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The Newsletter of the Cumbria Amenity Trust Mining History Society

The shaft in Emanuel level, Caldbeck. Photo by Mark Hatton.

No. 148 August 2022

Cumbria Amenity Trust Mining History Society
Newsletter No 148, August 2022.

New Members
Paul Moore, from Ingleton. Paul is a freelance outdoor instructor and an active member of the Cave Rescue Organisation.

Membership fees.
Although the Society is financially stable, administration costs ought to be covered by membership fees. At this time the basic membership fee does cover costs and will remain at £10 for next year. Costs of materials and postage charges for the newsletter have increased substantially, and the annual charge to members for printed newsletters delivered by post will increase to £20 for 2023. Renewal will become due in November and forms will be sent out with the November newsletter

Forthcoming meets
Midgeholme Coal Mines Sunday 7th August
This coal field stretches from Brampton nearly to Alston and is an area not previously visited by the Society. It will be a surface walk, Alston around Midgeholme, led by Clive Seal who is an ex-coal miner from Alston. There is much of interest, and it is where Stephenson's famous railway engine "The Rocket" ended its working life hauling coal. Meet near Midgeholme CA8 7LY. Grade Easy. Contact the CATMHS Facebook page or Warren Allison 01228 523923

Nenthead underground and social weekend, 3rd & 4th September. Details to be confirmed
In conjunction with Nenthead Mines Conservation Society (NMCS) a weekend of trips is being planned along with a barbeque on Saturday night. Visit on both days, one day, or just the evening.

Bunkhouse accommodation is available at
The Assay House, admin@nentheadmines.com ;
Mill Cottage, millcottagebunkhouse@gmail.com
Haggs Bank Bunkhouse, info@haggsbank.com.

Guided trips will include Middlecleugh, Barrons Sump and Pickerings Rise led by Leif Andrews, a moderate SRT trip which covers some of the less visited parts of Smallcleugh, and the Ballroom Flats in Smallcleugh Mine, led by Nick Green. This is where on the 2nd September 1901 28 members of the local Masonic branch held a grand dinner in the flats.
Guided meets must be pre booked.

This weekend is still under preparation. For more details check the CATMHS Facebook page, email leif_andrews@hotmail.com .

Eagle Crag Mine, Patterdale- Sunday 2nd October
Warren Allison is leading a trip to this gem of a mine with some of the best remains in Cumbria. It is a relatively large lead mine and not much known of its history, but it is ancient and rarely visited. Most of the walk is easy, but a steep climb to the upper workings. There will be some underground Meet at the King George V Playing Field, Grisedale Bridge, Patterdale. CA11 0PJ. Contact the CATMHS Facebook page or Warren Allison 01228 523923

Lucy Level, Greenside mine, November
A meet is to be arranged to view new ground at Lucy shaft. Date to be arranged. Check out the CATMHS Facebook page,

LDNPA Annual Conference
This year's annual Archaeology in the Lake District conference will be held on Saturday 8th October at the Percival Lecture Theatre, Ambleside Campus, University of Cumbria. The programme will be available in mid-August, when booking will open.

NAMHO 2023
Planning is continuing apace for the NAMHO conference we are hosting between 7th and 10th July 2023. Our venue (Grasmere Village Hall) is booked, as are the caterers and bar. We will not run out of beer.

The list of trips is in good shape, with nearly enough volunteer leaders / helpers. A few more would be greatly appreciated. We plan to run trips on Monday 10th to a number of working quarries, and arrange one or two more trips afterwards for those who plan to stay in the Lakes a little longer.

We publicised the event at this years conference, primarily to suggest that potential attendees book their accommodation as soon as possible if they are not planning to camp (as we are hoping to offer a camping option as part of the conference package). The information was well received.

There is an activity underway to design a logo for the conference which we will use on the website, promotional material, and polo-shirts for helpers. We have started working with Peter Claughton to organise the lecture programme, with Peter making some excellent suggestions regarding how it should be done.

Chris Cowdery.

Request for photos to display at the Conference
We are putting together a slide show for next year's NAMHO conference. This will just be a continuous loop of images that people can watch whilst eating – so nothing too off putting. Now this isn't very urgent since we have almost a year but if you could bear this in mind and let me have some of your good images for inclusion that would be great. Ideally they should either be good underground shots or ones which show significant underground discoveries. I would like the focus to be on underground. I am not bothered how you send them, email, CD, in the post, file transfer etc. If posting our address is:-

Hen Dy Gwydyr,
Penrhyndeudraeth,
Gwynedd, LL48 6RD

Email: Jonknowles1@btinternet.com

Please could I have all submission by the end of February 2023. Jon Knowles.

NAMHO 2022

The NAMHO conference for this year was held at Grosmont over the weekend of 17th - 20th June. It was hosted by the Cleveland Mining Heritage Society supported by the York Caving Club and the North York Moors Caving Club. It offered the usual range of walks, lectures and underground trips. Your correspondent mainly indulged in some excellent surface walks along the foreshore around Whitby enjoying the geology. The exposures show jet, ironstone, sandstone and alum, which have been mined or quarried across the moors. A visit to Hutton Lowcross Jet Mine was the highlight of the weekend, mostly because it was the only jet mine he's ever visited. They are remarkably pleasant.

An excellent writeup of the event can be found here: https://darknessbelow.co.uk

Chris Cowdery.

NAMHO 2022 Grosmont – a personal view

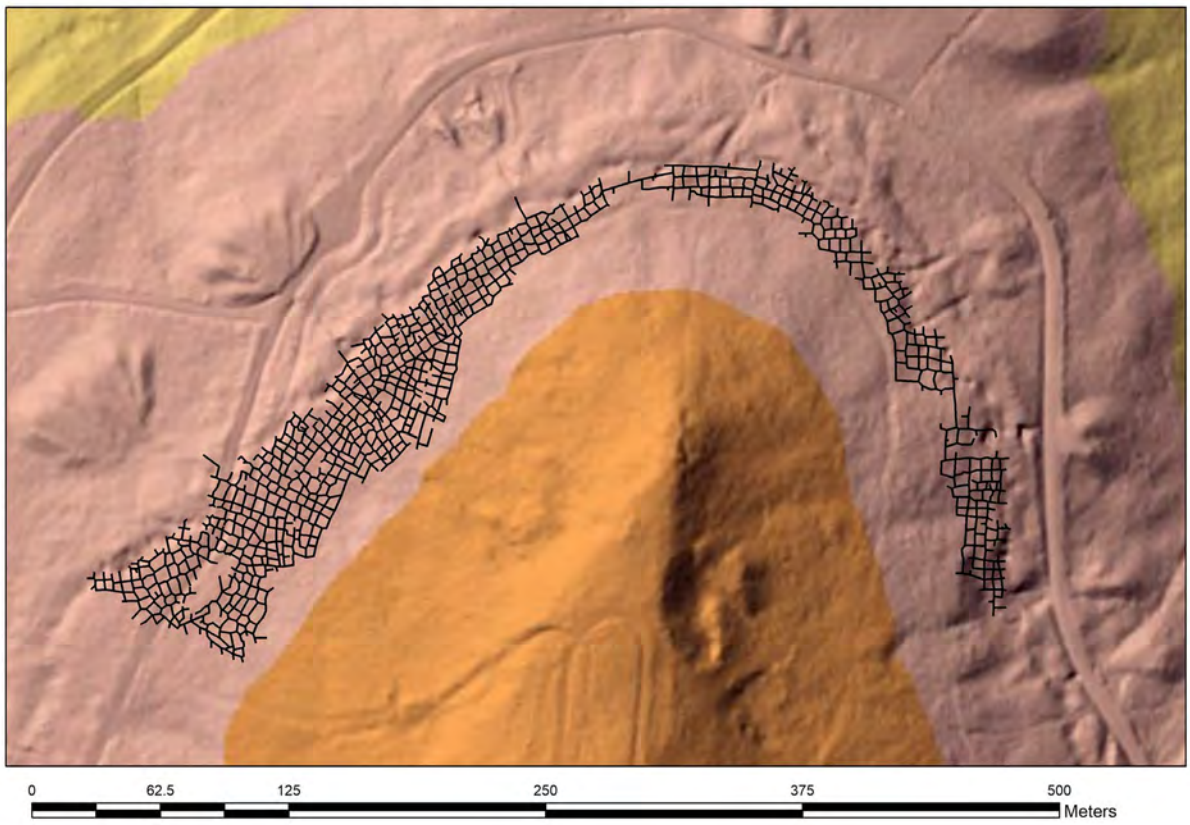
Jet Mine

Jet is a material derived from drift wood (the widely held belief that the wood is from the *Araucaria Araucana or the monkey puzzle is unproven)* which during the Jurassic geological period became subject to high pressure and temperature additionally being impregnated with hydrocarbons from the surrounding strata. The North York moors are a wide area of virtually uniformly horizontal strata with well-defined banding. In broad terms from the surface lies an initial band of sandstone rocks which cover the alum shales (approximately 60-70 metres thick) below which lie around 10 metres of the Jet Rock band. Along much of the coast the alum shales were exploited from the mid 1600's to produce alum (hydrated potassium aluminium sulphate) used as a mordant in the textile industry. Additionally the same shales were exploited for concretions in the uppermost shales used to produce hydraulic cement.

The Jet Rock subdivides into a set of idiosyncratically named bands from top to bottom the Top Jet Dogger, Curling Stones, Whales Stones and Cannon Balls. The Top Jet Dogger is important to jet mining because it is continuous and forms a competent roof which can be excavated up to safely. The Victorians encouraged by experience in the Scottish shale oil industry attempted the retorting of the Jet rock but only achieved a yield of about 24 gallons of oil per ton of shale which was uneconomic even with very cheap coal.

Jet Rock outcrops all along the coast and at many locations inland where water has incised the landscape. Just like Wad in Borrowdale the random distribution of jet means no prospecting from the surface is possible Since the shales are relatively soft exploitation involved little more than shovel, pick and wheelbarrow. Normal extraction involved driving an adit in at the base of the Jet rock, one man using a fine pointed pick, a second man barrowed the material out and a third sorted through for the actual jet (up to 125mm thick and 1800mm long) . Adits were only driven until the shale became too hard, normally no more than 100 metres. Once this had been done work recommenced outbye taking down the roof and forming a working platform until the Top Jet Dogger was reached. Lit by candles, little timbering if any was required and no explosives, making this an ideal enterprise for those with little or no capital. The continuous fluctuations in fortune of the ironstone mining companies in the area provided a ready supply

of trained miners. The Jet was purchased by touring dealers who operated as the interface between partnerships and the Jet workshops which produced a wide variety of jewellery and artifacts.



This amazing survey superimposed on a Lidar image illustrates the actual Jet mine visited during NAMHO 2022. It clearly illustrates the limited penetration of the adits into the hillside and the additional adits driven to provide ventilation as the working extended round the hillside. The scale at the bottom indicates the complexity of the workings, and the possibility of getting lost.

Our hosts the Cleveland Mining Heritage Society were acutely aware of the problem and had strung a rope to define the route along with dividing the group so that each guide had three delegates with them. Given the method of working from bottom upwards it's not remarkable there are few if any artifacts, that progress is tortuous and with every step loose shale is liable to fall down ones neck. On the other hand the mine was pleasantly dry. Interestingly some areas appear to have been excavated following conventional methods with straight adits while most areas are chaotic. Of course the random nature of the deposits meant that if Jet was encountered in the side of a straight section then excavation had to follow the Jet.

Altogether this was a completely fascinating experience wholly new to the author. The rest of the conference was excellent and the organisers especially Chris Twigg who provided the survey are to be congratulated on splendid organisation and very hard work.

John R Aird

Mines Forum, April 2022.
The last Mines Forum took place in February 2020, not long before Covid put a stop to such gatherings. After a gap of more than two years, this Forum was held remotely on Teams, organised by Eleanor Kingston of the LDNPA.

Present: Eleanor Kingston (LDNPA), Jamie Lund (National Trust), Liz Withey, Peter Bardsley (Environment Agency), Alistair Cameron (Coniston History Group), Nick Cox (Coal Authority), Andrew Davidson, Peter Owen (Historic England), Mark Simpson, Ian Matheson, Warren Allison (CATMHS), Donald Angus, (Honister & Threlkeld) Peter Claughton (NAMHO).

Due to the time elapsed since the last meeting there were no matters arising.

Management plans
Force Crag mine. Jamie Lund reported that the plan had been completed in 2020 by Archeo-Environment during Covid, when remote working was developing. Staff changes caused frustration and delay. The aims were to understand challenges in the wider context of Coledale Valley, considering not only conservation of mining remains, but also climate change, tree planting, grazing, water quality, nature recovery, etc.. There had been consultation with Cumbria Wild Life and the Commoners. The plan was accepted by all the partners except Natural England, who were challenged by considerations of grazing and management of sheep. The National Trust worked to try to complete but without the approval of Natural England, so it could only be a draft plan. If agreed in principal then actions can move forward.

Greenside mine. Eleanor Kingston reported that there had been funding available through the Covid-19 Heritage at Risk fund to commission Archaeo-Environmental to produce the Greenside Management plan. Publication is imminent and it is to be presented to the LDNPA Programme Board in June to be be implemented over a ten year period.

Greenside mine smelt mill.
The smelt mill building at Greenside had been purchased and a planning application for conversion to three holiday les had been refused but passed on appeal. When the Greenside mine site was scheduled the land was included but the actual building was not, so local planners had no control. Despite approaches by Eleanor Kingston, the new owners would not engage and have shown no sympathy for the archaeological heritage of the building. They have ripped out the 1825 reverbatory furnace in the cellar by removing material and have created a doorway through the wall. Nothing could be done to stop this. Installation of drainage and electricity may cause more damage to the scheduled site. Consent is required for anything outside footprint of building, so the septic tank may be illegal and could be challenged. Consent of LDNPA will be required for any garden or landscaping of surrounding area. Discussion followed about how to prevent similar planning mistakes in future.

Updates
Coniston Old Man slate quarries. Alistair Cameron gave an update on the project which had started in 1995, supported by the Heritage Lottery Fund and the Nationwide Building Society. It is now a local community project in conjunction with LDNPA. They intend to install interpretation panels and to stabilise various structures including the Low Water powerhouse.

Progress had been delayed due to the pandemic but the interpretation had been designed. However, the contractors who had provided quotes for the conservation work had gone out of business and alternatives are proving hard to find. Eleanor Kingston noted that the conservation was the most important part, planning permission would be required for the interpretation, and all of it would need grant funding.

Force Crag mine. Jamie Lund reported that recommendations of the Management Plan were being picked up as an examples of best practice. They are discussing how to preserve buildings originally intended only to have a short life. A Durham University student is undertaking a project regarding the future use of the office building, which might be developed as a research centre. Liz Withey commented on the proposed Environment Agency sampling programme, as additional funding had been granted.

Nick Cox (Coal Board) reported that the proposed metal mines limits coming for lead, zinc, arsenic, and copper means that additional funding had been granted, stable for the next three years, so longer term planning can be envisaged. There is a possibility of work being carried out on Level 3, which was parked due to no funds. The treatment ponds have been very effective and work above their designed capacity.

Yewthwaite mine. Spoil is eroding onto adjacent farmers land. Liz Withey commented that Yewthwaite was near the top of the agenda on the proposed Environment Agency sampling programme.

Greenside. Repairs to the footpath to Red Tarn were about to commence and an application for scheduled monument consent had been granted for the leat crossing the footpath, which will be protected.

Greenburn and Tilberthwaite mines.
Liz Withey reported that the Rivers Trust had been doing a lot of work over the last two years on the Pearl Mussel, in conjunction with the Environment Agency. There are concerns about water quality in Little Langdale. There are issues of copper and the Impact of sediment. Sampling has been carried out and pollution detected from Hawkrigg and Penny Rigg. Options were being worked on for the catchment to improve Yewdale Beck to reduce spoil and metals getting into the water.

It was agreed to invite the Rivers Trust to the Mines Forum meetings.

Threlkeld mine. Liz Withey reported that funding problems which have caused delays have now been resolved, so work is to go ahead. The culvert work has been completed. A planning application for the treatment plant was due in the next few months. Ocherous sludge needs to be removed at the adit mouth and Nick Cox commented that a footbridge was needed for access for sampling in the level.

Slate Quarries. At Honister the visitor operation is thriving and the mine progressing. They are working downwards on Kimberley towards No.4 level.
Blue Quarry Coniston. Alastair Cameron & Co have been trying to get into No.1 level, which is blocked.

Recording. Mark Simpson & Mike Mitchell have made 3D recordings of the recently disused buildings at Elterwater quarry. Kirkstone Petts Quarry had been recorded by drone just before demolition. Eleanor K would like copies for future planning.

NAMHO
Warren Allison gave an update on the 2023 conference which CATMHS is organising.

CATMHS Publications.
Warren Allison commented on the recent Red Earth Revisited publication. Ian Matheson reported on his Historic Photographs of Coniston Copper Mines book. CATMHS Journal 7 is in progress and will be launched at the CATMHS AGM in December.

Cumbria Geoweek
Warren Allison gave an update on the project which will take place from the 7th to 15th May, organised by Tullie House in Carlisle as part of a national programme to get people engaged in Geology. CATMHS will provide photographs of mines to complement a mineral display at Tullie House Museum, and will offer a guided walk to Goldscope Mine, a talk on the Wad Mine and will assist an event at the Ruskin Museum by leading a walk to Coniston Copper Mines. CATMHS will also assist the National Trust with the tours of the mill at Force Crag Mine, and at some date will include a training day for the volunteers.

Historic England grants
Eleanor Kingston reported that grants were available from Historic England from £3,000 to £25,000 and in conjunction with Warren Allison would put a bid together for some small-scale interpretation for Greenside Mine, to be submitted by the end of May.

Other Business.
Alistair Cameron commented that the last private slate mining industry, High Fell mine at Tilberthwaite, had closed down recently. Mark Simpson asked what would happen to the buildings there. Nothing known, but EK suggested that they should record them now.

Liz Withey reported on the Environment Act confirming the long-term target to reduce metal contamination in rivers by 50% by 2035. A post has been created to establish a National Sample Program. The Agency would be looking at areas such as Caldbeck, Rachel Wood Mine, Bootle, etc. which would need sampling and they would be asking for background information.

The Buttermere Mines survey had been postponed until the autumn.

Jamie Lund thanked the group for information on case studies which assisted in the recording of newly discovered workings as a Cobalt Mine at Alderley Edge, which had been abandoned since 1890 with machinery and artefacts in place. The NT intends to preserve and record it.

Next meeting.
The next Mines Forum is expected to be on 4th October, a face to face meeting at the LDNPA Office at Kendal.

Cumbria Geoweek
CATMHS was asked to help with Geoweek, as announced in the previous newsletter, and this is a report on the events it helped with.

Tullie House exhibition
The museum decided to have a cabinet in the entrance to the museum with minerals from mines, which would probably not be duplicated by other museums. It was suggested that the display could be enhanced by including photographs of the mines from where the specimens came from, and a number were sent to the museum.

Wad mine talk
On a Thursday evening Mark Hatton gave a superb talk about one of his favourite places, "The Wad Mine", which was organised in conjunction with the National Trust.

Walk to Newlands valley
Again, this was in conjunction with the National Trust and led by Mark Hatton, I went along to help which also included a trip to the waterwheel pit. Sixteen people met at the car park not far from Newlands Church, including Chris and Joanne Cowdery, who were up for the week sorting out the arrangements for the NAMHO 2023 conference, and Doug from the National Trust who was helping us. We walked up the track on the eastern side of the valley as this gives the best view of Goldscope Mine where Mark described the workings and history.

Carrying on up the valley various other mine workings were pointed out before arriving at Castlenook Mine, which, after looking at the dressing floor, we made our way to the site of the waterwheel in a section of the vein which had been mined out.

Following the leat soon brought us to the beck and just upstream we crossed to the eastern end of Long Work which was worked by the Germans along the vein to some depth. At the beck side is a bucking or mortar stone and Mark explained how it was used; he has also found others on the site.

We walked up the side of the open workings and stopped to look at the dry section on the western end which was drained in the 1930's when a level was put in and a hole drilled into the bottom of the workings.

There is a superb example of a gutter which was designed to take water away from the workings similar to those also seen at sites such as Goldscope, Stoneycroft and Hawkrigg Mines.

Then it was over to the fifty ton heap of decomposed copper ore where Mark, standing on top, gave a "sermon" as to the possible reasons why it was there.

Finding a way to cross the beck we arrived back at Castlenook Mine and walked back down the valley, crossing the bridge near Goldscope, where Mark explained the ore processing area from the 1800's when the mine was worked for lead.

Arriving at the entrance to St George's level or Grand level as some people call it, we split the group into two. While one lunched, we took the first group along the level to the wheel pit and then swapped over. On exiting the level, this was the end of the walk, and we made our way back to the cars with everyone commenting what a good day they had had. A huge thank you to Mark for leading the walk and making it so interesting.

Coniston copper mine walk

A group of ten people met at the Ruskin Museum for a visit to the geological part of the museum, followed by a walk to the Bonsor dressing floors and Deep Level entrance. The walk was led by Carolina Goodship from Cumbria Geoconservation with myself giving a potted history of the mines.

Starting in the museum, Carolina gave an overview of the geology before we started up the road to the mine. Along the way she explained the various rocks including the band of limestone which cuts along the valley; the three young children were bashing away at the rocks, finding interesting specimens and asking lots of questions. Stopping at the intake for the hydroelectric scheme, Carolina explained how the Coniston copper mine valley was a hanging valley because at this place there was a very hard dyke of rock which the ice could not remove but was overlaying much softer rock, which is why this place was chosen for the intake.

I gave a brief history of the mine and used old photographs to show what the area was like when it was working. Arriving at the Youth Hostel, we had a look at the information panels which were installed as part of the Coniston Copper Project which CATMHS played a huge part in.

Walking through the upper Bonsor mill we arrived at Deep Level and the end of the walk, which everyone had enjoyed, especially the children, and they had made the day.

Warren Allison

BMC Lakes Outdoor Festival 2022, walk to Coniston copper mines

The British Mountaineering Council organised an event called Lakes Fest, celebrating climbing and the outdoors in the beautiful Duddon valley in the Lake District. Events had been organised for families, experienced and novice climbers, walkers and anyone interested in spending time in a fantastic setting. I was asked if a walk around the copper mines could be arranged as, although not in the Duddon Valley, it added something different to the event.

Twelve people, some local and others from far away, met at the Ruskin Museum on a lovely but windy day. After explaining the route, we set off up the road, stopping at Holywath to explain a bit about its history and then arrived at the hydro intake where, using old plans, I gave a brief overview of the site before stopping at the Lower Bonsor Mill and using old photographs to show what was on the site and to explain about the Coniston Copper Project.

Phil Johnstone on his way to the village stopped for a chat, and I said we would walk through the Bonsor Upper Mill first so not to disrupt the wedding, with Phil kindly saying to take the group onto the platform of the waterwheel.

The route was one that I had done before, through the Upper Mill, to Deep Level, up to Cobblers Hole, lunch at the Old Engine Shaft, over to Levers Water and the Back Strings, down to the Pudding Stone valley, along to Hospital Level, a look into Courtney's Crosscut and back to Coniston.

When we were at the old Engine Shaft two of the group had had to leave for another event, but it was around 4pm when the rest of us got back to Coniston after a very interesting day. For me the best part of the day was when I showed the group a bucking or mortar stone at the Back Strings. The look on the face of one of the group, who was a geologist and had worked in Gold Mines in Africa, gave the impression he had seen these before. He then said, "They are still

used in mines in Africa, where families pay by weight for the ore to be put through the crusher, so they dress it beforehand using this type of stone".

Mortar stone at the Back Strings.

I mentioned this to John Pickin, who has written an article for Journal 7 on mortar stones in the Lake District, and he confirmed what the geologist had said, commenting "especially in what the modern mining industry euphemistically calls 'artisanal mining' - often women and children working in dreadful conditions and forced into subsistence mining to survive".

On the way up the top part of the track to Levers Water we met Carl Barrow suitably dressed in his over suit, helmet and SRT equipment, who stopped for a crack with some of the group, and I had a good catch up with him.

On the following day at the meet to Hartley Birkett Mines, John and I discussed the possibility of having a day up at Coniston just looking and mapping all the mortar stones and spending time to see if there are any more and whether they are in-situ or loose.

Warren Allison

Wlax festival trip to Greenside Mine and Kepplecove Dam

The Walx festival was a series of walks lead by guides throughout the Ullswater Valley and ran from the 6th to 8th May. I was asked by Nicola Sprosan, who organised the festival and lives at Bell Cottage at Greenside Mine, if I could help lead a walk from Glenridding to Greenside and up the valley to Kepplecove Dam. Needing no excuse to visit my favourite place, Liz and I met the group of twelve in Glenridding, where Jean, (75 years old) who was the official guide, gave an introductory talk and then a warmup session. People were from all over the country and all ages; for one couple it was their first trip to the Lakes.

I started by giving a bit of history about the mine, parish and the buildings in the immediate vicinity. Walking out from the car park we soon stopped to learn about the Inn on the Lake Hotel, the Annex attached to it where Charles Darwin stopped with his family for a holiday the year before he died. I explained where the Second World War army camp was in the village and how the army took over Place Fell and Martindale for training, the houses in the lower part of the village which the mining company built, the three schools in the parish before the First World War, etc.

We made our way up the village and stopped outside my grandmother's house which had been built in the early 1890's and now has been in the family for 104 years. The cottages housed up to eight people while the mine was working, no inside bathroom until the early 1980's, and that was the same when we were children going up every weekend.

Stopping outside the Travellers Rest, which the older locals used to call the Jerry as it was only licensed to sell beer and known as a Jerry House. The time in the early 1930's when the

landlady Mrs McGhie was prosecuted for selling spirits to the Hunt Ball using undercover policemen from Workington who got a job at Greenside and watched each night in the pub as to what was going on.

Passing Memorial Cottage which was given to the Parish Council after subscriptions were raised after the First World War to purchase the property from the Marshall Family as low cost housing, in memory of the men from the parish who fought in the war. It is classed as a War Memorial. We wound our way up the hill passing Halton Terrace and the Rakes which were built by the Greenside mine.

Walking along the mine road, I explained about the leat on the side of Birkhouse Moor which took water from the weir at the mine to a No.3 hydro-electric power station at Gillside Farm, built in 1928. It was reinstated in 1992 and is still producing electricity.

We briefly stopped at the powder house, before making our way to the Youth Hostel, having passed Bell Cottage where Mr and Mrs Robinson used to have a sweet shop as a side line when the mine was working. The Youth Hostel was originally built as a lodging shop for the mine and on the side was the Prisoner of War Camp built in 1943 to house Italian POW's. Mum said that she and her friends used to walk to the mine for sweets and see the POWs through the barbed wire fence, but it wasn't long before they were allowed into the village. There were still Italians from the First World War period working at the mine who were not interned but had to report to the local Policeman every two weeks, and it was thought they could talk to the POWs, but they were from different ends of Italy and had a different dialect.

Stopping at the bridge just before the smelt mill and main yard, the underground workings were described using large maps, followed by a brief history talk, and everyone was amazed at the size of the mine,. Time was getting on, so we wound our way up through the remains of the buildings and headed up the valley, once again stopping at the remains of the two lodging shops. I have met people who were children growing up as part of the four families who lived

here while the mine was working, and one lady said that the mill buildings were their playground especially for hide and seek and a brilliant place while they were growing up.

Lunch was had opposite the remains of No 1 power station built in 1890 with the electricity being taken on pylons to the Low Horse level and down the Willie shaft to a chamber near Smiths shaft to power the first underground electric locomotive and winding engine in a UK metal mine. The water was carried in a wood lined leat a mile and a half from Kepplecove Tarn.

The concrete dam soon came into view, but this is not the one which burst in 1927. There was a natural tarn known as Kepplecove Tarn just round the corner, In the mid 1800's the company drove a tunnel through the bottom of the moraine and installed a valve so the water could be controlled. There are postcards which show water in the tarn and a tide mark clearly visible. When it was known that a storm was due, the water levels in the reservoirs were deliberately drawn down, but on the 28th and 29th October 1927 a violent storm put down 3.38 inches of rain in 12 hours with most falling in a short space of time which filled the tarn. Ninety miles per hour winds then whipped up the water into waves which cut channels in the moraine, and around 1.30 am the front collapsed, emptying a nine and a half acre tarn in less than half an hour. The water rushed down the valley flooding parts of Glenridding and washing debris onto the other side of the lake.

The debris in the village was cleaned up, but the mine was short of electricity, so work started in 1928 to build the concrete dam and was finished in September 1929 at a cost of £10,844. However, during the night of the 19th and 20th August 1931 during a period of storms and heavy rain which lasted two days, the foundations of the dam gave way and once again flooded Glenridding but not to the same extent as before.

Drone image by Liz Withey showing the breach in the tarn above the sheepfold and the concrete dam with spillway to the left and the breach in thebottom right-hand corner.

Crossing the beck, we wound our way down the fell to No 1 power station before returning to Glenridding. Warren Allison.

Mysterious Mine Plans part 2

The Mysterious Mine Plans article in the last newsletter finished with a plea for help in identifying a mine plan. An image was shown of one sheet from a stack of twenty two transparent mine plans which were clearly horizontal sections of the same mine. The location of the mine in question wasn't known, but the plans were part of a collection which were identified as Haile Moor. Bob Mayow got in touch and suggested a meeting with Gilbert Finlinson, owner and manager of Florence Mine at Egremont.

"Sunk in 1914, it was worked with the Ullcoats mine from 1917, until it finally closed on 13th September 1968, following nationalisation. Beckermet Mines (part of the British Steel Corporation) took it over in 1969, pumped out the water and linked it to Beckermet Mine. They drew ore up Beckermet shaft for Workington steelworks. However, as part of a rationalisation process, the British Steel Corporation closed the mine on October 3rd 1980.

A number of redundant workers from the mine invested their redundancy payments in the pit and re-opened part of the underground workings – as the Egremont Mining Co., to make the pit the last deep working iron ore mine in Europe. Unfortunately, Florence was finally forced to closed in 2007 due to the cost of pumping; British Nuclear Fuels Ltd, who had been paying the pumping costs as part of a deal whereby they were allowed to extract water lower down the river, no longer required the water and ceased their support." [1]

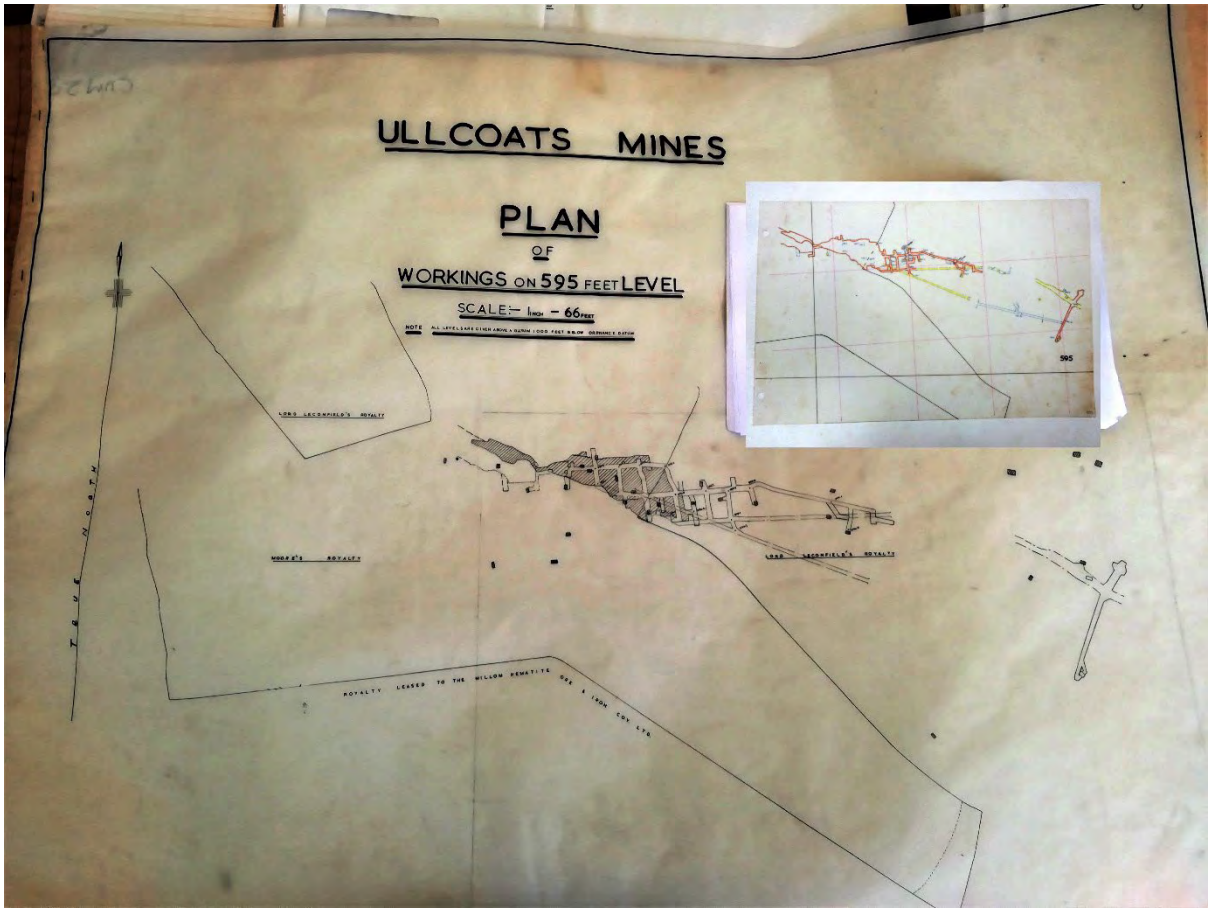
Said meeting was arranged for 19th May, and was attended by Chris Cowdery, Bob Mayow and Ian Matheson. After formalities, Gilbert (now 86) showed us the 3D model of Haile Moor and Beckermet Mines. It is hard to do justice to the model with a quick photograph as can be

Chris Cowdery and Gilbert Findlinson examining the 3D model

seen! The model shows all of the boreholes sunk prospecting for ore (most of them found none), and the extent of the various orebodies, shafts and driveages. It is a happy coincidence that the first group of mysterious mine plans are the same mine as the model.

Chris showed Gilbert copies of the twenty two unidentified plans, but he could not immediately place them. Gilbert has amassed a large collection of mine plans, the assembled party enjoyed viewing some of them.

By complete chance, when Gilbert opened his vertical plan chest, it opened showing a plan immediately recognisable to Chris as having the same surface boundary as the unidentified plans. However, Gilbert's plans were marked as Ullcoats, thus identifying the final set of mysterious mine plans. Furthermore both sets of plans showed the same vertical references (595 in the image) With all of the plans now identified, the intention is to have them all scanned (via the BGS), and transferred to the Whitehaven Archive Centre.



Whilst examining the plans, much discussion ensued regarding the long term recording and preservation of the collection. Gilbert was willing to allow CATMHS to firstly catalogue the collection, then seek to arrange on-site scanning of the plans. This will be arranged in due course - if you are interested in helping this project, please let myself, Bob or Ian know.

Chris Cowdery

[1] https://www.nmrs.org.uk/mines-map/iron-mining-in-the-british-isles/cumberland-furness-iron-mines/florence-mine/

Borrowdale exhibitions

Lorraine and Kevin Crisp have been involved in an exhibition put together by local people on life in Borrowdale which is exhibited at Grange Church, with a second one on mining and quarrying at Stonethwaite Church. Liz and I went to have a look, and what a wonderful exhibition which is a great credit to those who put it together. We first went to Grange which is mainly non-mining related but very interesting, before going to Stonethwaite Church.

The exhibition there covers all the mines and quarries in Borrowdale from the well-known to the obscure, and is just a wealth of information. There is text explaining the history along with photographs, some modern and some when the mines and quarries were working.

This is a superb exhibition and a great credit to those who were involved in collating and putting the information on display. It was also nice to see recognition of the Society through its members who contributed to the exhibition.

There was so much to see we are going to have to go back. If you happen to be passing Stonethwaite, do go and have a look, there is a car park outside the church.

Warren Allison

Mining Exhibition Launch!

3pm 4th September 2022 at St Andrew's Church Stonethwaite

Tea and Cake and a bit of fizz to celebrate the launch of the Borrowdale Story Mining Exhibition

The exhibition is an extension of the exhibition at Grange Methodist Chapel and is an ongoing project for both the community and visitors.

Well worth seeking out St Andrew's Church in the hamlet of Stonethwaite in Borrowdale. This is a very beautiful place - but go inside to find a superb display of Mining History of Borrowdale and The Derwent Fells. You need to allow an hour or more to absorb the wealth of illustrated mining history here. These valleys and hillsides can claim to be the cradle of copper mining in Cumbria, alongside extensive Lead, Graphite, Iron and Slate workings spanning many centuries. The display makes up a comprehensive and highly enjoyable account of this rich mining history. A brilliant job that deserves to be enjoyed by all those interested in mining history.

Mark Hatton

The Borrowdale Story is a local group that seeks to build community in the scattered hamlets of the Borrowdale Valley and to enhance the experience of the visitors who travel to this part of the Lake District. The group was established after a successful exhibition of local history at The Borrowdale Hotel and from there an exhibition in the old Methodist Chapel by Grange Bridge was begun. The group has funded slate information signs along walking routes, developed pamphlets and panels relating to various aspects of valley life, recorded valley voices, and organised events in The Borrowdale Institute in Rosthwaite.

I had long felt that the impact of mining on the valley was undervalued, and that most casual visitors might think this place was all about cake and sheep. In 2019, this desire to preserve the memory of Borrowdale as a place of industry coincided with a desire to improve St Andrew's Church and make it more visitor friendly. The church lies on the coast-to-coast path and although it is tucked away off the Stonethwaite road there are many visitors. The Borrowdale Story agreed to produce an exhibition as part of this enhancement and as an expansion of the work at Grange Chapel.

We've been slightly delayed by the pandemic but now were ready for an official launch. We've removed two rows of pews, installed better lighting, carpeted, and furnished the space, hung notice boards and installed two fifty-page wall books that contain information designed to appeal to a variety of minds.

Mining in Borrowdale is primarily a community project which pulls together information and local knowledge about mining and related industrial activity in the Valley. These activities have had a profound influence. Some activities are ongoing, but most ceased many years ago, leaving behind a footprint which is increasingly easy to miss.

The project is designed to be organic, with the hope that locals and visitors will feel inspired to contribute their knowledge and support to this shared repository. Above all, the objective is to share information and to allow anyone that is interested to better understand the importance of the Borrowdale Valley as a place of industry as well as of farming and hospitality.

The purpose of the exhibition is two-fold:

- **To understand how mining and industrial activities impacted the natural environment of the Valley and facilitate interpretation of the landscape.**
  We have described the geology of the valley and provided a simple explanation of the origins of the rocks and minerals. The physical features of each mine and any associated activities are explained so that people can look out for the various features as they move through each area.

- **To understand the different ways in which mining activities provided employment for Valley folk from earliest times to the present day.**
  We have displayed photographs, records and stories of miners and their families.

If you think you have anything to add then we would be delighted if you could share it. We can take copies so that you can keep the original. Contact Lorraine Crisp or email: borrowdalemining@gmail.com Lorraine Crisp.

Greenside Mine. 70th anniversary of the 7th July 1952 accident

As reported in the last newsletter this year is the 70th anniversary of the accident at the mine when four men were killed, the most at one time in the two hundred years it was working.

I asked the vicar at St Patrick's Church if he could dedicate part of the service on the 10th July to the accident, which he was very pleased to do. I contacted relations of Richard Mallinson and George Gibson who said they would attend.

Patrick Leo Mulryan (known as Leo)

Patrick was known as Leo, son of Mrs and Mrs J Mulryan from Tattygkeel, Clariaboggan near Omagh in County Tyrone.

After being a regular soldier he came with his brother Tom in the 1930's to work underground at the mine. During the Second World War he served in the Merchant Navy.

He also had two other brothers Edwin and Kevin and two sisters (names unknown). He married Elizabeth Ellen and had a son Terry and at the time of his death was living at Browfield in Glenridding.

Richard Mallinson (known as Dick)

Dick Mallinson was born at Soulby near Dacre and worked on the family farm at Pooley Bridge before going to Greenside the year before the accident. He married Elsie Elizabeth and had four children Elaine, Richard, Philip and Christopher.

He was in the Penrith Company of the 4th Battalion, The Border Regiment T.A. and was called up on the outbreak of the Second World War. He was taken prisoner at Dunkirk and was a Prisoner of War for five years.

The family were living at 4 Middle Rake.

Dick was posthumously awarded the Edward Medal.

John Miller

John, known as Johnny, worked at the mine as an electrician.

His father Thomas came to work at Greenside from Wanlockhead in southern Scotland when the lead mines there were closing and initially lodged at No 11 Stybarrow Terrace. There were four children in the family, Johnny, Andrew Neave, Margaret and Jessie.

Johnny fought in the Navy during the Second World War and married Iris Mary Constance.

He played football and cricket for Patterdale.

Johnny and Iris lived at the White House opposite the Travellers Rest then known as the Jerry, and had two daughters Shirley and Barbara. Barbara was only six weeks old when her father died.

Johnny was posthumously awarded the Edward Medal.

George William Gibson

George worked in the processing mill at the mine and originally came from Keswick. He had a brother James Williamson and sisters Violet, Mary Jane and Ethel.

George served in the 2nd Battalion, The Border Regiment and fought with the 14th Army in Burma during the Second World War.

He was unmarried and at the time of his death was lodging with Mr and Mrs H Taylor at No 8 Browfield in Glenridding. He went there for two weeks while his sister Violet was on holiday but ended up staying.

He played football and cricket for Patterdale.

George was posthumously awarded the Edward Medal.

The vicar and I worked on the memorial which he asked if I would read out at the service and a bibliography on each man which he would enclose in the service sheets.

On the evening of the 6th I placed flowers on the three graves at St Patrick's churchyard of George William Gibson 35 years old, Richard Mallinson 34 years old and John Miller 29 years old, Leo Mulryan 40 years old the fourth man is buried in Penrith Churchyard and I haven't found his grave yet.

Graves of George, Richard and John

The 10th July arrived and what a beautiful sunny day it was, I went to water the flowers and on the way back to the church met Elaine and Philip who were two of Richard Mallinson's children, as well as Owen Lewis, George's nephew and members of his family. There were people in the church who had come for the memorial service, and once it started I was getting nervous thinking about reading the memorial. I soon realised that the vicar had set the tone of the service around the accident, and he had put a huge amount of work into this.

Reading the memorial got emotional as I had two uncles and knew others who had been in the mine that day. At the time of his death George was lodging with my Aunty and another uncle who also worked at the mine. After the service everyone went to the adjoining room for a cup of tea, and it was lovely to see the people who knew each other from that time meeting up and chatting for the first time in many years.

I did put a post about the accident on the Facebook page "I love the Lake District" to show people there is another side to this beautiful area and the sacrifices people made. It has had close to 500 "hits" if that is the right word, but Elaine Mallinson made the following comment on the Facebook page which I think sums up the service:

"Thank you, Warren for your contribution for today's service and for attending the graves. It was a day to cherish".

"It was a beautiful service, quite emotional. It was nice to meet people we knew in our childhood; even more surprising they recognised us. I have to comment that the vicar delivered a beautiful service all tied into courage, heroism and unselfishness".

Warren Allison.

Remedial work on the Greenside emergency escape route.

Followers of Facebook may have noticed some of the exploits of a small team of members from the Furness area but will not have been aware of some work going on behind the scenes to restore the Greenside emergency escape route so that it is safe for an emergency evacuation from the Lucy Tongue level, should it ever be required. In late 2021 we were joined by a friend from outside of the Furness area (exceptions are sometimes made) to form a team of four and went on to successfully achieve our goal of exploring Force Crag from level 1 to level 6 over a few trips during the winter months. We subsequently turned our attention to finding a new challenge in an area that we haven't explored much. Carrying out remedial work on the emergency escape route at Greenside fitted the bill, since it was interesting work that needed to be done and it was a way to put something back into the Society.

The emergency escape route at Greenside was cut through by the end of 1954 and work was underway to equip the route as a permanent travelling way. Wooden ladders were made at the mine, but chain ships ladders were also bought from the shipbreakers yard in Barrow, and both were installed (Figure 1). Since the ladders and wooden staging are approaching seventy years old, some deterioration is to be expected, particularly since air flow now occurs from the open Lucy Tongue level. In addition, the *in situ* ropes and hardware, of various vintage, were beyond

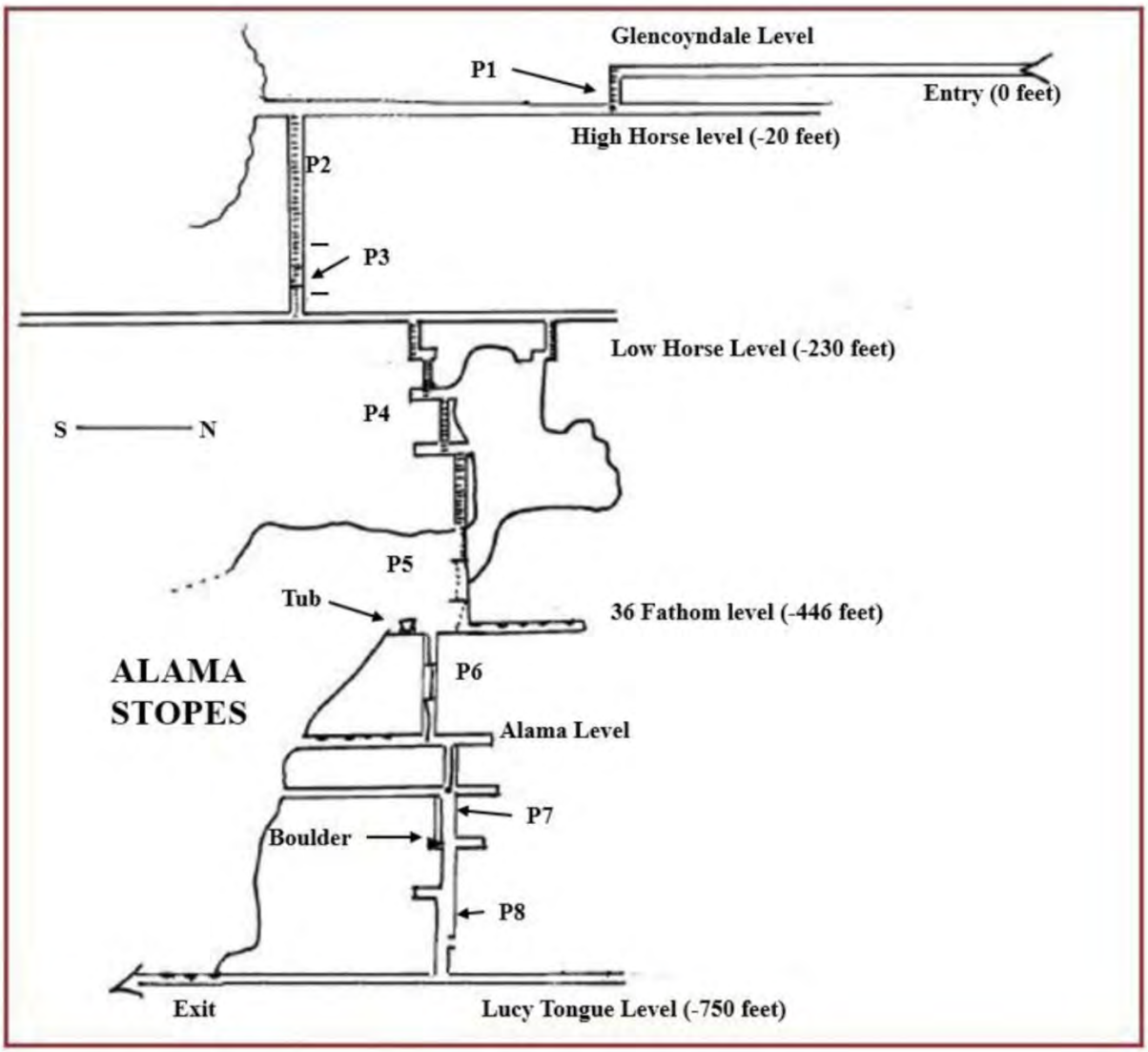


Figure 1: Section through the emergency escape route, taken from CATMHS Newsletter 127

their useful life, and a 2017 report (by John Aird in CATMHS Newsletter 127, May 2017) noted that remedial work was required. A proposal was made to the committee and ultimately it was agreed that CATMHS would pay for the consumables used in the project.

From the outset the aim has been to provide a safe route for either self-rescue or rescue team access and egress. Therefore, it was important to provide longevity of materials. To this end suitable stainless steel components have been chosen and the route is being rigged for single rope access to minimise reliance on the ladders, which might be expected to slowly deteriorate over future decades. Any loose debris and severely degraded timber is also being removed as the work progresses, and additional support added for the ladders where it is needed.

Good progress has been made over the course of three work trips, but there is still plenty more work planned before the project can be considered complete. Currently the area beneath the boulder is not safe to access due to the detachment of a thin scab of rock (in addition to the boulder). However, a plan is already in place for size reducing and removing this so that the remedial work can be carried out on the rest of the escape route. An update will be provided when the emergency escape route has been re-established.

Rob McClymont, Tracey Binks, Carl Barrow & Chris Little, July 2022.

Top of P2

Top of P3

Hartley Birkett Mine meet
Present; Warren Allison (Meet leader), David Young, Ormonde Joel, Rosie Lord, Derek Mitchell, John Pickin, Robert Gurr, Angus Gurr, Dave Lund.

The meet was to visit the ancient lead and copper mines near Hartley, which is half a mile from Kirby Stephen, an area not previously visited by the Society.

This brief overview of the written history is from Mines of the West Pennines, British Mining No. 91 by Richard Smith and Sam Murphy.

The earliest record of mining is in a declaration of 1331 by Edward 111, ordering the appointment of Robert de la Forde and Richard Campion to search for a mine of silver and lead reported to exist in '*Mynerdale and Silverbek*', Cumberland and in '*Harcia*' Westmorland. The locations of Mynerdale and Silverbek are unknown but are thought to be in the Caldbeck Fells; however, Harcia or Hartley is certain. It is possible that an earlier declaration by Edward 11 in 1319, concerning a mine of copper and silver at Caldbeck and elsewhere in the adjacent parts of Cumberland and Westmorland, could have also included Hartley.

In 1732 there was a smelting mill in operation and in 1746 '*John Birbeck and George Harker of Harklay otherwise Hartley, yeoman on the 1st of July 1746 did by hushing for lead ore in a pasture called Birkah in the Parish of Kirkby Stephen for polluting Hartlay Town Beck. A true bill; each appeared and was fine 6d*' and '*Presentment John Birbeck of Harkley otherwise Hartley, yeoman, John Langstaff and Jospeh Errington both of the same place, yeoman on 2nd July 1746 polluted Hartlay Town Beck by hushing for lead ore in a place called Harnagill*'

Mining continued to December1771 when it was reported that the lead mines at Hartley had been put up for lease.

The mines were being worked by the Hutchinson partnership in July 1789. Then by Thomas Dickinson & Co. from 1827 but they do not appear to have been very successful as the report states that large quantities of lead ore had been raised many years earlier, and he was waiting until he had enough to be worth smelting.

Between 1870 and 1881 the mines were leased to Henry Pease, who had an interest in several mines in the area. His manager was John Cain and most of the activity seems to have been from 1877 – 79, when two men were employed underground and a total of 17.2 tons of ore was obtained, containing 13.4 tons of lead and 60 ozs of silver.

There is other information available in Ian Tyler's book 'The Mines of Cross Fell and Mines of the Cumbrian Pennines' and Martin Holgate's book 'Hartley: A Westmorland History'.

We met in the main car park in Kirkby Stephen which was free as well. I explained that, not having been to this area before, I had no idea where we were going or knew much about it. However, Dave Young said he had been here before so agreed to help, and he had a proper map. It was decided that we would take the scenic route to Hartley through the town centre and down by the river, soon reaching the village which was just lovely. Walking up the road we soon came to the entrance to Hartley Quarry, owned by Cemex and still partially working. Dave suggested that we had a look at the old viaduct which carried the main line railway from West Cumbria over Stainmore to the east coast.

In the summer of 1850 Henry Bolckow and John Vaughan discovered a seam of iron ore at Eston, North Yorkshire. They opened a mine and the started transporting ironstone to their blast furnaces west of Bishop Auckland. By 1851 Derwent Iron had opened a mine in the area and began moving ironstone to Consett, but the iron ore from Cleveland was high in phosphorus and needed to be mixed with purer ores, such as those on the west coast in Cumberland and Lancashire. So, in the early 1850s, this ore was travelling the long way round via Newcastle and Carlisle from the Barrow-in-Furness area, and Durham coke was returning. A new railway was proposed which would run from west of West Auckland, across the Pennines to Tebay via Barnard Castle and Kirkby Stephen. The route was surveyed by Thomas Bouch who was born at Thursby near Carlisle, and the Company received permission on 13th of July 1857. It opened on the 7th of August 1861.

The line was well known for crossing three large valleys using wrought-iron viaducts at Tees Valley Deepdale, Belah and Smardale Gill. It finally closed on the 20th of January 1962.

The line also had a branch into the quarry and at this junction there is an original building which has some interpretation boards in it. The viaduct is impressive and now serves as part of the coast-to-coast walk.

One of the interpretation panels showing the quarry in the 1940s.

Retracing our steps, we continued up the hill and were passed by three vehicles, Dave Young pointing out that one had a helmet in the floor, and I thought I recognised one of the drivers. We continued, passing the quarry which is huge, until reaching a cattle grid and then turned left along the bottom of the fell where we saw the cars that had passed us parked up at a spoil heap.

Part of Hartley quarry

Arriving at what was called the Deep Level we heard noises in the level, which had been uncovered, and soon a head popped out. The person, on extracting themselves, asked if we were a mining group. to which the response was yes, and he commented that they were on an Earby Mines meet. I said we are organising a joint meet later in the year with your group. It was then that Dave Carlisle, who is well known in the mining world, came out and we had half an hour's discussion on the mines, which proved very useful. He had got permission from the farmer to drive to the site. During this time Rosie, David and Dave decided to have a look at the level, which was approximately 100 yards long.

Dave and the others advised us to walk up to the right and onto the fell, which would take us to the large hush and shaft workings. It did not take long until we reached the middle part of a very impressive hush with numerous shaft workings. There was another smaller hush going off to the west. The main hush had some depth about it and was reminiscent of those in the northern Pennines. We were all over the place by now as we headed for the top of the fell; there were shaft and surface workings all over the place. Robert and I were the last up the fell, where we found someone had made an executive decision to have lunch out of the wind.

Just over the top of the fell and we came to a large dam at the top of the hush with surface workings and shafts all over the place. Everyone agreed that this was a place for a drone. Again, we were all over the place before heading down the side of the hush following a lovely leat. There were remains all over and this had been a place of work for many years and relatively little known about it.

Large hush in the background with surface workings in the middle

Dam with members standing on the front part

Top of the main hush.

Looking down the hush which has shafts along its top edge.

At the bottom of the hush some had already gone across what was now a dry beck to the site of the smelter before Robert called them back to look at the remains of some ancient buildings which were subject of much discussion.

Stopping for a break at the smelter we headed off north up the hill to look at Longrigg copper mine, which consisted of shaft workings and a possible engine house which is now just a pile of stones.

View of the Hartley Birkett workings form the footpath to Longrigg Mine, Deep level in extreme right-hand side, hush running diagonally to the left from the top of the fell and the smelter just below the rock outcrop on the left-hand side

We then followed a track down the fell which was to the side of a long earth work which John had spotted. After passing an old lime kiln and a small quarry we were soon back at the road above the quarry and made our way back to the cars. This had been a lovely day out, so much to see and we will have to go back. Warren Allison.

Coniston Mines Photo meet, Sunday 15th May 2022
Meet Leaders Pete Archer & Liz Withey
Attended by Kevin & Lorraine Crisp, Martin Lawton.
Warren Allison was a late arrival having been involved with a Geoweek walk in Coppermines Valley that morning. Gate crashed by Mark Hatton and Chris Cowdry.

The group met at Walna Scar carpark and took a leisurely stroll up to the workings. None of the attendees had visited these workings before so there was plenty to talk about and show them along the way. Pete was in his element having a passion for Coniston slate, since it was his introduction into Lake District mining.

We soon left the tourist trail behind and followed the fence line past Lower Moss Head and on to the Middle Moss Head workings. Since it was a nice day we stopped for lunch before heading in. Pete had some ideas in mind for lighting so discussions were had. Martin took the opportunity to fly his drone.

We had a request from Alastair Cameron to get a picture of what is known as "the last blast", a pile of rock left in the mine at the end of its working life. Pete knew this and it was our first photo stop. Technically a tricky location with very uneven ground and lots of drips, none of us felt we could do it justice without a wide angle lens. I think we had ranges of 16mm, 18mm and 24mm. Perhaps I should have tried the GoPro at 10mm.

The next location was the wooden water tank, still holding water. I had wanted to light this for some time and I brought a small waterproof light on a selfie stick which was adequate and fun to play around with.

The main event really was further along the tunnel in the large chamber. We were aware that there were people up in Spion Cop from the lights. Pete set off to light the back of the chamber with some powerful video lights. This really is an epic space to try to capture.

After this point we were all starting to feel a little cold so headed back out into the sunshine and to look at the surface workings. Warren was due to join us by this point though his walk had predictably run over time. Martin, being a fairly new member of CATMHS had understandable many questions for us, one being about the website and mine plans. We suggested that if he struggled he should contact our webmaster. Just below us, two figures appeared, not Warren but lo and behold our Webmaster Chris Cowdry and Mark Hatton who were visiting locations for meets for next year's NAHMO conference. What about that for service!

Mark and Chris continued on into the mine and popped out of High Moss Head. We all then decided to pack our cameras and mortals lights up after Chris showed us his super powered Welsh slate mine illuminating light and Mark showed the subsequent images on his phone. Impressive! As Chris put it, they are nearly catching up with lighting now. The Fenix lights still win on weight though.

All in all a good day, nice to see new faces all round, have a proper technology laden day and lots of technical discussion. I know I'm still feeling a bit rusty with underground trips, especially getting back to photography there.

Liz Withey.

The last blast?

Gear list: Canon EOS R- EF 24-105 L USM lens (with converter)
Canon EOS 7D MKII EFS 18-135mm usm
Sony A7R 16-
Nikkon Z6
DJI Mavic Air2
Various GoPros which stayed in the bags.

Greenside, Lucy Tongue shaft meet
Meet leaders: Colin Woollard, John Brown and Warren Allison, Mark Hatton, Rosie Lord, Iwan Fletcher, Andrew Woollard, Dave Lund.

The meet was slightly different to normal in that this was a maintenance meet to start to open up the entrance to the Lucy Tongue shaft, so it was no longer a squeeze through the boulders, as reported in past newsletters.

Meeting at the mine, we were soon at the entrance to the Lucy Level where, as they had not been here before, Mark took most of the group up the level. Colin and John stayed to do some maintenance work to the lid and locking mechanism, the first since the entrance was opened in 1992. Rosie and I followed the others who were now out of sight and at a slower pace checking the level as we went. Nothing had changed and the level was sound. Arriving at the first fall, cleared in 1992, I explained to Rosie how we dug through the five roof falls on the clay vein and all that work is still standing. I noticed there was a very small part of a pack wall which needed some attention, but that's for another day.

Arriving at the flooded stope we found Andrew who was waiting for Mark to return from showing the others the level beyond. Rosie and I carried on and we passed the others on their way back to the Lucy shaft.

Management watching the worker at the Lucy shaft.

After a couple of hours, we came back to the others who were making progress with enlarging the entrance to the Lucy shaft and decided as there were sufficient numbers, we would go back to clear some debris near the sixth fall at the four-way junction near Smiths shaft, and then on towards Hick's sump where there was some more debris to clear.

Coming back to the Lucy shaft the team had nearly finished for the day and had decided to let the debris in the stope settle before arranging to come back for another meet.

Arriving back at the entrance the last job was to rod the drainage pipes. It had been a successful day, work started to enlarge the entrance to the Lucy shaft, very little movement along the level, some tidying up and the water running on the floor as normal.

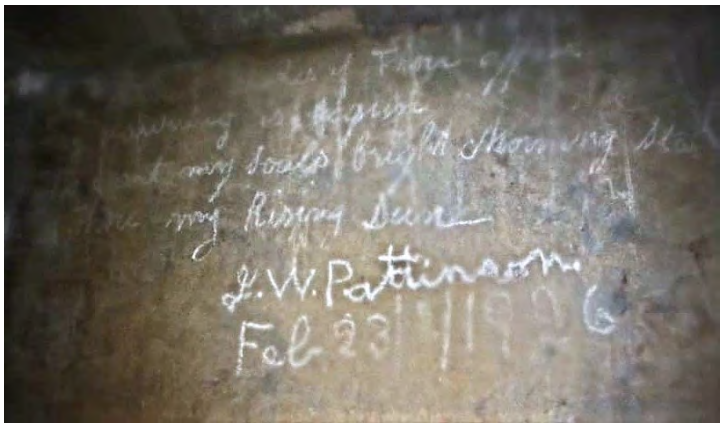
Warren Allison.

Nenthead, Caplecleugh High Level, 12th June 2022
Led by Leif Andrews, Attended by Carl Barrow and Iwan Fletcher.

Despite being almost summer in Nenthead, the wind was bitter enough to make you feel quite happy to struggle into a wetsuit and there was a grey threat of rain hanging over the day. On my last visit to Caplecleugh, a flooded archway a few hundred meters inbye almost caused a full retreat. On this trip, back in November 2021, on settling his nerves Carl braved a very sporting duck at the second attempt. After he proved it could be done we followed him one by one, helmets off, nose to the stone arched roof. I made a total pigs ear of it, sinking under the water on entry, swallowing some of the foamy water, deciding just to go for it until I could resurface with more head room and leaving my bag behind. With the memory of this minor trauma in mind, I apprehensively approached the same duck today hoping for more head space. With relief the water level was an inch or so lower.

The trip was conducted at pace with Carl on full throttle and me and Leif trying to keep up. There was a minor mishap with a missing hand ascender but this was gracefully overcome with teamwork and ingenuity. Throughout the trip via Archers Rise to Caplecleugh High Level and beyond we were treated to a wealth of artifacts. Amongst these were the remains of two windy billies with some intact wooden ducting used to manually ventilate the mine as well as two toilet boxes, mine tubs, a pipe, a candle and an axe. The highlight was the graffiti left by the last surveyors of the mine in the 1920s. On the abandonment of this mine they signed their names and wrote a verse from a Methodist hymn in white chalk on grey concrete walls.

In darkest shades, if Thou appear,
My dawning is begun;
Thou art my soul's bright shining star,
And Thou my rising sun.



Through sharp shale falls, cold neck deep water and thick welly deep mud we emerged via Smallcleugh to the rain the morning sky had promised. Expertly guided by Leif, we were wet and tired, but thankful for an accomplished trip underground, into the past, into a secret and sacred place.

Iwan Fletcher.

Silvergill and Roughtongill meet
Meet leader Warren Allison, Dave Donkin, Pete Archer, Liz Withey, Ormonde Joel, Martin Lawton, Jonathan Lynch, John Pickin, Duncan Scott, Rose Lord, Mark Hatton, Roger Ramsden, Malcolm Charlton, David Clayton.

Arriving at Fellside Farm, I had never seen so many cars already parked up and thought had we got more people attending than had said they were coming, but it seemed some people were already on the fell. Everyone got ready and I was starting to panic as Mark Hatton had not yet arrived, which was very unusual, but his car turned off the road and on disembarking he mumbled about forgetting how far it was from the A66. Mark had asked if some members could descend the shaft in Emanuel but needed a sherpa to carry the rope, which Martin for some unknown reason offered to carry; perhaps Mark has slipped him a few quid?

We set off on a lovely warm day, not yet as sunny or as hot yet as the forecast had suggested. Making our way along the track, we stopped at the smelt mill which had been built circa 1860 by the company working Roughtongill Mine. It was surmised that it never smelted any ore, but Sam Murphy and Richard Smith confirmed that it had, and when it was converted to a row of cottages the slag was taken away. Its final phase of working was as a crushing and bleaching plant for the Barytes from Potts Gill Mine in the 1880's, when the sulphuric acid used for bleaching was apparently discharged into the beck. Crossing the bridge over Hay Gill the dam and leat to the waterwheel are still visible.

Hay Gill has a small but very interesting copper mine part way up the beck, which consisted of a level just above the bridge going some forty yards to a forehead. But the main workings are higher up the gill where there was a low level with a small bouse team connecting into Lady Charlotte's shaft further up the gill and another level with a 30-foot shaft which currently drains the mine. It is reputed to be of German origin and there are records of the later workings breaking into the original ones, but we have not yet located them. Many years ago, MoLES, with permission from the LDNPA, had a valiant attempt to open up the lower level but to no avail as it could only be dug in wet weather, due to the muck which went into the beck even when settling ponds were built. This will be the subject of an article in a future newsletter. It was also here that Brae Fell mine was described, with the best example of hushing in the Lake District and the opening of the two main levels with permission. Then Red Gill Mine in the distance, the site of the finest Linarite crystals found in the world. There is another hush there, also of German origin.

Walking on, we ended up at the bottom of where Silver Gill and Roughtongill beck meet. Here I explained the various workings from the China Clay Mine to Mexico Mine, Roughtongill and Silver Gill Mines. How the historians had always thought the original German workings were in Roughtongill, but around 1998 a group of us, using archive and physical research in conjunction with Sam Murphy and Richard Smith, proved that Silver Gill was the actual site. This was published in a paper available to the public on Cumbria Past transactions titled *The lost German Mines at Caldbeck Volume 1 2001*.

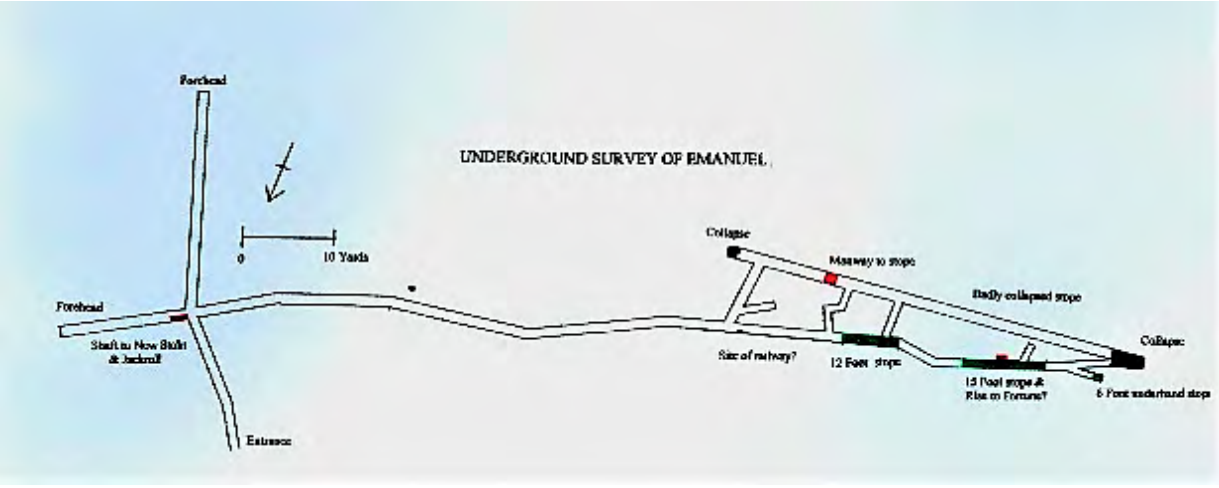
Roughtongill mine to the left, Silver Gill mine to the right

Subsequent research following the removal of the back filling in Emanuel the middle of the three German levels, found the remnants of a wooden waggon way as reported in the German accounts which made Silver Gill of international importance. Again, there is a paper available on this discovery published on Cumbria Past Transactions titled *The German Mines of Caldbeck and the discovery of an early primitive wagonway Volume 10 2010*. When clearing the back filling, we found a wooden hand shovel which was carbon dated to 1020-1220 AD, which proved mining in the medieval period.

Starting the slow slog up the gill we passed the closed entrance to a mid 1800's level on the vein which we entered many years ago as an illegal hit and run job, I would like to see CATMHS approach the LDNPA to open up again and properly survey and photograph it.

Arriving at New Stoln, which has always been open, helmets were donned, and people disappeared underground into one of the finest coffin levels in the Lake District. While people were examining the workings, I went up to open the door to Emanuel, as Mark and others wanted to drop down the shaft which CATMHS cleared many years ago. It ends up on the other side of the collapse in New Stoln, but unfortunately is also blocked in-bye as well. Surprisingly the locks were still alright even after over twenty years.

Mark disappeared to rig the pitch, by which time others had made their way up and were eager to get underground. Although the level has been explored by later companies it had been completely worked out by the Germans and so we were stepping back to how it was nearly five hundred years ago. Explaining how we had discovered the level, got permission, designed the door as requested by the LDNPA and had it fabricated, then dug the entrance out and installed the door all in one day.



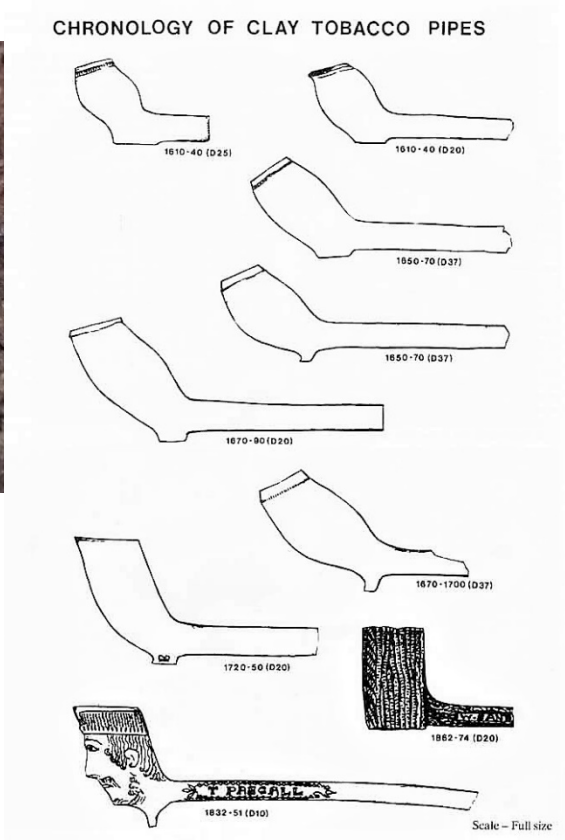
Once underground I collected the remnants of the wooden waggon way on which the tubs or rowle wagons ran and put them where there are still two pieces in situ, explaining how we think it was installed. This is at a junction where the vein splits into two.

Then explaining how we removed the back filling by wheelbarrowing it outside, which uncovered another forty yards of level to where both branches joined in a collapsed stope which was some eight feet wide, but due to the limited headroom we were unable to dig through it.

The unsuccessful dig

Remnants of the wooden waggon-way

There was a clay pipe near the end, still intact but minus most of its stem. John pointed out that it is possible to date clay pipes. He photographed it and emailed that night that there was the possibility of it being 1650 to 1700, but he would find a clay pipe buff to confirm.



Rose and I were discussing the timber in a small stope in the same area as to how old it was, and I suggested that a round piece of timber on the side could be a peg used in the fixing of the timber for the rowle wagons. Taking it back to the remnants of the waggon way it fitted perfectly in the timber, a new discovery.

In the past we had found similar timber from a waggon way in New Stoln and put them in Emanuel for safe keeping.

People were now outside sunning themselves while we waited for the people doing the SRT. Time was getting on now, so Mark and Roger offered to take people to the Roughtongill 30 Fathom level while I waited for the others to come back up the shaft so that the door could be put back on.

We met the others at the Roughtongill Sixty Fathom level, where just below is a superb coffin level called the Blinde Wastle, driven about forty yards on the end of the Silver Gill vein. The area of the dressing floor was on a steep hillside and must have been set on timber.

Sixty Fathom level to left of waterfall

Sixty Fathom dressing floor

Time was marching on now, so we made our way back down the valley to Fellside getting back around 17.45 after a superb day which Mark Hatton described as “blessed with good weather, good mining history, cool levels and all the other ingredients needed to make a splendid day out”.

Warren Allison

The Geology of The Wad Mine Made Simple(ish)
Hot on the heels of Julian Cruickshank's talk on Lake District geology, I thought I might have a go at simplifying the formation of the graphite deposit at Seathwaite.

Some time ago I found a treasure trove of old proceedings of The Cumberland Geological Society in a second-hand book shop. There's much to be recommended in these as they often cover the geology of mines. I was delighted to find that one of these contained a simplified version of a paper I'd read but struggled to understand. The article was written by Jeff Wilkinson and can be read on the Adit Now website. This is an attempt to simplify that article, using as few geology words as possible!

Many attempts have been made to explain the presence of the Seathwaite graphite which occurs in semi-vertical pipe like bodies, and although it was generally agreed that the carbon probably came from the Skiddaw Slates nothing had been certain.

In 2006 a visit was made to the mine by a team from a Madrid University (Spain hosts the only other similar deposit). They were taken into the mine, along with Jamie Lund, the National Trust archaeologist. Jeff Wilkinson, along with Dave Bridge, had devised a way to get them safely as far as the Old Men's Stage. They observed rocks in situ and took samples from the spoil and from nearby Skiddaw Slates before taking them back to Spain for detailed analysis.

The analysis showed that the carbon was indeed from the Skiddaw Slates underneath (assimilated into the magma) and that the graphite was injected into the rocks at Seathwaite during a catastrophic event. The nearest comparisons are the Kimberley diamond pipes which are estimated to have formed from fluids moving at around 70km/hour (sadly no diamonds here as you need pressure as well as heat for diamonds). This carbon came from algae, plankton and other organic material that was deposited into sea water along with the Skiddaw Slate sediments, the oldest rocks in the area. This happened at a time of considerable activity in the earth's crusts. Two crustal plates were colliding, with the ocean plate being forced under the continental plate. As the ocean plate was forced deeper it melted and bodies of

molten rock formed and rose slowly through the continental crust. The hot rock forced its way out through cracks and fissures to make volcanoes. The result of which is the highly complex Borrowdale Volcanic series which can be seen outcropping all over the Borrowdale Valley from Grange southwards. The heat from these rocks altered the Skiddaw Slates and released hot carbon/oxygen/hydrogen rich liquids. In Borrowdale, a deep underlying fault system allowed the carbon to rise.

At this point it's worth mentioning that similar things would have been happening across the area close to the molten rock. So why is there only graphite here? Normally the carbon/oxygen/hydrogen mixture would have reached the surface during volcanic activity and been released into the atmosphere. Something happened here that stopped that. That something was a body of hot melted rock (diorite) injected into the hanging wall of a major fault, which began to cool. As it cooled it started to crystallise. The first crystals to form were anhydrous minerals (contained no water) and this left a molten mix rich in volatile compounds. The pressure from this mix became greater than the pressure from the surrounding rocks, eventually causing the host rock to break. The volatile materials expanded into the space and the pressure reduced allowing upward movement of more diorite, melted andesite, bits of older quartz and rock, and carbon rich fluids.

Analysis showed that the first phase of precipitation occurred when the carbon rich fluid rapidly cooled as it met the host rock. Water was removed from the mix as it reacted with the anhydrous diorite crystals. The diorite altered and carbon crystallised out as minute crystals organized into clusters rather like bunches of grapes. Following this reaction, the remaining fluids were supersaturated with carbon which then crystallized as flaky graphite. This is the material that we see in the pipes. It formed this way because the line of least resistance was at the junction of two fractures.

Further chemical reactions produced the chlorite/graphite veins. Chlorite is the green coloured mineral that gives the rocks of the Borrowdale Volcanic Series a grey-green hue.

To summarise the unique set of circumstances that formed the graphite:

1. A deep fault system allowed carbon rich fluids to rise from the Skiddaw Slates

2. Diorite is injected into the hanging wall of a major fault above

3. The diorite begins to crystallise into anhydrous minerals as it cools, resulting in increased vapour pressure which cracks the rocks

4. Magama, fluids and lumps of rock are pulled up through the line of least resistance and carbon is deposited in pipe like structures

Some of the crystal morphologies discovered by this study have not been seen elsewhere. This really is a very special place and as well as being a Scheduled Monument this site is also a Geological Conservation Review site. As such, the removal of specimens is illegal but it's well worth a look at the original article which contains excellent photos especially of the brecciated pipes and altered diorite. This can be seen at
http://www.aditnow.co.uk/mines/Borrowdale-Graphite-Mine/
The paper produced after the study is also referenced there if you've an interest in chemistry.

Lorraine Crisp.

Robert Fell, 1875-1938
Miner, Quarryman and Farmer.

Robert has appeared in News Letters 83 and 85 with photographs of him and his wife Mary when they lived at Holme Ground Farm, Tilberthwaite (Mary was a Pepper and had lived with her parents at Tilberthwaite Farm, her father was a quarryman at Parrock). He also worked at Hodbarrow Mine and Kirkby slate quarry (Burlington); below is a photograph of a much younger Robert at Kirkby, third from the left in the back row.

This our final photograph; shows Robert in Tilberthwaite with "Pimpo" clearly towards the end of his life. The discovery of the photograph led to contact with his great granddaughter who supplied accurate details of his death.

While working at Tunnel Hole Quarry Robert was struck on the leg by a rock thrown by blasting, the leg was broken and instead of healing normally became gangrenous, leading to what in the absence of antibiotics must have been an agonising death.

Robert and Mary (died 1949) are buried in Brathay Churchyard.

The first photograph is reproduced by kind permission of John Marsh from "The Lake Counties at Work" ISBN 0-7509-0888-2.

William Bickford.

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CATMHS Newsletter No 148, August 2022.