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The Newsletter of the Cumbria Amenity Trust Mining History Society

No. 93 November 2008

Cumbria Amenity Trust Mining History Society
Newsletter No 93, November 2008.

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Cover picture
Number Five Shaft headgear at Haig Colliery. See report on page 12.

CATMHS News

Please note that the date of the AGM has been changed to 13th December. It is to be held at the Barrow Mountaineering and Ski Club hut starting at 5.00pm, and will be followed by the Annual Dinner at the Crown Hotel, Coniston at 7.00pm.

Traditionally our AGM and dinner has been held on the second Saturday in December. That day has recently coincided with the Grizedale Stages Motor Rally and their followers enjoy a noisy evening in the Crown afterwards. In order to avoid disturbance we changed the date of our AGM, but then the Rally date was changed to the date that we had changed to, if you see what I mean, so we changed ours back again to the second Saturday in December..

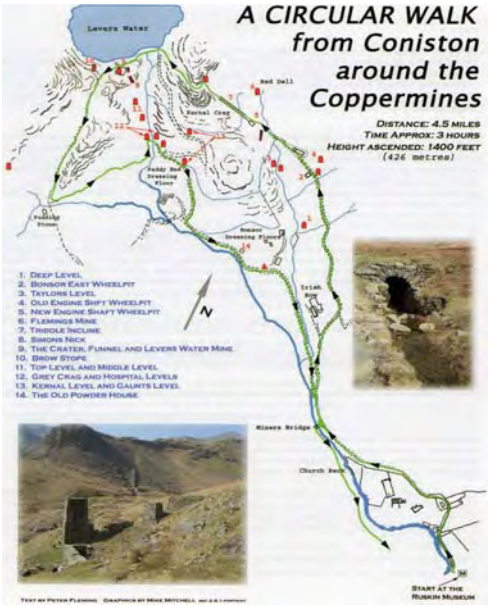
New Members

We are pleased to welcome Stuart Hartley, from Askham-in-Furness. Stuart is a member of HM forces and is keen to be involved in underground activities. His mining interests include surface and underground exploration, local history and conservation.

CAT Trail Leaflets

The Coniston Trail Leaflet produced by Peter Fleming which has been a best seller, consistently contributing to CAT funds, has been revised. Mike Mitchell has spent many hours producing a colour map of the walk and a revised layout, which should make it even more attractive to visitors to the Lake District.

It is printed in colour on an A3 sheet folded into four to make 8 pages. It is on sale at Coniston TIC and the Ruskin Museum, or can be obtained from Sheila Barker or Ian Matheson, price £1 + 50p PP. Post free if you buy five or more. Other CAT trail leaflets will be similarly updated in due course.



Journal 6

Volume six of the Mine Explorer is now at the printers and should be available in time for the AGM. There are 210 pages of articles plus the introduction, and I hope you will agree that it is a good read. We are greatly indebted to Elizabeth Sewart for completing the technical work of getting it ready for the printer. As with J5, it will be sent to all CATMS members with a suggestion that a donation to cover costs would be welcome.

CAT caps

Dave Bridge has had some caps printed with a CAT motif. A must for those who are follically challenged or who just want to look cool at conferences. Get one for a Christmas present.

You can obtain them for £10 each, including p&p. from Dave, at 3 Brigham Hill Mansion, Cockermouth, Cumbria, CA13 0TL.

Newland Furnace

The Newland Furnace Trust held a very successful Heritage Open Day on 13th September. This was no doubt helped by am excellent article in the NW Evening Mail which had been arranged by John Helme and published on the previous Thursday. Nearly 100 people visited the furnace and were given a guided tour. Next year's event will take place on 12th September 2009, by which time it is possible that there will be a new roof in place above the furnace stack.

Looking up the Furnace flue, rebuilt by the team.

As reported in Newsletter 91 the Trust have been considering the best way to protect the top of the furnace stack. It had been decided that a roof would be necessary to conserve the foundations of the 19c furnace stack extension & the surrounding paved walkway. Plans for this have now been agreed, and a timber frame clad with corrugated galvanised steel sheeting which, after fitting, will be painted with Bitumastic paint is to be constructed to replicate as far as possible the original shape and character of the building. Andrew Davidson of English Heritage did not support the proposal to clad the roof in slate, although that would almost certainly have been the original material. The support of EH is necessary in order to obtain approved by all the authorities concerned and EH is likely to be the main grant provider, so it was decided to accept the cheaper solution.

Planning permission has been obtained and building regulations approved. The next stage is to go to tender in order to get real figures for the contractor work. Only then can the total expected costs, contractor, CBO, Archaeologist, Planning & Building Regulations costs, be estimated. Once they are known the Trust can go to English Heritage with the expected total and plead the case. If the response is favourable, (including hopefully help from CCC & SLDC etc) & the sums add up, they will be able to go ahead and sign contracts. Tenders are already being sought for the work. As was the case when the roof of the charging barn was rebuilt, the CATMHS Committee has agreed to provide staged interest free loans to the Newland Furnace Trust to enable them to pay the bills before claiming re-imbursement from the grant provider.

There has been considerable development at the Newland Hamlet following the death of the owners, Harry & Geoffrey Stevenson. Several properties have been sold and re-development is going ahead. One of the two old cottages that had been created from the old iron ore store has been demolished completely, and footings are going in for a brand new dwelling. Geoffrey Stevenson's house has been sold (subject to contract) to a local plumber and the house opposite the mill has had a lot of work done. The word is that it is due to be sold shortly. The Corn Mill, which pre dates the furnace, is being re-constructed in a radical but, it seems, a sympathetic manner. The walls have been taken down to a sound base and rebuilt and the entire roof is to be replaced. Consideration is being given to conserving the old course of the water leat and wheel pit, much of which has been blocked and buried in recent years.

Ian Matheson.

New Information on Coniston Mines

It just proves that it pays to chat up pub landladies. Some years ago, during a conversation with Sue Bradley of the Black Bull, Coniston, she said that her brother, John Belton, had in his possession an old handwritten book, detailing work undertaken at the Coppermines and she gave me his address in Bolton-le-Sands. I never followed it through, although I always meant to.

During our early pioneering days of exploration deep in the Coppermines in the late 1970's and early 80's our small group of adventurers used to refresh ourselves in the bar of the Crown Hotel in Coniston, where we often shared our discoveries with an elderly gentleman who was there every Sunday evening. He told us his son knew the mines very well and had come across a Cornish beam engine deep within the workings. We were of course aware that this was incorrect and what he had seen was the remains of the balance bob at the top of Triddle Shaft. He also told us of two oak plugs sealing tunnels running beneath Levers Water in order to prevent the mines being flooded when the level of the tarn was raised to provide power to various waterwheels for winding and pumping on the dressing floors. We were reluctant to also believe this story, but he was proved right when several years later a wooden barrier was discovered by CAT members, in January 1987, beneath Levers Water. Unfortunately the old man had died before we could tell him we had found it. His name was Harry Belton, father of John and Sue. It just goes to prove that it pays to chat up the fathers-of-pub-landladies in pubs.

Harry formerly worked at Broughton Moor Quarry as a rock hammer man and blacksmith. The Beltons were connected through marriage to the Hellen family. They were originally miners in Cornwall and came to Coniston to mine copper instead of tin in the mid 19th Century. Until recently the Hellens were the proprietors of the garage business in the centre of Coniston until the early 1990's.

I finally decided it was time to chase up the lead I had sat on for so long and decided to visit CAT member Maureen Fleming at her home in Coniston. Maureen's family has lived there for several generations and I was aware she knew many people in the area and is a keen local historian, and yes, she knew John Belton and would contact him. A few days later Maureen rang to say a meeting had been arranged at her home. John brought along the book and a collection of old local photographs. The following is a list of brief extracts of interest to us.

1847	A copy of a letter signed by John Barrett, a report on the state of the mines and a request to Lady le Fleming to extend the lease. A most interesting letter which also covers work at Tilberthwaite.
1891	The names of the last miners to work in the deepest part of the mines (205 fathom level) in April 1890 followed by a description of the working of lead in the east end of Deep Adit Level.
1892	Contracts for the dismantling of several waterwheels including the Old and New Engine Shaft wheels.
1901	The re-opening of the Wetherlam Coppermine.
1906	Hand drawn sketch of the sawmill waterwheel.
1922	Section of New Engine Shaft, showing ladderway down to Deep Level.
Undated	Sketch of Greenburn surface buildings including waterwheels.

	Sketch of Tilberthwaite Mine suggesting that winding in the shaft down to Horse Crag Level was powered by a steam engine.
1891 to 1927	Miscellaneous time sheets, contracts, itemized receipts for purchases, short letters, etc., covering Coniston, Tilberthwaite and Greenburn.

Photographs

Several of these are a 100 years old. Most date from the 1920-30's Coniston Village features in many of them showing horse drawn wagons and carriages. Some show the old station, including a good one of Furness Railway Steam Engine No.37. In total there are 40 photographs. Of particular interest to us are the following.

Coppermines:

The Bonsor sawmill waterwheel viewed from the east, dated circa 1900.
A general view of Coppermines Valley 1930's.
A ball mill en route to the Coppermines drawn by six horses.
Harry & Joe Hellen at Wetherlam Mine with air receiver behind.
An elderly lady in Victorian dress, with a missing finger who was possibly a "bal maiden" at the Coppermines.

Slate Quarries:

Hodge Close Quarry showing the water balance hoist. 1930's
13 quarrymen and boys outside a dressing shed, Hodge Close.
Two photo's at Saddlestone Main Bank showing dressing sheds.
A group of quarrymen posing somewhere on Coniston Old Man.
Harry Belton working at the smithy, Broughton Moor.

In addition to the items listed above, Maureen Fleming possesses the following documents.

A complete archive of letters relating to the deeds and annual reports of the Strontian Mining Company 1846 – 1855. These letters are neatly hand-written and total 52 pages, many signed by James and John Barratt. They operated these mines for 11 years.

An original lease relating to the working of the mines at Seathwaite, in the Duddon Valley, dated 1st January 1852.

Two share certificates dated 1836 in favour of and signed by John Barratt in respect of shares in Coniston Copper Mines.

Most of the documents and photographs have been photocopied. It is intended to digitalize them and place a disc in our archives at the Ruskin museum. Anyone who would like a copy of the disc should let me know.

Peter Fleming

CAT Newsletters free to a good home

"The following back numbers are available as a broken run, or will split, but not by post. Can be collected at Club Dinner 13th December, or from my address. Contact Peter Fleming at tel.no. 01229 824103 or email peter@harrel.fslife.co.uk.
CAT Newsletters: No. 4, April 1984; No 7, Dec 84; No.31, Nov 91; No.33, Dec 92; No.46, April 96; No.59, Jan 2000; No 71, May 03; No.78, Feb 05; No.81 Nov 05"

Other News.

Scottish gold mine?

From BBC News website 16.7.08:
Plans to open a gold mine in Scotland creating 60 full time jobs have taken a step forward. Operator Scotgold Resources Ltd is to take delivery of drilling equipment to begin operations at Cononish, near Tyndrum. The company, who are awaiting planning permission, said that they had searched for the right tools for the job, a relatively small rig that can be broken down into small pieces so that it can be transported up and down the mountain without causing too much disturbance. The Company expect to extract £70million of gold and say that they hope to be drilling in the next week or so. Older members will remember that some years ago CAT member Alistair Lings was employed to prospect for gold in the Tyndrum area.

Fatality in abandoned coal mine

The Coal Authority has issued a warning notice following the tragic death of a GSG member in a coal mine in Scotland. The text of the warning is as follows:

Incident Alert: Shortly after entering a former coal mine on 18 July 2008, a man became unconscious due to lack of oxygen in the atmosphere. Although the emergency services rescued him, tragically he died in hospital on 20 July.

Former coal mines with the associated shafts and adits are inherently dangerous environments and entry to these places should be totally avoided. Mine workings often contain atmospheres which have very little oxygen and if encountering such, will kill people very quickly after entering. Mines may also contain flammable gas which could explode causing tragic consequences to anyone within the mine workings. There are numerous other hazards associated with old mines, including collapses of ground and the Coal Authority emphasises that these places are extremely dangerous and should be avoided at all times.

The Coal Authority is the public body which deals with surface hazards arising from past coal mining activities, such as ground collapses, open mine entries, water and gas emissions from mines and spontaneous combustion of coal. Our emergency call out service deals with these incidents on a 24 hour basis every day of the year. Upon receiving a report of a coal mining hazard, we will arrange for the situation to be made safe and remediate those hazards for which we have responsibility.

The Coal Authority has asked NAMHO members to report any open coal mine entrances they may find as part of their mining research work. The report should be made to the 24 hour emergency telephone response service given below:
To report a surface hazard, Tel: 01623 646 333
The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG.

LDNPA Archaeology in the Lake District 2008
Held on Saturday 18th October at the Theatre by the Lake, Keswick.

This was the seventh of the annual series of archaeological conferences, and for the first time, I think, there was no direct mining content. Nevertheless it was an enjoyable day with lots of interesting items.

After an introduction by Richard Leafe, Chief Executive, LDNPA, John Hodgson and Eleanor Kinston summarised the activities of the LDNPA Archaeology Department. Work was continuing on the World Heritage Project to recognise the Lake District National Park as a World Heritage Site, and a bid is to be put to UNESCO by 2012. Sarah Howard has been developing a conservation management plan for the Low Wood Gunpowder Works. A survey of the Paddy End Dressing Floors has been carried out by Oxford Archaeology North with the involvement of CATMHS. United Utilities, and the LDNPA have carried out conservation and rebuilding at the site, the work having been carried out by a professional waller. The Monuments at Risk Survey is underway and ten volunteers hope to complete recording the 270 scheduled monuments by the end of the year. Once that has been done attention will be given to other sites. For the Ring Cairns to Reservoirs project in the Duddon Valley, targets for recording have been exceeded. The Access to Archaeology project is making progress. The website is up and running and mobile exhibitions are to be held at Penrith Museum from 4th November and then at the Dock Musem in Barrow from the 8th January. There is to be a series of free archaeology and history workshops and walks starting in January. These include 'Lakelands Traditional Buildings by Andy Lowe; Silver Gill Mine and the Birth of the Railway, Warren Allison; Historic Environment of Eskdale on Bikes, John Hodgson; Historic Landscape of Eskdale, Jamie Lund, and Mining and Quarrying at Coniston, Alastair Cameron and Peter Fleming. Places are limited and booking essential. Check the website or phone 01539 724555. Material for schools at Key Stages 2 and 3 have been developed and there is a Discovery Zone on the new archaeology website, www.lake-district.gov.uk/archaeology . The Historic Environment Record data base of 7000 records contains all known industrial sites in the Lake District National Park. http://ads.ac.uk. This is expanding rapidly and there are links from the LDNPA website.

Jamie Lund gave a presentation describing the activities of the Lorton and Derwent Fells Local History Society, who have had three teams working on a weekly basis to identify and record archaeological remains in their area. So far they have identified some 117 sites including that of the water leat system for the Loweswater Lead Mine, which was operated between 1790 and 1840. The Society has mounted an exhibition which received 220 visitors. A report is in preparation by Oxford Archaeology North which should be available soon.

Other topics included Medieval Farming in the Lake District; Investigation of a Medieval Vaccary at Gatescarth Farm, Buttermere, and Microliths and Megaliths: the start of the Neolithic in the Irish Sea Zone. The Conference finished with an entertaining talk, Axes, Brooches and Coins, Small finds from the Lakes, by Dot Broughton, whose job it is to record all reported finds in Lancashire and Cumbria and who works closely with Metal Detectorist societies. IM.

Giant crystals discovered in Mexico

CAT member Rudy Devriese recently sent me a Powerpoint slide show about some remarkable crystals discovered in a working silver and zinc mine at Naica, in Chiahuahua, Mexico. The crystals are up to four feet in diameter and fifty feet long and a single crystal can weigh fifty tons. They are composed of selenite, a crystalline form of gypsum and occur 1000 feet down in the limestone.

The limestone is crossed by very deep and hot streams of water. When the streams cooled near the surface their mineral salts were re-deposited as lead, zinc and silver. Groundwater in the caves, rich with sulphur from adjacent metal deposits dissolved calcium from the limestone. This calcium combines with the sulphur to form the gigantic crystals.

The temperature in the caves is 150 degrees F with 100% humidity, it is not possible to function for more than a few minutes in this environment. A mineral hunter is said to have died from the heat when he was pinned by a crystal he had chopped from the ceiling.

The mining company hope to air condition the caves and open them to the public. Eventually, when the mineral reserves have been worked out and pumping stops, the caves will flood and the crystals will again begin to grow!

Forthcoming Meets

2008 AGM and Dinner

Please note that the date of the AGM has been changed to 13th December. It is to be held at the Barrow Mountaineering and Ski Club hut, starting at 5.00pm, and will be followed by the Annual Dinner at the Crown Hotel, Coniston at 7.00pm.

Survey of Tilberthwaite Mine surface remains. Sunday 16th November.

Meet 10.00am at Tilberthwaite car park.

The aim of the meet is to survey the surface remains of the Tilberthwaite Mine at the head of Tilberthwaite Gill using the CATMHS GPS and any other sources such as original maps and documents, to produce an accurate plan of what remains.

The meet is open to all members, regardless of whether they can use the GPS or not. All you need to bring is warm clothing, food, drink and an open mind. I say open mind because we all have preconceived ideas of what we think we know about the area. This will be an opportunity to look afresh at what is there and perhaps fit together some of the anomalies.

The survey may take more than one day. It is hoped that it will not be rushed to fit it into one day otherwise the exercise will be pointless.

Mark Scott.

Boxing Day Meet

Tilberthwaite and Greenburn slate quarries and a visit to the site of Lanty Slee's still. There will be a surprise cheese & wine party. Small donation required. Meet at Langdale Ford Car Park.

Grimes Graves, Norfolk

Neolithic Flint Mines excavated between four and five thousand years ago, by a Stone Age people who knew nothing of metal working. They are the only accessible flint mines of the Neolithic period and are situated in S.W. Norfolk in about 30 - 40 acres of Thetford Forest, close to, but not within, the M.O.D.'s infamous Stamford Battle Training Area. Access is from the A1065, and a CAT meet has been arranged for next June – see the Meets List.

The site, which is in the care of English Heritage, has many hundreds of pits, most of which have not been investigated by modern man since they were all back filled after being worked out. Several pits however *have* been excavated in recent times:

Pit 1 is the Public Access (tourist) pit, but still worth a look

Pit 2 was investigated by archaeologists between 1914 and 1975 and subsequently back filled again

Pit 15 is regarded as accessible but unsafe, and is therefore <u>closed</u> since there is currently no archaeological work taking place, though it has yielded important finds in the past.

Greenwell's Pit, excavation of which was begun by Canon Greenwell in 1895, is the current research pit, and the one to which access can be had under the leadership of Archaeologist Peter Topping, a recognised authority on the subject.

The pits are fairly large excavations sunk through the overlying sand and gravel into the layers of chalk below, something like large Bell Pits, perhaps 40 – 50 feet deep and 20 or so feet wide at the top. Short interconnecting galleries radiate off from the pit bottom, connecting with those from neighbouring pits, now of course blocked by

backfill from the other pits. Once in the chalk the pits descend through several layers of flint but stop when the main (floorstone) layer, which was the object of the exercise, is reached.

The miners used primitive picks fashioned from the antlers of the local red deer, all but one of the tines being removed to provide a roughly L shaped tool for levering the flint nodules out of the chalk. A hammer stone was sometimes employed to help extraction by knocking in the point of the pick to increase leverage. The innermost recesses of the galleries were within the dark zone, and illumination of sorts was provided by burning oil or grease in small cup shaped chalk 'lamps'. Some of the artifacts can be seen in situ where they were left by the miners.

Not much seems to be known of the mining aids that may have been used. It is thought that access was by either a tree trunk with branches cut off to leave steps and placed upright in the shaft, or by a ladder made by a leather rope with wooden rungs fastened across. The (pulley) wheel had not been invented, so the flints and the spoil was presumably hoisted to the surface in deer skin bags – basket weaving was also unknown at this time. A miner probably sat astride a tree trunk at the top of the shaft and hauled from there. Any such simple 'machines' were of course highly perishable and no trace now remains.

One may wonder why it was necessary to go to all this trouble when in this area, in fact all of Eastern England, flints can be simply picked up from the surface. The fact is, that of the layers of flint within the chalk, the floorstone is by far the best quality for tool making. All the flints are, to a greater or lesser extent, capable of being chipped (knapped) into a sharp edge, which is much better for the manufacture of axes, knives, arrow heads etc, than any other stone, and the floorstone being the best of all gave the user a distinct advantage. Originally this quality of flint did outcrop in the shallow valley at Grimes Graves, but when this supply became exhausted it was necessary to invent shaft working.

Brian Cubbon.

The visit has been arranged by Brian Cubbon for Wednesday June 10th. As well as looking at the tourist site there will be a conducted visit to the underground research dig, Greenwells Pit, led by Peter Topping, an archaeologist at English Heritage, which is expected to take about three hours. It may also be possible to visit to Ling Heath gun flint mines nearby, which were worked on the same strata between 1700 and 1930. The CAT library has an EH report on that site**,** CAT Library reference MG 50.
Numbers will be limited, and for most people this will involve an overnight stay in the area. Ian Matheson will co-ordinate the event, so if you would be interested in participating, please let him know ASAP.

Meet Reports

Walna Scar Wanderings

With an afternoon free, I decided it was time to have a wander around the Walna Scar Slate Quarry above Seathwaite in Dunnerdale. The walk up to the site was quite a trek and not alleviated by the farmer who, after stopping his quad bike for a chat continued on up the track afterwards without offering me a lift! On approaching the quarry it was clear from the quantity of slate waste that the quarry was far larger than it appeared from the valley bottom. Heading south east from the track gate I made for

the far extremity of the workings which appeared to be a large open quarry. At the far extremity of this was a closehead which contained the ruins of a small structure that could have been a bait area. To the side of this building a short passage was partly walled off. Climbing over this I found a shaft that appeared to lead down to a lower closehead. Back outside in the open quarry, I wandered across the piles of slate waste to the northern end. There may have been a portal in this area, but now unfortunately buried. I wandered down to lower workings where I found an open portal. This looked promising, but sadly was soon blocked by a large fall where the passage appeared to enter the actual working.

I wandered further down the slopes of slate waste and past the many building ruins. A small stream seemed to issue from a collapsed adit, but on further inspection I found it just open enough to be able to squeeze in. Once inside I followed the generously proportioned passage in the direction of the open quarry somewhere above. After maybe 500 meters the passage entered slate workings. A left branch of the passage was backfilled but I managed to scramble over the top, only find the passage hopelessly blocked by a massive fall of material from above. A line of stemples, bent and snapped like matchsticks, still spanned what little space was left. I returned back to the main passage to find it had now became stone arched, which would suggest that directly above was a slate closehead. Unfortunately I was unable to verify this as the passage was hopelessly blocked by yet more fall material. I wandered out-by to explore a right branch. This was actually an area of extraction and looking upwards I could see one and possibly two higher levels coming into the closehead, maybe a connection with the upper closehead ?

Back outside, I wandered across to the northern most area of working, that nearest the Walna Scar Track. Old dressing sheds sit atop a very large waste pile here and behind this; water makes it way out of the collapsed adit. A days digging here could possibly gain access to quite a large closehead.

Tony Holland.

West Coast Wander, or Haig Colliery Meet, 27th July.
ML Ian Matheson, Clive Barrow, Sheila Barker, Don Borthwick, Dave Bridge, Peter & Margaret Fleming, Tony Holland, Wendy Brown, Mike & Barbara Mitchell, Roger Ramsden, Alan Westall.

The group outside the museum at the start of the visit, minus the meet leader, who took the photo. Our guide, Tom, is in the foreground.

Coal mining was the earliest industry to have a major effect on the economy and landscape of West Cumberland. The coalfield within the region is small, the most important section extending in length some 14 miles from Whitehaven to Maryport with a breadth of some 4-6 miles from the coast inland. This coastal position was to be a great advantage, as sea transport could be used for longer distance trade. The Irish market was particularly important, as Ireland produced no coal itself. During the early 18th century, coal from Sir James Lowther's mines near Whitehaven was the most common in Dublin, but during the 1720s an increased share was being supplied from his competitor's mines in the Workington area. Lowther saw this as a major threat to his business, and in order to maintain his share of the market he wanted to increase production from his pits. He proposed mining to a lower level, and winning coal from under the sea.

Lowther sent his steward of the estate, Carlisle Spedding, to Newcastle, to learn about the improvements in coal mining being developed there. Spedding gained work in several collieries under a fictitious name, until he was burnt in an explosion and his true identity was revealed. After his return in the 1720s, Spedding sunk an exploratory bore at Saltom, on the Cumbrian coast near Whitehaven, and found the Main Band at a depth of 80 fathoms. He proposed to sink a pit just above the high-water mark and

erect a powerful pumping engine, ‘which would drain hundreds of acres under the land, and an unknown, but enormous extent under the sea’. Work began in 1729, and by 1731 the pit had reached a depth of 456ft.

The sinking of Saltom Pit was a huge undertaking, described by Spedding himself as ‘perhaps the boldest thing that was ever undertaken’. It represented the first attempt at undersea mining in England, and was the deepest undersea mine ever, at that time. When the shaft had reached a depth of 252ft, a large pocket of firedamp was encountered. Spedding’s response was to have the gas piped to the top of the pit and offered for sale for the illumination of Whitehaven! A Newcomen-type atmospheric steam engine was used to pump the water, whilst the winding of baskets of coal from the pit bottom was originally done using a horse gin. This was replaced later by a steam-powered beam engine, which stood in a purpose-built engine house. The engine house still stands on a shelf of bedrock some 6m above the high-water mark of Saltom Bay. The structure is roofless, but otherwise almost intact and contains housing for a winding engine and winding gear.

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Once extracted from the mine the coal was transported to ships. For this purpose, Spedding built one of the earliest examples of a tracked waggonway. At the same time, Lowther built a small pier and staith in Saltom Bay to allow ships to approach the pit. He hoped to increase profit by exporting from the site, rather than moving the coal to Whitehaven by cart. The new quay was completed in 1732,

Detail of the East wall of Saltom Pit Engine House, showing one of the bearings. Note the erosion of the sandstone blocks.

but it proved hazardous, and colliery accounts record shipments there only in November 1735 and June 1736. By 1738 the pier had been almost abandoned. Saltom Pit was abandoned in 1848, but today it is a Scheduled Ancient Monument and is the best known surviving example of a predominantly 18th century nucleated colliery layout. On account of this, English Heritage proposed recently that a programme of conservation work should be undertaken for the upstanding remains of Saltom Pit.

OA North was commissioned to undertake a survey of the site as part of the conservation work. The survey showed that the site was made up of many inter-related components. Although the area to the north of the shaft, itself capped, has been obscured or destroyed by tipping or land slippage, many of the components of the colliery identified by the documentary study were found. Evidence of the shaft, horse gin, stable, winding engine house, boiler house and chimney, cottages, cartroads and retaining walls, all survives in situ, and has immense value for archaeologists as a group of buildings that originally functioned together. The footings of the unsuccessful pier built in 1732 were also discovered.

During 2007, Copeland Council declared that it could no longer afford to maintain Saltom Pit, and decided to allow the pit to fall to the mercy of the Irish Sea. Following an online campaign by myWhitehaven.net , Copeland Council had a change of heart and decided to reverse this decision. They teamed up with the National Trust in an endeavour to save Saltom Pit, and obtained the necessary funding from various sources, including a 50% grant from the European Union - but this funding is limited by time. Copeland Council must have the European funding spent by September, 2008, or the money will be lost. (From an article by Chris Wild and Ian Miller)

The last pit to operate in Whitehaven was Haig. It was sunk in 1907 and exploited the main band coal seam beneath the old Saltom workings, extending several miles out under the sea. In 1983 a major fault was encountered at Haig, which, combined with the political situation and the UK miners' strike (1984-1985) contributed to problems at the colliery. The workforce attempted to open a new face, but a decision had been taken to close. Haig pit ended production on 1984. After 2 years of salvage work, the pit finally closed and the shafts were sealed in 1986. The site was then cleared with the lamproom, showers, coal wash, etc, being demolished and the area landscaped to form the Haig Enterprise Park. Only the winding engine house and headgear remained. The site then lay derelict suffering from vandals, pigeons, and the worst of the Kell's weather. The building, winding engines and headgear were listed (Grade II) in 1987, but were scheduled under section 1 of the Ancient Monuments Act in 1998

An independent volunteer organisation was set up in late 1993, taking over ownership of Haig, buying the property from British Coal for £1. The aim was to restore the building to its former glory along with the two unique, Bever Dorling steam winding engines, and open a visitor attraction to keep the memory of local mining alive.

They have made steady progress, hampered by the discovery of asbestos, but their efforts have now been rewarded by grants totalling some £4million. They intend to completely restore the No 5 shaft headgear and the much larger 3,000hp Beverly Dorling steam winding engine, perhaps running it on live steam. They will also replace all the bricked up windows, repair the roof and build a café. The plans also

include transport links to the harbour area, a Heritage Railway link using the museums growing collection of locomotives, and an underground experience to simulate the conditions endured by the miners of Whitehaven. Work is scheduled to begin next January.

The group met in the car park at Haig Colliery and a guide called Tom, an ex miner at Haig, came out to meet us. He was extremely interesting and informative and stayed with us all morning, showing us around, interpreting what we saw and answering questions. The 1000hp Bever Dorling steam winding engine for No 4 shaft, installed in 1914 and used to wind men and materials, has been put into working order and can be run for short periods on compressed air.

After spending the morning at Haig the group walked down the cliff path to view the Saltom Engine House. This has been fenced of with high barriers by Copeland Council, who have erected several Danger and Keep Out signs. Nevertheless, the engine house, which seems to be in remarkably good condition for its age, can be clearly seen. Lots of vegetation and undergrowth, earth slippage and tipping make it almost impossible to identify the remains on the rest of the site.

The weather was beautiful, warm sunshine and extensive views over the sea, with fine cliff scenery and lots of wild flowers, butterflies and sea birds. Some of the group wandered onto the beach and, after some fossicking, unearthed what seemed to be an old buffer from a railway wagon. (A case of several old buffers finding another old buffer!) The meet ended in the café of the Beacon Museum in Whitehaven. We must return on a regular basis to keep in touch with the developments at Haig Colliery and at Saltom Pit.

Whilst Haig Colliery is benefitting from some large grants, these are for capital projects and do not cover day to day running costs. The museum is open every day and admission is free, so the trust relies on donations etc to pay the staff, energy bills and so on. We were very well looked after by our guide Tom. Several of the CAT group made personal donations and at the CATMHS Committee meeting following the visit it was agreed to make a donation of £50 from CAT funds to the Haig Colliery Trust.

Ian Matheson

(Mis)adventure At Paddy End

During the summer months, as a project I have been photographing the Kernal Level, reopened by John Brown & his team during 2007. Numerous visits have been made during the summer and a series of photographs taken (there is a CD of these in the CATMHS archive). Once the job was completed, the only remaining task left was to de-rig. I chose a rainy Saturday 25th October for this and anticipated a job of maybe 4 hours or so. However things went well and the task was completed in far less time than I had anticipated. It was only 11.45am when I arrived at the Kernal gate laden down with ropes. Outside the wind was howling and the rain was really very heavy indeed. Winter had arrived in Coppermines valley. The problem was how to fill the rest of the day. My thoughts turned to the following Saturday when the society was hosting members of the 'International Society For Speleological Art" (ISSA). I had spoken with them earlier in the week and they had expressed keen interest in the Paddy End through trip. I had already roped the first two pitches, but the third had still to be done. This then seemed the most useful way to use the remainder of the day. The choice remained whether to carry the ropes all the way back down to the car then walk back up to Levers Water with a single rope for the third pitch or to walk up to Levers Water directly from the Kernal Level with all of the ropes. The weather helped me decide on the latter. The large rope bag was totally stuffed to the top and extremely heavy on the slog up the track to Crater on the shores of Levers Water.

I arrived at the crater's perimeter fence and passed the rope bag through first before bending down to climb through. Then with utter horror, I saw the rope bag start to roll away from me! I desperately reached out my arm to try and grab the bag but although I managed to touch it with my fingertips, it continued to roll away from me, over the edge and down the slope of the crater gathering speed and momentum before disappearing over the edge and out of sight. Appalled and shocked, I stood up and saw to my embarrassment that despite the horrendous weather conditions, two fell walkers were present on the far side of the crater and had witnessed the incident in all of its glory.

I had never actually descended the crater; having read in early newsletters that it was not advised due to the very loose nature of the place. I began to have thoughts of phoning people to ask just what the layout was down below. Had my bag of ropes gone forever? Lying down there in the dark, unreachable, abyssal depths? I had only one realistic option open. If I went down to the arête chamber, I could bring out the rope from the first pitch down to Top Level and use that to descend the crater and see if I could see any trace of the rope bag. I was only too happy to leave the wind and rain behind for a short time, as I went to get the rope.

Back outside, I secured the rope and with some trepidation began to descend the crater. I soon landed on an area of level ground and was able see a pile of ropes lying some 10ft or so away. Nearby lay the empty bag. This was far better than I had hoped and it was beginning to look as though the day was not going to be such a disaster after all. A short time later I was ready to leave the rain, the wind and the crater behind and start the job I had come to do.

The rigging of the final through trip pitch was completed without any further drama and everything was ready for the following weekend. On exiting the Hospital Level, it appeared that the weather had deteriorated even further and three very sodden and bedraggled walkers asked hopefully "Is it dry in there?" I assured them that it was just as wet inside as outside and hastily set off on the walk back down to the car.

Tony Holland

Visit to Kilembe Copper Mine, Uganda

You know how it is. There you are innocently travelling, and you learn there is a mine nearby. The temptation is too much to resist and you go and have a look.

This was the case when we were visiting our daughter in Uganda just recently. We were in the west of the country and had been visiting the Queen Elizabeth National Park and were on our way to stay in a town called Fort Portal. Near Kasese, close to the Congolese border, we found the redundant copper mine of Kilembe. It had been closed in 1980 following the slump in copper prices and since then had lain dormant. Frankly, it is now in a very poor state.

All the buildings and machinery (much of it made in Britain) were just abandoned, the silos are rusting away but are still full of ore and the chair lifts that ferried the miners to the upper levels are dangling idly above the slopes of the mountains. Contaminated water is continually being pumped out of the lower levels of the mine in order to prevent them flooding and this finds its way through marshland and rivers to Lake George, which is of great environmental concern.

As I approached the mine buildings I met with an elderly gentleman whose job it was to help maintain the plant in as good a condition as possible. He told me that the Ugandan Government had been hoping that a buyer could be found to re-open the mine now the price of copper is at an all time high. He added that the mine opened in

1956 and at its peak employed some 6000 people, with many nationalities being represented. In 1975, when Idi Amin was in power, he bought the mine. There then followed a gradual decline in the copper market and five years later the mine was closed. The present Government own all except 0.04% which is owned by the local monarchy of Toori. It is estimated that there is at least 4 million tonnes of copper ore still in the mine to be extracted.

Since the closure, a skeleton staff has tried to keep the mine in a viable state but there has been little money put into the complex and should the mine ever be sold then a huge investment will be required to make the mine a commercial proposition.

Apparently several companies have been showing interest in buying the concern but no one has stepped in with a firm offer. To make matters worse, in August 2008, the Ugandan Government decided that privatisation was not now going to be permitted, so the future of the mine looks even more uncertain, particularly as the Government itself does not have the money to invest.

Nils Wilkes

NATURAL LIMESTONE CAVERNS

During the late 18th Century and the early 19th Century several lead mines in the Northern Pennines broke through into natural cave systems. The most well known was, of course, Hudgillburn Mine which our society re-opened in 1998 after nearly 5 years work. The story of this is well recorded by Sheila Barker in 'Mine Explorer' Volume 5. The cavern itself was re-entered about three months later for the first time in at least 100 years. It was quite an exciting milestone in the history of Cumbria Amenity Trust, but what about other potential discoveries of long lost caverns in the area. The following extracts are taken from the stated sources.

Extract from "The History & Antiquities of Cumberland – 1794
Volume I page 214, by William Hutchinson.

THE PARISH OF ALDSTON, OR ALSTON

Is mentioned in the History of Northumberland: but as this county history might seem imperfect, without some account of so remarkable a place, we make no apology for transcribing some part of what was there said on that subject :- " It is a small market town, meanly built, situated on the declivity of a steep hill, inhabited by miners. The fatigue of passing bad roads, in a mountainous, barren, and inhospitable country, was in no wise alleviated by the scene, which presented itself here. Pent in a narrow valley, over which mountains frowned with a melancholy sterility and nakedness; the wind tempestuous, impending clouds stretching forth a dark and disconsolate curtain over the face of morning, rain beating vehemently against the windows, which were not able to resist the storm; a few trees standing near the inn, tossed by the heavy blasts which howled down the valley; such were the objects which presented themselves to us at Aldston."

There are in this parish the richest lead mines in the north of England.† A great variety of spars are found therein, particularly opaque white, purple, flame colour, and pale yellow, which are transparent. We might be bold to challenge Derbyshire, or even Cornwall, to produce so peculiarly wild a spot as Aldston Moor; where all that the earth produces is from its bowels, and where the people also are so generally subterraneous. In no place is there a greater scope for contemplating peculiarity and novelty of character.

† The value of the lead-mines was taken from the Moor master's books for the three following years :-

In the year 1766,	18600 bings, worth, on an average, 2l.15s.	--	£61,950 0
1767,	24,500 do. - - - - -		£77,162 10
1768,	18,730 do. - - -- - -		£62,213 10

There were at that time 103 lead-mines leased under the hospital in Aldston Moor; 6 leased under Mr Emerson, of Temple Sowerby,* the late Mr. Railton and Mr William Wilkinson, in Priors Dale; and 12 under the hospital, Mr Hopper, and Mr Gill, of Guernsey, at Tynehead.† Priors Dale belonged to Hexham. That part of Tynehead, which belongs to Mr Carleton, is freehold, and he hath all the royalties – the rest is held by lease.

*Now the property of Joseph Dickinson, of Dufton
† This was sold about five years ago to Long Carleton, Esq. Lord of the Manor of Blencarn, who rebuilt most of the houses, and greatly improved his estates there.

CAVERNS.

A large cavern in Gildersdale fell, called Tutman-hole; several persons have ventured to explore this place for a mile in length. At a place called Dunfell (which is in the limits of Westmorland) some miners were at work, not long since, pursuing a vein of ore, when they opened into a spacious cavern. Some people, who had viewed this place, have found it expedient to adopt the contrivance of Dedalus in the labyrinth, and take a clue of thread with them, to guide them safely in their return, the chambers and passages are so intricate. The Rev. William Richardson was seven hours in examining this curious place; he describes the roof in some parts to resemble Gothic arches, in others a flat surface, -- that the windings are intricate, -- that he found in places the stalactities, and pieces of Rhomboidal spar. – He travelled near two miles in a right line, and discovered evident marks of some of the chambers having been filled with water, by the coating of mud on the sides. The greatest height of the vault above 25 yards, and the breadth in some places about 150 yards. In other passages, he could scarcely crawl. Other visitors have spoken of the astonishing lustre of the spar with which these vaults are encrusted, struck by light of the candles and flambeaux which they carried."

Extract from "An Account of the Mining Districts of Alston Moor"
By Thomas Sopwith - 1833
ALE BURN CAVERN

It has already been observed that the great limestone is the thickest and nearly the highest calcareous stratum that occurs in these mining districts, and that its bassett or outcrop forms in many places the limit of cultivated land and of human habitations. These characteristics may be readily observed in the steep hills on the north side of Ale Burn, which rising on the verge of Whitfield Fells, falls by a steep and rocky channel into the river Tyne near Randalholme, and forms part of the southern boundary of the county of Northumberland. A walk of about two miles from Alston to some parts of this burn, presents to the geologist a good opportunity of examining this stratum; and the less scientific tourist may probably find some interest in the rocky scenery and singular caverns which here occur. The principal of these is situated in the great limestone; and the entrance to it is by a level from the north side of Ale Burn, a few yards above where it is crossed by a bridge near Clargill. This level is drawn in a direction nearly north and south; at the distance of about fifty fathoms is a small opening at the roof communicating with what in mining phraseology is called a rise, and which, awkward and inconvenient as it is, is the only mode yet discovered of gaining access to the cavern. The following notes descriptive of this singular place were made during a subterraneous survey of its dark and gloomy chambers.

After climbing from the level roof by an opening barely sufficient to admit our passage, we ascended a rise of about 30 feet in height, by means of sticks or stemples placed alternately at two opposite sides of the rise. On gaining the top, we entered with some difficulty in a small circular opening in the limestone, just large enough to permit our creeping along it on hands and knees. On proceeding a few fathoms in this uncomfortable posture, the noise of rushing waters was heard increasing until it became very loud, and we soon found ourselves near the summit of a specious vault or natural cavern 23 feet high, 13 feet wide, and 16 feet long. We climbed down the nearly perpendicular side to a stream of water which passes the whole length of the cavern, and at this time containing as much water as Ale Burn. This rivulet seems partly fed by the springs of Ale Burn, and in rains is much increased by the surface water poured into it by means of numerous swallow holes. Having descended, we turned past a projecting screen of rock, and from thence gained access to the continuation of the cavern westward. Here the natural curiosities which present themselves, if they deserve not the very lavish expressions of surprise and admiration often bestowed on similar scenes, at least deserve this, that they well repay the difficulty experienced in visiting them, and which to persons unaccustomed to mining excursions is by no means inconsiderable. It must be kept in mind that it is merely a limestone cavern, which, though exceedingly curious as such, is not possessed of the varied and splendid attractions of some

celebrated caverns. Its dimensions vary considerably, being in some places from 20 to 30 feet high, and in others it is nearly filled with large loose blocks of limestone, the passage through the interstices of which is both awkward and dangerous. The sides present a curiously-fretted surface, moulded by the long-continued action of water into a variety of singular forms, some of which are truly remarkable. It is interesting to observe the process of this slow but constant operation, for the water gradually wearing the channel by which it first enters the cavern, falls successively on different portions of the rock below, until, in the course of years, the whole of the side of the cavern have been subjected to this fantastic chisel of nature. Many of these grotesque forms, especially when dimly seen, need little aid from the imagination to represent the images of various animals and other objects. In one place we observed an almost exact profile of the human face. The idea of the head and neck of foxes and eagles was often suggested by projecting pieces of rock; and in a small cavern, branching from the main one, four or five singularly-shaped pieces of limestone seemed like a consultation of various animals suddenly changed to stone.

After proceeding upwards of a hundred yards along the cavern, we saw a vein of lead ore which crosses it, and from which some of our party worked a few specimens of galena. From this place westward the cavern becomes much straiter, so that in some places where the roof had fallen, we could only proceed by lying on our breast, and getting forward through the narrow chasm as well as we could. At length the stream of water entered a very low and narrow passage, into which we waded on our hands and knees until nearly all our lights being lost, we were compelled to return. Chaff put into the water here is said to have come out at the surface at Barhagh about three miles distant.

On returning to where we first entered the cavern, we proceeded along the first chamber, and by a low passage entered a second 26 feet wide, of very irregular width, but at breast height about 26 feet in one direction. At the east end of this is a double entrance to a third cavern 30 feet long, 22 feet high, and 13 feet wide. This entrance is divided by a curious natural pillar (represented in the annexed wood cut) about 13 feet high, and measuring at the base not quite 4½ feet in circumference. This slender support appears to be shrinking, and will probably soon yield to the immense weight of the massive rock which it supports. A waterfall at the west end of this cavern presents a fine spectacle. The water falls over a ledge of rock in an equal stream 9 feet wide and 5½ feet high. Above it huge blocks of limestone are tumbled in magnificent ruin, which, with the reverberated noise of the falling stream, excite sensations in which terror and sublimity are strongly blended"

The bassett of the great limestone for about a quarter of a mile above the level mouth exhibits numerous indications of the cavern, the course of which indeed is discernible at some distance by the numerous swallow holes along it. Some of these open into small caverns, doubtless communicating with the principal one; and to those who have not an opportunity or want the courage to view the interior, some of these lesser caverns may afford a faint idea of its nature. In them also the water may be seen silently modelling their fretted sides, but the few specimens in them are very inferior to those in the main cavern. Exactly opposite the old road to Allendale is one of these smaller caverns near a sheep-wash in Ale Burn, where the rude face of limestone scars, the blocks which impede the rapid stream, and the falls of the latter in its steep descent, form some interesting scenery. The sides of this cavernous grotto abound with various mosses and brachia ; in one corner is an opening which appears to communicate with the main cavern, and by which it is probable that an easy access might be had into it.

The level by which the present entrance was discovered, was driven by the London Lead Company about fifty years ago, when one of the workmen named Rumney lost his life by a massive piece of rock falling on him. A party who subsequently explored the cavern were placed in imminent danger by the loss of their lights."

Extract from "The Mines of Alston Moor" by R.A. Fairbairn – 1993
"Ale Burn Mine is best known for the cavern that was found by the miners when they put up a rise looking for mineral. The entrance for the mine has fallen in, but access to the level is still possible by a small opening in the northwest side of the quarry road."

The first reference by William Hutchinson, 1794, is very intriguing for its brevity and the statement that "Tutman Hole is a mile long". It is a large cavern in Gildersdale Fell. Thomas Sopwith, 1833, says it lies three miles from Alston near Gildersdale Burn.

Hutchinson then describes in more detail an even more extensive cavern "at a place called Dunfell". This could be at the site of Silverband Mine in which case it may well have been destroyed. This mine has only recently been closed and in its latter years was open cast. I could be wrong. Does anyone else have any information or knowledge of this lost cavern!

Finally a good description by Thomas Sopwith of Ale Burn Cavern which lies 2 miles north of Alston should be worth following up by a site visit at the same time as a walk up Gildersdale Burn. Future CAT projects? - after Carrock, Silvergill and Sebastian perhaps!

Peter Fleming.

HUDGILL BURN MINES CAVERN
By Thomas Sopwith – 1833 Extract from "An Account of the Mining District of Alston Moor, Weardale and Teesdale"

In the celebrated lead mine of Hudgill Burn is another … cavern in the great limestone. It was discovered in the spring of 1816 by a rise of six fathoms high from the level, 391 fathoms from the entrance of the mine. This rise was in a vein (supposed to be Hudgill Burn third sun vein) at this place not exceeding 4 inches in width. The cavern was found to be terminated to the north by this vein, which at the extremity presented a crust of the burnt-like matrix, or rider, common in veins, and contained in a thin rib of galena rich in silver. This vein improved to the eastward so much, that, at 30 fathoms from the shake or cavern, it was worked at seven shillings a bing, and continued rich until cut off by the thick alluvial deposit of the side of the mountain. On the west side of the cavern the same vein in 10 fathoms dwindled to nothing. It is stated by some of the miners that no veins have been discovered to come through the cavern, and that no traces of veins are to be seen in it, as at Ale Burn.

The following notes, descriptive of this cavern, are extracted from the Newcastle Magazine, Sept. 1820. They are attributed to a military gentleman, who explored it with a party in February 1818.

"At about 4 P.M., being dressed in the working habiliments of the miners and seated in ore wagons, two in each, vis a vis, we were hurled along into the interior region of the mountain of Middle Fell.

A lighted candle folded round with clay to prevent its melting by the heat of the hand, was carried by each person, and the ponies trudged in steady pace along the adit or level, with each its own candle suspended at the collar, beneath the breast. In this order the whole proceeded in silence, gazing upon the different strata that appeared in the roof and sides of the level for perhaps nearly half a mile. When we arrived at a part where another adit branches off to a different working in the mine, the boys conducting the horses then stopped and the party got out to walk on foot along the

right-hand level, with each his own light. In this passage there is a running stream of water drawn off from the mine, and the working parts are dry. We passed air pipes, rising sumps or shafts, and some large masses of rich ore piled up in open spaces on the side of the level, ready to be conveyed out to the bank.

The party advanced, viewing with much curiosity and pleasure the signs of persevering energy and art which the mining works presented.

Pursuing the subterraneous route by direction of two of the owners of this rich mine, for a distance we supposed to be nearly a quarter of a mile farther, our attention was arrested by a clattering noise a little way in front, occasioned, as we soon understood, by the stones and rubbish, from working, falling down a shaft upon cross-sticks, fixed alternately, a long step, one above each other at right angles, serving as a ladder, by which the workmen ascended to a vein above this shaft which opened into the cavern. Up this shaft we had to scramble near 30 feet from one cross rafter to another, by hands and feet; an exertion of some difficulty, for these cross sticks wee in places so far distant as to require all the active agility of youth to mount them, and some of our party were somewhat wearied by the progress they had already made. Having accomplished this our most arduous task, the entrance into the cavern or chasm was perceived. During our clambering up to this part, the working ceased and the men offered their hands and assistance with becoming and manly civility. They then conducted us into the cavern, at the entrance of which they were pursuing their trial of a vein of no great promise. The wonderful art attained in splitting the hard limestone rock by blasting, &c., to unfold the stores of nature, and to realize her treasures, strikes the senses of those unaccustomed to such work with astonishment.

We entered the cavern – a light was sent forward, which showed the direction to be in a straight line for a great distance. The light appeared dim, and like a star peeping through a dingy cloud. The width varies from about three to six feet, as I thought, but we did not then measure either the width or the height. The roof has along its centre an indentation the whole length, and the chasm appeared somewhat wider at the top than it is at the bottom; which, with the groove or rent in the middle of the roof, impressed a conception on the mind, of the sides having been thrown to recline backwards by some convulsion of nature. The groove is shallow, and appears like a wound healed up, leaving the scar as a mark of the injury formerly received.

Advancing about half way, we came to a thin rock which divided our passage into two. We pursued the right-hand passage, now become so narrow, that a bulky man could scarcely get through, but it widened a little farther on. As we passed along, several openings and small recesses on our right and left were seen, but not of a sort to exite(sic) much interest, until we reached the far end of this passage, where there is an open space equal to a room of ordinary size, with a beautiful cabin on one side, nearly square, lined with smooth jet-black walls, richly spangled with stalactites, that sparkle equal to brilliants of the first water. The solemn grandeur of this place inclined the whole to pause, and contemplate the sublimity of the novel scene around us. We rested on the floor of solid limestone, and gazed on this charm of nature with awe and wonder. When I beheld a scene so superior to what can be produced by all the arts of man on earth, I could not conceal my regret that such treasures should be made so difficult of access, that they should be where –

> “At each step
> “Solemn and slow the shadows darker fall,
> “And all is awful, list’ning gloom around.”

The substance of so jet a black with which this charming little cabin is lined, is called by miners ‘black jack.’ It contains a portion of the ore of zinc, and is smelted for its valuable produce, in

great demand throughout this realm for potteries, medical purposes, brass, &c. In this beautiful little room, there are two openings, in form nearly square, from the floor upwards, about 1½ foot each side, lined with substance the same, and embellished with glittering spar, of exquisite brilliancy. These transparent particles are very regularly distributed over the walls, neither too thick nor too thin, to give the effect of genuine taste and finish: but the process of nature is going on, and that brilliant spar will most probably become a thick crust, if not impeded by the hand of the workman, and will in time attain to a solid mass of quartz, of which numerous large pieces are found in these mines.

While we rested here, men were sent farther in advance, to explore the extent and nature of the several low and narrow passages and openings in the rock, which communicated with this open space; and having taken hold of the end of a clew of pack-thread to direct their retrograde steps by the same way, they tried to advance; - they proceeded on hands and knees, or feet, as necessity dictated, a considerable way forward in the largest openings they could find, until they were called back by the voice and a tug of the line. They found no end to these numerous intersecting openings in the rock, the passages of which are extremely intricate and dangerous, without proper precautions taken; for, to retrace exploring steps in such a labyrinth, if lights should fail, without a clew or their companions station as we were in the main track, would be to hazard their lives.

Our curiosity on that occasion being ratified, we commenced on our return, by the same passage before described, but discovered some other passages which communicated with it, and in which some of our fellow travellers ventured to wander, and were able to join us again, without being obliged to return to the part where they entered the by-way.

The length of the main chasm is 320 yards. Evident signs would seem to prove that this cavern and all its communicating fissures have been filled, at no very distant period, with water, and the probability is, it has been drained off by the adits in the mine, in which there runs, as I said before, a constant stream from some contiguous part of the works. The rocks of the cavern are covered by a sooty mucus in nearly a dried state, which, it may be presumed, was generated by the stagnant water and impure air, previous to its draining. There is a little mud left on the bottom of the cavern in a moist state, and the smell tends to confirm the conjecture of these concavities having been a reservoir for thousands of years, and drained off by the level of the mine. It appeared to me that some little ventilation passes through the whole, which might have been so ever since the water was left off; for the air from the level would follow the vent of the stream, and since the opening to the cavern was effected, a slight circulation of air would probably be created.

There were, I think, nine of us altogether: we were in the cavern upwards of half an hour, and we felt no material difficulty in breathing, while our candles, one to each, burn sufficiently clear; which, with the animal breathing, must together have consumed a considerable quantity of pure air, such as to have made a scarcity perceptible, if no fresh air had been supplied."

This graphic description supersedes the necessity of the author saying more than that his own inspection of this remarkable cavern enables him to state that its details are as correct as they are highly interesting.

Submitted by Peter Fleming.

Mine Records

JWB Hext at Coniston has very kindly given us access to his mining records. They are mainly reports written by John Barrett to John Taylor, but also include letters written to local mine owners. The records are quite difficult to read but we have been allowed to photograph them, and I have divided them into sections and asked members to transcribe them. They provide an interesting insight into the management problems of the time. The letter transcribed below refers to Colonel Braddyl's mines near Ulverston, and has been transcribed by Dave Bridge. It is of particular interest that Dave has been able to relate the information given in the letters to the topography of the mine as shown in the plans. I.M.

(To) ***T.R.G. Braddyll Esq****.*

Grafsington,
22nd January 1824
Sir,

I beg leave to acknowledge the favour of your letter together with the Box of specimens. Them specimens which came from the shaft sinking in the Birkrigg vein, is certainly very promising and confirms a greater portion of copper than might have been expected of the vein so near the surface.

I was on the 7th inst at the Conishead Mines, they had sunk in the vein at Birkrigg when I was there about 9 fathoms. The vein is somewhat altered in its appearance since you saw it, the soft part of the vein which they are now sinking in consists of a light ferruginous spar & a clay substance with a small portion of copper. Though the appearance of this was promising when I saw it yet I do not expect to see much alteration in the vein til the shaft is sunk down to water, the vein does still continue to dip to the south. The south wall of the vein is limestone, and the north side which is part of the vein is calcareous spar. You was perfectly right in altering the plan of sinking and going further south for the shaft as it is evidently all one vein & which is very large. The south part appears to be the most kindliest(?) & when the shaft is sunk as deep as thought proper it will then be right to crofs cut the vein through to the north side. I told Mr Chamney that he had better carry down the shaft to a proper size & if a discovery was made we should then be able to bring away the stuff without any hindrance.

I really do think from the pieces of copper that we have found scattered about in different places in this Hill that a great quantity of that ore must be deposited somewhere and I certainly have my doubt if the lose (ie loose) lumps of copper ore that has been found at Home Bank did not proceed from the Birkrigg Vein as much of the copper that have hitherto been found at this place is evidently produced by water.

In the different place which they was sinking in the vein at Home Bank the appearance of the vein there was very unpromising and I told Mr C. that I did not see the use of spending much money there.

With respect to the Sea Wood I have a tolerable good opinion of that vein, but it will yet require a great while before anything will be seen, but from the adit such depth that will be gained by this level will be a fair trial for the vein when it is brought up.

I saw Mr Mason when at Ulverston respecting the lease of the Coulbeck Fell Mines. I made my remarks to him of what I thought was proper and as well usual in leases of this sort, and as much as was reasonable for any Gentleman to be tied to a lease for the working of a mine, but this lease is certainly a most arbitrary one.

The first out lines of the boundary described in that lease is as far as I can see all very proper, that is if it was to be continued for the 21 years, but I find that after making different trials throughout the whole of the land described in the lease that you are at the expiration of 7 years to be confined to a certain piece of ground & which you are then at liberty to point out, & to be then confined to <u>one mile square.</u> Now if this is to be the case what is the use of attempting to make any discoveries, or to go to any further expense in trials beyond that of the Driggith Vein, as this vein is at present the main & principal object.

In that case the trials that is now going forward in the Carrock Hill, which is at least <u>one mile & half</u> distance from the <u>Driggith Vein</u> & which will be without the boundary, and should a discovery be made at both of these places, it appears according to the intent and meaning of the lease, that you will at the expiration of the 7 years be dispofsefsed of the ores, as the both of these places cannot be brought within the square mile. Mr Mason will be able to give you his further particulars on the subject.

I have also been at the Coulbeck fell mines and found things going on just as expected, & plainly see that money has been very profusely wasted in that concern.

With regard to the proceeding at Driggith, the plans that have previously been laid down for the working of that vein have certainly been very improperly adopted – particularly the new level.

I first thought the taking up a new level deeper and driving it on upon the course of the vein would have been best & it certainly would, had not this level have gone so far, & the money it has already cost in driving, I thought it would be a very serious thing to abandon it. ***I have therefore thought it best to proceed with the present level, I have turned it north towards the vein. Perhaps we shall have 10 fathoms to drive to cut it, & shall then drive the level on upon the course of vein.*** *I have a tolerable good opinion of this vein, & when the level get a little further in I shall be disappointed if we do not find some lead.*

I hope in future things will be carried on upon a more economical plan than it hitherto has been, there is certainly great cause for improvements & I hope in a short time to make a considerable saving by establishing a proper system of working in that concern.

The system of smelting is also wretchedly bad and I am certain there must be a great waste of lead from the present method of smelting, and when we come to mine any quantity of lead it will be right to introduce a better method of smelting then.

I am glad to find by the lead refined that it contains so much silver as it do, and which makes it very encouraging for our future proceedings.

As the lead is not yet smelted there is no saying what your lofs in that mine from the commencement to the present time will be, but in looking over the accounts I think it will be upwards of £500. I told Topping that he ought to have had the lead all ready before this time, and ready for the Market, & that he ought to have exerted himself more than he had done.

I have lately heard from Mr Taylor & he says that he is quite willing that I shall attend to your mines & which I shall do with pleasure. I expect to be in that quarter by the end of July.

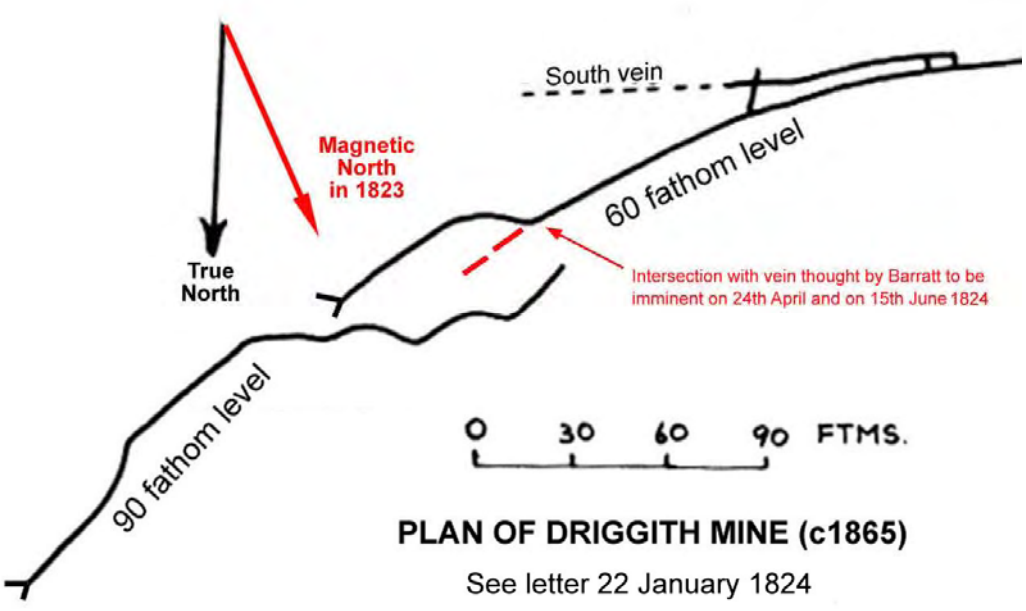
If you see anything in this letter where I have acted contrary to your will please to let me know & I will immediately attend to it.

I am
Sir, yr
J Barratt.

T R G Braddyll Esq.
No 9 Queens Square

Notes (DGBridge)
The plan of Driggith mine shows a kink in the 60 fm level starting about 40 fms inbye where Barratt turns the level *"north towards the vein"*. This and compass directions given in other letters relating to Driggith mine make better sense when account is taken of the magnetic declination at that date, ie approx 25 degrees west of true north.

The trials in Carrock Hill are referred to more fully in Barratt's letter to Mr E Chamney on 27th January 1824



PLAN OF DRIGGITH MINE (c1865)
See letter 22 January 1824

Some Thoughts on Rope

The Welsh team uses members' own ropes for all exploration and this is bought by them as and when required. Following a recent incident with a sheath failing, some rope samples were sent to the BCA for testing. This is a quick and free service.

The results make interesting reading:-

Rope	Make, Size, Age & Condition	Number of Drops Survived	Notes
1	Edelrid Super Static 10 mm 4 years. Rope retired due to age, usage, furring and burn marks. Heavily used.	2	Rope was an end of reel from a well known retailer and was believed to be 3 to 4 years old when purchased. After first few uses the rope felt like a much older rope.
2	Mammut Pro Static 10 mm 4 years. Rope retired due to age, usage, furring and burn marks. Heavily used.	3	
3	Edelrid Extra Static 10 mm 8 years. Nearly new and had been stored uncoiled in total darkness in a cool but dry environment.	4	
4	Does the owner know?	Waiting for owner to get it tested.	Sheath failure in service in very exposed location.

The drop sequence used by the BCA is given below.

Drop Sequence

Fall Factor	Drop No
	0
1	1
1	2
1.1	3
1.2	4
1.3	5
1.4	6
1.5	7
1.6	8

None of the ropes tested give rise for concern, since surviving two FF1 falls seems to be accepted as a measure of a good rope, and the reduced performance from the heavily used ropes is to be expected. The better results from Rope 3 show that condition is far more important than age and, in my own view, that Extra Static was an excellent SRT rope although I believe it is no longer available.

Note that the poorest result was from Rope 1, but the age and usage of the rope will have contributed to this. Having had a bad experience with end of reel ropes we now buy ropes in bigger quantities and ensure that they are newly ordered. Incidentally if you have the batch number Edelrid, and I assume other manufacturers, will freely give the manufacturing date.

Regarding Rope 4, the failure is shown in the photograph below. The team has debated the failure at length, one member even trying to build his own test rig but the rope was too strong? Clearly the rope was well used and failed in an area where the sheath was glazed. What was most bizarre was that the problem occurred on ascent when the third, and lightest, member of the team was prussicking on a section of rope which two members had already successfully passed. The failure was a few feet below a re-belay.

The author does wonder whether the heat generated by a quick descent, changed the properties of the rope making is more susceptible to failure by fatigue when ascending, although he accepts that there is little scientific evidence to support this.

My only regret is that the owner of the rope that failed has so far FAILED TO GET THE ROPE TESTED. Perhaps this article will encourage him.

Jon Knowles.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

Committee Meeting held on the Monday 28th July 2008 at the BMSC Hut at Coniston, starting at 6.30pm.

Agenda.

1	Apologies for absence	2	Minutes of the last meeting
3	Matters arising	4	Secretary's Report
5	Treasurer's Report	6	Membership Sec. & Newsletter Reports
7	Meets	8	Publications
9	Library	10	Microfiche and plans to be copied
11	Coniston Coppermines & Quarries	12	GPS
13	Mines Forum meeting	14	CATMHS website
15	Any other business	16	Date and venue next meeting

Present: M. Simpson (MS), J. Aird (JA), S. Barker (SB), I. Matheson (IM), D. Borthwick (DB), D. Bridge (DGB), P. Fleming (PF), T. Holland (TH), M. Scott (MSc)**,** M. Mitchell (MM) & A. Wilson (AW).
The meeting commenced at 6.30 pm.11 committee members attended.

1 Apologies for absence from: J. Brown (JB).

2 Minutes of the last meeting

The minutes of the committee meeting held on Monday 19th May had been previously circulated to members**.** The Chairman had taken the minutes in the absence of the Secretary. It was **PROPOSED** by JA and **SECONDED** by PF that the minutes be signed by the Membership Secretary as a true and correct record of the proceedings. This was carried unanimously.

3 Matters arising

3.1 Item 3.2.2 (10/03/08) SB had contacted John Crompton (JC); regarding his documents that are now in the Carlisle record office. In his reply JC quoted L Brannigan of Durham CC's Conservation Unit recommendations, which were that they should not be copied by any means including photography. JA would make further enquiries.

3.2 Item 15.3 MM had replaced the lock on Mandall's office; he gave new keys to committee members. The Chairman commented that "as nowadays we were obliged by different authorities to lock mines entrances after conservation work had been carried out, it reflects poorly on the society if keys were misused".

3.2 Item 15.1 MM had obtained the plaque.

3.3 Item 15.2 Carrock Fell Mine – further discussion had taken place with E Kingston and the landowner, general approval had been gained. The next step was meet again with the major parties to discuss type of lock and a management plan acceptable to all.

4 Secretary's Report

Received since last meeting:

4.1 Email from NAMHO Secretary regarding a fatal accident in an abandoned Scottish coal mine. The Coal Authority had issued an Incident Alert. To be published in the next CATMHS newsletter.

4.2 Notes on the proposed survey of Castle Crag, Borrowdale from Alastair Cameron. Work to be carried out July/August. CAT will give any support required.

4.3 Florence Mine artefacts– An email from Dave Banks who thinks the larger CAT artefacts are stored at the mine and suggests we approach Gilbert Finlinson direct. SB to contact Anton Thomas who can identify them.

5 Treasurer's Report

JA had circulated the balance sheet to committee members covering the period from 19th May to 28th July. Income was from: interest, subscriptions, donations and publications. Expenditure mostly on: new GPS battery/antenna and charger. The current a/c stood at £1601.60 and the Scottish Widow a/c at £16498.48. JA would be away Aug to beginning of Nov.

6 Membership Secretary & Newsletter Editor's Reports

IM reported that we have recently gained 4 new members. He gave out the latest newsletter. Had recently spent about £400 on a replacement printer, ink supplies and stationary for future NL production. The NL costs about £8 per year per member. Next NL to go out at beginning of Nov. and to include AGM papers and the next meets list.

7 Meets Report

Thirteen members had enjoyed yesterdays Haig Pit meet, we will send £50 donation, IM to send letter of thanks. The next meets list will need to be compiled at the September meeting. The restarting of weekday meets in Coniston was discussed in order to carry out survey work.

8 Publications

I.M was in contact with Elizabeth Sewart regarding Journal 6.

T.H. gave a copy of CATMHS Journals 1,2,3 on CD to the CAT archive. The new Coniston Copper Mines Trail leaflet is selling well, details to be put on website.

9 Library

DB had visited twice since last meeting. Agreement to purchase books on Laxey wheel and the Le Fleming family. Discussion of amendments was postponed until the next meeting.

10 Microfiche and plans to be copied

Still under discussion. MM has copied the Lambton plans, satisfactorily, he gave out copies on CD. TH would try and get them printed. DGB has colour slides of the plans he got from BGS some years ago, he will make a list for next meeting.

11 Coniston Mines & Quarries

DGB has been assisting a student studying radon underground at Coniston. 10 detectors had been placed in the mines. The student **NAME** (now a CAT member) is working with Prof. Gavin Gilmour, with whom CAT have worked in the past, he will be carry out further studies in Oct.

JB is progressing the Kernal Level report. TH had been in Kernal Level taking photographs.

MSc suggested we should do a survey of the water leats at Coniston later in the year, he would co-ordinate the project.

PF had been approach by the International Speleological Art Group**,** who wish to visit Coniston in November, and would like a guide to take them underground. Leverswater Mine was suggested as suitable. TH would organise the trips. They also wanted an after dinner speaker. MM & IM would probably do this.

12 GPS

MS had bought the required battery/charger, antenna and carrying bag for the MMCE GPS as agreed at the last meeting. He had been up to survey Cove Quarries today and found the equipment satisfactory. D. Borthwick and S. Barker now have the laptop and GPS equipment.

13 Mines Forum meeting

The next Mines Forum meeting will be on the 15th Sept. 2008 at JRM Coniston. Details of the last meeting appeared in the last CAT newsletter. Several committee members attended on the 5th of June when EK ran a training day, the morning was spent at Brockhole discussing the "Monuments at Risk register", a project recently launched by English Heritage. After lunch we visited Hartsop Hall Mine for a demonstration of what to record on the forms. CAT has provisionally agreed to fill in the forms on our normal visits to mine sites recording their condition. To be discussed further with EK.

PF commented on the disappointing fact that the LDNPA had decided not to include mining in their bid for World Heritage status.

14 Any Other Business

15.1 The sad death of Dr John Marshall at the end of May was reported. See newsletter for details.

15.2 JA had confirmed with BCA that prospective members under 18 were covered by the PL insurance.

15.3 DGB outlined the proposed Millom Geodiversity project at Ghyll Scaur Quarry. The aim is to develop and maintain an education facility which advances knowledge of local geology, rocks, minerals etc. They have asked for our support, also to look at the site to identify any old mining remains. Sec to write letter of support.

15.4 DGB had opportunity to get caps printed with CAT logo. Will order 12.

16 Date and Venue of next Meeting

This to be held on Monday 22nd Sept. 2008, at the BMSC Hut Coniston at 2.30 pm.

There being no further business the meeting closed at 9.00 pm.

SB 31/07/08 Chairman

Bingham Canyon Mine, Utah

The Bingham Canyon Mine is an open-pit mining operation extracting a large porphyry copper deposit southwest of Salt Lake City, Utah, USA, in the Oquirrh Mountains. It is owned by Rio Tinto, The copper operations at Bingham Canyon Mine are managed through Kennecott Utah Copper Corporation which operates the mine, a concentrator plant, a smelter, and a refinery.. It was designated a National Historic Landmark in 1966 under the name Bingham Canyon Open Pit Copper Mine.

This is supposedly the largest man-made excavation on earth. Extraction began in 1863 and still continues today, the pit increasing in size constantly. In its current state the hole is 0.75 miles deep and 2.5 miles wide.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY