

**The Trevithick Society**

**2018 AGM**

**Programme Notes**

**Compiled by**

**Pete Joseph**





## AGM 2018 Programme West Penwith

- 1. Friday May 11th afternoon 2pm**  
Wheal Trewavas
- 2. Friday May 11th 7.30pm**  
Talk: Pete Joseph, 'The SS *Cornubia*'
- 3. Saturday May 12th morning**  
Rosevale Mine, Zennor (underground trip)
- 4. Saturday May 12th morning**  
Botallack Mine (non-underground option)
- 5. Saturday May 12th afternoon**  
West Wheal Owles and Wheal Edward
- 6. Saturday May 12th afternoon and evening**  
Geevor Tin Mine Heritage Centre:  
4.30 for 5.00 AGM and 7.00 for 7.30 Annual Dinner
- 7. Sunday May 13th morning**  
Carn Galver Mine and Bosigran stamps

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**Cover illustration: Wheal Trewavas from the south. Photo: Barry Gamble.**



**Friday May 11th afternoon**

## **Wheal Trewavas**

A mine called Wheal Trewavas was working by the early 1820s, as was a Trewavas tin stream south of Helston. Fourteen whim shafts and two engine shafts had been sunk and timbered and there was also an unused steam engine in its house with smiths' and carpenters' shops and new whims. Unfortunately the report gives no clear idea as to where any of these were located.

The better-known Wheal Trewavas was opened, or re-opened, late in 1834 by the Trewavas Mining Company, the name taken from the estate (owned by the Reverend Canon Rogers) on which it was located. The apparent speed with which the mine was developed suggests that it was restarted. The cliff-side location meant that workings could be drained by the simple expedient of driving an adit into the cliff. The mine had been

discovered by some of these amphibious creatures who obtain their livelihood by fishing in the summer and mining in the winter, who observed from their boats the lodes or mineral veins in the cliffs of this estate.

Since that time a steam engine had been erected in a plat cut into the cliff. The corner of the boiler-house was only a foot from the edge of a 150-foot drop into the sea. From July 1835 increasing quantities of copper ore were being sold, usually bi-monthly, at the Cornish copper ore ticketings. For example, 112 tons were sold on 10th September at Redruth, and this realised £941 4s 6d. Considering how early this was in the mine's history, and in view of the apparently limited extent of the workings, this was quite a tonnage. This was matched in November and exceeded, slightly, in December. The deep adit was 18 fathoms from surface, with three shallower adits above. The feed water for the boiler had to be brought nearly half a mile in pipes along the cliffs from a spring.

At the account meeting held in September 1836 the mine's profit of £640 was divided amongst the shareholders. During this year the mine employed a total of 161 persons, comprising 102 men, 42 women and 17 children. A 1-128th share was advertised for sale in September 1836 while in October 2-265th shares sold for £300; during that year the mine sold 1,236 tons of copper ore for £11,625 8s

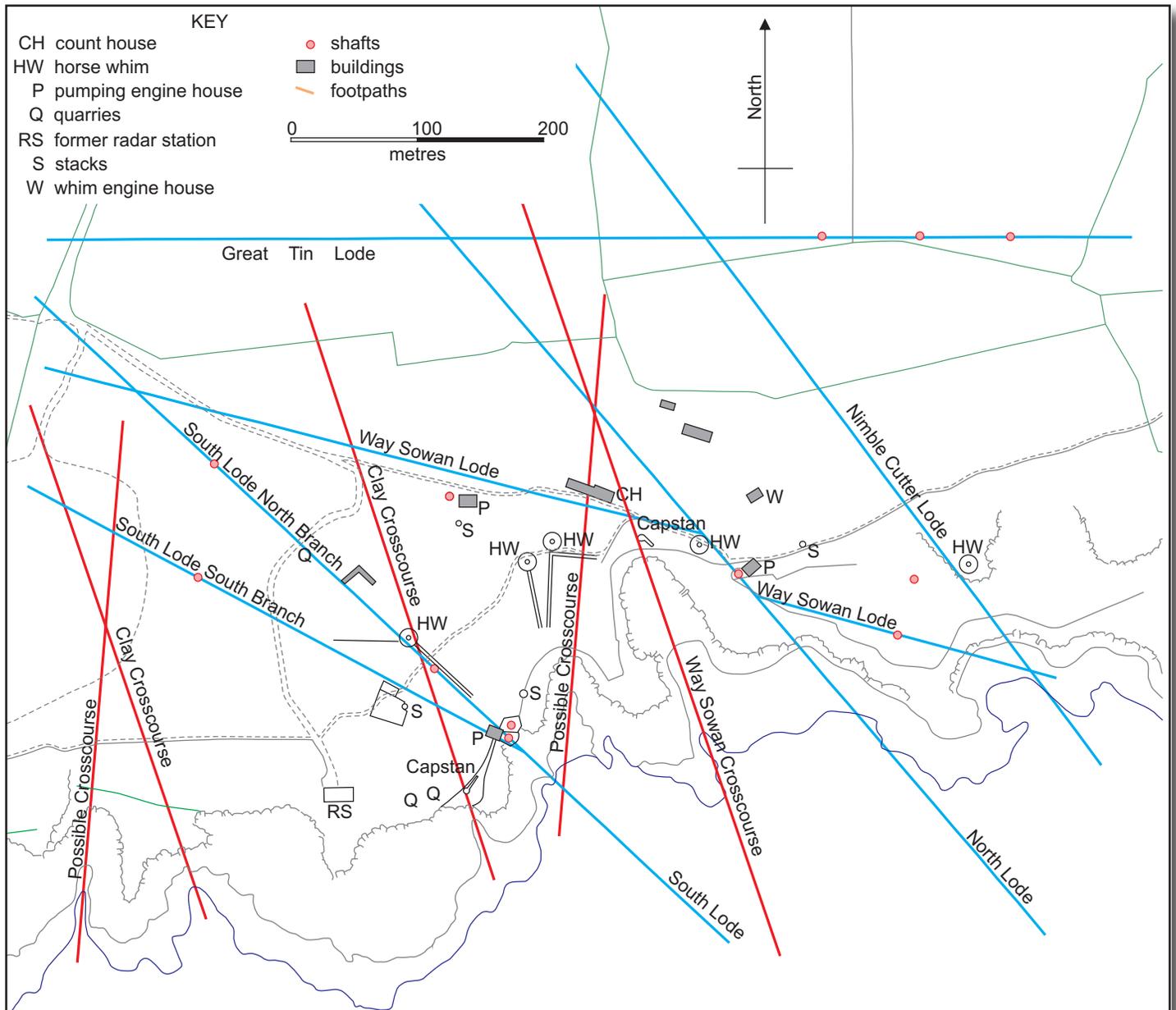


**General view from the east. Photo: Adam Sharpe, Cornwall Archaeological Unit.**

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6d. In 1838 a 1/64th share was valued at £620, based on dividends received.

Copper ore sales continued at a low level through 1838 (989 tons) and 1839 (976 tons). It is likely the mine was making losses in these years, one source stating the loss in 1839 was £2,000. In 1840 a 1-128th share was advertised for sale for a minimum price of £250. By this time operations were being carried out to some extent on five lodes: North, Middle, South (also called Old Lode), Way Sowan and Nimble Cutter. By May 1840 a new shaft had been sunk on the Way Sowan Lode.



Site plan, redrawn with some alterations by the author, from the Cornwall Archaeological Unit's plan.

A great surprise, if not actual shock, for the miners was experienced on 17 February 1842, when an earthquake affected the mine. The quake, which happened at 8.30am, affected an area from the south coast near Helston to the north coast north of Redruth, covering an area bounded by Falmouth, Flushing, Penryn, Gwennap and Redruth. This most likely resulted from movements along the Start-Dodman-Lizard Thrust, a still active fault which extends along the south coast from mid-Devon past Lands End. While these shocks are rare, they continue to the present day.

Early in November 1842 the middle boiler of one of the engines burst 'with a tremendous crash', doubtless causing consternation to all those who heard it. The accident was fortuitous as several

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miners, along with the engineer, had not long left the 'engine room', presumably the boiler house, though no casualties were reported. As several articles of clothing were lost it would seem that either the house or boiler house was being used as a changing room. In July that year the value of the mine's shares suddenly dropped from 125s each to 90s.

1844 saw a decline in production; evidently the richest ore ground in the levels opened on South Lode was becoming exhausted. To sink below these levels was probably beyond the capacity of the existing pumping arrangements. To overcome this the 70-inch engine would be erected on the New Engine Shaft, and also, as the ore pitched out under the sea, the diagonal shaft was used from about this time to reduce the cost of drawing ore to surface, improve ventilation and facilitate further development.

At the end of June 1844 a rumour was being circulated that the sea had broken in and the mine was flooded. John Plomer, the purser, had written to the *Journal* stating that he was 'just returned from the mine' and was ignorant of any circumstances that could have given rise to such reports. Plomer also wondered how such rumours could have started without any information to feed them. The rumour was responsible for a number of letters in the *Journal* as well as clarification, of sorts, from the perpetrators.

The 45-inch engine, along with assorted other pieces of equipment, including the pitwork and pumps, was eventually advertised late in July and August for sale on August 14th. The engine was not sold and was advertised again in September (with no sale date); October, for sale on the 25th and November, for 9th December. By that month a 70-inch engine, with three boilers, had been acquired and was already in full operation.

The report for 5th May 1845 stated that the diagonal shaft was completed to the 85 fathom level, the end being 116 fathoms from the adit, with a further 8 fathoms as a sump. The end of the 85 was 48 fathoms from the shaft, containing a lode worth from £20 to £80 per fathom. Pellew's winze had connected to the 85 and was driving towards Bawden's winze, which was sunk 13 fathoms below the 70. Dunn's winze was 102 fathoms east of the diagonal shaft and 54 fathoms east of the end of the 85.



Looking west from the head of the inclined mine trackway past the New Engine shaft chimney and engine house towards Old Engine Shaft. Photo: Adam Sharpe, Cornwall Archaeological Unit.

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The level had contained good ore but the last 4-5 fathoms had been driven through a flooken (a fault, usually filled with clay).

The accounts for 11th November 1845, for July and August, showed that the costs amounted to £1,559 2s, while ore sold minus lord's dues totalled £1,047 9s 8d; the loss on two months was therefore £511 16s 6d. The total debt was now £3,335 7s 4d. A few days later a 10-inch pressure engine, 'six feet stroke, with brasses all complete' was advertised for sale.

Finances had improved very slightly by January 1846 though the outstanding debt was £2,829 1s 5d; the value of the mine's shares dropped from 40s each to a mere 10s each at the end of January. The shares retained this value until March, when they suddenly rose to 32s 6d, then down to 30s in April, following which they were not quoted by the *Mining Journal*. Arrears of calls amounted to £1,800 and there were also problems with the mine's bankers. Several meetings subsequently took place, resulting ultimately in a decision to sell the materials and close the mine. Costs were increasing, copper production was decreasing, and the calls on the adventurers were becoming onerous; the meetings were also becoming fractious and various divisions were evident in the management.



**Old Engine Shaft with its cover of scaffolding. Photo: Adam Sharpe, Cornwall Archaeological Unit.**

The sale of the mining materials was advertised to take place on 23rd June. This was postponed and eventually took place on July 27th, though there are no accounts of the proceedings. The advert also provides the only record of an 18-inch whim, which was also for sale; possibly this was the 16-inch, after being recylindere, or just a mistake. The 70-inch engine and some of the materials, including the account house furniture, were not sold and were re-advertised for sale on 18th August, 'with two Cast Iron Beams'.

A series of unsuccessful attempts to reopen the mine was made under several different names; these included Trewavas Copper and Tin Mine (1847); Trewavas Tin and Copper Mine (1867); Trewavas, Tin, Copper and Silver-Lead Mine (1874); Trewavas (Mounts Bay) Mine, later the Mounts Bay Company (Limited), (1878) and New Penrose Tin and Copper Mining Company Limited (1880). Three other attempts, with no company names, were recorded in 1861, 1876, 1879. No work beyond opening adits and, possibly, working the dumps, was recorded from these.

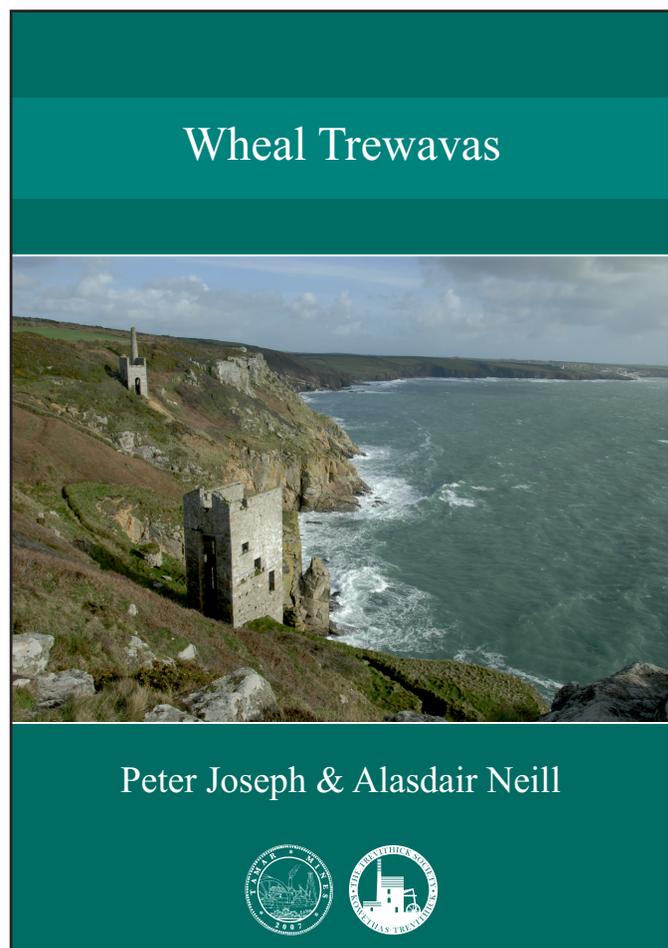
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In 1961 an article by ‘the well-known local authority, Mr P. Cowsls,’ without dates or references, appeared in *Old Cornwall* magazine regarding the flooding of the mine. According to the author:

It happened the day that the ‘tributers’ annual dinner was to take place with the meal being served underground ‘well out under the sea’. Two men had gone underground to put the final touches to the tables of food ready for the dinner in the evening. One of them noticed some water leaking from the roof of the tunnel and dripping onto one of the tables. The two men made a hasty exit to the surface and soon, before the time planned for the dinner, the sea had broken in leaving the dinner for the fishes. As the mine was irrevocably breached below low water all seaward work at this mine ceased henceforth.

Certainly this information is not borne out in any of the information so far accumulated regarding this mine, and has been questioned by many other authors; the 1874 report by Captain Michael Williams makes no reference to any such incident. The actual circumstances are somewhat odd, particularly with regard to a ‘tributers’ dinner’ (one wonders if this is a misinterpretation of a shareholders’ dinner, and holding such an event underground, particularly at some distance beyond the cliff line, sounds very strange indeed. The space necessary to hold such a dinner is unlikely to have been available, even in one of the stopes. It is also assumed that such an inundation would surely have been reported in the local newspapers, which it was not.

The Wheal Trewavas site, covering 8.25 Ha, was acquired by the National Trust in early 2008. It is now a Scheduled Ancient Monument; it also forms an important part of the Cornish Mining World Heritage Site. The engine houses were in a very poor condition and a programme of conservation works, the latter requiring creative engineering solutions, took place between October 2008 and January 2009.



**For more information on this mine, this brand-new Trevithick Society publication will be essential reading.**

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### Rosevale Mine, Zennor

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The mining district of Zennor is not particularly well endowed. Writing (probably) in the early 17th century, John Norden stated:

A parish upon the north sea, where are Copper Mynes very riche.

Clearly Norden had little interest in tin, which he ignored completely, while his idea of ‘very riche’ seems a little out of touch with reality. Allen Buckley could only find two tin streams in Zennor parish dating from Tudor times, and these are at the margins of the parish; a stream works at Treen, mentioned in a 1596 Enys document, was however almost certainly located near the churchtown. The locations of other old stream works were given by William Bottrell, though his account deals mostly with the private businesses of the tanners, notably their unofficial trips to Roscoff to acquire luxury goods and ankers of brandy. While the moors had been streamed and ‘They say that there are still to be seen about Trewe the remains of old bals which had been worked before the Flood’ none of these appear to be in Zennor parish.

Writing in 1873, Henwood found seven tin streams in Zennor; five of these were near the churchtown, one just to the north of the church and three others to the east of Zennor Quoit, in an area later worked as Tregethern Mine. Operations in the area of the present Rosevale Mine are generally agreed to have commenced under the name Wheal Chance at the beginning of the 19th century. A headstone at Zennor Church bears the inscription:

Sacred to the Memory of Matthew Thomas of this Parish, who was kill'd in Wheal-Chance Tin-Mine in Trewey Downs near this Church-Town, by a fall of Ground ye 16th of August 1809, aged 44 years.

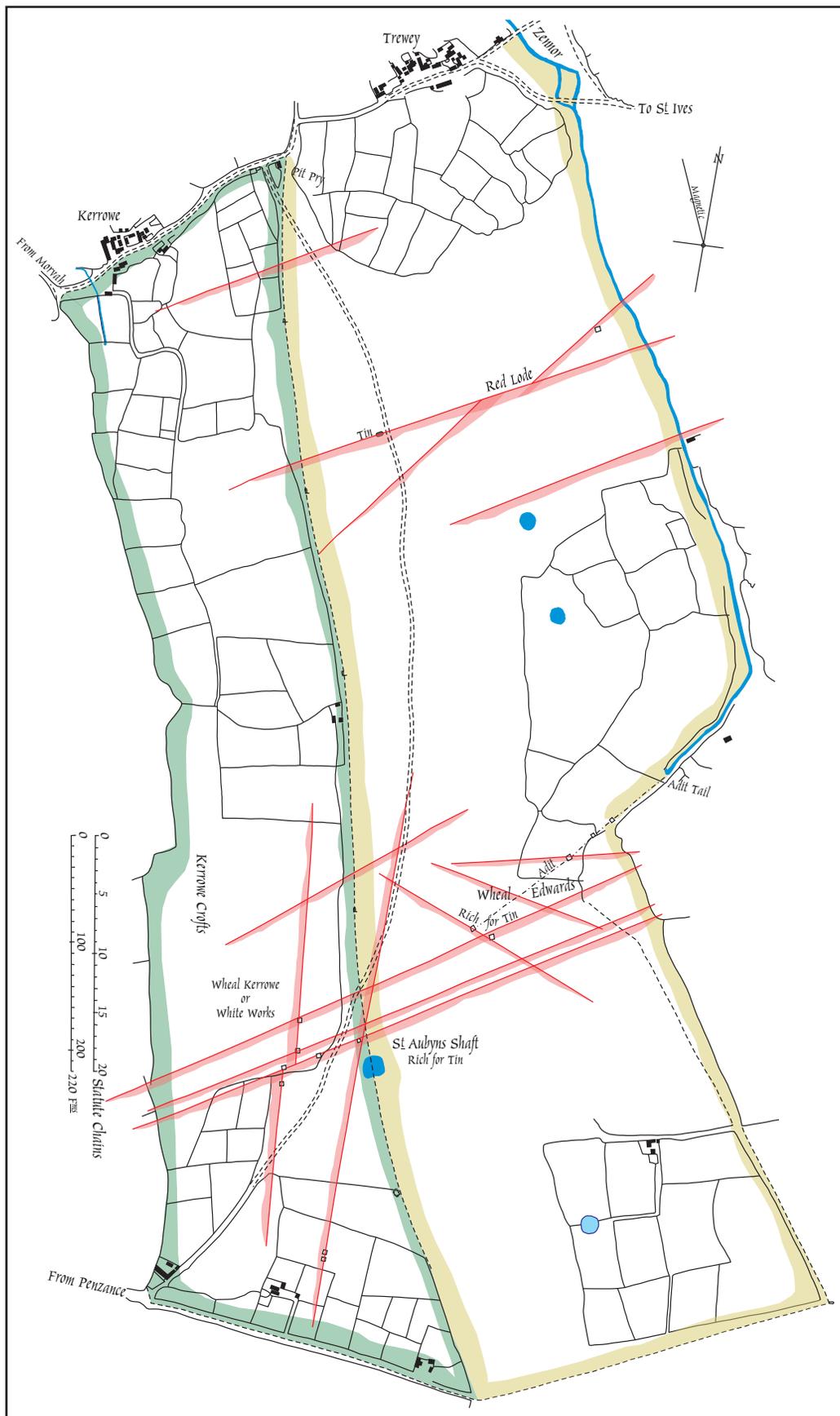
Belov'd by most, through all his well-spent life,  
He left seven children and a loving wife,  
Mourning their loss, their hearts with grief oppress'd.  
Weep not, but hope he's mingled with ye blest.  
By sudden death, his life's short days are o'er,  
A loving father and a friend no more.

This mine is thought to have been on the western side of the valley extending south from Zennor village. It was worked by adits, which were known as the Main and Upper Tunnels. Justin Brooke states that in 1835 the mine formed part of Carnelloe, along with Wheal Dollar and Wheal Edward. Wheal Chance was working in 1844, when 10-134th shares in that “desirable adventure” were offered for sale. In May 1879 the *Cornish Telegraph* reported that the New Bible Christian Chapel in Taroveor Road, Penzance, had walls made from a dun-colour elvan which had been ‘random-razed’ from Foage, to the SE of Rosevale.

In 1887 intending mine investors were urged to turn their attention to Zennor, where large lodes of tin and copper were known to exist; ‘competent authorities who have examined the ground recently declare that speedy returns could undoubtedly be made at Wheal Chance, which is already sunk about 23 fathoms’. The mine was said to have been worked 40 years previously by poor men who could not afford to purchase the necessary equipment; this was to be the common feature of later attempts to work the sett. Sperre's Shaft, near to Wheal Chance, was said to be 30 fathoms deep. This may have been near, or in, Wheal Dollar, which had previously been worked with a steam-engine. In 1892 the sale of Trewey and Rosevale was advertised and then cancelled after they had been disposed of by private contract.

By April 1906 the Trewey Downs Tin Mining Co. commenced operations around Nicholas' Shaft

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Map of the Trewey Downs sett. Undated but thought to be early 20th century

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(SW 4560 3674). This sett included the area later to be mined as Rosevale as well as the Kerrow and Wheal Edwards setts. Five men were 'busily engaged clearing the adit and cleaning the shaft', and more would be required as the mine was developed. The management was a committee 'who have held positions as mine manager and agents in different parts of the world'. An undated map of the mine, from the early 20th century, shows that it was divided into two sections, one extending south from Trewey, the



Trewey Downs mill at Rosevale Mine; adit at bottom right. Google Earth 2017 image.

other, including Rosevale, extending south from Zennor. To the south, in an area containing several lodes, the position of St Aubyn's Shaft (rich for tin) is marked; this seems to equate with Nicholas' Shaft. At Rosevale itself, a NE-SW tin lode, Red Lode, is marked. This has a branch at either end, to the NW at the east end and to the SW at the west end. Unfortunately, very little information regarding the Rosevale section is available.

In May 1906 it was reported that some parcels of ore would be tested at Mr. Thomas's stamps at Zennor. Seven men were then employed sinking shafts. Progress reports mention No. 1 Prospect Shaft, Edwards' Shaft (this name has different spellings and has been standardised), Leggo's Shaft, No. 2 Prospect Shaft and No. 3 Bone's Shaft; most of these have been located. In June it was stated that the stamps had been erected. It is not clear where these were: they may be the older of the stamping mills at Rosevale and the mention of miners 'engaged in laying tram lines from the tunnel to the stamps' tends to agree with this theory.

### HEAMOR.

Of late the main thoroughfare leading through the village has been somewhat alive with traction engines, waggons, etc.; conveying machinery, coals and other materials for the Trewey Downs mine, Zennor. Rumours are afloat to the effect that a rich lode has been struck at the mine, which, when opened up, will multiply employment in the vicinity.

The statutory meeting of the company was held on December 31st at the Oddfellows' Hall in Parade Street. Penzance. Work had commenced on a number of shafts centred around Nicholl's [sic.]. Because the water here was alleged to be too much to handle without pumps, a new shaft, Hockin's (presumably named for one of the lords, the Rev. A. P. Hockin), had been sunk on Hockin's Lode. At Nicholl's Shaft ore assaying 60lbs per ton had been found; at Hockin's it was 52-90lbs. 'It is interesting to note', ran the report, 'that this lode runs south-west in the exact direction of Ding Dong, and may turn out to be a continuation of the well-known rich lode of that famous mine'. Edwards' Lode was assayed at 82lb of tin per ton while the Main Shaft gave a modest 30lbs. This

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shaft measured 9 feet by 4 feet and had been equipped with a pump. A lode intersected by a crosscut from Main Shaft assayed 30lbs, however the lode in an air shaft nearby 'gave the striking result of 1½cwt of tin to the ton'. The level driven south, bending to the west to find the junction of this lode with Hockin's and Edwards' lodes, met with water before the tin ground was reached. The water was thought to have come from the lode, but was in such quantities in such quantities that the pump was unable to keep the main shaft clear.

It was at this point that the company took over the undertaking from the adventurers and it was decided to suspend operations in the Main Shaft until spring rather than incur the heavy expense of pumping. In the meantime an adit was being driven to meet the shaft in order to drain it the old-fashioned way. Serendipitously two lodes had been found crossing the adit, though these only assayed 18-25lbs.

In reply to a question, the Chairman stated that it would be 'wise to put stamps near the mouth of the adit'; this is presumed to refer to another set of stamps near the central part of the sett and not to those at Rosevale. The Chairman remarked that there had been assays from the mine which were over 5cwt. to the ton while Mr. Hitchens said that he had a sample that was over 10cwt 2qr 8lb, taken by him from a pile of stuff as it was dumped out of the shaft. One is given to wonder if these are samples of ore or of cassiterite.



**Trewey Downs mill at Rosevale Mine: the loadings for the pneumatic stamps.**

In May 1907 negotiations were in progress for the transfer of Trewey Downs Mine to 'a company of London gentlemen'; the new company would have a capital of £30,000. A meeting at the beginning of June confirmed a resolution to voluntarily wind up the company. The *Cornubian and Redruth Times* later reported that the new company, Trewey Consolidated (Limited), was to have a working capital of £15,000 out of the £30,000.

At the beginning of October it was reported that when the Trewey ore was passed over Wilfley tables (dressed by the Wilfley company) the results were equal to recovery of 84%; Edwards' Lode

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was still being recorded as carrying 500lbs per ton. Early on the morning of Friday, 7th November, the mine's dry burned down; the engine-man noticed the fire at 2am but it was not possible to do anything. Some clothing and tools were lost along with the wooden structure, though the damage was covered by insurance.

At the beginning of August 1908 the new mill at Rosevale had its official starting with many of the share holders in attendance. Possibly paraphrasing the management of Botallack Mines, Limited, Trewey Downs was 'completely equipped with the most scientific and up-to-date machinery', though the mill was only having a trial run because there had been delays with some of the equipment. An explanation of the process was given by Mr. James Stevens, M. Inst. Mech. E, the consulting engineer.



**Trewey Downs mill at Rosevale Mine; older, water-driven, stamping mill. Waterwheel pit on left.**

The first statutory meeting of the Rayfield (Cornwall) Tin Syndicate (Ltd.), a subsidiary of Rayfield (Nigeria) Tin Fields Ltd under the chairmanship of Oliver Wethered, was held in October 1912. Raycorn, as it was to be called, had acquired Trewey Downs for £4,000; however the mine was not of any immediate interest as the company was primarily interested in Gwithian Sands and Basset and Grylls Mine. The aim of the company was to continue Top (No.1) Level to its intersection with the Caunter Lode and on towards the western boundary. A new tunnel (No.2) was started at the bottom of the valley, a winze was deepened from the Top Level and a raise was put up to surface to aid ventilation. The aim was to extend development along the lode and ready to open up ground for stoping. The only record of output at this time was 26 tons of tinstuff from the development work that produced 11 cwt 17 lbs of tin.

In October 1912 William Aver was killed at Wheal Owles by being crushed by a 7-8cwt baulk of timber which fell on him when he was helping to unload a wagon which had been 'loaded by competent men' at Rosevale. In the following month it was reported that a five-stamp mill had already started and that there was an order for an additional five heads. This is presumed to refer to the mill at Rosevale, although it had been running for three years by this time. In February the following year

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the drive on the Blue Burrow Lode, 400 yards to the south of the lode at Rosevale, 'very rich rock' had been met with, assayed at 60-80lbs per ton. In March a licence was granted to store 500lbs of mixed explosives at Rosevale.

By mid-1913 operations on the main lode had proved the existence of a large ore body, up to 3 feet wide, where an assay across the face of the drive gave 473 lbs per ton. The new dressing mill, comprising two heads of Holman pneumatic stamps and a rock breaker with the capacity to treat 50 tons of tinstuff per day, was being constructed; it was hoped the plant would be running within the next few months. No.2 Level was being driven eastwards and westwards from the winze sunk from No.1 Level, but the drive west was proving to be of little value. A crosscut was being driven north on No.1 Level towards the suspected eastern extension of Wheal Chance Lode. There was estimated to be 2,000- 3,000 tons of payable tin ground that had so far been opened up. An independent report at this time recommended raising additional funding to enable further exploration.

Reports after this period are presumed to refer to Rosevale but this is uncertain as no detailed locations are ever given. In July 1913 a report from J. Hes, the manager, stated that the output for June was 40 tons. The 'Zennor property' was being developed in a most satisfactory manner and rich ore had been driven on for many weeks. 'In the west drive at the bottom of the winze the lode is about 3ft wide, and carrying several hundred pounds to the ton. We have never had such a fine lode in the mine as we have here at present'. A battery was now being erected and should be completed by September. In that month, because the Zennor property was opening up so well, the Zennor Tin Mines Syndicate, Limited, with a capital of £50,000 in 5s shares, was registered to work it. The mill had still not been completed, but this was expected within the first few weeks of 1914. In 1913 the mine sold 1 ton 18 cwt of black tin for a value of £153.

The mill was still awaiting completion in early 1914, but it was hoped to soon make an issue on the new company. However, due to the continued low price of tin, work was stopped in the Blue Burrow section in mid-1914 in order to minimise expenditure. In the Rosevale section the main lode was 2½ feet wide and yielding 50 – 60 lbs per ton. By this time it was clear that the workings on the Main Lode were not going to intersect the Wheal Chance Lode. Plans were made to drive a crosscut from the end of No.2 Level to intersect the lode, but this was anticipated to be 'heavy work' and was never implemented.

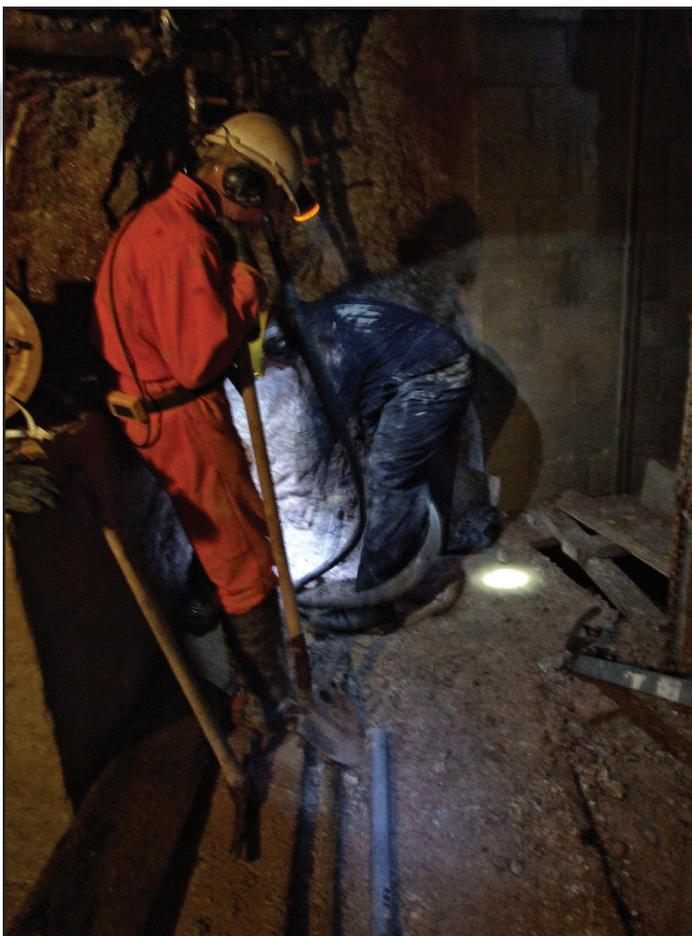
William John Tremellen, 25, farm labourer, on July 15, at Zennor, broke into the house of John Treggerthen Short, and stole a mahogany table, four chairs and a mattress. Accused lodged with Mrs Webber, at Hayle, and removed the goods there. He had worked at Rosevale Mine, Zennor. Sentenced to six weeks' hard labour.  
*Cornish Telegraph* 16.10.1913 p4

By this time World War I had started and it was expected that the war and the low tin price would continue for a long period. Oliver Wethered expressed his reluctance to close down the mine altogether, but, unless there was evidence of anything a great deal better than what had been found so far, he considered there was no justification in continuing. Consequently all operations at the mine ceased in autumn of 1914 and provisions were put in place to repay debits.

Rayfield (Cornwall) Tin Syndicate Ltd had spent a large sum of money on this mine and continued to retain their interest in it throughout 1915 to 1917, but no work was carried out. At this time Zennor Parish Council made contingency plans that in the event of an air raid the church bell would be rung and people were recommended to take refuge in Rosevale Mine.

In early 1918 the company considered re-opening the mine. Although the mill would take little to put back into working order, the company had limited available funds and labour was in short supply. The company had acquired some additional land (four times the size of the original sett) in the vicinity of the mine, which included a potentially valuable area of china clay. This acquisition resulted from a study of the dip of the lodes and their inferred extensions. The intention was to start some

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### Rosevale volunteers at work at the end of the Deep Adit.

exploratory drilling to prove further lodes, but nothing more is recorded. Finally the company was liquidated in 1925.

The mine remained abandoned until the early 1970s when the on-going restoration project was started. Rosevale Mine is now owned by the Rosevale Historical Mining Society, consisting of three people who have undertaken the restoration of the underground workings as a voluntary activity. Most of the work has been privately funded together with money obtained from visitor donations.

Rosevale is the only underground mine restoration project of its type in Cornwall and, as such, forms a unique and important part of the county's mining heritage. It is equipped as a working mine, but also contains a wide variety of mining machinery, tools and relics. The restoration works have been undertaken using traditional methods

and materials, whilst meeting modern Health & Safety requirements, thereby preserving the mine as an authentic and realistic example of a small nineteenth/twentieth century Cornish tin mine. The long-term objective is to maintain the mine as a heritage site and to continue to open up some of the currently inaccessible workings.

The principal workings are on Main Lode and comprise the No.1 Level, driven in from the hillside for a distance of 200 metres and No.2 Level, driven from the base of the valley for a distance of almost 300 metres; at its end this level is over 60 metres (200 feet) below surface. These levels are 30 metres (100 feet) apart and are connected by a stope. A raise at the end of No.1 Level connects to surface. Nine metres below No.2 Level the Deep Adit has been driven along Caunter Lode for over 200 metres.

Members should be aware that a visit to Rosevale entails walking through dark, often narrow and low, levels and climbing 30m (100 feet) of ladders which will inevitably be wet and muddy. Sturdy boots are essential and gloves will be useful.

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### Botallack Mine

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As with the vast majority of Cornish mines, it is not known when mining first started at Botallack although its later history is well-documented.\* An early prospector for minerals in Cornwall and Devon was Burchart Cranyce (the name is spelled various ways) who, by 1557, had built a blast furnace (probably a smelter) at Lerryn. The mineral prospects discovered by Cranyce were taken charge of by local men the following year, but the hoped-for copper and silver were not discovered, although a considerable quantity of lead was produced.

The Society of Mines Royal, along with the Company of Mineral and Battery Works, was a mining monopoly incorporated by royal charter in 1568. Early operations, copper mining and smelting, were in Cumberland but in 1580 a German called Ulrich Frosse was sent to Cornwall to take charge of the various Cornish operations. Among the places where Frosse discovered copper were two that were to become Wheal Hazard and Wheal Cock.

At this present time, God be thankful for his goodness, the mines at St Just were never better than they are now. At the new copper mine there is a perfect lode at the present, for it holds so far an ore for 40 feet length and bearing a foot or two feet in some places of breadth.

John Otes to William Carnsew, October 1586

Mining seems to have carried out almost continuously from this period until the end of the 19th century, albeit mostly on a small scale. At the beginning of the 17th century the Ustick family acquired much of Roscommon, including most, if not all, of Wheal Cock, as well as Wheal Ludgvan (the naming presumably arising from the family's association with that village) and Carrarrack. Botallack village was described by John Norden about 25 years later as:

...a little hamlet on the coaste of the Irishe Sea, much visited with tanners, where they lodge and feede, being nere theyre mynes.

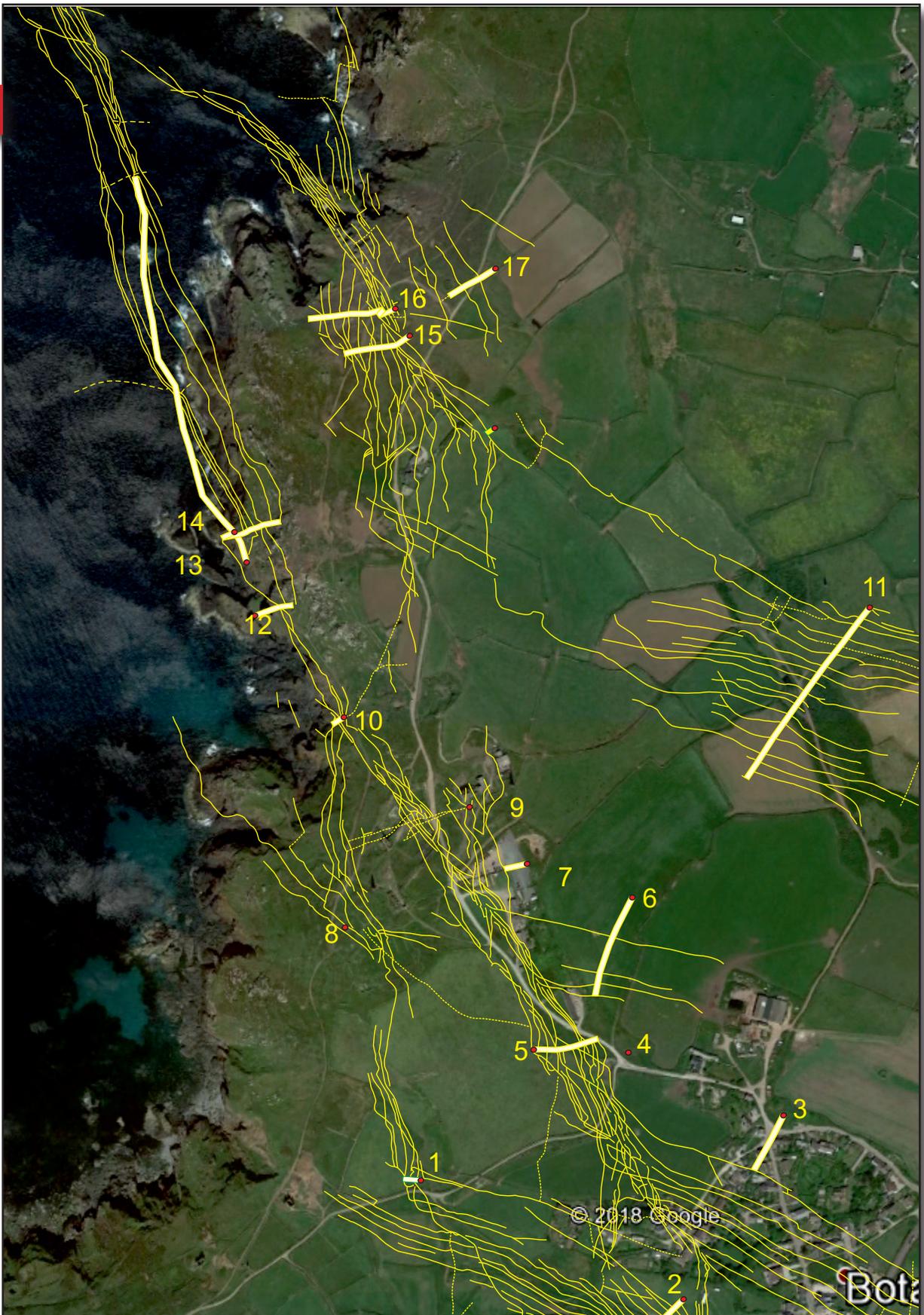
The coinage books of the Angarrack smelting house show that tin mining was being carried out at five or six different areas in the early 18th century. In 1778 William Pryce reported that the mine was worked for 80 fathoms length out to sea (*i.e.* beyond the high water mark), and the workings reached to three feet from the sea bed. In 1788 an agreement was made by the owners of 'Grills's Bonny Mine' to John Tonkin which also mentions 'the floors & beds of Tyn formerly worked by Grills & his partners'; this area is now known as the 'Bunnies'.

The first reference to a steam engine dates from 1807, having been erected on the Crowns rocks, next to the outcrop of the lode. This engine, and its successor, was to become a tourist attraction described by many writers. By 1816 the mine had two pumping engines and one whim engine; a double-acting 1½ year-old 22-inch engine was advertised for sale in 1819. Interestingly, it seems that at least some of the tin ore, if not all, was sent to the stamps and burning houses in the Stennack Valley (about four miles to the north-east) for processing, surprising because the Kenidjack Valley lies just to the south and would have been more convenient (and was used by the mine in later years). By the late 1820s the mine was considered to be largely exhausted above adit. New discoveries inland had made the adventurers concentrate their efforts in that direction, rather than under the sea, and when these had failed they had looked towards the boundaries of the sett. By 1835 the adventurers had felt disinclined to continue their efforts, and the sett was relinquished that year and offered for sale. Stephen Harvey James took up the lease of the sett. James became purser the following year, a position he was to hold until his death in 1870.

The financial situation of Botallack for the first few years was precarious to say the least and James must have wondered what on earth he had got himself into. Between 1814 and 1835 the mine had

\*I currently have 264 pages of notes.

Saturday May 12th morning



## Saturday May 12th morning

Opposite: Shafts and levels at Botallack and Wheal Cock, and contiguous workings at Carnyorth Mine overlaid onto May 2018 Google Earth imagery. The fit is poor owing to the quality of the old surveys.

1. Chycornish Shaft; 2. Buzza Shaft; 3. Ludgvan Shaft; 4. Wheal Loor Shaft; 5. Botallack Engine Shaft; 6. Park Bunny Shaft; 7. Flat-Rod Shaft; 8. Narrow Shaft; 9. Allen's Shaft; 10. Wheal Hazard Shaft; 11. Nineveh Shaft; 12. Crowns Engine Shaft; 13. Boscawen Diagonal Shaft; 14. Wheal Button Shaft; 15. Wheal Cock Skip Shaft; 16. Wheal Cock Engine Shaft; 17. Tolvan Shaft



Botallack Mine in 1840, view showing the Crowns pumping engine and the Crowns whim/crusher. The old count house, itself probably an older engine house can be seen close to Wheal Hazard Shaft. Tinted and hand-coloured lithograph by Thomas Picken, after an original drawing by Philip Mitchell. Science Museum Group collection.

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## Saturday May 12th morning

produced tin and copper ores worth £53,230, while between 1837 and 1841 it could only manage to sell copper ore to the value of £2,055. The mine's finances were also made worse by the decision to rebuild the Crowns pumping engine house and to install a larger engine in 1835. In November 1841 the situation was so bad that at a meeting of the shareholders the agent declared that he "knew not where to find two penny weight of ore in all the mine". The decision to continue the mine for the time being was in any event a good one as only two months later a copper lode was cut which yielded £24,000 profit to the mine over the next year and assured its prosperity for another few years. It was the beginning of the mine's reputation for high returns on shares, and was to pay out £42,500 between 1842 and 1846.

Development at the mine increased over the years. In 1838 the mine was 100 fathoms deep below adit and employed 172 people. Three years later the first steam winding engine (the Carne whim) was built on the cliff top above the Crowns – it also drove the rollers for crushing the copper ore. In 1843 hundreds of spectators watched an eight ton boiler being lowered down to the new steam winder on Wheal Button Shaft, just to the north of the Crowns engine and not much higher above the sea. Another steam engine was erected at the top of the cliff to wind from Wheal Hazard Shaft, just uphill (to the south) of the Crowns. This engine wound using a steel chain, and going backwards and forwards when slack it managed to cut a groove in the rocks of the cliff: this can still be found.

Wheal Cock was added to the sett in about 1851 at which time Botallack was 180 fathoms deep. Wheal Cock, one of the Society of Mines Royal's adventures, comprised the old workings of Wheal Hen, Wheal Chicken and Wheal Tolvan. It was reported to be 100 fathoms deep in the late 1700s, and, like its neighbour, was also worked out to sea. The mine produced comparatively little tin, most of its ores being those of copper.

In 1853 the mine's shares reached their peak, worth a staggering £387 each (worth over £27,000 based on the retail price index). Botallack was 200 fathoms deep in 1855 by which time some levels



had been driven 200 fathoms beyond the cliffs. In this year, a book entitled Cornwall: Its Mines and Miners was published; this appears to be the only source of the story of the blind miner of Botallack. This man was alleged to have worked underground at the mine for some years after becoming blind, and apparently knew the workings so well he could guide his comrades through them. After being discharged he apparently worked as a builder's labourer at St Ives where he carried bricks up some scaffolding. One day he missed his footing, fell, and was killed.

Exploratory work in the Crowns section throughout the 1850s prompted the commencement of the famous Boscawen Diagonal Shaft in 1858,

**Atmospheric painting of the Crowns pumping engine house by Richard Edmunds, 1841, held at the Royal Cornwall Museum.**

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## Saturday May 12th morning

completed in 1862. The shaft was sunk at an angle of  $32\frac{1}{2}^\circ$ , and extended out to sea for about half a mile, reaching a total vertical depth of 250 fathoms below the adit. To wind from the shaft a new engine, named Pearce's Whim, was erected on the cliff just above the Crowns pumping engine. Pearce's Shaft was actually another name for Wheal Button Shaft. This became disused after the Boscawen Diagonal Shaft was completed, and the engine on the shaft supplied the boiler for the new whim; it is possible that the masonry was also re-used for the new engine house. Men were carried up and down the shaft by a gig, a wheeled box purpose-built by Holman's foundry to hold eight men on an incline. On April 18th 1863 the chain which pulled the gig suddenly broke, precipitating eight men and a boy to their deaths further down the shaft. The gig was sent back to Holman's to be



**Hand-tinted engraving of the visit of the Prince and Princess of Wales to Botallack in 1863.**

cleaned and straightened out and was used by the Duke and Duchess of Cornwall for their trip to the mine two years later, although by now the chain had been pensioned off and replaced with a wire rope.

By that time the mine had reached 220 fathoms depth and employed 299 men, 116 females and 115 boys. The mine also had three pumping engines, one stamping engine and seven winding engines. Carnyorth Mine was added to the sett in 1866, after which both mines were worked briefly as Botallack and Carnyorth United. The latter sett was about 120 fathoms deep in 1865 and employed 111 people in its own right.

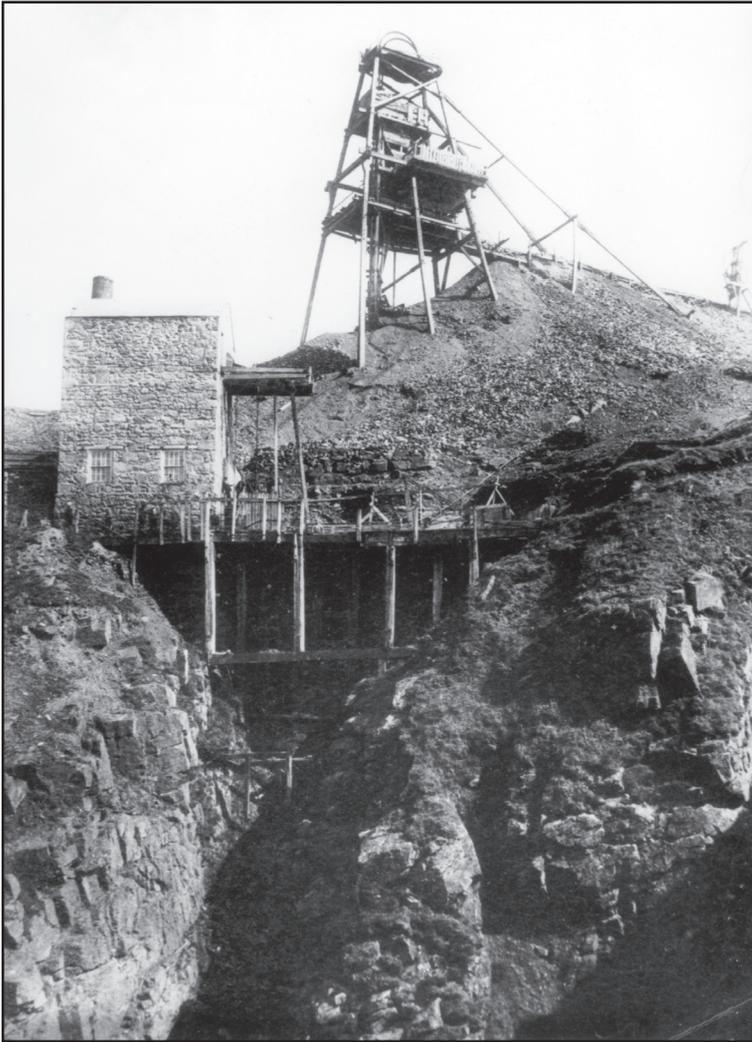
The 1860s were the zenith of tin production at Botallack, with the dressing floors being greatly expanded during the early part of the decade to deal with the large quantities of lower grade ore which were being produced. This included the erection of a new stamping engine at Narrow Shaft, driving 64 heads of Cornish stamps. The engine also pumped water from Narrow Shaft for use on the dressing floors. Increased production meant more workers, and in 1870 the mine employed 530 persons although the use of buddles meant that 112 fewer girls were now employed at the mine. In 1874 it was announced that all of the ends in the Crowns section were poor, and a decision was taken to abandon it, although the pumping engine remained in use until January 1883.

In 1875, work in the Parknoweth section of Wheal Owles was found to have encroached on the Botallack sett. It was probably this surveying error, on the part of the Wheal Owles management, which was to cause the disaster at Wheal Owles eighteen years later. Men working underground broke into flooded workings on a lode which they thought was running parallel to the one they were working, and in the subsequent outburst of water nineteen men and one boy were drowned and their bodies never recovered. This section was acquired by Botallack at the end of the year for £300 in punitive damages, and subsequently worked as the Truthwall section. Parknoweth was operating in the 1830s and 1840s but seems to have been a fairly small, ramshackle, affair; in 1842 the pitwork in the Engine Shaft of Boscawell Downs was described as "ten degrees worse than the pitwork in

## Saturday May 12th morning

Parknoweth Engine Shaft; we don't know how we can describe it in any better way". The next decade saw the commencement of arsenic production at the mine, with the erection of a six-shaft calciner near the track down to the Crowns. This was supplemented in 1889, at a cost of £110, by a Brunton calciner, built nearly opposite the count house.

The mine however was in severe financial difficulties before this, with the accounts recording a loss on three months trading in 1883 of £1,740 19s 7d, to be countered by a call of £2, with a further £2 called in May and £4 in June. In October it was resolved to try to sell the mine as a going concern, but no buyer could be found. The mine had turned around somewhat by 1886, with the debit reduced to £526; an amazing reduction from the £3,427 it had owed in the previous month. However, the situation was beginning to reverse again by the end of the decade, and breakages of equipment combined with low metal prices began to take their toll on the mine. In the early 1890s the Wheal Cock section was



equipped with new pumping and winding engines, the aim being to operate this as the main producing part of the mine. A new skip-road was built in the Engine Shaft, and it is possible that timber from the old skip-road into the Boscawen Diagonal Shaft was used to build it. During most of the year, however, much of the mine was idle, the reduced grades and low metal prices making much of the ore not worth mining.

**Pumping engine house at Wheal Cock; Whim Shaft above in the waste dumps. The wall which now fills the gully eroded along the lode was made from this house.**

At the end of 1894 the surface labourers were working only part time owing to flooding by the very bad storm (on November 12th) which had also destroyed many of the mine's stamping mills in Botallack Bottoms. Flooding also occurred at Levant. To try to reduce losses the Carnyorth section was given up at the end of the year, saving the mine £50 a

month. A meeting in December considered whether the mine should close, however it was kept going to give employment over the winter period. In January 1895 it was rumoured that the mine would close but would be worked by another company. A meeting at the end of the month was adjourned, but when re-convened it was decided to try to sell the mine as a going concern. When no buyer could be found, the management resolved to sell the materials and equipment.

The last men were discharged from the mine on February 15th 1896. The remaining materials were sold off in March that year, when the stamping mills in Botallack Bottoms (part of the Kenidjack valley) became independent. For the next decade the tips were reworked for their tin content using water powered mills in the Kenidjack Valley to the south, while water filled the underground workings.

**Saturday May 12th afternoon**

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## **West Wheal Owles and Wheal Edward**

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These sections of Wheal Owles occupy the coast immediately west of Botallack; the Cargodna engine house site has become famous in recent years as one of the filming locations of Poldark. Ironically both setts are some of the earliest and latest parts of Wheal Owles to be worked. There are many references to Wheal Owles in general\* so this history only covers the geographical area visited.

The Usticke papers from 1752 refer to various parts of Wheal Owles although it is not always clear where they are. Wheal Owles and Hanger Lodes crop out to the north of the Cargodna engine house, although most of the workings are between the engine house and Botallack count house. 'Gwele Olds' seems to be associated with the cliff workings, a series of adits driven inland. The Cargodna Lode workings run N-S to the west of Wheal Owles stamps; the Wheal Edward workings run NNW-SSE further west.

In November 1753 the lode in 'Whele Olds Adit End' was three or four feet wide; 40 or 50 sacks were thought to have been broken and two men and a boy were working. 'White's Pitch continues as well as ever, but J. Maddern's is decay'd. Baws's is near ye same.' The shaft on Hanger lode was finished but the rock was hard; the lode in the cliff had been extremely hard, where the lodes never carried tin, and it was decided to bypass the lode and cut it when conditions improved. A fortnight later the lode in the adit end had dropped off but was now improving. The ground in the Higher Drift was as hard as ever, 'John Wallis (Pickle) this Week took another Fathom for the same Price as the last, viz. eight Pound, the Owners to find Smith Cost'.

In the middle of January 1754 'Cracka Godna is sat (set) on Tribute entirely, & goes on pretty well'. The writer of the letter had just come from Gwele Olds where the 10 fathom level was to be driven in from the cliff. A week prior to this report is a record of the earliest accident occurring in the St Just area currently known to the author:

Last Fryday a Son to Doctr White had the Misfortune of being killed on the Spot, by falling out of the Whim Kibbal near 48 Fathom. The only Accident, thank God, that has happened there from ye beginning of ye Adit.

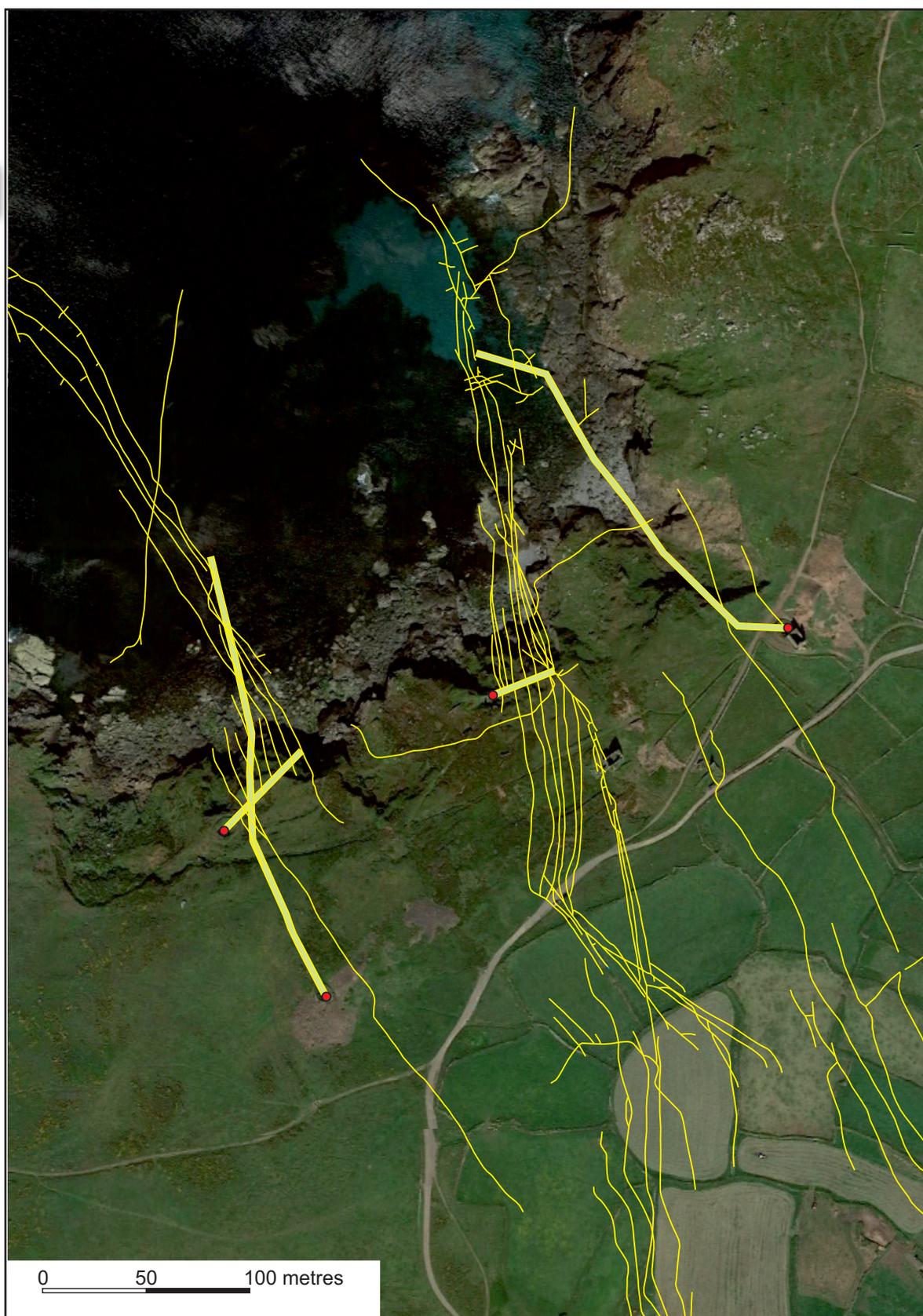
James Oates thought that he would be able to raise 20 blocks of tin in the current quarter, 'but according to Custom I suppose he under reckons'. Production for the last quarter of 1753 was 1900 sacks, worth about £6 profit for every 24th share. During early 1754 the mine appears to have been struggling; the rock continued hard and the lodes turning out 'very indifferently'.

There is a good Load in ye Adit End, but very little is to be brought to Grass, the Horses being so weak that they are scarce able to dr[aw] the Whim. Hay brings 4s 6d p[r] hundred, & ye Season has prov'd so dry that tis as much as the Grass will keep ye cattle alive. Never in the Memory of Man was there such a Scarcity, so many Losses. Beef & Mutton bring 4½ p[r] pound, and butter 10d, but the last is now fallen to 7. Last Qur they broke in Gwele Olds about 2,000 sacks, which I suppose may pay ye Cost, tho' They reckon Some Pounds gain, about 3 to a Dole.

A new adit is mentioned at the beginning of June 1754, 'driven within three feet of ye new Whim Shaft & directly under it'. A small amount of tin had been broken in the west end of Cracka Godna but the east end was hard and poor. The situation seems to have worsened by the end of the month when was reported that 'Gwele Olds, I think, sinks lower and lower'. The situation in Wheal Owles was little changed by May the following year, though there is a very promising load in the Adit End of 1 foot & up wide, rich stuff which tis thought is very likely to hold'. By this time a sett at Wheal Edward had been acquired, but no survey had yet been called for setting Whele Edward End.

**\*At the time of writing I have 141 pages of notes.**

Saturday May 12th afternoon

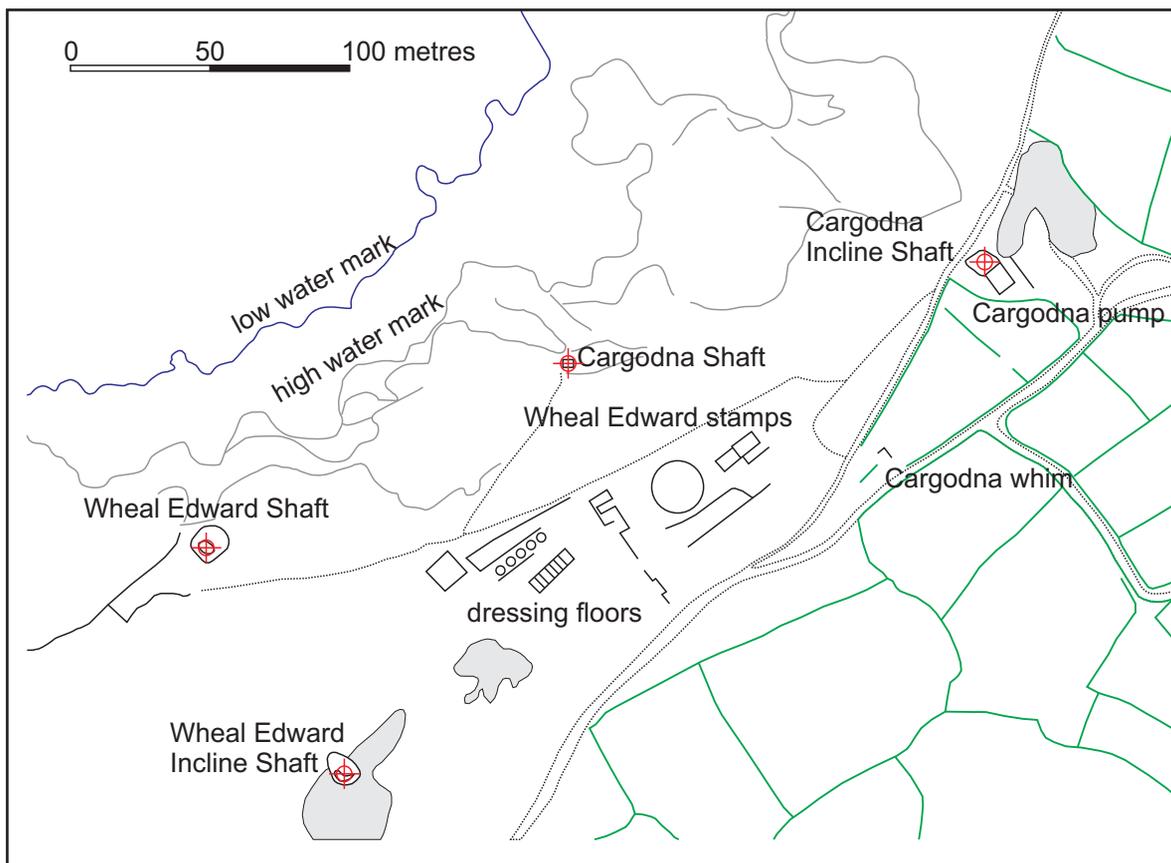


Mine workings at Wheal Edward and West Wheal Owles superimposed on 2017 Google Earth imagery. For shaft names see opposite.

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In May the Wheal Edward section was being worked by Tom Angwin, a small, tinny lode which he had taken to drive six fathoms for £11 13s. There were problems at the most recent survey as there were too few men to take some of the bargains. One miner who was available had the charming name of Death. He and his pare were having their own problems sinking a shaft as the air was bad and they were waiting for air pipes to be installed; despite this they had sunk 'better than two fathoms' in about two weeks.

In December that year the Wheal Edward adit was being cleared, indicating that the sett had already been worked; at the beginning of 1756 a man called Case was working there. From this point to the end of the century several setts in Kenidjack were granted: Wheal Edward Bounds to Richard Oats and his partners in August 1775; Porthglaze Bounds to Hy. Oliver and partners in January 1783 and Kenidjack Cliff Bounds and Wheal Edward Bounds to John Thomas in May 1795.



**Mining features at Wheal Edward and West Wheal Owles; grey shading represents dumps.**

In 1805 all the materials on Wheal Owles were offered for sale by auction. These included a 15-inch whim engine, complete with boiler and a second, smaller boiler; a horse whim, with rope, chain and kibbles were also included. The mine started again in September 1810 when it reported but in 1821 it advertised for sale a 22-inch pumping engine and a 15-inch whim engine. The latter appears not to have been sold as a 15-inch whim engine was advertised in 1825. It appears the mine then closed, but resumed working on 1st April 1834. The mine was in the charge of John Boyns of St. Just, who had been working Wheal Boys. A second pumping engine was in due course placed on Wheal Owles and the water drawn out. About 40 fathoms were sunk in Engine Shaft, and the ends extended, but nothing of importance was ever discovered on this lode.

Captain Richard Boyns, nephew of John Boyns, and an agent at the mine since 1834, became manager and purser in 1855; he was always referred to as Richard Boyns 'of Boswedden', to differentiate him from his cousin Richard Boyns 'of the bank', who was also involved in mining. He was to retain the management of the mine until its closure.

## Saturday May 12th afternoon

In 1858 the lode at Wheal Edward looked promising although it was 'at present entirely abandoned'. The mine in general was expanding though and in 1862 it employed 499 persons: 245 men, 138 boys and 66 girls of whom 170 men and 36 boys worked underground. Writing in 1865 Thomas Spargo wrote that the mine had one stamps engine (30') and four whim engines (26', 26', 24' and 20'); five water wheels were used for stamping. Curiously he makes no mention of a pumping engine.

Work commenced on the new cliff section in the last quarter of 1869 and a large sum was spent on engine houses, engines and a new diagonal shaft (now down to sea level) in preparation for the development of Wheal Edward. Cargodna, or West Wheal Owles, had only recently been acquired. The following year a 28-inch engine was erected for stamping (with 28 heads of stamps) and winding (from Wheal Edward incline shaft to the west). Dressing floors were also built including a 60-foot buddle.

At the August 1871 account a dividend of only £8 was declared, despite tin fetching £81 15s per ton, as money was still being invested in Wheal Edward, where the Diagonal Shaft was being sunk under the Atlantic. This was presently 10 fathoms below sea level, however the restrictions on Crown setts meant that no level could be driven above that depth. In January 1872 the discovery of a big 'tinny' lode was reported in Wheal Edward and West Wheal Owles. A tramroad several hundred feet long now connected the diagonal shaft with the stamps, and the development had 'transformed the cliff, previously wandered over by a few spanned sheep, into a new hive of industry'.

The account for November 1874 showed the debit balance increased to £12,652, though 46 tons of tin had been sold for £2,600. During the quarter, 144 fathoms had been driven in levels; and 44 fathoms sunk in shafts and winzes. The total extent opened in shafts, winzes, and levels was 30,384 fathoms 3 feet 11 inches, well over 34 miles. The manager reported that in Buzza they had for long been pumping a large quantity of Botallack water, owing to the running in of the Chycornish part of Botallack, and they were threatened to be flooded at any time from that quarter. A committee was appointed to negotiate about this matter, 'also to settle the encroachment unwittingly made by Wheal Owles on Botallack, and to determine on the future prosecution of the Buzza otherwise'.

This particular account was for a sixteen weeks period, instead of twelve, which was now to be the rule. In the Wheal Edward part of Wheal Drea 20 fathoms of tin ground had been opened since



*Wheal Owles, Tuesday 10 January 1893.* Painting by an unknown artist, of the British School held, at the Royal Cornwall Museum. This depicts the last day any mining was carried out at the mine.

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Saturday May 12th afternoon



**View north-east from Wheal Edward. Left-right: Crowns engine houses, Wheal Edward stamps engine house, Allen's Shaft headframe, stack of Botallack steam stamps re-used for 20th century calciner, Botallack count house, Cargodna (West Wheal Owles) pumping engine house, Cargodna whim engine house.**

they had reached the intersection of Cargotha Lode in the 126 W.; the lode looked very promising. From a rise behind, already up about 9 fathoms, they would drive eastwards to communicate with the 116, and simultaneously drive westwards. All the weirs had their full pressure of water, the old part of the mine having filled to sea level. At Wheal Edward some tin ground had been found under the old men's bottoms.

A fine discovery of tin was reported in Wheal Edward in August 1874, at a spot under the sea where Captain Boyns had often predicted several lodes would converge to produce a rich deposit of that metal. The find was made about 70 fathoms beyond high water mark. For the last twelve months, since the shaft had been stopped, they had been in barren ground between the granite and killas junction. Development was continuing to explore the lode at greater depths, the shaft being now 17 fathoms and the lode 35 fathoms vertically below the low water of spring tides. In Wheal Drea, excellent progress had been made in bringing in the intersection of Cargotha, Wheal Edward and other lodes, and they had laid 100 fathoms of tramroad towards it.

At the July 1874 account 97 tons of tin were reported to have been raised and sold during the quarter for £4,397. The debit balance had then risen to £18,734, but there was enough tin in stock to meet this. At the end of that year Sir Warrington W. Smyth (chief mineral inspector to the Office of Woods and Forests, as well as the Duchy of Cornwall) noted that the course of tin in West Wheal Owles had fallen off, and was so complicated by the nature of the ground as to make the result very uncertain. At Wheal Edward, to the south of it, the 60 fathom level had been opened (mostly old workings) 200 fathoms from shaft, and within a few fathoms of the end a bunch of rich grey copper ore (the rich copper sulphide) had been met, very promising as far as it went.

In January 1876 Sir Warrington Smyth reckoned that the work on the cliffs had cost £12,000 to £15,000 to date and that at Wheal Edward 'great lengths of old levels have been re-opened, but with

## Saturday May 12th afternoon

small result. At the latter much confusion of lodes and 'strings' was encountered, but a fortunate cross-cut South, at the 35 fathom level has intersected a vein of tin ore which promises very good results'.

In January 1877 a 'lad', age not given, had to go down part of the cliff at Wheal Edward. He had been instructed to keep to the ladderway but went over the rocks instead. Unfortunately the sea was very rough; he eventually arrived on a large rock which was safe and where he was told to remain while help was found. He panicked however, and while trying to cross to another rock was caught by a wave, swept out to sea and drowned.

In July that year a loss of £779 on the quarter was disclosed, bringing the total debit balance to £23,121 9s; this resulted in a call of £25 per share. In March 1878 a call of £12 10s was made, however a real shock must have gone through the adventurers when they were asked to pay a truly enormous call of £62 10s per share. A special meeting was held in August at which it was decided to close all of the mine except for Wheal Drea and the cliff section. The Truthwall section had been sold to Botallack for £300 although it was considered to be worth £30,000.

Writing in December 1878 Sir Warrington Smyth noted that

the mine generally is in the unfortunate position, that the chief shareholder and Manager Mr. R. Boynes determined, on the fall of prices 3 or 4 years ago, to "stock" his tin and await a reaction. Now since prices have gone from bad to worse he has between 20 and £30,000 worth prepared for sale and stowed away; but having no cash accruing, is carrying on the mines by arrangement with the Bank.

West Wheal Owles had looked promising but had now fallen off. At Wheal Edward the miners had driven the 60 fathom level 220 fathoms seaward from the shaft. The 70 and 80 fathom levels had passed through ground which had produced large quantities of low grade ore. To aid development a Champion rock drill was introduced into mine in 1879. The air compressor made by Nicholas Holman & Sons, was worked by a 26-foot diameter waterwheel. Several accidents occurred with the drill, including a miner having his foot crushed; at one time the compressor itself exploded, with some parts never being seen again.

In April 1881 the boiler at Wheal Edward stamps burst and demolished the boiler house. It was presumed that the feed water had been neglected; the man responsible for the boiler was not discharged because Captain Boynes had been told that 'even if he blew up another boiler next week, he was the



best engine man of many in the mine'. Three years later Wheal Drea was abandoned and the engine at Cargodna restarted; the 36-inch engine the only pumping engine left in use.

By 1888 a large adverse bank balance had been overturned and the mine was actually in credit. Production was however very **Cargodna Shaft, on the cliffs below the Wheal Edward stamps engine house. The granite plaque here is to commemorate the flooding on 10th January 1893; it replaces the original brass plaque which was stolen shortly after it was put there.**

## Saturday May 12th afternoon

much reduced; since 1872 the mine had paid £320 in dividends and taken £20,800 in calls. A cross-cut was being driven towards Botallack, and a long crosscut to cut the Wheal Edward Lode proper 60 fathoms under the bottom of the old shaft. Although the mine had not given a dividend since 1872 it was just about paying its way again.

About the year 1891 the health of Capt. Richard Boyns began to fail, and his son Herbert then acted as his deputy in managing the surface affairs, though the older man still retained overall control. The end of the mine came on 10 January 1893 when miners in the 65-fathom level in the Cargodna section accidentally broke into the flooded workings of Wheal Drea. Twenty of the forty miners died and the mine was flooded. In April 1893, Richard Boyns was brought to trial, charged with failing to keep an accurate plan of the workings in accordance with the Metalliferous Mines Act, 1892. Evidence was given that his plan showed about 19 fathoms of ground standing between the 65 in Cargodna and the 148 in Wheal Drea, with two parallel lodes separated by the same distance. In fact, the two levels had come together, the supposed Wheal Drea and Cargodna Lodes being actually one and the same. The error had occurred through Capt. Boyns' failure, over many years, to allow for continuous magnetic variations when keeping his plans. By then a desperately sick man, he was found guilty, and fined a nominal sum of £15. One interesting point brought out in the trial was that neither Boyns nor his senior mine captain knew anything about the variation in magnetic north. The mines inspector did know about it but was never asked if he had inquired of the Wheal Owles management if they knew about it.

Attempts were made to rework the mine in association with Boswedden Mine in 1893 and 1894. The amalgamation would probably have provided more pumping power and allowed attempts to recover the bodies, but this was not to be and the share issue was largely ignored. The cliff section of Wheal Owles was explored around 1910 when Botallack Mine reopened and a small amount of uranium ore was produced.

From 1837 to its closure Wheal Owles produced 8,540 tons of black tin, and 340 tons of copper ore, plus a little uranium, bismuth, and crude arsenic. In 1910, under the auspices of Botallack Mine, ½ ton of uranium ore was sold to the Curies in Paris.

Wheal Edward was examined in the 1950s by the UK Atomic Energy Authority.



**This timber horse whim prop made for Poldark is actually made of fibreglass. Photographed in June 2014.**

**Sunday May 13th morning**

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## **Carn Galver and Bosigran Stamps**

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### **Carn Galver**

Carn Galver Mine is represented by the two engine houses on the north-west side of the B3306 road, centred at SW 421 364, about 3.75km WSW of Zennor. The sett extended from the ridge to the south-east of Bosigran in the WNW (SW 413 366) to Rosemergy Cliff in the west (SW 418 to 367).

The bounds worked in the Carn Galver section were initially called Bosigran Rose. Rosemergy was mentioned by Borlase in his *Natural History of Cornwall* for the rather strange tin lode worked there. The mine has three adits; in the upper two the lode has a fairly shallow dip but in the bottom adit the lode becomes horizontal and starts to dip in the opposite direction.

Carn Galver Mine opened in 1851, leased from S. Borlase, E. Lay, Mr Phillips and others, from whom it was leased at 1-22nd dues. There were sixteen lodes in the sett, and sufficient water power to drive fifty heads of stamps. There was also good scope for working the mine to a considerable depth without machinery. In March 1851 the manager reported that since the previous meeting he had kept four men at work in the deep adit, which had been driven 37 fathoms south from the sea, with a view to cutting the lodes running through the sett from east to west. Moor Shaft had been collared and ladders put into the adit, and a horse-whim had been put on Roscorla's Shaft, to which the adit had been cleared and secured 97 fathoms, while the shaft was being secured. Four men were driving the end of the Ranger Lode, which was expected to meet the Heathcock Lode soon.

Elsewhere, preparations were being made to drain the 10 fathom level below adit to enable a short drive to be made to the Tregwarra Lode, which had formerly been very productive for tin. From Heathcote (sic) Lode it was intended to drive to cut the Osborne Lode, which had been famous for tin in former times; at this point the adit would come in at a depth of 50 fathoms from surface on the Ranger Lode, and the deep adit would come in 50 fathoms deeper than this.

A meeting held in May 1851 consolidated the shares into 512ths instead of 1,024ths, and a further consolidation (or possibly consolidation and relinquishments of the incomplete issue of shares) later



**The Carn Galver engine houses seen from Bosigran; Carn Galver in the background.**

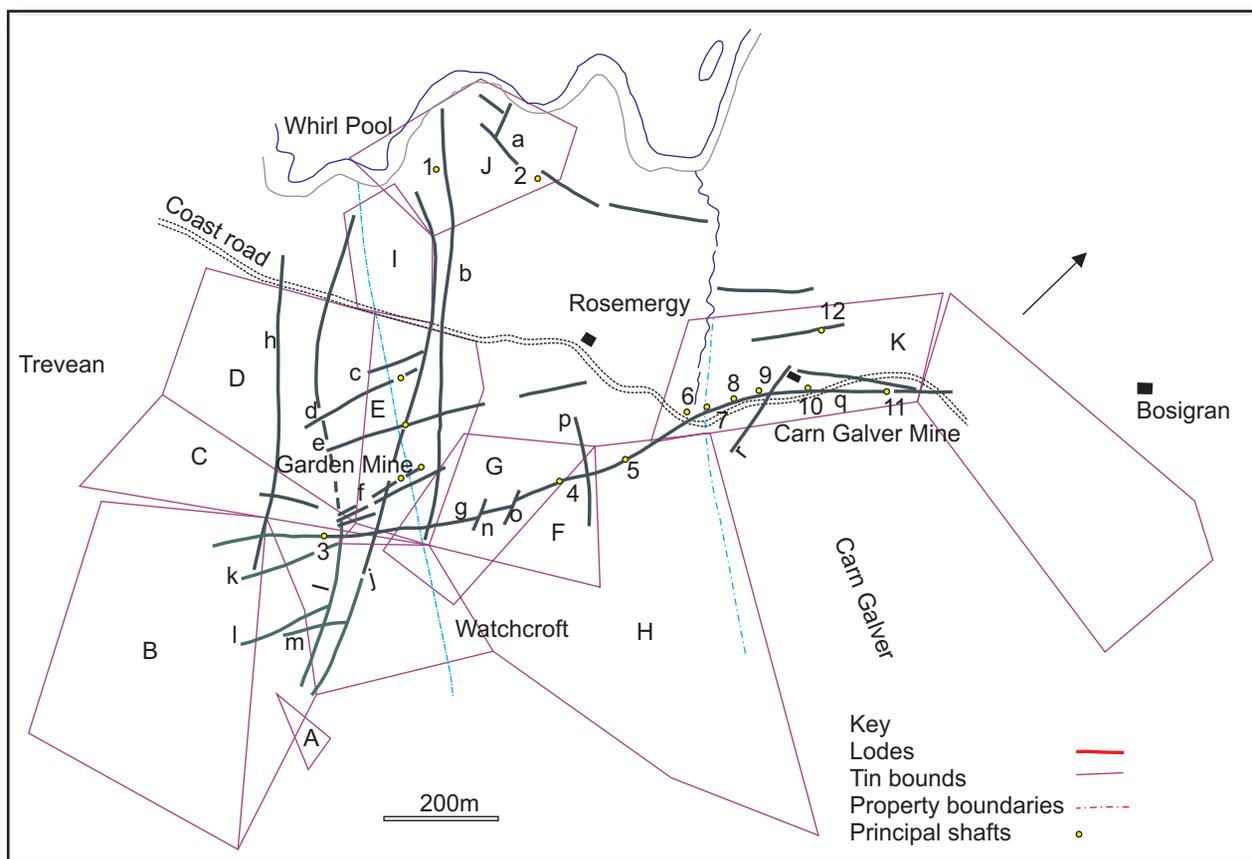
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reduced the number outstanding to 190. A single share was advertised for sale in March 1863; the shares were not listed in the *Mining Journal*, which indicates that they were in local hands and firmly held.

The 20 fathom level east of Roscorla's Shaft was being driven on Ranger Lode in August 1851. At this time the adit end was about 40 fathoms from surface and was still being driven towards the Heathcock and Ranger Lodes.

By the autumn of 1855 the deep adit level had been driven about 250 fathoms, and the air in the end was so foul that it would not support a candle. This was rectified by the installation of a ventilating machine invented by Coulson and operated by a falling column of water.

A new lode was cut in the 60 fathom level in the Bosigran section in December 1858, on which a drive was made east and west about 12 fathoms, while a cross-cut was being put out to it at the 40 fathom level. At the end of the year the Bosigran section was looking better, but there was no change in Rosemergy.



**Plan of tin bounds, lodes and principal shafts in the Morvah and Zennor sett. Redrawn from the *Journal of the Trevithick Society* No.29, p78.**

A hydraulic engine was working in the spring of 1858, and was sufficient to take the mine down another 160 fathoms. However, due to periodical shortages of water, a double-acting engine by Harveys of Hayle was erected in the autumn of 1860.

The last accounts of the company to be published in the *Mining Journal* appeared in December 1862. About this time the mine was 90 fathoms deep and employed 80 people. It was closed in 1866 following the death of the then purser and manager, who was also the largest shareholder, and a fall in the price of tin.

In April and July 1869 the mine and materials were put up for sale by private contract, the sale being due to the fall in the tin price and to the failing health of the lessee and principal shareholder. The offer for sale noted that the mine had a 30-inch double-acting steam-engine and a skiproad to the

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**Carn Galver Mine seen from the Garden Mine to the west. The building on the left is the former count house. Treen Farm is in the background.**

bottom of the main shaft, 60 fathoms below adit, 70 fathoms. At surface there was a 36-inch water-wheel and 34 heads of stamps, a burning-house, and Borlase's patent buddles. During the working the mine sold nearly £26,000 worth of black tin, and in order to further this 'rare opportunity for investment in Cornish mining' the lords had agreed to grant a new 21-year lease on the same terms as the present once, to any responsible person or company.

No buyer having appeared, the materials were lotted and put up at an auction held in September 1869 when, 'as a speculation', the mine was said to be 'one of the most promising concerns in the market'. Between 1858 and 1860 the mine sold 80¾ tons of black tin for £5,609 14s 6d.

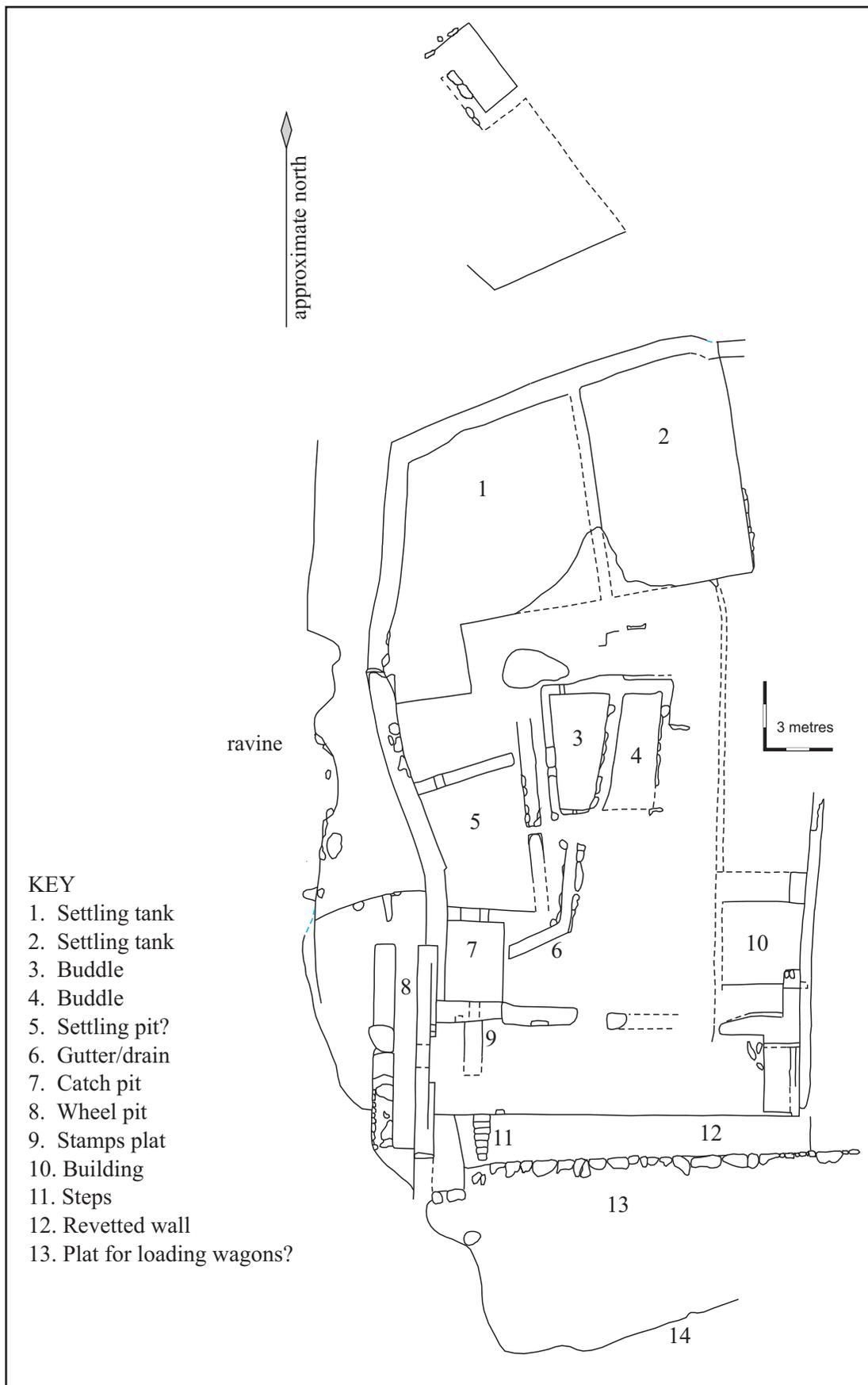
The Carn Galver Tin Mining Company, Limited, was registered in Truro in July 1871 having been formed to work the Carn Galver Mine, which had closed in 1866. According to the prospectus, three-quarters of the capital had been subscribed by the directors and their friends. The lodes included Old Bal, Ranger, North, South, Bosigran, and some others, and two of them had been worked to a depth of 120 fathoms. It was estimated that £3,500 would be needed to open the mine; the purchase consideration was 3,500 shares credited as fully paid, and the property had been bought from Thomas Willis Field and John Roach under an agreement dated 24th July 1871. Dues were 1-22nd according to the prospectus, but Kelly (1873 below) states that they were 1-20th. He adds that the part in Zennor parish was held from R. Dodd and Cornish and that in Morvah parish from Henry White. Both leases were for 21 years, the Zennor one from 1871.

The shares were offered for sale in July 1871 for a deposit of 2s 6d and a call of 7s 6d due on allotment, with the balance in calls of a quarterly maximum of 5s per share. The offer stated that the price of tin was nearly £50 per ton higher than at the time of the mine's closure. A set of water-stamps within half a mile of the mine had been rented for £25 per annum; a year later the first annual return showed that seven signatories had taken up 34 shares, and that at the date of the return there were 34 shareholders.

Work began early in November 1871, and at the end of the month only 6 fathoms of the shaft remained to be cleared, after which it was proposed to sink a further 50 fathoms to the deep adit. A winding-house was being built, and two steam engines were bought.

In July 1873 a meeting was told that within a fortnight the lode in the 90 fathom level would be reached. The two new heads of Husband's pneumatic stamps were working, and operations were no longer impeded by the old water-stamps. An offer from 'a banker in Cornwall' to mortgage the property for £2,000 on the personal guarantees of the directors, who were large shareholders to the extent of £6,000 to £7,000, was received at about this time, and a circular was sent out to shareholders to seek

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Bosigran stamps, as surveyed by the author in 1998.

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their opinion on the best means of raising fresh capital, by preference shares or a mortgage. At this time about 70 people were employed.

Harvey & Co. of Hayle unsuccessfully petitioned the Vice-Warden's Court in November 1873 to wind up the company, presumably over unpaid bills. Two months later the property was put up for auction as a going concern. Thomas W. Field, of Marazion, was appointed liquidator, and the materials were acquired by another company which reopened the mine early in 1874. Besides the Husband's stamps and boilers, tools, and pitwork, the new owners acquired a 30-inch pumping engine, a 22-inch winding engine, and a 17-inch high-pressure compound stamping-engine. About fifteen tons of black tin were sold up to the end of 1872. In July 1873 black tin sales totalled £1,822.

Several attempts to re-open the mine took place from the 1890s. A resolution was made to form Rosemergy and Wheal Rose United but this came to nothing. In 1900 an application was made to various lords to work mine burrows and surface workings at Bosigran and Morvah Hill; Bosigran Consolidated Mines is recorded in 1907 and the Rosemergy and Morvah Syndicate in 1908. No significant work seems to have been undertaken by any of these companies.

### Bosigran stamps

Bosigran, sometimes called Castle, stamps is located just west of Bosigran Cliff and about 1km north of the engine houses of Carn Galver Mine, at grid reference SW 4176 3670. Although the mill site lies some 60m vertically below the engine houses of Carn Galver Mine it still hangs in the air over the 75m-high sheer cliffs of Porthmoina Cove.

Little detailed information is known about the site although it is recorded over a 300 year period. The first reference to the site is in 1627 when John Coswyn of Bodrigye leased to James Adge for £20 'all his land in Bossegerne including the mill newe erected called Bossegerne Mill'. In 1662 the mill, then described as a grist mill, was included in a deal between William Keigwin of Tretore and John Borlase of Pendeen; the mill was to remain in the hands of the Borlase family until at least the middle of the 19th century. In 1687 the mill was leased by Borlase to James Eddy of Zennor, a tinner. This suggests a change of use for the mill, from grist to stamping. In 1708 the remainder of the lease was in the hands of David Eddy and by 1761 the lease was in the hands of Richard Eddy, the reversionary lease determinable on two lives, probably Samuel and Jane, the son and daughter of Richard.

In 1761 the lease had been transferred to William Stevens, the lease being on the same terms. A number of people with this surname were associated with Ding Dong Mine, particularly in its earlier days, and it is possible that William was part of this, or these, families. Ten years later the lease was back in the hands of the Eddy family, where it was to remain until the 20th century.



Bosigran mill seen from the western side of Porthmoina Cove.

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**Interior of Bosigran mill showing the quadrilateral buddles.**

In August 1840 the sale notice for Morvah and Zennor United Mine mentions a 60-foot diameter waterwheel, however while the stamps appears to have been part of the mine by this time this was a different feature, which was sited some distance to the south-east and still visible as a scar on the landscape. The wheel was likely used for pumping though from which shaft is not known as the mine used a 40-inch engine for pumping from the engine shaft near the road. Three years later the mill, then known as Castle Stamps (presumably from the cliff castle on Bosigran Cliff), was still in the hands of the Eddy family, a 21-year lease having been granted by Samuel Borlase to John and William Eddy. Little is known of its history after this time. The stamps was enlarged towards the end of 1860 when they were used by Carn Galver Mine (the reworking of Morvah and Zennor United); a lease granted that year mentions “Grant of watercourse for working stamps and other Machines lately erected on Treveglos Common Cliff”. The mine was reorganised as the Carn Galver Tin Mining Company (Limited) in 1871 when a 21-year lease of the stamps was accepted by the directors at a rate of £30 per year; the burrows were to be stamped and the company would receive 20% of the profits. The stamps were included with the sale of materials of Carn Galver Mine in June 1883: “Also at Bosigran Stamps, a quantity of STAMPS MATERIALS, consisting of Water-wheels, Buddle Frames, Launderers, Iron Work, &c., and Timber Roofing”. The Holman Foundry in St Just was providing materials for the site in 1914; presumably the stamps fell out of use shortly after this.

The stamps lies at the end of a line of shafts and hummocky ground which may be a streamworks and which stretches to the south-east nearly as far as the two engine houses. Other lines of shafts cross this putative streamworks. An adit can be seen just south-east of the site which may have provided water to power the wheel. It is possible that the stamps was originally built to process tin recovered from this adjacent source prior to becoming a part of Carn Galver Mine. Immediately south-east of the stamps is a group of low walls which appear to represent small settling pits, presumably part of the stream works and therefore possibly worked in conjunction with the stamps.

## Bibliography

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### Books and other publications

- Acton, Bob, 1993. *A View from Carn Galver*, Landfall Publications, Truro.
- Acton, Bob, 2004. *Around Land's End: Twelve Walks in Penwith*, Landfall Publications, Truro.
- Brown, Kenneth & Acton Bob, Third Edition 2002. *Exploring Cornish Mines: Volume 1, (Botallack to Boswedden)*, Landfall Publications, Truro.
- Brown Kenneth & Acton, Bob. Second Edition 2001, *Exploring Cornish Mines: Volume 2, (Wheal Prosper & Wheal Trewavas)*, Landfall Publications, Truro.
- Borlase, W., 1758. *Natural History of Cornwall* [etc.]. W. Jackson, Oxford.
- Bottrell, W., 1870. *Traditions and Hearthside Stories of West Cornwall*. Penzance, printed by the author.
- Buckley, J. A., 2009. *The Tudor Tin Industry*. Penhellick Publications.
- Collins, J. H., 1910. *Observations on the west of England Mining Region*. 1988 reprint, Cornish Mining Classics Truro.
- Dines, H. G. (1956). *The Metalliferous Mining Region of Southwest England*. HMSO.
- Henwood, W. J., 1873. Observations on the detrital tin-ore of Cornwall. Reprint from the *Journal of the Royal Institution of Cornwall*. Truro.
- Holmes, L., 1978. The Wheal Owles disaster. *Journal of the Trevithick Society* No. 6, p82.
- Joseph, P., 1996. After the fire: the industrial archaeology of the Botallack cliffs. *Journal of the Trevithick Society* No. 23, pp68-82.
- Joseph, P., 2004. Electricity and tin: the rise and fall of Cornish Consolidated Tin Mines Limited. *Journal of the Trevithick Society* No. 31, pp30-42.
- Joseph, P., 2010. *Hard Graft. Botallack Mine in the Twentieth Century*: [etc.]. The Trevithick Society.
- Joseph, P., 2014. The arsenic industry at Botallack mine: an example of early twentieth century adaptive re-use. *Journal of the Trevithick Society* No. 41, pp3-34.
- Joseph, P. and Neill, A., 2018. *Wheal Trewavas*. The Trevithick Society.
- Joseph, P. and Williams, G., 2014. *Ding Dong Mine, A History*. The Trevithick Society.
- Neill, A., 2002. The Carn Galver and Morvah Hill Mines. *Journal of the Trevithick Society* No.29, pp77-95.
- Noall, C., 1972. Botallack. D. B. Barton Ltd., Truro.
- Noall, C., 1973. *The St Just Mining District*. D. B. Barton Ltd., Truro.
- Noall, C., 1993. *The St Ives Mining District*, volume 2. Dyllansow Truran, Redruth.
- Williams, G., 2011. Treway Downs Mine. *Journal of the Trevithick Society* No. 38, pp24-39.

### Cornwall Record Office documents

Usticke papers: X1424.

### Useful websites

Historic Cornwall (Cornwall Historic Environment Record): [www.historic-cornwall.org.uk](http://www.historic-cornwall.org.uk).  
Rosevale Historical Mining Society: [www.rosevalemine.com](http://www.rosevalemine.com).



