C A T

The Newsletter of the Cumbria Amenity Trust Mining History Society

The old Nenthead Dressing Mill, erected in 1908

No. 118 **February 2015**

Cumbria Amenity Trust Mining History Society
Newsletter No 118, February 2015

Contents:

Cover picture – The old Vielle Montagne dressing mill at Nenthead
The old Nenthead dressing mill, erected in 1908 by the Vieille Montagne Zinc Company, Belgium. It housed the main gravity dressing plant. Prior to 1908 the site was part of the London Lead Company's Rampgill dressing floor. In the late 1920's the mill was linked by an aerial ropeway to Wellhope shaft. During the Second World War the gravity plant was removed and a flotation plant installed to re-treat the waste dumps for ore.

The Krupps Company of Germany constructed the new dressing mill; it became operational in 1910 and at that time it was one of the most modern plants in the country. The mill was capable of treating 200 tons of ore per 12 hour day using gravity separation. The processing consisted of picking and crushing, jigging and finally separation of slimes using shaking and vanning tables. The lead and zinc concentrates were sent to the Vieille Montagne Zinc Company's smelters in Liège, Belgium.

I found this picture, the only one in the archives of "Centre d'Histoire des Sciences et des Techniques de l'Université de Liège". It is the only picture, so far, and it I was kindly offered to have it! No date is mentioned and we do have no clue when it was taken. The picture shows an aerial ropeway and the tower on top of Brewery shaft which is quite unique.

The good relationship I have with Professor Halleux and A. Péters of the University and National Archives in Liège, I hope, will help me to have full access, shortly, to the "non-classified" archives of The Vieille Montagne Company. In 2000 the rests and bids of the original archives were stored in the cellar of the old University building in Liège and I had the opportunity to copy the Nenthead real estate plans of the Vieille Montagne Co. Most of the old archives were destroyed by the Germans in the Second World War and the 'left overs' by the VM itself when the headquarters, in Angleur, moved to Brussels and Paris. Only a 'small' amount, fortunately, were saved by Mr. Bricteux, member of the University, as he passed by the old VM headquarters and saw the content of the containers ready to be destroyed. In one of the containers were hundreds of original old silver glass plates (daguerreotypes)...all in bits and pieces!

I did send the original picture of the Nenthead building to Don Borthwick. I am pleased, as the only Belgian of the society, to be helpful in the history of the Nenthead area. It was Sheila who first asked me if I could help Professor Tim Barmby, from Aberdeen, in some research about the Vieille Montagne Company in Belgium. I do have to mention the positive co-operation with historian, Alastair Robertson, writer of the book: 'The Foreigners in the Hills'. His book was read with great interest by Professor Halleux and another one will go to the National Archives in Liège.

The real estate plans are available in the CATMHS archives and new 'discoveries' will be handed over.

Rudy Devriese.
haygill@gmail.com
cumbria@telenet.be

Background
Rudy Devriese lives in Belgium but has been interested in North of England mines since the 1960's. He has been a member of CAT and MoLES for many years and visits the Lake District at least once each year. The Vielle Montagne Company operated the lead mines at

Nenthead, and also had interests at Coniston for a time. Rudy has spent a lot of time researching at the National Archives at Liège and at the University there.

Rudy has been in correspondence with a well-known Alston local historian Alastair Robertson and a political economy professor at Aberdeen called Tim Barmby. Alastair has written and published several books on local topics, for example a History of Alston and a book on Whitley Castle (Roman Fortification near Alston). In this context it is his last but one book 'The Foreigner's in the Hills' that is relevant. It tells the story of the VMZ company's days at Nenthead and the foreign workers that were employed. Alastair's interest

in this subject *Nenthead mill taken in June 2014. Photo Rudy Devriese*

continues, an aspect of this is what remains of the mill. An important structure and for many years now Wright's bus garage. The building is deteriorating and likely to be demolished, Alastair, is enthusiastic about its importance being understood and the structure properly recorded.

Rudy is in contact with Professor Tim Barmby of the University of Aberdeen and met him in the Walloon archives in Liege and in the Maastricht University. He gave a paper there 'Bingtale and Fathomtale: Labour contracts in the 19th century Metal Mining in Britain'.

AGM & Dinner

The AGM and Dinner was held at Rydal Hall on 13th December. Eighteen members attended the AGM, with four apologies. All the members and officers of the Committee were re-elected. Minutes will appear on member's page of the CATMHS website once they have been approved by the Committee at the next meeting on February 23rd.

With the addition of partners, twenty nine people sat down for a very enjoyable dinner, after which the Chairman's award was presented to Angela Wilson. Thanks to Jon Knowles for the photo.

Rydal Hall is an appropriate venue for our annual celebration, as it used to be the seat of the Le Fleming family, who hold the mineral rights to the Coniston mining field and were influential in its development. It isn't far from the shopping centres of Ambleside and Keswick and makes an ideal base for a winter walk, either low or high level. Why not make a weekend of it this year, and increase our numbers. Our AGM is always held on the second Saturday in December. Make a note in your diary!

CATMHS Chairman's Report 2014

Once again can I sincerely thank the committee and members of the society for their help and support during the year, without which it could not function?

Probably the highlight of the year was the submitting of a Heritage Lottery Grant application for £400,000 in conjunction with the LDNPA, Ruskin Museum and landowners, to carry out conservation work to Coniston Copper Mines from the Bonsor Dressing floors up to the area around Red Dell including the Thriddle Incline and across to the dressing floors at Hospital level as well as the Penny Rigg Mill. The application has got through the first stage which only 35% are being granted so it was deemed to be a very strong bid. This has allowed it to progress to the second stage which will be submitted in February 2015 and funds have been

released by the Heritage Lottery Fund to allow a professional company (Minerva Heritage Ltd) to compile the bid. The Heritage Lottery Fund visited the mines in late summer and thought that it was a superb project and as it has got through the first stage they will not allow it to fail at the second stage. The project not only involves the conservation of the remains on site, but will also publicise and educate the public and other bodies such as schools etc into the history of the mines, as well as getting volunteers to carry out archaeological work, training people in techniques such as using lime motor, rebuilding the structures etc. It is a great credit to the society and its members who over many years have pressed for conservation work to be carried out at both sites which hopefully will start next year. The granting of the first stage application has been very well publicised and even made the BBC News web site.

The break through at the second fall on the Horse Crag level at Tilberthwaite Mine was made a few weeks ago which leads after approximately 30 yards to a third fall which, from Roy Garners report in Newsletter 45 January 1996 and surveying of the level, leads us to believe that this is the last one. The pack wall is now over 120 yards long, in places will be 20 feet high and 19 sets of steel will have been installed once the fall has been secured. Work will then start on the third one and hopefully will be completed in 2015, which would mark the end of a seven year project. It is worth noting that John Brown is travelling approximately 7500 miles a year taking four hours every Sunday to enjoy the delights of the mine, but as Jane, his wife, says, “it gets him from under my feet for a day.”

The conservation of the First World War mill at Carrock Mine has been completed and the interpretation panel has been installed, which the society played a major part in.

A huge thank you should once again go to Ian Matheson and the contributors for continuing to produce a good quality newsletter which as previously reported, Peter Claughton from NAMHO has commented is one of the best in the country.

Mike Mitchell and Mark Simpson, with assistance from Clive Barrow, have continued with surface surveying and have been using 3D surveying techniques which has produced some remarkable results, in-fact as good as the professionals. It is hoped that it may be possible to get these surveys onto the web site.

Dialogue continues with the various agencies regarding Force Crag Mine and next summer the society will start work on re-opening and restoring No 3 level to what it was like when being worked in the 1960’s as well as securing the route from No 3 level to No 2 level to ensure continued access to No 1 level. The Environment Agency, who hope to carry out work to Yellow Dam at Gategill Mine, Threlkeld, have asked for assistance from the society, and an archaeological investigation into the surface remains will start in the New Year.

Members have led visits for other societies to various mines, which have been well attended, as well as carrying out talks to a variety of societies and groups, which has helped to raise the society’s profile. Several talks have already been arranged for 2015. As reported last year members have been suggesting other projects for the future such as clearing the rubbish from the flooded shaft at Myers Head Mine near Hartsop, photograph the pumps at the bottom of the shaft and open up the two stone arched levels, which the National Trust who own the land are very receptive to. Pump out the level at the bottom of Swinburn Gill near Red Gill Mine and possibly open up the German levels at Red Gill Mine on the Caldbeck Fells which

National England have indicted it would be receptive to. It is hoped that permissions for these can be progressed during 2015.

The dig through to the Lucy Engine shaft at Greenside Mine has been put on hold until Tilberthwaite mine has been finished and more help has been secured.

The committee sent out a development plan to carry the Society forward for the next five years which Colin Woollard will provide an update on.

The society should once again thank John Hodgson and Eleanor Kingston from the LDNPA for all the help and support they have given especially as they have had a difficult year with their jobs under threat of redundancy which thankfully has not materialised.

Warren Allison, Chairman

Membership

We are pleased to welcome new member Barbara Sutcliffe, from Nelson, in Lancashire

Meets: Annual meets at Coniston and Greenside

A number of new members have expressed interest in exploring Coniston and Greenside mines. It has been decided to hold an annual meet at each venue to provide an introduction to newcomers (and! to enable old stagers to re-familiarize themselves!) Mark Simpson will lead a meet at Coniston on 5th April. This provisional date, which could be flexible, is Easter Sunday, which may or may not be convenient. If you are interested in participating, then please discuss with Mark. 01539 740038 , thehistoryman@hotmail.co.uk. Warren Allison will lead a meet at Greenside in October, the date to be confirmed, but discuss with Warren, 01228 523923, Warren.Allison@2sfg.com. These events will not involve serious SRT, but a helmet and lamp and a harness and cowstail will be necessary for protection

Date change for Thrang Quarry meet. This meet will NOT take place on 25th May, which is a Monday, as published in the Meets List. It is now scheduled for Sunday 14th June

CATMHS Archive

Discussions are underway regarding the future of our archive. The Committee has agreed that eventually it should be an electronic archive. The challenge now is to develop our website to accommodate information in an accessible way to meet the needs of our members and the general public. Once digitisation has been accomplished we hope to assign our physical documents to relevant repositories – County Record Offices, geographical centres, Museums, etc. To this end we have signed an agreement with the BGS to scan all our mine plans, and this is in progress. Documents which could be called ‘CAT originals’ which are a record of CAT activities should be arranged so that they could be deposited at a CRO. The CATMHS webmaster, Chris Cowdery, will attend the next committee meeting to discuss the possibilities.

LDNPA reorganisation

The National Park Authority has undergone a substantial reorganisation over the last few months. This was in response to the 34% cut to our grant which was imposed by the

government on all National Park Authorities. We have managed to redress this reduction in our budget in part through increased commercial income but some reduction in staff capacity was also considered necessary.

The result of this in relation to the archaeological work of the Authority is that the Environment and Heritage Service, which included the archaeological staff (John Hodgson, Eleanor Kingston and Holly Beavitt-Pike) has been disbanded and most of its former members, including the archaeologists, have been moved to a new service entitled Strategy and Partnerships. John's and Eleanor's titles have now changed and are 'Lead Adviser: Historic Environment and World Heritage Coordinator' (John) and 'Strategy and Partnership Adviser' (Eleanor). The reorganisation has inevitably been disruptive and unsettling for all of us and we apologise if our support of the Archaeology Volunteer Network has appeared to be less than it might have been. However there has been some good news arising from this which is that we have secured a further year of funding for Holly's post (Archaeology and Heritage Assistant), again with assistance from English Heritage.

All of John's time is currently focussed on the World Heritage bid for the Lake District, which must be completed for submission to UNESCO in January 2016. Although he might be let out of the office on odd occasions to work with Volunteers, it will be Eleanor and Holly with whom you will have most contact over the next year. Despite the challenges that reorganisation has brought, we are determined to ensure that the valuable work of the Archaeology Volunteer Network is supported and developed over the next year with the assistance of our Volunteer supervisors.

HLF bid for Coniston copper mines. From Lisa Keyes, Minerva Heritage.
We are pleased to announce that a 'Coniston Copper' project has been successful in receiving £16,000 from the Heritage Lottery Fund! Coniston Copper Mines operated for over 400 years until the early twentieth century. They are among the largest copper mines in Britain. At the site you can see the remains of mining features and buildings. Deep underground are the remains of the mine workings.

Penny Rigg copper mill is a classic example of a site that processed raw copper in the nineteenth century. Both sites are in poor condition and in need of a programme of conservation in order to secure long-term survival. The 'Coniston Copper' project has been awarded an initial £16,000 from the Heritage Lottery Fund to develop programme plans for conservation, volunteering and learning opportunities at Coniston Copper Mines and Penny Rigg copper mill. If the plans are approved this will unlock almost £400,000 to fund the programme.

The partners in the project are: Lake District National Park Authority. Ruskin Museum, Coniston, Cumbria Amenity Trust Mining History Society, Local landowners.
A press release is available here if you would like to know more:
http://www.lakedistrict.gov.uk/aboutus/news/news-pages/big-copper-potential-for-coniston

Coniston Copper Mines and Tilberthwaite Mine conservation project- update

Work is progressing on stage two of the Heritage Lottery Grant application for £400,000 which will be submitted shortly, which if successful means that work can start later this year.

Getting through stage one has meant a great deal of publicity for both the project and the society with many reports in various publications and the media. An example being the article in the January version of the Cumbria Life magazine as reproduced below; it even made the national BBC News website

Warren Allison

Notebook

Preserving the past

Lottery bid aims to protect Lake District's mining heritage

Plans to protect and conserve part of the Lake District's industrial heritage have received a funding boost.

The major project based at Coniston's Coppermines Valley has passed the first stage of a bid for more than £400,000 from the Heritage Lottery Fund.

The development grant of £16,000 will fund a detailed report before a bid for the rest of the funding is submitted.

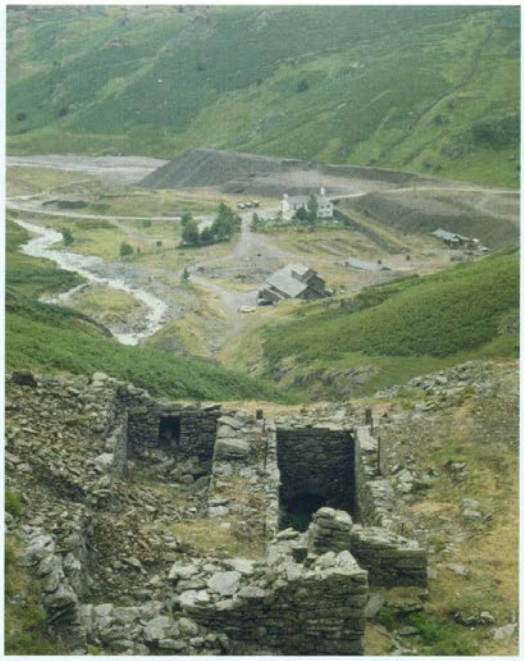
The 57-acre site is recognised by English Heritage as a scheduled monument, which means it is of national importance. It is also on the organisation's 'at risk' register.

Eleanor Kingston, archaeology and heritage advisor at the Lake District National Park Authority, said it was one of the most comprehensive examples of copper mining from the Victorian period outside Devon and Cornwall.

"The buildings on site have fallen into decline and dereliction over the years, and the funding will enable us to carry out conservation work while also providing information for people about the history of the site."

The project will focus on conserving the former mine workings above ground and telling the story of the Coppermines Valley through information panels, education projects, new displays at the Ruskin Museum in Coniston, and walking trails.

It is a partnership between the Lake District National Park Authority, land owners, the Ruskin Museum, and the Cumbria Amenity Trust Mining History Society.



FACT FILE

- The Coniston coppermines date back to the late 16th century but copper extraction is believed to have begun much earlier.
- The primary copper ore mined at Coniston was chalcopyrite, which has a distinctive brassy yellow colour.
- The most prosperous period for the mines was during the 1850s. By the 1870s, the mine was in decline and it finally closed in the 1950s.
- Miners worked the hard volcanic rock using chisels. Gunpowder was introduced in later years.
- They reached the copper veins by descending wooden ladders and false floors. Some of the workings were 1,000ft deep.
- The network of underground mine workings is regarded as very unstable and is off limits to the public without an experienced guide.
- The Coppermines youth hostel in the valley is in a former office building.

Report on Heritage Lottery bid for Coniston Coppermines, Gough Magazine.
Coniston Copper Mines project on track for £400,000 conservation boost
Liz Roberts, Reporter, Wednesday 19 November 2014

An ancient industrial site in the shadow of the Old Man of Coniston could be in line for a cash boost to conserve it.
A project to protect Coniston Copper Mines has passed the first hurdle in its bid for a £400,000 grant from the Heritage Lottery Fund. The now-derelict workings, which can trace their origin back to Elizabethan times, were one of the most significant copper mines in the country. The decaying remains of the mine workings, which are passed by thousands of walkers and climbers heading for the nearby 803m (2,635ft) mountain, were last used in the 1950s.

Walkers pass the youth hostel in Coppermines Valley, with the Old Man in the distance

A development grant of £16,000 has been given to fund detailed actions in the run-up to the full submission and a decision will be announced next summer. Lake District archaeology and heritage adviser Eleanor Kingston said it was a hugely exciting time for everyone who cared about the scheduled monument. Its history includes the patronage of Elizabeth I. Ms Kingston said: "The project is a partnership between ourselves, land owners, Ruskin Museum and Cumbria Amenity Trust Mining History Society. "Not only will this give us a unique chance to preserve an exceptional mining heritage, it also provides opportunities for people to find out more and really get involved."

Spreading across a spectacular 57 hectare site above Coniston Water and below the famed 803m Old Man mountain, the mines have a long legacy. Extraction of Chalcopyrite, or fools' gold, extraction dates back 400 years on the 57ha (141-acre) site and was a firm favourite of Queen Elizabeth. In the 16th century, she introduced German workers and its fortunes flourished. The mineral was important to emerging industries of a growing Empire. It sheathed ships' hulls as they sailed the seven seas, was used in weaponry, for coinage and by the navy.

Ms Kingston said: "Despite the magnitude of their industrial importance, they are at risk of continuing decline and dereliction. If successful, our HLF grant will allow us to consolidate, stabilise and conserve a number of key elements. We are looking at a programme of practical conservation work, information sharing and encouraging the community and volunteers to help us protect and understand this remarkable place." She said partners were hopeful Coniston copper mines and a compelling industrial history could be preserved for future generations.

A first-round pass means the project meets HLF criteria for funding and HLF believes the project has potential to deliver high-quality benefits and value for lottery money. The Coniston Copper Mines application was in competition with other supportable projects, so a first-round pass is an endorsement of outline proposals. Having been awarded a first-round pass, the project now has up to two years to submit fully developed proposals to compete for a firm award.

LDNPA Archaeology Conference

The 13th annual archaeology conference was held on November 2nd at the Theatre by the Lake, Keswick. Most of the presentations were about projects involving the Lake District Archaeology Volunteer Network. Mining interest was confined to charcoal pitsteads and iron bloomeries.

Introduction

Professor Jeremy Rowan-Robinson introduced the proceedings, pointing out that the Historic Environment staff had been affected by LDNPA cutbacks, but that a positive consequence was the development of the Archaeology Volunteers Network.

The LDNPA archaeologists reported on the past year.

Carrock Mine mill, a gravity mill built in 1906 to process tungsten ore and in use during the 1914 – 18 war, has been consolidated, with several walls rebuilt and capped. An interpretive panel has been erected on site.

Some conservation work has been carried out on the 1883 drying shed at the China clay mine in Roughten Gill. Rocks have been cleared to reveal the footprint of the building.

At Winster a potash kiln has been conserved with steelwork inserted to support a lintel
Askham lime kiln has been re-pointed.
Rusland Horizons Heritage Partnership Scheme has been successful in their HLF bid. See their website.

The Coniston and Penny Rigg HLF bid has passed Stage 1 and the final proposal will be made in February next year. It is hoped that work will begin next year on conservation of above ground remains. There will be interpretation on site, at the Ruskin Museum and at Coniston YHA. There will be trail leaflets and guides to the site. Two volunteer projects are envisaged, one to record on site, the other for archival research

Community survey and excavation of four iron working sites around Windermere

A survey in 1999 noted about 20 medieval (12th – 16th Century) bloomery sites in the ancient semi natural woodland of the Windermere Catchment area. Four iron working sites have been surveyed and excavated this year, Ghyll Head on the eastern side of Lake Windermere, Cinder Nab and High Stott Park, near Stott Park and Blelham Tarn near Wray Castle.

Ghyll Head, Cinder Nab and High Stott Park were all subject to topographical and geophysical surveys. The results revealed that all three were typical hand powered medieval bloomery sites and the location of each the furnaces were found through the geophysical survey. We also cleaned an eroded section of the bloomery at Cinder Nab. Thick deposits of black ash, slag, gravel and burnt clay, which may have been derived from the destroyed furnaces were exposed on the lake shore. The charcoal samples have been radiocarbon dated and the results have come back dated to 1274 -1391 AD.

The Blelham Tarn bloomery was subject to topographical and geophysical survey and also a small excavation. Four trenches were excavated across the site. The first targeted the suspected wheel pit which would have powered the bellows for the furnace and the site of the possible furnace and hearth. The edge of the furnace was revealed and an area of a hard deposit of hammerscale, derived from hammering an iron bloom. Trench 2 was excavated across the tail race, confirming the presence of this feature, which had been cut through deposits of slag, indicating the bloomery had been in use some time before it started using

water power. Trench 3 was positioned across what the geophysical survey had identified as a possible building. Unfortunately, no remains of a building were discovered and this feature turned out to be the remains of two stone drains. Trench 4 was placed across another possible building identified on the geophysical survey. Deposits of slag, stone, burnt clay and furnace lining were all found in the trench.

The excavation provided a rare opportunity to obtain accurate dating for the iron working activity, by radiocarbon dating fragments of charcoal. These included a layer of charcoal and iron working waste close to the furnace, which produced a date range of AD 1307 – 1429. Two further dates from similar layers of c AD 1450 and AD 1317 – 1437 demonstrate that the bloomery was in operation during the early fifteenth century and probably had been established by the fourteenth century.

We have produced three MP3 audio trails which will enable visitors to appreciate and understand some of the sites we surveyed during the project. They can be downloaded from the LDNPA website: http://www.lakedistrict.gov.uk/learning/ archaeologyhistory/reflections-on-history-audio-trails

These are the first MP3 audio trails we have produced, so we would really appreciate your feedback.
There is also a booklet on all four phases of the work.

Romans in Ravenglass Outreach Program

Of particular interest was the presentation by Lisa Keyes of Minerva Heritage, The Romans in Ravenglass Outreach programme, as a similar outreach programme will be required to support the current Heritage Lottery bid for Coniston and Penny Rigg. The Ravenglass project involved an ongoing archaeological investigation which the public could visit and participate; Coniston will be about conservation and archival research, but there are lessons we should learn.

Stated objectives at Ravenglass were 'To help people to understand the history', and 'To outline the techniques involved in the project'. *How do we know what we know? What is involved in finding out?*

Work was carried out with children in schools, there were site open days and local displays. Days on site were organised for clubs and organisations and one off events held, for example on Bank holidays, giving opportunities for local people to be involved and to share their personal knowledge or bring documents or artefacts that might be in their possession

Interpretive leaflets were produced, as well as interpretive panels on site and a permanent display was mounted at Muncaster Castle.

Dig in the Park

Jamie Lund gave a presentation on the results of Community Archaeology on the National Trust property at Sizergh in 2013

Recent Rock Art Discoveries in the Lake District

Paul Brown gave a talk on Rock Art in the Lake District. There have been lots of recent discoveries. Langdale stone axe factories date from 2700BC to 2000BC, but local rock art is believed to span a greater period, 3500BC – 500BC.

IM.

Tilberthwaite Horse Crag level dig- update on second fall

The breakthrough on the second fall was made on the 12th October 2014 when a hole was opened up on the right hand side which allowed access after approximately 40 yards to a third fall which, from the report by Roy Garner in Newsletter 45, January 1996 and surveying of the level, leads us to believe that this is the last one. Having spent nearly every Sunday since 2009 (apart from a six month break to re-open the main entrance to Carrock mine) and travelling thousands of miles (John Brown is doing over 7500 miles a year taking four hours every Sunday to enjoy the delights of the mine, but, as Jane, his wife says, 'it gets him from under my feet for a day'), the committee has agreed to allow the digging team to clear the third fall. Hopefully this will be completed in late 2015 or early 2016, which would bring a seven year project to a close and allow members who cannot do SRT to access the lower workings.

Just before the breakthrough

Colin going through the fall

After a few yards, we encountered the tail to the third fall, which is some 30 yards long and which will have to be cleared before steel can be installed to enable work to start on the fall. When digging the second fall, it twisted in a couple of places, which meant that we could not get Pete Blezard's mine tub through due to it catching on the steelwork. For a long period of time we used a sack barrow to bring the trugs (buckets) of debris through to the level proper, where they could be loaded onto the tub to go to the pack wall for disposal. This meant that only four trugs could be transported to the tub at a time and as there were 42 on a full load meant that a distance of 600 yards had been walked to fill each tub. John has now built a small trolley which can carry 10 trugs which is making life much easier by more than halving the distance we are having to walk.

Looking towards the third fall with the new trolley known as the Tilberthwaite express

Looking back to the start of the second fall showing the kink in the steelwork. 19 sets have been installed

The debris is being moved back down the level where it is being put into large bags (to build the pack wall), which are normally used by building supply companies to transport one ton loads of building materials. To ensure the bags are kept vertical when being filled holes, are drilled in the rock above each corner of the bag and hangers fitted; off these ropes are attached to the strap on the bag. It is important that the bag is filled correctly so that the bottom ones do not collapse when others are placed on top. This photo shows John and Colin drilling and fitting the ropes.

The pack wall is over 120 yards long and in places such as where we are now, nearly 20 feet high.

At the end of the second fall a large chamber some 20 feet high was found. and the bedrock in it is pretty poor. The tidemark where the water has been can be clearly seen in the roof with odd small air pockets

visible, so on occasions the roof falls have had a considerable quantity of water trapped behind them and this explains why sometimes the water was running down the scaffolding tubes we had put in. We decided that the cavern should be backfilled which we started to do, initially by lifting the trugs up, but then found it easier to haul them up using a rope

John and Colin at the end of the second fall, access to the chamber is on the right hand side behind John

running over crash barriers. However on the 11th January we found that two large blocks, one of which was nearly half the size of a car, had dropped out of the roof where we had been working the week before, and so it was felt it would be better just to seal the chamber off.

Looking up into the chamber

We think the second fall has had three large chambers, the first (now completely back-filled) and third ones being 20 feet high. We were unable to determine how high the middle one was, but it could have been much larger. As we have seen that water has filled these chambers, then the shaft coming down from the Waterfall level higher up the gill into the level could have been filled. On occasions when it rains heavily, we suspect that, as there are levels and stoping next to the beck above the top waterfall, the beck overflows into the mine at the upper workings, and fills it, creating a huge pressure of water behind the falls, which would explain why our pack wall on the first fall was wrecked in the floods of 2009.

This problem with the water must have been a considerable headache to the company when the mine was being worked, and it appears that the Horse Crag Level needed constant maintenance.

Warren Allison

Patience and a Pole
3d Imagery and a new way of recording Buildings and Sites

There have been many ways of recording archaeological sites: Tape and offset, Plane tabling, theodolite/total station. Plus photography of course. I first became interested, some 15 years ago, in using digital imagery for trench recording, when I was with the Ingleborough Archaeology Group and they were carrying out a dig in Kingsdale. The procedure was very traditional, setting out a trench, pegging out a meter grid and using a planning frame to record features in the trench. A slow process that had to be carried out many times, with varying standards of accuracy. Also one did not have time and weather on your side. Elevated camera imagery has always been used but suffers from one inherent problem, and this has not altered in the age of digital cameras.

Perspective; it is the way we see the world and the way the camera sees the world. What we are after when we record sites and buildings is an orthographic i.e flat on view. In other words when all the perspective lines are parallel. So taking multiple images and just stitching them together does not achieve this, and that, amongst other things is why planning is still used. The best that can be obtained is to take your image from a great distance to reduce the effects of perspective distortion to a minimum, as in aerial photography.

What about putting your camera on a pole? Well to be any use you need to be in excess of four meters high, and until recently digital cameras have not been small enough and of good enough resolution to mount on a pole of this length. You could try this with a traditional SLR, but unless you have a strong arm I do not recommend it. The other problem was controlling your camera and knowing where it was pointing. Enter Wi Fi. Tablets and wifi enabled cameras. This technology is only a few years old and the system enables remote camera control and live view. Now we can carry out modern raised camera imagery.

However! We still have the problem of perspective and the need somehow to stitch images together to give us a proper orthographic view of the ground or building elevation. The way to do this was achieved some hundred years ago in the First World War, and although we are talking about large areas as in square miles, the same applies to small sites as well. Aerial reconnaissance and the need to produce plans of the enemies dispositions. It was learnt if you took overlapping images, typically 60% laterally and 20% vertically, and using stereographic devices, you could produce accurate orthographic ground plans. With the added bonus you obtained a 3D effect as well, i.e. photogrammetry.

This was developed further in WW2 and it was by this method that a scale model was constructed of the world's first rocket site at Peenemunde, on the South Baltic coast. The 8" x 8" aerial imagery you can buy has a 60% overlap. For many years this was the only form of aerial imagery the ameteur landscape historian could obtain. Unless they were wealthy enough to hire or fly their own aircraft. This become easier with the advent of Google Earth and later Virtual Earth and Bing. A great improvement on what went before and set, by all accounts, to get better. Also they are not true vertical orthographic images.

So what about small sites? As in one or two hectares. The imaging method I shall deal with is the camera on a pole variety, the other is using a UAV (Unmanned aerial vehicle). The way the images are taken in both methods of getting your camera up high are dictated by the need for the necessary image overlaps so that photogrammetric processes can work.

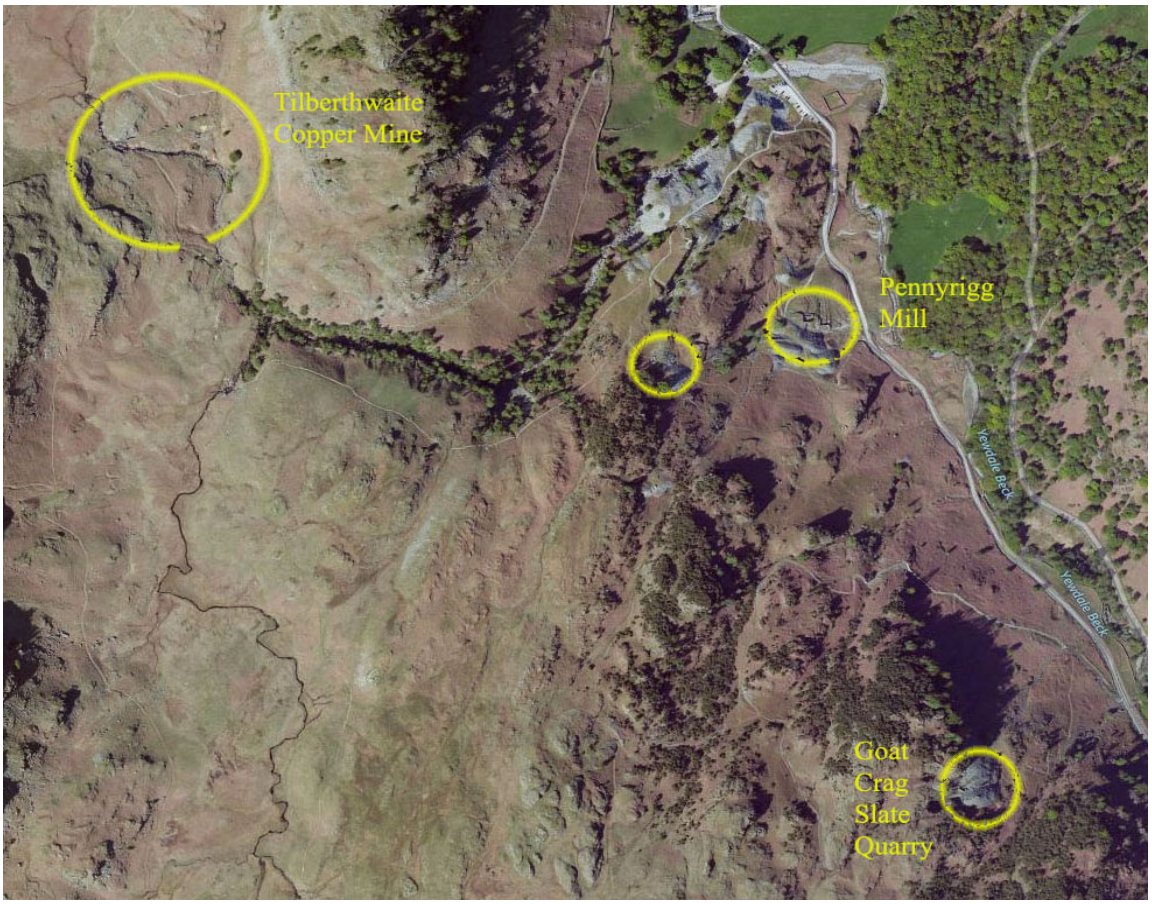
Until recently you needed rather a large machine for this and of course it would be expensive. Again the wonders of technology and modern computing power have come to our aid - Agisoft Photoscan. You put all your overlapping images in and lo, An aerial image out!! As in all things to do with computers it is not quite as simple as that, and it pays to know a bit about photography as well.

I was first acquainted with this software several years ago when I took part in the Fulling Mills recording project which occurred some three years ago as part of the Windermere Reflections Study run by the Lake District National Park. The archaeological contractor for this was Oxford Archaeology North (OAN). One of the tools used for the recording was elevated camera imagery, using a UAV. And processing the results using Agisoft Photoscan. Very Impressive.

Just what I had been looking for, new technology and software had made possible a new way of accurate site recording. Cost? Ah well! Photoscan comes in two flavours Professional and Standard, £2500 and £200 at this moment in time. Also the computing requirements are considerable as well. To say nothing of a UAV!! But, on the principle of nothing ventured nothing gained, I and Mike Mitchell each bought a copy of the standard software about a year ago and with pole, camera and tablet, set out to see what could be achieved on a smaller budget than the one used by OAN.

Site Plan – Saddlestone and Bonsor mills

The sites chosen were Bonsor Low Mill and later Tilberthwaite Copper Mine. Penny Rigg Mill was also thought about but had been extensively photographed and surveyed by CATMHS in 2003. Why those sites? They needed doing and were easy to get at. There were also other small sites round about, with buildings on, that could be recorded.



Tilberthwaite Copper mine and Penny Rigg Mill

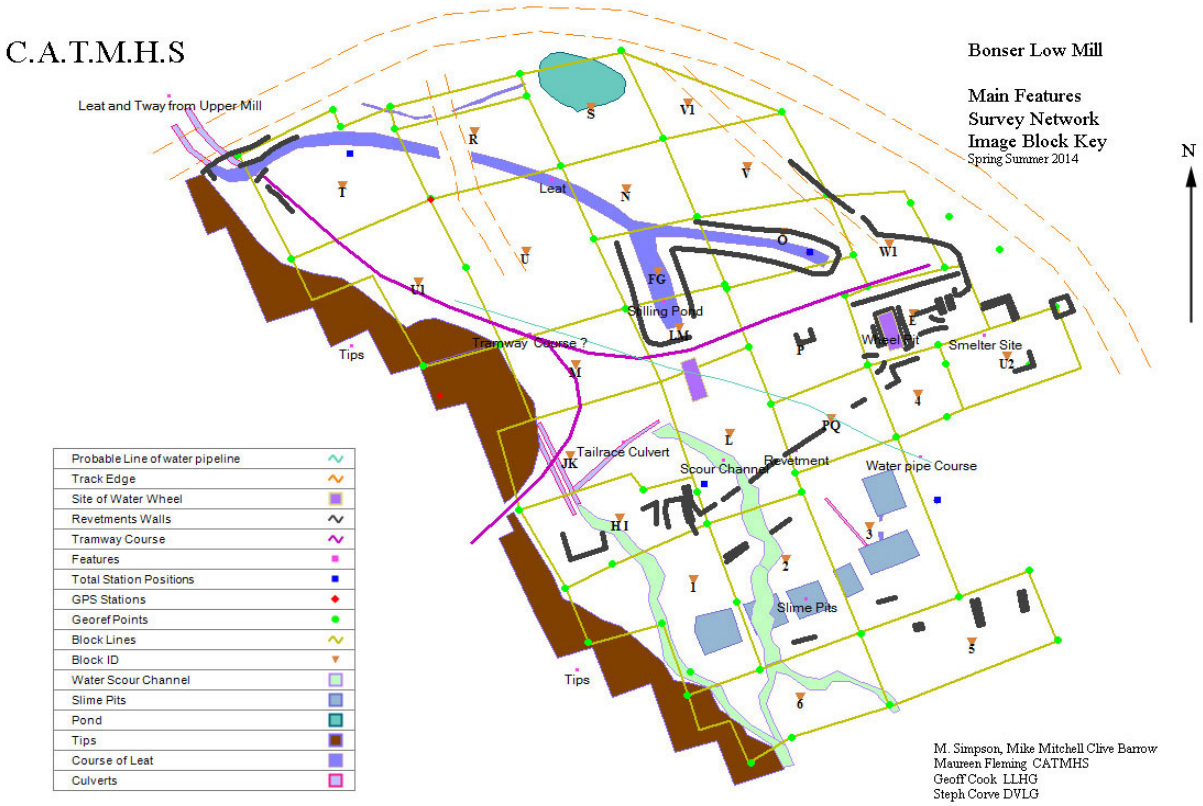
The first phase was to carry out a mapping grade GPS survey of the sites, so that we had a map to work with. This was achieved using a Trimble Pathfinder Pro XRS. This was the easy bit, after that things became more interesting.

Maureen Fleming with GPS survey equipment

Total station

There were many trials and tribulations it has to be said, but in the end the system worked.

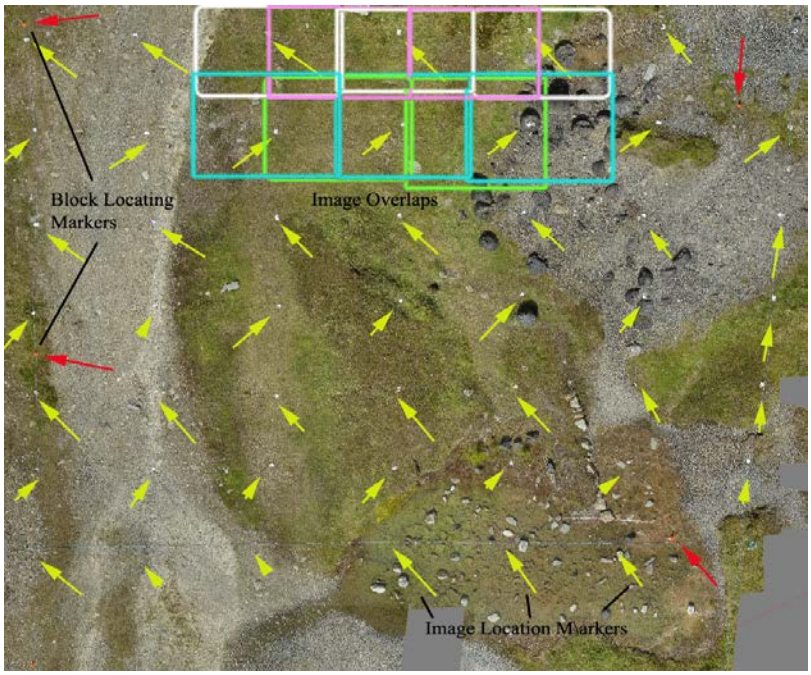
The basic physics of mounting a camera on a 5m pole indicate that you can only see an area of approximately 5 x 4m, so with the required overlap for a ground area of say 30 x 30 m you need about 100 images. (I shall call these imaged areas 'blocks') The ideal image resolution is ten megapixels. This is a lot of computing power. So we used five megapixels for starters and, with the computing power we had then, this took many hours of processing.



Blocks and Features

Bonsor Low Mill site eventually had some 20+ of these blocks, not all 30 x 30m, the shapes being determined by the site itself. This formed the network you see on the site plan below. Computing power dictated that whatever the block shape, one could only process 100 to 120 images. Mikes pole is longer some 6 – 7 m, but length brings extra challenges, especially if there is wind.

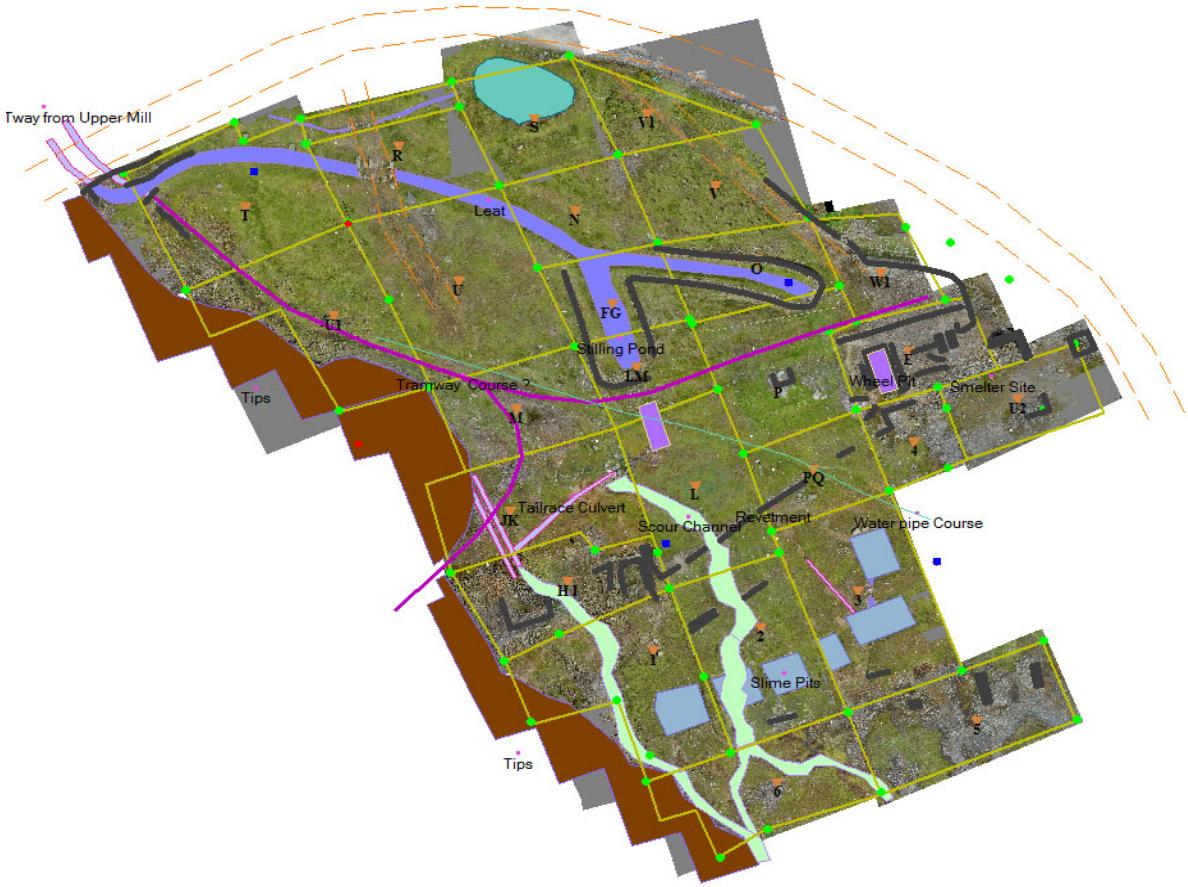
So how do you know that you have the right overlap? Once the block to be recorded had been decided. The next job was to lay out white ground markers in a rough 3m x 4m pattern. These markers could be seen on the tablet by daylight and used to position the image. Time consuming to set out and then to take the images.



Block setting Out

So at the end of 6 months we now had all these orthographic blocks of aerial images. The next process was to stitch them together accurately. The only way suitable was either a survey grade GPS or (in this case) a total station (TS)with prism reflector. Here I have to give thanks for the people who assisted me in this (See end)

This provided an accurate control of the corners of the blocks and I also surveyed the main standing structures. Using Global Mapper software with the TS survey as a base all the blocks were put together. In the resultant composite below



Bonsor Low Mill image control network on Aerial

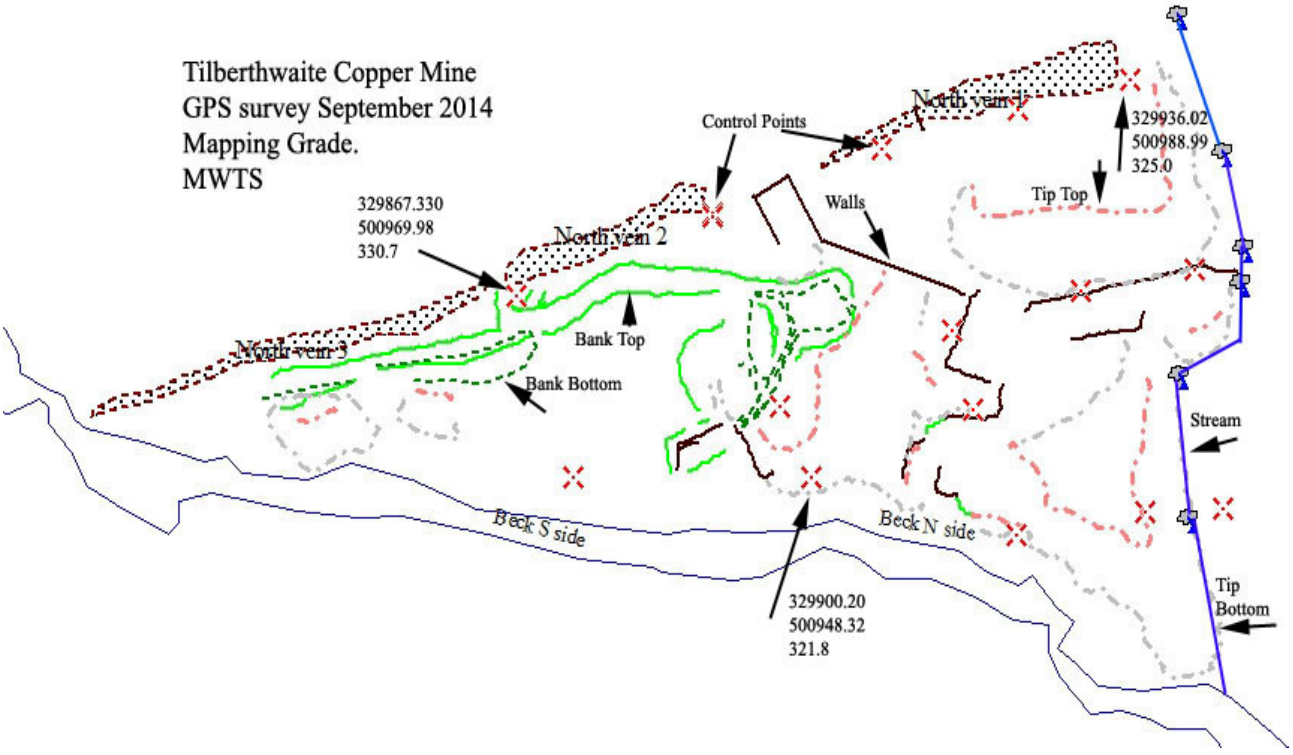
To enable the above to be used in GIS systems four points on the site were accurately positioned using a Trimble 5700 Survey grade GPS. (Which also provided Post Processing data for the GPS site survey carried out at the beginning of the project)

Trimble 5700

So we have our aerial map and we know where it is on the earth. The next stage is Restitution! The process of interpretation into a site plan. The Blocks & Features plan on p18 shows this in its early stages, information being derived from present topography and historic data e.g. Photographs and OS Maps.

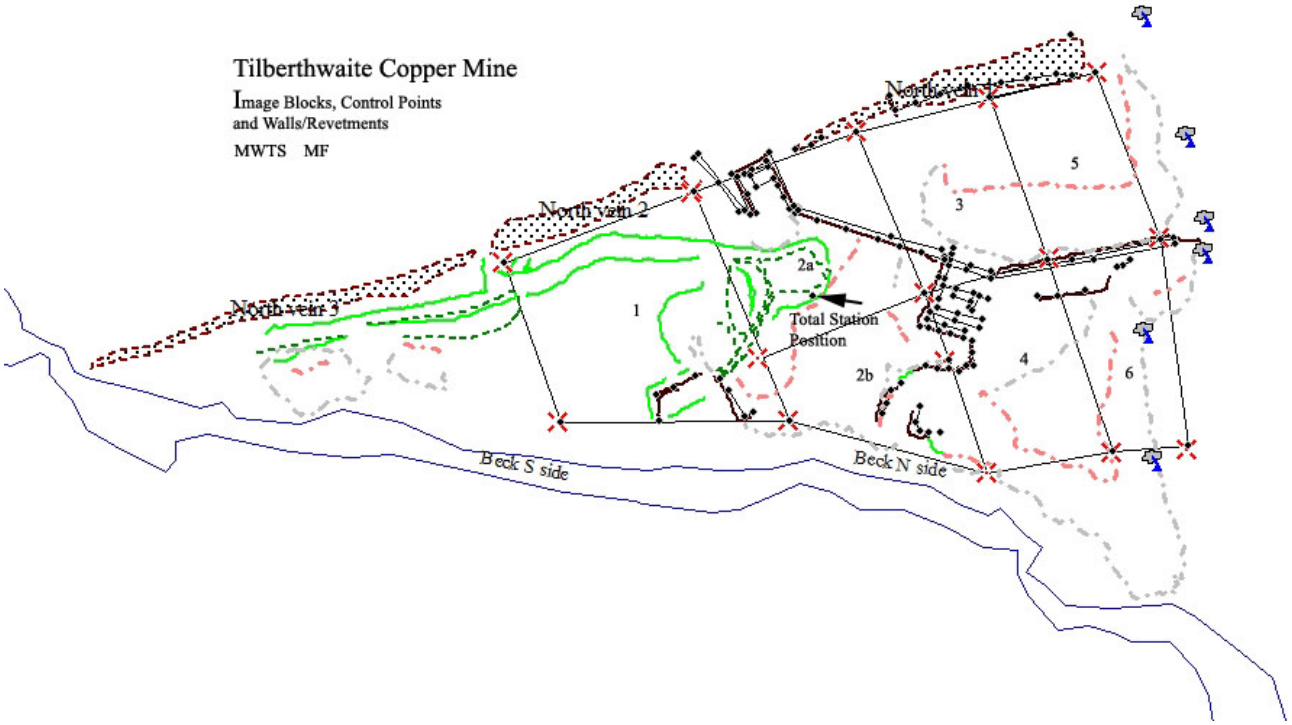
However we will now turn to the Tilberthwaite Copper Mine Site to show the survey process more clearly:

The first stage is the GPS mapping and fixing of the corners of the imaging blocks. In this case there were only six, each corner point being recorded using the Trimble 5700 GPS shown above.



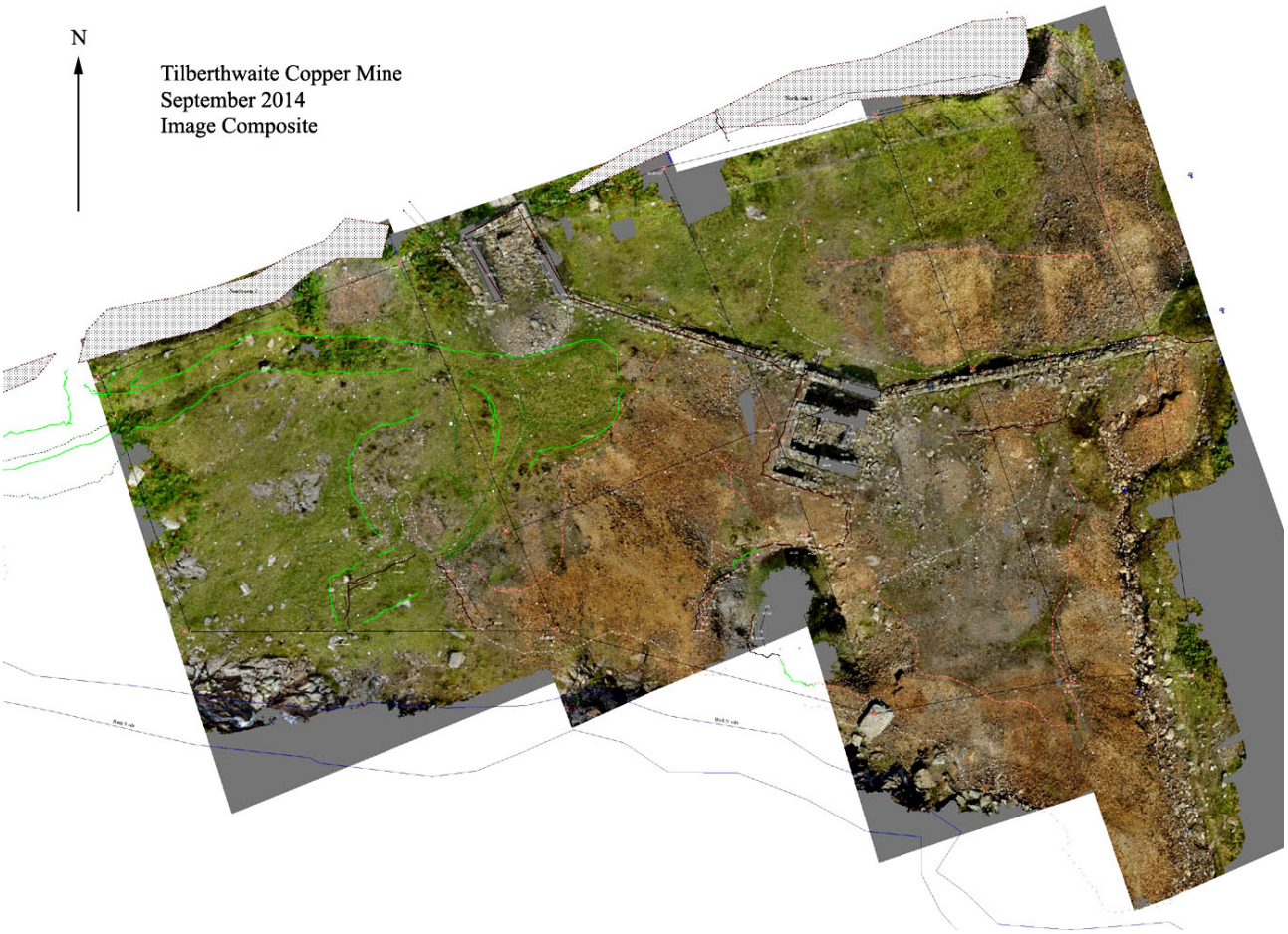
Tilberthwaite Copper Mine. GPS mapping. Features and control points

Second Stage: Control Points were surveyed with a Total Station as well as the standing structures. It will be seen that the Total Station survey is different from the mapping. The mapping being only accurate to +/- one meter.

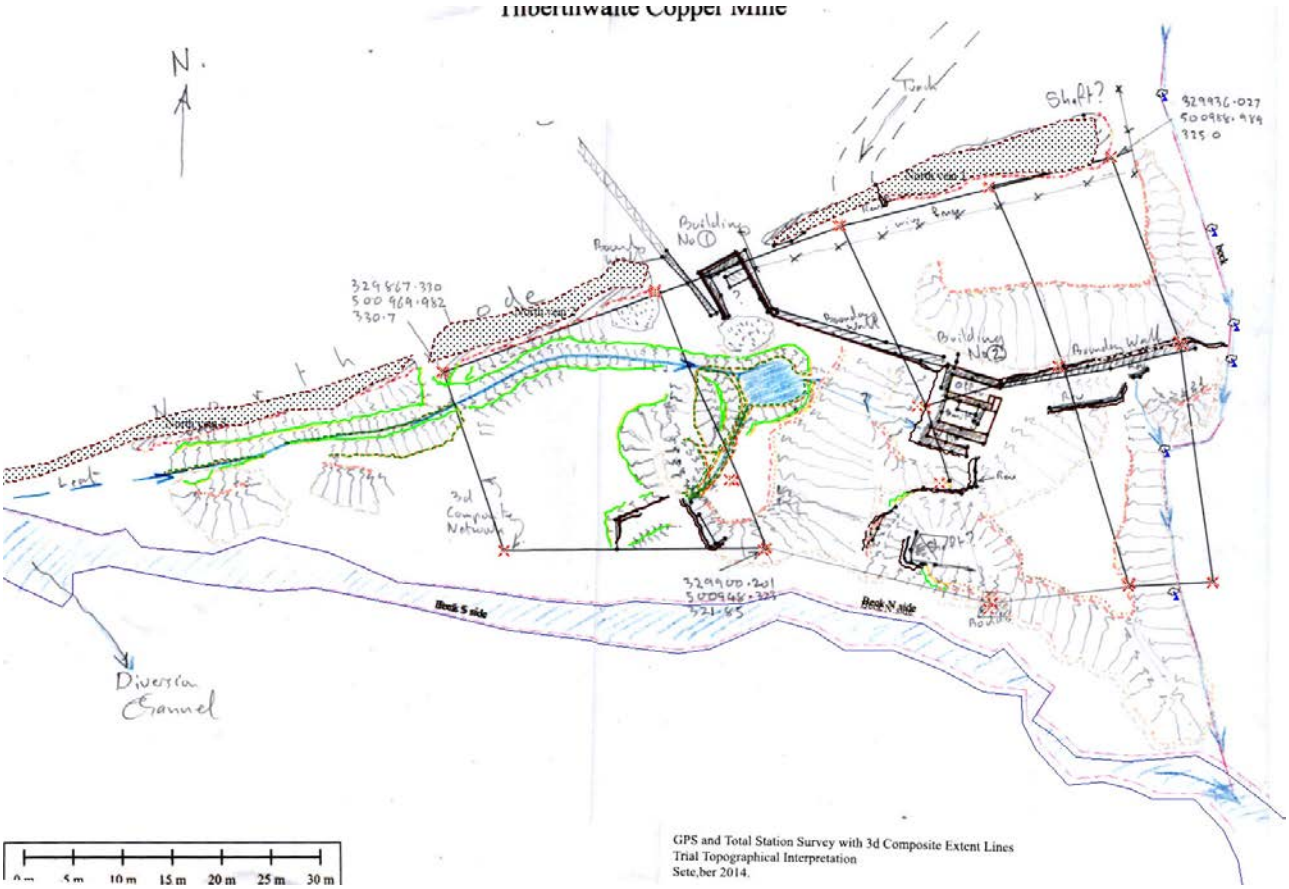


Tilberthwaite Copper Mine, Total Station survey of standing structures

Thirdly each block was imaged and a site composite constructed.

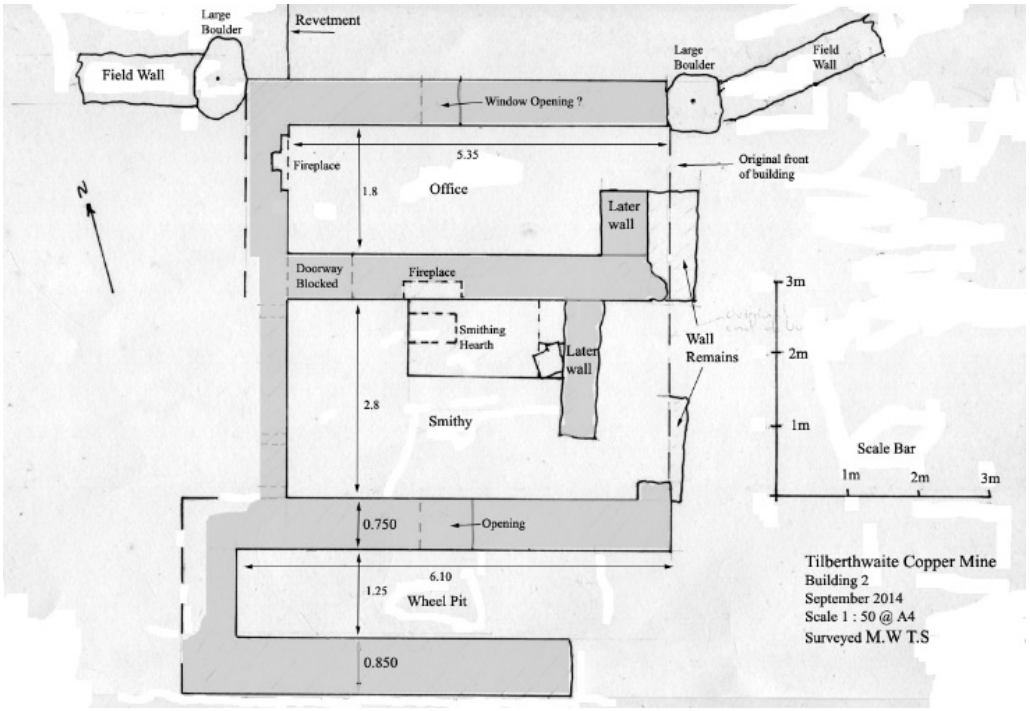


Finally restitution to form a site plan:



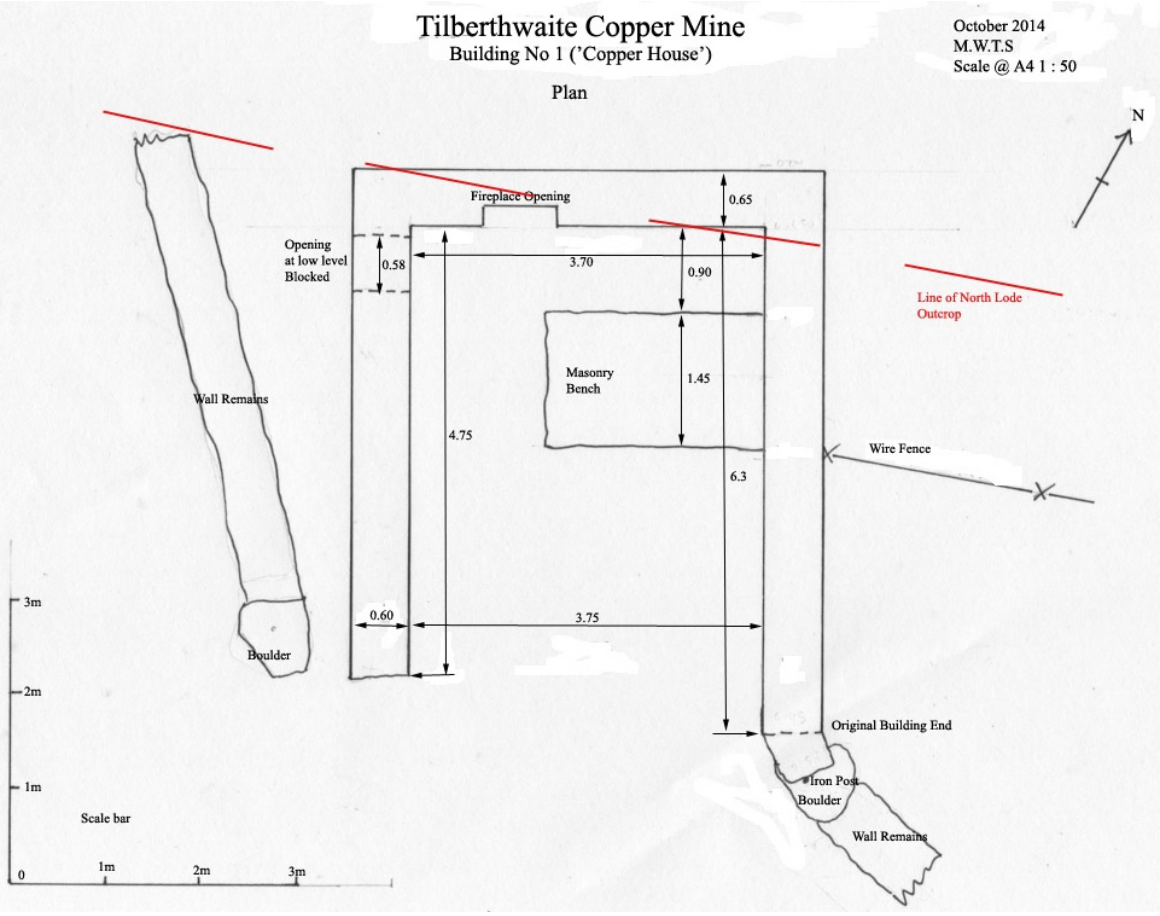
Trial Restitution

It is all too easy to be carried away by high tech ways of doing things but very often older recording methods are quicker and easier. Buildings No 1 and 2 were measured using good old fashioned tape and note book.



Building No 2 (Smithy- office- wheel pit)

Stamps?



Building No 1 (Copper House)

What about 3D??? Up to now I have been through the process of obtaining an orthographic aerial of the sites in question. Now each block when processed is also in 3D and the ability to look at the features of interest is a great aid in interpretation. The 3D aspects of building recording were also investigated by Mike Mitchel and Clive Barrow, and the results have been impressive, once the photographic methodology had been sorted. Lighting and what is in the field of view being especially important.

The sites recorded were Tilberthwaite Copper Mine Buildings 1 and 2, Penny Rigg magazine and bothy, Goat Crag riving shed, Low Water Power House, Low Bonsor Mill Buildings and Saddlestone Mill, to name a few.

Saddlestone Mill

Unfortunately those of you who have the paper copies of the newsletter will not have the benefit of seeing the 3D imagery and will have to wait till it appears on our web site.

In the course of the summer Mike and Clive also investigated underground at the Bonsor Low Mill Site. Several culverts were found and Mike constructed a video apparatus that could be inserted. These culverts seem part of the early phases, c1830. Those of you who attended the AGM will have seen the video.

M Mitchell investigating culverts at Bonsor Low mill

Discussion:

Detailed aerial imagery as shown above has greatly enhanced site recording. However, for large areas such as the Bonsor Low Mill, site pole imagery is time consuming and on tips safety aspects come into play. Also over the time February to September there have been quite noticeable colour changes due to different lighting conditions and the site drying out.

For small areas, mills, riving sheds, etc, pole imagery is effective time wise, but over large areas we need to have our cameras higher and that means a UAV.

This device will give us greater image cover in a shorter time. Half a day as against 6 months, so a better chance of doing it all under the right lighting and weather conditions. This will also mean fewer images but at a higher resolution. Control points will still need to be surveyed in (Whether by total station or survey grade GPS). However there is a learning curve in using a UAV as in everything else. How to fly the thing, complying with certain regulations, and Third party liability insurance.

Use of standard version of photoscan has worked, but you cannot get away from the fact that serious computing power will make your life a lot easier, as in an Intel i7 CPU.

Another problem arose during the use of the total station and reflective prism targets. The accuracy of the survey depends on how well the target is held, i.e. vertically over the point of interest. This seems to have been very difficult to achieve. Especially if the tops of revetments are being recorded. The target prism sometimes moving around +/- 20mm despite the efforts of the target holder.

Block control points were less of a problem as it was easier for the target holder to stand by them. The way round this is for important points to have the target mounted on a tripod over them. Another way is survey grade, static and mobile GPS – serious money.

There are many sites that will benefit from the above methods of recording, whether camera on a pole, UAV or good old tape and offset. But without the help from the people named below, what has been achieved to date would not have been possible.

The future:

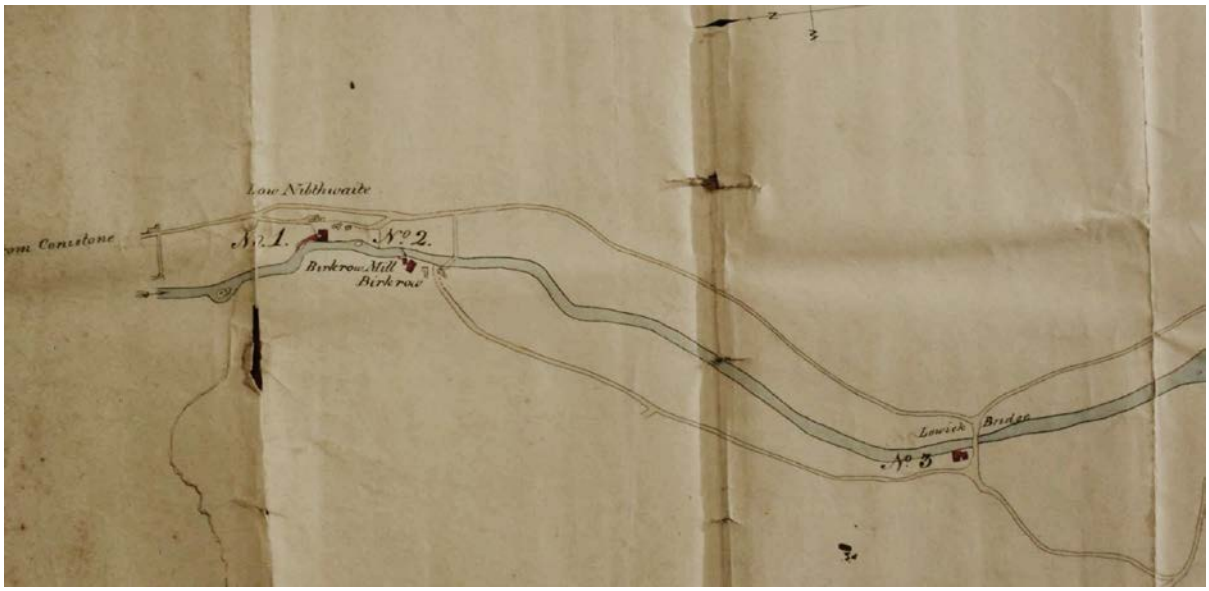
Mike Mitchell and his UAV

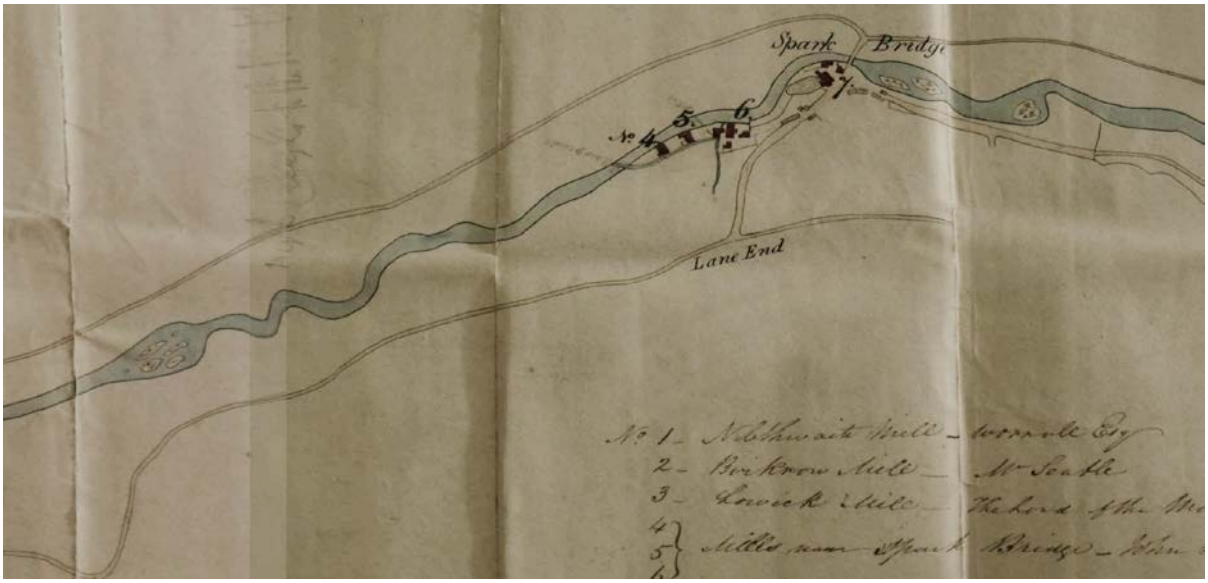
None of the above is of any use unless the information can be published to the outside world and this means the internet. CATMHS is fortunate in having an outstanding webmaster who will show us at the Feb 23rd meeting how this can be achieved.

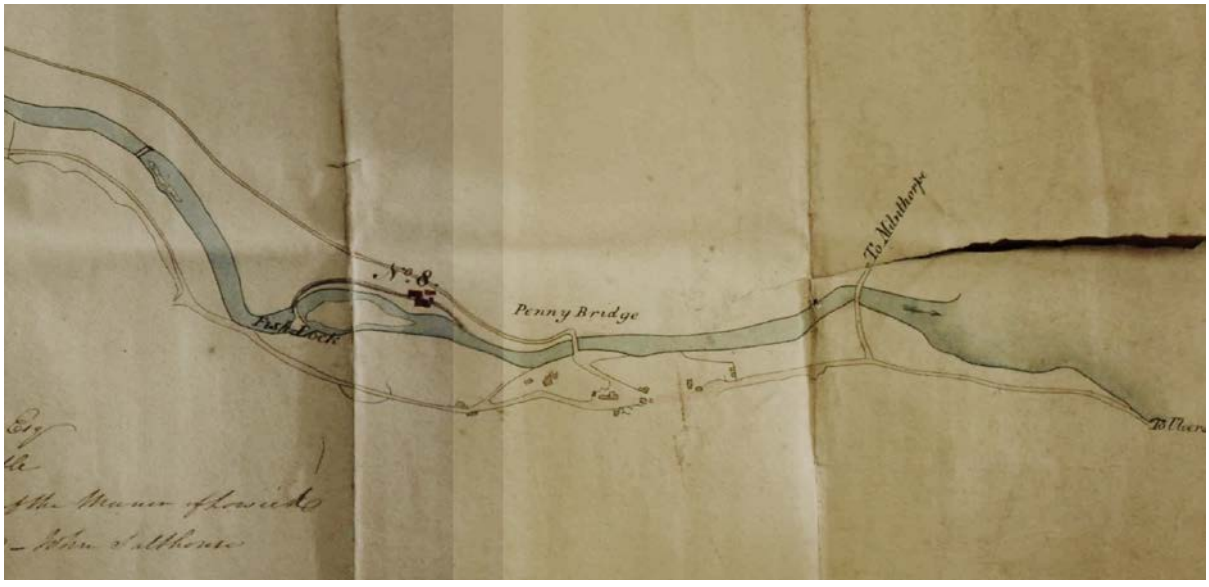
Dramatis personnae: Mark Simpson, Mike Mitchel, Clive Barrow Maureen Fleming, Ian Matheson (CATMHS) Geoff Cook (Levens Local History Group) Steph Cove (Duddon Valley Local History Group)

Mark Simpson January 2015

Mills on the Crake.







This plan held by Cumbria Records and archives service, Barrow REf, BDX 209/10/2 is dated 1834 and seems to be associated with a report on the mills, ref. BDX 38/2/19. The report reads:

Report of survey of the River Crake & the mills thereon. 1834

Mr Rawsthorne having previously furnished me with an extract of Jno Russell's lease of July 20th 1710 demising unto the said Jno Russell the water of the River Crake for the sum of £5.7 6 per ann. for 41 years, also copy of an account from the Roll's Chapel of a grant from King James of the R Crake, also copy of an indenture of 29 Sept 1745 demising to Myles Sandys esq The Fishery on the River Crake from Coniston waterfoot to Greenodd together with the stream water and soil of the said River Craik together with certain liberties to pull down fish locks & weirs &c with liberty to build furnaces & build Banks, Pools, Dams, Wears, &c and impound & lay up the water as they may think proper. I went over by Mr Rawsthorne's directions on the 28 of last mo and took a general view of the River Crake, noticing the various mills, wears & fisheries upon the river with a view to ascertain their number, owners &c and the value in order to form some estimate of the value of the amount of the water power used by each.

No 1 on the sketch accompanying this is situate at Low Nibthwaite at the head of the river consists of an Iron Forge & Bobbin Mill which appear in poor repair. The Head of Water there is about 14Ft with a wear of natural rock & a mill Lodge. The water employed by this concern is probably equal to 20 horse power worth 20 per annum. It belongs to the owner of Aklid Estate & is leased by Harrison Ainslie & Company.

No 2 is an old Corn Mill called Birkrow Mill not used at present belonging to Mr Seattle.

No 3 is a Corn Mill worked by an undershot wheel situate at Lowick Bridge belonging to the lord of the Manor of Lowick & rented by Jno Benson. The water power in this mill may be equal to 9 horse power or £12 per anum.

No 4 was last a Cotton Mill, previously a Bobbin Mil. The Cotton Mill belongs to Jno Salthouse & is not in use.

No 5 was a spade forge belonging to Jno Salthouse is not used & part pulled down. The water which supplied this & No4 is intended to be taken by a new cut to supply No6.

No 6 is a cotton mill situate near Spark Bridge belonging to John Salthouse & occupied by him. Head of water 16Ft. A new Iron breast wheel is now being put in. There are two wheel cases in case another wheel may be wanted. The water is equal to 40 horse power, value £50. The water goes in at 11o'clock.

No 7 is an iron forge at Spark Bridge. The head of water is 14Ft having 4 Water Wheels, 2 for the bellows and 2 for the Hammers. The water is equal to 40 horsepower value £50.

No 8 is a flax mill situate the lowest on the stream on Mr Machell's land and occupied by Harrison Ainslie & Co. Head 14Ft having a Breast Wheel the water coming in at 11 o'clock, 40 horsepower value £60.

Jon Burns goes on to say that the supply of water is good in ordinary seasons and that the lower mills are convenient for the shipping point at Greenodd. Being required not to let his object be known, his inspection was superficial. It would require a closer inspection to fix the value of the mills. He then refers to a 70 year lease to Myles Sandys which will expire in 1848 and advises that this will be the time for Mr Braddyll to value the water power.

The later valuation was made on Jan 15 1850 by B F Allen:

Valuation of waterfalls on the River Crake in the parish of Ulverstone the property of Col. Braddyll.

Penny Bridge Mill, J Penny Machell Esq: 2 waterwheels 10 Ft wide, each of 20Ft diameter. Fall of water 16Ft.
Annual value £40. £600

Spark Bridge Forge, Messrs Harrison & Co: 3 waterwheels, 14Ft wide each of 16Ft diameter.
Annual value £30 £450

Spark Bridge Cotton Mill, Messrs Harrison & Brothers: 2 waterwheels 10 Ft wide, each 20 Ft diameter.
Annual value £30 £450

Lowick Corn Mill, Mr Benson: One waterwheel 20 Ft diameter and 6Ft wide
Annual value £8. 8s £126

Nibthwaite Bobbin mill about 10 horsepower.
Annual value £10 per year £150

Total £1776.00

No 1 on the plan is a bobbin mill built on the site of Nibthwaite Furnace, originally built by Richard Ford in partnership with the Thomas Rigge. Thomas Rigge was the landowner of the Aklid estate, their lease is dated 1736. It may have been a disagreement with Thomas Rigge which caused Richard Ford to set up the Newland Company.

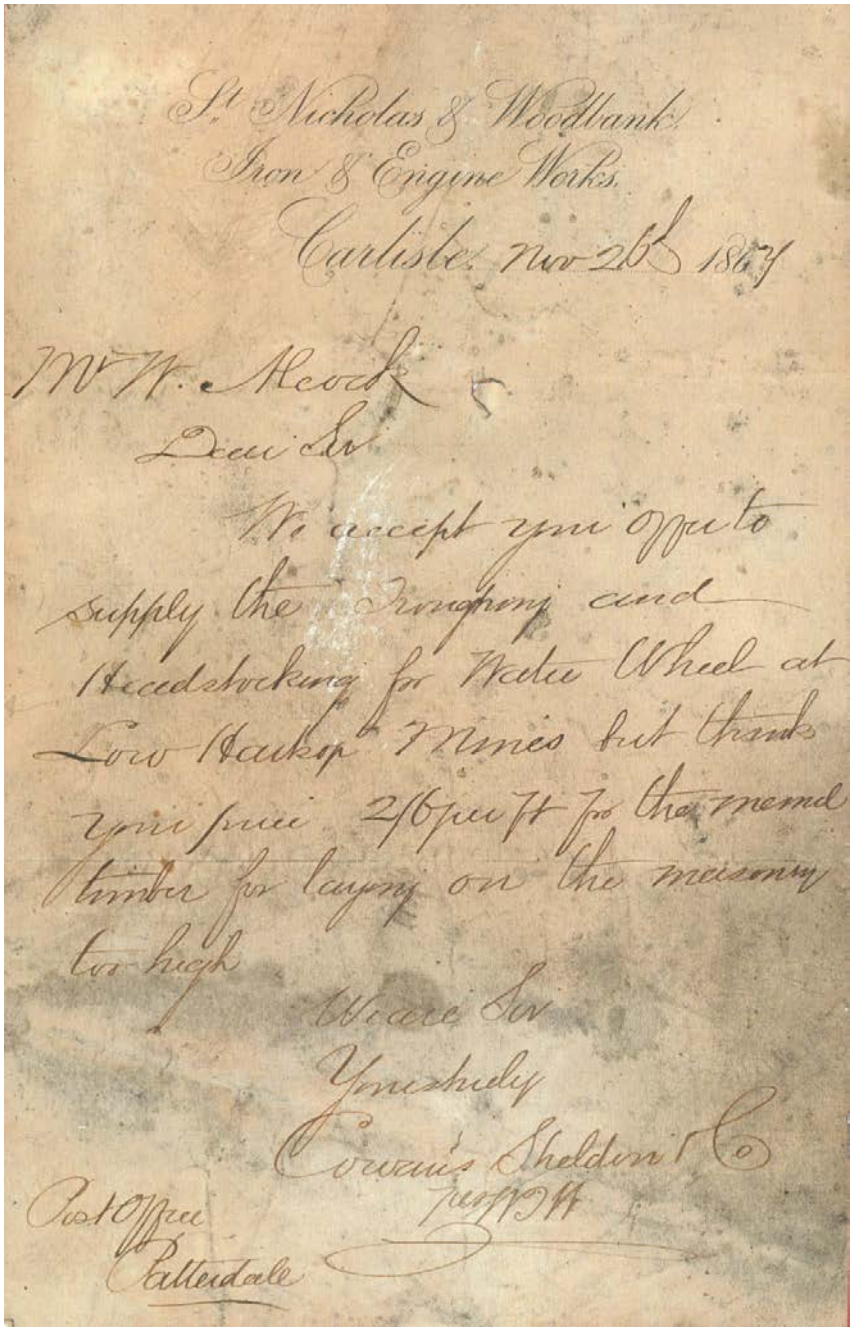
No 2 was Nibthwaite forge, built by Ford and Rigge under the same agreement. This came into the hands of the Newland Company and was used by them to convert pig iron into bar iron until 1840.

No 7 was Spark Forge, bought by the Newland Company from the Backbarrow Company for £750 in 1798. This was also used to refine pig iron until they gave up the trade in 1848, so it was standing idle at the time of the 1850 valuation.

Peter Sandbach.

Myers Head Mine, also known as Low Hartsop Mines

A number of years ago I was given this document, which came from a painter and decorator living in Glenridding who was decorating a house at Hartsop and found it amongst other documents when he removed the wallpaper. The other documents were in pieces, which he threw away; this was unfortunate as I would have tried to piece them back together.


St Nicholas & Woodbank
Iron & Engine Works
Carlisle Nov 26 1867
Mr W. Alcock
Dear Sir
We accept your offer to
supply the troughing and
Headstocking for Water Wheel at
Low Hartsop Mines but thank
your price 2/6 per ft for the round
timber for laying on the masonry
too high
Yours truly
Cowans Sheldon & Co
Post Office
Patterdale

The document relates to the supplying of the troughing and headstock for the waterwheel by Mr Alcock from Patterdale, who in the 1861 and 1871 census is listed as a carpenter and Post Master.

The document is signed by Cowans Sheldon who were the world famous crane makers at St Nicholas Gate in Carlisle. However the company first started life at Woodbank on the south side of Carlisle which they used from circa 1846 to 1857 to manufacture railway equipment before they moved to St Nicholas Gate, only retaining a forge at Woodbank with a 13 year lease from 1859.

This mine is a very interesting and spectacular site, with the remains of the massive stone pillars carrying the troughing and waterwheel pit still intact. It is a scheduled ancient monument and a number of years ago English Heritage carried out repair work to the structures. The mine is the only one in the Lake District which was lost due to flooding of the shaft which had been sunk 30 fathoms when the miners broke into a large cavity on the vein.

There is more research to do on the mine which will be the subject of a further article.

Warren Allison

Book Review

The Kennedys of Stone Cross Mansion, Stuart Allison, 117pp, £12.50

This is a well researched book printed on high quality paper and thoroughly illustrated. A chapter is given to each of the 15 children of Charles Storr Kennedy, but we lean nothing that would be of interest to members of this society. There is no mention of the Ulverston Mining Company or the North Lonsdale Iron & Steel Company and only one photograph of Nigel pit, with less than a line of text.

The book ends with this rather irritating statement:

"In the years following the fire and subsequent repairs the building has been exposed to further vandalism and trespassing by groups of urban explorers. This has resulted in the erection of compound fencing around the property with 24 hour security cameras being installed to help protect the building from unwanted guests. The current owners have invested a lot of money to try and stabilise the building's condition in readiness for development. The present hope for the mansion involves it being converted into 19 apartments and houses to be built in the grounds - which I'm sure will be done sympathetically and will hopefully lead to the next exciting chapter in the history of Stone Cross Mansion"

I can only say that having had over decade to consider the matter Persimmon ought to have a sympathetic plan by now.

PARIS EXHIBITION, 1878.

THE HIGHEST AWARD.

A SILVER MEDAL

AWARDED TO

SALMON, BARNES, & Co.,

FOR

REVOLVING SHUTTERS,

Worked by patent Balance-weight Motion, and

HONOURABLE MENTION

To their patent

ROANHEAD ROCK DRILL.

CANAL HEAD FOUNDRY & ENGINEERING WORKS, ULVERSTON.

Agent—ALEX. J. SPITTALL,

45] 46, ATHOL STREET.

Another aspect of the family business not mentioned in the book

From ***The Isle of Man Times and General Advertise***, Saturday, July 12, 1879

Peter Sandbach

Mining Journals

In the last newsletter some copies of the NMRS Mining Journal which were surplus to the Society's needs were offered for sale to the membership. Some of these were photocopies, and it has been pointed out that to sell photocopies of published works would infringe copyright. Accordingly all the photocopies have been destroyed. The originals have all now been sold.

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

CATMHS Newsletter No. 118, February 2015