigned as Hon. Secretary, but remains on the Council while Bill Newby, our Recording Convenor, has taken over as Hon. Secretary.

An announcement was made concerning the intention to form an East Cornwall branch of the Society, which will develop its own programme of meetings in its area which may be defined roughly as St. Austell-Plymouth. This will provide a better balance of Society activities throughout the county and is hoped will attract a bigger membership.

A £1 increase in subscriptions, recommended by Council, was adopted so that Ordinary Membership goes up from £5.50 to £6.50 and Family Membership from £7.50 to £8.50. This is the first increase for two years and is necessary if the Society is to continue to develop and expand its services to members.

At the end of the meeting the Chairman welcomed our Dutch member, Jan Verbruggen of Santpoort, near Haarlem, who had come to Cornwall specially to participate in the Society's activities. Mr. Verbruggen is Chief Engineer to the Cruquius Foundation which has care of the preserved Harvey-built 144 in annular compound pumping engine, and he gave a short speech in which he described proposals for eventually moving the engine under hydraulic power, which are currently being investigated.

Date of next year's AGM: 21-22 September 1984.

ADDITIONAL VISITS

Wheal Castle and Boswedden, 23 September

Some fifteen members took part in this visit which was led by your Editor with the help of Bryan Earl and Clive Carter. For members who may wish to do the tour individually, we include a full description and grid references.

The mines covered by this tour lie in the coastal area sandwiched between Wheal Owles in the north and Cape Cornwall/St. Just United to the south. Though worked under various names they are best known as Boswedden down in the Nancherrow Valley and Wheal Castle up on the headland, both with workings extending under the sea. In the short-lived last working from 1872 they were grouped with Wheal Cuning (up on the hill south of Boswedden) and Boscean (east of Wheal Cuning) under the name Wheal Cuning United.

From the starting point west of Kenidjack hamlet (SW 364324) can be seen the large house which is believed to have been miners' or fishermen's lodgings and, further north, the enginehouse of Wheal Drea, part of Wheal Owles. This was a rotative engine which both wound and pumped from the shaft on the rocky burrow above the road. It was the abandonment and consequent flooding of Wheal Drea that led to the 1893 disaster which closed Wheal Owles. Twenty miners who had entered the workings via the Cargodna Shaft out on the cliff were drowned when the workings in the 65 fm level broke into the flooded Wheal Drea; their bodies were never recovered. (A plaque on the collar of the Cargodna Shaft in their memory has disappeared in recent years).

Further up the valley can be seen the bob-wall of the stamps

engine on Grouse Mine, while the lone stack on the south side of the valley belonged to the pumping engine on Lower Boscean. A few traces of waterwheel-driven stamps and dressing floors can be found in the fields below.

We take the path leading down the valley, then up the slope towards Wheal Owles. The rocky outcrop below the hill path is known as Carn Praunter, and a few old shafts in this area probably belong to Yankee Boy Mine which worked the inland portion of the Wheal Castle lodes. On the other side of the Nancherrow Valley (south side) are the ruins of Kenidjack arsenic works, described by Bryan Earl in the latest Journal. Near the top of the hill a short length of narrow-gauge rail track can be seen; all that is left of a tramway which served a quarry out on the cliff. At the top unfolds a fine panorama of the enginehouses on the Wheal Edward Diagonal Shaft (SW 361327) which is still open. The enginehouse facing us is Wheal Edward stamps, a 26in which also drove, for a time, a winding cage which pulled from Diagonal Shaft and Cargodna Shaft partway down the cliff.

Later a separate winding engine was put in (probably the 24-in from Wheal Cuning) and part of one wall of the house and the footstep bearing for the cage survive — complete with traces of grease! West Wheal Owles pumping engine beyond was a 36in and another still visible curiosity is the site of a 50ft diameter buddle in front of the stamps, which visitors to the mine used to marvel at! It is said that the 'dead head' took up 25ft.

Whilst at Wheal Edward Diagonal Shaft and in a howling gale, Bryan Earl treated the party to a fine demonstration by locating a stone containing pitchblende (uranium) on the burrow with the aid of a geiger counter. It is on record that this mineral was found in the shallower levels. The shaft was taken down to a final depth of about 100 fm and the workings extended more than 200 fm out under the sea.

Wheal Castle

Proceeding westwards, the ruined building on the headland at Wheal Castle is probably nothing to do with mining—possibly a store for the disused rifle range—though it may well have used stone robbed from Wheal Castle enginehouse (SW 356326). Of this only the base, still with cylinder bedstone, survives. The engine was a rotative, about 22in, and was erected in 1883 in connection with a short-lived reworking intended to open up an intersection between Wheal Castle and another important lode under the sea a short way out from the cliff.

The method used was remarkable. Instead of rehabilitating an old shaft (probably the one just in front of the engine) above adit level, the skip road and pump rods were taken out and down the sheer face of the cliff! Then they entered the adit a short distance and were turned down the shaft which was enlarged to receive them. Fixing the installations, including a ladder road, down a windswept cliff with Atlantic breakers below is a feat which is better imagined than described! What little we know about this venture comes from reports by Capt. J. Boyns in Mining Journal during 1883. They include mention of the fact that to obtain water for the engine's condenser, some of the water was pumped up a rising main on the cliff. The outline of the pond behind the enginehouse is clearly visible, as is a depression for a single Cornish boiler.

A short distance to the south is the outline of a horse whim plat which appears to have had a stone building around it. It is on record that whim baling was done here before the engine went to work in November 1883. What finally became of the venture is not known: but some work had been done on Wheal Castle 60 years earlier.

As we head south over the ridge, we can see a few shafts belonging to Wheal Cuning on the high ground opposite and, further away, the leaning stack at Bosorne and Ballowall mine which had a 40-in pumping engine. The famous Cape Cornwall stack, which it is hoped will soon have urgent repairs done, can be overlooked from this point. Descending the steep path, with the old quarry on our right, exposes a panorama of mining remains in the Nancherrow Valley. Due to the quantity of water and the valley's steep descent, water power was much in evidence here and the two steam engines appear to have provided supplementary power, or only worked during dry spells.

Boswedden

A prominent landmark at the seaward end of the valley is a huge masonry waterwheel pit (SW 355323), probably the best example used in mining in Cornwall. There was a 65ft wheel used in the valley in early times but it could not have occupied the present structure as it is not large enough: it measures 54ft long inside. It contained a 52ft wheel in the 1860's, which is on record as driving, through gearing, flat rods working pumps in Wheal Call shaft upstream and Praze shaft which must have been near the sea. A small tunnel beneath the dressing floors clearly shows

the route of the flat-rods to Wheal Call. On the hillside is a wheelpit for a Diagonal Shaft, which is probably the shallow depression in the burrows which extend up the hillside above the big wheel. Final depth under the sea was 92 fm. Note the two distinct levels of leat which supplied the wheels on the hillside, in the photograph below.

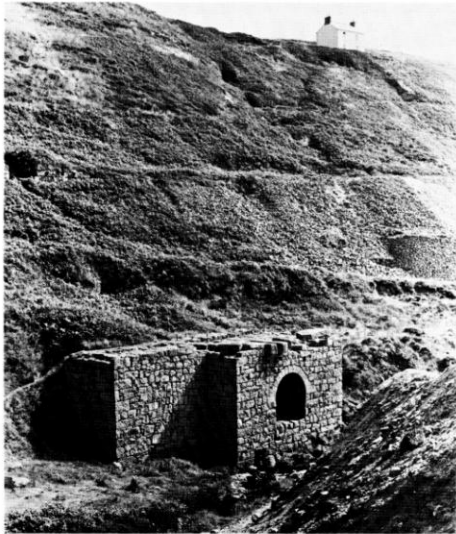
Since Geevor has recently obtained permission to work the large burrow in the bottom of the valley, north of the stream, the quiet peace of the Nancherrow Valley is about to be lost, albeit only temporarily. That the burrow is rich in mineral is obvious from just walking on it, and the material probably came from Wheal Call shaft, near its eastern end. Here the base of the 37-inch pumping engine may be seen (SW 356324), also the mounting for the balance/angle bob to which the flat-rods from the wheel must have been connected when water power was being used. Geevor has promised not to disturb these remains.

On the south side of the stream are the remarkably unspoilt remains of the dressing floors, considering the mine closed more than a century ago, and part of the house of the 28in stamps engine which was blown up by the military. A 20ft wheel was also used for stamping, though I have not precisely determined its site. The main access track into the mine used to cross the stream upstream at Wheal Call shaft and come in behind the stamps engine. However, a severe storm at the end of the 19th century turned the stream into a raging torrent which washed away the embankment and culvert where the stream was crossed. At that time all the equipment, though idle, was still in place and the force of the water tore away everything made of timber and did much other damage.

Down near the beach are the remains of a Pelton Wheel installation in a stone building, much more recent than the mining period and possibly serving the needs of the hotel up on the Cape Cornwall road. Traces of buddles etc. mark the site of tin dressing operations for which, again, the large wheel probably supplied the power.

Upstream of the stamps engine boilerhouse is a wheelpit not shown on the 1880 OS map whose purpose is not known with certainty—it might have been built for a 26ft wheel in the 1880's to work an air compressor for Wheal Owles. Ascending the path through this beautiful valley up to Kenidjack, several old shallow adit workings on the backs of lodes may be seen; and entered if one is properly equipped. The absence of the ends of drill holes in the rock suggest that they date from an early period before the general use of explosives. The house we pass partway along the path appears in old photographs and may well have been the Boswedden count house, since enlarged and modernised.

A few members were taken over the Kenidjack arsenic works



Boswedden's splendid 52ft waterwheel pit seen from the burrow soon to be cleared at Wheal Call Shaft. Note two of the granite bearers for supporting the end of the countershaft, geared from the wheel, which carried the crank for the flat-rods. Up on the hillside (left) are the remains of 'Water Whim' driven by a smaller wheel which drew from Diagonal Shaft (extreme right).

by Bryan Earl. The thick undergrowth which now covers much of the valley belies the succession of streamworks which at one time created a real hive of industry. Cyril Noall in his new book on Geevor records that as early as 1822, there were no less than seventeen stamping mills and three grist mills between Bostraze and the sea, the wheels of which were turned by the Nancherrow stream.

For further reading, the same author's "The St. Just Mining District" is recommended. KB

Tin workings on Bodmin Moor, 25 September

On the Sunday of the AGM weekend, our member Sandy Gerrard led a group of 24 members and relatives to see some of the early tin workings on Bodmin Moor. Mr. Gerrard's expertise and enthusiasm will surely inspire many who took part to take another look at this aspect of early industrial archeology.

Stuffle Tin Mill (SX 177717)

This site was discovered in February this year during a survey of the tin streamworks upstream of the new Colliford dam. Excavation starting in August revealed a single leat which probably served a small wheel situated at the eastern end of a small stone and turf building. Only the base of this structure now survives, although a few of the larger stones which formed the walls lie scattered throughout the lower part of the excavated area. In the interior of the building a small pit marks the possible site of the stamping machinery, and a short distance away tin slimes have been formed. The tin that was crushed in the mill was collected from the nearby valley bottom and early mediaeval pottery found on the site suggests a 14th-15th century date. There exists Stannary Court Roll documentation for tin working in this area in 1401 and it may be that this site dates to this period of working.

Stuffle Stone Building (SX 176717)

This small square, dry stone building measuring 2 by 2 by 1.5m high and with an entrance in its southern wall lies 80m west of the mill. It was cut into a bank of waste material from streamworking. Only a single find—a piece of badly corroded iron—was recovered and this provided no clues regarding function. Its association with the mill suggests that the building may have been contemporary and a store for valuable tin or tools. In mediaeval times tin robberies were rife, and this may have been a structure hidden amongst the waste dumps in which valuable tin was hidden before being transported to a blowing house.

West Colliford Stamping Mill (SX 178713)

Due to the rising level of waters in Colliford Reservoir this site is now totally submerged, and it was not possible to visit it. Excavations in 1979 revealed a dry stone built mill, wheelpit, several buddles and a slime pit. Field survey revealed that the excavated mill was part of a more complex tin-works, sited at the eastern end of a 400m long openwork. Finds included two mortar stones, an axle bearing stone, much early 17th century pottery and a bronze screen through which the crushed tin had passed from the mortar box. Detailed investigation revealed seventeen separate phases of activity, much of this probably being from seasonal use of the site, though three more prolonged periods of abandonment suggest changes in ownership, difficulties in ore extraction and/or fluctuations in the price of tin.

Colliford Streamworks

The entire valley bottom is covered in earthworks of early streamworking. Although apparently haphazard it was possible to see the method of working employed by the streamworkers. The direction of work was upstream with the waste being carried downstream and dumped in previously worked areas. The resultant earthwork is a series of mini-escarpments with the steepest slope facing downstream. These streamworks were drained by leats which flowed to the present river at St. Neot.

Stuffle Mediaeval Farmstead (SX 184719)

On a west facing slope overlooking the stream works is a small early mediaeval farm consisting of one longhouse and two out-buildings. The close association of this site with the streamworks suggests strongly that the inhabitants probably worked for tin in off-peak times of the agricultural season. Pottery from the site is datable to the 13th and early 14th centuries which suggests that it was probably abandoned as a direct or indirect result of the Black Death. The longhouse type of building with domestic and byre quarters within the same structure is characteristic of farming communities, but it would be very unlikely that these people took no interest in the potentially profitable nearby stream tin, particularly when one considers that no mining settlements exist in this part of the moor.

Trebinnick Processing Area (SX 182707)

Two rectangular earthworks cut into the western hillside of the St. Neot Valley and served by a single leat were visited. The earthworks may be stamping or blowing mills and the tin for processing would have been mined from the nearby Moor Works on Penhastle Moor. Between the structures the traces of hollows may be associated buddies.

Goonzian Downs (SX 175675)

The Stannary Court Rolls refer to tin mining here in 1516 and a large part of the Downs are covered in thousands of small haphazardly arranged pits. These pits were dug to extract shoad tin which had been weathered from the fourteen narrow tin lodes in this area. Larger pits were noted to lie on the larger lodes. The spoil tips from two adits, a small rectangular earthwork building and the trial trenches of late mediaeval or early modern tanners were all visited! No leats were noted and the shoad tin was mined with the aid of no water, which is an unusual feature forced on the tanners by the location of the site.

SG

Book Reviews

Geevor by Cyril Noall
Published by Geevor Tin Mines plc Price £7.50
Pendeen, Penzance TR19 7EW. (by post £9.00)

"Dedicated to all the men and women of Geevor Mine without whose loyal service the Company could not have weathered the many storms that have beset it during its long and eventful history." So runs the foreword, encapsulating in one sentence what hard rock Cornish mining is all about. From the start of the mine's history as North Levant in 1851 to the present day, the period covered by the narrative, the picture is one of a Cornish mine which, had it not been for alert management and exceptional determination, would unquestionably have gone the way of so many others.

However, any book devoted wholly to what it is, by world standards, a relatively small mining operation is almost forced to go into a lot of detail. This the book does in some places, listing for example items of milling equipment that even a devout specialist may never have heard of. So if there is one criticism that could be levelled at the author's highly professional approach, it is that some parts of the book may confuse and even bore the reader.

As if to compensate, the history of the mine is enlivened by contemporary reports and quotations which give a very good insight into the problems with which anybody in mining is apt to be confronted: for instance, the miner deep down in the earth who suddenly hears the roar of approaching water, and the Board of Directors who learn that an expensive underwater concrete slab has failed to keep the sea out of flooded workings. The descriptions of the major problems are splendid stuff, though the reviewer would defy anybody with a degree in civil engineering to comprehend fully the method Geevor finally adopted to seal off Levant's notorious "40-backs".

Which brings one to another criticism, in which this book is not alone—insufficient diagrammatic material. How easy it would have been to sketch that pillar of concrete which is now holding up the sea bed, showing where the grouting was carried out. The plan of Geevor and its neighbours reproduced to A5 size is far too small. Many of the shafts named in the text are not mentioned on it.

To have survived for so long where others have failed, a mine has to be unusual and this Geevor certainly is. Diversification, so often the answer for an ailing manufacturing concern, has been applied in unusual directions by a company which not only mines for tin but also keeps a museum—and has now published a worthwhile book!

KB

Penlee Lifeboat by John Corin and Graham Farr
Penlee and Penzance branch of the RNLI, Price £2.75
72/73 Market Jew Street, (by post £3.25)
Penzance, TR18 2LF.

At first sight it might appear remarkable that a softback book of 120 pages has been devoted to the history of a single West-country lifeboat station. However, when the tragic loss of the Penlee boat "Solomon Browne" along with 16 lives leapt into the headlines just before Christmas 1981, it awakened fresh interest in the heroics regularly performed by lifeboat crews under appalling conditions. This interest is sustained throughout the

book's lively narrative, aided by some splendid pictures. Indeed well over 50 per cent of the page area is devoted to pictorial matter.

The text describes the various lifeboats which have seen service on the station from 1803 to the present, and their crews. The station itself has seen several moves—from Penzance to Newlyn in 1908, then to Penlee in 1913 and back to Newlyn this year. The book provides an excellent insight into the workings of the Royal National Lifeboat Institution which is portrayed as a generally alert body, fully alive to its heavy responsibilities. The only blot recorded is that two crew members who died of pneumonia in 1912 shortly after a particularly difficult mission never had their names recorded on the Institution's official list.

Altogether a lively, readable and factual publication which carries the tang of sea spray right into the reader's living room. **KB**

News briefs

The National Trust has commissioned our Council member, Clive Carter, to make models of the East Pool whim and Taylor's 90-inch pumping engine for display in the two enginehouses. This is part of a scheme to give visitors a better understanding of what the engines did and how they worked.

—oOo—

Our member David Bick tells us that his book *Old Metal Mines of Mid Wales* part 2 (covering Cardiganshire—The Rheidol to Goginan) has been reprinted in a revised edition after being out of print for several years. It costs £2.40 and can be obtained from Mr. Bick at The Pound House, Newent, Glos GL18 1PS, phone Newent 820650.

—oOo—

Mr. Rex Wailes, the well-known authority on windmills and wind power, has been elected to Life Membership of the Trevithick Society.

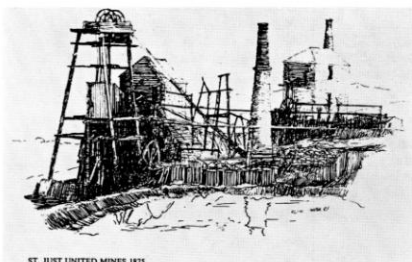
—oOo—

The famous St. Aubyn's 80-inch enginehouse at Tregurtha Downs mine, near Goldsithney, is to be converted into a private dwelling house. Penwith District Council apparently give their consent without consultation with the Trevithick Society, but it is understood that restrictions on the developer include retention of the existing fenestration.

East Cornwall branch

As announced at the AGM, an East Cornwall branch of the Society is being formed to arrange meetings and visits, open to all members but particularly to serve the interests of those living between St. Austell and Plymouth. Our former secretary Mary Smyth and John Stengelhofen, the two Council members who live in the area, are responsible for setting up the new branch. Full details will be given in the February newsletter.

Society greetings card



ST. JUST UNITED MINES 1875

The Society's greeting cards, unlettered inside and with Clive Carter's sketch of St. Just United (reproduced half-size) on the outside, will make ideal Christmas cards. They are now obtainable from our Publications Secretary at 10 pence each; the following amounts must be added for postage: For 1 to 5 cards, add 13p; 6-9 cards 18p; 10-15 cards 22p, and 16-20 cards 28p. ORDER NOW while stocks last!

TREVITHICK SOCIETY PUBLICATIONS

Obtainable from E.W.A. Edmonds, "Newlands", Tarrandean Lane, Perranwell Station, TRURO, Cornwall TR3 7NW. Tel:0872-863931.

The Publication Secretary will consider any suggestion regarding the means of delivery of orders, in order to reduce the postage or carriage charges. Orders can be sent by carrier or picked up by the representative of the customer by prior arrangement with Mr. Edmonds. Postage rates are as at April 1983. A charge may be made for delivery by hand.

JOURNAL OF THE TREVITHICK SOCIETY (Free to members—all 240 by 180 mm with illustrations)

- No. 1. Includes articles on: Richard Trevithick's place in Engineering History; Bodmin and Wadebridge Railway; Wheal
1973 Guskus; The Redruth to Penzance Turnpike Roads; The Liskeard and Looe Canal. £1.25 plus 40p postage.
- No. 2. Includes articles on: History of Camborne School of Mines; The West of England Bacon Co.; The Early Years of
1974 Richard Trevithick; Blowing Houses and Smelting Works of St. Agnes and Redruth. £1.25 plus 40p postage.
- No. 3. Includes articles on: Richard Trevithick, some unpublished contemporary documents; Iron in the Cornish Industrial
1975 Revolution; The Cornish Beam Engine and Patent Law; Notes on Cornish Industrial Literature. £1.25 plus 40p postage.
- No. 4. Includes articles on: The Hornblower Family; Brea Adit Works, Camborne; A Glimpse of the Cornish Mineral
1976 Industry in 1873. £1.25 plus 40p postage.
- No. 5. Includes articles on: Richard Trevithick in Costa Rica; Some Lesser Known Cornish Engineers; The Hornblower
1977 Family; Early Cornish Mineral Railways; The Cornish Metal Co. £1.50 plus 40p postage.
- No. 6. Includes articles on: The Cornish Copper Co.; Ore Dressing in Cornwall; Humphrey Davy and the Cornish Contribution
1978 to the Industrial Revolution; Holman T100 Gas Turbine Air Compressor; Wheal Owles Disaster; Liskeard &
Caradon Railway; Industrial Housing in Cornwall. £1.50 plus 40p postage.
- No. 7. Includes articles on: Engineering Marvels, highlights of Jack Trounson's tour of Britain in 1938; Introduction of
1979-80 the Plunger Pole or Force Pump; Angarrack Smelting House; The Cornish Copper Co. 1693-7; Cornish Newspapers
(pub 1980) 18th and 19th Centuries; South Wheal Francis and West Wheal Basset Boundary Litigation; Richard Trevithick as
the Inventor of Containerisation for Ships. £3.00 plus 40p postage.
- No. 8. Contains articles on Tregurtha Downs Mine, Marazion; Introduction of the Trevithick Steam Engine to North
1981 Staffordshire; Mineral Statistics of the United Kingdom; Man Engines in Cornwall; Diesel Engine Development in
Penzance; Cornish Engineering Letters relating to Richard Trevithick & others, and The Cornish Gauge and J.&F.
Pool. £3.00 plus 35p postage.
- No. 9. Contains articles on Trevithick's Track; The Boilers of Richard Trevithick and Arthur Woolf; New Light on the
1982 Hornblower and Winwood Compound Steam Engine; Prestongrange 70-inch Cornish Engine—A Myth Exploded;
The Maritime Industrial History of Bideford; The "Hayle" of Hayle; Devon Great Consolidated Copper Mining Co.;
The Last Years of Devon Great Consols; Cornish Stacks and Engine-houses. £3.00 plus 35p postage.
- No. 10. Contains articles on Arsenic Winding and Refining Methods in West of England; Cornish Mine Labour & the Royal
1983 Commission of 1864; Stationary Steam Engines of Neath Abbey; Richard Trevithick, the Heath family & the North
Staffs connection; the Lower Gweek Mills. £4.50 plus 35p postage.

SPECIAL OFFER TO MEMBERS. Any four or more copies of Nos 1 to 8 at 33½% discount on above prices, plus postage and packing extra — 4 Journals £1.40 (£1.20 Devon and Cornwall); 5 to 8 Journals £1.80 (£1.60 Devon and Cornwall).

OCCASIONAL PUBLICATIONS

DOLCOATH, QUEEN OF CORNISH MINES — by T.R. HARRIS

The first published history of probably the most famous of all Cornish Mines from its beginnings in 1790 to its final closure, and attempted revival. A5 (210 by 147 mm) 108pp with illustrations and plan, £1.25 plus 35p postage.

SIR GOLDSWORTHY GURNEY, 1793-1895 — by T.R. HARRIS

Biography of the Cornish inventor, best remembered for his steam carriage. Published to commemorate the centenary of his death. A5 (210 by 147mm) 100pp with illustrations. £1.00 plus 30p postage.

OTHER PUBLICATIONS

CORNISH EXPLOSIVES — by BRYAN EARL

A detailed history of the manufacture of explosives in Cornwall with illustrations. 240 by 185 mm hardback. £8.50 plus £2.00 (£1.70 Devon and Cornwall) packing and postage.

INDUSTRIES OF PENZANCE — by PETER LAWS

Illustrated, 150 by 200 mm, 48pp. £1.25 plus 25p postage.

CORNISH NEWSPAPERS, 18TH & 19TH CENTURIES — by NIGEL TANGYE

Lists over a hundred newspapers. 175 by 250 mm. £1.25 plus 20p postage.

ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY, Tour Notes for 1978 Conference, Penzance.

Illustrated, 32pp, 210 by 290 mm and £1.50 plus 25p postage. Only a few left.

NEWSLETTERS OF THE TREVITHICK SOCIETY

Individual copies of most, but not all, newsletters are still available. Send 25p in stamps for any copy required, if not in stock, stamps will be returned.

BOUND SET OF NEWSLETTERS

Volume II, 1975-77. £3.00 plus 55p postage. Only 20 copies.

INDUSTRIAL HOUSING IN THE TIN & COPPER MINING AREAS OF CORNWALL, LATER 18TH & 19TH CENTURIES

Reprint of lecture by Victoria Cheshire in Newsletter No. 23, November 1978. Illustrated, 24pp, 210 by 290 mm. £2.00 plus 25p postage. Only 3 copies.

REPRINT SERIES

AN ACCOUNT OF WRECKS — by JOHN BRAY

Compiled at the request of R.S. Hawker and edited by the late A.K. Hamilton Jenkin, many aspects of the commerce of the North Cornish Coast in the period 1959-1830 are brought into focus. A5 (210 by 147 mm) 44pp. 50p plus 20p postage (25p plus 20p postage to members). Reduced as staples are rusty.

ILLUSTRATED CATALOGUE of pumping and winding engines and other plant manufactured by Williams' Perran Foundry Co. 285 by 220 mm, 36pp. £1.50 plus 35p postage.

OTHER ITEMS

GRAMOPHONE RECORDS

Truro Cathedral Bicentenary Service for Richard Trevithick, 13 April 1971. Two sides, 33 rpm. 300 mm diameter. £1.60 plus £1.40 postage and packing.

BRAINS TRUST TAPES

Tape cassettes of three Brains Trusts on Cornish Engineering, as detailed in Newsletter No 37 (May 1982) page 4. Price £3.00 each, plus postage of 30p for one and 50p for two or three tapes. About four weeks delivery if not in stock.