

CAT

The Newsletter of the Cumbria Amenity Trust
Mining History Society



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Cumbria Amenity Trust Mining History Society

Newsletter No 91, May 2008.

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Society Officers and Committee Members

Back cover

Cover Picture

No, not an underground party; this is Dave Bridge in Kernal Level attempting to measure the height of the stopes by using a helium filled balloon attached to a fine line that is wound onto a fishing reel. The number of turns multiplied by 3.157 inches gives the height. (We think)

CATMHS News

2008 AGM & Dinner

This year AGM & Dinner is to be held on 29th November in order to avoid the Grizedale Stages Motor Rally, which for the past two occasions has resulted in a lot of noise and congestion in the Yewdale Hotel

Membership

Welcome to Mike Hrybyk. Mike is an electronics design engineer and is particularly interested in underground photography. He took the picture in the last Newsletter of Dave Bridge's lost gear at the bottom of Frog Shaft.

Journal 6

All the promised articles for the forthcoming Volume 6 of the Mine Explorer are now in hand. It remains to complete the editing and layout, and we hope to have it ready for the printer by the end of May. Printing is likely to take about six weeks, so hopefully it will be available some time in July or August. I am grateful to the authors for more or less keeping to my deadlines, and especially to Dave Sewart, who does a fantastic job setting it out and putting it into Quark Express ready for the printer. Without his contribution the project would not be possible. As with J5 we will send a copy free of charge to each member, but suggesting a donation to cover the cost of production and postage.

News

Newland Furnace report.

After nearly twenty years of work the active members of the Newland Furnace Trust (who are nearly all CAT members) had a right to believe that they were approaching completion of their task. The trust has obtained a 999 year lease on the property, they have stabilised the furnace stack and re-built the flue with imitation fire bricks; the charging barn has been professionally re-roofed and refurbished. The final task was to clear the scrub and debris from the top of the stack and to cover it with some sort of waterproof capping. Plans and finance were in hand for this when the clearance revealed the foundations of the 19c furnace stack extension & the surrounding paved walkway .



CAT meet at the furnace before the top of the stack had been cleared

At about this time there was an evening CAT meet at the furnace to see what had been accomplished. It was suggested that if possible, in view of the new discoveries, the furnace top might be preserved by erecting a roof, rather than by a plastic membrane and concrete capping, which was what had originally been envisaged. The Trust organised a site meeting with Andrew Davidson of English Heritage, who was in

agreement, and indeed showed considerable enthusiasm for the project. Further talks led to the suggestion that it might be constructed as far as possible to look like the original structure. It was agreed that funds already agreed for the concrete capping project could now be used to fund planning, design and preparation for the roof project. Oxford Archeology North have carried out a survey of the stack top remains and the consulting engineers, Blackett Ord, have produced a preliminary design for the roof structure. This of course will be a lot more expensive than the original plan, especially if as has been suggested, the roof is to be clad with slate. This is not as wild an idea as might seem – the adjacent charcoal barn, which used to be in a semi derelict condition, has been stabilised and re-roofed in slate by the coal merchant who uses it, and very fine it looks too. The garage abutting the furnace, which is in private hands, is also to be re-roofed in slate. Taking account of these recent developments, any material for the stack roof other than slate would be out of keeping with the ancilliary buildings. There are still a number of hurdles to overcome in this exciting project.

A smaller grant has recently been approved by South Lakeland District Council for shuttering and pointing of the Hot Gas Flue at the foot of the stack, which has long been in a very precarious, if not dangerous condition.

Following the deaths of Harry & Geoffrey Stevenson, the long term owners of the Newland hamlet, ownership passed into a family trust who recently decided to sell off most of the hamlet. This may eventually lead to some redevelopment & refurbishment of the site. Following this sale the Newland Furnace Trust has approached our landlords (the Newland Trust) with a view to converting their 999 year lease to freehold, in other words to actually own the site. The initial response was that they are not inclined to give the freehold at this time, but the estate is still in flux and it may be possible to get an option once all the structures are in place.

IM

CIHS Spring Conference

Industrial Archaeology of the Lake counties – 40 years on.

Held on 19th April at University of Cumbria, Ambleside (Charlotte Mason to people like me) the CIHS Spring Conference had an ambitious, but very interesting programme.

In the morning Mike Davies-Sheil gave a resumé of his activities looking back to the 1960's. He really was a man before his time, collecting, recording and interpreting information that no one else was interested in. Consequently he has been able to preserve a huge mass of information that otherwise would probably have been lost. He was followed by Richard Newman, until recently Cumbria County Council's Archaeologist, who talked about Research in Cumbria's Industrial Archaeology since 1970. Graham Brooks, CIHS Bulletin editor, talked about the Contribution of the Individual and Ian Matheson gave a presentation on the Contribution of a Society – CATMHS. When one lists all of CATMHS' achievements it makes a very impressive list, and quite a lot had to be left out in order to keep to the 20 minute time slot.

In the afternoon the theme began with 'Working together – the society and the professional'. John Hogget talked about the Duddon Valley Survey and Frank Gieco about Nenthead, including the recent joint project with CATMHS to re-open

Middlecleugh. A 'Wider View' consisted of a talk by Marcus Jecock of English Heritage on the Cumbrian Gunpowder Industry, John Hodgson, LDNPA, on the Coniston bloomeries and Caron Newman of Cumbria County Council described the Survey of Carlisle's Industrial Heritage. Finally Dan Elsworth of Greenlane Archaeology reported on a rescue survey of the Barrow Steam Corn Mill.

There was insufficient time for the planned conclusion, which was to be given by Richard Newman in his new role of Environmental Planning Manager for Cumbria County Council. All of the speakers could have taken more time than they were allotted, and some did. Nevertheless it was an interesting and imaginative programme, and it is unlikely that any of the talks suffered by having to be more succinct than usual.

Safety of Cows Tails

A report has just been published regarding the safety of Cows's Tails. It is recommended reading for people who use SRT. It can be downloaded directly from here: <http://british-caving.org.uk/?page=41> and I have posted a link to it on the Health, Safety & Risk pages on our website: <http://www.catmhs.org.uk/risk.php>
Chris Cowdery

National Database of mine Plans

A consortium of public sector partners co-ordinated by the British Geological Survey, are undertaking a project to create indexes to mine plans and where possible to scan all mine plans for the UK. The aim is that there should be a digital register of all known underground mine plans, sections and entrances and that this should be made publicly available via the internet. Most official collections of mine abandonment plans have been indexed and scanned. Discussions with a number of holders of large mine plan collections have taken place, including those at stately homes, and in the next 12 months a number of the unofficial plans will be indexed and, where possible, scanned. The contact for information is: Jenny Walsby, British Geological Survey. Phone 0115 936 3271, email jcw@bgs.ac.uk, web site www.bgs.ac.uk.

Fire-setting

A paper in the NMRS Memoirs 2007 suggests that fire-setting as a means of breaking hard rock was widespread in the Peak District, and the authors claim to have found evidence of fire-setting at Goldscope and at Cobbler Level at Coniston. Radio carbon dating of fragments of charcoal in Peak District mines suggest that it was prevalent in the fifteenth and sixteenth centuries. The authors suggest that mine explorers should be on the lookout for evidence of fire-setting, and describe signs to look for. These include the shape of the passage, which is likely to be domed, the nature of the surface which may be altered by heat or by subsequent hammering, sooting, floor deposits which may contain evidence of charcoal or burnt coal and the possible existence of structures to improve ventilation. There is more detail in the paper, Post-medieval firesetting in British metal mines, by John Barnatt and Terry Worthington, published in British Mining 83, which is in the CATMHS library at the Ruskin Museum at Coniston.

Permission sought to search for Sebastian mine at Coniston.

From: Peter Fleming

To: Eleanor Kingston.

Sent: 01 April 2008. **Subject:** Coniston Coppermines

Dear Eleanor

I have attached a briefing note relating to CAT's interest in the possible re-opening of "Sebastian Mine" entrance. This was possibly located eighteen months ago, as you know, with the assistance of the Earth Sciences Department of UCL, using ground penetrating radar. I thought the note would be suitable to circulate to English Heritage and Natural England in advance of a meeting on site.

Sebastian Mine

Levers Water, Coniston Coppermines

From original German manuscripts kept at Alnwick Castle, Northumberland, we learned of an early 17th Century stollen (tunnel) which was driven by hand to de-water a mine called "Sebastian". Close to Levers Water, this mine had been worked for many years by German miners under the supervision of Daniel Hechstetter (Junior). His father, also Daniel, had come to England in 1561 and under the patronage of Queen Elizabeth 1st had set up the Society for the Mines Royal. They worked primarily in the Keswick and Caldbeck Mines but in the closing years of the Sixteenth Century they started on the rich copper deposits at Coniston. Hechstetter Junior kept detailed records of their activities and costings, etc. From these manuscripts we know that in 1602 a mine known as "Sebastian" had been worked to a depth of 4 fathoms (24 ft) on a rich 10" vein of copper. By 1617 the working was so deep that much time and effort was wasted on bailing out flood water.

In a letter dated 23rd Jan 1617 Hechstetter states that it had become desirable to drive a drainage adit. This hand driven tunnel was estimated to take four years to drive 40 fathoms (240 ft) at a cost of £180. This tunnel was completed by June 1620.

The location of this tunnel, which has long since been buried under the spoil tipped over it from later Victorian workings, has always been the subject of speculation, and in August 2006 Cumbria Amenity Trust sought the assistance of the Earth Sciences Department of University College London. Their team came for several days using a magnetometer and ground penetrating radar. Some time later, on evaluating the accumulated data, an area was pinpointed adjacent to a rock outcrop below Simon's Nick, very close to where we suspected the entrance might be. It lies no more than 1.5 metres below the present day surface.

There is a strong possibility that this tunnel is still in its early 17th Century condition and not widened by later operators with explosives to accommodate wheelbarrows, if so it will be the only intact original "coffin" level at Coniston Coppermines.

In order to further our research and knowledge of these historic mines our Society (Cumbria Amenity Trust Mining History Society) would like to arrange a meeting on site with a view to gaining permission to re-open this entrance. The landowner's agent has already expressed a positive interest; therefore we must approach English Heritage and Natural England for opinions and consent.

Reply from E Kingston, 1 April 08

Thank you for the briefing note for the possible re-opening of the Sebastian Mine entrance. Both John and I have looked at the note and have provided some comments below. We do feel this is a potential project and we would like to be involved, however, as you will see it is a question of resources.

- We do feel that this is a potential future project, however at the moment we just do not have the capacity to forward it. As you know we are trying to develop a Lakeland Mining Heritage project, which we are bringing to the next Lakeland Mining Forum meeting to discuss. The re-opening of the Sebastian Mine entrance could fall quite neatly in to this project and we would be happy to discuss it in more detail at the next Forum. If we do decide to progress with the Lakeland Mining Heritage project at the next Forum meeting, this will be a huge amount of work to undertake along with all our other duties.
- We do not think English Heritage would consider granting consent for further work in the Coppermines area until the work at Kernal Level is completed. By this we mean a report completed and sent to all relevant parties (EH, NE, Rydal Estates and LDNPA).
- It may be that the work would require archaeological excavation and some specialist input. If this is the case, clearly resources would have to be identified. If it was included in the wider Lakeland Mining Heritage we would be able to bid for resources from external bodies.
- We are also working on the potential project at Carrock Fell Mine, which is taking quite a lot of time and effort to develop. If and when this develops into a project acceptable to all those concerned, we do think it would be wise to concentrate on this first before trying to embark on something else as well. We can't speak for EH and NE, but they too might prefer to take one at a time.
- We have also offered some training to CATs and MoLES in June to undertake condition surveys of above ground mining remains. This is a huge task which will involve considerable input from us.

We do not want to appear too negative, but at the moment with all the above going on we can't commit ourselves to undertaking another separate project. If it was rolled up in the larger Lakeland Mining Heritage project there are a number of positives, including resources, interpretation, community involvement, to name a few, which may benefit the Coppermines as a whole. Perhaps we could discuss this further at the next Lakeland Mining Forum?

Eleanor Kingston
Archaeology and Heritage Adviser
Lake District National Park Authority

Yarlside Mines bulldozed, 22/4/08



Yarlside today. Photograph Peter Sandbach

When we reached the brow of the hill today, we found that a large area of spoilheaps and subsidences had been ploughed over. The engine bed at No 4 pit has gone and the one at No 5 was upside down, ready to be buried. The concrete lining of a reservoir had been torn out and many small subsidences were being filled in.

This was a showpiece site, almost as good as Roanhead and without the brambles. I am only able to show what has been lost because Anton Thomas was inspired by an earlier fit of destruction to start the relic survey in 1992. That survey is neither finished nor abandoned. It needs a leader with a thick skin and a strong back to resume brush cutting and photographing.



Peter Sandbach.

Engine bed at Yarlside No4. Photograph Dave Robson, June 1999.

NB The Relic survey has been digitised by Mark Simpson and is available on CD. Ed.



*On the left is Elliscales No4 winding engine house. See Newsletter No82. Photograph SCPT, Sept 1993
On the right is Elliscales engine house today. Photograph Peter Sandbach.*



Secondary copper deposits

As many CATMHS members will know the walls of the Coniston copper mines are coated with colourful deposits of secondary copper minerals. Being a chemist I have carried out detailed analyses on similar deposits from an Irish copper mine (Tankardstown, Co. Waterford), the results of which have recently been published. As these are very likely similar to the Coniston examples the results may be of interest to members, many of whom are regular explorers of the Coniston workings. I have cut and pasted below the conclusions section of the paper in case you think it worth including in the newsletter.

"The soft blue and green coatings on the walls of Tankardstown mine, and probably also similar post-mining deposits in other copper mines, are

composed of silica gel of high water content, with copper bound to the surface of the gel by cation exchange with the protons on silanol groups. Also present in variable amounts are malachite, and basic sulphate and chloride minerals of copper. These deposits form by the mingling of copper bearing solutions with solutions carrying silica sol leached out of siliceous wallrock. Their formation, at around neutral pH, is consistent with laboratory observations of the coagulation of silica sols by dilute copper solutions."

Steven Moreton.

Moreton, S. (2007) Copper-bearing silica gel from the walls of Tankardstown mine, Co. Waterford, Republic of Ireland. *Journal of the Russell Society*, vol. 10, p. 10-17.

South Shaft, Coniston

On 10th March John Aird and Roger Ramsden stripped South Shaft of all ropes (55 metres) and hangers. No CAT money was used as all the materials had been supplied by the participants.

Goldscope

On a visit to Goldscope at the end of March it was discovered that the level was blocked at the end of the small by pass crawl after the wheel pit chamber. This is a collapse of the small chamber with the rotten timbers before the second crawl which led to the lead vein junction. This is a great loss to a historic site, a fine example of a hand cut drainage channel and any future attempts to gain entry to the Engine Shaft, (now preserved for future generations). The area above the collapse within the wheel pit chamber is unstable and looks terminal as far as re-opening is concerned, it is a shame it was not protected years ago.

Roger Ramsden.

Mines Forum Meeting, Brockhole National Park Centre, 8th Feb 2008

Matters arising

Donald Angus reported that the water level at Goldscope mine had been found open. Peter Fleming, tongue in cheek, said it needs gating. Penny Webb reported that the NT was reviewing their policies regarding safety and access to mines and more gating may be considered.

Monitoring of mine sites is a problem; there is no long term scheme in place by either the NT or the LDNPA. The NT volunteers who were monitoring mine sites are losing enthusiasm.

Roundups: CATMHS

Exploration of Kernal Level is nearly complete. The workings have been photographed and surveyed and some archival research carried out. Carter Jonas, who are Agents for the Rydal Estates have a metal canister believed to contain some very large old plans. Julian Lambton, of Carter Jonas, has now opened the container and allowed Peter Fleming to take the plans away to be photographed and copied. The plans are of the Coniston and Tilberthwaite mines and of the Manors of Kirkland and Skirwith. At Carrock Mine there had been two site meetings, and the CAT team have prepared costings, Method Statement and Risk Assessment documents. CAT is waiting for the go ahead to start work. Warren Allison hopes to investigate more ancient workings at Silvergill and intends to submit requests for permission. CATMHS have passed a CD of the Geo Physical Survey at Coniston to the LDNPA Archaeology Department and expect to apply for permission to investigate the suggested site for the Elizabethan Coffin level at the foot of the crag to the south of Simon's Nick.

MoLES

Not much has happened due to the death in December of Ian Tyler's wife Jean. Jamie Lund would like to review the license to continue work at Yewthwaite mine. Ian

Tyler has started work on a book on the mines of the Caldbeck fells, which he says will be his last. Ian had requested the key for the Silvergill mine, but John Hodgson replied that access was restricted for the time being due to the sensitive nature of the mine and the importance of the wooden track way found there, which it is thought may be the oldest rail track in Britain. There is to be a site meeting in March between Warren Allison and the various authorities. John Hodgson had again tried to contact United Utilities regarding their now disused water adit at Roughton gill, but without success.

COMRU

Nothing to report.

Alastair Cameron

Wasn't present but had sent a report. The Heritage lottery funded project at Coniston has been wound up. The group are now looking at the slate workings on Wetherlam. Honister Slate has applied for charitable status. This would enable them to apply for funding for conservation projects such as the conservation of the Sam Wright roads. Alastair was offering copies of the old film of Honister and Grey Crag at work that was shown Ken Geddes at the CAT Dinner.

National Trust

Force Crag. Application has been made for drilling to de-water Zero level at Force Crag mine. Apparently no decision has been made as to how to proceed after this has been done. Some discussion ensued, and it was suggested that unless Zero level was opened and a proper drain put in then it would just fill up again. It was reported that in the opinion of Pete Blezard, who last worked the mine, it would be cheaper and easier to pump it out using a submersible pump in the rise between Zero and no 1 levels. A survey of Force Crag mines has been completed by English Heritage. There will be a complete digital record and archive available for Force Crag mine.

Saltom Pit. In March the NT intend to landscape and improve access to Saltom Pit at Whitehaven and to carry out consolidation of Saltom Pit building. 50% of the funding will come from West Lakes Renaissance, the remainder from the HLF.

LDNPA

Honister. Planning Consent valid until 2042 has been granted for mining and quarrying at Honister. It includes Dubs and Hopper Quarries, where work must cease by 2010. There will be some environmental controls regarding track maintenance and conservation work will be carried out above and below ground.

Greenside. There is a potential problem of pollutants reaching Ullswater and concern regarding the stability of the tailings and of erosion by the beck at High Horse Level.

Caldbeck. There is to be a site meeting at Silver Gill in March. In 2007 there were 22 permits issued for mineral collecting. There was serious concern regarding illegitimate activities, particularly digging and diversion of streams, which had cause erosion (See the article in this NL) Enforcement units from Natural England and the police are involved and are trying to collect criminal evidence. They are near to two individuals but require evidence. This illegal activity may be attributed to mineral collectors and mine explorers. It is irresponsible and is causing environmental and archaeological damage.

Carrock. There had been a favorable response to the CATMHS documents there were no major issues, water pollution being the only outstanding concern. The next step is to get funding.

Data Base of Mine Sites. John Hodgson would like to re-activate work that was done prior to 2000. We now have more knowledge and experience. This will be a large project requiring a project manager. A grant application would be made next September, but grants are harder to get due

to the demands of the Olympic Games. A framework is needed to input information which might be based on the methodology of the Duddon project. JH would organise a training day.

Mapping. The LDNPA has modern digital map cover of the Lake District at 1:10,000 scale. There are copyright issues, but limited access could be provided for projects beneficial to the LDNPA. Peter Fleming remarked that there is to be an exhibition of Aerial Photography at Brockhole, starting tomorrow.

Paddy End survey. The OAN survey of the Paddy End Dressing Floors has been published but CAT has not yet received a copy (It *has* now been received. IM).

HELM website. The English Heritage Historic Environment Local Management initiative aims to provide accessible information, training and guidance to decision makers in local authorities, regional agencies and national organisations whose actions affect the historic environment. www.helm.org.uk

Exhibition. There is to be an exhibition at Brockhole on Access to Archaeology, and Development of the Landscape. It will include a section on industry.

Florence Mine. Nothing is known of the current position following closure of the mine and exhibition. It was thought that some pumping was still being carried out.

Annual Archaeology Conference.

This will again be at the Theatre by the Lake at Keswick, on Saturday 18th October.

The Next Meeting.

Will be on Monday May 12th at the NT Office, Bowe Barn, Borrowdale. A field visit to Honister Slate Mine will follow.

After the meeting delegates were given a preview of the Aerial Photography Exhibition.

Illegal Digging on the Caldbeck Fells

Warren Allison through CATMHS is planning some more investigative work on what are thought to be pre Elizabethan mine workings on the Caldbeck Fells.

John Hodgson, Eleanor Kingston and English Heritage are to visit the site in February. Prior to their visit John Brown, Pete Sedgewick, Colin Wollard and Warren Allison visited Silver Gill to determine what would be required for the project. They were dismayed to discover that there is illegal digging going on at the following parts of the gill:

1. The first level on the left hand side, although only a tentative dig.
2. In the left hand bank just below the level which has always been open, where they have also diverted the beck. This is going to leave a huge mark on the fell side, it cannot be hidden, it has already taken out one of the paths which comes through the gill.
3. In the level which has always been open (New Stolne), they have installed some pipes 40 yards underground to divert the water away from the flooded shaft, which then partially drains. This allows them to throw the material down the shaft without discolouring the water. This is the same shaft that we are asking for permission to pump out to determine if the Germans did drive a 4th level and I have already spoken to John Hodgson about it. It is clear that there is an underground dig going on.

John Brown and Warren walked over to Red Gill Mine and found the following:

1. There has been some small digging high up in Swinburn Gill on the left hand side.
2. There is a major dig on the left hand side of Swinburn Gill in the left hand bank just above Red Gill Mine and the beck has been diverted.

3. There are signs of digging in Red Gill itself to the right hand side of the top working of three in the tongue of ground between Red Gill and Swinburn Gill.

There is a dig in Dry Gill where the beck has been deliberately altered on two occasions to remove the spoil heap. These people are breaking the law; the Caldbeck Fells are a SSSI. If they are caught the LDNPA may prosecute and it could result in a criminal record and a £20,000 fine. A couple of years ago when there was an illegal dig going on in Hay Gill, the LDNPA actually involved the Police.

The research in Silver Gill which started in 1998 was the catalyst for the resurrection of the Mines Forum and the change in attitude by the various authorities towards the mining societies; this may now be under threat from the illegal digging.

Silver Gill is probably the most important site in the Lake District (an article is being written for the next CATHMS journal) and is becoming a site of national importance. The National Railway Museum considers that the evidence of the track-way in Emanuel is the birth of the railway in Great Britain. This work may come to nothing because of the selfishness of a handful of people.

Warren has a good relationship with the ranger and wants to distance ourselves from those who are illegally digging and hopefully ensure that the years of work are not ruined. The LDNPA have a good idea of who these people are and unfortunately some appear to be members of the society.

Caldbeck and Uldale Commons mineral permit system and recent damage to mines – report to Natural England.

This report is to provide a brief update on the mineral permit system operating on the Caldbeck and Uldale Commons (owned by the Lake District National Park Authority) and to detail the damage that has occurred recently to mining sites on this property.

Mineral permit system – update.

Since the permit system was finalised we have issued the following numbers of Green permits for legitimate collecting in the less sensitive zones:

2005 - 9, 2006 – 25, 2007 - 20 (to date)

I have two applications on hold at present, one for Carrock Mine, the other for Drygill and Mexico Mine/ Todd Gill. I have also had one enquiry about collecting in the Red Zone (Red Gill).

Legitimate research undertaken under current mineral system.

A series of academic papers relating to the mines and minerals of the area have been produced in recent years. Some have involved applications for Green zone permits whilst others have relied on detailed scientific investigation of samples collected before the permit system started. There has also been some underground access authorised by John Hodgson for legitimate research purposes (e.g. Silver Gill).

Permit holders who collect in the Green zone are also expected to provide a very simple and short report on their activities and findings but these have not been submitted very often. We need to tighten up on this for future applicants.

Mineral permit signs

Mineral permit signs explaining the need for a permit are installed at the following locations:

Fellside (fell gate) NY 3050 3732

Fellside (fell gate near to track to Low Fellside) NY 3057 3748

Nether Row (fell gate) NY 3235 3745

Nether Row (Hudscales) NY 3290 3763

Calebreck (by bridleway) NY 3458 3583

Carrock Beck (ford) NY 3492 3514

Carrock Mine (by mine) NY 3241 3291

These have been in place for several years. In 2005 many were removed on numerous occasions and replaced with a bogus sign which indicated that the permit system had been scrapped. We mounted a concerted effort to continually replace these with the correct signs and the problem stopped later that year. In 2006 and 2007 we have continued to check the signs on a regular basis and replaced on the few occasions they have been removed or rubbed off by horses or ponies.

Recent damage

Drygill (NY 3224 3452). Stream diverted (sometime between July 2007 and October 2007) and spoil heap subsequently significantly eroded and damaged. Clear evidence of mineral collecting at this site and further upstream, where a trench had been dug in the valley side. From a mineralogical point of view this is regarded as one of the most important mines in the UK, and this may be commercial collecting. Very recently, the site was checked by one of my volunteers (12/11/07) and he found no damage. I visited the site on 13/11/07 to replace the signs and found fresh damage and several mineral samples left on site, presumably awaiting collection. The signs had not been touched. I have a possible vehicle registration but cannot yet link it to the damage. I will try and do this and then report to the Police.

Hay Gill (Grid Ref NY 3057 3608 approx). Significant damage (in 2005) when attempts were made to re-open an adit by excavating large quantities of material. The stream was also diverted at

this site to wash away the excavated material. This stream has been restored to its original course on 3 further occasions, following repeats of the above actions. This happened in summer 2007, and has just been reported by one of our volunteers as being diverted again. This has now been put back to its original course and I am considering putting signs up again.

Red Gill (Grid Ref NY 2954 3479). Clear evidence on the ground of illegal mineral collecting with anvil stones used to smash up rocks, and another stream diversion to attempt to erode a spoil heap (since restored to original course). Signs of digging next to stream approx 50 metres upstream. Again, a very important mineralogical site.

Roughton Gill (Grid Ref NY 3028 3453). 3 collectors caught 'red handed' on 4th September on the main spoil heaps. I intercepted them there, managed to take a photo of two of them before they noticed me, and saw they were hammering rocks. I politely read them the riot act and explained the importance of the site, the mineral permit system, and where they could get permits for. We had a generally polite discussion and I then asked them to leave. I do not really have further power to do anything else. I think I have the registration number of their vehicle. In addition, I have also had unconfirmed reports of problems at Silver Gill and further evidence of quartz fragments being broken up to get minerals (Approx GR NY 2999 3422).

Carrock Mine – small scale evidence of mineral collecting with quartz fragments smashed up on 'anvil' rocks. Possibly some collecting in Brandy Gill as well. All of the sites damaged are within the Site of Special Scientific Interest and the Special Area of Conservation and in the LDNPA mineral permit system are

either Amber zone (Hay Gill/ Drygill/ Carrock Mine/ Roughton Gill) or Red zone (Red Gill/ Silver Gill)

Graham Standring
Ranger (North)
Lake District National Park Authority
14 November 2007

Illegal digging signs installed on site with a map of the Skiddaw Group SSSI attached



Lake District
National Park Authority



TO WHOEVER IS RESPONSIBLE FOR THE RECENT STREAM DIVERSIONS AND EXCAVATIONS AT THIS SITE

This site is owned by the Lake District National Park Authority. The site is part of Caldbeck Common. Any excavation of old mine workings on Caldbeck Common requires consent from the Lake District National Park Authority. Any person who without lawful authority removes or displaces soil, plants, gravel, sand, clay, stone, minerals or any other substance from the Common thereby commits an offence under the Authority's Byelaws for Access Land. This includes the eroding away of the mine spoil by diverting the stream, and subsequent excavations.

Notice is hereby given that the land shown on the adjacent map has been notified as a Site of Special Scientific Interest (Skiddaw Group SSSI) by reasons of the features described in the citation, a copy of which can be obtained from Natural England (address below)

It is an offence under section 28P(6) of the Wildlife and Countryside Act 1981 as substituted by Schedule 9 to the Countryside and Rights of Way Act 2000, without reasonable excuse, intentionally or recklessly to destroy or damage any of the flora, fauna, or geological or physiographical features by reason of which land is of special interest, or intentionally or recklessly to disturb any of those fauna. A person found guilty of any such an offence may be liable on summary conviction to a fine not exceeding £20,000 or on conviction on indictment to a fine.

The Police have again been notified of recent activities, and they will take action if the excavation or diversion continues.

Further information on the Site of Special Scientific Interest may be obtained from Natural England, Juniper House, Murley Moss, Oxenholme Road, Kendal LA9 7RL

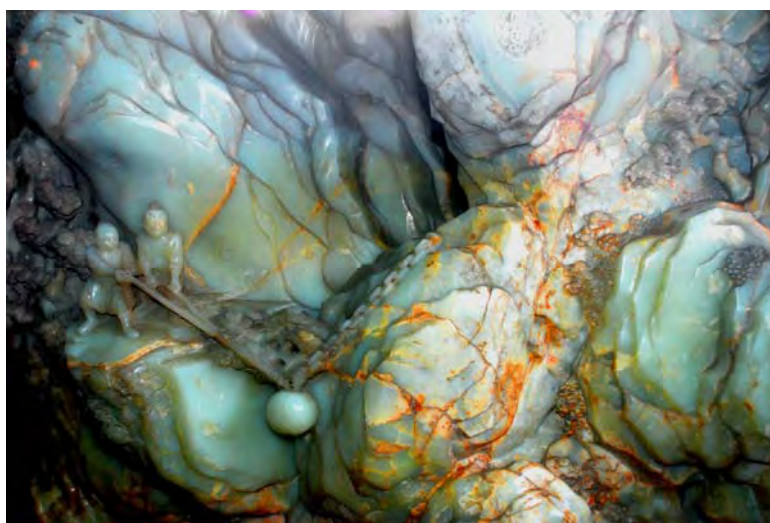
Lake District National Park Authority, Blencathra Centre, Threlkeld, Keswick CA12

Chinse miners

The postcard was photographed in the postal museum in Zhujiajiao, near Shanghai. It is of an actual postcard sent home by a Chinese worker in South Africa to his family in China. As far as I can read the caption underneath, which unfortunately is partially covered by a translation in Chinese on a label, it says: No. Henry Nourse Gold Mine-Chinese Tramming, ?, and workers?-800feet level. The postmark is Cleveland Transvaal, 2 Oct 08 10:15.



The second photograph was taken in the Imperial Palace (Forbidden City) in Beijing. Towards the North Gate and at the end of a museum of gold and jewelled artefacts is what is said to be the largest piece of carved Jade in the world. (Like the Jade Bowl, the Jade Buddha and a few more things). It is basically a chunk of pretty green rock,



but carved into it are all sorts of scenes of Chinese life at the time. My photograph shows quarrying Jade by pulling back a big ball and letting swing against the rock. (Seems likely to smash more than it loosens to me). I cannot at the moment find its date.

Ken Geddes.

Meets and Activities

Forthcoming evening meets

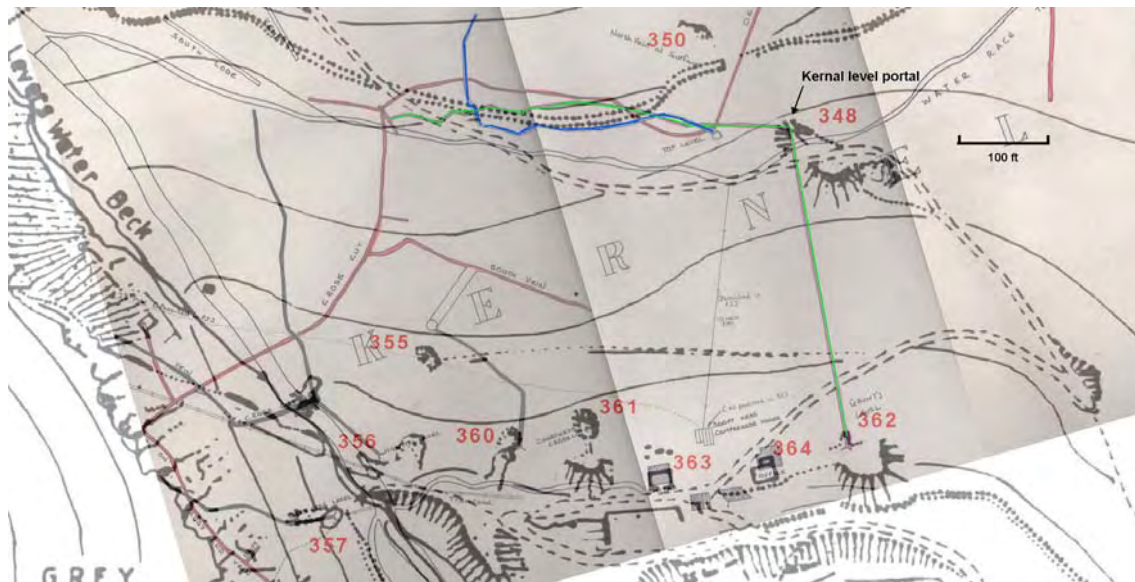
Wednesday 21 May, 7.00 pm. Priory Pier, Sandhall brickworks, wireworks, Sadler's tar distillery, Ainslie Pier. View the sites mentioned in the Journal article. Meet at the car park just past Kingfisher Chemicals on the coast road, SD308746. ML P Sandbach

Wednesday 11 June, 7.00 pm. Logan Beck Revisit the surface and underground remains at this unusual copper mine. Meet at Folds Farm, SD180192 but please phone the meet leader to confirm the meet is on. ML P Timewell.

Wednesday 9 July, 7.00 pm. Stank Branch Railway. The top end of the branch from Salthouse to Stank has recently been ploughed out. This walk follows the first mile from Roose to Salthouse. A must for fans of allotments and industrial dereliction. Meet on the coast road at Roose, SD222692. ML P Sandbach.

Confusion at Top Level, or should it be Middle Level, or Kernal Level?

The recent re-opening and exploration of Kernal Level at Coniston has produced more questions than answers. The location of the Adit on old plans and maps is ambiguous, and the original cost book uses more than one name for what appears to be the same feature. There is therefore some confusion as to whether Kernal Level was known as 'Top Level' or 'Middle Level on the Kernal Vein', before it settled with its present name of Kernal Level, as is marked on the 1847 OS map.. Dave Bridge has superimposed The Royal Commission Survey on Bawden's plan and found that when our survey of the Kernal workings is scaled down, it fits almost exactly Top Level on Bawden's plan. This suggests very strongly the Kernal Level and Top Level are one and the same.



On the superimposed plans, Top Level is shown to be above the leat marked 'Water Race' but below that of the RCHME plan, shown as a double dotted line. Could the working marked as North Vein at the Surface might be Top Level and that marked Top Level actually be Kernal Level? If the underground workings corresponded to those shown in blue on the plan above then it would confirm them to be Top Level. If not, as

our survey of Kernal Level does conform, then it is likely that Top Level and Kernal Level are one and the same.



On Friday 8th Feb, immediately after the Mines forum meeting at Brockhole National Park Centre, Mark Simpson, Mark Scott, Mike Mitchell and Ian Matheson attempted to find out by examining the North Vein. There are some flooded sumps in the working, so Mark Scott brought a section of aluminium ladder to bridge them, and Mike Mitchell brought a scaffold pole with which to dislodge loose rocks etc. getting in involves a short drop down as the original adit is blocked by the water leat. Inside is what appears to be a choked shaft protected by some timbering. Water flows into this and drains away, suggesting that there is a connection somewhere below. We climbed across this and used the ladder to bridge the two small flooded sumps in-bye. Beyond there is a small shift

in the level and a rise goes up, probably to the surface, but no light penetrates down. A pile of rocks is supported by some timbering at head height and these spill over into the continuation of the level, leaving a small hole at waist height.

Ian was at the front at this point and, without giving it proper consideration, set about scrambling through. He was about halfway when the pile of boulders began to shift. There were loud cries of 'get out', 'come back', 'you bloody fool', etc., but by then his head and shoulders were past the danger point and there was a safe haven ahead. It was both easier and safer to continue. The pile of rocks remained more or less in place and it was time to review the situation.

Ian was in a short rock tunnel, a blind heading about eight meters long. At the forehead some blue copper had leached out, but there was not much of a vein to be seen, and certainly no way on. That answered the question of whether these workings could be Top Level. They could not.

Next problem – how to get out safely. The pile of rocks was about eight feet high, supported by a single unstable rock at the bottom. It would be necessary to go out backwards, lowering down onto the unseen ladder below, almost impossible without risk of dislodging the pile whilst halfway through. It would be too dangerous to attempt to get back out without improving matters. One option was to knock the whole lot down and hope that a way out could be cleared. Embarrassing if it could not! The proddling pole was passed through and Ian used it to test the stability of the foundations. They moved, but didn't seem in imminent danger of spontaneous collapse. How to get out without touching anything?

Mark's ladder was long enough to reach horizontally from the bank at the far side of the sump through the hole into Ian's haven. He set about constructing a platform for the end of the ladder so that it would pass through the hole without resting on anything. In order to prevent anything catching on the ladder he then stripped off his SRT gear before sliding easily across the horizontal ladder to safety.

Once out, the pole was used to bring down the pile of rocks and leave things in a stable condition. It will be necessary to return to carry out a survey of the workings, but that should be possible, using laser measurement, without having to go back through the hole into the short continuation.

A week or two later the same team returned in order to carry out a preliminary investigation of the 'shaft'. By removing a few rocks the bottom of the timbering was exposed, with rubble below it. A little further down was standing water, which appeared to have the same surface level as that in the rest of the area. We concluded that the whole of the working was flooded, water percolating through the rubble and draining out at a point that we couldn't see. The timbering that looked like the side of a shaft we thought to be modern, probably installed by someone to protect a dig. This was later confirmed by a conversation with Roy Garner, late of LMQT, who had undertaken a similar investigation to ours many years ago. He had installed the timber work but then reached the water level and decided that there was no point in continuing.

As a result of these investigations we concluded that it is very unlikely that the North Vein working on the surface has any physical connection with the workings carried out from Kernal Level, although it is almost certainly the on same vein as that reached by the dammed cross cut in Kernal Level. It is also worth noting that, although these workings have always been thought of as being Elizabethan we found no evidence to support that view.

On putting all this to Dave Bridge he replied 'there are still reservations about Top and Middle Level being one and the same at the time that Kernal Vein was being opened up. Cost Book 2 records Top Level and Middle Level being worked concurrently between Aug 1840 and Dec 1840 and also between May 1842 and Dec 1842. How can they be the same working? Another interesting point that Mark Scott brought up is that the 2nd letter of David Davies in Phil Trans 1673, refers to the Tongue Brow working as being wrought 30 fathoms (in a 2ft thick seam of good copper ore). Whether 30 fathoms vertically or horizontally this hardly seems to fit the work above the leat that we know. The plot thickens. Is there indeed another level on Kernal vein that we don't know about?'

Or could it be that the Elizabethans did mine down 30 fathoms from the surface and their workings have been widened and deepened by the subsequent mining of the Victorians? We know that some of the stopes in Kernal Level rise very close to the surface and leak water. Perhaps the Elizabethan workings have been deliberately sealed and covered over. There is still much to find out.

Ian Matheson.

Further development of Kernal Level

On Saturday 9th March John Brown, Colin Woolard and Ian Matheson went to investigate a rise above pitch 4. At the same time Dave Bridge carried out a systematic study of the geology. His findings will be published in Journal 6.

It was decided to use the ladder to ascend the rise and as it was in use as a bridge over a void, all the participants had to cross before the ladder was removed, and would be unable to get out of the inner workings until it had been replaced.

The ladder was manhandled into place up the rise and John Brown ascended to the top of the first section and put in a bolt belay. Colin then went up to that point and together

they hauled the ladder up to that point and fastened it off, before extending it to reach the top of the stope. The feature, which resembled an ore chute, turned out to be an intrusion where the vein had been shifted sideways. It has a hade of about thirty degrees and a height of about 13 meters. At the top there are several stemples, but the roof is of solid rock with no possible way on. In the neighbouring stope there hangs a climbing chain, and it was seen that the upper end of this passes through a small window between the two stopes and is secured around one of the stemples.

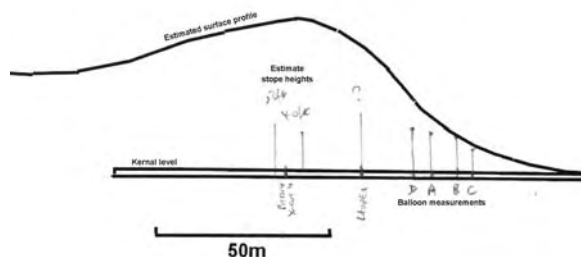
After this rather disappointing but conclusive result the ladder was replaced across the void so that we could all get out.

Two weeks later, on 16th March the same team returned to remove the ropes and gear, which had been in the mine for several months. Starting at the in-bye end at pitch 4 the abseil ropes were removed and each was replaced by a polypropylene pull-through to ensure that the mine could still be accessed in the future. The ladder traverse was rigged with a stainless wire rope and eight bolts, placed so that the traverse could be made by moving a pair of foot-loops from bolt to bolt, supported by the wire rope. It proved quite difficult to find sound rock in which to place the bolts and one of them had to be put in rock that sounded a bit hollow.

All this work took longer than anticipated, and it was nearly dark when the team came out to day. We had intended to wash the ropes in the beck, but as it was so late John Brown took them away to wash at home, returning them to Mandell's Office at the next Committee meeting in pristine condition.

On Thursday 20th March Mike Mitchell, Dave Bridge and Ian Matheson returned with the intention of measuring more accurately the height of some of the stopes. At the same time Mark Scott and Mark Simpson went to examine Gaunt's Level. The weather was awful, but once underground it was pleasanter.

Mike Michell has a scheme to take aerial photos by suspending his camera from a large helium balloon and triggering it by remote control. To this end he has obtained a supply of helium. Incidentally, Dave Bridge calculated that if the balloon were to burst then his expensive Canon camera would hit the ground at 55 miles per hour. Some of us privately speculated on what would happen if the string were to break! Anyway, on this occasion the plan was to fill a small balloon with the helium and float it up to the roof



attached to a very fine line, a technique that Dave Bridge and Mark Simpson had used successfully some years earlier when surveying the Paddy End stopes. The line was wound on a fishing reel, and it was determined that each turn on the spool measured 0.136 meters. So by counting the revolutions and multiplying by .136 the height could be calculated.

The method was a success, and after measuring several heights we all repaired to the BMSC Cottage to discuss our findings. It was found that the first two stopes had a maximum height of 13 meters, which correlates well with the estimated heights of the other stopes where the roof can be seen.

Rachel Wood Meet

Present: J. Aird, T. Holland, W. Brown & R. Ramsden.

The few gathered at 9.30am on a cold foggy morning at Thornthwaite garage for me to 'do' a meet, and to check on the state of Rachel Wood Mine. In good spirits we ambled through the forestry to the Rachel Wood Cross-cut portal. Driven in 1875 the perfectly straight level first cuts the Francis lode before striking the rich Rachel Wood vein. We trooped round the usual triangle inspecting the split flooded shaft with its ingenious kibble opening lid and the rises up the north stopes. After gearing up we ascended to the south stopes, up the fixed ropes we had left in place three years before to land on a small false floor, where the other three roped up a floor to view the one legged stool and a very unusual water trough.



Photos by Tony Holland.

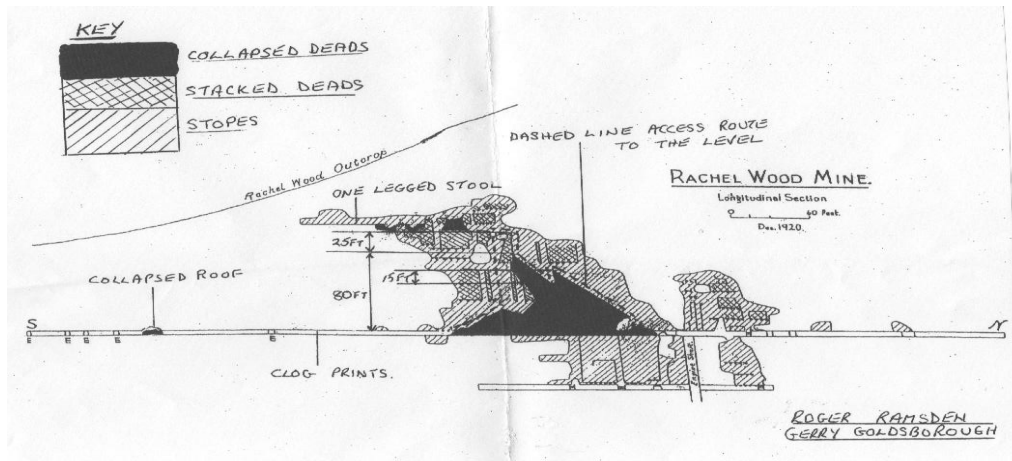
I rigged the long pitch down to the adit horizon to drop down through a mass of deads, hanging pack walls, and suspended ladders, which showed some signs of deterioration. Passing the beginning of an engine shaft we inspected the remaining clog prints and then re-cleared the collapsed section to gain the full extent of the level.



Photos by Roger Ramsden

After a return to the portal we climbed up the forest road (To clear the mist and a fabulous day it was) to then descend into the gloom to find the very ancient Ladstock Mine. Possibly early German but earliest recorded works in 1750. The North side (gated) level has now been cleared after a landslip obliterated it a few years ago. We crossed Comb Beck to ease into the small adit which leads to a tight abseil down to a small crawl where the next belay is on a dubious stack of deads. We gathered in the small stope at the bottom, I pointed the way on to the low adit level, and the other three

accepted the challenge whilst I, having been twice, would wait for them as it is very small and very muddy. Of all the comments printable on their way back was a ladylike 'this is truly disgusting' from Wendy who, with flying things and crawling things, had a trauma-filled day. A careful retreat is needed to get to the beck for a good wash down. Then a pleasant stroll down Seldom Seen, through Thornthwaite village and back to the cars was a good end to a good day and with a full compliment of flasks and butty boxes.



My thanks to all the participants for turning up.

Roger Ramsden

Rotherhope Fell mine

A rare opportunity occurred recently to visit the underground workings of Rotherhope Fell mine near Garrigill, the normally flooded Black Burn Level (currently a private dwelling water supply) being drained for one day only.

The article below is from the February 1938 edition of 'Mine & Quarry Engineering' and gives a quite fascinating account of operations at Rotherhope Fell mine at that time. Interestingly, the article describes the mine as having closed in 1930 due to a fall in the price of lead but it was kept on a care maintenance basis until 1934 when the pumps were turned off. However, less than 12 months later an improvement in metal prices resulted in the re opening of the mine! Rotherhope Fell mine finally closed in 1948.

Tony Holland.

Rotherhope mine

This mine has had a long and varied history and it is proposed to give some little account before dealing with present-day operations. It is situated about 3 miles southwest of Alston and some 7 miles from Cross Fell, the highest point in the Pennines.

On the property are two main veins — the Rotherhope and the Victoria — running almost east and west. The Rotherhope vein has been proved over a length of 6,808 ft. along its strike. The average throw is 24 ft., north cheek up. This vein can be distinctly traced along its outcrop and has been productive in various sills. At the extreme point east it has been considerably influenced by Sir John's vein and is broken up and poor. At the West End the vein has been disturbed by a cross-course, and although this interference may have caused "flattening" of the vein to occur, it seems more likely that the vein in this random had this habit without any interference from the cross-course. These

flats occur on either side of the Tyne Bottom limestone. On an average the vein width varies from 10 to 20 ft., the walls being somewhat ill-defined. The vein filling is galena with which is associated fluorspar and calcite. Blende is very rarely met with.

In the past the old miners drove a level to intersect these veins in the top random. Most probably by means of small winzes they would ascertain if the veins were mineralised at lower randoms and a second, or Middle, level was driven a distance of 3,600 ft. This level would have the advantage of the 5-yards limestone, the 6-fathom hazle and the 3-yards limestone. Both veins were driven on from this level and it is understood were extremely productive, especially in the Scar limestone lying just below the level and being 5 to 7 fathoms thick here. During the operations a ventilation shaft was put up to the surface a distance of approximately 31 fathoms and would prove the upper values. Afterwards this shaft was put to further use as will be mentioned later.

Operations at further depths proved that the Rotherhope vein was still productive, but there is little evidence of extensive workings below the Middle level in the Victoria vein, nor is there evidence to prove that the workings on the lower Middle level random were sufficient to connect the present adit level. This, known as the Blackburn level, was commenced in 1837 according to the date on the keystone at the adit mouth, and was driven approximately 4,200 ft. where it now connects with the shaft from the Middle level and also the surface. It is interesting to note that 3,000 ft. of this adit is perfectly straight and a good example of surveying and driving when taking into account the equipment available in those days. At the 3,000 ft. point the Victoria vein was intersected. Here the level is in a section of strata of the Lower Carboniferous series and is driven in the alternating beds below the Scar limestone which at this section consists of hazle and plate or shale with portions of limestone in two places. The latter rock would impede the progress somewhat and, according to reports, it took 6 years to drive the 4,200 ft. length



At the latter point the Rotherhope vein was intersected, good values were encountered and fairly extensive workings east and west are in evidence. A shaft was sunk at this point through the Tyne-bottom plates and the Tynebottom limestone. The result of this was to prove that the vein had "flatted" in the limestone and was carrying good

values. The shaft was further extended through the Great Whin sill, which is 120 ft. in thickness, but the ore values at this random were not very rich. Drives east and west were put forward for short distances and a hydraulic engine was installed for winding and pumping duties. Another shaft North of the vein was sunk to a depth of 20 fathoms and was connected at the bottom with the other shaft. By this means the flatts in the limestone at

the 10-fathom random were made more accessible while elaborate accommodation was made for a second hydraulic engine installed for winding and pumping at this second shaft top.



The engine house, an example of excellent workmanship, is approximately 36 ft. long by 21 ft. wide by 24 ft. high. These are inside measurements of a large arched structure with other arched entrances. Here it should be stated that pumping is necessary from the levels below the Blackburn adit. The first engine pumped the water to the 20-fathom random and

the second engine pumped it to the adit level. This latter engine was fitted with an 8 in. clack and bucket set and also had a compressor attached. A hydraulic pipeline from the reservoir at surface passed down the air shaft via the Middle level to the engines. Later a 6 in. dia. pipeline supplied water to a Pelton wheel driving a Cranston compressor installed by the present company. Just before the Vieille-Montagne took over the property someone maliciously liberated the water from the reservoir with the result that the air shaft was wrecked from the surface to the Middle level and another shaft had to be sunk and a new pipeline installed. After a preliminary survey, operations on this second shaft were commenced by sinking from the surface and by rising from the Middle level, the two portions meeting almost exactly. A hydro-compressor was installed underground, as the shafts connecting the surface and Middle level, together with the existing reservoir, provided the necessary requirements for such the hydro-compressor is still working satisfactorily. This installation enabled machines to be employed for drilling and also supplied compressed air to the pumps. In addition a water-blower pump was installed to relieve the clack and bucket pumps then in use.

When the Vieille-Montagne took over from the Rotherhope Mining Company they commenced to develop the East 20-fathom random and encountered good values. A shaft was sunk from the main West End adit level into the Whin Sill where good values were also proved. Such were the prospects that a new dressing floor was eventually erected at surface and the mine ore ("bouse" as it is termed locally) was stored outside.

For a long period operations had been conducted on the Rotherhope vein itself but flatts were discovered in the West End section on the north and south sides of the vein. The South flatt was approximately 22 ft. lower than the flatt on the north side, owing to the existing throw of the vein. Fairly good values were obtained from these flatts.

Owing to the ore having to be trammed back to the West End shaft by means of an intermediate level and hoisted from thence a distance of 20 fathoms to the Blackburn adit

level, an incline to connect the two flatts with the adit level was commenced at each end (the top and the bottom) the top portion went down 3 or 4 ft. below the limestone. These two inclines were not connected because, owing to the low price of lead, operations on a large scale ceased in 1930. The pumps were kept going with air from the hydro-compressor until November, 1934, when the mine closed.

Present-day operations (1938)

An improvement in the Base Metal Market had the result of re-opening the mine in October, 1935, when it was the intention of working the North and South flatts again.

Pumps were put to work and eventually the water was mastered. The water-blower pump mentioned above was found to be a great asset in these un-watering problems. A bad fall was encountered in the main level West and a fork level was driven to avoid it. While this work was in progress, parallel vein strings approximately 6 to 8 ft. apart were encountered some of these carried small quantities of galena. After getting into the main level again, another bad fall was encountered but this was beyond the north side incline.

The strings found in the fork level led the management to expect these would feed flatts. Development to prove this commenced at the bottom of the incline with the result that an extensive section of flatts was discovered. A forebreast was driven approximately 40 fathoms from the vein and good values were found. Six rock drills, working double shifts for the last eighteen months, have been in operation on this section, which is still showing good values.



At the other shafts, the water was lowered below the 10-fathom random and, expecting the vein to behave in the same manner, exploratory work on the outskirts of the old miners' flatts was put in hand. Within a week evidence of further values was obtained but the lack of power was beginning to be felt and a new

installation was decided upon. The old hydraulic engine was scrapped and the elaborate engine house used to accommodate the following plant: a 130h p Metro-Vick slip-ring type motor at 970 r.p.m. is driving a 3-cyl., 11½ by 12 in. Broom and Wade compressor giving 600 cu. ft. free air per min. at 325 r.p.m. A similar make and type of motor but of 100 h.p., and running at 965 r.p.m. is driving a 3-cyl., 10 by 12 in. Broom and Wade compressor giving 450 cu. ft. free air at 315 r.p.m. In both cases vee-rope drives are employed. Power is taken from the Mid-Cumberland Electricity Supply Co. Ltd., at 11,000 V direct to the engine room which, as already stated, is 1,400 yards from the adit mouth. Metro-Vick transformers step the current down to 400 V and 110 V for power and

lighting respectively. Starters and motor slip-rings are interlocked with the main starting switches.

The lower 10 fathoms section of the shaft was converted into a ladderway and hopper as the water was still being lowered to the 20-fathom random. A drift was started at the 10-fathom random in the bottom of the limestone where evidence of a flatted vein with traces of galena were present. After driving 4 ft. 6 in. to the North, a parallel string approximately 2 in. thick was cut through; this immediately mineralised the flatt. A distance of 80 ft. has been taken out as a flatt 20 to 24 ft. wide and the indications are that this will prove to be a rich block of ground ; two other flats are being taken out each in opposite directions (East and West) and all are giving good values. In the foremost flatt (i.e. North) another string has just been passed through and evidence exists of richer values. Between the East and West sections of the flats there is a distance of approximately 350 yards while the shaft at the East section is 20 fathoms deep at this random. An existing level to the West provides a favourable point of attack on the North and South flats lying midway between the two sections and a rise is being put up to prove these values.

Timbering in these flatt deposits is governed entirely according to conditions prevailing. It has been found that timber frames, well packed with "deads," form the best supports. Throughout the mine Atlas drills are in use and 1 in. dia. hollow hexagon drill steels with rose bits are employed. Steels are sharpened by Holman Twin Grip drill sharpeners. The new installation is working very smoothly; a constant supply of air at 85 to 90 lb. per sq. in. pressure for the drills and hoists is and has been of tremendous assistance in obtaining maximum efficiency. Prospecting, development, and the breaking of ground for milling ore have all been considerably facilitated.

Extraction

All ore broken in the flats is loaded into 18 cwt. capacity wagons and hand-trammed to the air hoists which raise it to the Blackburn level. Here, horse transport is employed, the loaded wagons being drawn out of the mine on this level direct to the mill.

Milling operations

The mill is situated some 800 ft. from the Blackburn adit mouth and has a present capacity of 7 tons of mine ore per hour. Hand picking, crushing and screening, coarse jigging and slime treatment are allowed for in the design; classification is carried out wherever possible.

On entering the mill, the crude ore is tipped over a set of grizzly bars which are spaced with 4 in. openings. Undersize is sent direct to a storage bin of 25 tons capacity. Any waste rock in the oversize is eliminated by hand picking, the remainder being reduced and sent to the storage bin. From here it is automatically fed to a revolving screen or trommel and graded in the following sizes: 15 mm., 25 mm., and 50 mm. The fines, up to 15 mm. in size, go direct to the elevator, while the other two screen products are passed over revolving picking tables where pieces of clean, high-grade, galena and waste rock are taken out.

After this the 25 mm. size is sent to rolls for reduction to minus 15 mm., while the 50 mm. size passes through an Ord and Maddison jaw crusher, any oversize (plus 15 mm.) from this crushed product going to the rolls for further reduction. All is now elevated to

another trommel and graded into 10/15 mm. 5/10 mm., and minus 5 mm. sizes. The 10/15 and 5/10 mm. sizes are dealt with in the first and second rough jigs respectively. These jigs produce concentrates of well over 80 per cent. Pb. content from the first hutch, while the middlings are passed through rolls and then sent back via the trommel for further grading and jigging. The minus 5 mm. size goes to another trommel and is graded into the following sizes: minus 2 mm., 2/3 mm., and 3/5 mm. Of these sizes the 3/5 mm. is jigged to produce a concentrate, the middlings being elevated, ground in a Hardinge mill and classified for table treatment. The 2/3 mm. size is jigged and a concentrate produced ; middlings are sent to a Hardinge ball mill and thence to the slime plant. The minus 2 mm. size is sent to a classifier, the overflow from which goes to the slime plant, while the 1/2 mm. is jigged to produce a concentrate and the middlings are also ground in the Hardinge ball mill before being passed to the slime plant.

After leaving the Hardinge mill, further classification is effected, the coarse or sands product being treated on Wilfrey sand tables and the fine overflow being treated on a James Slimer and two round slime tables. In this way a fine lead (slime) concentrate is produced. Concentrates are produced in the following sizes: 5/15 mm., 3/5 mm., 1/3 mm., and slime lead. Apart from the slime galena which assays somewhere about 78 to 79 per cent. Pb., the bulk of the concentrates assay around 84 to 85 per cent. Pb. This is a very high-grade galena which is carefully selected, dried and packed in double bags before despatch.

A certain amount of revenue is obtained from the sale of some of the tailings, or waste, from the jig and tables. These comprise graded chippings and sands and, being of hard limestone, washed and entirely free from dust, are of very attractive appearance and quality.

Power plant

Advantage of water power is taken whenever possible. Over a very wide area the water is collected from the surrounding hills and stored in two reservoirs on the Rotherhope fellside. An 80 h.p. pelton wheel working under a 194 ft. fall of water and a Gilkes turbine capable, when the race is full, of developing 70 h.p. under a 64 ft. fall of water, are installed. In addition there is a twin-cylinder Campbell fuel oil engine of 175 bhp. This engine formerly drove air compressors for the mine and also took a certain amount of the mill load. Now the new underground installation is running, the engine will be used as a standby for the mill when supplies of water for the Pelton and turbine are running short.

In concluding this account we wish to say that Rotherhope cannot be termed a rich mine in the accepted sense of the word. The outlook is promising and, on the whole, the mine is in a healthy condition. It has had a long history, has produced much galena, and the monthly output is now consistently increasing. Exploration is being steadily pushed ahead in order to prove the existence of further ore bodies in the flatts. To what extent these may prove to be, and if they are richly mineralised, no one can say with certainty. But that is the fascination of metalliferous mining.

An Exploration of Gudhamgill High Level.

The Gudhamgill Top Level or 'Shop Level' was driven by the London Lead Co. from the side of the Gudham Gill at NY780449. The drive commenced in 1721 and a quantity of ore was produced from the Little Limestone, although an attempt to raise ore from the Great Limestone failed, despite large expense, due to water and a lack of air.¹

On a previous visit, Ian Hebson and I, together with others, had made a preliminary exploration of the Gudhamgill High Level, but were thwarted to an extent by the poor air quality in the mine. Although breathing was fine whilst at rest, any reasonable physical effort resulted in panting and breathlessness. A second visit was planned but this time we intended to take a gas monitor to determine with some certainty just exactly what oxygen level was.

It was a bitterly cold day on Thursday January 31st 2008 as Ian and I made our way up to the portal, removed the covering stones and clambered in. Within a very short distance it was very apparent that air quality was much worse than on our previous visit. On that occasion, we were a long way into the mine before we encountered the bad air, but today we were still able to see the daylight at the portal and we were acutely aware that our breathing was laboured. I switched on the gas monitor, but it refused work, needing to be in pure, good air to self-calibrate. I retraced my steps to the portal and was able to get it working in the outside air. Back in the level, the monitor almost immediately started vibrating and singing its alarm tone. The oxygen reading was 15%. Not good, but above the danger level. We continued on, bolstered by our

experience of the previous visit and careful monitoring of the gas meter.

We continued on in a south-easterly direction, crawled through an old dig and onwards into chest deep water. Although driven in the shale, the level is in very good condition. When the level reaches the Gudhamgill Moss Vein, its direction changes, following the vein north-east. At that point, what we think is 'The Borehole Sump' as shown on the abandonment plan, or 'Jacob's shaft' (NY785449) enters the level from above, carrying a large bore (approx 6") steel air pipe and a quantity of water. Clearly though, this is not open to the surface as it contributes nothing to the mines ventilation. Ian having descended the shaft a few years ago thinks it has a blockage only a few feet deep, just above where the shaft enters the level. Almost immediately, a short drive on the right leads to a sump which we knew to be blocked, having descended it on our first visit.

We followed the steel pipe in-by, the level still in surprisingly good condition until we reached what could be a collapsed rise entering the level. Here a large quantity of ochrous mud almost reaches the level roof, leaving just enough room to crouch through with a tackle sack. After this the level continues until on the right; a loop gives access to a twin hopper arrangement that is worthy of description.

The two hoppers sit side by side in a loop off the main level. Below the left one is a partitioned laddered man-way/ore chute typical of Alston Moor. An angled timber arrangement is in place beneath the hoppers to direct the product of both hoppers down into the ore chute. What was the original arrangement? It is likely that the

hoppers fed ore wagons which were then trammed out of the level, and subsequently, a connecting sump was driven down to Gudhamgill Low Level, the ore then passed down to be carried out of the Bloomsberry Level.



An interesting artefact found at the head of one of the sumps.

We continued on along the level to an interesting looking sump that we had seen on our previous visit. This was rigged and descended, but unfortunately was found to be blocked, the shale walls having collapsed in before the sump encounters limestone. The sump is taking water from the level, but none is standing at the sump base. Ascending the rope back up the level was extremely hard work in the low oxygen level atmosphere, which incidentally the meter advised was still 15%, as it had been more or less from the portal.

We continued in-by, still following the steel pipe, until we encountered another sump down which the pipe descended on its way down to Brownley Hill Low Level, known as the 'Transval rise'. (From there the pipe followed the course of the BH Low Level along the Wellgill Cross Vein to the Gin Foot Sump and on

down to Nentsberry Haggs Mine, where it supplied compressed air to workings on High Raise 1st Sun Vein and the Wellhope Shaft area²). Our initial excitement quickly evaporated when we could plainly see from our vantage point that this sump was also collapsed. We followed the level in-by, encountering additional sumps, none of which looked promising, until the continuing deterioration of the level prevented any further progress.

We retraced our steps back the man-way/ore chute at the twin hopper loop and rigged it for descent. This was our last opportunity to make any further exploratory progress.

A bit of gardening work was required at the top before descending. Unfortunately, this too was found to be badly collapsed at the bottom, with no possible way on. Here too though, the water coming down the chute is making its way down through the collapse.

We decided that the exploration was completed as far as we could take it and having spent many hours panting and breathless in the poor air, we happily and speedily made our way back to the portal. Outside it was biting cold, snow having fallen and a cruel wind blowing. But oh - that sweet air was so very, very, breathable!

1. R.A.Fairairn 'The Mines of Alston Moor' 1993.
2. M.F.Critchley 'The History and Workings of the Nenthead Mines, Cumbria', 2nd Edition 1998

Thanks to Ian Hebson for advice and clarification.

Tony Holland.

Bunton Level, Swaledale

On the 16th March, a small team of CATMHS members visited the engine room in the Sir Francis Level at Gunnerside Gill, Swaledale. However, earlier in the day we had explored the Bunton Level further up the gill and whilst exiting the mine we discovered what we think is an-situ set of Plug &



Feathers. At a small area of hand chipped level, we found a horizontal line of holes drilled in the wall to a depth of approximately 6cm. One of the holes was vaguely triangular in shape. Another contained the two feathers.



Tony Holland.

The Raygill Level.

The Raygill Level lead mine portal lies to the north of the A684 a couple of miles east of Hawes at SD902899. It was driven by the Leeds Mining Co in 1862-71.

The level can be followed south for a considerable distance to where a short climb affords access to a sub level that continues in a southerly direction. A section of broken ground is soon encountered behind which deep water

can be waded to reach the forehead. Back down on the main level, a number of rises indicate workings at a higher elevation and indeed, a climb up leads to a complex and extensive area



of flat workings. Here numerous interesting artifacts remain. A striking feature of this mine is the remarkable calcified ladder and rise from the low level up to the flats, where the



calcification can also be seen. Overall the mine stands in excellent condition. It was re-opened in 1970 by the EMRG who also produced a very good survey, a copy of which can be found in the CATMHS archive.

Tony Holland.

The Vielle Montagne Archive

In 1998 I was out on a walk with Ian Hebson in the Nenthead area and he told me that long time ago a Belgian company had activities in some of the mines. I must confess that I couldn't understand the name and it was some time later that I discovered the real name: VIEILLE MONTAGNE. I'll be honest and confess that for a non-French speaker it is very hard to pronounce, and I was too clumsy and see the relationship.

At that time I hardly knew what a mine looked like and that was it. Back home I started a little investigation on Vieille Montagne, because in Belgium and Africa, the name of that company was something prestigious. I started with Liège, because that was the place where the offices used to be. Nothing was there any more and I got the advice to contact Union Minière in Brussels or Paris. An archivist, in Paris told me that the chances to find something about the "old company" were very slim because, he thought, or could even remember, that the archives were destroyed as there were no archives in Brussels or Paris at all. To cut a long story short, after Paris I tried some villages and societies around Liege, but nobody knew anything. Some lived in Barcelona, and I think that one of them responded to the name... Manuel!

A cousin who worked for the "Region Wallonie" heard about my investigation and some weeks later I got the right person on the line. He was a professor at the Université de Liège, and he told me that some of these archives were at the "Centre d'Histoire des Sciences et Techniques"...in the cellar and in a bad state of conservation, as nobody looked after them. It was by chance that they were saved from destruction and put there for future generations! He was very sceptical about activities in England but promised to have a close look.

A few weeks later I got a phone call and he told me that there was something about England and that I was welcome to have a look. So I went to Liège; it takes about ninety minutes by car. These archives were indeed in a big cellar and were wrapped in brown paper, a lot just lying on the floor; only the books were on shelves and tables. The find was quite good: account books from different mines in Wales and Nenthead and a nice plan of the Nentbury mine. Ninety nine percent of these books are in French. I was allowed to take photocopies and felt happy to have found something. To go through it all would take ages simply because there was no space and could not be stored in a decent way.

Now eight years later, and by coincidence, it started all over again and I promised to go back and try to find more. Since my last visit all the archives had moved twice to a different location and are now at "Les Archives Nationales" in Liège, but are still owned and under supervision by the university. One needs to make an appointment with the university and then you can go to the "Archives Nationales". I got an appointment with Mr. Raphaël Aussem and he brought me to what I will call now: heaven! There are at least five to six hundred meters of shelves full with all kind of account books, reports, plans of all the mines around the world. The only problem so far is that there are at least a couple of hundred carton boxes but none of them are marked, and you need to open them all one by one! So far we haven't found any more mine plans but two boxes about real estate (Immeubles Etrangers), and there are at least one hundred of them,... it was bingo: leases and plans from all the houses or land bought or leased by the Vieille-Montagne Co. in and around Nenthead!!! The oldest we could find are dated: 1846. So the next step will be to find the real mine plans in all the other "nameless" boxes. But so far we felt very happy with our trip to Liège

and to have found out that there are still quite some archives and in good condition. We were told that, indeed a lot was destroyed and the most shamefully of all was that more than three thousand old photographs... **on glass** were disposed of, thrown in a glass container!!! Only a few survived!

Rudy Devriese

To get in contact or to visit the Vieille Montagne archives one should contact:

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Vieille Montagne / Umicore A Short History

In ancient times the Egyptians and Greeks already used zinc. Evidence is the finds like jewels and domestic utensils in urns and tombs.

In 1530, the Swiss physician, Philippus Paracelsus (1493/4-1541) discovers the metal properties of zinc. In the 18th century, zinc was mainly produced in Bristol, England and Napoleon I left no stone unturned to set up zinc production on the Continent. It was in 1806 that a Belgian priest-chemist, Jean-Jacques Daniel Dony 1759-1819 (and later the founder of the metallurgical industry of zinc), discovered the Deoxidation process in order to convert the zinc ore into sheets and/or plates. This new technique was officially patented, the same year by...Napoleon I himself. An Imperial decree gave Dony the concession to exploit the rich zinc ore mine in Kelmis (La Calamine) in the neighbouring village of Moresnet. The mine is endowed with

different names: Altenberg, Auenberg and Vieille-Montagne, all of them meaning: Old Mountain. The reason for these names is the following: Moresnet is hinged between Holland, Germany and Belgium. After the collapse of Napoleon I in 1815, the European borders needed to be redesigned and in particular the border between Prussia and the Kingdom of Holland. Belgium wasn't "born" yet and belonged in those days to the Kingdom of Holland. Kelmis was to be a problem due to its mine richness and was of course right in the middle of the disputed borders because none of the concerned parties were prepared to give it up to his "friend"! It was only in 1816 that an agreement was reached with the Treaty of Aachen, also called the Treaty of the Borders and the small region was divided in three: Moresnet went to Holland, the actual Neu-Moresnet to Prussia and the mine together with its surroundings became a small neutral mini state, but with a commissioner of both countries. To make matters more complicated: with the Belgian Revolution in 1830, the Southern part of the Kingdom of Holland became België/Belgique. The village of Moresnet was now on Belgian soil. The little neutral mini state of Moresnet was of course artificial: 3.44 square Km, less than 2500 inhabitants, it had its own national anthem and flag. It was only in 1918, start of the Great War that things changed!

Now back to the main topic: Vieille Montagne-Umicore. The Vieille-Montagne zinc mines in Belgium were idle in 1885! All over the world other mines were opened and that goes from America, Africa, Norway, Sweden, England, South America...and many more.

In the middle of the XIX century, under the impulse of the French politician Baron Haussmann (1809-1891) and the big sanitation and modernisation works in Paris, Vieille Montagne Co. got its big

break through in the architectural and building businesses and were very quickly in competition with lead and copper. The big and large boulevards in Paris date from that period and this style is called Hausmanisme.

In 1837, the Societe des Mines et Fonderies de Zinc was set up and in parallel another company, Compagnie Royale Asturienne des Mines, saw its birth in 1853. The two companies merged in 1987 to become Vieille Montagne France.

The history of another main strand of Umicore, Union Miniere, commenced in 1906. At that time it is known as Union Miniere du Haut Katanga (UMHK), and its activity consisted of exploiting the rich mineral resources of Belgium's colony of the **CONGO**: copper, cobalt, tin and many other precious metals. After the company's assets were nationalised by the Zairian government in 1968, Union Minière set out to develop new mining and refining activities. It became a sub-holding of Societe Generale de Belgique.

The merger in 1989 between the subsidiaries of Union Miniere, Metallurgie Hoboken-Overpelt (copper, lead, cobalt, germanium and other special metals), Vieille- Montagne (zinc), and Mechim (engineering) transformed Union Miniere into an integrated industrial group.

Union Minière increasingly positioned itself as a speciality materials company in the late 1990s, focusing on precious metals, high-margin zinc products and advanced materials based mainly on cobalt and germanium. They had earlier sold its remaining and other non-strategic assets. To symbolise this trend of moving away from mining and the production of commodities and base metals, the group changed its name, in 2001, to **UMICORE** and is now operating at the

frontier between metallurgy, chemistry and materials science.

The acquisition of Precious Metals Refining (PMG), in 2003 added a new dimension to the company, including a major presence into the automotive catalyst sector. PMG was the former precious metals unit of the German Degussa group, the very company, which in 1887, had been a founding shareholder of Umicore's Hoboken plant (South of Antwerp). In 2005 Umicore divested its last remaining pure commodity business-copper as a separate company: Cumero and in 2007 Umicore combined its zinc refining & alloys business with that of Zinifex to become Nyrstar.

It is worth mentioning that in 1920, in one of the Vieille-Montagne's refineries in Olen (East of Antwerpen), the French Nobel Price holder Marie-Curie was working on the development of Radium .The raw base material for producing the first atomic bomb was produced in ex. Belgian Congo by Union Minière du Haut- Katanga and shipped to the United States.

There is much, much more to tell about this company and enterprise. From the mid-1800's you can read, in the old archives, that they had a big concern about the welfare of their employees. They had strict working hours for the miners, workforce in general, women and children. Education for the children was compulsory! There were strict rules and they were all in favour for their working people. Health, education and security were something they felt very strong about! (Quakerism ?)

R. Devriese

References

Vieille Montagne books and archives
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Université de Liège, Mr. R. Aussem
Information de la Région Wallonie
Internet-Google

The end of the *Commerce*

Commerce was a 72 ton galliot built in Ulverston in 1815. The 64 shares were spread between 21 owners. They included Michael Knott of Thurstonville, John Machell esq of Penny Bridge, George Beecham, steward, a painter, a solicitor, farmers, yeomen, a tallow chandler, a blockmaker, merchants, a butcher and a widow. The architect, George Webster held two shares as executor to John Harrison and her master, Oliver Haydock had two shares. The entries in the shipping registers end with this note: "On the 22nd March 1827 at Pile of Foudray this vessel was blown up with gunpowder. Found about 200 yds from the place where the accident happened, the certificate of registry was delivered on 27th inst."

The Shipwreck Index gives these details: "Ulverston, 24th March...Master Haddock, from hence to Liverpool, caught fire yesterday at Pill Foudray Harbour, near Rampside, and having 200 barrels of gunpowder on board, blew up, and was totally destroyed with the whole of her cargo. The explosion was felt as far away as Lancaster and Preston."

A more detailed account comes from the Hull Packet and Weekly Commercial, 10th April 1827:

Dreadful Explosion

The *Commerce*, dogger from Lancaster to Liverpool with cottons and general articles and 400 half barrels of gunpowder when off Piel Castle, about 3pm on Friday week was discovered to be on fire, among the cottons, near to the gunpowder. From the situation of the fire, all attempts to overcome it being instantly seen to be fruitless, the boat was lowered, and the ship being scuttled, and the water admitted through the lower tier, the crew departed, being then about six miles from the shore: A strong southerly breeze prevailing, the ship warped round, and losing the direction of the helm, sailed before the wind for about two minutes. In a few seconds after she seemed lifted by her knees out of water, and blew up with a most terrific explosion. Their boat was almost lifted out of the water and but for the circumstance of the ship being to windward, they must have perished. They made for shore, which was lined by hundreds who witnessed the accident, many of whom were seriously bruised from being dashed in the ground by the force of the concussion produced by the explosion. The vessel was blown almost to atoms, scarcely a vestige of her timbers or cargo being recovered. An anchor and part of a chain were blown over another vessel, to the distance of 200 yards. About 20 or 30 vessels were lying not far distant, all of whom escaped without damage except one, which had her boat's bottom broken by the falling timber. Happily no lives were lost, but the damage done to the houses at Piel Castle, Backborough and the immediate vicinity of the coast was very great; several are said to have been blown down. So dreadful was the concussion and the effects so extensive, that for a distance of 100 miles it was supposed to be an earthquake. At Lancaster, 40 miles from the place, the windows clattered and the houses and furniture shook so much that a number of persons reeled out onto the streets and some made for the plains outside of the town. The windows of Brougham Hall, the residence of Mr Brougham, were shattered by it. Considerable damage was done at Kendal and Lowther Castle, at Milnthorpe, Bolton on the Sands, Poulton, etc, etc.

The three versions may differ on the date, the master's name and the distance from land but there can be little doubt about the force of the explosion.

Peter Sandbach.

A Tentative Exploration of the North West Coast of South Island, New Zealand, Easter 2008.

By Richard E. Hewer

Now that Eileen and I are based in Wellington, I have had to search for areas of mining interest nearer to our temporary home. There is little of significance here, though I am assured that specks of gold can be found in the westerly creeks. Having extensively travelled around the North and South Island, I felt it was time to explore specific areas. So, I travelled into the big city and spent a considerable amount of money on purchasing a Kiwipathfinder map (£3), a book published in 1976 and I decided that a trip to the North West coastal ranges could prove interesting. I thought I'd be OK. Wrong!

At Wellington we boarded the Picton ferry on Thursday evening (Easter week end) and arrived in Picton at 9.30pm staying at McCormick House; a renovated house that once belonged to one of the local business men involved in the timber industry at the turn of the century. It was my intention to travel the north shore to Motueka and Nelson but we were advised to return that way, the views were stunning seen from the left!

Having been so advised, our route was changed to head south to Spring Creek and then west; I didn't argue because I saw on my highlighted map, (yes I scribble over maps), that we were actually heading to a mining field I had reserved for our next trip to Blenheim, lucky me! We drove down the wide country plain passing many of the famous vineyards and a chocolate factory. I couldn't drink but I could have one chocolate (the allowance for the day; being a diabetic).

Arriving in Spring Creek we took the road to Kaituna where we left the vineyards and entered scrubby countryside. I followed the wide Wairau River along the north bank, the river had in the past offered up quantities of alluvial gold but the main source appeared to come from the workings off a tributary called the Onamalutu Creek. We turned right up a very dusty, rough gravel road and travelled for miles. Odd chimney stacks from the abandoned miner's homes could be seen projecting from the dense undergrowth. Vegetation that had been cleared now revealed neatly fenced-in blocks of land with some very nice modern properties perched in prominent positions. There was no access to the river; much of the fencing was electrified and having had a nasty experience with one of the fences on a mining meet with John Crompton, I knew there was no way I was going to clamber over! The abandoned mine names rang with a hint of colonialism, such as the Duke of Cornwall, Baden Powell, and Wellington Syndicate. A great deal of prospecting and sluicing had been carried out and there was an element of success. I'm assured that some 'colour' can still be found by diligent searching. We ploughed on until we ended up in a wealthy owner's back yard (including big dogs) and a big owner. Somewhat disheartened we made our way back in a very dusty car.

We moved on northwards to Havelock, originally a trail junction and served by local schooners. A gathering place for Maoris who offered meat to passing traders, the suspicion was that it was human. The Maoris were not against having a good wholesome stew in the cooking pot and it didn't matter who it was! Havelock quickly flourished providing goods, accommodation, and entertainment for the passing miners

who pitched their tents where they could. But just as the town flourished then it declined, as the diggers exhausted the easy pickings. Sawmilling continued and when that declined farming took over. Today it is a small holiday and supply centre.

Our next stop was just up the road at Canvastown. The lonely Trout Hotel is all that remains at the entrance to the valley, the tents and wooden shacks have long gone. All at peace now, the River Wakamarina means 'to be peaceful'; that it certainly was not; it was one of the most wild and unruly gold mining valleys in New Zealand. We travelled 5 miles up the dirt road for our first view of the river where the early prospectors literally panned the gold out of the water. One miner carried 25lbs of gold in his blanket. As the gold began to dry up syndicates turned to diverting the river; I possess a photograph, showing a large dam holding back the river which has been diverted down a hand cut channel and tunnel. The team then dug out all the gravels to the base rock hoping to find large quantities of gold; it was not to be. The flow of the water was too great to allow the gold flakes to settle. Pine Dale Motor camp offers gold panning in the river, but it was closed. We continued on the road to find a nice quiet panning spot and that wasn't to be either, the whole valley is 'electric' fenced off. We could see evidence of sluicing but the vegetation was covering the scars.

A mile or so further on there was the turn off to the scheelite mine; great I thought; I'll go and have a look. An Outward Bound School has taken over the property and that was that. We crossed Deep Creek which is, really really deep, and where another bonanza of gold was recovered. It even had its own town. Dome Creek and Fosters Creek also produced good returns; access is now denied. As you can imagine, Eileen was by now losing faith in my thirty two year old book and I must confess I was getting a little apprehensive too. Mines such as Federated Yorkshire, Golden Bar and Empire City produced a considerable amount of gold and scheelite. In total perhaps over 62,000 ounces of recorded gold was recovered. What annoyed me was that I didn't see a speck, so sulkily I reversed out of the valley and headed for Rai Valley and on to Nelson.

Nelson is now a dairy farming and small holiday centre, it is tranquil and has a Mediterranean climate and is an ideal retirement centre for senior citizens. Entering the city after crossing the Maitai River one passes the track and old rail route up to Dun Mountain; this track led to the copper and chromite mines that operated during the close of the last century. The city was basically a commercial centre tying into all the industries of that time. It was and still is a large fruit producing region and did have at one time a large tobacco growing industry. Cecil Nash, the leader in tobacco growing is buried in the cemetery.

After calling in at McDonalds and smacking a few raiding seagulls we continued on our way passing orchards full of ripening apples, nectarines, plums, lemons, oranges and hops (the latter had mostly been cropped). Our journey entailed us climbing the long pass up the Takaka Hill Highway; near the summit. I thought I had spotted a mineral mill (battery) only to find as I charged down a track that it was a home, made from rusting corrugated sheets. Of course I got the 'told you so' look from Eileen and I sulked again; they do say one becomes more childish as one slips into senility!

The large flat limestone plateau is a mineral collector's paradise and absolutely stuffed with caves and sink holes. The first cave, called Ngarua Cave, led into an extensive system containing many stalagmites and stalactites and was open until 4pm. We got there at 3.55pm. The elderly assistant looked up from her desk and said rather sharply. "One or Two of you going down?" I looked at Eileen who shook her head. "Just the one please." She scowled whilst she thumbed through her book. "We can't take one; it has to be a minimum of two?" She glared at Eileen. "Ok then." I replied. "Fair enough." She smiled and reeled out a couple of tickets, to which I replied to Eileen. "Come on love, back to the car." I heard the till drawer slam behind me; I smirked.

We continued down the rough track (hoping that the assistant wouldn't lock the gate before we got back). I hoped we would reach Harwood's Hole, the second deepest chasm in the southern hemisphere which is home to several unique species of flora and fauna. Nearby a huge up-thrust of granite material burst through the limestone and introduced an abundance of minerals including gold, fluorite, rutile, copper, scheelite, galena etc. We arrived just as the night time expeditions did. I'm afraid our little car could not cope with the rough track and competition, we had to drag ourselves clear, however, I did find some scheelite but missed the chasm. At Kairuru, near the top of the hill, stands the marble quarry which operated between 1919 and 1921 and produced the lovely creamy grey marble used to construct the Parliamentary Buildings in Wellington and Nelson Cathedral.

We descended the pass into Upper Takaka, here the Cobb Dam Road leads to the reservoir and the Asbestos Mines which closed down in 1963 and completely sealed off. The dam power station doesn't use turbines but sets of Pelton wheels; it now acts as a standby for the grid. We stayed in Takaka.

The following day (Easter Saturday) and the weather was still scorching we drove straight up to Onekaka (pronounced as On-ee-carcar) where during the early 1920s a huge deposit of iron ore was found in the mountains behind the beach; it is said that there were reserves of 22M tonnes, (another quoted 9M tonnes). However, some 37,000 tons in total of pig iron was exported. An aerial ropeway was constructed from high in the hills using horses to pull sledges containing pulleys, cables and supplies along the ridges. A small community stayed at the opencast workings, living in a series of small wooden huts (baches). They quarried the iron ore (50% iron) and limestone. The minerals were deposited in a large closed store on site and then delivered by the ropeway to the foundry. A week's supply was stored at the quarry building in case the weather turned. The company also owned a coal mine (6ft seam) at Matawa and naturally the coal was imported to the foundry. The foundry was constructed in 1921 and contained in a timber building, which soon went up in flames (1923). A new building was constructed using corrugated iron. Further expansion included a series of coke ovens accessed by an incredibly long timber ramp. The foundry continued working until the late 1930s. By 1940 all was silent. The demand for the pig iron had gone. The ore was very pure and cast well but the local demand was small, though the company did cast and supply large mains gas piping to Wellington. All that we could see were the remains of the concrete foundations and several metal parts from the furnace; the site is now at the edge of a residential development. It would not surprise me if the ironworks site may be cleared in the near future. The ironworks pier is still visible stretching out from the sandy beach, here

schooners and small coasters called in with coal and to transport the pig iron bars to their destination. Nothing can now be seen of the quarry covered by scrub and bushes.

At Collingwood we booked a trip for Easter Sunday to go on a Duck bus out onto Farewell Spit, so named by Captain Cook who said. "Farewell." And spat, hence Farewell Spit! We have talked about canvas towns and the early settlements. Collingwood was originally called Ourere, it was a small Maori settlement that was soon over taken by Europeans as a major distribution centre for the passing gold miners. In 1857 the local hotel consisted of a wooden frame over which canvas sheets were anchored. A table was placed in the centre of the room on which stood a wooden box and tin tray for the meat. No chairs, and only a sheet divided the sleeping accommodation of two tier bunks. It was sort of basic. Eileen and I continued our way straight up to Puponga where we turned off the highway and went looking for the local coal mines. After driving 6 miles along a dusty, pot holed track I decided we had missed the mines with much sighing from Eileen. There were a few hills around us but the opposite coast was coming into view and I needed to 'spend a penny'! We turned round (lots of grumblings) and made our way part way back when I spotted a flat area and a path. "Ah." I sighed. "Spend a penny time." I paddled down through the bushes when it occurred to me that I recognised where I was from some photos in a book I had read. The path was the mine tramway and it took me straight to the workings. I shot back for my camera, torches and slave units. Eileen was tackling a Ministry of Health document so I parted with the phrase. "I'll only be ten minutes." Sounds familiar?

The curved track led to a concrete abutment supporting the base of a small hill. In front were four square concrete blocks. These were the base for the coal bunkers. To the right of the concrete abutment, hidden behind bushes was an adit driven through



Original adit, Puponga Coal Mines.

the seam of coal. I knew this was the first drive, where coal was discovered by Joseph Taylor in 1895, a colourful character who rubbed everyone up the wrong way. The seam was eleven and a half feet high. I inspected the badly shattered opening and decided it was worth the risk in popping down the hole a bit. Immediately to

my right was the flooded incline that followed the seam, pitched at about 40 degrees. Silent blue water. Ahead was a drive that gradually collapsed. The timbers, over a hundred years old, were still in position complete with caps and wedges. As I made my way out, a section of side wall sort of crumbled away and fell to the floor. This adit was used in later days, 1905, as the ventilation airway.

Just to the left of the ventilation adit and above it was a second and a third adit on the incline of the seam which were on the line of a fault. These are in a poor state, but I did manage to get some photographs. I returned to the flat area and continued forward following the tramway that turned to my right and gradually climbed over the abutment, passing two wooden lined concrete explosive stores. I now entered a small plateau festooned with mining remains. Above the track, the end of an old wooden coal tub lay projecting out from a mass of rocks. The wheels were missing but the axle was there and would appear to have been used as some form of anchor. In front of me stood the partial remains of the winch base with the winch standing on the grass behind it, efforts had been made to remove the bearings. To the left, the mine mouth had been blown in; two sets of rails ran into the debris.



Winch base and winding drum, Puponga Coal Mine.

Plans show that the level travelled a short way forward before descending the dip of 1 in 3.5. The wagon tippler lay on the grass and part of the endless chain haulage links lay scattered around. There were several loose pieces of equipment, such as tub coupling hooks, links, steam piping and spare rail. The mine worked from 1895 to 1943 and from 1953 until

1974. There were other workings, mainly North Cape (now surrounded by private property, and Wharariki (pronounced as farar-iki, simple!) Puponga mine extended its lease several times. In total it produced over 425,000 tons of coal. I descended back to the track and located the foundations of the mine office, workshop and loco shed. I missed some other areas and the track to another working. Part of the tramway also went into the bush to recover timber (mainly birch) for the mine. I must return to investigate further, in hindsight I should have done because the rest of the day was fraught with mapping problems. I returned to Eileen one and a half hours later and then remembered I'd never 'spent a penny' so I had to go back!



Coal tub tipler, Puponga Coal mines.

We drove back to the coast where we viewed Taylor's long jetty pushing out into the inlet. Only the stubs remain and on the right laid rusting on the shore against the side of the road are the remains of the dredger (1906 – 1908) that cut the channels in Puponga inlet so that the ketches, schooners and small steamers could load up at the

jetty. There are two linked buckets, wood still in the base, bulkheads, steam pipes and winch parts. A photograph shows an earlier jetty, also constructed by Taylor, at high tide. The wharf is under a foot of water and a young man is pushing a loaded tub of



Dredge buckets, Puponga Beach.

coal through the water to ‘Lady Barkly’, a small coastal steamer. The man is stepping on the flooded sleepers, one slip and he is in five feet of water.

It was now time to find the gold mines in the hills of the Golden Block. This entailed a four hour drive on the Dry Road, only because it was dusty, to Mangarakau and then onto

the old service port of Paturau River and Anatori. Fat chance! The road was really only fit for 4X4 vehicles, we pounded for miles and didn’t see a thing. Not even the coal mines at Mangarakau, though we did find the coal loading pier. So we came back and drove down to Parapara and followed the wide river up the valley; this river had been panned, sluiced and dredged with quite good results. In later years odd nuggets, including one of four and a half ounces, could be found on the beach at the mouth of the river.

Little can be seen of the activities now, apart from numerous boulder walls where, once again, the miners had lifted the rocks out of the way in order to access the gravels. At Rockville Store (now disappeared) we drove down a dirt road to the Devils Boots, huge water worn limestone rocks that looked like boots; this was the route that the miners took to access the deposits in the Aorere goldfield. The new road bridge spans the Aorere River and one can view those deep blue pools where the gold fever started. Nearby one can visit the Salisbury Swing Bridge. This swing bridge, which wobbles when you cross it, was constructed over a hundred years ago as a result of a petition by the gold miners. Many miners and their mules had drowned in the deep fast flowing river. The bridge was constructed to take a maximum weight of 200lbs although the miners requested a load bearing of 400lbs. As a result only one miner and his mule could cross at any one time and the weight overloaded the bridge.

It had to be repaired several times after twisting and tipping the odd miner into the river. I crossed it with some trepidation; the view looking up and down stream was stunning and frightening because the bridge truly swung and rolled away from you as you struggled to cross it. The timbers were old and rotting and odd strands of the suspension wire had rusted and unravelled.

When I was half way across I turned round and shouted to Eileen. “What’s the maximum load that can cross now?” “180 pounds.” She shouted back. “How much do I weigh?” “181 pounds.” came the reply. Just at that moment there was an ominous twang on the suspension cable. “Christ almighty!” I exclaimed, only to see a

grinning Eileen gently striking the cable with a stone. Well that sent the blood pressure up! I continued with my legs wobbling all over the place and made it across the 'run silent run deep river'; at least there was a 'portaloo' on this side for those who suffered the wobbles. Yes, I was on my way. The only snag was I had to return over the bridge, more knee knocking. I could not see a way down to pan, nor could I see any gravel to pan in. With that I was relieved (a pun). I gave up and we drove back to base.

Sunday. We visited Pupu fresh water springs, basically a bubbling lake, where 415,000,000 gallons of water per day (14,000 litres per second) well out from many underground fissures. It is one of the largest fresh water springs in the world. NZ airlines offer it as a refreshing drink, and very nice too. The walk through the forest passes several alluvial workings and the familiar boulder bankings left over from the 1850s. What is unusual, is that flakes of gold were found here and can still be panned (unfortunately panning is banned at the moment due to the risk of a fungi carried by visitors entering the water). The theory is that gold may have been deposited by ancient rivers or brought up through the fissures. The early miners constructed a head race and the water was sluiced over the rocks and boulders, the larger boulders were carefully washed and stacked. The remaining fine sand and gravels were then washed through the sluice boxes where matting and riffles were used to trap the gold.

We then went on our Duck bus on to Farewell Spit. The bus drove on the inner side of the spit for a short way then crossed over onto the outer spit where all our 'human footprints' would be washed away at the next high tide. It was a gorgeous afternoon; most of the visitors were 'twitchers' (Ornithologists). There were only twenty people on the twenty two mile run, golden beach, seals, sea birds; you know; red legs, loud mouths, and lots of feathers, plus LBTs (little brown things). We saw the skeletal ribs of sailing ships projecting out of the sand dunes. Had tea and a scone at the lighthouse and climbed the sand dunes at sunset, just like 'Lawrence of Arabia' – without the music!



Cullensville 2008.

It was time to leave Takaka and head back along Queen Charlotte's drive passing Cullensville, well not quite, we did have to drive up it. Eileen wasn't too happy being coated in white dust again. The lovely farmed valley belied its past. Driving as far as we could up

to a locked gate, we were now in the middle of town, only there was nothing to see except markers in the field and concrete tops of the various shafts. Gold was discovered during 1888 by Charlie Jackson and his party in the stream beaches and bars, this was easily processed. Companies were formed and they sank shafts to work the gravels up to 130 feet below the surface. Over a thousand miners were working the gravels at one time. The town grew to supply their needs including, general stores, bakeries, butchers, bootmakers, blacksmiths, The National Bank, post office and police. The mines continued to prove the ground that got ever deeper towards the coast. The Wairarapa was the richest producing a yield of £10,000 in two years. A 26 oz nugget was found in the Gorries claim. Mining came to an end in 1896 and the Grand National Hotel burnt down in 1897. To give an idea of the state of the workings in Cullensville heyday, I'll mention some of the workings reports from 1890 – 1891

Hibernian Mine Shaft 51 feet deep. Pump not strong enough. Six men got 70 ounces.
Wairarapa Shaft 30 feet. Since 1889 got 800 ounces. Width of run of gold 14 to 30 feet.
Alice Fell. Shaft 80 feet. Drove 110 feet. Got a few colours. Drive another 60 feet but lost the lead, showing deep run of ground is further to the eastward.
King Solomon. Shaft 80 feet. Very wet. Three weeks work got 90 ounces.
Greig Party Depth 8 to 12 feet. Large quantity of gold.
Boys' Own Shaft 34 feet. 47 ounces in one day. Taken out 130 ounces.
Prospectors. Very good. 7,000 ounces from March 1890.

The workings were extensive and became more so as one travelled back down the valley towards the sea. Mining in the valley continued in a small way until 1939. The outline of the buildings can clearly be seen as well as the shaft heads. Various sign boards show where the mines were and the track continues up the valley into the gorge where a little quiet panning can prove results (nod, nod, wink, wink). Finally we made our way back to Picton and the ferry. We had a great week end.

References

NZ Historical Places Trust./ Coal Mines of Puponga. Peter Dyer./ Mahakipawa 1890-91./ Historic Gold Trails of Nelson and Marlborough. Tony Nolan./ Department of Conservation. Notices, leaflets, signboards./ Golden Bay Visitor Centre./ Internet information./ Photographic Information./ Collingwood, The Old Cemetery and Early History by Chris Petyt.

NB. I can thoroughly recommend Peter Dyers book 'Coal Mines of Puponga'. ISBN 0-9582252-5-7 October Enterprises Ltd. River Press. PO Box 10 Picton New Zealand. Text, Excellent Photos, Plans, Sections. Paper back A4 sideways! 192 pages. Price about £20, \$50NZ dollars plus postage.

Another book; basic compilation called 'Karamias Forgotten Footprints' by Barry Chalmers. Deals with the industry around the town (some 70ks above Greymouth, South Island). Shipping, logging, steam engines, flax workings, sawmilling, history of specific logging companys. Very raw material but contains just the information one requires to research these areas. I can't find a copyright symbol or notice, how strange. Full of old 'borrowed' photos, plans, receipts, etc \$35 worth every penny.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

Committee Meeting held on the Monday 16th January 2008 at the BMSC Hut at Coniston, starting at 6.30pm.

Agenda.

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

Present: M. Simpson (MS), J. Aird (JA), S. Barker (SB), D. Borthwick (DB), D. Bridge (DGB), J. Brown (JB), T. Holland (TH), M. Mitchell (MM), M. Scott (MSc) & A. Wilson (AW).

The meeting commenced at 6.30 pm. 10 committee members attended. The Chairman welcomed new committee member Tony Holland.

1 Apologies for absence from: I. Matheson (IM) & P. Fleming (PF).

2 Minutes of the last meeting

The minutes of the committee meeting held on Monday 19th November had been previously circulated to members. Two typing errors were amended, it was then **PROPOSED** by MSc and **SECONDED** by JB that the minutes be signed by the chairman as a true and correct record of the proceedings. This was carried unanimously.

3 Matters arising

3.1 Item.14 JA was exploring getting CATMHS website linked to other similar sites, would still like suggestions. He had also contacted the Cumbria Library Service but was not having much success, would persevere.

3.2 Points raised at AGM:

3.2.1 JB had suggested a re-print of Journals 1, 2 & 3, to be scanned and then possibly a CD would be produced.

3.2.2 It was suggested that John Crompton had documents relating to Coniston, SB to contact him.

3.2.3 The committee were asked to discuss the Paddy End project. MS had discussed the project with Phil Meredith, he would consider another GPR project in the summer. Committee to come up with suggestions for a suitable site and then have further discussion. Discuss applying for SMC to explore the ground at Simon's Nick with PF when he returns from holiday. JB suggested we should try using a thermal imaging camera on the site.

3.2.4 MS suggested we should look at re-arranging the timing of proceedings at our AGM later in year. The last AGM was longwinded and the gap between the meeting and dinner was too long. The date to be brought forward to last weekend in November.

3.3 JB reported W. Allison is in discussion with the LDNPA regarding the Silver Gill project.

3.4 Item 15.4 SB had contacted Florence Mine and sent them the list of artefacts lent to them by CATMHS when they first set up the museum. They had no recollection of them and asked if we had photographs of the items, it is unlikely that we will have. They are trying to find new premises to display their artefacts and will let us know what is happening.

4 Secretary's Report

Received since last meeting:

Letter from Lisa Keys the LDNPA Access to Archaeology Officer, they are producing an exhibition 'History in the Landscape' at Easter at Brockhole, subsequently it will go on tour. They will also hold a series of workshops specifically for local groups at different locations. SB had returned a questionnaire, and suggested Coniston for a mining and quarrying event.

5 Treasurer's Report

JA had circulated the balance sheet to committee members covering the period from 19th November to 16th January. Income was mostly from: subscriptions, gift aid reclaim, donations and publications. Expenditure mostly on the commemorative plaques, leaflet printing, bolting equipment and NL printing. The current a/c stood at £1,309.38 and the Scottish Widow a/c at £17,000.00.

6 Membership Secretary's Report & Newsletter

IM was unable to attend but had sent his report. 76 members had renewed to date, 21 still to do so. A reminder will go out to them with the next Newsletter at the end of the month.

Quite a lot of material in hand for the next Newsletter. Publication due 1st week in February. Please email copies of the officers AGM reports for inclusion. TH suggested we put the Newsletter CD on the

website to encourage new members, also that we review the wording on the membership form. He had prepared a draft, which was approved. MS asked TH to review all the CATMHS promotional material and make suggestions.

DGB suggested that the information on all the shafts visited in the early 1990's at Nenthead by CAT members should be published in the Newsletter, agreed.

7 Meets Report

The current meets list finishes on 9th March. Jon Knowles had sent a request for suggestions for meets, venues and leaders. Please send ASAP. The meet scheduled to visit Katherine and Jane Consols had been postponed and will be re-advertised.

8 Publications

Journal 6 is on track. 15 articles are promised. IM had received three finished articles. He knew another five were nearly finished and needs to find out the progress of the other five. The deadline is the end of February. Dave Sewart has been very helpful and efficient dealing with the material sent to him. IM had not found a printer or costing yet. It will be easier to do when it is complete and on CD. He proposes printing a thousand copies.

Coniston trail leaflet, DGB had written an additional piece on the geology of the area. Quotes for printing would be needed.

9 Library

There had been three visits to JRM since last committee meeting. Earlier in the day IM and P. Sandbach had helped sort the plans and maps that are still to be entered onto the database. There seems to be a lot of duplicate copies, next task is to decide what to do with the spare copies.

Old Microfiches - MM and DGB to investigate getting them scanned. Plans from Carter Jonas need to be copied, but they are too wide to print, consider Digital photography or scan. Put on agenda as separate item next meeting.

MS & IM have again visited JRM and have photographed the cost book.

10 Coniston Mines & Quarries

Kernal Level – JB reported there had not been any work done in Kernal Level recently, two more visits for exploration and one to de-rig would be required. DGB would still like look at the geology in the mine.

MSc had seen a person on a trials motorbike riding on the tips and around the fell, he reported it to the police and NP. The police had investigated.

11 GPS

DB had circulated the survey map of Teeside Mine near Moor House. It was decided to have a survey meet at 2.30 before the next committee meeting on 10th March, to discuss methods and processes. Jon Knowles wishes to use GPS in Wales, he will apply.

12 Mines Forum meeting

The next Mines Forum meeting on the 8th February 2008 at Brockhole LDNPA Centre at 10.30am. IM, MS and PF will attend.

13 CAT website

Please send surface and survey photographs to web master, action DB.

14 Any Other Business

14.1 MM thought we should buy the Coniston Railway book for the archive, agreed.

14.2 DGB had a photograph of the gear he lost down 'Frog Shaft' in 1993, taken recently by Mike Hrybyk, to go in Newsletter.

14.3 JB reported on progress at Carrock Fell Mine, he had provided a method statement, risk assessment and costing for the gate to E. Kingston.

14.4 MSc reported on the Boxing Day meet. A dressing floor at Tilberthwaite Mine had been examined, he thought we should record the site. The possibility of a future project in the Tilberthwaite Horse Level was discussed.

15 Date and venue of next Meeting

This to be held on Monday 10th March 2008, at the BMSC Hut Coniston at 6.30 pm.

There being no further business the meeting closed at 9.15 pm.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

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