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The Newsletter of the Cumbria Amenity Trust Mining History Society

Peppers Quarry, Elterwater. CATMHS Meet following the AGM & Dinner.
Photo by Mark Hatton.

No. 150 **February 2023**

Cumbria Amenity Trust Mining History Society
Newsletter No 150, February 2023.

Editorial - A while ago CATMHS appeared to be an ageing society with not many people involved, and the committee felt it prudent to consider winding up procedures. Things have changed. Although the committee is still headed by the old guard there are new faces and a new Meets Secretary and we have a well-attended meets program with new meet leaders coming forward. Membership has nearly doubled, perhaps due in part to our Facebook pages, which are well used. A small team is carrying out remedial work on the escape route at Greenside and significant new ground has been discovered at Coniston. An archaeological survey at Eagle Crag mine is proposed. A very successful social weekend was held at Nenthead and there are plans afoot for a repeat this year. We are hosting the NAMHO conference this year and lots of people are volunteering to help. Journal No.7 was published and although I have at times had concerns about the future of the newsletter I have always been able to produce about forty pages, with some material to carry over for the next issue. However, let's not get complacent – there is lots going on so take part, share your interest and knowledge, get involved. IM

New Members
Richard Neilson, from Penrith.
Michael Cave, from Keswick. Michael has experience of lead and copper smelting.
Dennis Nelson, from Roundthwaite, Cumbria.
Fred Lawton, from Cockermouth. Fred is Martin Lawton's father.
Zoe Kerslake from Ambleside. Zoe has spent a lot of time exploring the catacombs underneath Paris; always happy to share information.

CATMHS website password change.
The login details allowing access to the member's area of the CATMHS website were changed on 1st Feb 2023 to - User: catmhs Password: Borrowdale23

Postal strike. Posting of CATMHS Journal 7 and BCA membership cards was deferred due to the postal strike. Journal 7 was launched at the AGM in December and copies have now been posted to the remainder of the 2022 membership. BCA cards have been posted to those who have renewed their CATMHS subscription for 2023 and paid for BCA membership. If you have not received either of these items then please contact the Treasurer.

Forthcoming meets
Mineral Display at Ambleside 5th Feb
Coniston Through Trip 26th February
Hodbarrow Iron mine 12th March
Newlands Valley Walk 2nd April
Langdale Axe Factory 16th April

The Meets List between now and July will have most of the meets programmed for the NAMHO conference

Nenthead. Given how well received the Nent weekend was last year, Leif Andrews has committed to arranging another one this year. It'll be the weekend of the 2nd/3rd of September. Obviously ages away, but get it in your diaries! Hopefully, as there is more time to organise, it'll be bigger and better!

AGM & Dinner

The AGM and Dinner took place at Rydal Hall on 12th December, and it was good to see some newer members attending.

The recent changes instigated by the BCA resulted in some changes to the classes of our membership. There are now just two categories, Caver for those who venture underground and Non Caver for those who do not. This required a small amendment to the wording our constitution and a motion was put to the AGM for approval to reflect our new membership eligibility and classes of membership, as indicated on the the revised constitution posted on the CATMHS website. The motion was agreed.

Election of Officers and Committee for 2022/23

We are allowed up to 15 trustees under our constitution and those present at the AGM agreed that the re- election of the four retired trustees, Warren Allison, Chris Cowdery, Mark Hatton and Chris Bunker.

The AGM was followed by some presentations - John Knowles on converting a Welsh slate cavern into a cheese store, Mark Hatton on the history of Elterwater Quarry and Michael Oddie on the Wanlockhead hydraulic engines. At the conclusion of the AGM Warren presented the Chairman's Award:

Once again there are several people who could receive the award:
Ian Matheson (again) for continuing to produce a superb newsletter and now Journal 7 which is being launched at this AGM. I know at first hand the effort he has put into the journal in cajoling and persuading people to write and then the meticulous proof reading to publication.

Chris Cowdry for convincing the committee to agree to host the 2023 NAMHO conference to be held in Grasmere and the huge amount of work to pull the lecture and meets programme together as well as all the other organisation required (with assistance from John Aird), especially as he has guaranteed that the bar will not run out of beer.

Colin Woollard, Steph Cove and Bob Mayow for their work to persuade Gilbert Finlinson the owner of Florence Mine to allow them to catalogue his collection of plans and documentation which hopefully he will allow some of them to be copied.

Colin Woollard and Ian Matheson for their work in producing a book of the letters relating to French Company who worked Coniston copper mines. This has the original letters and a transcription. They are currently working on doing the same for the Barratt letters. The books which Colin produced have been deposited in the Armitt and Ruskin museums, with copies on the CATMHS web site.

Leif Andrew, who on a whim organised a fantastic weekend meet at Nenthead including a barbeque, so full of interest that it will hopefully be repeated next year.

The group who has nearly completed securing the escape route at Greenside Mine which had deteriorated over the years.

This year's Chairman's award goes to Tracy Binks, Rob McClymont, Chris Little and Carl Barrow for their incredible effort to secure the escape route at Greenside Mine.

Carl Barrow (right) accepting the Chairman's Award on behalf of the Greenside group.

Chairman's Report

Thank you to everyone who has managed to attend this year's AGM. Even though the Covid pandemic has impacted on many societies, and I know of some in Cumbria who have not survived it is pleasing that CATMHS appears to have been relatively unaffected and can I thank everyone who has helped make this possible.

Membership remains high, and a quality newsletter is still being produced with new people starting to contribute and the variety of articles has added so much interest. Journal 7 is being launched at the AGM. This is a high-quality publication which a huge thank you should go to the contributors and especially Ian Matheson who I know has spent many long hours on it. I think it is probably the best one yet, so full of very interesting and varied articles.

The meets have been well attended and have been varied in their interest. We now have a new meets leader in Julian Cruickshank who has so much enthusiasm that I am sure the 2023 meets list will be full of interest, so no pressure.

Various members have given talks and led walks for other organisations. CATMHS was a major contributor to the successful Cumbria Geoweek and thank you to Mark Hatton for leading walks and presenting a talk on his favourite place, the Wad Mine. Following Geoweek the National Trust has expressed a keen interest in developing the relationship with our Society and this has already shown with the 2023 NAMHO Conference.

The Society has taken over the responsibility of the entrance to the Trustees Level at Yewthwaite mine since MoLES has finished. The Force Crag and Greenside Management

plans which the society has contributed to will hopefully start to realise some of the projects included in the plans. The committee decided after being approached by a group of members to provide funding to secure the escape route from the Lucy Tongue level to Glencoyne level at Greenside Mine.

Following the Eagle Crag Mine meet other members will be putting a proposal to the committee and LDNPA for a joint project to survey the surface and underground workings with possible archive research at Dalmain Estate archives. This is a huge mine about which very little is known.

There have had to be some changes in the structure of the membership of the society due to BCA insurance requirements.

The Society is hosting the NAMHO 2023 conference at Grasmere village hall which Chris Cowdry is leading with plans well advanced, with a very varied list of trip and lectures. I would encourage anyone who could help even if it is just in the hall to put their name forward.

Finally, a thank you to Mark Hatton for organising through Burlington Quarries a trip to Peppers Quarry in Elterwater tomorrow and I hope everyone enjoys the weekend.

Warren Allison, Chairman.

Treasurer's Report

For the 19th year in succession I open by expressing my gratitude to our Auditor Mr Douglas Harrison. Webmaster Cowdery has also been of enormous assistance. The Society's financial position is robust with suitably substantial reserves.

To Members who find the deficit of just over two thousand pounds unsettling I would point out three figures from the expenditure. Firstly £1651 for Equipment. This material has been used by Tracey Binks and her colleagues who have been conducting an extremely professional restoration of the Greenside through route which is nearing completion. Secondly £1809 advanced payments for NAMHO 2023, mainly deposits for venue hire and catering. Thirdly £1401 for publishing Journal 7, on which Ian Matheson has expended an enormous of effort resulting in the fine volume that is being distributed to members.

These three projects really show that the Society is fully active and recovering from the shutdown of the past two years.

I have two minor matters to report firstly the LDNPA has reverted to invoicing for the Mandalls rent which has been paid and secondly the accounts entry relating to Rates Roanhead will not appear again. The Lake District Estates Company has sold the site on which the store stands to a development company who have undertaken to pay the rates from April 2023.

Once more we go forward into the New Year in an excellent financial position.

John R Aird, Treasurer.

Secretary's Report
Administrative:
This year, following on from the Covid 19 regime, we have held five committee meetings by Zoom Conferencing allowing us to comply with our organisational requirements. There have been no changes to our formal committee membership but I would like to welcome Julian Cruickshank as our new Meet Secretary. An important role although not formally a committee post at this stage but we may wish to reflect upon this in the New Year.

To comply with our constitution four standing trustees will stand down at this AGM. All are willing to stand for re-election. We have no other candidates proposed. If there are no objections from any member present - I propose that we conduct the re-election of the four retired trustees en-bloc, with a nominator and seconder. This process will keep our new trustee membership at thirteen, which is within our constitution and will leave capacity for any future trustees to join.

Liaison:
We have collectively provided over forty walks and talks, with Zoom enabling many of the talks. Thanks to Mark Hatton for his strong support in this area. We have also supported enquiries to many requests with information etc.

Ongoing activities are:
Ian Hebson approached CATMHS for help in securing the entrance door to the Yewthwaite Mine Trustees Level. We have in conjunction with the National Trust designed door improvements and manufactured the components. This work will be completed when a suitable weather window is available.
The late Raymond Clements was a surveyor at the Beckermet Mines until their closure. I have copied some of his material and have sent 39 plans to the BGS to be scanned. All information will be uploaded to our website and the plans will be deposited at Whitehaven Record Office.
Work has continued at the Florence Mine to catalogue the prime mine plans for Florence, Ullcoats and other Cumbrian mines. We have a list and have identified some 40 most important plans which we will hopefully get scanned in the New Year. There are a great many plans and documents at this location. We have tried to locate the most important.

Colin Woollard, Secretary

Membership Secretary's report
Membership fees were reviewed by the Committee and it was decided not to make any change, as the fee of £10 still covers the costs of administration. Insurance against Third Party Liability is provided through membership of the British Caving Association and the BCA have made some changes. There are two categories of membership, Caver for those who want to go underground, and Non-Caver for those who do not. For the insurance to be valid for the Society the BCA insist that ALL members of the Society MUST be members of the BCA. This can be achieved through CATMHS, another society, or by direct membership of the BCA. Anyone without BCA membership cannot be a member of CATMHS but can still be a FRIEND. Friends receive newsletters etc. and may attend the AGM and Dinner, but they may not vote or participate in meets.

There were 190 members at the end of the 2022 membership year and renewal was due on 1st November. The Treasurer emailed all members and a renewal form was sent out with the November newsletter. So far 133 have been received. A second reminder will be sent after the

New Year to those who still haven't renewed. Those who have not renewed by 31st January will no longer be members.

Newsletter Editor's report 2022

With a lot of support from the Chairman, Warren Allison, I have been able to produce four newsletters of about forty pages each and I am very grateful to all the contributors. Warren has provided reports and articles and has written the majority of the meet reports. Last year I appealed to meet leaders to write a report of their event whilst memory is fresh, but although some information and comment about meets appears on Facebook, few people seem to be willing to provide a record for the newsletter.

Most people now receive their newsletter by email, but it is available in printed form by post. It has been necessary to raise the charge for this to £20 to meet increased costs and I think it will have to go up again next year.

Journal 7

Journal 7 has been completed on time and is available to collect at the AGM. There was a good response to my request for material and there are eighteen articles on a variety of topics, including reports on several CATMHS projects and on the Coniston Copper Project. I am very grateful to all the authors and to Warren Allison and John Aird for support and repeated proof reading. 250 copies were printed and it will be distributed free of charge to everyone who was a member of CATMHS in 2022, leaving about 50 copies available for sale.

Ian Matheson.

NAMHO 2023

In the last newsletter I stated the conference is to be held in May. That is incorrect. The NAMHO 2023 conference is being held between 7th and 10th July 2023 at Grasmere Village Hall. The overall format is as follows:

Friday 7th.

During the day, there will be a Geology Walk at Buttermere and an SRT refresher session at Ambleside Climbing Wall. The evening event will start with a brief introduction to the event by Warren and an introductory video of drone footage. This will be followed by Chilli & Nachos and a bar until late with a picture show in the background.

Saturday 8th.

The day will be filled with a lecture programme and underground/surface field trips. The evening event will be a three course dinner with bar until late.

Sunday 9th.

This will be very similar to Saturday during the day. Delegates are free to explore the fine eating and drinking establishments of Grasmere and Ambleside in the evening.

Monday 10th.

We have arranged visits to a number of working quarries.

Tuesday 11th. On Tuesday there are a number of trips further afield, e.g. Wanlockhead, and Nenthead.

The NAMHO 2023 booking website will go live on 1st Feb and can be found here:
http://www.namho.org/conference

Meet leaders and helpers do not need to pay the delegate fee, but must pay for everything else. Some trips may be oversubscribed, so the organisers ask that CATMHS members don't book all of the best trips as soon as the booking site opens! The CATMHS Meets List between now and July already has most of the NAMHO meets on it, so please attend those instead and give our NAMHO Meet Leaders a chance to practice on you.

The organisers are still on the lookout for additional helpers, so if you feel you can add anything to the conference, please let them know. Even if as a backup person to be called upon at the last minute! Furthermore, if you feel that the programme needs something adding, the organisers will be pleased to hear your views, perhaps a trip you could lead, maybe you are a secret cabaret singer/magician, or can play the ukulele whilst balancing upside down on your nose. There is a need for a couple of helpers at the SRT refresher session, so if you feel that you are both competent at SRT and have good people skills, please let the organisers know.

Please alert the organisers to any mistakes or omissions you see on the booking website. The organisers (Chris Cowdery, John Aird) can be contacted at namho@catmhs.org.uk

Silver Gill Mine clay pipe

At last year's July meet at Silver Gill Mine on the Caldbeck Fells, John Pickin and I were looking at the clay pipe found at the time of the original dig near the fall on Emanuel Level and wondered if it could be dated.

John thought it could date to 1650-1700, so we approached Wardell Armstrong through Frank Giecco and he asked one of his colleagues Megan Stoakley (Assistant Post Excavation Manager) and she confirmed:

"*It looks like a type of pipe dating to c.1620-1660AD, the bowl is quite early typologically but the presence of a spur puts it slightly later*".

The date confirms that the mine was still working at that time.

Warren Allison

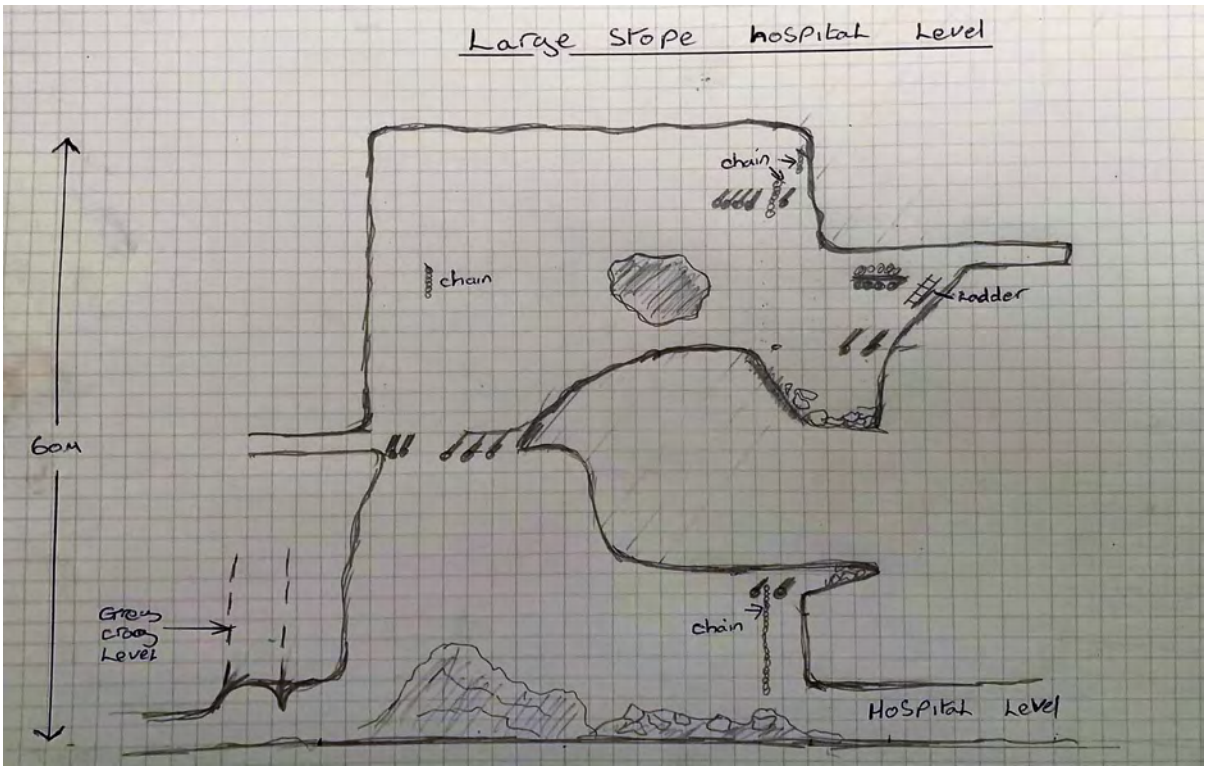
New Ground at Coniston copper mine

In 1979 Eric Holland found a way down through the Coniston copper mine from Levers Water to Hospital Level, which has become known as the Coniston Through Trip. In the 1980's CAT members systematically explored the workings, initially looking for Top Level, which was shown on original mine plans copied by Dave Blundel. In the process of the search Levers Water mine was discovered almost by accident and the stope now known as MAG's Catwalk was first seen from the out-bye end whilst exploring one of the shafts near Simon's Nick. A twelve foot dig eventually created a way into Top Level Extension, Earthquake passage and a lot of 'new ground'. Subsequently Dave Bridge, Mark Simpson and Angela Wilson carried out many visits to survey what had been discovered.

After that period not much new ground was found until in 2007 CATMHS got permission to re-open Kernal Level. This was done by the Digging Team, supervised by Pete Blezard, and more workings and stopes were found and surveyed. However the digging team felt they had completed their task and the detail of the new ground was not thoroughly explored. Reopening of Kernal Level was described in CATMHS Journal 6.

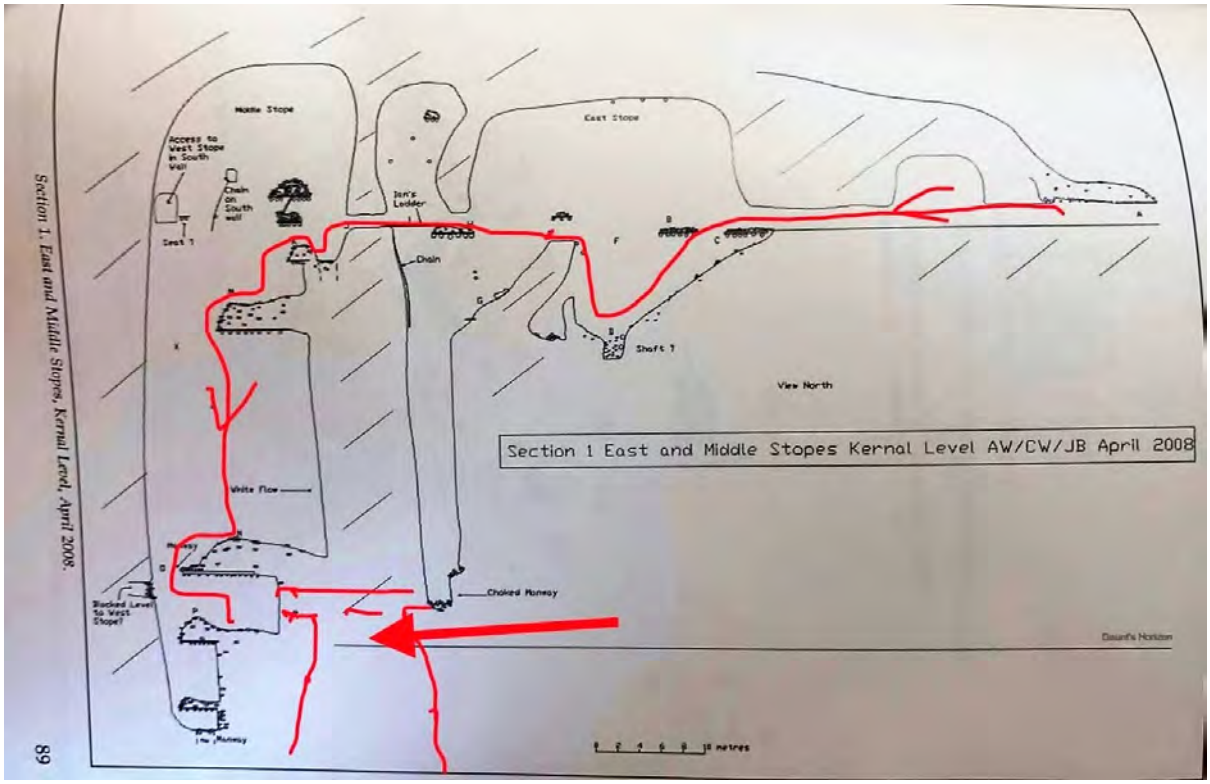
Recently Carl Barrow has been revisiting old discoveries and making some of his own. He has set himself the challenge of exploring every nook and cranny of the Coniston mines, and makes frequent visits, often alone and sometimes with whoever will go with him. His philosophy is that he is careful to keep safe but can't always rely on others to do so. Must be good though, to have someone else to share carrying the gear!

A recent project was to bolt up the Great Open from Hospital Level, reaching parts that no mine explorers have ever been to. Carl has been putting posts on the CATMHS Facebook page about his activities, with photos and videos, sometimes with a commentary. The following is taken from Carl's Facebook reports:



11th November. Most of you will know the large stope in Hospital Level, the one with the long climbing chain hanging down, so the other month I went there with a laser measure and took measurements of the lower half of the stope and the top half of the stope that is out of sight from Hospital Level and did a rough sketch. I tried drawing it to scale at the time but it didn't look right to what I could see, so after getting some scale paper I've re-drawn my plan of the stope as to near to scale as I can and as close as I can to look like how you see it.

After the Great Open Carl turned his attention to the Kernal stopes, referring to the information and plans published in Journal 6.



11th Dec. Getting into unexplored ground down into the depths of Kernel Crag, still not finished. Need to do a little dig next time I go and it goes on down further with a good draft coming from the hole.

24th Dec with Michael Oddie, who wrote this bit:
Christmas Eve Explore. So Carl Barrow and Michael Oddie went on an adventure today in Coniston. It turned out to be quite amazing with us getting into more new ground unseen by anyone since the miners left and also finding some incredible artefacts. Bulldozer Barrow getting quite excited after we dug and broke through to a level to find an intact wheelbarrow and a perfectly preserved 6ft shovel, with candles on the wall. This mine just keeps on giving, who knows where the next bit will lead to.

25th Dec. Carl Barrow: So Christmas came early for me this year, Christmas Eve was my Christmas Day. After spending a lot of time in this mine trying to find unexplored parts and only finding a couple small areas, Christmas Eve we went back into this new area that I got myself into the week before to continue exploring, and after a little digging we got through into more new ground with some great mine artefacts; an old wheelbarrow and a couple old spades

and miner's candles, amazing finds to see in the mine. After a bit more digging we got into some more promising ground that looks like it leads on to interesting places. We ran out of rope that day so we need to return at some point with more rope and continue exploring down in unexplored parts of the mine. Best Christmas present I could ever ask for.

Two shovels and a wheelbarrow

8th Jan. Today we found a chain heading down into the collapse. On a previous trip I've done I've found a chain coming through a collapse. I'm 99% sure this is the same chain and also the rock looks the same on the walls above and below the collapse.

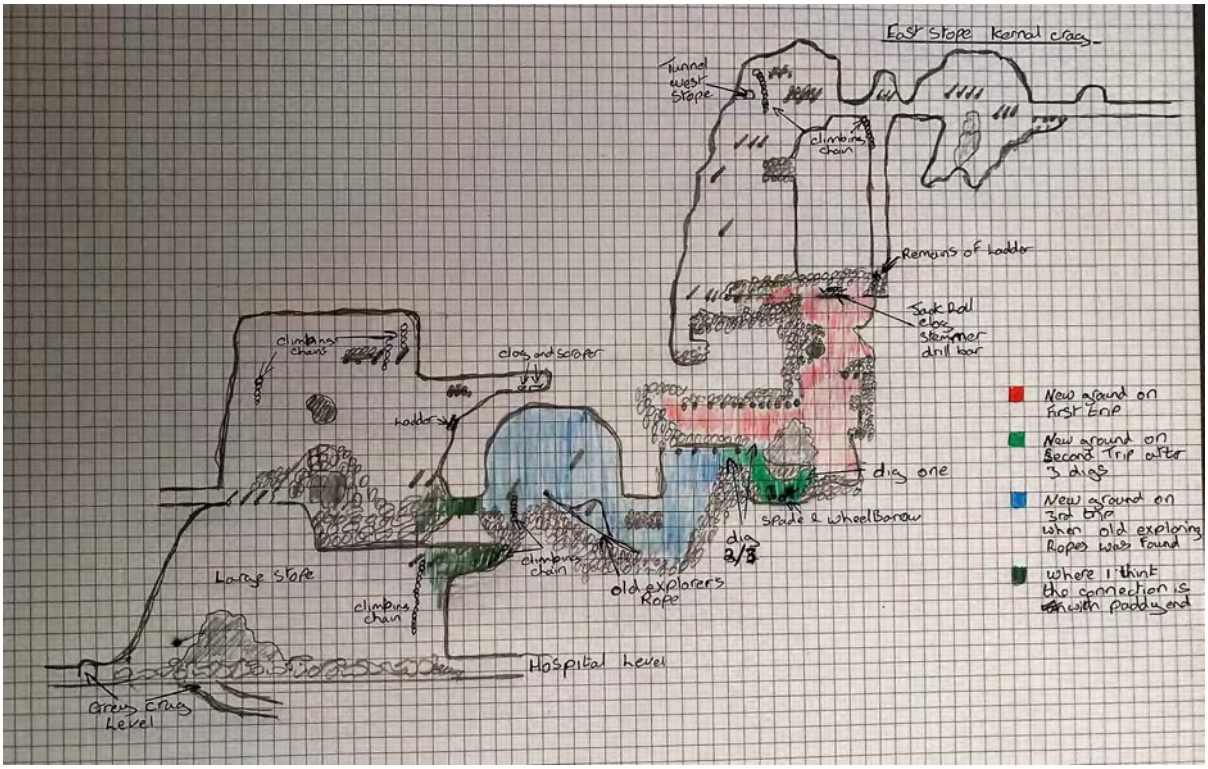
Wow, what a day, what a trip. Had to do some maintenance by dressing in a lot of rocks as we went through the mine to get to where we got to last time, to get to that point to where there was a big avalanche of stacked deads that went from under my feet.

After they had settled, we descended to the bottom of the avalanche to be faced with old mine explorers rope heading up the other side, so of course we had to head up and follow the rope, not knowing how the explorers got to this point or who they were. We got to a point where it was safe to get to the very top, so will return with more rope to continue on.

The chain

Old mine explorers ropes

9th Jan, So I've been doing my homework this afternoon and putting pencil to paper by using the plans of Kernal crag out of the CAT Mine Explorer book and going on my photos and memory as I've not surveyed the new area yet, and, joining it to one of my survey plans of the large stope in Hospital Level, I've put together a plan showing the new areas we've got into on three separate trips showing what we found and where I think it might connect to the large stope, which has yet to has be proved, but the survey measurements *seem* to line up. We've still not finished exploring in there so hopefully it will put some light on my thoughts and also we can't work out as yet how the explorers who put the ropes in situ got to this area and even who they were? This plan is not drawn right to scale but I think it's close.



14th Jan CB. We went back to where we got to last time and bolted up into a short level we could see going off, to find it had collapsed at the end, so we decided to have a dig to see if we could get through. After half an hour or so we got through into a small stope area, not where I first thought it might of connected to. This mine just messes with our heads to where we are in there.

We also poured a litre of red dye water down by the climbing chain that heads down through a collapse to see if it's the same one that I think it could be, where I know there is a climbing chain coming through a collapse. We was going to head to that part of the mine after we'd finished but time got away with us and we was too wet and tired when we got back out daylight to head back into the other mine to where I think it might connect to. I'm going there next week to see if the red dye has made it through ….

To be continued. IM

Eagle Crag Mine: Grisedale
Draft: Proposal for an Archaeological Survey

Eagle Crag Mine located in the Grisedale Valley approximately 2½ miles from Patterdale is one the more remote and less accessible mines in the Lake District National Park, and has not been surveyed, above or below ground. It has been called one of the hidden gems of mining in the Lake District as it is ancient, extensive and the remains are still in good condition.

The mine follows a prominent lead vein (with a branch to the right) up the front of Eagle Crag from No1 level close to Grisedale Beck at 780ft OD in the valley floor to No 7 level and stopes on top of the crag and at the lip of Nethermost Cove 1820ft OD. There is the suggestion of mining activity, extending along the line of the vein further into the Cove.

There is also a level driven on the clay vein, at Nethermost Cove Beck and another level below St Sunday Crag on what is thought to be an extension of the Eagle Crag vein, which is stone arched.

There are significant remains of various structures:

- No1 level has a smithy with two hearths nearby.
- No3 level has a slab roofed entrance which is very unusual in the Lake District, an ore chute cut into the crag taking ore to the hand dressing floor below, settling ponds, house with a fireplace and a loading platform for the carts with associated cart track.
- No5 level has one of the best examples of an ore bin in the Lake District, house, smith with hearth and associated building and a hand dressing floor with a bucking stone.
- Top working has examples of hand dressing floors, a near complete building minus its roof.
- The west side of the crag appears to have been quarried.

History
Very little is known other than from various publications which are listed at the end, but can be summarised from “Greenside A tale of Lakeland Miners” by Ian Tyler;

A lease was granted on the 24th May 1784 with a subsequent lease being issued on the 12th February 1807 and worked for a number of years.

In December 1832 Dalemain Estate drew up a lease for the Eagle Crag Mining Company which had 30 shareholders who worked the mine until 1845.

The next lease was granted in January 1862, then August 1872.

The mine is so extensive that it has been worked far longer than the dates above.

The mine is on land owned by Dalmain Estate who have an extensive archive which could provide additional historical information.

There are no known plans of the workings above and below ground.

Many years ago, Mines of Lakeland Exploration Society (MoLES) re-entered No 2, 4 and 5 levels but no surveys were carried out.

Proposal
It is proposed that this could be a joint project between the National Park Archaeology Network volunteers and Cumbria Amenity Trust Mining History Society (CATMHS) over at least a two-year period and split into:
Survey of the surface remains split into manageable sections::

From No1 level to No3 level which is on reasonable ground.
From No3 level to No5 level which is in steep ground.
No 5 level to the top workings which is on reasonable ground incluidng the potential quarry workings, but access is by steep paths.
Top workings which is on easy ground, but access is by steep paths.
Various tracks on the Nethermost Cove Beck side of the crag.

Survey of the underground workings by CATMHS.
Potential archive research at Dalemain Estate.

Access
The mine is two and a half miles from Patterdale with walking time about one hour along a metalled road and then a track designated as a bridleway. Using a mountain bike is quicker than walking and even quicker in descent. There is limited parking at Elmhow (NY373151) owned by Matson Ground Estate who would be approached for car parking beyond the house, with car sharing required.

Consideration should be given to a location(s) for temporary storage for any survey equipment required on site.

Risk assessment
The lower section of the mine has easy access for volunteers, but due to the nature of the site, steep fell side with rocky outcrops, consideration needs to be given to safety on steeper ground and routes of safe access to the survey sites. Before activity a briefing will be required, and the allocation of tasks according to levels of skill and experience.

Permissions required.
LDNPA
The land owner; Dalemain Estate.

Bibliography
Mining in the Lake Counties W.T Shaw. Dalesman 1983.
Mining in the Lake District Fells. John Adams. Dalesman 1995.
Greenside: A tale of Lakeland miners. Ian Tyler, Red earth publications 1992.
Postlethwaite's Mines and Mining in the English Lake District first published 1877. Third Ed. Michael Moon 1980.

Warren Allison (CATMHS Chair)
Bob Mayow (LDNPA Archaeological Volunteer)

Furness Relic Survey – finished?

You need to go back to newsletter 34, April 1993 to find the beginnings of the relic survey, in an article headed “Clarion Call”. Anton Thomas called for a survey of the remains of the Furness mining industry while there was still time. The project had been inspired a year earlier by the removal of stone cladding from Crossgates tunnel. Apparently, the objective at the time was just to make detailed drawings of a selection of items; *one* changehouse, *one* chimney, *one* engine bed, etc., with a view to getting the best examples listed. Photography only started in the summer of 1993 as an aid to measuring and drawing. Anton described it as an enormous task in his clarion call, what we did not know at the time was that scrub clearance would be a major part of the work. Jon Knowles wrote about a meet where we measured the large engine bed at Violet pit in that year but the photographs we have were not taken until 1996.

Some sites were recorded because they were immediately threatened, like Lowfield and Elliscale, but Roanhead gave us enough work to keep us busy until 1998. We lost our draughtsman and photographer when Anton and his wife Sheila became tied up with a house restoration, so we carried on with photography alone. With Roanhead out of the way the project began to lose its direction and BSE brought it to a stop. An attempt was made to re-start it with Mark Simpson and Mark Scott but the enthusiasm for clearing brambles had gone.

Here are a few examples:

Elliscales water tank. This shed is full of water!

Base of Hathorn Davey engine at Violet pit.

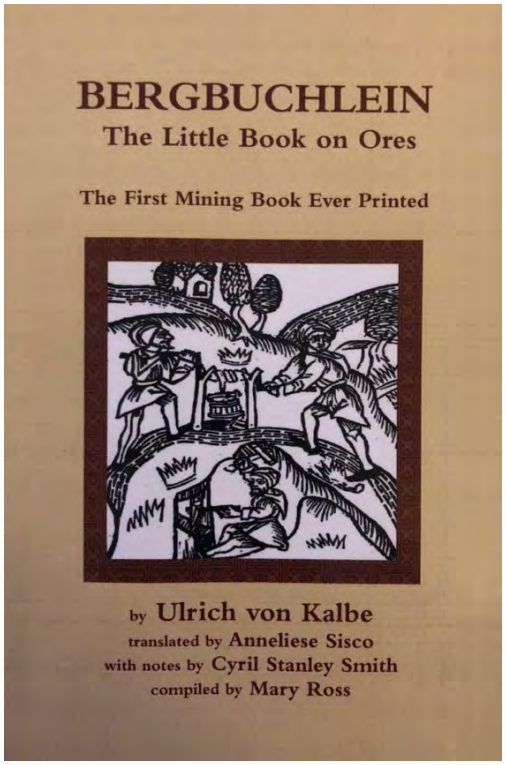
Lowfield joiners shop shortly before demolition, Anton holding the stick.

We missed one or two sites. Others are not as well recorded as I would like. In fact we never got back to Crossgates tunnel, but the new format could easily be added to. In the meantime the images will be available at Barrow Records Office and at the Armitt Library. It was always intended that they should be freely available for an acknowledgement and they have already had the first request, from the archaeologist working on plans for the holiday home complex at Roanhead. It seems that only Peggy and Ethel pits are involved in the present planning process.

Peter Sandbach.

Book review: BERGBUCHLEIN, The Little Book on Ores by Ulrich von Kalbe
'The First Mining Book Ever Printed'

ISBN 978-0-9568322-3-8



The book was originally translated into English and produced by the American Institute of Mining, Metallurgical and Petroleum Engineers in 1949, but was reviewed again by Mary Ross in 2013 and published by Oxshott Press. That makes it easy to get hold of and I thoroughly recommend it to anyone who is interested in German Mining in the 16th Century. Mary Ross has reprinted the original AIME translation and has added the tittle pages of some early copies of the text. It predates De Re Metallica (1566) and Agricola drew material from it. It is small, handy, and accessible and would have been a familiar resource to anyone wanting to learn mining geology at the time.

Don't be put off! It is nothing like the size of De Re Metallica and is much more fun!

The Little Book on Ores was first printed around 1500, the first printed book on mining geology. That's not to say it that the information hadn't been available before as it would have been circulated as manuscripts. This was the first time, though, that it became freely available to anyone who could read, without the mistakes likely to have been generated from copying manuscripts.

The book begins, 'A well-planned, useful little book on how to prospect for and find the ores of different metals, with illustrations of the lay of the terrain and an appendix of mining terms, which will prove most useful to young miners'. It is written as a dialogue between 'Daniel, the Mining Expert and Young Knappius, his student'. The first part is practical daily stuff, how the share system works, what various parts of the mine are called and tips for how veins might outcrop. 'Daniel' uses the extent of the knowledge at the time to describe the different metal ores. Pretty much everything was believed to have been formed from quicksilver; lead under the influence of Saturn, iron under Mars, copper under Venus. That said, the practical information alongside those origins looks like it might have been helpful.

What interested me the most is an early copy that was originally printed in Worms in 1518, was reprinted several times in Augsberg in the 1530's. It is very likely to have been read by the miners travelling to Keswick with Daniel Hechstetter. This is a great way to try to get inside the heads of the miners and think about how they would have gone about the search for minerals here.

Lorraine Crisp

From the Meets Secretary - A comprehensive programme of meets leading up to the NAMHO weekend is outlined in the Events section on Facebook and is live for booking. The hope is that it will enable CATMHS members to enjoy much of the NAMHO programme in advance and to provide leaders with a practice run. Please support the leaders who put in a lot of effort to provide an interesting and safe event by signing up for as many meets as you can within your abilities. For the weekend 17/18 June we have walks on both days to be a greater attraction to those traveling from outside the Lakes.

Tracy Binks replacing rigging in the Wad mine in preparation for NAMHO. Photo by Mark Hatton.

Meets after NAMHO are not posted yet but advance notice is given for a Nent weekend 2/3 September and for a Southern Merioneth Slate Weekend 23/24 September, both offering a mix of easy walks or SRT trips.

A perennial problem is fulfilling the demand for Coniston through trips and we could do with developing more leaders prepared to be responsible for meets in this area. For those looking for uncomfortable challenges, Leif Andrews on 7 May is prepared to take a party of six hardy souls who are comfortable with wetsuits in deep water and loose shale into Caplecleugh Low Level West. Sometime in August there is also consideration of a return to Ding Dong mine for those who like mucky experiences. If you would like to volunteer to lead additional meets please do get in touch.

Julian Cruikshank.

Greenside mine meet, 6th November

Meet leader Warren Allison, Attendees James Archer, Martin Lawton, Richard Bungay, Mark Hatton, Philip Newton, David Lund, Sarah Westmacott, Gary Thomason, Michael Pringle, Christopher Little, Pete Archer, Mike Williams, Jonathan Lynch, Liz Withey, Duncan Scot, Michael Williams, Fred Lawton, Julian Cruickshank, Robert Cruickshank.

The intention was to walk along the Lucy Level and try to show what it was like while the mine was working using original photographs and stories of the men who worked here. I was panicking the week before the meet as in the past it has been put off due to snow and the entrance to the level sumping up because of wet weather. This was made worse when we gathered at the Glenridding Tourist Information Centre to get into as few a cars as possible to drive up to the mine and seeing nearly twenty people turning up for the meet. Driving up the road my heart was fluttering as I thought about lifting the lid and looking down to see water and then having to cancel the meet.

We arrived, changed, and I then gave a pep talk on the history of the mine and what we were going to do and see that day. I probably went on a bit as Mark piped up "hurry up we are getting cold and its starting to rain".

Lifting the lid, I breathed a sign of relief as the water level was normal. As we had more than usual attending Mark took some of the group on ahead. The rest of us walked slowly up the level stopping at "Bad uns Drift" where the surveyor had got his measurements wrong and was taking the level in the wrong direction. It is here that we have put two of the original conductors back on timber which carried the bare electric cables for the first underground electric locomotive in a UK metal mine.

After 800 yards we arrived at the place where we first got to when the level was re-opened in 1992. It was here that the first of five roof falls had occurred and as we had a large number of people, I explained how the digs were done before we walked on to eventually reach the southern end of the vein, which is collapsed.

There had already been many photographs taken, but soon the photographers were working out the best way to light the flooded stope. Walking on we came to where the level had been concreted to stop the water running back down the vein. Here I spoke about how Eddie Pool had laid the concrete and was fed up with the miners walking on it (clog marks were seen) that he wrote on the wall "Keep off you buggers".

Photo by Liz Withey

Arriving at Smiths shaft having first visited the remains of the toilets put in for the AWRE scientists in the late 1950's we decided it was lunch time with Mark and the others joining us.

Afterwards I explained about the first electric winder in a UK metal mine, before some decided to slowly walk back out while the rest of us carried on visiting the area where the company hired it out to rock drill companies to test their latest equipment, past Hicks sump, on to the blue lagoon, which is a flooded stope, to arrive at the shaft, hoppers from the Alma stope and the area around it where the vein is still seen in-situ. There is a side drive which has a strange concrete plinth which I think was put in by AWRE for the seismic testing equipment.

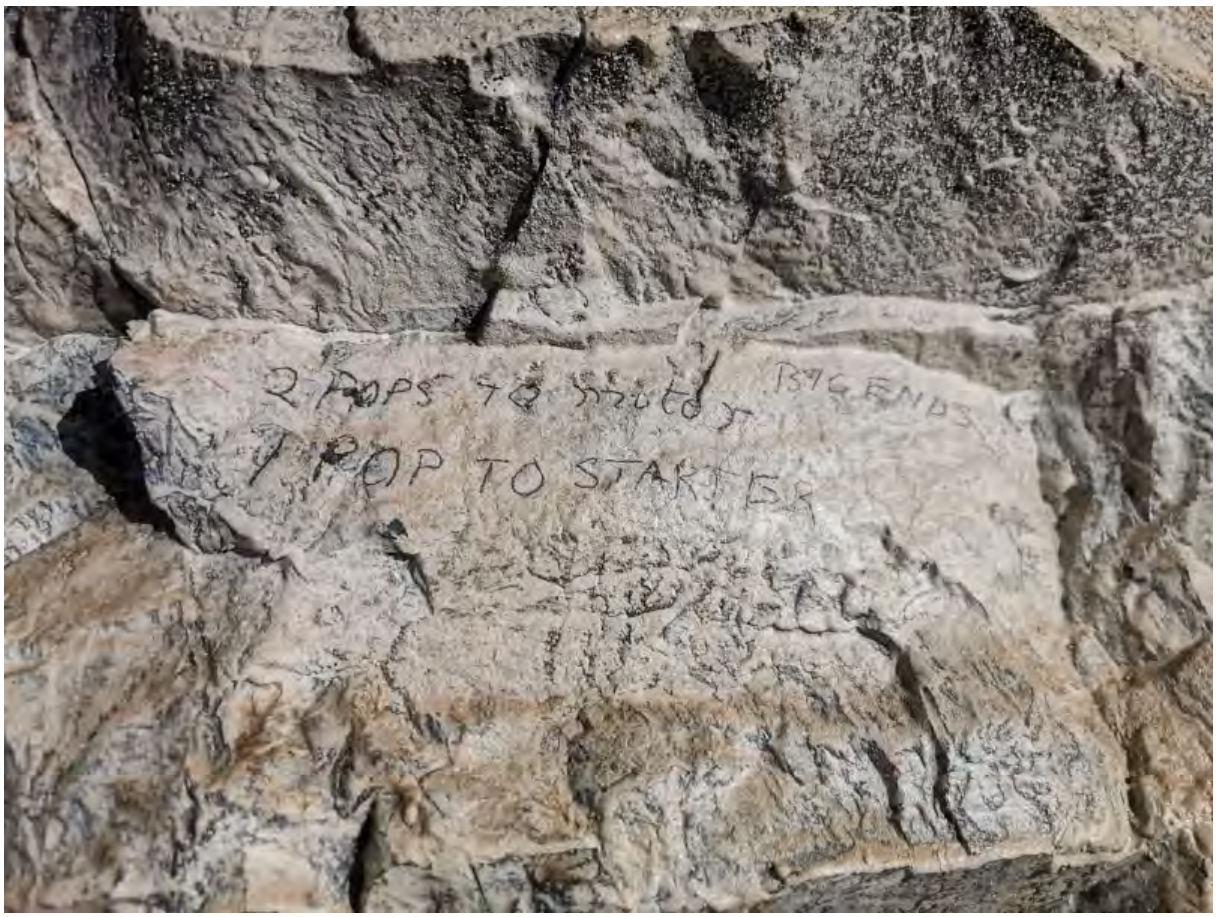
Drill box

Vein showing crystals of Galena

Having looked round we walked back down the level and stopped to look at the huge stope above the Lucy Level near Hicks Sump. It is quite an incredible site and soon the cameras were out.

Photo by Mark Hatton

We arrived back at the level which takes you into the electrical switch room where the national grid was brought from Penrith down the other side of the lake, across it to the mine, and a mile underground. We had to stoop to get in as the level is only about four feet high. The original cable is still bringing the electric into the Parish. Once again, I got original photographs out which showed what it was like while the mine was working, and it is a strange feeling that I knew Jackie Coulston, who along with Cyril Connor enlarged this chamber. As people looked around, Liz asked if we had seen the writing on the wall where an air compressor had been. No was the answer, and it just shows no matter how many times you visit a place there is always something new to discover.



Writing on the wall -
2 pops to motor big ends
1 pop to starter

Time was getting on, so we walked back out having had a great day and I was so pleased at the turnout.

Warren Allison.

Wythburn mine, 7th November
John Aird (ML), Iwan Fletcher, David Hollingham, David Lund, Sarah Westmacott

Alen McFadzean is clearly pleased with both the weather and having successfully made the "hellish" (descriptive term used by an attendee some forty years younger than the present leader) ascent from Wythburn Church. He is standing on the spoil from No.1 Level which is below the

snow in the foreground. Alen was greatly involved in the re-opening of the mine and its underground exploration. Not all visits went as well as the one pictured; in his own words:

"I'm in a sullen mood as I trudge north along the forest track above the east bank of the lake. I've lost a sock. The snow's deep and I've got one warm foot and one that's ready to freeze. I've searched the car and the rucksack. No right sock. Unbeknown to me it's lying on a kitchen floor on the other side of the Pennines."

Back to the present. Since we had not been to the mine since 2017 and it was intended to include it in the NAMHO 2023 program, a proper inspection was required. This involved carrying up a considerable amount of rope and equipment. An 85 metre rope had been specifically bought to deal with one pitch; when measured it turned out to be 72 metres long. This left the Meet Leader with nagging doubts about achieving the day's objectives.

One thing really went well, there was no rain and virtually no wind and the temperature was quite reasonable. Needless to say the Meet leader was last up to the site by a long chalk but the No.1 and Arnisons Low level entrances were successfully located and found negotiable if a little tight. Stopping off at No.1 a pair of volunteers went in to check that no serious problems would be encountered if we managed to rig down from Arnisons level. A satisfactory report meant progress up and into Arnisons; here the sheer volume of water coming from the stopes gave some indication of how much rain had fallen recently. Messrs Lund and Aird used Tony Holland's stainless steel bolts to rig down the initial vertical 10 metres and descended and rigged the inclined ore shoot down to No.1. Given that the rope was only 72 metres long and the volume of

water flowing, it was decided to return to Arnisons and split the party; some to adjust the rigging at the top of the pitch and others to go out and down to No.1 to check if the rope was long enough and commence the rigging down to No.2.

This worked well, the rope proved to be just long enough, the time limit set for the upper group to remove the rope and move down to No.1 was exactly correct. David Lund then rigged the upper part of the descent to No.2 but even he, having seen the amount of water going down the lower part of the route, opted just to check the bolts and climb back out.

All that remained was to gather all the tackle together and descend back to the church. Given the time of year and the length of time since the last visit this was a highly successful meet entirely due to the attendance and carrying capacity of the attendees to whom the Meet Leader is extremely grateful.

John R Aird

References:

"Wythburn Mine and the Lead Miners of Helvellyn" *Alen McFadzean*
"Thirlmere Mines and the Drowning of the Valley" *Ian Tyler*
Alen McFadzean blog*:*
becausetheyrethere.com/2010/12/23/helvellyn-with-ghosts-part-1-wythburn-mine/

Elterwater and Lingmoor Slate quarries, 11th December.

Mark & Sandy Hatton, Julian and Jane Cruickshank, John and Leslie Aird, Chris & Joanne Cowdery, Jon & Kate Knowles, Warren Alison and Liz Withey, Martin Lawton, Adam ?, Robert & Angus Gurr, Mark Waite, David Lund, Sarah Westmacott, Dave Hollingham, James Archer. Stephe Cove, David ?, John Ashby, Kevin & Lorraine Crisp, Nigel Addy, Kevin Timmins, Iwan Fletcher, Celia Burbush, Thomas Hallett, Roger Ramsden, Philip Newton, Bob Mayow.

The venue for our 2022 Post AGM meet was Elterwater & Lingmoor quarries. Burlington Slate had generously agreed to show us around the Peppers closehead complex at their Elterwater quarry. This proved a very attractive opportunity to look in to a working that is usually firmly gated and locked.

Thirty seven CATMHS members arrived on a very cold but beautifully sunny day to be escorted in to Peppers by Ian Kelly, the Burlington Slate manager. The closehead here is mightily impressive as it dips steeply into the hill. The large flood-lighting system installed here allowed us to really appreciate the scale and nature of the workings. Ian expertly and generously explained the history, working methods and rock structure of the area.

Resurfacing in to the cold (-2 degrees) daylight everyone enjoyed a hot drink and a mince pie before most of us got ready for stage two of the meet. This was to walk up to Banks quarry then on to the summit ridge of Lingmoor. The contrast between the shaded north facing side of the mountain and the sunny uplands of the ridge and south side were very marked today. Frost covered slate makes for tricky walking, but emerging in to the sunshine and the spectacular views over Wetherlam and Little Langdale were very rewarding indeed.

The day was made all the more special by Martin & Adam's discovery of a hundred yard long trial level which contained a number of artefacts, suggesting this has been a very seldom seen place in the last 100 years or so. The remaining participants descended Lingmoor feeling very pleased with such a rewarding, enjoyable and convivial day. Many thanks to Burlington for hosting us in Peppers and to all the members who took part in to-days meet.

Mark Hatton.

The Mines of Borrowdale Meet, 15th January

Lorraine Crisp (ML), Kevin Crisp, Mark Hatton, Julian Cruickshank, Duncan Scott, John Pickin, Steve Sim, David Hughes, Phil Newton, Martin Lawton, Richard Newton, Chris Cowdery, Mark Simpson, Michael Pringle, Rosemary Vidler, Jonathan Lynch, Roger Ramsden, Bob Mayow, Stephe Cove.

The group met at Borrowdale School on a beautifully sunny day sandwiched between days of torrential rain and followed by snow. We were very lucky! This was a long walk, but mostly level (or as level as it gets here!). Our biggest challenge was finishing it in daylight, so the group was primed to keep a good pace going.

We headed out of Stonethwaite towards Rosthwaite, taking a quick peak at the row of miner's cottages at The Narrow, and The Royal Oak, formerly The Miners Arms pub, which changed its name to sound posh when the Valley started to take in visitors. Rosthwaite has a lot in common with other mining villages in that it's a cluster of farmsteads with the later addition of housing for miners, charcoal burners, and other industrial activities.

Next, through the nether regions of Rosthwaite towards the River Derwent, pausing at New Bridge to get the lay of the land. We talked about how the Neolithic people found the way to Pike of Stickle Axe factory by spotting its distinct outline from high points along the way, with the most likely route from the North being up the flanks of Catbells to Maiden Moor, before dropping into the Valley floor and finding a route uphill. The passes are ancient routes, maybe that was the next step. At some point they found good axe stone at the top of Glaramara and towards the base of Great End. Numerous axe-flaking sites have been recorded in this area.

From here we could also see evidence of slate mining and quarrying in the three bands of slate sweeping around in small arcs from Honister to Lodore. Records show slate being quarried in 1752 at Honister but older houses have slate roofs so likely to be much earlier than that. Perhaps as far back as Roman Times, as Hard Knott fort had a slate roof. The earliest quarrying would

have been of the thick sheets falling away from surface outcrops having been prised off by the freezing and thawing of rainwater. The three bands are Kimberley (dark grey green), Honister (lighter grey green), and Queyfoot (rainspot slate). The first were good for roof slates and the last for strong building stone (used in many of the Victorian Villas in Keswick).

Next stop was Millican Dalton's cave home, within a large quarry complex in High Hows Wood, consisting of several openings in the rock faces, large piles of waste and the remains of three small buildings close to the main 'caves'. Before we got there, Rosemary Vidler spotted some ripples in a one of the workings, evidence that the ash was deposited in still water, probably a lake in a collapsed volcano vent.

In the early 19th Century, after the quarrying finished here (most likely to have been Victorian due to the increased demand caused by the industrial Revolution), Millican lived here every Summer from the age of 36, moving to a garden shed in Essex in Winter. He had been born in Nenthead, and eventually moved south to work in insurance, before becoming disillusioned. He was one of the first leaders of adventurous trips, with a catchphrase "Don't waste words! Jump to conclusions! It's thought that a Scottish friend inscribed these in the walls of Millican's 'attic bedroom', gently poking fun. You can see them on left as you go in, 'DON"T!! WASTE WORRDS (sic). JUMP TO CONCLUSIONS!' Mark Hatton believes Wainwright carved his initials here, but I will let you make up your own mind!

Off then to Copper Plate mine, via Hollows Farm. Once a Pot Shop, selling beer, it is thought that dodgy graphite deals took place here. It was also home of William Leyland, owner of Rigg Head Quarry in the 19th Century. William had been hunting gold in Australia coming home with just enough for a wedding ring for Sarah Wren of Longthwaite Farm. He wanted to go back but Sarah had other ideas. Her family owned the land at Rigg Head so he opened up the quarry properly, while she did the books and ran the farm.

Just after Hollows we headed uphill to an early German Openworks and dressing floor, before looking towards Maiden Moor to pick out the entrance to a short coffin level, possibly Hamblin Mine. I'm told, by Roger Ramsden and others that there are more, higher up and to the North. After that we headed to the main workings, a deep open work and coffin level, with an unfinished shaft towards the entrance. There are the remains of Tudor buildings here. Possibly one long building with 3 rooms. I had found and hidden a thick roof slate which I showed to Julian Cruikshank, only to discover that he was sitting on another, twice its length! They've both been hidden again. There was enthusiasm to survey the building remains before more damage was done. Under these workings there are adits in the sides of Ellers beck, but these are on the land belonging to High Close. Some people recalled seeing these on an arranged visit. Whilst standing here, Roger described his visits to Black Crag, very high up on the fell to the North. I'm hoping he can find his photos as I'm not likely to go up there, ever!

We cut through the property, known as Ellers (with permission), noting the outcrops chipped at here and there, and pondering the possible location of the mine that is marked as being here on the 1861 OS map, but not yet found.

Perhaps it was mislocated. Then onto the road towards Manesty to look at the Salt well in the field below and take note of the copper vein running E-W, as marked by the shaft and adit here. From the road you can see a small calcified copper heap. Mark Hatton managed to get this tested and it contains a high percentage of arsenic. The Salt Well (with the remains of an unsuccessful bathhouse built above), lies at the junction of the copper vein and a lead vein, worked to the South. There were once three buildings here, since demolished and the shaft was filled in with the spoil in the 1960s. It must have been a large amount as Alan Leyland recalls it took a long day to complete.

There are three Salt Springs in Borrowdale as well as this. One is at the base of Lingy Bank by Castle Crag and the other is intersected by the Salt level at Brandlehow and is the source of all the drainage issues in the mine. The monks here (Fountains and Furness Abbey divided the valley between them) make a brief mention of the salt in their records but there is no evidence of salt pans so it can't have been much. The well is old, so perhaps the German miners were the next to use this resource.

We headed next to Brandlehow via the path of the Mill Race to the mine (marked on the 1861 OS map). This lies next a large reservoir, dammed at one end. On its banks there is a digging of sorts in the bedrock. It's largely infilled so it's unclear what this is, although the old map has it as 'lead mine'. Which seems to be the default! Much more to learn here.

The mill race route takes us to The Brandlehow Mine Manager's House, much extended since the early days. The earliest resident here is William Woodwise in 1771. There was a water wheel behind the house used to dewater the Mine. 150 gallons a minute flowed through it and even in the driest times there's a stream coming out of the salt level. Between 1819 and 1836 the mine was worked by John Tebay. He lost a lot of money here and gave it up as a lost cause. In 1847 another attempt was made by the Keswick Mining company who thought they could solve the problem with a steam engine to pump the water out. Its arrival was greeted with two parties, one for the wealthy locals, and one for the workers. Still, it failed, and the mine closed in 1861.

We had a look at some of the workings, but time and high-water levels prevented us from doing a proper job. We looked at Wood level. Which was nice and dry in the Autumn and was now waterlogged. Only Martin Lawton, as the only welly wearer, attempted to go in, only to discover that the water was more than welly deep.

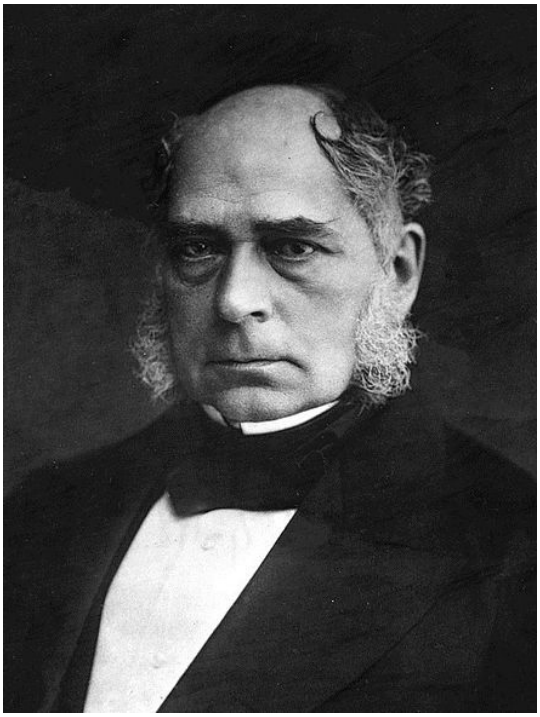
We headed back via the lake path, taking the route the other side of the Salt Well. Sadly, the Meet Leader was a bit rubbish here and got lost trying to find the hand chipped workings at the shore. Fortunately for her, there was a nice view at the end of the (wrong) promontory. Through Grange we passed Riggside, the home of Janet Fisher, she was one of the valley girls who married a German Miner. Wolf Hund the German Smithy lodged here. Census data shows several quarrymen and miners lodging in Grange and the house next to Riggside was built for a Brandlehow Miner who lost his leg.

From Grange, we headed to Stonethwaite courtesy of Mark Hatton who had left his car there. He ferried a few kind people back and they came back for the rest of us. While we waited, we looked at The Borrowdale Story display in the old Methodist chapel. Our next stop, the St Andrew's Church, Stonethwaite, houses the Mining Exhibition that is also produced by the group. Kevin had the kettle boiling for us and we finished the meet with hot drinks and cake whilst chatting and looking at the exhibition materials. The exhibition is the result of a lot of blood, sweat and tears by the meet leader, ably assisted by Kevin on technical stuff. It probably contains errors and can definitely be improved. It was designed to evolve and grow so if you've any comments or interesting material to add they would be gratefully received.

I must add my thanks to Mark Hatton and Julian Cruickshank who were so supportive during the preparation of this meet. Photographs courtesy of Kevin Crisp and Mark Hatton.

Lorraine Crisp

Bessemer, Graphite and pencils



Sir Henry Bessemer (1813-1898) is famous even today as the inventor of a steel making process which bears his name and changed the World. What Sir Henry did was develop a new method for producing high quality steel in large quantities at much lower cost per ton than had been achieved before. Sir Henry patented his new steel making process in 1856 and went on to become exceedingly wealthy from the royalties and licence fees that steel manufacturers paid him. And the manufacturers didn't object to paying Sir Henry as his invention cut the cost of steel from over £40 a ton to almost £6 a ton. This much cheaper and far more plentiful steel transformed the rate of industrialisation across the world and improved safety as steel replaced cast iron and wood. Vast quantities of this high quality low priced steel were deployed in railways, bridges, shipping, buildings and many more applications. But long before Sir Henry transformed the cost of manufacturing steel, he did the same for the use of graphite to manufacture pencils.

Henry Bessemer came from a successful family of inventors and so he had long known how he intended to achieve success, recognition and wealth. He started by looking for industrial processes that he felt could be made more efficient, cheaper and better. He continued to apply that formula throughout his life, ending up with 129 patents, improving many processes and becoming one of the wealthiest and most respected men of the Victorian era.

In 1838 Henry Bessemer was a bright, ambitious and highly creative 25 year old, determined to make his mark and his fortune. The process that attracted his attention very early in his career was pencil making. He researched the pencil making process and observed that it was the cutting out of the graphite core of the pencil that was the critical operation. This was performed by highly skilled workmen, who manually sawed blocks of pure graphite into uniform thin slices. This process required great skill, care and time, yet still involved a lot of waste of the high quality graphite. Any hard rock impurities in the graphite block could snag the saw blade and this often fractured the block in to sizes that were then too small for making pencils. And thick saw blades were used which created lots of wasteful graphite fines or dust that clogged up the blade.

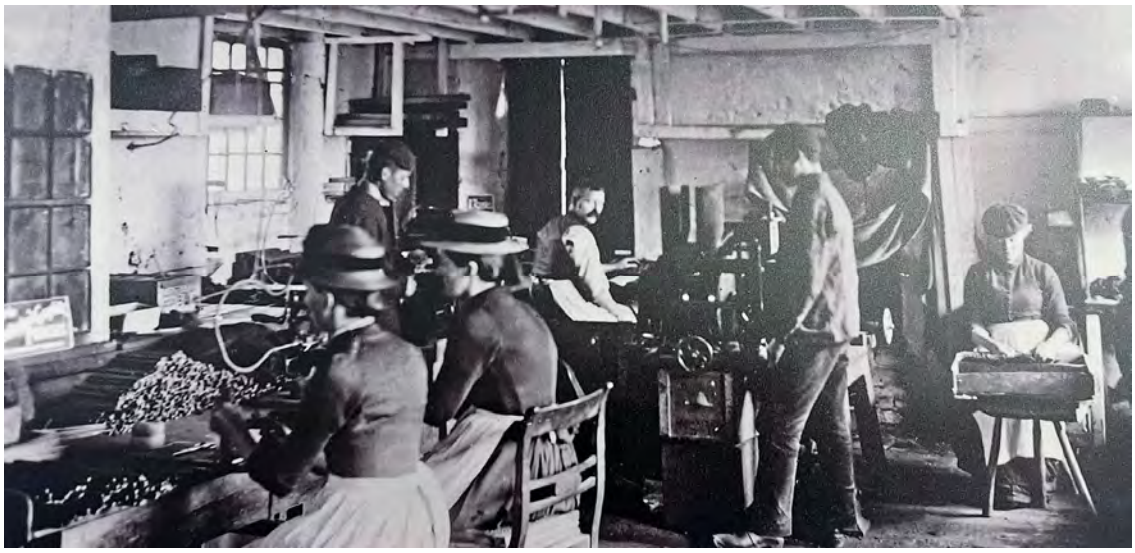
Often less than 60% of the graphite block was successfully sawn into the thin strips required to manufacture the pencil, the rest going to waste or used for far lower value applications. Henry set to work improving this process. The first innovation he applied was to simply invert the sawing process such that the sawing dust fell downwards, and didn't clog the blade. Moreover, he automated the saw, applying a friction clutch which pulled the saw away as soon as the blade snagged on any impurity in the graphite block, thereby saving the block from fracturing. These innovations allowed very fine watch

spring steel blades to be used and this substantially reduced the amount of waste from the sawing process.

Bessemer tried to get the pencil manufacturers interested in his innovations but they were a rather secretive and protective lot who didn't readily embrace change. So he went further to try to find a way to utilise the fines that the traditional sawing process produced. He came up with a way to convert the graphite fines into a long, thin, uniform cylindrical shape utilising a 400 ton press and high temperatures. This he believed made an excellent core for making round pencils with zero waste.

Bessemer was very happy with his new invention and proudly showed it off to a friend, who in turn was sufficiently impressed to offer to buy the rights to the invention for £200. A deal was done and Bessemer quickly turned his creative mind to many other industrial processes. The rights to the invention were sold on to pencil manufacturers who realised that they could now use lower grades of graphite which were milled down into fines and then pressed into a uniform shape for making high quality pencils, with zero waste. This hugely reduced the cost and increased the speed of pencil manufacture. And importantly it allowed far more of the dwindling output of graphite from the Borrowdale Mine to be used for this high value application.

From the Pencil Museum in Keswick. A caption reads: 'PB is short for Plunbago, which is another name for graphite. The name Plumbago comes from the local residents around the graphite mine, who had named it due to its lead like texture. Plumbago in Latin means Lead Ore, or more informally Black Lead. This pencil contains graphite mined from Seathwaite, and is the only one of its type.'



Manufacturing pencils at the Cumberland Pencil Factory in Keswick circa 1890

Later in life Sir Henry Bessemer wrote that he learnt a very important lesson from his experience of working with graphite. That was to never sell your invention, but to

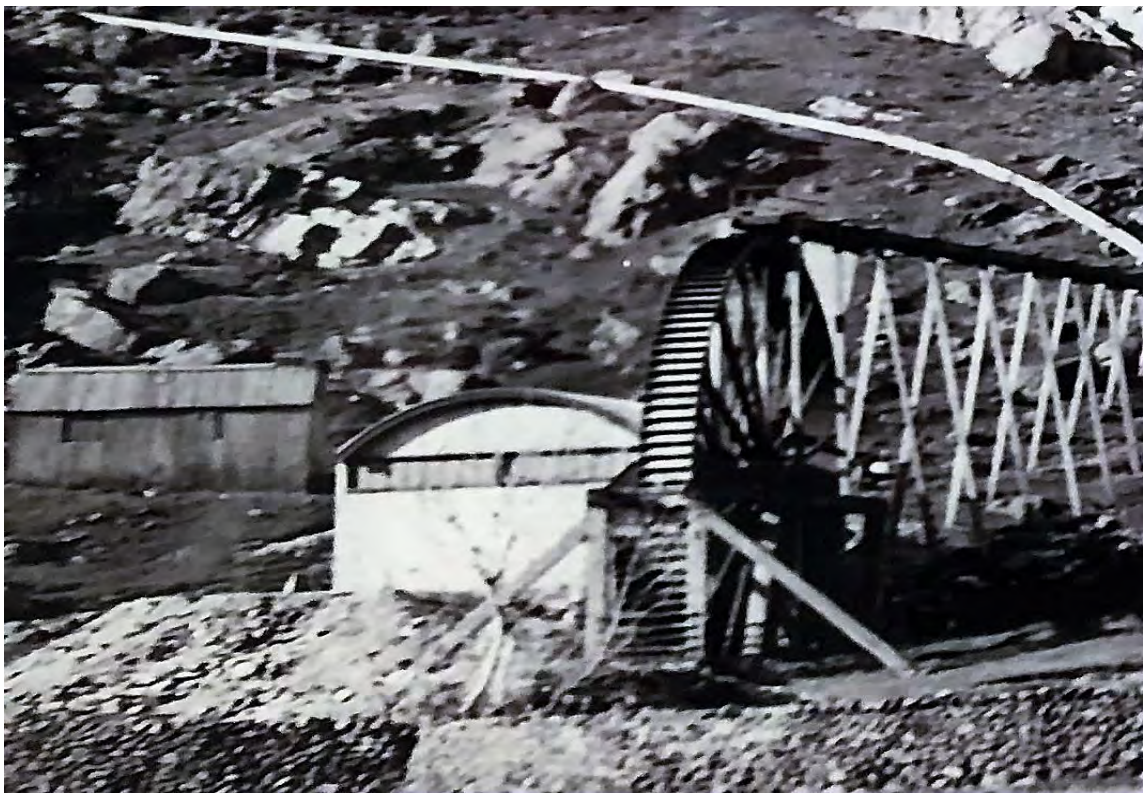
licence the technology and collect royalties from anyone who wished to apply it. In his own words “I fear this little episode does not speak very favourably for my business capacity in those early days, for I really ought to have made much more than I did by this really important invention.” He never made the same mistake again and as a result his other inventions made him exceedingly wealthy.

Here pieces of cedar wood are being cut to form the pencil shape by machine.

The pencil industry in Keswick grew rapidly in scale and profitability as they applied these new manufacturing techniques. The factories installed waterwheels to operate the milling machinery (to grind up the graphite) and to operate the presses and wood sawing machines, all powered by the waters of the River Greta as it flowed through Keswick. And a waterwheel was also installed at the mine at Seathwaite, to operate a mill so that low grade graphite could be ground down into fines. The life of the mine was successfully extended and the shareholders continued to take healthy dividends, until the precious Borrowdale Wad became harder and harder to find and eventually ran out. From then onwards the pencil factories in

Keswick imported low grade graphite from overseas, which was often mixed with clay dust, but using the Bessemer process they could still profitably manufacture high quality Derwent Pencils, famed all over the world.

Mark Hatton, January 2023.



The mill at Seathwaite Wad mine.

Beam Engines in the Lake District Mines

Beam Engines were used for a variety of purposes all over the country but are synonymous with the mines in Cornwall and are even pictured on the Ginster Cornish Pasty packaging.

A beam engine is a type of steam engine where a pivoted overhead beam is used to apply the force from a vertical piston to a vertical connecting rod. This configuration, with the engine directly driving a pump, was first used by Thomas Newcomen around 1705 to remove water from mines in Cornwall. The efficiency of the engines was improved by engineers, including James Watt who added a separate condenser; Jonathan Hornblower and Arthur Woolf who compounded the cylinders; and William McNaught who devised a method of compounding an existing engine. Beam engines were first used to pump water out of mines or into canals but could be used to pump water to supplement the flow for a waterwheel powering a mill. (Wikipedia). They seem to have been little used in Cumbria, but during some recent research, I had forgotten about the two beam engines that were used in the Lake District at Roughtongill Mine on the Caldbeck Fells and Brandlehow Mine on the shore of Derwentwater,

Roughtongill Mine The mine was taken over by the Caldbeck Fells Consolidated Lead & Copper Mining Company on the 29th April 1865. The company took advice from a Cornish engineer Captain Trevellian of Herodsfoot and he recommended sinking an engine shaft virtually in the centre of the orebody below Iron Crag.

Tenders were put out and after much deliberation the contract was awarded as a joint venture to Messrs. William Oatey & Co, Wadebridge Foundry and Mr Loam the design engineer who worked for Messrs. Hockings of Redruth in Cornwall. The engine would be a 60" cylinder pumping engine, 25" drawing engine and would have two horizontal steam boilers (some reports say three).

The engine house would need to be located on solid ground and would require around 500 tons of quality dressed stone for the quoins and engine mountings, a further 2000 tons of local building stone and the roof would be in Welsh slate.

The engine house was around 54ft high, 22ft long and 17ft wide, The beam for the engine would have weighed around fifteen tons, the stroke was nine feet and it would lift an average of 127 gallons a minute from a depth of 500 feet. Some reports state that it would consume 1175 tons of coal per annum. The shaft would be called Laintons Engine Shaft after James Lainton the company secretary.

National Trust Pool Cornwall- Photo by Grant Shaw

By June 1870 the 60" cylinder steam pumping engine and beam arrived safely from Cornwall.
On the 31st December 1872 the beam engine was finally fired up.

Summarised from Roughtongill and the mines of the Caldbeck Fells (Ian Tyler)

<u>Brandlehow Mine</u>
The mine was very wet due to being sunk from the shore of Derwentwater and in December 1888 a new engine house was constructed for the arrival of a 60" Cornish beam condensing engine with a nine-foot stroke; the two steam boilers were 30ft by 6ft with a nine foot stroke.

Summarised from Seathwaite Wad and the Mines of the Borrowdale Valley (Ian Tyler)

It is intriguing that the dimensions of the engine at Brandlehow Mine appear to be the same as the one at Roughtongill Mine, were they the same engine?

Also given the proximity to the shores of Derwentwater and the Victorian's fascination for industry, it seems inconceivable that a photograph was not taken of the engine.

Warren Allison

Barrow Mine

This ancient lead mine is located either side of Barrow mountain near Braithwaite, Keswick and the eastern side is referred to as the shivering mountain due to the sandy coloured debris from the mine, which is in near constant motion. The mine worked the Yewthwaite vein which divides into two; the north vein which is solid, and the southern vein known as the "sandy lode" due to its friable nature.

Western side

Eastern side

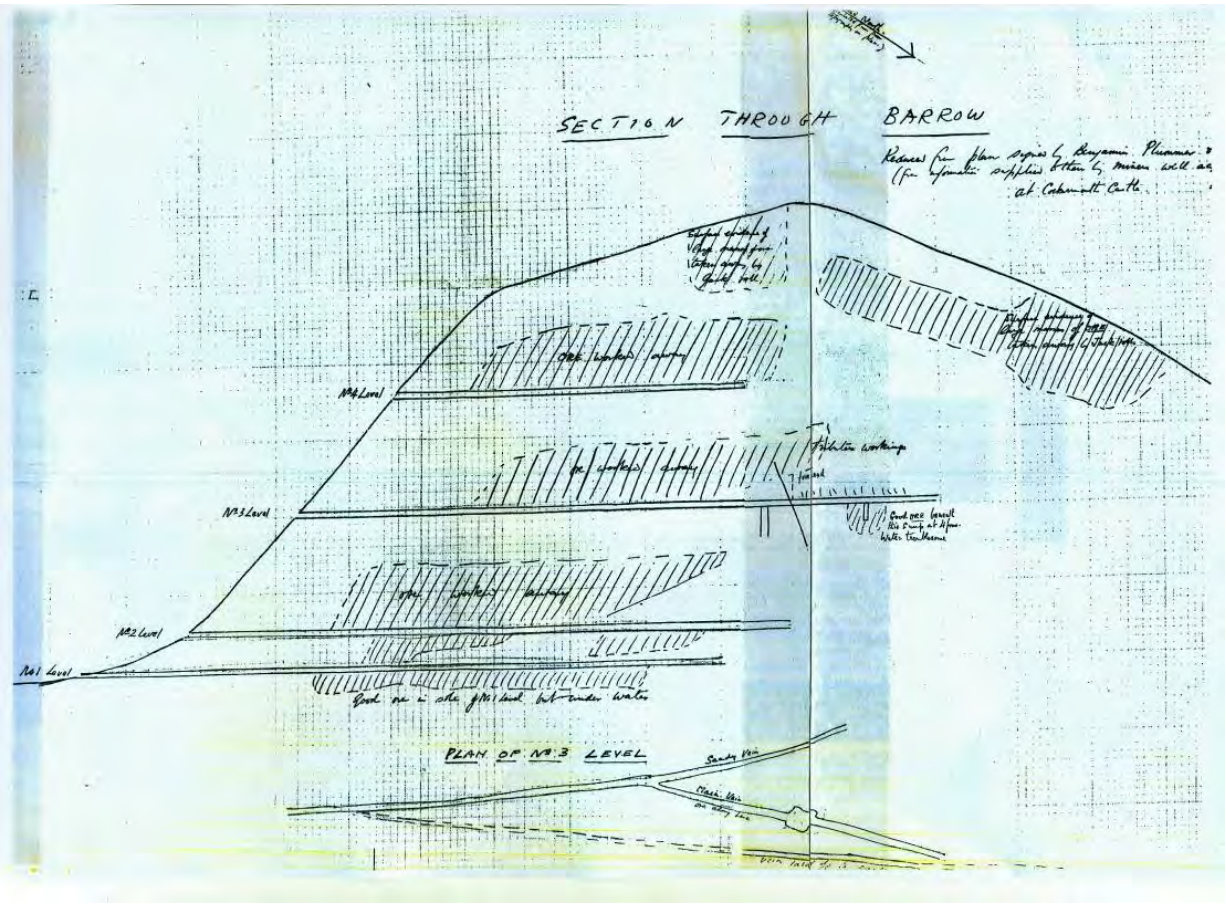
This is a fascinating and extensive site, and Ian Tyler in his book "Goldscope and the Mines of the Derwent Fells" has tried to piece together the history from the few records that are available.

The mine was worked for hundreds of years and in 1649 was being leased from the Duke of Northumberland. A report in 1690 from the famous mining engineer David Davies indicated how much work had already been done. Mining continued through the 18th and 19th centuries, by a number of different companies, and one, John Tebay, built a dressing plant just below the road using No1 level as the main access. In 1883, another well-known mining engineer, Henry Vercoe, sank an engine shaft from near Uzzicar Farm and powered the winding engine with a 20hp Robey steam engine, with the mill powered by a sixty foot waterwheel using water from Stoneycroft Gill, some four hundred yards away. By 1896, the mine was closed, the plant auctioned off and a few years later the shafts were filled in. I have seen a photograph of the water wheel, probably when it was being dismantled.

I recently found some interesting newspaper articles on the British Newspaper Archive website which shed additional information on the mine:

The Daily News 10th May 1853.
At the Keswick Mines, (also mentions Brandley Mine and Stoneycroft Mine) the lode in Wilkinson's level is worth 10cwt. per fathom.

The Daily News 21st September 1853.
At the Keswick Mines, (also mentions Brandley Mine and Thornthwaite Mine) At the Barrow Mine the lode is worth 20 cwt. of ore per fathom.



A copy of one of the few plans from 1869 by Benjamin Plummer and Coltas Dodsworth, from information supplied to them by miners well acquainted with the underground workings.

Some of the working on the eastern side

The Daily News. September 27th 1853
From the Keswick Mines the manager writes that in sinking a shaft below the bottom level at Barrow Mine a lode has been cut which will produce from 30 cwt to 2 tons of lead ore per fathom.

The Daily News 31st May 1854.
From the Keswick Mines the manager reports. (also mentions Brandley Mine and Stoneycroft Mine). At the Barrow Mine in Wilkinson's level is worth 6 cwt. of ore per fathom; in the middle level at this mine No1 stope is worth 5 cwt. and No2 stope from 2 to 6 cwt. of ore per fathom.

Penrith Observer 20th November 1888.
CONFLICT BETEEN MINERS - Reports were current in Keswick on Tuesday night that the miners employed at the Barrow Lead Mine, Newlands and those at the Brandley Lead Mine had that day contested some question of water rights in an arbitrary manner. From the statements made it appeared that the water supplied to the Barrow Mines had in the past been used by the Brandley Mining Company for the purpose of cutting timber at the saw mill at Stair, and on Tuesday when the Brandley miners went to turn on the water to work their mill they were opposed by the Barrow miners. Reinforcements were sent for and arrived from Brandley, and after a struggle in which several men on each side were more or less hurt, the Barrow miners had to let the water run to the mill.

Looking down in the late 1980's onto the Tebay working at the bottom left, with surface workings in the middle and the engine shaft complex to the right of Uzzicar Farm.

In the Mid Cumberland & Westmorland Herald dated 26th June 1907, there is a reportof a court case relating to the removal of plant and materials at Brandlehow and Barrow Mines (area around Uzzicar Farm)

Remains in 2020 of the area for the engine shaft and dressing plant around Uzzicar Farm.

A civil case was held at Carlisle Assizes between Mr James Dawson, a contractor from Hensingham near Whitehaven, and Rev. Benjamin Lund Carr, vicar at Newlands, to recover £200 17s 1d "for work done and money expended in the breaking up and removing mining plant and other materials from Brandlehow mines".

In October 1905, Dawson was filling up a shaft at Barrow Mine for Mr. Watson, Lord Leconfield's agent. On the 17th or 18th October the Vicar came and said he had purchased the plant and material at Barrow and Brandlehow Mines and could he dismantle them. It appears no formal contract was written down and was verbal, work continued, but Dawson was not paid the full amount.

The court found in favour of Mr Dawson, however the Vicar appealed to the High Court before the Master of the Rolls and other judges. It was reported in the same newspaper on the 22nd June 1907, that the appeal had been rejected.

Many years ago, on a walk up Stoneycroft Gill, we came across a leat off the gill a fair way up the beck and followed it round the eastern side of Barrow mountain and straight to the top of the mine workings. The leat was dug for a considerable distance, but was it used for hushing or washing ore?

The mine is certainly worth considering as a project to map the surface workings and revisiting what has been recorded so far to see if more could be worked out of this fascinating and neglected site.

Warren Allison.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

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