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**The Journal of the Cumbria Amenity Trust
Mining History Society**



Wiltshire Stone Mines Meet

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Cumbria Amenity Trust Mining History Society

Newsletter No 115, May 2014.

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Society Officers and Committee Members

Back cover

Membership

We welcome new members Robin Brackenbury, who has recently moved to Ambleside, Also Ross Purdey, from Torver, Kate Tyler, who has re-joined after an absence and Malcolm Street from Sowerby Bidge.

New locks at the BM&SC cottage, Coniston

New locks have been fitted at the Barrow Mountaineering and Ski Club cottage at Coniston. CATMHS committee meetings are held at the cottage and number of CATMHS members have dual membership. The new locks require a code to be entered on a key pad. Enquiries to cottage booking secretary Des Slavin, phone 01229835221.

Carrock Mine conservation update

The conservation work to the First World War Mill has now been completed and is a great credit to the society for helping to make it happen. Thanks should also go to John Hodgson (LDNPA Senior Archaeologist) for all the work he did to secure the funding.



As part of this project an interpretation panel has been installed just before crossing Brandy Gill to explain a little about the history of the site. This has been produced by Dalmain Estate, CATMHS, LDNPA and Natural England.



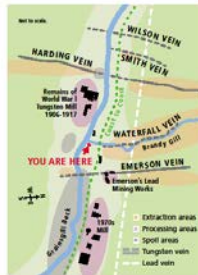
A most remarkable mine

Mining has taken place at Carrock for over 150 years. Deep underground, miners extracted lead, arsenic and tungsten ores. Over ground, the ores were crushed and washed to extract the valuable minerals.

This is the only example of a tungsten mine in England outside Cornwall.

The rocks beneath

There are five important mineral veins at Carrock Mine. They are called Wilson, Smith, Harding, Waterfall and Emerson. The most important ores mined here were Wolframite and Scheelite, which made tungsten. The Emerson vein was the first to be worked. It is named after miner F. W. Emerson who first mined for lead here in 1852. In the 20th century the Harding vein was the most productive.



Miners often referred to tungsten as 'wolfram'. The name is said to have come from early German miners who called it 'wolfart', 'wolfert' or 'wolfing'. They saw that tungsten ate up the tin among which it was found as the wolf eats up the sheep.

Important information

Old mines and industrial works can be extremely dangerous. For your own safety, please take care when walking around the site.

The site is protected as a Scheduled Monument. Though it has survived hundreds of years, the site can be easily damaged. Please help preserve the Lake District's heritage by leaving the site exactly as you found it.

Carrock Fell is one of the most important areas in Britain for mining, industrial archaeology and mineral veins. It is a Site of Scientific Special Interest (SSSI) and a Special Area of Conservation. A permit is required to undertake mineral collecting. You can apply for a permit at: www.lakedistrict.gov.uk

For all other enquiries please contact Dalemain Estate Office - 017684 86450

Carrock Mine is on registered Common Land with open access under the Countryside and Rights of Way (CROW) 2000 Act.

DALEMAIN ESTATES



"Your wolfram is wunderschön - more than wonderful - far better than all your Lakeland scenery!"

German prospector before World War I



Carrock Mine was managed by two Germans, William Boss and Frederick Boehm, from 1906 to 1912. Germany was quick to understand the importance of tungsten and its use in making weapons and munitions. In the early days of World War I several 'sturdy Cumbrians' mistakenly captured a geologist from the Geological Survey at Carrock Mine. They believed he was a German spy. They confiscated his plans and took, 'roughed him up a bit', reported him to the police and bundled him into the local school room for the night.

In front of you stand the remains of the World War I tungsten mill, the photograph was taken in 1914. By Walter Hemmings, Mines Manager at the time.

Uproar of machinery and bust of stur endeavour

What was it like to work underground here? George D. Abraham, author of the Complete Mountaineer visited the mine in 1917 and described what he found:

"Wonderful crystals and rare minerals glittered in the low, narrow, rocky walls, and now and again, when the openings to upper galleries were passed, the songs of miners echoed in the silent gloom. Superfluous clothing was quickly discarded, for compared with the chilly outdoor air the warmth was remarkable" from The Autocrat, 27 January 1917



Miners' nest to timbers inside Carrock Mine. The long passage of the mine.

The remains today

Mining stopped here in 1981. Many of the surface remains were demolished or flattened. In 2007 The Cumbria Amenity Trust Mining History Society (CATMHS) began a long-term programme of surveying, recording and managing Carrock Mine - over ground and underground. Their work continues today. Find out more at: www.catmhs.org.uk

In 2012 the remains of the mill were in a perilous condition. Conservation work was carried out in 2014 to protect them for the future. Work was funded through Natural England's Higher Level Stewardship Scheme. This government programme is designed to help farmers manage their land in an environmentally friendly way.



Waste material from the mineral-ore separating process can be seen in large 'spoil tips' like this. Can you see one?

Backbarrow Iron Furnace

An open day was held on 27th February to discuss plans to develop land around Backbarrow Iron Furnace. The proposal is for a holiday village at the Backbarrow ironworks which would include more than 30 apartments, shop and cycle hire. The Scheduled Ancient Monument dating back to 1711 would be incorporated as a Heritage Exhibition site.

Outline proposals are now with the Lake District National Park. Planner Ben Long explained it was important to let people living in the surrounding areas see the preliminary scheme and layout options. He added: "This is such a crucial location, one of England's most 'at-risk' industrial sites, and current owners Investec Bank are seeking ways of bringing it back into viable use.

"Permission was granted in 2002 for a mixed residential and work use, including measures to conserve the ironworks. While substantially built, it was never finished or occupied. "Local housing was subsequently approved in 2011, but never progressed. To safeguard the site, current owners are now looking for a scheme which offers a better return in terms of capital and revenue."

Planners would be looking at a raft of issues in determining the application, including the deteriorating condition of the ironworks, the effect on Backbarrow, potential economic benefits, traffic, flood risk and access. The open day was held at Leven Valley Primary School. National Park planners and developer's representatives were on hand to help with queries.



CAT members Mark Scott, Peter Sandbach, Paul Timewell and Ian Matheson all attended the event. Plans for three schemes were on display, variations on a theme: Plan C, shown above, has a Heritage Exhibition on the Iron furnace site and a new railway platform close to the previously restored ore house. Plans A and B involve converting the Pug Mill to a Reception and north entrance; Plan A replaces the original buildings south of the furnace stack with a shop and bike hire facility and leaves the site west of the road for future development. It is to be hoped that the developers will be compelled to conserve the industrial remains before completing the housing development and that as much as possible of the industrial heritage will be preserved.

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HLF application, Coniston

As previously reported, £500,000 of funding from Natural England was lost when the Coniston and Torver Commoners recently declined to join the High Level Stewardship Scheme. A second plan is to submit a Heritage Lottery Fund application, which would involve the LDNPA, CATMHS, The Ruskin Museum etc. A meeting was held on 24th January at the LDNPA offices at Murley Moss to discuss the matter.

John Hodgson reported that preliminary discussions with the HLF had been positive and he hoped to submit an outline project brief by 28th February. Specification and costing of the works required was completed last year in anticipation of the lost Natural England bid, based on the Conservation Management Plans for Coniston and Tilberthwaite prepared for the LDNPA by Archeo-Environment Ltd in 2010. This would be acceptable to the HLF.

The HLF bid requires a 5% match funding element

Lisa Keys from Minerva Heritage Ltd has been employed by the LDNPA to compile stage one of the grant application and a decision is expected sometime in May as to whether it can progress to stage two, which apparently is basically rubber stamping the application. CATMHS will be heavily involved along with Rydal Estates, LDNPA, Ruskin Museum and Mr P Johnston.

A site meeting was arranged for 30th January at Penny Rigg Mill, Tilberthwaite to review the work required there.



As reported in NL 114, CATMHS had decided to spend some of our funds on urgent repairs at Penny Rigg. Estimates have been obtained for the work and permission requested from Carter Jonas, Agent for Rydal Estates. There is concern that to continue with this might prejudice or conflict with the HLF bid, so it has been proposed that CATMHS should give full support to generate a successful HLF application and use the money agreed for use at Penny Rigg as a match-funding element, which would effectively allow us to multiply its impact many fold.



Image 0457 shows a lost corner of the otherwise good masonry carrying the leat that fed the water wheel. There is concern that in its present form the breach is used as a way onto the leat and this foot traffic is causing on-going damage.

Open up the masonry outlined in red down to a good bearing and reinstate the corner, as identified by the red outline, in a dry stone wall construction incorporating fallen masonry as necessary.

Following the restoration of the corner the ground behind should be protected with a soft cap as indicated in green. Source of turf and top soil is to be specified.

Example of one of the surveys of a structure which is the end of the leat to the waterwheel at Penny Rigg Mill

If successful work is expected to start in 2014 as a contractor has already been chosen. It is anticipated the project will take two years and covers Penny Rigg Mill and Coniston Copper Mines from the Bonsor Dressing Floors, up to Red Dell/Thriddle Incline and over to Hospital Level.

This will be a project that the Society can be very proud of; it will leave a lasting legacy for many years and may help to attract new members.

Lake District Mines Forum, 7th March

There were representatives present from the LDNPA, National Trust, Environment Agency, NAMHO, CATMHS, MoLES, Coniston Local History Group and Honister Quarry.

John Malley reported for the **National Trust**. Work on the new water treatment plant at Force Crag mine was well advanced. The settling ponds are complete and are now being filled with filtration medium, a mixture of woodchip and sewage sludge. The plant is to be commissioned around the 20th March, with a formal opening by a minister in June. The hydro-ferric trial situated in the mine building and operated by Newcastle University is to continue, and modifications have been made.

Data logging has been carried out through the bore hole at Zero Level for over a year. The data shows several gradual increases in water depth each followed by a sudden decrease of up to two meters. It is suggested that this may be due to a build up of silt which clears itself when pressure is sufficient. It is thought to be generally stable and the recommendation is to leave it alone. Any intervention not authorised by the Coal Authority could result in a liability on the part of the NT.

The coal board will assess underground with a view to employees carrying out work. Meanwhile, it is hoped that the plan, approved by English Heritage, for CATMHS to stabilise the portal of No 3 Level and divert drainage water around the internal shaft should go ahead.

At Threlkeld the situation regarding Yellow Dam etc was on hold awaiting decisions as to how to proceed.

Lake District National Park Authority. John Hodgson reported that Eleanor Kingston had recently returned from maternity leave and would work a three day week. Holly Beavis-Pike will continue until March next year.

There have been concerns regarding erosion of mine spoil heaps in the Caldbeck Fells. The current thinking is to prevent water entry rather than to re-profile the tips. There is also ongoing investigation regarding the stability of the tip at Greenside mine.

At Carrock Mine work funded by the High Level Stewardship Scheme to stabilise the 1914 mill site is nearly complete. Due to milder than usual weather the contractors, Newcastle Conservation Ltd, had been able to continue work over the winter period. An interpretation panel has been prepared and will be installed on 28th March. Peter Cloughton suggested that a website reference should be included so that interested visitors could find out more. Alastair Cameron added that an interpretive panel was soon to be sited at Cathedral Cavern.

At Coniston the failure of the High Level Stewardship offer has led to a Heritage Lottery Fund application. A bid for £400,000 had been submitted before the deadline of 28th February. We will know in May if it has been successful, and if so then the first phase is

to employ someone to prepare a more detailed application. Alastair Cameron said that the business community felt that money would be better spent on promoting tourism – a rather blinkered view as by its very nature such a scheme add to the interest of the district and therefore does attract tourists. However, it was felt that a communication plan was needed, to run for the duration of the project.

CATMHS. Warren Alison said that Colin Woolard had submitted a report at the end of our three year contract to monitor the site. At Tilberthwaite the dig to clear the Penny Rigg adit continues slowly, with reduced manpower. Warren thought that they thought there might be another years work before it was finished. CATMHS has agreed to support the cost incurred by the Newland Furnace Trust for compulsory third party insurance.

A discussion about Backbarrow Iron Furnace site ensued. John Hodgson assured the meeting that despite what might appear on the proposed plans exhibited at the recent public meeting at Leven Valley Primary School, the archaeological remains would be protected.

MoLES. Donald Angus reported that at an EGM the members had voted to wind up the Society and so it no longer existed. Ian Hebson then said that the active members were intending to continue with their activities and to use the name of MoLES. He said that they were currently probably the most active group involved in Lake District mines. John Hodgson said that he hoped they would continue to be represented at Forum meetings. Ian Hebson also reported that Birks Gill mine, above Dunmail Raise had recently been bricked up, leaving access only for bats. It was thought that this had been done by United Utilities for safety reasons.

English Heritage. Anthony Davidson wasn't present- apparently he is tied up with a seven month enquiry regarding railways in Manchester.

NAMHO. Peter Claughton. The latest version of the Research Framework for the Archaeology of Extractive Industries is now on the NAMHO web site. Copper has been revised. There is a Research Agenda, a wish list of potential archaeological investigations, and comments and suggestions are invited. Sites can be added or prioritized. Suitable illustrations of historical mining activity are sought for inclusion in the publication.

Alastair Cameron. A review of slate tips suitable for re-working is nearly finished. The wet weather over recent months has curtailed outdoor activities. Coniston Old Man website has been extended. Storage and digitization of archive material was discussed. There are several collections which don't have a suitable home. John Hodgson said that this was a universal problem. The only solution is to digitise all records, catalogue and index them thoroughly and deposit them with the County Record Offices. Only primary sources can be kept in hard copy.

The next Forum meeting will be arranged for 12th June at Coniston.

Tilberthwaite Penny Rigg Horse Level dig

The digging team is a little depleted because of illness and one of the team's involvement in a road traffic accident on his way to work. He will not be rejoining us for some time until a full recovery from a back injury has been achieved. Wishing you a speedy recovery Andrew and we look forward to seeing you back as soon as you are able. As a result of all this, the work at Greenside and other projects have been put on hold and our efforts will be focused on Tilberthwaite until this is completed.

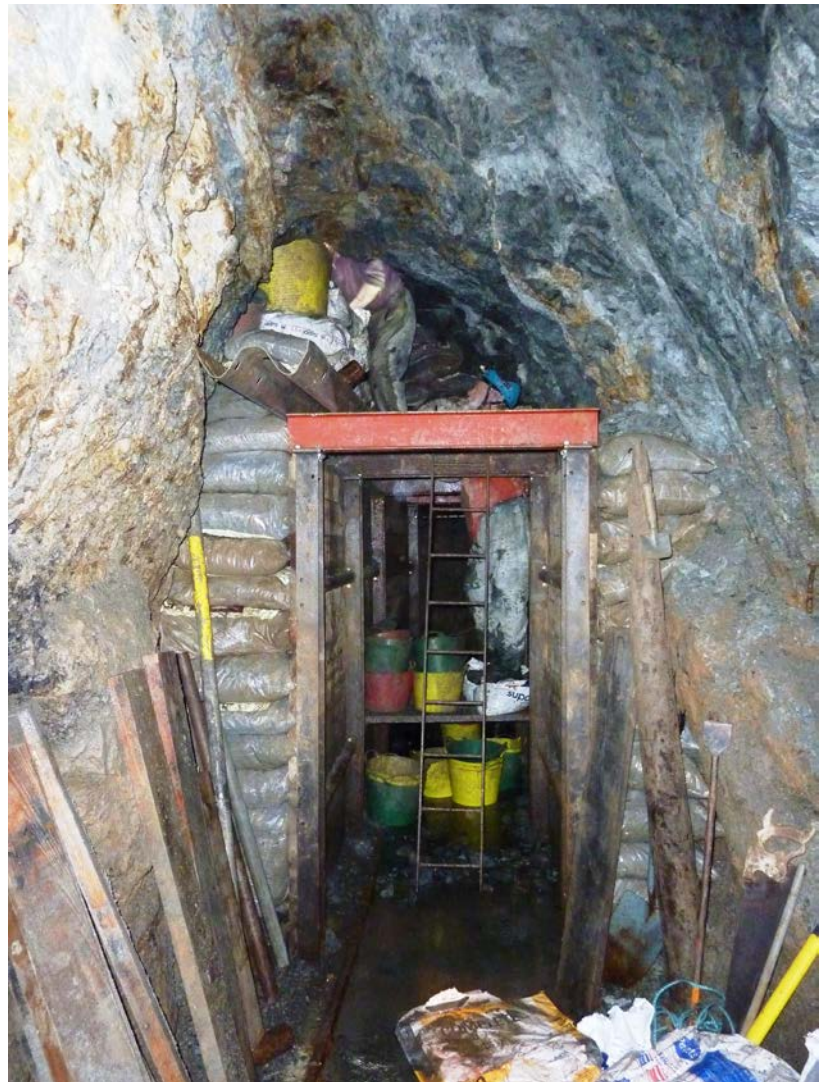
Progress is slow with only three of the digging team involved currently. Timber and a large boulder are being encountered and over the last two weeks large quantities of water has been issuing from quite high up in the collapse. The level is now curving around to the right (North), which has been causing a few headaches with the installation of the steelwork and modifications have now been made to the side bars and the method of attaching them. This will make future deviations in the level easier to manage and fitting easier, quicker and safer.

The pack wall, which is made up largely of one tonne bags and is up to three high in places, continues to grow, and is now some one hundred metres long. The small stoped out area which we have been filling on the junction with the crosscut, is now full to capacity so we are now filling big bags along the level again.

We are uncertain about the extent of this collapse and because we are at a point where large boulders are being encountered and a large amount of 'The Old Man's timber, which has obviously failed in a spectacular fashion, we are led to believe there is some way to go yet.

We are now ready to take more materials into the mine and volunteers are being sought to help with this.

John Brown.



Wiltshire Stone Mines weekend

Friday 24th January - evening

The Cambridge Contingent (Chris Cowdery ML, Steve Brown, Sarah Metcalfe*, Darren Cawthorne*, Gayle Bentham*) arrived at Bath Youth Hostel to be greeted by John Ashby driving into the back of their car, and Mark Waite leaning out of an upstairs window issuing a 'scaffolders welcome'. Everybody went into Bath for a drink and some food, meeting with Jon Knowles later on. An enjoyable ice-breaking evening was had by all.

* - Colleagues of Chris.

Saturday 25th January - Box.

The group was met by John Aird, Colin Woollard, David Taylor, Keith Turner to take the party size to 12. We set off to walk beside the tennis courts to Back Door where the ML gave the group a briefing. A prompt entry was undertaken through the short crawl to walking size passages. It transpired after the event that ML may have given misleading information about the size of the entrance.



A short walk took the group to The Cathedral for a photographic stop, followed by a walk down to B12 and to the Box Daleks for a tea break. The trip then examined the two connections to the military section, before wandering over to the connection with the Clift quarry to take lunch. The afternoon was spent exploring Clift, trying to take in as many artefacts as possible. This part of the exploration was also punctuated by the group inadvertently splitting into two, fortunately rejoining each other after a few minutes. The trip then returned to day via AO route passing close to Cathedral again.

Upon emerging to day, it became clear that a freak storm had passed overhead, depositing hail and removing trees from their usual anchorage.





The evening was spent in the Quarrymans Arms, Box, which was both pleasant and appropriate. Fine food was enjoyed by all.



Sunday 26th January - Ridge & Monks Park.

The motivation for this trip was to spend more time in Monks Park, and explore thoroughly. The group discreetly entered Ridge, and made their way towards the connection into Monks Park. The ML asked the group to remain stationary whilst he checked that the route was correct, returning after 2 minutes to find that the more expert members of the group had wandered off to find their own way (in spite of signing the risk assessment which stated 'DO NOT WANDER OFF WITHOUT THE PERMISSION OF THE ML').

After gathering the group together, everybody made their way into Monks Park where a detailed exploration of the modern workings was undertaken. JK and MW broke away to make a detailed photographic record (and experiment with backlighting). The most recent workings are from 2004, with each weeks progress being marked on the wall. They are clearly indicated by roof bolting and tell-tales, with the roof bolting drill and bolts still resting ready for the next shift to arrive at the final face.

The most down-dip reaches of the quarry are now flooded, perhaps this is why the quarry closed in that area. The quarry offers a fine collection of modern equipment sitting in what was clearly a spares department.

With the exception of JK and MW, the group returned to Ridge for a quick look around the 2nd world war graffiti.

Upon reaching day, some of the group went to the outbye end of the Monks Park Slope Shaft to inspect the coal-cutting machinery slowly decaying in the elements.

Hudgillburn Meet, 23rd February.

Meeting up at 9.30 am, we were met by some typical North Pennine weather, the usual cold wind and horizontal rain thrown into the mix. It was a little startling when arriving, to see an ex army ambulance waiting, but as it turned out, it belonged to Ian Hebson. Others present were, John Aird, Roger Ramsden Tony Holland, Dave Young, Warren Allison, John Brown and Martin Willey.

Having been warned about the deep water in the entrance and for a further couple of hundred metres into the mine and also knowing of more deep water in the North Waggonway, some came equipped with chest waders, which were to be removed once in the mine, but these were shunned by the harder CAT members.

Before entering the mine, we had a visit from Peter Ryder, one of the team carrying out the survey in the maze cave system. Peter brought along an up to date plan of the survey for us to see, along with some impressive photographs, giving us a very good insight into the difficulties involved in doing this work and how they had discovered two or three places where the 'Old Man' had broken into the workings, but alas they found these were blocked and barred the way into the mine workings.

The aim of our visit this day, was to try and continue the exploration in the area of the North vein, so everyone made their way up to the end of the North Waggonway and attempts to bolt the rise at the end of this proved near impossible due to the fragile nature of the rock. Both John Aird with his 'Easy Up' and Ian Hebson with his 'Maypole' decided that there had to be an easier way to access this area. An ore hopper back down the level a little way was accessed, but also proved difficult. Moving further outbye, a rise with a ladder was climbed and this gained access to some stoping above the ore hopper and ran parallel with the level. It was hoped that this would lead up to the Firestone level above. Much exploring was done by a small group and some new ground was found, whilst the rest went off to the Maze Cave to look at the graffiti, then back from there to look at where the digging team left off some years ago.

The small group of explorers, in turn went on to look at the Maze Cave and then to inspect the cross cut from the main level on their way out. Apparently the condition of this and the quality of air has not improved with age!

By 4.30 pm, everyone had exited the mine. This was probably the largest number of attending at a meet for some time.

John Brown.

Peak District Weekend, 8th & 9th March 2014

Attendees: John Ashby
Jon Knowles
John Aird

The weekend was arranged by PDHMS/Masson Caving Club as a return favour due to CAT having hosted them on a couple of weekends in the Lakes.

Saturday

The group assembled at the TSG Hut in Castleton for some tea with our guides Ann and Christine whilst other members of the Masson Club went off to rig the 625ft descent into James Hall Engine mine. The hut was busy with many local members and university groups. For once the author could see people younger than him going underground – a rare occurrence on a CAT meet.

Once sufficient time had elapsed to let the riggers get going we drove to Rowter farm temporarily losing Ashby in the first 200 yards. At the top of Winnats Pass the weather was poor and a quick change and a walk across two fields took us to the head of the first pitch which in typical Peak District was a manhole cover. The pitch dropped 50m down a small shaft into what is termed the cartgate. This was then followed for 200m walking, stooping, crawling and traversing. Some people decided to leave some kit here on the way down whilst others (not the author) left some on the way out. After a while the “Bitch Pitch” was attained and whilst not as demanding as its name suggests the author was glad he had not brought his camera box since what followed was 40m of descent down a narrow rift with numerous re-belays and deviations. From the bottom a slope led into an area known as the Workshop and from where a considerable quantity of ore had been extracted the miners having broken into a natural chamber. The workshop contained a number of artefacts including a dressing floor and the remains of small wagons.

The route on involved some free climbing down a hole in the floor from where a slope gave access of the first of two pitches which descend a large natural chamber called Leviathan. The two pitches of 35m and 30m are split at a landing known as the tea room. Cavers have done a lot of work here to contain the water within pipes rather than let it fall down the pitch. The final pitch is free hanging down the middle of the cavern but does give an excellent view of the timbering which is thought to have been installed by the miners when they ascended Leviathan from below. More details of this can be found in the Bulletin of the Peak District Mines Historical Society – Volume 13, Number 3, Summer 1997.

Once all had descended a series of slightly odd fixed ladders gave passage down through a boulder choke to the Speedwell Streamway. This was followed for about 200m so that some fine miners graffiti, much spoiled by later explorers, could be seen.

Following a quick lunch (real cavers don't do lunch but eat a flattened muddy mars bar) we prepared to ascend at which point Ashby announced in a surprised manner that “I don't seem to have my foot loop” An excellent discovery when you are 600' below the surface! Fortunately we had a few spare slings to rig up a substitute.

Ascending back up 625' is hard work and Christine set up a quick pace so much so that at the top of the Bitch Pitch Captain, who was directly behind her, and myself, who was third both got a bollocking for holding others up. I personally thought this a little harsh since I was holding nobody up. Progress along the cart gate was steady except for where there a step up a rift which we all struggled on. Once back at the first pitch we ascended to surface and waited . . . and waited . . . "rope free" was periodically called. Ashby appeared some time later and we thought that progress was now being made however ten minutes later it was clear that nothing was on the rope. The following conversation then took place:-

JK - What's the problem?

JA - I've pulled a muscle in my groin

JK - What do you want me to do about it?

JA - I don't know

At this point the author decided that more direct action was needed and returned to his van for a 60m rope and a pulley but fortunately by the time he returned Ashby was near the top of the pitch and was shortly followed by the guy who had rigged all the pitches (Rob?) who ascended at the speed of a lift.

Saturday Night

Saturday night was spent relaxing a hostelry in Tideswell and later at the Miners Arm in Eyam, although Ashby remained on form by driving into another car and then remarking "I thought you were looking out that side" As if I would with my car being on the other side.

Sunday

Following the exertions of Saturday a less strenuous trip was welcome and we visited Long Rake Spar Mine at Youlegreave although it was so warm and sunny it seemed to be a shame to go underground. This is an interesting Mine with many artefacts still in situ but it has degraded a lot in the 20 years since the author last visited it with the main level having been blocked by a recent fall. This curtailed the trip and although PDMHS have started to dig through the fall it is still too wet at the current time and needs to dry out.

The mine was worked from at least 1872 and a brief history is given in "Long Rake Spa Mine" by R.P.Shaw in the Bulletin of the PDMHS Volume 12 Number 5.

Looking along the 300 level. The use of steel roof supports is very common in this mine.





The mine is entered down a slope accessed from an area of rough ground which lies between Moor Lane and Back Lane this descends the end of a stope and at times some old in situ ropes are needed before the 240 level was attained. From here it is possible to head east for a short distance but the main route on was down. Existing ladders provided a route down to the 300 level where an air receiver was located.

What is very evident throughout the mine is that almost everything has been worked out and what remains is supported by steel and timber. From the 300 level an incline was followed down to a lower level which was thought to be the 375 level although this only went for a short distance. Returning to the 300 level this was followed west until deepening water prevented further progress. Returning to the 240 level this was also followed west until the previously mentioned fall prevented further progress.

John Aird climbs back up to the 300 level.

John Ashby on the 300 level, where the level has fallen into the stope.



Jon Knowles

Caudale Quarry, 29th March 2014

John Aird (ML), John Ashby, Chris Cowdery, Harvey Sunderland, Mark Waite.

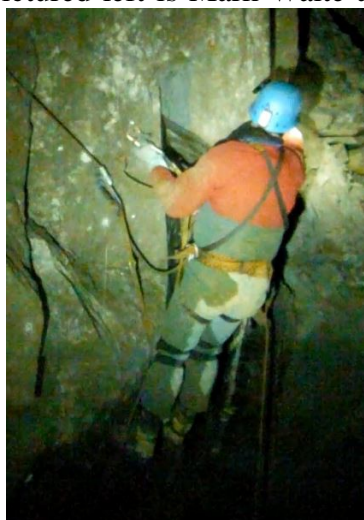


The climb up to Caudale quarry was carried out in more clement weather conditions than on our visit last year. However these gave no respite from the brutally steep 1000 feet climb up the ridge. In 1932 the quarries were re-opened and output built up to 1000 tons per annum, all of which was brought down by horse drawn sleds each holding 15cwt of slates (obviously tightly packed!). Controlling these on the descent required great care, since horse and sled were only connected by chains.

From across the valley, a clear view is obtained of the numerous routes that were used by the highly skilled carters and their horses. Even in the 1930s it was obvious to the management that this method of transport was unsustainable. Two proposals were developed. One involved an aerial ropeway down to the right hand bank of Caudale Beck, alongside the road where the air compressor and stock yard were located; the other was to construct a lorry track from the summit of Kirkstone Pass along the contour of the hillside to the quarry. Unfortunately the depression in the construction business caused the closure of the quarry in 1934 before any work could be done.

Arriving at the ventilating rise (see The Mine Explorer Volume V page 92 for a plan of the workings) the descent was rigged and the ML set off down. It was rapidly apparent that the cold conditions of the previous meet had had hidden benefits, since there was now considerable water flow, but also that the ML's memory was faulty, meaning that instead of descending only to the top level (Grisenthwaites) and commencing a leisurely bolting across to Jock's level, it was necessary to go all the way down to Brownlees, wait for all the rest of the party to descend and set off exploring, and then climb back to Jock's, horizon install a rebelay and bolt from there.

Pictured left is Mark Waite arriving at the crux of the traverse, bolting round the overhang at the entrance to Jock's. As a reward for his hard work and acrobatic skills; no sooner had he had got past the overhang, but not even set foot in the level to relax,



than he was called back across the traverse to assist a climber who was having difficulty crossing the rebelay on the way up to Grisenthwaites. Undaunted Mark rapidly entered Jock's and generously rigged a rope up from Brownlees allowing the rest of the party an easy climb rather than an exhausting traverse. The manager, Thos Shaw's attention to detail and proper standards was again demonstrated just as it had been in Brownlees, level and chamber both completely cleared of all loose blocks and everything "shipshape and Bristol" fashion. A decaying wooden temporary magazine stood against one wall surrounded by explosive wrappers, a fine iron scraper rod for cleaning shot holes lay on two supports on the same wall, a large metal container for calcium carbide stood in front of the magazine and on the floor was a ball of clay brought in to be used for stemming shot holes.



Magazine



Scraper



Calcium Carbide Container



Clay for stemming



The adit from Jock's to the ventilation shaft is remarkable for having some of the most definitely triangular drill holes that the team had ever seen.

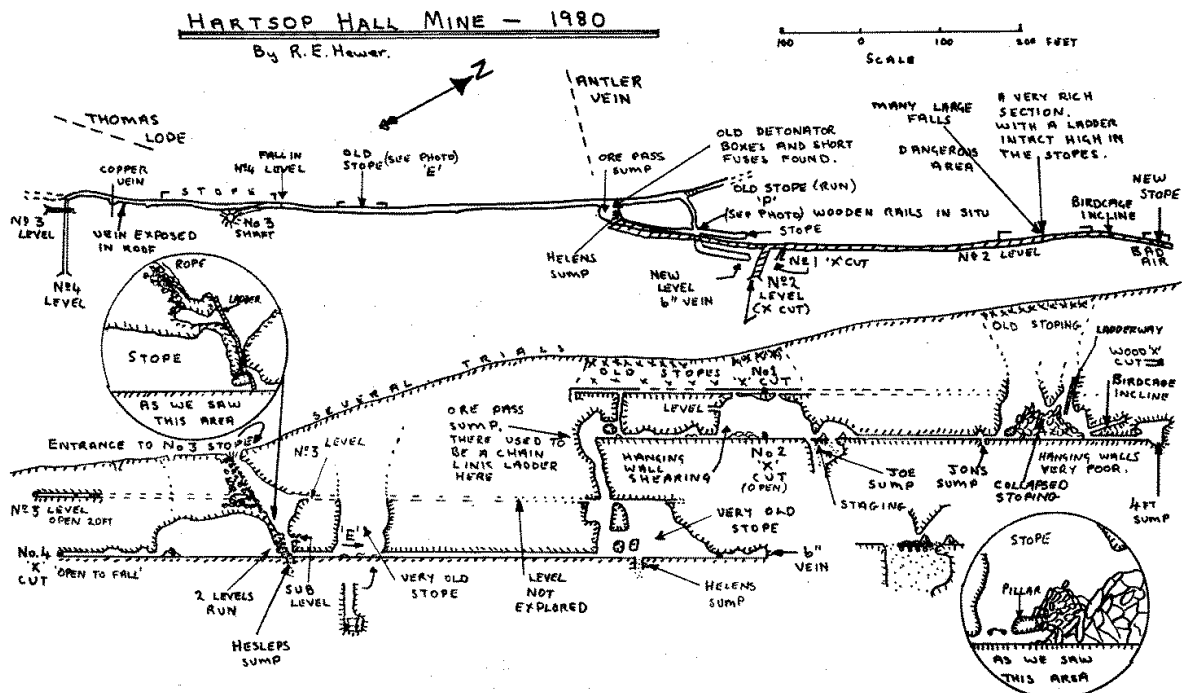
The rest of the team, apart from Aird and Waite, had now finished exploration of the quarry and so prepared to leave Jock's, at which point the gentleman who had offered to de-rig the traverse announced that "while I could do it I would be very slow".

While the ML remained at the bottom, Mark de-rigged and climbed out followed by the ML. The weather having improved even further on the surface the meet concluded with a pleasant stroll down to the vehicles.

Hartsop Hall Mine, 30th March 2014

John Aird (ML), John Ashby, Chris Cowdery, Roger Ramsden, Harvey Sunderland, Mark Waite

Until a month before this Meet, Hartsop Hall mine had posed a significant problem for the ML; he barely knew where it was let alone what there was to see or do. Luckily after applying pressure to the reliable R Ramsden, who did know these things and agreed to attend; the ML managed to obtain a copy of NMRS British Mining No 19 which contains an article on the mine by Richard Hower, from where the plan and section below are taken.



The excellent weather made the stroll from the Brothers Water Inn very pleasant, the discovery that the entrance to No 4 adit had been substantially cleared meaning the water level was well down reinforced the good humour of the group. (The ML suspects that this had been done to facilitate the recent television filming involving Ian Tyler).

No 4 level having been investigated up to the blockage the party proceeded uphill to the open stope to descend to the other side of the fall in No 4. In rigging terms this proved to be somewhat more complex than the plan and section suggested, with the work again falling onto Mark's ample shoulders. Once the descent was completed exploration showed that the mine remained virtually unchanged since the 1980 survey. It was quite astounding to find the wooden rails shown in one of the photographs that accompany the survey exactly as they were 34 years ago. Roger's memory goes back to the days when there was no blockage in No 4 and you could walk all the way in!



Wooden rails with iron capping

Return to the surface allowed lunch to be consumed before moving on to No 1 and No 2 levels.

At this stage Roger's assistance became vital; there is really very little chance we would have found the entrances without his assistance. The combination of steep slopes, timber and dense undergrowth makes the area particularly confusing.

No 1 level was rapidly disposed of by John Ashby, who announced it of little interest. No 2 had again been drained by persons unknown who had reduced the water level from waist deep down to just about welly depth. Profoundly grateful to their anonymous benefactor the team rapidly entered and explored the level which again was very little changed from 1980. Only one brave explorer in the shape of Chris Cowdery ascended the rope loops to inspect the Birdcage Incline at the inner most end of the workings. (When Mr Ramsden says "I've seen people hanging upside down here" most folk lose interest in going on.)

Returning to the daylight we had seen almost the entire mine. There just remains the possibility of bolting across to No 3 level from the open stope descent to No 4 but that will have to wait for another day.



Many thanks to all who attended a very pleasant weekend, special thanks to Roger and Mark and to Richard Hewer for permission to reproduce the plan and section.

John Aird

Reference *British Mining No 19 memoirs 1980-1982 Northern Mines Research Society*
Photographs John Ashby & Mark Waite

Carrock Mine 20th April 2014

Attendees: C Woollard (ML) who was unable to attend due to an illness, David Taylor, John Brown, Warren Allison

The meet was advertised as a maintenance meet with the intention to clear a way through some of the collapsed hoppers on the Harding level to ensure the water did not pond up behind.



Meeting on a beautiful sunny Easter Sunday, we first had a look at the new interpretation panel which had been recently installed before replacing the capping stones on a covered leat that Colin had spotted a few weeks ago in Brandy Gill just below the concrete pipes.

Capping stones replaced

Having changed we went underground, soon arriving at the first collapse and proceeded to clear the rocks on the left hand side stacking the rocks on the right hand side before the fall, to releasing the water behind it.



*John and David
clearing the first
collapse*

Having dug through the first and second falls we returned to the cars, pleased with our work so far, it was pleasant to be able to lunch in the sun. There were a number of people about who all looked at the interpretation panel and came over for a chat.



We then returned to have a go at the large fall where the crosscut to the Emmerson vein leaves the Harding and it was decided that it would be better to go underneath the boulders, but not to clear the level to the floor on this visit as too much water would be released which would dirty the beck. There were large boulders

Second fall before work commenced

which had to be broken up with a sledge hammer. I had purchased one the day before as all our gear was in Tilberthwaite Mine with John commenting that it was not large or heavy enough.



John breaking up one of the large boulders

After a couple of hours it was decided that enough had been cleared with pent up water having been released and that another meet would be required to finish this fall and the next one slightly further up the Harding.

Warren Allison

From the archives

Cumbria archives service has many boxes of uncatalogued papers. Paul Timewell and I have been volunteering an afternoon a week to put some of these papers onto CASCAT. The boxes we have been working on are mainly in the Thomas Butler and Kendal-Fisher collections and are often very disjointed, both chronologically and as to subject matter. For instance the case of Wordsworth Harrison v the Ulverston Sewerage Authority seems to be scattered over many boxes, as is his involvement in the Stowe Iron Company. There are far too many papers concerned with the Millom & Askam debenture stock and every bundle contains at least one bill of costs. On the other hand we have found enough interesting papers to make the exercise worthwhile.

Examples include: BDKF 261/1/3/11, Joseph Rawlinson's affidavit in Kennedy v Wakefield which explains the reasoning behind the square holes found in engine beds.

BDKF8/13/13, a protest lodged by the master of Ann of Aberystwyth describing a difficult voyage from Rotherhithe to Barrow with cement.

BDKF8/2, a series of posters for auctions of coppice wood on W A Mackinnon's land held at the Cavendish, Dalton.

BDKF 231/9, a detailed report with plans and sections of Lindal Moor, Pennington royalty (Gillbrow etc).

Two items are worth quoting in full, firstly an inventory of plant at Roanhead drawn up for the case of Kennedy v Kennedy, BDKF 6/2/5/6:

Roanhead Mines, May 21st 1867. Valuation of stock and plant for Messrs Kennedy Bros

Red Rover Engine & boiler	100	Smithy: Tools & Iron	140
pilot Engine & boiler	115	Joiners Shop: two saw benches	
pioneer engine and Two boilers	149	and timber pit Tops	50
Bessie Burton engine & two boilers	600	Sheaves pullies &c	200
Lowca engine and drawing gear	40	Water wheel	30
Locomotive engine	395	Workshops & buildings	1000
Two Capstans and ropes	20	Iron Ore Stock	500
Two Capstans and pumps (sixty tons)	250	Oil	5
Six L legs, pump rods, Rockers and pendants	250	Tallow	5
Bricks in Stock	50	Candles	1
Capstan ropes and gin ropes	100	Coals	50
Bogies	45	New Engine for pumping	350
Underground metals	50	One New boiler	150
picks & spades	20	Horses Carts & Hay	150
Tram Road & metals	700	"Lily" engine & boiler	<u>120</u>
Two Gins	10		<u>£6235</u>
Fitting shop: Two lathes, one drilling machine and one planing machine	90		

J Eastwood, Engineer

The other is the accounts of Harrison Ainslie drawn up for the trustees of Benson Harrison's estate, BDKF 133/8, see overleaf:

	1857	1858	1859	1860	1861	1862	1863	1864	
Lorn Furnace lease	1095		169	500	81	393	191	119	For 4 years this furnace did very little work; but we have now renewed our lease and the furnace is in blast again.
Newland do "	1500	173	1250	1055	2000	600	700	2100	
Backbarrow do. Own property subject to yearly charge of £50	1418	1500	1351	1000	1661	1000	1287	2100	This property will be increased in value when the Leven Valley Railway is made.
Duddon do lease	624	4		783	231	1175			This furnace is now in blast
Estate at Lindal & Cottages own	215	203	202	133	131	147	146	107	A considerable sum was spent in repairs last year, which accounts for the reduced rental. We have built 15 new cottages this year, & the total rental will now be £350.
do Barrow "	132	121	252	173	206	258	487	229	This property is daily becoming more valuable & the income may easily be doubled.
do Backbarrow "	18	24	29	11	20	23	15	9	This property has had some heavy charges against it lately.
do Anchor "					43	51	48	103	This rental will be much increased when we re-let the inn next may day.
Newland Mill & Land "	47	69	50	71	66	69	72	66	This property is desirable as it holds a prior right to the water to Newland Furnace.
Pennington land "	1	2	2		9			6	This is land damaged by mining.
Schooner Lindal Moor 64/64	141	136	66	162		68	87	47	
do Gillbrow "	147	105		45		70	66	98	
do Whitriggs "	138	12		59	106	37	118	111	These vessels have been regularly charged with depreciation before showing any profit
do Eliza "	16			30	57		11	56	

do	Eliza Bond	share	31	16		13	4	21	15	23	
do	Jane Roper	"	5	5	20			5	5	5	These vessels have also been debited as above.
do	Mary & May	"						50	20	50	
do	Lorn	64/64									This is a new Schooner which has not yet been a year at sea.
Sloop	Earl of Glasgow	"	43								
do	Melfort	"							17		
do	Newland	"									The earnings of these vessels have been absorbed in depreciation fund.
do	John Kelly										
Greenodd Yard			18	18	18	18	12	15	10	10	Of value to the new railway to Newby Bridge.
Tramway Locomotives & Wagons						116				92	
Grinding mills										536	
Smithy				63	85	171	37	68	104	144	
Mining engines											
Railway wagons				69	94	367	445	335	511	312	
Mining leases, shafts &c &c			24342	19464	22321	20490	13545	12866	17862	24884	The last 6 items may be considered as one account
Total			£30,089	£22,205	£25,978	£25,224	£18,654	£17,250	£21,772	£31,207	

The accounts show that the blast furnaces ran at a good profit at that time but were only a small part of the business compared to the mines. It implies that the company built the Anchor in 1861. It lists the company's ships (John Kelly is a new one) and shows that they owned railway wagons. And it implies that the ore mill first ran in 1864. Strangely, it does not mention the gunpowder works.

Peter Sandbach.

Ropers Row

The 15 new cottages built in 1864 would include Ropers Row by the reservoir at Snipe Ghyll. Their demolition is recorded in Edward Wadham's diaries:

9 October 1903

'In office all morning. In afternoon drove up to Martin to inspect the old cottages at or near "Snipe Gill", abandoned by Harrison Ainslie & Co. and which are to be pulled down. Found Tom Kelly and James Kissock at work pulling them down.'

'Took Dora with me for a drive.
Showery and much wind.'



Site of Ropers Row today. Photo: Peter Sandbach

Comment [11]:

What Goes Around Comes Around

Those whose memory encompasses the Society's 21st Celebrations at Rydal Hall may recall the talk given by Dr Paul Lewis on the problems of mine water drainage in which he showed photos of the enormous pumping equipment needed to keep open the Spanish lead/zinc mines in the later years of the 20th Century. The cost of pumping has become so great that the mines have now closed being uneconomic. Ironically these Spanish mines with their initially low cost production were the cause a hundred years earlier of the closure of much of the Pennine mining industry.

Similarly Coniston copper mine faced fierce price competition in the last 30 years of the 19th Century from both the North and South American mines, whose production was readily transported to Europe by railway and steam ship.

Chile's Los Pelambres Copper Mine



The final blow for Coniston came as the mine worked down to the 205 fathom level where the copper ore became increasingly contaminated with magnetite which the contemporary gravity separation equipment could not remove. Froth floatation technology, which would solve this problem, was still a few years in the future, Elmore's first observation of the basis of the process at Glasdir near Dolgellau did not occur until 1896.

The article below, taken from the Financial Times (30th April 2014) indicates that the New World producers increasingly face a new version of Coniston's end of life problem.

Miners grapple with the problem of arsenic-rich copper

Xan Rice

COMMODITIES NOTE

In the world's driest desert in Chile, arsenic has long been a hazard.

Research published this month revealed that a 1,000-1,500-year-old mummy found in the Atacama region, north of the country, died from drinking water laced with the poisonous element. Today the threat is less to life than to the profitability of copper miners.

Arsenic is often found alongside the red metal on the west coast of South America, home to the world's largest copper reserves. Until recently mining companies there chose not to develop

copper deposits containing high amounts of arsenic, in favour of the abundant cleaner operations.

But as the large, old mines have become depleted, some arsenic-rich sites are being exploited. They include Toromocho in Peru, which is owned by the Chinese state-owned group Chinalco, and Codelco's Ministro Hales project in northern Chile. Both are important sources of new global greenfield copper supply.

The new flow of "dirty" copper concentrate is a sign of declining ore grades globally, and presents fresh challenges for the industry in that the material cannot be sent direct to smelters.

Delays in processing this concentrate have resulted in stocks increasing and a rise

in treatment and refining charges.

Arsenic presents health and safety risks for the smelters that refine copper concentrate, the most basic copper product. Most smelters will not process material containing more than 0.5 per cent arsenic.

Indeed, China, the world's biggest copper consumer, will not allow the import of concentrate with arsenic levels above this threshold.

At Toromocho efforts to reduce the arsenic content from more than 1 per cent to 0.7 per cent during production have cut the copper grade in its concentrate from an expected 26 per cent to about 22 per cent, according to Macquarie.

Even then the arsenic content remains too high

for import into China. The solution is to mix the concentrate with cleaner material from another mine, reducing arsenic levels.

This usually involves selling the dirty concentrate at a discount to traders such as Glencore and Trafigura, which through their vast supply networks also have access to cleaner stocks. The traders then blend the material and sell it to smelters.

At Ministro Hales engineers have built roasters to try to capture some of the arsenic before sending the concentrate for smelting.

But this is a costly and tricky procedure, and some of the output has had to be blended in the open market.

The arsenic problem is not only affecting new operations

– some existing mines are encountering higher arsenic levels as they exploit marginal sections of their deposits.

Nor is the problem confined to South America, with Chinese miners also facing arsenic challenges.

As a result cleaner concentrates, which attract much lower treatment and refining charges, are increasingly sought after in the market.

"Many of the new mines and projects have slightly weaker characteristics than those of the past," said Vivienne Lloyd, analyst at Macquarie.

"That's why they were not brought online sooner." *The Commodities Note is a regular online commentary from the Financial Times*

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