



NEWSLETTER

NUMBER 62**October 2013****Iontaobhas Oidhreacht Mianadóireachta na hÉireann****DIARY DATES 2013-14**

(**Bold print** indicates finalised programmes; further details will be sent to members of events in ordinary print; *italics* indicates non-MHTI activities)

2013

Oct 17-19 *'The forgotten state of industry: Irish industrial landscapes and heritage in a global context'*. *Glens of Lead*, a 'Metal Links: Forging Communities Together' partner. Book a place at <http://glensoflead.eventbrite.ie/>

Oct 25 *Industrial and mining landscapes within World Heritage context workshop, Germany.* <http://ticcih.org/germany-25th-october-2013/>

Oct 25-27 *European Industrial Heritage Weekend, Switzerland.* <http://www.e-faith.org/home/>

Nov 7 **MHTI Board meeting**

8-10 Nov Waterford Film Festival, Granville Hotel Waterford City. *Down the Ladder*, the Copper Coast European Geopark's film, is showing on 9 November. See inside for details.

Nov 9-10 *Bronze Age Forum, School of Geography, Archaeology & Palaeoecology, Queen's University Belfast. Sunday includes a session on Bronze Age mining.* <http://www.qub.ac.uk/sites/BronzeAgeForum/> and see inside for more detail.

2014

Feb 12-13 *Digital Past, New technologies in heritage, interpretation and outreach, St George's Hotel, Llandudno, Wales.* See <http://digitalpast14.blogspot.ie/>

Apr 12-13 *Historical Metallurgy Society Spring Meeting, Blarney, Co. Cork.* <http://hist-met.org/>
Jul 6-13 10th International Mining History Congress 'Past Heritages; Future Prospects' and 20th Australasian Mining History Association Conference, *Charters Towers, Queensland, Australia.* <http://www.ct2014miningcongress.com/programme.html> Paper abstracts to be submitted before 31 March 2014.

Jul 25-27 *NAMHO Conference, 'Mining Technology: technical innovation in the extractive industries', Bangor, Gwynedd.*

Sept MHTI field trip to Banská Štiavnica in Slovakia. Dates to be confirmed. The programme will be included in a future issue of the newsletter. To register your interest, contact either Sharron Schwartz or Martin Critchley, as places will be limited.

Check with organisers of meetings before making any travel bookings in case of change of dates or arrangements. MHTI lists events in good faith but is not responsible for errors or changes made. For MHTI field trips please register your interest, without commitment, so the organiser can keep you informed.

WWW.MHTI.COM

MHTI MEMBERS' BUSINESS

Proposed remediation work at Avoca Mines

The Board is concerned by proposals for remediation works outlined in a Request for Tender issued by the Department of Communications, Energy and Natural Resources (see Irish News). We have written to the Minister of State, Fergus O'Dowd TD, expressing our concerns, and offering to assist his officials in developing a scheme to meet the requirements of public safety, while also protecting the historic and natural environment. MHTI will work with local groups who share our aim in protecting mining heritage.

Resignations of Directors

John Morris resigned as a Director of MHTI on the 5th August. Fellow board members thank him for his valuable service as a Director, since re-election in May 2011. Des Cowman resigned as a Director of MHTI on the 7th August. Des cofounded the Mining History Society of Ireland in 1996, serving on its committee through transition to the Mining Heritage Society of Ireland (1998) and joining the Board of MHTI on its incorporation in 2001. He edited the Newsletter from 1996-2006, and the Journal from 2001-2006. The Board thank him for his huge contribution to our organisation over the last 17½ years.

Vacancy for Bibliographer

We are looking for a volunteer to take on the role of Bibliographer. The purpose of the job is to maintain an up-to-date bibliography, adding items from our Newsletter, Journal, and all other sources. This task can be done from anywhere in the world at a time that suits the post-holder. If you are interested in the job, please contact Nigel Monaghan (details on back page).

Vacancy for Memorials Registrar

We are aware that memorials have been erected to quarrymen and miners over the years, including at Benduff Quarry, Rosscarbery (1978); Foxrock Mine, Glendalough (2007); Deerpark Colliery, Castlecomer (04/08/2013); Mogul Mine, Silvermines (28/09/2013). The purpose of this volunteer post is to develop a register of memorials and monuments, to ensure that the memorials are cared for, and to suggest sites where MHTI or other organisations could erect memorials. An example could be Dungannon Colliery, County Tyrone where six men died in 1895 due to an inrush of water from adjacent old workings. This post could develop to cover gravestones, or a list of all mining and quarrying fatalities. If you are interested, please contact Nigel Monaghan (details on back page).

Website Update

For some time it has been very apparent that the MHTI needs a new website. The board has taken this task in hand and a new structure and site map has been designed and agreed. Some of

the content of the old site will be moved over to the new one, but a lot of new material will need to be added. Naturally, this involves a considerable amount of work, and we are looking for people to volunteer some time to help out, particularly by producing short summaries for each Irish mine site which will form part of our new online map viewer. Please contact Martin Critchley, who is developing this feature, for more detail. We also want to showcase the very best images of Irish mines and mining landscapes, so if you have any good photographs please could you submit them as high resolution TIFFs for consideration in our photo gallery. If selected, your work will be duly credited. Please don't be shy in coming forward to offer your help; the website is our shop window and it is vital we have an informative, easy to use and modern facility which will showcase our achievements and hopefully attract many new members worldwide. Contact Sharron Schwartz or Martin Critchley if you are available to help in any way at all.

Welcome to new members

We are delighted to welcome the following new members: Dave Banks, Cumbria; Deirdre Burns, Wicklow; Joan Kavanagh, Wicklow; Mary Kelly, Wicklow; Ivor Kenny, Wicklow; Michael McCrickard, Cumbria; Marie Merrigan, Wicklow; Robert Scott, Cumbria and Dave Shepherd, Wicklow. We hope that you will find your membership of the MHTI to be an enjoyable and rewarding experience.

MHTI Condolences

The Board would like to offer their deepest condolences to Alan Thomas, on the recent death of his wife, Kay.

Thank You Matthew Parkes

The MHTI now has a new Newsletter Editor after Matthew Parkes stepped down. We are extremely grateful to him for all of his hard work and dedication, not just for publishing our Newsletter on a quarterly basis for seven long years, but also for his former editorship of the annual MHTI Journal. He'll be a very hard act to follow. Short articles on any aspect of mining history or heritage are warmly welcomed for inclusion in our next newsletter. Are you doing any interesting research that you would like to share with our membership, or have a query you would like answered? The newsletter is the perfect place to publish such. Please send your contributions to the new Editor, **Sharron Schwartz**: sschwartz@era.ie

MHTI Journal 2013

The Editor is currently working on Issue 13 of our annual journal. A plea to those (you know who you are!) who have promised to submit papers for this edition, to please forward their drafts before the end of October to ensure that we can get the journal published before the end of this year. **Sharron Schwartz**: sschwartz@era.ie

EVENTS, NOTICES AND REPORTS

Waterford Film Festival, 8-10 November

The Copper Coast European Geopark's film *Down the Ladder* has been selected by the Waterford Film Festival to screen on November 9th at 8.30 pm in the Granville Hotel, Waterford City. It's a silent movie set in the 1800s that tells the story of a day in the life of a copper mining family in Bunmahon. The film, commissioned by the *Metal Links: Forging Communities Together* Project, was written by Sean Corcoran and produced and directed by Angela Mulcahy and Sean Corcoran. Cinematography was by Mook and Alex Vignes. Edited by John Loftus. The original score is by Eric Sweeney.

Bronze Age Forum, Belfast, 9 - 10 November 2013

Following on from the fascinating field trip to North Wales to inspect and learn more about bronze age mining and metallurgy, the Bronze Age Forum meeting at Queens University Belfast will doubtless interest many members, as it includes the following presentations of relevance to mining history and heritage in the first session on the Sunday morning:

Simon Timberlake: *The Bronze Age mines dating project and some new ideas on ore extraction and smelting*

William O'Brien: *Late Bronze Age copper mining in Ireland*

R. Alan Williams: *Ore to Metal – Geochemical opportunities at the Great Orme Bronze Age copper mine to define a metal group and trace the metal supply*

Peter Bray and Catriona Gibson: *Mapping and interpreting the flow of metal in Bronze Age Atlantic Europe: new chemical and archaeological approaches*

Online registration costs £45, or for students and unwaged people £25. For more information and to book your place see: <http://www.qub.ac.uk/sites/BronzeAgeForum/>

Historical Metallurgy Society Spring Meeting, 12 – 13 April 2014

The Historical Metallurgy Society (HMS) Spring Meeting is being organised by Paul Rondelez, and will be based at Blarney, County Cork. On the Saturday the group will visit East Clare to look at exceptionally well preserved charcoal fuelled blast furnaces dating from the 17th and early 18th centuries. The visit on the Sunday morning will be to the East India Company's ironworks near Bandon, which date back to the 1610s. The afternoon will be spent at University College Cork, with a talk on early Irish iron technology, and an exhibition of the remains of early iron working, including a preserved slag pit bloomer furnace, tuyeres and early blooms. More information will be put on the HMS website in due course: <http://hist-met.org/>

Comeragh's Wild Festival, (19-22 September 2013)

The Copper Coast European Geopark put on a variety of activities as part of the inaugural Comeragh's Wild Festival including 'The Miners Trail', a guided walk following in the footsteps of the miners, and a lecture entitled *Our Mining Heritage* by Dr. Matthew Parkes. Partners from the *Metal Links: Forging Communities Together* project, came over from Wales to participate in the events.

'Every Mine is Different: Problem Solving at Irish Mines – Successes and Failures', (14 October 2013)

This lecture by Des Cowman in conjunction with the MHTI and Engineers Ireland, took place in Dublin and covered the technological aspects of mining from the mid-16 century German operation in Wexford to late 19th century industrial mining. Successful mines (those lasting fifty or more years) such as at Allihies, Avoca and Knockmahon, had in common capital resources to import expertise and to withstand difficulties, and manifested adaptivity to change. But this did not always guarantee success (Ross Island 1820s). Des then outlined some of the failures which provide the fun element: ineptitude (Ballymurtagh 1790s); greed (Connaree 1860s); outright scam (Castlemaine 1850s); serial scamming (11 in west Cork early 1850s); gambling (Crockford in Clare 1840s); delusional (Bumahon 1898) and bloody minded stubbornness (Kenmare). The limitations of earlier technologies were put in the context of some enigmas (Copper Coast 1750s and '60s; Clontarf early 1800s), and examples of the adaptability of steam technology were given.

For those who were not able to be at Des' talk, a remote internet webcam was used, which allowed people to simply register online and be able to see and hear Des' give his presentation. Once registered online, it was even possible to submit questions by sending them in as a message, or verbally. A great display of how technology solved the problem for those not able to be physically present!

Interested in Organising a Lecture or Field trip?

Are you doing some interesting archival or field based research? If so, we would really love to hear about this, as we wish to promote and help to publicise the excellent work that is being undertaken by our many members. Why not share your experiences by offering to organise a lecture or field trip? Please contact our Chairperson, Alastair Lings, if you are willing to give a talk or lead a field trip and this will be put before the Board for consideration in next year's programme of events.

Field Trip to the Mines of County Wexford, Saturday 10th August

We met at the Riverside Park Hotel, Enniscorthy, on a glorious morning. Our first visit was to Caime Mine, 8 kilometres to the west. The mine was worked for copper and lead in the early 1800s and then again in 1836 by the Mining Company of Ireland before being abandoned in 1842. At Caime Crossroad there is a boulder inscribed "Mine Rock", with the mine being in the wood to the south-west. The most obvious feature at the site is a brick chimney, which probably served an engine that powered crushing plant.

To the south a new fence encloses the interesting cemented spoil heaps. In the woods to the north of the chimney, is another (now) shorter chimney, which would have been adjacent to the Engine Shaft. Pidlars Shaft is (probably) marked by a subsidence fissure at the edge of the filled opencast. Using a plan compiled by Celtic Gold PLC in 1989, we were able to locate the probable site of the adit, despite changes in the vegetation cover.

Following our visit to Caime, we headed southwards to Wellington Bridge, where enjoyed a welcome lunch at the Tir Na Nog public house.



The brick chimney at Caime which was probably associated with an engine powering crushing plant

In 1552, king Edward VI funded a scheme to mine silver in nearby Barrystown, which was abandoned after five months

After lunch we drove a kilometre southward to a car park on the east shore of Bannow Bay. To the west across the bay were the impressive remains of the medieval town of Clonmines. The town was mentioned in 1366, and in 1545 a shortage of silver prompted the opening of a mine. German miners were recruited to develop the mine, but after a year of operation the mine shut in 1552. The mine had produced £474 worth of silver at a cost of £5500. Some mining was carried out about 1770.

The German miners at Clonmines discovered the eastward extension of the vein, running under the estuary to Barrystown. This extension was investigated by the Mining Company of Ireland in 1838, but rejected. In 1845 the Barrystown Mining Company erected a pumping engine, and worked the mine until 1850. During this period the mine produced 1057 tons of lead ore, containing 677 tons of lead metal. The ivy-clad engine house is conspicuous on the hillside above the car park.

Back in about 2001 Robert Leigh, a local man, had photographed at low-tide what might be a wooden shaft collar in the estuary between Clonmines and Barrystown. We attempted to locate the site but were unable to find it. The discovery of the day was made by Des Cowman who found a soft green mineral in a gossan or slag, along the high water mark north of the car park. This was a great way to end a field trip in a lovely part of the country. Many thanks to Des Cowman for leading an excellent field trip to these very interesting mining areas.

Alastair Lings

Postscript

Regarding the shaft collar, on the Ordnance Survey aerial photographs of 2000 there is an interesting looking circular structure just north of the concrete ramp that leads from the car park in to the estuary, at grid reference 684890 612300. <http://maps.osi.ie/publicviewer/#V1,684895,612298,7,4>

For more information on these two mines see:

Cowman, D., 1998, 'Notes on Caime Lead Mine, County Wexford', Mining Heritage Society of Ireland, Newsletter, No. 7, pp. 7-8.

Cowman, D., 2008, 'The German Mining Operation at Bannow Bay', 1551-2', *Journal of the Bannow Historical Society*, 1, pp. 62-80.

HERITAGE WEEK ACTIVITIES

Glendalough (17 August)

At the invitation of Glens of Lead, a community group seeking to improve the protection, understanding and appreciation of lead mining in the Wicklow uplands, a large audience gathered at the OPW Glendalough Visitor Centre to attend an illustrated talk by Dave Banks. A local historian and councillor from Egremont, Cumbria, England, Dave was invited by Glens of Lead to speak about the links between the mining communities of Wicklow and Cleator Moor. County Wicklow has a long history of metal mining. In the Wicklow uplands, lead was mined extensively until the late 1950s, while copper and pyrite mining also took place at Avoca with the last mine closing in 1983.

During the periods of mining there were strong migration networks between Wicklow and mining regions in Great Britain, especially north-western England. Through ongoing research, Glens of Lead (a partner in the Ireland-Wales InterReg *Metal Links* project) discovered a particularly prominent migration network with the coal and iron mining area centred on Whitehaven and district in Cumbria (formerly Cumberland) and had made contact with Dave and his research group there to further explore the links. Cleator Moor, dubbed 'Little Ireland', was at the very epicentre of Irish migration to NW England and Dave presented a fascinating and often witty account of life in this Irish community.



Dave Banks addressing the audience at the event organised by Glens of Lead for Heritage Week

Mountcharles (18 August)

The townland of Drumkeelan, near Mountcharles in County Donegal, has an interesting history of stone mining, dating back to c1820. The stone was also used for many important public buildings, such as the National Museum of Ireland, the National Library and Leinster House, St Eunan's Cathedral, Letterkenny and Sligo Town Hall. Drumkeelan is unique in that it is the only location in Ireland where stone was mined. Under the aegis of the Mountcharles Heritage Group, Alastair Lings of the MHTI led a visit to the site of the mines. The organisers are grateful to Eammon Monaghan and Brian Kerrigan for access to the quarries.



Nick Coy leading a field trip to the East Avoca Mines of Cronebane and Tigroney

Avoca (18 August)

The indefatigable Nick Coy led a very well attended guided walk over the remarkable mining landscape of the Cronebane and Tigroney Mines at East Avoca, entertaining all present with his humour and deep knowledge of the fascinating geology, industrial monuments and social history of the community and the thousands of people who mined for copper and sulphur during the 18th and 19th centuries. The highlight of the walk must surely have been his unveiling of a large model of a Cornish engine house, made by his son.

Copper Coast Mining Heritage Films (20 August)

There was a special showing of the short film based on the story of *The Miners of Bunmahon* in the Monksland centre organised by the Copper Coast Geopark. The Screening also featured some of the other specially commissioned accompanying short films. In addition, during the week 17th-25th August, the centre hosted an exhibition of the geological and copper mining heritage of the Copper Coast, Co. Waterford.

Allihies to Bunmahon (17-24 August)

When the mines closed in Allihies during the famine, numerous families walked to Bunmahon in search of work and many people died along the way. Dubbed the A to B, this tough 200 km 8-day walk now in its third year, is an historic re-enactment of their tragic journeys, paying respect to their struggle. According to one participant, 'you don't have to be mad to walk from A to B, but it helps!'



The A to B team!

MHTI Overseas Field Trip, Wales 2013: 'Broadening the Bronze Age'

This year's two day overseas field trip, ably organised by Martin Critchley, saw a good turnout of participants from both sides of the Irish Sea who embarked on a Bronze Age journey of discovery in North Wales. This visit, arranged with the assistance of David Jenkins and Olly Burrows of the Parys Underground Group, and Edric Roberts of the Great Orme Mines, was intended to follow up on last year's excellent field trip to some of the less well known Bronze Age workings on the Beara Peninsula, County Cork, led by Theo Dahlke.

Until relatively recent times, it was thought unlikely that there was any Bronze Age mining in Britain or Ireland despite documentary evidence recording the discovery of numerous primitive workings containing stone mauls, wood and bone tools which were clearly of great antiquity. But all that changed with definitive proof that the 'Dane's Workings' on Mount Gabriel in County Cork, first noted by Tom Duffy of the Geological Survey of Ireland in 1929, and later excavated by John Jackson, were confirmed by radiocarbon dating in 1968 to be of Bronze Age derivation.

Subsequent archaeological research and excavation by William O'Brien has revealed that Bronze Age mining on Mount Gabriel was mostly undertaken in the period c.1700-1500 BC, in an era known as the early Bronze Age. But of greater significance was his discovery that the Ross Island site with its associated Beaker period mining camp in County Kerry, was the first major source of copper used in Ireland over 4,000 years ago. This makes Ross Island the oldest copper mine presently known in north-western Europe, thus placing Ireland at the very epicentre of ancient copper mining in this part of the world. Bronze Age workings have also been confirmed in Britain, most notably in North and mid-Wales, at Alderley Edge, Cheshire, and Ecton, Staffordshire, and on the Isle of Man. This is an exciting field of archaeology and, with the advent of innovative isotopic analyses which can determine the provenance of various metallic elements in bronze, further discoveries undoubtedly remain to be made in the field as archaeologists will have a clearer idea of where to look for signs of ancient mining. We wanted to broaden our perspective and knowledge of Bronze Age mining in Ireland by comparative analysis with sites in neighbouring Britain, and to this end, visited mines on the island of Anglesey and at Orme's Head, Llandudno.

In technological terms, the bronze age in Britain and Ireland is generally taken to span the period from the earliest introduction of metal, around 2500 BC, to the slow transition to iron metallurgy after 600 BC.

In Wales, we were greatly aided by MHTI member, Alan Williams, who will be well known to members as the author of the excellent *The Berehaven Copper Mines* (1991). Alan is currently undertaking a PhD at Liverpool University focusing on the archaeometallurgy of the Great Orme Bronze Age mines, and we were fortunate indeed to be treated to an illustrated talk by him covering the many facets of his fascinating research.

Mynydd Parys (Parys Mountain)

Our field trip kicked off with a visit to inspect the newly reconstructed chimney at the Pearl Engine House. We were delighted to learn that the engine house, dating to 1819 and among the oldest extant industrial monuments of its kind in Britain, is to be restored in the near future. This was followed by a walk to the viewing platform above the impressive Parys Mountain opencast. Here, a jaw-dropping panorama unfolds of a landscape marked with deep chasms and canyons created at an early stage of modern mining following the collapse of near surface workings, some of which might have been of great antiquity.

The huge opencast with its myriad vivid colours ranging from pale ochre through burnt sienna to deep magenta, would make an artist drool and has impressed generations of curious visitors. Prominent on the skyline is the iconic windmill stump which, courtesy of its elevated position on Mynydd Parys, can be seen for miles around. Melin Llynnon may be the most famous windmill on Anglesey, but this one on Parys Mountain, constructed in 1878 for pumping purposes and which unusually had five sails instead of the customary four, is Anglesey's only industrial windmill, so it certainly runs a close second! Gazing upon this remarkable scene, our group was reminded that, given the enormous scale of industrial working at the end of the eighteenth and early nineteenth centuries, it is remarkable that any Bronze Age workings have survived at Parys Mountain at all.

We then made our way to the Copper Kingdom interpretation centre sited on the quayside of the harbour at Amlwch, which has been ingeniously built into the old copper ore bins, a remarkable adaptive reuse of space. Here we met David Jenkins, a geologist and intrepid mine explorer, who for many years has been pioneering exploration into the underground workings of the Parys Mountain and Mona Mines. He gave us a fascinating illustrated talk about Anglesey's Bronze Age mines. Given that at Parys Mountain an excavation near the windmill in 1936 had yielded a number of stone mauls and quantities of charcoal believed to be associated with 'bell pits', or shallow surface workings, and the fabulous ancient finds being made at nearby Llandudno (see below) it was David who suspected that evidence for Bronze Age mining might be detected in the underground workings of Parys Mountain Mine. He persuaded the Marquis of Anglesey to allow exploration of the underground workings and on entering the mine, almost immediately found what he was looking for.



MHTI members at the viewing platform above the Parys Mountain opencast created in the late 18th-early-19th century, by the collapse of near surface workings, some of which might have been of great antiquity

A number of collapsed bell pits, some up to 20 metres underground, containing a mixture of hammer stones and oak charcoal were discovered. The form of these deposits seem to suggest the deposition of worked mine spoil within a series of steeply inclined opencasts dug on surface weathered portions of quartz stockwork veins. Archaeologist, Simon Timberlake, suggests that the access for these seems to be on the underlie of chalcopyrite veins at points where these could be excavated through the softer and partly decomposed pyritic shales and slates coinciding with areas where the local water table had been lowered due to fracturing and previous solution of the sulphide veins. The rapid oxidation of pyrite following its exposure will have led to the formation of a gossan, most of which will have been removed through glaciation, though in places this would have become partly re-established during the time leading up to the Bronze Age. Native copper and tenorite were noted in gossans beneath the soil above some of the virgin copper veins in the 18th/19th centuries and it therefore seems likely that the Bronze Age miners could have been extracting these minerals from the surface and perhaps also the copper sulphate minerals found today within the zone of rapidly oxidising sulphide underground.

The quartzite pebble mauls used to exploit the ores are not found on Parys Mountain, but had been carefully selected and brought in from the local sea shore. Many bear the percussion marks and fractures consistent with their use for chipping away at hard rock, while others with flat surfaces were clearly mortar stones, used to bruise or grind the ore. Some of the stone mauls are of a rock type not found on Anglesey, and David raised the intriguing possibility that the first miners to exploit the Parys Mountain deposits might have brought their

tools with them from wherever they originated. Samples of the charcoal were sent to the British Museum for radiocarbon dating analysis and returned dates of 3,500 to 3,600 years old.

After David's lecture and a poke around the very well designed and presented visitor centre, we had lunch at the nearby Sail Loft, then proceeded to the Parys Mountain Mine. Here we split into two groups: some opted for an easy tour with David to the 16 fathom level to inspect the Bronze Age archaeology; the other, accompanied by Olly Burrows, chose the extreme wet trip. This took us through the extensive maze of accessible tunnels and stopes, first inspecting the in situ Bronze Age archaeology, then proceeding to the Mona Footway Shaft and exploring the workings of this mine before entering those of Parys Mountain via a deep joint drainage adit and exiting via the Parys Footway. The paraphernalia of surveying was evident in the areas where the Bronze Age archaeology had been discovered in the form of strings marking levels of excavation and tags for radiocarbon dates. The stratification containing thin black layers of charcoal and a number of stone mauls which had been washed in from collapsed bell pits, were clearly visible.

Following our eventful afternoon underground, and a welcome shower at the Sportman's Arms where most attendees were staying, we were treated to a fine home cooked roast dinner and desert washed down with generous amounts of wine, before Alan Williams entertained us with a brilliant illustrated lecture outlining his research into the archaeometallurgy of the Orme's Head workings and ores. We were delighted to welcome members of the Parys Underground Group and the Welsh Mines Society to Alan's talk.

“On the Great Orme above Llandudno in the copper mines there, miners have broken into a large chamber 60 feet below the surface containing stone hammers, antler picks, quantities of bone, remains of fires, a fragment of bronze and impressive calcite (stalagmite) formations as thick as tree trunks”.

Great Orme: The Stonehenge of copper mining

To most mining historians and archaeologists, Great Orme has become synonymous with Bronze Age mining. Nineteenth century miners had spoken of finding ‘old men’s workings’ and in the early 1980s this was confirmed by a group of mine explorers who discovered a maze of tiny tunnels containing bone and stone tools. Radiocarbon dating of charcoal provided the first definitive proof of Bronze Age mining in Britain. An archaeological excavation carried out in advance of a planned car park in 1987 indicated the discovery of a major prehistoric open cast mine buried beneath the spoil from a nineteenth century mine shaft. Further excavations over succeeding years gradually revealed a series of opencast trenches situated upon a series of irregular north-south veins of primary chalcopyrite which, near the surface, are oxidised to goethite, malachite and azurite hosted in dolomitised limestone. Close to the ore veins, the dolomite is often ‘rotted’ and soft and this probably facilitated ready access for the prehistoric miners, who would have been initially attracted by the striking green pigmentation of the malachite.

Currently over 6 kilometres of accessible narrow and irregular mine passages and caverns have been discovered extending to a depth of up to 70 metres. Additionally, vast quantities of bone tools from domestic animals used to pick and pry out the ore, as well as quantities of stone mauls and mortar stones have been found, and a smelting site (the only one from Bronze Age Britain) has been located on the cliffs of nearby Pentrwyn. Further carbon-14 dating confirmed the workings to have spanned a significant period, from the Early-Middle to Late Bronze Age (1800BC to 600BC), mostly later than the workings of Parys Mountain, but with an initial overlap, while a few date from the late Bronze Age and one has an iron age derivation.

Alan explained that recent archaeological work in Ireland and Wales has indicated extensive Bronze Age mining of copper. However, apart from linking arsenic-antimony-silver rich copper to Ross Island, there has been little work to link artefacts to mineral deposits. Recent work on mineral deposits has revealed the importance of secondary ore minerals to Bronze Age miners and there are numerous Bronze Age finds which have unique chemical and isotopic compositions. While there is an extensive database of analyses of Irish and British

Bronze Age metal artefacts, there is a great lack of data on ore minerals from Bronze Age mines which Alan’s research aims to highlight and address. Such a database would help to provide possible solutions to the great Bronze Age mystery as to where the copper came from. Why, for example, have we not discovered evidence of Bronze Age mining in the important Cornubian Orefield?

In particular, there is the potential to geochemically define a Bronze Age metal group based on systematic sampling of ores from Bronze Age workings, in particular Great Orme, to obtain detailed analyses of the smelting residues from recent excavations and undertake analysis of the numerous bronze particles found in mines like Great Orme. This approach will turn on its head the usual method of defining metal groups based on Bronze Age artefact analyses. Alan stressed that the combination of geochemistry and lead isotopes will define a Great Orme mine-based metal group that will identify artefacts with which it is consistent from an existing database of over 5,000 British Bronze Age artefacts. In combination with other spatial and temporal evidence, this data can then be used to assess the likely importance of Great Orme metal supply to the various phases of the British Bronze Age and even point to the evidence of exchange networks. Alan’s pioneering research could provide compelling evidence that Great Orme Mine was the major copper production centre for a substantial part of the British Bronze Age and also establish whether trade or exchange with Ireland and northern Europe was taking place. Can we trace the miners from Ireland through Wales and vice versa via the metallurgy of the artefacts and mineralogy of the ores? Can we establish how important the activity of Irish and British miners at particular copper mine sites was to the supply of metal in the Bronze Age? Did copper from one particular mine such as Great Orme eclipse that produced at all the other sites, such as Parys Mountain? He is certainly breaking new ground and we wish him well with this fascinating endeavour.

Touring the Orme’s Head Bronze Age Mines

After Alan’s fascinating talk, we were all keen to see the mine, situated in a small natural valley called Pyllau, south of the



MHTI Members with Edric Roberts at the entrance to the Great Orme bronze age copper mine, the largest uncovered in the British Isles and the most extensive in the world



Some of the thousands of stone mauls discovered in the bronze age copper mine workings at Orme's Head

raised ground of Bryniau Poethion near Llandudno. Next day we were met at the Visitor Centre by Edric Roberts, one of the pioneers of the ancient workings' discovery and the site's subsequent development as a tourism resource.

Once the car park scheme was shelved, a series of feasibility studies for an interpretative centre where visitors could experience one of the world's most important archaeological mine sites were undertaken. The centre was approved in 1990 and is now run by Great Orme Mines, a private company that has full responsibility for its financing and management. The mines have since been developed above and below ground as an archaeological tourist site. A purpose-built visitor centre, including a café, shop, toilets and audiovisual unit, was built on site and has recently been augmented by the extension of the interpretation centre which houses many of the thousands of artefacts discovered in the mines, including bone tools and stone mauls. The new centre also contains mounted interpretation boards in Welsh and English with information about the Bronze Age and mining techniques, a model of a Bronze Age settlement and features an excellent new short film introducing Bronze Age Britain and the Orme's Head Mines.

After the film, visitors then don helmets and progress outside to follow a self guided route of the underground and surface workings. This begins by traversing the edge of the prehistoric opencast, some 25 metres by 45 metres in extent and up to 20 metres deep and spanned by a bridge giving visitors a chance to peer down into the nineteenth century Vivian's Shaft and over the worked out veins outcropping at the surface. Bedrock is exposed to the east and along the southern rim, beyond which it descends

Some of the more curious finds in the ancient mine include the skeletons of three sacrificial cats, one of which was surrounded by a circle of organic material which, when analysed, turned out to be blackberries

more than 13 metres in what must have been a scarp face. Underground, a 200 metres self-guided walking route which enters and leaves through original openings in the southern scarp face, has been developed by careful excavation and enlargement of the ancient workings. The highlight of the underground route is an enormous cavern, entirely wrought by stone and bone tools. Ambient lighting illuminates the many small passages that lead off this chamber which resembles an enormous piece of Gruyère cheese.

The sophistication of our ancient forebears is betrayed by the fact that some of the tunnels have been deliberately sealed with stones to improve through draft, probably to clear the smoke created by fire-setting, undertaken at times to heat the rock which, when hot enough, was quenched with cold water causing it to shatter, making it easier to liberate the ore. The pick marks left on the walls of the workings by these Bronze Age mineworkers, some of which perfectly fit the abandoned tools lying nearby, provide a poignant reminder of the people who once toiled here. The size of some of the tunnels are less than 50 centimetres, and the only plausible explanation for such narrow workings is the use of child labour. Indeed, it is speculated that entire families worked together in the mine. The hellish conditions endured by the mineworkers digging out the ore in such cramped and confined spaces in semi or total darkness, can be imagined. Little wonder that our Bronze Age forebears were superstitious and performed ritual sacrifices underground to ensure their safety and prosperity. We only saw a fraction of the workings, as those below the tourist route are off limits, but Edric says there are future plans to lengthen the tour to further enhance the tourist offer. Excavation is still ongoing in the deeper parts of the mine and many more exciting discoveries will doubtless be made.

We all learnt a great deal more about Bronze Age mining during our field trip which has prompted many questions, not least of which is why there appears to be no evidence of Bronze Age mining in County Wicklow's major modern copper mining centre at Avoca, coincidentally lying midway between the West of Ireland and North Wales, given that the area enjoys the same geology as Parys Mountain and that Ireland was the major centre of technological know-how in the early Bronze Age? Many of us were also interested in the social elements: who were the early miners, where did they come from originally, how did they live, and is there evidence for the migration of labour and technology from Ireland to Wales in the early to mid-Bronze Age? Several people on the trip expressed a desire to visit the Bronze Age workings at Ross Island in County Kerry with its Beaker work camp and consequently, a field trip there next year is being mooted. Meanwhile, plans for next year's overseas visit to Banská Štiavnica in Slovakia are in train. Watch this space!

We are grateful to David Jenkins and Olly Burrows of the Parys Underground Group, and to Edric Roberts of the Great Orme Mines, for generously giving us their time and for sharing their great knowledge and enthusiasm for mining heritage during our visit to North Wales. Thanks also to Alan Williams for a superb lecture which enhanced our understanding of the advances being made in the field of archaeometallurgy and to Martin Critchley for organising and co-ordinating the event.

SPECIAL FEATURE

There's far more to Tuscany than the Renaissance!

Sharron Schwartz and Martin Critchley

Tuscany, a landscape of sun kissed rolling hills mottled with bright red poppies or yellow sunflowers in summer, a landscape dotted with olive groves, vineyards and isolated cypress trees, where ancient farmhouses and walled towns perch high on hilltops. Tuscany, sandwiched between the blue-green Apennine Mountains and the turquoise Tyrrhenian Sea, ancient heartland of the mysterious Etruscan civilisation, cradle of the Renaissance, home of exquisite Chianti and equally fine food... and also some absolutely superb industrial heritage!

Few people would associate this dreamy region of Italy with mining or industrial heritage, but the central SW part Tuscany contains the Colline Metallifere (Metalliferous Hills), one of the most important ore districts in Italy. In this area are several sulphide ore bodies that for their grade and size were intensely exploited from antiquity right up until the late twentieth century for lead, zinc, copper, silver, mercury, iron, pyrite, alum and lignite. Additionally, the region historically lies at the forefront of geothermal and hydrothermal energy production, and in fine marble quarrying, leaving behind a cornucopia of industrial heritage features. In recent years the industrial archaeological remains throughout Tuscany have been undergoing something of their own renaissance: in 2010 for example, the Tuscan Mining Park covering 1,087 square kilometers in the northern part of the province of Grosseto, including the territories of seven municipalities, joined the UNESCO GeoParks network.

Forget Florence or Siena: here are ten industrial heritage alternatives to the Renaissance!

1) Museo delle Miniere, Montecatini Val di Cecina

This superb mining heritage attraction is just outside the picturesque medieval hilltop town of Montecatini. The mines, operative until 1907, were exploited by the Etruscans, the Medici and the Grand Duchy of Tuscany; they had their heyday in 1888 when the Società Montecatini was established (this then became Montedison), named after the town. In 2002 the Caporciano Mine opened as a mining heritage attraction. Features include the extant remains of the mines' dressing floors; the imaginatively preserved steam winding gear in the ornate Alfredo Shaft hoisting tower complete with glass apex; the Muraglione Dam, built to provide water for the steam engines and dressing operations; numerous mine buildings at the surface housing interpretative material detailing the mine's history and chance to venture underground into the eighteenth century mine workings on a guided tour. A documentation centre accommodated in the fourteenth century Palazzo Pretorio of Montecatini contains more interpretative material about the Colline Metallifere and an impressive archive collection relating specifically to the Caporciano Mine.



The impressive restored head frame in the Alfredo Shaft hoisting tower

2) Mining Museum, Parco della Roche, Gavorrano

With the discovery of its enormous pyrite deposit in 1898, the beautiful medieval town of Gavorrano perched on a hilltop surrounded by vineyards and chestnut woods became one of the most important pyrite producing areas in Europe; its economy depended on mining right up to the 1980s. Gavorrano is now at the centre of the Nature Reserve and Mines Park, a part of the Metalliferous Hills National Park, created to conserve the technological and cultural heritage of the area following the closure of the pyrite mines. The Parco della Roche takes its name from the quarry (landscaped into a large amphitheatre for public performances) that provided stone to backfill the underground voids left by mining the pyrites. A new cone shaped building marks the entrance to a state of the art mining attraction housed mainly in the tunnels a former powder magazine. This attraction makes excellent use of audio-visual technology, didactic panels, period imagery, a collection of mining machinery, tools, clothes and objects, to illustrate the everyday life of the miners.

3) Larderello Geothermal Museum

Known as Montecerboli until the nineteenth century, Larderello, named after Frenchman, François de Larderel, is situated in a geologically active area known as the Valle del Diavolo (Devil's Valley). Dominated by huge columns of sulphurous white steam, geysers and bubbling mud pools, this valley was the inspiration for 'Hell' in Dante's Divine Comedy. In 1827 Larderel invented a way of extracting boric acid from volcanic mud by using steam to heat cauldrons to separate the two. In 1904 the region was the site of a pioneering experiment in the production of energy from geothermal sources, when five light bulbs were lit by electricity produced through steam emerging from vents in the ground - the first ever practical demonstration of geothermal power. In 1911, the world's first geothermal power plant was built here and was the only industrial producer of geothermal

electricity until 1958. Larderello now produces 10 per cent of the world's entire supply of geothermal energy and provides power to one million Italian homes. A fascinating free to enter museum sponsored by power company, ENEL, includes the history of boric acid manufacture, geothermal energy from research to drilling, demonstrations of the various systems for using geothermal fluid for the generation of electricity, thermal power and mechanical power. The museum is well equipped with period film, original models and equipment.

4) Museo della Miniera, Massa Marittima

The hills around the medieval town of Massa Marittima, 45 km south-west of Siena, have been extensively mined for various metallic ores and for building stone from ancient times up until the late twentieth century. Many of the town's thirteenth century buildings were constructed from the wealth generated by mining when Massa Marittima even had its own mint. Indeed, the thirteenth century *Ordinamenta super artem fossarum rameriae et argenteriae civitatis Massae* to control mining activity in this area represents one of the earliest judicially recorded corpus of mine rules in Europe. The mining museum is located in the town's central square by the cathedral and provides a focus for the interpretation of the area's industrial heritage and features a collection of miners' tools, lamps and clothing. There is also an impressive archive of well preserved company papers and books. Just a few minutes away by foot from the museum are a series of galleries that extend 700 metres into the hillside. Partially natural, these were excavated during the medieval period to procure stone for local buildings and were extended during the Second World War for use as air raid shelters. These have been turned into a mining heritage attraction by former miners to recreate an authentic version of their working environment and include various tools and pieces of machinery donated by mining companies. Numerous tours of the surrounding countryside can be booked from the mining museum to explore medieval storehouses, underground passages and shafts.

5) The Montieri Archaeology and Mining Park

The history of the territory of Montieri ('Mons Aeris', or 'copper mountain') is embedded in its deposits of copper, iron, lead and silver. Although excavation of these minerals has profoundly altered the landscape of woods and streams with mines and foundries, the area still retains its beauty. The medieval castles of Montieri, Gerfalco, Travale and Boccheggiano were built to protect the copper and silver deposits as well as the extraction and processing activities. In the 1500s, Vanoccio Biringuccio of Siena ran an iron foundry along the Merse river. In the 1600s, Giovanni Arduino, the great Venetian geologist, started digging for minerals and built some foundries for the production of copper and vitriol (iron sulphate) in Cagnano-Carbonaia, by a branch of the river Merse. Copper was extracted in Boccheggiano until the last century, and after this declined, new mines for extracting pyrite were opened. One was the Miniera di Campiano, which only closed in 1994. Travelling along the Massa Marittima-Siena provincial road which follows the River Merse, it is possible to see the remains of the copper mining industry in the form of mines, shafts, large red-coloured waste tips, the dressing floors and railways. From the Merse mine, where the mineral was extracted, washed and crushed, you carry on towards the river

where the copper was transported on a railway to be piled up and roasted in the open air. It is also possible to visit the adits under the remains of the enormous red spoil heaps. Just to the north near Gerfalco are the mines of Poggio Mutti, a collection of ancient and medieval workings for copper, lead and silver.

6) The San Silvestro Archaeological Mines Park

Part of the Val di Cornia Parks system, San Silvestro was inaugurated in 1996. Extending over 450 hectares in the hills area north of Campiglia Marittima, the Park was created to valorise and preserve an extraordinary 'open-air archive' where archaeological research has reconstructed the traces of mining activity that began in the 7th century B.C. and continued up to the late twentieth century. There are eight trails to choose from to explore the many features of the mining landscape that include ancient aqueducts, furnace sites, a nineteenth century railway bridge, the Buca della Faina Etruscan mine, numerous shafts and open-cast quarries. Particularly impressive are the remains of a medieval village, abandoned in the fourteenth century, that includes a genteel residence with a square tower and cisterns near the church; an area for furnaces that smelted copper and argentiferous lead destined for the mint of Pisa and an area for working iron, situated outside the village walls. The trails vary in difficulty and take from 30 minutes to over an hour and a half to complete. The old restructured mine buildings at the entrance of the Park house reception facilities, the Mineralogical and Archaeological Museum and the Mining Museum. At the entrance to the park you can also visit the Miniera del Temperino mine, which demonstrates mining activity from the Etruscan period to the 1970s and take a trip through the recently opened Lanzi-Temperino gallery on board a small train.

7) Museum of Iron and Cast-Iron, Fallonica

Fallonica was the principal centre of iron-making in Tuscany until the late nineteenth century. Founded in 1995, the Museum lies within the perimeter of the old Grand Ducal Ironworks (latterly run by ILVA) a complex dating back to the 16th century, with important extension work being done at the start of the 19th century that produced some particularly prestigious industrial architecture. The site incorporates the guard houses,



San Silvestro Archaeological Mines Park

the grand duke's building, the director's building, workers' lodgings, foundries nos. 1 and 2, the hydraulic tower, the substantial remains of the nineteenth century San Ferdinando blast furnace and an impressive clock tower. A monumental archway (created in 1836) by Carlo Reishammer depicting a shield flanked by two dolphins and topped with a blazing torch, marks the entrance to the foundry. The Museum, containing a number of artefacts dating from Etruscan times to the present day, is flanked by a Media Library which conserves papers, drawings and a rich photograph collection, in addition to a small number of recorded oral testimonies about the factory's history.

8) The Island of Elba Mining Park

The island of Elba, rich in iron and other minerals and worked since at least Etruscan times, is served by ferry from the port of Livorno and is just 45 minutes away from the mainland. The park offers numerous ways to discover the 'land of iron', from trails on foot or by mountain bike in the silent Valle dei Mulini, an underground trail in the Ginevro gallery at Capoliveri, excavated into rock with no timber supports, as well as excursions to the opencast quarries in Rio Marina and Rio Albano. In 2001 the Minerals and Art of Mining Museum was founded in Rio Marina as the focal point of the Piccola Miniera. Housed in the eighteenth-century Palazzo del Burò formerly the headquarters of the Mines Administration, the Museum exhibits samples of Elban minerals in an environment that recreates the blacksmith's workshop with original tools and materials found in the abandoned mine workings, and photographs of the old mines of Rio and Capoliveri. Finally, one can visit the life-size reconstruction of a shelter for miners and a tunnel, featuring authentic machinery, by train. Guided tours to the open-air mine of Rio start out from the Museum. In addition, there are other museums with collections of minerals, archaeological finds, reconstructions of the original mines, films and photographs, including the Alfeo Ricci Mineral Museum (Capoliveri) and the Archaeological Museum of the Mining District (Rio nell'Elba). Two guided tours operate out of Rio Marina: one offering a chance to visit to a mining site where you can collect and keep minerals and another that treks over some of the local mine sites.



Exhibit inside the recreated Piccola Miniera on Elba, accessed by tourist train

9) Monte Amiata and the San Salvatore Mining Park and Museum

Mercury mining on Monte Amiata dates back to ancient times: the Etruscans used cinnabar to paint earthenware and frescoes in tombs, creating significant workings to extract it. The largest deposits are located in Santa Fiora, Castell'Azzara, Abbadia San Salvatore and Piancastagnaio. The mining museum in Abbadia San Salvatore is housed in a building beneath an old clock tower and hosts a rich collection of minerals, equipment, work tools and photographs that tell the story of mercury and of the communities whose stories are closely linked to it from Neolithic times, to the Etruscans and the Romans, up to the modern age. It is possible to visit the inside of a gallery depicting the miners' working environment on board a mini-train. The nearby Siele Mine, dating from the mid-nineteenth century, is situated inside the Pigelleto Natural Reserve. Siele, once the third largest mercury mine in the world after Almadén (in Spain) and nearby Abbadia San Salvatore, was a complex site comprising both mines (galleries and shafts) and plants for working the mineral. In the early 1900s, a settlement containing houses, schools and a church grew up around the site. After a period of great expansion, boosted by twentieth century wars, mining activity ceased in 1973. Today the plant has been remediated and partially restored as part of Monte Amiata's historical and cultural heritage. A walking trail crosses the reserve until it arrives at the mining village where you can visit the cinnabar processing plant and the miners' houses. The Museo delle Miniere of Santa Fiora is part of the Parco Minerario del Monte Amiata. Opened in 2002 in Palazzo Sforza Cesarini, the museum covers ancient and modern conditions of work, social organisation and development of the mines of Monte Amiata.

10) The Marble Museum of Carrara

Carrara is one of Europe's principal sources of marble, and since Roman times its quarries have supplied materials for buildings and memorials in many countries. The Pantheon and Trajan's Column in Rome are constructed of it as well as many sculpture masterpieces of the Renaissance, including Michelangelo's David (1501-04). The principal workings appear from the coast as a series of immense white gashes on the slopes of the Alpi Apuane. The history of the marble industry is comprehensively displayed in the museum opened in 1982 in the town of Massa. Visitors can take guided tours of the quarries which vary from three hours to a day and incorporate displays of sculpture and other marble products, a museum quarry and parts of the ferrovia marmifera, the railway built in 1890 to convey marble from the workings to the coast.

We shall be returning to this amazing area at the very first opportunity! Following our highly successful first overseas trip to Wales, plans are now in hand for a MHTI trip to the Banská Štiavnica area of Slovakia in the early autumn of 2014, and, with its picturesque landscape, fine food and wine, good accommodation options and sunny weather, we think that Tuscany's Colline Metallifere to be well worth consideration for a future MHTI field trip, perhaps in the early summer of 2015?

IRISH NEWS AND PUBLICATIONS

New coal mines map viewer

The Northern Mine Research Society have launched map viewers showing the location of collieries across Britain and Ireland. Basic data is available on the sites: names, dates of operation, ownership and grid references. Metal mines will be covered in due course. <http://www.nmrs.org.uk/mines/coal/maps/index.html>

Gas storage near Larne, Co. Antrim

Two companies are planning to create underground gas storage facilities near Larne, by solution mining the salt beds. Islandmagee Storage Ltd. want to store methane near to Ballylumford Power Station. Gaelectric, a renewable energy company, want to use surplus electricity to compress air, which would be stored underground, until it is required for electricity generation at times of peak demand. In early September Gaelectric started drilling Carnduff No.2 Borehole, just south of Larne.

<http://www.islandmageestorage.com/>

<http://www.gaelectric.ie/index.php/energy-storage/larne/>

Cornanurney Mine, Co. Cavan

Conroy Gold and Natural Resources have sampled spoil heaps from twelve old lead workings on their Prospecting Licences in counties Armagh, Cavan and Monaghan. According to the company's press release of the 18th July "two samples from the Cornanurney workings in County Cavan gave exceptionally high zinc levels of 30.00 and 18.40 per cent respectively. These samples also had elevated copper of 0.125 and 0.216 per cent., silver of 9.2 and 3.8 ppm, antimony of 101 and 49 ppm as well as Mercury at 27 ppm and 14ppm, gallium of 200ppm and 100ppm and cadmium of 2000 ppm and 688ppm." According to the Geological Survey Memoir of 1878 (1" sheets 68 & 69) "The earth thrown up from the pits has blackened from exposure to the atmosphere, is fatal to fowls, and will not support vegetable life." MHTI visited the mine in September 2011.

<http://www.conroygoldandnaturalresources.com/>

Heron's Shaft, Tankardstown Mine, Co. Waterford

Subsidence has affected the area around Heron's Shaft. For safety purposes, a new six-foot high green steel mesh fence has been erected around the shaft (see photograph top right).

Remediation works at Avoca Mine, Co. Wicklow

On the 23rd August the Department of Communications, Energy and Natural Resources published a "Request for Tenders for Technical, Design, Procurement and Project Management for Remediation works at the Avoca Mine Site via a Single Supplier Framework Agreement". The aim of the remediation works is to reduce the on site risks to health and safety. The proposed works are outlined in the document, and



New fence around Heron's Shaft, Tankardstown

include sealing of shafts and adits, regrading and covering spoil heaps, and removal of the ore bins. The closing date for responses was the 8th October.

http://irl.eu-supply.com/app/rfq/publicpurchase_frameset.asp?PID=69444&B=&PS=1&PP=

Irish World Heritage Centre, Manchester, UK

Building on the first phase of development of the Irish World Heritage Centre started in October 2011 and was completed in December 2012. The building houses a restaurant, bar, function rooms, an exhibition space and a shop selling Irish products. Two thousand tons of quartzite was supplied for the building by McMonagle Stone from Mountcharles, Co. Donegal, and a further 500 tons for a perimeter wall. The stone came from Largybrack and Lagunna Quarries near Glencolumbkille. Inside the building almost 45 m² of Kilkenny Blue Limestone from Threecastles Quarry was used. In the second phase of the development of the 25 acre site, a hotel and leisure facilities will be built.

<http://www.naturalstonespecialist.com/currentissue/unlockednewsarticle.php?id=6165>

Memorial Plaque, Deerpark Colliery, Castlecomer

On Sunday the 4th August a memorial plaque was unveiled at Deerpark Colliery, in memory of the miners and their wives, and the people who were injured or killed in the mine. The memorial stone was made by Michael Coady and donated to the community.

Memorial Plaque, Mogul Mine, Silvermines

On Saturday the 28th September a plaque was unveiled in remembrance of the five miners who died while working for Mogul of Ireland Ltd in the 1960s and 1970s.

Fatality in Paul's Quarry, Annalong, Co. Down

On Saturday the 1st June three young men visited a disused granite quarry on the slopes of Spences Mountain, in the Mourne Mountains. Two of the men went swimming, and Kevin O'Hare got in to difficulty. Help was summoned and Colin Pollard, aged 39, tried to rescue the fifteen year old. Tragically both men died. Their bodies were recovered by police divers about three hours later. Margaret Richie MP said "My heartfelt sympathy and that of all the people goes out to the families, friends and relatives of the two men who lost their lives in such tragic circumstances." <http://www.bbc.co.uk/news/uk-northern-ireland-23682570>

Fatality in Ahenny Slate Quarry

On the evening of Saturday the 20th July Joe Grinsell, aged 65, went swimming in a disused slate quarry close to the Tipperary – Kilkenny border. He failed to return home, and the authorities were alerted. His body was recovered the following morning.

<http://www.irishmirror.ie/news/irish-news/pensioner-becomes-latest-drowning-victim-2072924>

New Publication

Indecon International Economic Consultants, 2013.
Assessment of economic contribution of mineral exploration and mining in Ireland: Report submitted to the Department of Communications, Energy and Natural Resources. Department of Communications, Energy and Natural Resources. 61 pp.

<http://www.dcenr.gov.ie/Natural/Exploration+and+Mining+Division/Assessment+of+Economic+Contribution.htm>

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OTHER NEWS

The Death Knell for South Crofty, Cornwall? (4/07/2013)

THE revival of mining in Cornwall is in doubt after a major stakeholder pulled its investment. Owner Western United Mines (WUM) placed the company in administration and made 35 of its 50 staff redundant. It followed Canadian stakeholder Celeste Mining Corporation's earlier decision to drop its investment because of higher than anticipated costs, concerns and "operational complexities". Despite millions of pounds of investment and the company promising to create more than 200 jobs last year, industry experts fear the last hopes to revive the industry have been quashed. 'We would all love to see a world-class tin mine operational in Pool and the next generation of Cornish miners, but it is not going to happen in this economic climate,' said Camborne School of Mines lecturer, Paul Wheeler.

<http://www.thisiscornwall.co.uk/end-South-Crofty-tin/story-19474869-detail/story.html#ixzz2hjrQWNRH>

Haig Colliery, Whitehaven, Cumbria (29/07/2013)

Haig Pit Mining and Colliery Museum has been awarded a grant of £2.4M by the Heritage Lottery Fund which will be used to refurbish existing buildings and to construct a new visitor centre. The museum will be closed for about 18 months during this work. Mining stopped at Haig Pit in 1986.

<http://www.bbc.co.uk/news/uk-england-cumbria-23487153>

Boulby Mine, Saltburn-by-the-Sea, North Yorkshire (05/08/2013)

The 50 metre high, 2700 tonne Rockshaft Tower at Boulby Mine, which was built in 1969, has been detached from the upcast shaft, relocated and demolished. The tower is being replaced by headgear weighing 560 T, at a cost of £15M. This development will allow an extra million tonnes of potash to be raised each year, and create 270 jobs.

<http://www.bbc.co.uk/news/uk-england-tees-23476602>

<http://www.youtube.com/watch?v=w9F2VMzb0vs> (13 minute video)

Unity Mine, Cwmgwrach, West Glamorgan (23/08/2013)

Falling coal prices and problems with planning permission has forced Walter Energy to reduce the workforce at the colliery, which opened in 2007, from 220 to 66 people. The employees have agreed, in principle, to cut their working hours, so that the remaining work can be shared between them.

<http://www.walesonline.co.uk/news/wales-news/unity-mine-workers-share-shifts-5775916>

Canonbie Coalfield, Dumfriesshire (29/08/2013)

A campaign group has been formed in Canonbie to oppose three potential developments in the area. The Buccleugh Estate are proposing a surface coal mine in conjunction with the Kier Group. New Age Exploration are looking to establish a deep mine producing coking coal, and Dart Energy are proposing to extract coal bed methane. Coal was mined in the area from before 1805 and with a limited production after Rowanburn Colliery closed in 1922. British Coal estimated that there was potentially workable coal over an area of 70 km², with reserves in excess of 400 MT (Source G.S. Picken, 1988. Scottish Journal of Geology)

<http://www.cumberlandnews.co.uk/campaigners-vow-to-fight-mine-plans-1.1081197>

Glyn Rhonwy Quarry, Llanberis, Gwynedd (02/09/2013)

The planning application by the Quarry Battery Company to build a pumped storage hydro-electric scheme in old slate quarries west of Llanberis has been approved. They plan to use the Chwarel Fawr Quarry as an upper reservoir and the Glyn Rhonwy Quarry as a lower reservoir. The pumping and generating plant will be located at the site of an old underground munitions store. Application C12/1451/15/LL.

<http://www.gwynedd.gov.uk/swiftlg/apas/run/wphappcriteria.display?langid=1>

<http://www.bbc.co.uk/news/uk-wales-north-west-wales-23920312>

Ball Clay, Bovey Basin, South Devon (16/09/2013)

The B3193 road between Chudleigh and Kingsteignton is being realigned at a cost of £10M to allow for the extraction of ball clay. Sibelco hope that the work will give them access to 24 MT of premium clay, sufficient for 50 years production at present rates. Clay has been quarried in the area since around 1650.

<http://www.bbc.co.uk/news/uk-england-devon-24107067>

Scottish Government Consultation (17/09/2013)

Scotlands Energy Minister, Fergus Ewing MSP, has announced that the Scottish Government will publish a consultation on improving the regulation of opencast coal mining. (On 13/10/2013 the consultation was not yet published, nor listed as forthcoming)

<http://news.scotland.gov.uk/News/Improving-the-coal-industry-42c.aspx>

Minco Mining Ltd, Nenthead, Cumbria (26/09/2013)

Since the start of 2013 Minco has completed eight exploratory boreholes near Nenthead, three of which produced encouraging results. The company believe that there is the potential for significant zinc-lead mineralisation over an area about 4.25 km². Its Chairman said “We believe these results confirm our initial opinion of the potential of the Northern Pennine Orefield for the discovery of new mineralisation, both extending laterally around and at depth below historic workings. A third phase of drilling is planned for next year, with the planned addition of a second drill machine to further explore this exciting project for Minco”. Mining in the area started around the year 1100, ending in about 1963.

<http://www.minco.ie/news.htm>

Snibston Discovery Museum, Coalville, Leicestershire (26/09/2013)

Leicester County Council wants to reduce the £740 000 annual subsidy that it makes to Snibston Museum, which amounts to £8 per visitor. Council Leader Nick Rushton said “we will be looking to members of the public to come forward and volunteer to run things, form charities, give donations and their time.” In 2012 a group was formed called the Friends of Snibston. They have a Facebook Page and are seeking the public’s views on the museum, via a survey, and have launched an online and paper petition.

<http://www.bbc.co.uk/news/uk-england->

[leicestershire-24281406](http://www.leicestershire-24281406)

<http://www.surveymonkey.com/s/QNP9PSM>

<http://politics.leics.gov.uk/mgEPetitionDisplay.aspx?Id=33>

(Closes 15/11/2013)

<https://www.facebook.com/FriendsOfSnibston>

Hermitage Quarry, Maidstone Kent (26/09/2013)

On the 18th September opponents of an extension to Hermitage Quarry withdrew their objections at the High Court of Justice. The Gallagher Group can now quarry 14% of Oaken Wood, a mainly a 19th century plantation of coppiced sweet chestnut. The quarry works Kentish Ragstone (limestone), producing crushed aggregates and block stone. In operation since 1990, it is directly employing 60 people.

<http://www.gallagher-group.co.uk/news/2013/09/26/go-ahead-for-hermitage-quarry-extension>

Talke Miners Memorial, Newcastle-under-Lyme, Staffordshire (02/10/2013)

The Friends of Talke have received planning permission for the erection of a memorial to the 325 miners who died between 1860 and 1901 at Bunker’s Hill, Talke O’ Th’ Hill and Jamage Collieries. The Friends now need to raise £20 000 to build the memorial.

<http://www.stokesentinel.co.uk/ahead-Talke-disasters-memorial/story-19872536-detail/story.htmlhttps://www.facebook.com/TheFriendsOfTalke>

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