



Our mining culture
shaped your world

cornish mining

newsletter of the Cornwall & West Devon Mining World Heritage Site

Summer 2010

Geevor Tin Mine becomes a
Key Centre for visitors

Liskeard & District Museum &
'William West Reflections'

'Discover the Extraordinary'-
project update

'COUNTDOWN TO HEARTLANDS'

Theatre & song at
South Hooe Mine

The Cornish & copper
at Kåfjord



Image © Toby Weller

WELCOME

Welcome to the summer edition of Cornish Mining the newsletter for the Cornish Mining World Heritage Site. This time we visit Geevor Tin Mine, West Penwith, which has just been declared a 'Key Centre' and a principal attraction for visitors who wish to learn more about the World Heritage Site. Telling the story of Cornish mining is also very much part of the visitor interpretation planned for the Heartlands development at Pool which has just marked the commencement of works with a celebration event.

We also drop in to the Liskeard & District Museum & Information Centre and experience a recent mining-related exhibition celebrating the life of William West one of Cornwall's lesser-known engineering geniuses. The 'Discover the Extraordinary' project commenced at the beginning of the year and Gary Jago gives us the latest on this major World Heritage Site tourism initiative. Following on the heels of Wheal Tom near Luccombe which has recently been conserved using Higher Level Stewardship funds, Daisy Dugmore looks at South Hooe Mine and the latest site to benefit from works undertaken using this welcome Natural England funding opportunity.

Cornish mineworkers have a well deserved reputation as globe-trotters and we close this edition with a look at Kåfjord in Norway and its part in the Cornish mining story of the nineteenth century.

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United Nations Educational, Scientific and Cultural Organization



Cornwall and West Devon Mining Landscape inscribed on the World Heritage List in 2006



Heartlands project (Image © Toby Weller)

HRH The Duke of Kent unveils the plaque made from Cornish tin (kindly donated by Barry Gamble and made by local artist Tom Leaper) marking Geevor's World Heritage Site Key Centre status



GEEVOR TIN MINE BECOMES A 'KEY CENTRE' FOR VISITORS

HRH the Duke of Kent visited Geevor Tin Mine, Pendeen on Monday 26th July where he unveiled a plaque to commemorate the conferral of Cornish Mining World Heritage Site 'Key Centre' status.



William Lakin (left) Chair of Trustees, Pendeen Community Heritage, and Michael Simpson, Geevor Mine Manager, explain the workings of Victory Shaft (Mary Neale © Cornwall Council)

Geevor Tin Mine is at the heart of the St Just Mining District of the World Heritage Site and as such is ideally positioned to serve in this role while also having the required facilities. Geevor became a World Heritage Site 'Key Centre' following a rigorous assessment of the quality of the visitor facilities and its displays.

During a guided tour of the mine with Geevor staff the Duke visited the new World Heritage Interpretation and Orientation rooms with new interpretation panels explaining the significance of the Cornwall and west Devon Mining Landscape. The interpretation panels and information have been funded by a European Union and

DEFRA grant through the Rural Development Programme for England (RDPE). It is part of the 'Discover the Extraordinary' project, a three year programme of investments across Cornwall and Devon developed by the Cornish Mining World Heritage Site Office to enhance the visitor experience in the World Heritage Site. The RDPE funding has been awarded through the Sustainable Rural Tourism theme, managed by the South West RDA, which aims to assist the growth of environmentally sustainable tourism in rural areas. Leach Colour produced the interpretation panels, following extensive research by staff at Geevor Tin Mine.

His Royal Highness was met by Lady Mary Holborow, DCVO, Lord-Lieutenant of Cornwall



In Geevor's Museum of Hard Rock Mining

who introduced him to Councillor Dave Stevens, Mayor of St Just and his wife Mrs Dot Stevens; Mrs Elaine Baker, Town Clerk of St Just Town Council; Cornwall Council cabinet member for Historic Environment Julian German; Mr William Lakin, Chair of Trustees, Pendeen Heritage Community Trust and Mr Michael Simpson, Site Manager at Geevor Tin Mine. Within the World Heritage orientation rooms, Mr Lakin introduced HRH to World Heritage Site Co-ordinator Deborah Boden who explained the Heritage Centre and its links with the World Heritage Site.

After an informal reception in the Exhibition Gallery where His Royal Highness met invited guests, the Duke unveiled a commemorative plaque conferring World Heritage Site Key Centre status on the mine. Cornwall Council cabinet member for



Jo Warburton (left) and Lady Mary Holborow, DCVO, Lord-Lieutenant of Cornwall, introduce His Royal Highness to the Hard Rock Mining Museum (Mary Neale © Cornwall Council)

the Environment, Cllr Julian German, said: "I congratulate the staff and volunteers at Geevor Tin Mine on this important achievement. World Heritage Site status requires us to provide a high level of care for our internationally important landscape asset, whilst at the same time attracting more people in to learn

about and enjoy our world-changing mining culture. Ours is a complex World Heritage Site, the largest in mainland UK, but its dispersed and diverse nature offers unique tourism opportunities – many places for the visitor to engage with it, and across these a variety that offers something for everyone, whatever their interests.



(Left) Don't push this button! – Maurice Trembath gives His Royal Highness a lesson in driving the Geevor electric winder which once conveyed ore, men and materials in Victory Shaft (Mary Neale © Cornwall Council)

(Below left) Geevor guide and ex-miner Ian Davey offers to share his soap (Mary Neale © Cornwall Council)

(Below) Cornwall Councillor and Environment Portfolio Holder Julian German welcomes His Royal Highness to Geevor Tin Mine (Mary Neale © Cornwall Council)



High quality visitor attractions such as Geevor Tin Mine are vital in presenting the World Heritage Site themes to the new audiences we are reaching out to. They have to deliver high standards if we are to meet the high expectations that people have of World Heritage Sites. For this reason the World Heritage Site Office has been working with a consortium of attractions, the Cornish Mining Attractions Marketing Association (CMAMA), in creating the 'Discover the Extraordinary' project to improve standards of interpretation, visitor care and joint promotion. The concept of Key Centres is a principal element of this integrated approach – a small group of attractions that meet a range of challenging criteria and have passed a rigorous assessment process to ensure the highest quality of experience for the visitor". ■



Site visitor interpretation panels created through the 'Discover the Extraordinary' project

For further information on Geevor Tin Mine please visit: www.geevor.com

'COUNTDOWN TO

The Robinson's Shaft site at the former South Crofty Mine in Pool was the centre of a media launch on Friday 23rd July marking the commencement of work to construct a major new urban park for the local community with a significant mining heritage focus.

The Heartlands project will create an extensive green space for the village of Pool in addition to providing a range of community facilities including state-of-the-art conference facilities, work studios and meeting venues. It is also planned to offer regular community events including exhibitions, festivals, art fairs and farmers' markets.

At the centre of Heartlands is the important Robinson's Shaft site itself, a Grade II* Listed complex of buildings including the hugely significant Robinson's Shaft pumping engine. Situated within the Camborne and Redruth Mining District area of the World Heritage Site, the Robinson's engine and building complex is due to be conserved as the showpiece of the project.



'Up, up and away' - the 'Great Heartlands Balloon Race' in the skies above Carn Brea



(Above) Artistic impression by Richard Carman

(Main image) The Robinson's Shaft engine and headframe at South Crofty Mine, the centre of Heartlands



HEARTLANDS'



(Clockwise from above) Guests inspect the plans for the new park with Robinson's at its centre; Some of the many performers on hand to mark the occasion

Constructed at the beginning of the twentieth century, the Robinson's Shaft site retains its 80 inch cylinder steam pumping engine, built by Sandys Vivian and Co, Hayle, in 1854, and which last worked in May 1955. Put into mothballs at this time, the Robinson's Engine was to be the last Cornish pumping engine to work on a metal mine and was 101 years of age when decommissioned. The Heartlands project will renovate this historic engine and it is planned that this important piece of Cornish industrial heritage will be put in motion once more using compressed air.



Groups of musicians, dancers and other performers were on hand to help celebrate the event which included the 'Great Heartlands Balloon Race' where over 800 balloons were released. Each of these came with an individual 'Hope for Heartlands' message from the many students who have been involved in the Heartlands project to date with a prize offered for the balloon furthest travelled. ■

Work on the Heartlands project is due to be completed by the autumn of 2011 and to find out more please see the Heartlands website: www.heartlandscornwall.com



Heather Medlen, second left, and volunteer staff receiving the award from Lady Mary Holborow, Lord-Lieutenant of Cornwall (left), and Councillor Mrs Pat Harvey, Chairman of Cornwall Council (far right)

(© Liskeard & District Museum & Information Centre)

LISKEARD & DISTRICT MUSEUM & 'WILLIAM WEST REFLECTIONS'

The Liskeard & District Museum & Information Centre has recently been accorded the prestigious Accredited museum status by the Museum, Libraries and Archives Council (MLA).

The Museum is the Area interpretation centre for the Caradon Area of the Cornish Mining World Heritage Site and it provides visitors and local audiences with an introduction to the Site and the importance of metal mining to Liskeard and the surrounding communities during the nineteenth century.

The MLA's Museum Accreditation Scheme sets nationally agreed standards for all museums in the UK. Liskeard & District Museum's award demonstrates that it performs well, meeting the guidelines on how it is run, how it looks after its collections and the services it provides its visitors. Andrew Motion, Chair of MLA, said: "Being awarded Accreditation is an impressive achievement. It recognises the high standard and service that Liskeard and District Museum provides and acknowledges the hard work of its volunteers."

A delighted Heather Medlen, Honorary Curator of the Museum, said "the award proves that the museum has developed an excellent standard of working, meeting the guidelines on how it is run, how it looks after its collections and the services it provides for visitors". Heather was also pleased to receive an invitation to a Royal Garden Party

held at Buckingham Palace on 22nd July in recognition of her efforts as a volunteer responsible for the day to day working of the museum and for providing services for the community.

The Museum is also a member site of the Cornish Mining Attractions Marketing Association (CMAMA) which is a grouping of visitor attractions which have metalliferous mining as a central theme in their visitor experience. The World Heritage Site is delighted that the museum has been recognised in this manner and congratulates all the dedicated volunteers for their hard work and efforts in delivering an excellent museum service.

'WILLIAM WEST REFLECTIONS'

William West (1801–1879) rose from his early beginnings in Camborne to become one of the foremost steam engineers in nineteenth century Cornwall. West could recall as a boy around the age of 7 holding a candle for Richard Trevithick while the pioneer of high-pressure steam constructed his famous 'Catch-me-who-can' locomotive, the first fare paying passenger train, which ran in a field near Euston Square, London, in 1808. It requires little imagination to appreciate what

The Cornish Mining World Heritage Site – a rich landscape with much to explore

a profound experience this must have been for a young William, setting him on a path which was largely to shape his future. After later relocating to St Blazey while working as an engineer for mines in the St Austell Bay area, West consolidated his reputation as a sound practical engineer but added to this the talents of a shrewd businessman with a keen eye for a profitable undertaking. In time West was to design and install some of the most advanced high pressure steam pumping engines ever built including the famous Austen's pumping engine at Fowey Consols Mine, near Tywardreath, and beam engines for major London water works. He also established his own iron foundry in 1848 and later ventured into banking in addition to becoming a major mining shareholder.

While being relatively well known to mining historians it is fair to state that West does not have the public profile of other engineering notables such as Trevithick, Watt or Newcomen. He did much to introduce new technology to Cornish metal mining, however, while also helping to open up significant new mining areas for exploitation. Much of the Caradon Mining District owed its success to the foresight of West with Phoenix Mines being a particularly profitable undertaking.

In order to bring West to a wider public audience the Trevithick Society has recently staged an absorbing exhibition at the Liskeard & District Museum & Information Centre which has drawn together the threads of West's life and highlighted the considerable extent of his involvement in mines in east Cornwall particularly. The exhibition, conceived by Cheryl and John Manley of the eastern branch of the Society, included a timeline and map upon which was plotted each of the mine sites where West had installed one or more engines or where he held a financial interest. The official opening of the exhibition on 16th July was attended by an invited audience which included descendants of West himself eager to learn more of his achievements and his impact and reputation locally.

To help promote the exhibition a photographic competition was held



From left to right (with photos) - Bethany Luscombe, Barbara Willcocks, Bill Mammait and Peter Levers after receiving their competition prizes. They are joined by Cheryl and John Manley of the Trevithick Society (back row 3rd and 2nd from right), Philip Hosken, Chairman, Trevithick Society (back row 2nd from left), Andy Robinson, Caradon Hill Area Heritage Project Manager (back row far right), and descendants of William West himself

where local photographers were invited to get out into the World Heritage Site and capture their impressions of mining heritage in the Liskeard area. Entitled 'William West Reflections', the competition brought forth considerable interest from members of the public with those entering taking a particularly inspired view of the varied mining landscapes. The competition was open to all with the aim also being to build up a collection of images that will inspire the public and form an archive for the future.

The competition entry categories were 'Photographic', for 35mm and larger format film cameras, and 'Digital Enhanced', for digitally produced images post-processed using computer software. In addition the 'Rob Frost' prize was offered to younger photographers under the age of 18 who fancied trying their luck. Following adjudication, a prize giving event was also organised to coincide with the exhibition opening but held at Stuart House, Liskeard. The competition organisers were pleased with the very high standard of entries illustrating well the degree of interest that exists in mining heritage in and around Liskeard. The lucky prize winners were, in the

'Photographic' category: 1st Barbara Willcocks, 2nd Bill Mammait and 3rd Barbara Willcocks, while in the 'Digital Enhanced' class: 1st Peter Levers, 2nd Peter Levers and 3rd Barbara Willcocks.

Bethany Luscombe won the special 'Rob Frost Young Photographers Prize' with her particular engine house study showing an excellent use of depth-of-field in composition. Bethany's prize was a professional photography tutorial where she was given the opportunity to join Liskeard-based photographer Rob in his studio and on location and improve her already considerable landscape photo skills.

'William West Reflections' has been so well received that the exhibition was held at St Blazey Church – fittingly in his home town and the place of his memorial headstone which took place from 20th August to 1st September. ■

For further information on Reflections please log-on to: <http://williamwest.webs.com> and for the Liskeard & District Museum: www.liskeard.gov.uk

'DISCOVER THE EXTRAORDINARY' PROJECT UPDATE

As reported in the spring edition of the newsletter the World Heritage Site 'Discover the Extraordinary' (DtE) project is well underway delivering major improvements to visitor facilities and interpretation at mining heritage attractions across the Site.

Initially conceived by the WHS team in 2007, the DtE project is applying European Union and DEFRA grant aid made available through the Rural Development Programme for England (RDPE) as part of a three-year project with a total spend of £2.5 million. Gary Jago, Project Manager for the programme, gives an update on some of the highlights at those sites which are benefiting significantly from this major tourism funding initiative.

VISITOR RECEPTION BUILDING, GODOLPHIN, BREAGE

The National Trust have completed the restoration and conversion of a Listed historic farm building to provide the new visitor reception facilities for Godolphin House, Gardens and Estate and this is now open to the public. The new facilities include a reception desk, visitor orientation, toilets and a cosy café

area. Environmental sustainability has been a key requirement during the planning phase for the new build and the design of the interior is contemporary while remaining sympathetic to the character of this historic property.

POLDARK MINE, WENDRON

Transcroft Ltd has largely completed the renovation of the historic Holmans' traversing winder, which is a half-scale model of a very unusual steam engine produced by Holman Brothers of Camborne for the Paris Exhibition of 1900. Designed to traverse from side to side during shaft winding operations, it was thought until recently that the model was incomplete with the original winding drum being lost. The chance discovery of the drum within a formerly sealed off area of the Poldark site has enabled the model to be restored and go on display to visitors once more. A rare

photo of the winder taken at the Paris Exhibition shows it accompanied by a small winding headframe as part of the exhibit and the DtE project has also enabled the construction of a timber replica of this which, along with a weatherproof housing, completes the installation. Poldark also plans to upgrade the mechanical (hydraulic) systems which control the motion of its Cornish beam engine in due course which was the last to pump commercially on a mine in Cornwall.

(Below) Holmans' traversing winder engine model and the partially complete timber headframe at Poldark Mine, Wendron (Gary Jago © Cornwall Council)



(left) The newly opened visitor reception building at Godolphin, Breage (Gary Jago © Cornwall Council)



(Left) The rebuilt winder and compressor houses at King Edward Mine, Troon, now complete



WINDER & COMPRESSOR HOUSES, KING EDWARD MINE, TROON

King Edward Mine has recently seen the completion of the new winder and compressor houses which replace the original buildings destroyed by fire in 1957. Gloweth Construction of Truro have been undertaking the rebuild and while the severe winter weather has delayed works to some extent the result has been very well received. Expertly constructed in the original Edwardian style, in keeping with the remainder of the Grade II* Listed site, the buildings will permanently house the Holman Brothers' horizontal steam winder, installed here by 1908, and the site's Harvey's Foundry air compressor. The mine's expert volunteer staff have also been working with the DtE project team to organise an inauguration event which was held on Monday 16th August. Councillor Alec Robertson, Leader of Cornwall Council, performed the official opening following speeches of thanks by Tony Brooks (King Edward Mine) and Deborah Boden (Cornish Mining World Heritage Site Co-ordinator) in the company of an invited audience.



(Top) The mighty Taylor's Shaft pumping engine at Cornish Mines & Engines, Pool

(Above) The historic home of St Agnes Museum (© St Agnes Museum)

CORNISH MINES & ENGINES, POOL

The National Trust's Cornish Mines & Engines site at Pool between Redruth and Camborne preserves two outstanding Cornish beam engines which once worked as part of East Pool and Agar Mine, one of the principal tin producers in the area. The DtE project team working

in conjunction with National Trust staff have undertaken a refit of the AV room with new DVD and digital projection facilities being installed. Integrated Circles, a company used by English Heritage and a number of museums nationally, have provided the new installation. A specially commissioned film has also been produced by Shark Bay Films of Porthleven which is seen by all visitors on arrival and provides an excellent introduction to both the site and the wider WHS.

ST AGNES MUSEUM

St Agnes Museum holds an extensive collection of artefacts and documents relating to life and work in the area and the DtE project has enabled significant upgrades to facilities here. Enhanced lighting using light emitting diode units provide a low energy alternative to the former tungsten filament bulbs and have the added benefit of producing light with reduced UV wavelengths which can cause fading and damage to historic collections. Phase 2 of the project will address interpretation enhancements within the museum and work is due to be completed on this before spring next year. A local architect is also to assist the project team to compile a specification for a ramp to improve access to the museum's main entrance which will also include upgrades to the existing pathway.

In future editions we will be visiting 'Discover the Extraordinary' again and following this exciting project as work progresses. ■

Gary Jago



(Above, below and right) The audience and performers enjoy the sunshine at South Hooe Mine celebrating the engine house conservation with a day of stories, music and theatre (© Daisy Dugmore)

THEATRE & SONG AT SOUTH HOOE MINE

Daisy Dugmore looks at the celebration event staged to mark the conservation of the Cornish engine house at South Hooe Mine on the Bere Alston peninsula.



Mining in the area of South Hooe on the Bere Alston peninsula is of considerable antiquity. Records indicate that mining for silver-lead was being undertaken here by the first quarter of the fourteenth century and operations are known to have continued in some form until the end of the fifteenth century, by which time the most readily accessible shallow surface ores had presumably been removed. The lodes were being exploited again by the end of the eighteenth century however when improvements in mine pumping, through the use of steam technology, enabled the mineworkers to reach much greater depths. A 20 inch cylinder Boulton & Watt beam engine is recorded in use by 1788.

'New South Hooe Mine' is first recorded as a company in 1836 at around which time a 50 inch cylinder Cornish pumping engine was installed to dewater the workings which were extending further out under the River Tamar (latterly into Cornwall). Over forty years of productive working followed until the early 1880s when the site was abandoned to nature following a brief re-working for fluorspar, for use in glass making. Being in a rather remote location on a bend in the river, South Hooe is not a site many have stumbled across and is certainly one of the less familiar parts of the World Heritage Site.

The abandoned engine house was to remain in a state of advancing decay until

(Right) The pumping engine house as it was in 2003 and after the completion of works; the outline of the pumping shaft can be seen adjoining to the left (Colin Buck © Cornwall Council)



2010 when the opportunity of applying for 100 per cent European Union funding for building conservation, through the Natural England Higher Level Stewardship (HLS) scheme, was made known to the site owner. Discussions with Natural England officers, a Cornwall Council industrial archaeologist, and the owner fortunately resulted in an agreement being made which would deliver the funds required for the work. Following detailed measured survey, structural assessment, archaeological and ecological surveys of the site, and after formulating an appropriate consolidation plan specification, building work commenced in April 2010. Darrock & Brown were the contractors undertaking the task which was delivered without a hitch, including additional work to remove all the earth/stone material inside the engine

house, to safely 'cap' the top of the engine shaft, and to provide safe access inside and outside the building,

Part of the HLS agreement was the requirement for improved public access to the site and to this end a programme of four free open days per year are scheduled for each of the ten years of the scheme overall. The first of these was held on 13th June when this once rich silver-lead mine became the backdrop for a day of theatre, stories and music.

The audience, a mixture of locals and those from further afield, were greeted by the eager smiling faces of 6th form students from Millfield School and were then taken off into the adjoining woods where the medieval sound of 'Occupants of the Hedge' serenaded their journey down to the mine. As they made their way beneath the canopy of trees, poems, stories and little quotes hung from every branch so the way was slow as eager eyes soaked up the words of wisdom. Lucky younger members of the audience may have come across a rabbit spotter in the woods and, if they were very quiet and very patient, a Lesser Spotted Giant Rabbit may have come out to play! On emerging from the wood the Celtic sound of 'Dalla' was wafting down the Tamar Valley. The four-strong Cornish band played on the beautiful stage right above the site of the pumping shaft used during the working days of the mine. As Cornish pasties and elderflower cordial refreshed and nourished the guests the main programme of events began to unfold.

With the backdrop of the engine house and using the new shaft 'cap'

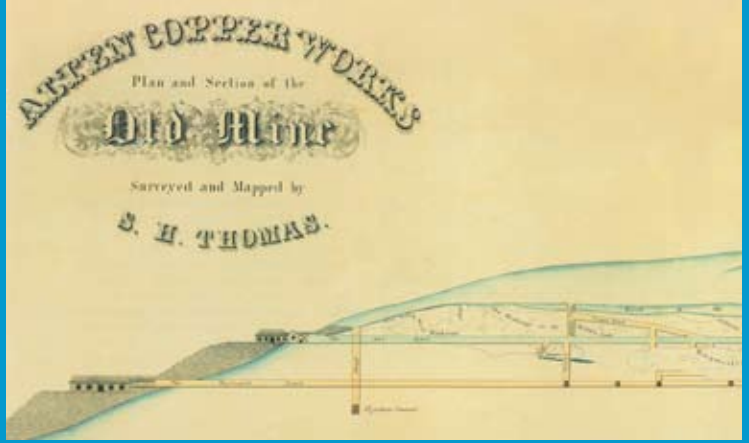
as a stage, a 40 strong cast of GCSE students performed 'Brokenville', a heart-warming tale of the power of storytelling. The live haunting violin playing from one young boy set the tone of the play. Bec Applebee then performed her incredibly brave and absorbing one woman show covering the story of the Cornish highwaywoman Mary Bryant. This intense piece performed on the edge of the Tamar in this way was spell bindingly beautiful and a fantastic way to celebrate the rebirth of an engine house so steeped in history.

The day was also interspersed with snippets of story from Clive Fairweather and little gems of traditional Cornish piping from Dave Hart as well as some impromptu performances from the 'Tavy Tarrs' playing songs such as Cousin Jack, a tribute to the miners of Devon and Cornwall. All in all it was a glorious day of sunshine, music, theatre and stories celebrating the beautifully restored engine house, one of only a few which survive in the west Devon area of the World Heritage Site. ■

Daisy Dugmore

STOP PRESS: There will be an opportunity to visit South Hooe Mine during the afternoon of Saturday 25th September and why not come along and enjoy a cream tea.





(Above) The Alten Mining Company works 1882-83 (Photo: © Sophus Tromholt: Bergen University Library)

(Above right) Section plan of the Old Mine surveyed and drawn by Stephen Henry Thomas (Map no date - © Alta Museum)

THE CORNISH & COPPER AT KÅFJORD

The spread of mineworkers and mining technology from Cornwall during the nineteenth century is one of the most striking aspects of the Cornish mining story.



(Above) Portrait of Stephen Henry Thomas c.1865 (Photo: © Martha Nielson)

The transfer and application of mining skills and steam pumping and winding technology was to greatly aid the opening up of mining fields around the globe, a process through which numerous communities based in part on Cornish traditions were established. South Australia, North and South America and South Africa are just some of the destinations where the impact of mineworkers from the south-west were to be felt but Europe also received its fair share. One of the lesser known European migrant destinations is perhaps Alta in Norway which experienced a relatively small but nevertheless significant Cornish involvement from the second quarter of the nineteenth century. Copper mining and smelting at Kåfjord in the north of the country was to develop into the first major industry in Arctic northern Europe.

Kåfjord is a small village located just west of the town of Alta on the shores of a fjord which shares the same name at the northern tip of Norway. While being deep within the Arctic circle the area is not troubled with permafrost though the mean temperature in the Alta Valley reaches only just above zero degrees Celsius. Better known for its outstanding prehistoric rock carvings, also declared a UNESCO World Heritage Site, Alta and Kåfjord share a rich cultural heritage.

Documentary sources show that searches for copper ore had taken place by prospectors during the seventeenth century but it was not until the early 1800s that large scale mining and copper production

commenced. In 1825 two English traders, John Rice Crowe and Henry Woodfall, contracted a geologist from Gwennap, Cornwall, by the name of Joseph Michell to survey the area and assess the extent of likely copper reserves. The results of this work were soon found to be favourable as by the autumn of that year Crowe was able to report that: "...the whole of the Alpine district is impregnated with copper." Samples gleaned from this survey also indicated that the copper content was significantly higher than for the Norwegian mine at Røros and also of many in Cornwall at the time.

The ore bodies, principally of copper and iron, were conveniently located near the shores of the fjord which would greatly facilitate processing and transport. Eleven workers were recruited from Røros, an established copper mining area to the south, plus a number of others from Follidal, also in Norway, and additionally Falun in Sweden when production commenced in July 1826 under the company name the Alten Mining Company.

These were joined by 20 mineworkers from Cornwall the following year, these being paid at a higher rate than the Norwegians which caused some ill will. While Henry Woodfall is understood to have acknowledged that workers from Cornwall were of a superior quality, it was soon found that this situation was not economically sustainable and all but two of these were sent home towards the end of the year with the remainder left overseeing the stamp mill and the



(Above) The building of the ore washery (dressing floors) in 1903. The director of the newly created Alten Copper Mines, Otto Witt, is shown standing to the lower left. (Photo: © Olmar Egnæs - Hjørdis Heitmann)

maintenance of the underground timberwork. The company's initial efforts focused on 'Michell's Mine' but after the early 1830s other much larger deposits were to be opened up for exploitation.

In 1844 Stephen Henry Thomas, a qualified chemical engineer from Cornwall who had been working at the Kåfjord mines since 1836, was appointed director of the copper works, a position he retained until 1857. Thomas eventually acquired the nick-name of 'King Thomas of Kåfjord' and was to become the first overseas-born elected member of the Norwegian Storting, the national Parliament.

While mechanised copper crushers were employed to reduce the mineral bearing rock for further processing, during the early years at least it was Kven women (migrant Finnish summer workers) who undertook this activity in a very similar manner to bal maidens working at copper mines in south-west Britain. By their careful efforts the rock with the lowest ore content was rejected with the remainder being passed to the stamp mill for further reduction.

Initially all dressed copper ore was dispatched to Cornwall for auction at the regular 'Ticketings' and then transferred to South Wales and the Swansea smelters, but by 1838 a smelting plant was established on site at Kåfjord to maximise profitability to the company. A useful and interesting by-product of the smelting process was cast blocks made from waste copper slag which were used to construct pavements and walls in a similar manner to that undertaken at Hayle in Cornwall and Swansea in South Wales. Socially copper mining and smelting had a huge impact on the village which had a population of just 41 in 1825. Ten years later the number had swollen to 651 and by 1840 reached more than 1,000. The Alten Works had by then the largest number of employees of any iron and copper works in Norway and consisted of around 120 separate buildings making it the country's fourth largest mine. The company achieved a reputation for producing excellent quality refined copper which was to be in much demand in France, Germany and England.

As the nineteenth century wore on the price of copper metal fluctuated in response to changes in the international market brought about by the increasing production flowing from the El Cobre mine in Cuba and well established mines of South Australia. Improvements in the smelting techniques employed improved matters considerably during the 1850s but decreasing profitability eventually led to a scaling down of operations during the early years of the 1870s. Many of Kåfjord skilled workforce were to be enticed away to the well-established copper mines of Michigan's Upper Peninsula and, indeed, the Calumet Mining Company had launched a campaign to attract Alten workers during the early 1860s. Smelting was eventually to be suspended at Kåfjord by 1874 and the workforce further reduced prior to the cessation of company operations in 1878, bringing to a close British involvement in the area. This was not the last mining to be undertaken here however as the mining rights were to be acquired by Nils Persson in 1896, the Swedish Consul, and the operation renamed Altens Kobbergruver (Alten Copper Mines). A local plant was to supply electricity for the rehabilitated works to reduce costs but this Swedish period was only to last until 1909 when the much-depleted ore body was finally exhausted forcing closure.

Visitors to Kåfjord today are well catered for and can enjoy a 1.2km long 'cultural path' whose route includes the remains of the copper works and associated slag heaps alongside other survivors of the British period of operation including a copper



(Above) Kåfjord today viewed towards the north. Heaps of copper slag in the foreground. Viewed from the harbour and site of the smelting works with the mines and crushed rock in the background (Photo: Stein Adler Bernhoft/World Heritage Rock Art Centre - Alta Museum)

slag-block wall and the former site of workers' housing at the Kven town at Kreetanpää. The town and area are also known for their association with the German battleship Tirpitz, that country's largest naval vessel in WWII, which was anchored here for much of the war prior to it being destroyed by British bombers following relocation to Tromsø in 1944. Also near to Kåfjord and on the cultural path is the world's first permanent northern lights observatory which was established on the Halde at 904 metres above sea level and was operational between 1912 and 1926.

The area of the Alta Fjord is also well recognised for the outstanding rock art which dates from prehistory (c. 4200 to 500 B.C.), and the thousands of paintings and engravings which relate to human activity on the fringes of the Far North at this time were declared a World Heritage Site by UNESCO in 1985 (<http://whc.unesco.org>).

Thanks are extended to Gerd Johanne Valen, Director of the Alta Museum and World Heritage Rock Art Centre, and particularly Hans Christian Søbørg, Curator, for their very generous help in providing the images for this article. ■

(Below) Kåfjord today viewed towards the southwest. A sleepy hamlet with about 100 souls. The sandy area at the left in the centre was the site of the English smelting works and the harbour for shipping out copper. At the right are the heaps of rock left after the crushing of the ore and the ruins of the ore washery built in the Swedish mining period (1896-1909) (Photo: © Stein Adler Bernhoft/World Heritage Rock Art Centre – Alta Museum)



For further information and details of visiting Alta please see the Alta Museum website at: www.alta.museum.no

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