CAT

The Newsletter of the Cumbria Amenity Trust Mining History Society

No. 75 May 2004

Cover Picture

The entrance to Levers Water Mine at Coniston, which CAT first opened in 1985, has become blocked with debris from the sides of the crater above it. The crater, which has formed due to subsidence, continues to grow. CAT has obtained Consent to re-open and protect the entrance to the mine, and work, which began on 8th February, is being carried out by CAT under the supervision of the LDNPA Archaeologist. A lockable gate will be installed inside the adit. The cover picture was taken on 7th March, and shows Mark Scott, assisted by Dave Robson, using a water jet to liquefy the spoil in order to dispose of it by raking it down the Funnel. A report on the work begins on Page 10.

Cumbria Amenity Trust Mining History Society
Newsletter No 75, May 2004.

Contents:

CAT web site: www.catmhs.co.uk

News

NAMHO Conference, 23–25 July 2004
Will all CAT members who wish to attend the NAMHO Conference please complete a booking form and send it to Sheila Barker. Even if you only want to attend the Friday or Saturday evening meals. These have to be booked and paid for in advance. You should find a programme and bookinf form enclosed with this Newsletter. A full conference pack can be obtained on request from Sheila Barker

TAX RETURNS "4" US BROWN'S BENEVOLENCE BOOST BENEFITS
(With your money)

Those of you in the happy position of having to complete a Self Assessment tax return will be delighted to find that this year an additional source of pleasure awaits. If you have overpaid tax you now have the facility to direct part or all of your repayment directly to a charity of your choice. Obviously the hope is that CATMHS will be the recipient of your generosity to which end you should enter the code MAE36Q in box 19A.3 on page 8 0

Membership
There have been 105 renewals, some of which are joint members. There has been a good response to the insurance issues which were circulated with the February Newsletter. Seventy four individuals have opted for full underground insurance and twenty four for surface cover only. Five have opted just to receive Newsletters, and fourteen have not yet responded. If you are one of those, then please return your form in the SAE which we supplied. If you do not make a choice then you will continue to receive Newsletters but cannot, for legal reasons, remain a member of the Society.

Newland Furnace Trust AGM

The fifth AGM of the Newland Furnace Trust was held on Wednesday 31st March at the home of the Chairman, John Helme. At the start a minute's silence was observed in memory of Dr John Satchell, Director and Trustee, who had passed away during the previous year.

Reports were given by the Chairman the Secretary and the Treasurer:

An English Heritage grant of up to £29,150 for 90% of costs of repairs to the charging house had been obtained, and application had been made to the SLDC and CCC for the remaining 10%.
Application had been made to the Association for Industrial Archaeology for the Dorothea Award for conservation.
Members of the Trust had contributed to a Radio Cumbria broadcast about Newland Furnace. Information about Newland Furnace was to be found on both Oxford Archaeology North and C&WAAS websites.

Oxford Archaeology North had completed an appendix to the Conservation Plan, having sought comment from local societies and residents. There had been a poor response to their enquiries, which had taken some time, and it was proposed that the Trust's business with Oxford Archaeology North was now concluded, and that the County Archaeologist be asked to accept the report

There had been difficulty in obtaining quotes for the necessary Public Liability insurance. Renewal will cost £1133 for Public and Employer liability. This is very expensive to cover limited voluntary work, but it cannot be avoided. The Trust has been successful in raising money for conservation projects, but it

will be more difficult to raise cash for insurance premiums.

The team have now completed the corbelling of the tap hole entrance, and work was continuing to infill the void behind it. The charging house roof is now very fragile, and is not expected to withstand another winter. The scaffolding clamps had been oiled prior to dismantling it so that the contractors can erect their own scaffolding in order to carry out professional repairs to the charging house. Mr Stevenson has agreed to remove items from the charging house before the contractors start work.

It was pointed out that voluntary work, usually carried out on the last Saturday of each month, was to be regarded as a social occasion, and an enjoyable way of spending a Saturday afternoon.

Officers were elected for the forthcoming year. Paul Davies wished to stand down as Secretary and, as with most Societies nowadays, it was not easy to find a replacement. John Helme was prepared to act as either Chairman or Secretary, so it was decided to ask him to stand as Secretary, a chairman to be elected at each meeting to supervise the business of that meeting. Peter Sandbach was appointed a Director of the Trust. (Since the meeting Dave Robson, who was not able to be present, has agreed to act as Chairman)

As part of the presentation concerning the Dorothea Award, a history had been produced on CD of Newland Furnace from its beginning in 1745 to the present day. A paper copy was presented to Dr John Marshall in recognition of his contribution to the Newland Furnace conservation project. Although the Trust has only been in existence for five years it is fifteen years since work first started on the furnace, inspired by his effort and enthusiasm. (A copy of The Newland Furnace Story on CD has been deposited in the CATMHS archive at the Armitt Library in Ambleside – ed.)

The application for the Dorothea Award had raised questions regarding the long term aims of the Trust and a general discussion ensued. It was felt that the original aim, simply to prevent the structure from falling down, was nearly accomplished and now medium and long term aims should be identified. The discussion included:

Developing Newland as part of Furness heritage, linking up with the whole surrounding region.
A Blast Furnace trail. There are a number of blast furnace sites in the area and one at Bonawe, in Argyll, which was operated by the Newland Company

Education and Open Days

The creation of a Website, with links to associated sites

Archaeological research. The floor of the building is deep in rubbish and should be excavated, as could the Water Wheel pit. The details of how the furnace worked are not yet fully understood

Preservation of the charcoal barns, which are not included in the Conservation Area. The large barn is in poor condition, and it was felt that unless urgent stabilisation work was carried out it might soon collapse.

Acquisition of the entire hamlet. It is unique as a complete blast furnace with all its associated buildings. What might happen when the present owner of the hamlet dies; could the whole site be purchased; would development of the remaining buildings for leisure or other uses be beneficial for their long-term survival.

Ian Matheson.

From the Westmorland Gazette, 23rd January 2004

The future of the run-down Backbarrow Ironworks – described as one of the most important industrial archaeological sites in the Lake District – looks set to have been secured after years of debate over it's future. The Lake District National Park implementation committee this week agreed to accept the "core archaeological area" of the site as a gift from developers building homes in the area.

Rural Business Homes Ltd is expected to start work in May on a mixed development, which will comprise some conversion of historic buildings to houses, new office and workshop accommodation, and live-in work units. It has offered the archaeologically-important part of the site to the LDNPA, which has agreed to enter into discussions with English Heritage about the ancient monument's future.

The ironworks site operated from 1711 to 1965, and was the last blast furnace in Britain to convert from using charcoal to coke as a fuel.

Committee members were told how the agreement would mean that the furnace stack of the works and its adjacent structures would be preserved at no cost to the authority. The site also represented "important aspects of Lakeland traditions, life, and the historical development of the area."

In a report before the committee authority archaeologist John Hodgson wrote: "The Backbarrow Ironworks is a key site in the industrial archaeological heritage of the Lake District and requires a secure basis for long term management and interpretation. Our ownership of the core archaeological area could provide this as we have experience in managing archaeological sites of this type."

Committee member Jan Darrell said that it would be foolish to refuse the offer. She said the historical and cultural importance of the site meant the committee would regret not accepting the gift.

Dinosaur tracks from the Dawn of Civilisation

Condensed from an article by early railways expert Michael Lewis in the Railway Magazine, March 2004.

The origins of railways go back a good deal further than many people imagine. A good 5,000 years ago carts would have worn ruts in the mud, or in stone surfaces of early paved streets. At least some of those cart tracks – the transport equivalent of dinosaur footprints – would have been straight and deep enough for people to realise that waggons were easier to haul along such grooves than on the uneven or muddy terrain on either side ... and that the grooves kept the vehicles on course too.

This led to the creation of deliberately cut ruts about 4,000 years ago (2000 BC) Examples have been found by archaeologists in the Middle East, especially in the urbanised regions of Mesopotamia (now Iraq). Over the centuries these so-called rut-ways spread from the Middle East to Greece, and thence, later, to the Roman Empire. Their gauge is generally between 4' 6" and 5' 6", and throughout the world this sort of gauge has always been the optimum width for vehicles pulled by animals. Much smaller and the potential power of horses or oxen is wasted, bigger and the vehicle becomes unwieldy. Purpose made rut-ways are the ancestors of the railways we know today.

The earliest ones tended to be very short, and the first continuous example we

know of, with channels deliberately carved over the whole length of a stone paved track over five miles long was the famous Diolkoth, of Corinth, in Greece. This was built about 600 BC across the narrow isthmus of Corinth to enable goods to be transported from the sea on one side to the sea on the other, and thus save ships the long and dangerous voyage around the Peloponnese peninsular. It remained in use until AD 67 when the Roman Emperor Nero tried to replace it with a canal. Sections of it can still be seen..

Also dating from circa 600 BC, and still extant, is an interconnected network in Malta, complete with what is believed to have been a gravity marshalling yard and stabling sidings. The Romans later extended the principle to metal mines, where waste and ore had to be transported from the working face to the surface along galleries, or adits. Such adits were necessarily narrow, low, and unlit, and it was difficult to steer trucks along them by hand. Self guidance was the answer.

A good example from the 2nd century AD, with channels 3' 11" apart cut into the rock floor of the adit survives in the Tres Minas gold mine in Portugal.

The fall of the Roman Empire in the 5th Century AD brought the curtain of the so called Dark Ages down across much of Europe. The renowned Roman roads were no longer maintained, and the mining industry shrank too. It was many centuries before the lost ground was recovered in the high Middle Ages.

Almost a thousand years passed before anything even vaguely resembling a railway reappears into the scope of our knowledge. Their function was essentially still the same – the underground transport in metal mines. The only difference was that the rails were no longer cut into stone, but by the 14th Century were constructed of timber. Large scale mining was now reviving in parts of Europe. The acknowledged experts were the Germans and Austrians, whose influence spread wider. Mining was a source of much wealth, and technology began to blossom once more.

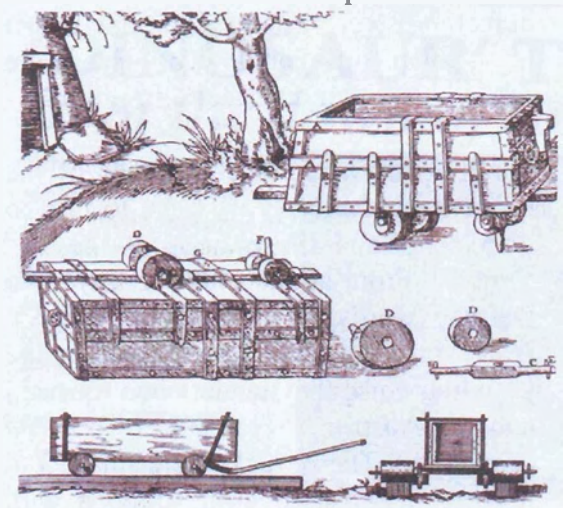
The German cathedral at Freiburg-im-Breissgau is believed to contain the earliest surviving illustration of a railway vehicle. It takes the form of a stained glass window dated about 1350, and depicts a miner pushing a box like object by the light of a candle. The wheels are off picture, but it does look like a truck.

For the first irrefutable evidence of the existence of railways we have to turn to documents and illustrations of the 15th Century. From about 1400 we meet two German words for underground trucks: *Hund,* meaning dog, (possibly from the growling noise they made when moving) and in Austria *Bergetruhe* or *Truche* (mine box). These trucks were small, 3 to 4 feet long, usually iron strapped with wooden wheels, and always pushed by hand. They worked more or less entirely underground, emerging into daylight only far enough for their contents to be tipped onto the ground for sifting. The guidance for these vehicles came in two forms; a channel in the form of U shaped or L shaped wooden rails, or a guide pin located under the truck.

Gradually the latter system became far more common . The track consisted of two planks laid flat with a narrow slot between them, into which fitted a downward projecting iron pin, which was attached to the truck beneath the front wheels. On curves thin iron plates were sometimes nailed to the rails to reduce wear from the pin. In 1556 illustrations of such track and vehicles were published in a book on the medieval mining industry entitled 'De Re

Metallica' by Georgious Agricola, a volume of outstanding depth and quality, which in 1912 was translated into English by Herbert Hoover, later to become the President of the United States

It is in the 1560's that England first appears in the story, a reference from Roman times having been largely discounted. During the reign of Queen Elizabeth I, the Company of Mines Royal was set up to mine British copper and reduce the nation's dependence on

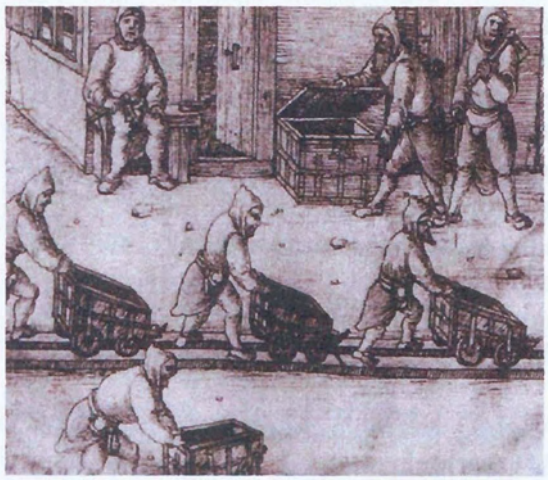


Upper illustration: Agricola's drawing of a guide-pin *Hund*, Germany 1556, showing the guide pin (F) and the iron strengthening straps around the wooden body.
Lower: A horse-hauled *Riese*, from Slovakia, 1773. Note the rollers and side-bearing guide wheels .

foreign sources. To develop the Lake District mines some 150 miners, mostly from the Austrian Tyrol, were invited over. By 1569 accounts for the Goldscope mine, near Keswick, and the Caldbeck mine, near Skiddaw record that Bergtruchen were in use. An English inventory of 1586lists "*small rowle wagons bound with iron to bring ewers (ores) forth of the mynes*".

Although the assumption is strong, there has never been any hard evidence to show beyond doubt that those vehicles ran on rails as opposed to on the ground. If they did, as seems likely, then they were the first known 'railways' in Britain. By the time the Mines Royal in the Lake District closed in the mid 17th century the true English railway had already appeared, but it is highly unlikely that it was influenced in any way by these simple and little known predecessors.
A third method of guiding wheels was first recorded in 1564 in what is now known as Slovakia.

There the ore dressing works were often some distance – a mile or so – from the mine entrance, and the so-called *Riese* truck was devised for overland transport to the tips or works. These small two foot gauge vehicles had roller like wheels that ran on wooden planks, and vertically mounted guide wheels that bore against the inside of the rails.



A fourth method of guidance was the flanged wheel. Gold mines in Transylvania (western Romania) also used trucks called *Riesen*, two of which survive in the Berlin Transport museum and the Bochum Mining Museum. They are often said to date back to the 16th century, if not before. They certainly look old and primitive, with crude wooden flanged wheels running on crude wooden rails of about 1' 7" gauge. But looking old is not the same as being old. The Berlin one was taken out of service in 1889, the Bochum one in 1930. No such truck could survive several centuries of daily battering. They first appear in the mine records there only from the late 18th century , when mining was revived after long stagnation under

Turkish rule. That was also when other parts of Europe began to adopt the flanged wheel. There is no doubt that the rest of Europe borrowed the fundamental idea of the flange from Britain, so too, it is believed, did Romania.

Apart from the little guide pin *hunds* in the copper mines of the Lakes, Britain had no recorded railways whatsoever prior to the dawn of the 1600's. Then , however, it made up for lost time with a vengeance, with a type of railway that was no mere raft of planks laid in a subterranean passageway, but a fully fledged surface wagon way for coal – The first of its kind in the world. It was opened in Nottinghamshire in 1604.

Nero's favourite cuppa cheers British Museum

Condensed from The Times, Jan 16th 2004

The British museum has bought an extremely rare Roman drinking vessel, a treasure so prized in antiquity that the Emperor Nero paid a million sesterces for one. A million sesterces would have bought two large country estates near Rome 20 farms near Naples or enough bread to feed 6.25 million people! The cup, made from the mineral fluorspar cost the museum £150,000

The Romans prized wine cups and jugs made from fluorspar because of the flavour they gave to the wine, and the texture of the soft mineral. The cup is thought to have been discovered on the Turkish-Syrian frontier by a Croatian soldier during the first World War. Until now it has been in a private collection in Brussels.

This example, one of only two that is known to have survived from the roman period, has a particularly impressive decoration – vine leaves, grapes and tendrils as well as a bearded head thought to be that of Dionysus. Fluorspar rarely occurs in pieces large enough to carve

The cup is thought to have been discovered at the same time as the Crawford cup, the only other known fluorspar vessel, which was presented to the museum in 1971. It seems likely that the two were found together

The new cup will be exhibited with the Crawford cup. Dyfri Williams, the British Museum's keeper of Greek and Roman antiquities said 'the one we have already is plain, with no decoration. The extraordinary thing about this is that it is not only made of wonderful stone, but is decorated with ivy leaves and bunches of grapes. That is very difficult to do with this material. It is crystalline, and in carving it is very likely to shatter.' During the vessel's manufacture it would have been blocked out with a chisel and mallet. The process would have loosened the crystalline structure, but that would have been countered by smearing on resin and heating it gently, so that the resin penetrated the material and cemented the crystals.

The resin was like that used in modern Greek wine, in which resin is used in the process of preservation. According to the

Roman poet Martial, the taste of wine was improved if drunk from a fluorspar vessel. Wine would gradually dissolve the resin, giving off a pleasant aroma and a distinctive flavour.

CAT Library and Archive

A CD, 'The Newland Furnace Story' has been deposited in the library by Dave Robson on behalf of the Newland Furnace Trust.

Book Review:

"Alpine Caving Techniques"
Georges Marbach and Bernard Tourte
Speleo Projects
ISBN 3 908459 10 5
322 pages, £22

The subtitle "A Complete Guide to Safe and Efficient Caving" tells the whole story. Whether you are a veteran of immense underground experience or a complete beginner setting out on your first tentative underground trip, you should own a copy of this work.

This is an English translation of the 3rd French edition of the work (the 1st appeared in 1973!), the authors have immense underground experience and can make reasonable claim to have been principal agents in developing SRT as a replacement for Electron wire rope ladders.

Literally every aspect of underground operations is exhaustively covered starting from "Basic Principles" (Who cares what the 'CE' mark stands for?) through clothing, personal equipment, lighting, on to all aspects of moving through caves horizontally and vertically and a most comprehensive section on emergencies and rescue.

Most CATMHS exploration involves relatively short pitches with plenty of standing room between them, so that it is rare to have more than one climber/descender on a rope at a time. However, those who have done the four-pitch Brewery Shaft descent, with four people moving at once, may be quite interested in the authors' comments on what can happen to a descender if a re-belay fails between two of the party.

(At the request of C Cow**** it is pointed out to Doctor Descender that there is a whole section entitled "Getting the Slack Right" at re-belays)

The whole book is illustrated with excellent drawings and photographs. If all the text was omitted these latter alone would make the purchase worthwhile.

William Bickford

The last French working coal mine closes.

The last working coal pit in France, at Siege le Houve, in Lorrainne, eastern France, closed on 23rd April due to the import of cheap coal from third world countries and to the provision of power by the French Nuclear Energy programme.

The French coal industry once supported over 200,000 jobs, but, like its British counterpart it has lost out to cheaper sources. It was reported on BBC News 24 that a deal had been struck in which redundant miners would continue to be paid 80% of their former salary. The closure has been phased, and new jobs created nearby, notably at Pilkington glass.

It was said that ultimately the community would benefit by the development of new industry and employment with better working conditions.

Cornwall goes back down the tin mine as fresh demand puts shine on prices

From The Independent on Sunday, 18 April 2004.
The industry died out six years ago at South Crofty: Now there is work starting on a new tunnel at the site. Britain's last tin mine is set to reopen as the price of the metal soars to a 14-year high. The South Crofty mine in Camborne, Cornwall, was closed in 1998 after it was deemed too expensive to run. The owner, Baseresult Holdings, now says that an increase of *nearly £2000* per ton in the price of tin has given its plans to reopen a boost. Baseresult started work on a new tunnel in the South Crofty Mine last week. This will help pump water out of the 2,500 ft deep workings flooded after six years of disuse.

David Stone, the technical director of Baseresult, always believed the mine was viable, but said the tin price rise had helped: "If we were in production now we would be laughing all the way to the bank" When Baseresult bought the mine in June the price was less than $3000 ton - a 30 year low - but it has gradually increased to over $9000. Once the mine starts working again it should be able to produce up to 3,000 tons of tin a year, nearly a third of Britain's requirement," Mr Stone said " We have about 80 years of reserves at South Crofty At the current rate that would be worth £1.5bn to £2 bn".

Until recently tin was being written off as a viable commodity because of the use of plastic and aluminium in food packaging. But now it is seen as the metal for the future because of its low toxicity and resistance to corrosion. Tighter environmental laws in Japan and Europe have favoured tin solder over lead solder in the producing the electronics industry. The price has also been driven up by demand from China, the biggest user and producer in the world. Chinese domestic production cannot match demand. Ingrid Sternby, a base metal analyst at Barclays Capital, said. "The market is likely to remain in deficit until 2006". Barclays forecast demand to exceed supply by at least 20,000 tons year on a 300,000 tons world demand. Mr Stone said: "There is some froth in the current price because of speculation but it should remain reasonably high. The new tunnel will take six months to complete. Kevin Williams, Baseresult's managing director, said. "It will provide direct access to the areas we need to pump out It represents evidence-of-our absolute determination to get South Crofty working as a fully operational mine again.

Cornwall once boasted 2,000 tin mines and was a world leader in the industry. But competitors began to produce overseas ores far more cheaply. In 1816 Cornwall survived the threat of competition from the Dutch, largely due to the abolition of the 7 per cent duty charged on smelted tin. In 1872 tin was discovered in Queensland, New South Wales and Tasmania. More recently, China had become a major competitor. A handful of Cornish mines remained open after the Second world-war. South Crofty was the last mine to be commercially worked in Europe. Its closure came as a blow at a time when Cambourne and neighbouring Redruth were already among the poorest areas in Europe.

Mining is only part of Baseresult's plans for the site. The firm started tourist visits to the mine last October. "Its been a great success", Mr Stone said "We have already had 1500 visitors. We can only take nine people underground at a time. but we are putting in a lift that should help us take a lot more visitors down Baserault has also applied for permission to build housing and business premises on the large site

With the work on the new tunnel started, 17 people are now employed at South Crofty. If the mine is drained successfully it should be operating in two years time. "The mine should give employment to some 200 people once it is up and running" Mr Stone said.

Re-opening Levers Water Mine

As reported in the February Newsletter Peter Fleming had obtained Scheduled Monument Consent for CATMHS to re-open the entrance to Levers Water Mine by clearing the debris which has slumped from the north side and blocked the entrance. The Consent also permits us to install an internal gate and to carry out future maintenance work.

First Meet, 8th February 2004
Mike Mitchell, Mark Scott, Mark Simpson, new member Ewan Maxwell and Ian Matheson were there. Peter Fleming, recovering from recent health problems, Dave Bridge and Angela Wilson also attended, but as there wasn't much for them to do they went for a walk around Levers Water. After examining the recently discovered Bronze Age hut circle at the north side of the tarn and the ancient fox trap at the foot of the Prison they returned to inspect progress.

COMRU, the mines rescue team also turned up on one of their regular practices, planning to re-bolt the through trip with a view to hauling out future casualties. They all disappeared down the left-hand stope, but some time later Paul Timewell re-emerged and stayed to give a hand.

For this, the first of four scheduled work meets, Mike Mitchell had arranged for a Pitzgaur, an all wheel drive all terrain vehicle, to carry all the equipment up to Levers Water. The plan was to use the CAT pump to direct a jet of water at the spoil, which, it was hoped, would wash it away down the Funnel. The water source was to be a small flooded stope higher up the fell side, as it was thought that the gravity feed would increase the water pressure at the jet.
The vehicle carried all the equipment and the personnel up the badly eroded reservoir track with absolutely no difficulty, and the short onward carry to the operating site was soon accomplished. Whilst the pump was being set up Mark Simpson decided to abseil down into the funnel to inspect it – a brave act when one considers the enthusiasm on the part of the pumping team to get started. In the event he prussicked out just as they were ready to start the pump.

The signal was given, the engine was started – and nothing happened! Despite repeated priming there didn't seem to be any suction, and the pump would not lift any water from the flooded stope, the surface of which was about six feet below the level of the pump. For an hour or so various attempts were made to prime the pump, fill the inlet pipe with water, arrange a siphon, but to no avail. The suction pipe was shortened, but still it wouldn't work. Eventually it was decided to take the pump down to the lake, and pump at the waters edge. This was successful. Despite having to pump the water a significant distance uphill, nevertheless a respectable jet of water was produced at the end. Ropes had been rigged from the fence surrounding the crater to give access to the site, and Mark Scott, being a professional fireman, abseiled down to start the operation.

The water jet was quite effective in removing the material and washing it down the hole, but after most of the finer stuff had been washed away the larger rocks remained in an apparently stable heap which would require mechanical assistance to remove. Ewan went down with a mattock on another rope to try to dislodge some rocks, which were supporting a large boulder. He showed a lot of confidence in Mark, misplaced as it turned out, as he was sometimes working in quite close proximity to the water jet. After a while he succeeded in his task, and the boulder disappeared down the stope with a satisfying crash.
More work was done with the water jet, and then the pump ran out of petrol. There wasn't a great deal more it could have done at this stage; Mark Simpson

went down with the mattock to clear some more rocks. By this time we were all getting pretty cold, as although it was a bright day, we were mostly working in the shade above the snow level, and the wind was piercing. Time to pack up. The Pitzgaur had gone back to Kendal, and we debated upon whether or not to recall it to retrieve the gear. It was decided that it would be useful to keep it all on site for at least the next meet, and so it was stowed out of sight in an adit higher up above Simons Nick.

Next time it is hoped to improve the pump by making sure that all the joints are airtight, and to revert to the original plan of pumping from a water source above the work site.

15th February

I was away skiing in Austria, so wasn't able to attend on this occasion. It is reported that Mike Mitchell had acquired new seals for the pump, enabling it to suck water from the flooded stope higher up the fell side, thus giving a better head of water, and, in theory anyway, a higher pressure at the working end. A considerable amount of overburden was removed and hosed down the hole, leaving two large perched boulders lying on a slope which would have to be dealt with next time by pick and shovel.

The two boulders

29th February

Peter Fleming reported that he had not had any proposals of marriage that day. Mark Scott said that he hadn't switched his mobile phone on, so he wasn't sure yet! (Feb 29 – leap year?)

This was a beautiful, still, bright, sunny, but very cold day, and work was hampered by the fact that the top six inches of soil was frozen hard. It was difficult to make an impression on it even with a pickaxe. Nevertheless,

although we were not able to get into the mine on this occasion, some progress was made, mainly by the efforts of the Marks Scott and Simpson, together with Dave Robson.

One of the boulders was eventually trundled down the stope, and the other left in a state in which it would probably go by itself when the thaw came. A brief attempt had been made to break it up with Simpson's very large sledge hammer, but this had ended after a few hearty blows when the head came off! About two feet of overburden had been removed from the debris slope, and it really should be possible to get in next time, when, it is rumoured, John Aird will be there.

After a short spell at the work face Messrs Matheson and Mitchell took on the important (and very cold) roles of foreman and crowd control. Mike also made valiant efforts to increase the sales of the CAT Copper mines CD, giving the hard sell to each and every passer by!

March 7th

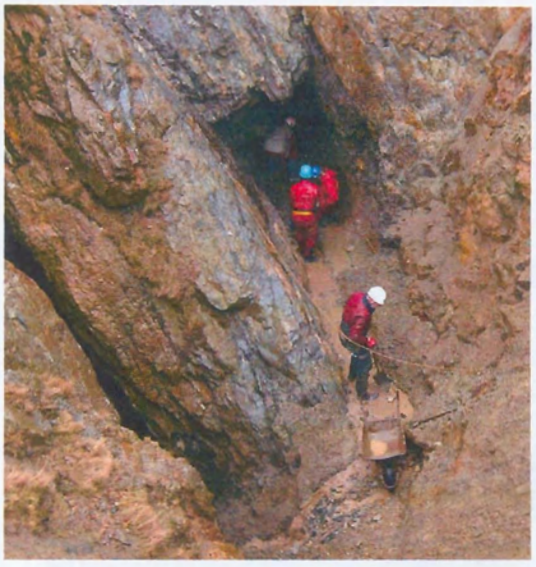
Mike Mitchell and Mark Scott were the only participants in the morning. Before getting on with the job they had to carry all the tools up, retrieve the pump from its hiding place in one of the stopes, lay out the pipes and set up the pump. Mark Simpson & Ewan Maxwell arrived about lunchtime, by which time the first two were exhausted. Nevertheless some progress was made.

March 28th

This time there was a good turnout. Mike Mitchell, Mark Scott, John Aird, Mark Simpson, Ian Matheson, Dave Bridge, Angela Wilson, and Dave Robson, fresh from the monthly Saturday stint at Newland Furnace. John was on one of his heroic days – went to bed in London at midnight, set the clock forward an hour to 1.00 am, got up at 4.40 am and drove the 300 miles or so to Coniston in his Landrover, to load up kit and personnel and drive up to Levers Water Dam. After a days hard graft was going to drive on to Cheshire. Phew!

With all hands working the pump was quickly set up and was working by 11.00 o'clock. The technique was to liquefy the spoil by jetting water into it and to rake the resulting slurry down the funnel. This gets more difficult as the level gets down and the gradient decreases, but it is a surprisingly effective way of moving a few tons of spoil. A channel was created alongside the hanging wall and the muck was raked into it. After three hours or so it was possible to see into the level. Inside would be about three feet of water, backed up the level for about 150 yards to Avalanche Stope, where it overflowed and drained away internally. The blockage was quickly reduced to the level of the water, and the pump, which was about to run out of both petrol and water supply, was dispensed with. By controlling the level, the mine water could now be used to create and move the slurry.

By the end of the day, by which time it was raining, the entrance had been cleared down to about two or three feet from the sole of the level. At its greatest depth nearly 20 feet of overburden had been removed!



It was time to take stock. The pump and pipework was taken down to Mandell's store in the Treasurer's Landrover, and

all retired to the BMSC hut to drink tea eat some of Angela's home baking and to discuss the way forward.

The hanging wall is quite friable, and will inevitably collapse again. Apart from the obvious dangers, this would put us back where we started. It was agreed that it was necessary to construct a short length of headtree, and to pile the remainder of the spoil on top to landscape it. Any future collapse would further bury the headtrees whilst preserving the entrance and making it natural. In order to keep it natural looking and for long life the construction should be of wood, 6 inches round and tanalised. Foreman Mitchell undertook not only to acquire the necessary materials but also to arrange for it to be transported up to the mine the following Sunday.

Sunday April 4th

A day of April showers, some with hail in them! Seven members turned out. Mike Mitchell had liased with Peter Sandbach to collect a substantial quantity of timber from the Furness Adventures/CATMHS store at Roanhead. John Aird collected some of it from Mike's house at Staveley on his way up, transferred the rest to his Landrover at the BMSC hut and transported it all up to Levers Water Dam. It had to be carried on shoulders from there to the mine, a task that took Mike Mitchell, Clive Barrow and John Aird until nearly lunchtime. During this time Ian Matheson and Mark Scott rigged ropes down to the entrance and set about widening the channel, barrowing the spoil down Windy Stope.

Peter Fleming arrived on foot and Dave Robson by Landrover, the latter bringing a heavy iron ladder from the Roanhead store. This was destined for the first step inside the Funnel where there is a 12 foot drop, usually negotiated using a knotted rope and some undercut stemples. It's not so bad going down, but it is desperately strenuous on the way up at the end of a hard day, particularly for those of us over sixty who comprise the majority of the active part of our society.

Peter, Dave and Ian Matheson carried it over the dam to the entrance to the Funnel and launched it down the slope. Ian received a painful blow on the shin as it went, but no harm was done, and it was soon installed in its new home, where it fitted very neatly. It's a nine foot ladder, so it reaches to within three feet of the top and is not visible from out-by. This ladder and another, longer one, was in fact purchased long ago for this very purpose. The longer ladder was dragged up about fifteen years ago behind Alistair Ling's old Landrover and installed on the even more awkward pitch above Arrete Chamber, where it has been in service ever since.

Back at Levers Water Mine the digging was coming to a halt; a substantial amount of muck had been removed, leaving two or three feet depth still to do. Mark Scott had to leave now, as he had to get home in time to go to work on the night shift. It was time to get the timber down, and this was accomplished using the rope as a zip line, with a pulley to help things along and a back rope to slow them down.

Timbers arriving at the bottom of the zip line

The landers at the bottom displayed a lot of confidence in the senders as bundles of nine foot posts arrived at high speed. After an hour or so it was all stacked in the mine entrance ready for construction to begin, hopefully, at the next meet.

Easter Monday, 12th April

The level was taken down to the sole along the right hand or hanging wall, in order to put in supports for wooden cross members. In the process metal rails were found still in situ. Four cross pieces were inserted, bracing between the hanging and the foot walls. Each was supported by a single vertical timber, and the top was covered with planking, nailed on. The structure needs to be treated with wood preservative before being covered with the remaining spoil to complete the job. John Brown is to visit on the occasion of the next committee meeting, on 10th May, in order to measure up prior to installing an internal lockable gate.

Preparing to erect the timber work

The following members all participated at various times: Peter Fleming, who obtained consent for the project, Mike Mitchell, who organised the work, arranging transport and procuring materials, Mark Scott, water blast operator, who has attended every single meet, even taking holiday time from work to attend, John Aird, who has several times travelled from London to participate, Mark Simpson, Ian Matheson, Dave Robson, Ewan Maxwell, Dave Bridge, Angela Wilson, Clive Barrow, Paul Timewell.

The project, as left on Easter Monday

The remaining spoil will be dug out and piled on top of the timber frames. In due course material falling from the sides of the crater will cover it over

A Tour Round the Brigham District, led by Dave Bridge.

Nothing concentrates the mind more than when someone asks you to be the guide for the day. This was the case when Mike, Peter and Ian knocked on my door at Brigham. The problem was to come up with industrial evidence to match the expectations of such dedicated conservationists.

The first objective had to be the abandoned **limestone quarries** that feature prominently in the village. The extraction of limestone and the production of lime in Brigham go back many centuries. For instance the accounts of the German miners record lime being carted from Brigham to the smelthouses at the other Brigham near Keswick for building purposes as early as 1569. In recent years when large concerns such as the West Cumberland Hematite Iron and Steel Company and the Allerdale Coal Company were involved most of the limestone found its way to the West Cumberland blast furnaces as flux.

As you drive up to the village from the A66, high stone walls disguise the fact that the road is perched on a narrow causeway of limestone. The woodland you see on either side is a mere canopy with the quarry floor as much as 50 feet below. We left the road at a narrow gap in the wall and slithered down a bank of dead leaves into the quarry on the East Side locally known as Joe Black's. In total it is almost 30 acres in extent and in summer when the trees are in leaf one can easily lose one's bearings down there. We explored our way around massive circular tips of spoil disguised by vegetation and covered in tall trees which give the impression, as one member of the party remarked, of huge termites nests. The limestone has been worked right up to the village main street on both sides of the approach road. In about 1939 the quarry floor at this end was cleared of trees for the village children and re-named Playground Quarry, though there's no hint of that today. An impressive cutting connects through to Hinde's quarry on the West Side with a masonry arch high above to carry the road. A narrow curtain of limestone, once used as a short cut, separates the latter from a third quarry, worked by the West Cumberland Hematite Iron and Steel Company, which now has a caravan site at its North End. The story goes that a villager intending to take the short cut home after a night in the Limekiln Inn stepped over the quarry wall two feet short of the path and his body was found three days later at the bottom with a Woodbine still in his mouth! The quarrymen were tough. Joe Black got his finger caught in the stone crusher bit the loose finger off and carried on working! Quarrying

'Vino' steam lorry used to transport coal to and limestone from Ellerbeck Quarry to the railway sidings. Shed was on site of present village hall and in what had been the farmyard of Old Brigham Hall.

Harry Wire and Tommy Dunn are in attendance c1910.

ceased here early in the 20th century when further progress would have endangered property, though by then, sadly, Brigham Old Hall had been lost.

Above the village to the south are further quarries in both limestone and freestone (Hensingham grit) and at least two of these, Hotchberry Quarry and Ellerbeck Quarry, were still producing limestone and lime well into the 1920's. The output from Hotchberry, which was the last of the Brigham quarries to close, was taken to the railway sidings by horse and cart, returning with coal for the kilns. That from Ellerbeck was transported down to the railway in a solid-tyred steam lorry that was said to have caused cracks to appear in the ceilings of the older houses

as it thundered past several times a day. Transporting the stone was not without incident. On two occasions steam wagons crashed through the quarry wall, one saved from a 50ft plunge by a stout tree.

Not 'Vino' but a successor on the same work went through the quarry wall opposite Ashcroft and was prevented from dropping 80 feet by a stout tree. About 1928.

Limestone quarrying still continues in a big way at Tendley Quarry one mile south of Brigham and there are plans to extend towards Eaglesfield.

After extracting ourselves from the netherworld below the village we walked down the road to inspect the workings of the shallower Kirk Cross quarry opposite Brigham church. It is said that until a few years ago there was the remaining ironwork of a tall stone crusher here. The quarry isn't far from the site of the old railway station that was demolished to make way for the re-routed A66. It's still possible to pick out the line of the standard gauge tramway leading from Joe Black's quarry to the sidings, which passed through a tunnel under the old

'Vino' and workmen in Ellerbeck Quarry. March 1911.
Third from right is Peter Robinson, far left Harry Robinson, far right Jack Robinson (all brothers).

main road. The WCHI&S Co, which finished operations around 1890, also had a tramline to the sidings. A second tunnel beside the Limekiln Inn, which many years ago the lads used as a "gambling den" after a night in the pub, may have carried this line underneath the road.

The church was built almost half a mile from the village to avoid the hard limestone for burials, whereas the old village clings to the spring line. In 1832 William Wordsworth's eldest son John took up the living there and spent a large part of his income building a parsonage on a site carefully chosen for its views, with a garden running down to the river. It must have been galling to discover 13 years later that the planned Workington-Cockermouth railway would be driving straight through the garden on an embankment. With the backing of Lord Lonsdale and

Lord Lowther William, who publicly opposed the railway (yet was shrewd enough to invest in the concern!) immediately threw his weight behind a petition to Parliament for a new parsonage to be built. The splendid building, now called the Old Vicarage, stands proudly in its own grounds some distance to the east of the church.

Not far from the church is the old **Mines Rescue Station**, a substantial building opened in 1914 for the Cumberland Mines Rescue Service serving the Cumberland Coalfield. The rescue operations for as many as eight serious pit disasters would have been co-ordinated from here, the most notorious being the explosion at Willam Pit in 1947 when 104 men lost their lives. Part-time rescue workers from as many as 27 pits underwent training at Brigham until the service was moved to Winscales near Workington in 1951 (see Ronnie Calvin's article). It is said that a tunnel here was used for mine rescue training, possibly the old tramway tunnel, but the present occupant has found no evidence of this. What he has discovered however, underneath old matting and years of grime, is a high quality parquet floor throughout the whole of the building that he is currently renovating.

For the next venue we took to the by-roads and headed for Oldfield Wath, where the road from Dean village crosses the River Marron just south of Little Clifton. From here a farm track provides walker access to Calva Hall Farm, following the line of a mill-race for some of the way. This fed **Oldfield Mill**, originally a flax mill producing linen thread, which by 1867 had been converted into a corn mill. Just before the farm we reached the main objective - a **pack-horse bridge** with an exceptionally wide span crossing the River Marron adjacent to a ford. The bridge dates from 1697, and although now well off the beaten track, the old route heading west is lined by an avenue of dead elms and must have been an important way in years gone by.

From there we followed the grassy track-bed of the old **Whitehaven, Cleator and Egremont Junction Railway**, (later known as the Furness Railway and LNWR Joint Line). Wandering amongst the grazing sheep it was hard to imagine that this line was once one of the most prosperous in Britain, mainly serving hematite deposits in the Cleator Moor/Frizington district. It was extended north in 1866 to link up with the Workington-Penrith line at Marron Junction. Harold Bowtell tells us that the ore was previously shipped out at Whitehaven but the new link provided a more direct route to the iron works at Workington as well as carrying Durham coke in the other direction to the Distington iron works, in competition with the Cleator and Workington Junction Railway. (coke from the North-east at that time being preferred to local coke as it had greater mechanical strength and contained less sulphur). The line also carried cattle between the Egremont area and Cockermouth, provided a link for passengers and goods with the Furness line, and in later years carried limestone from the Rowrah quarries to the iron and steel works at Moss Bay. This section of the line finally closed in May 1954.

Undaunted by barbed wire fences and quagmires we reached the road and set off to find the site of **Little Clifton furnace** noted for being the first coke-fired blast furnace in Cumberland. It was built in 1723 by John Cookson of Newcastle whose family (originally

from Penrith) already owned coal mines in the Clifton and Greysouthern area. For their site they chose the banks of the Marron to provide water power for the blowers. This was at a time when the use of coked coal for iron smelting was still in its early stages of development. Dud Dudley of Tipton is well known to have experimented with pit coal for that purpose as early as 1619 but, according to Fell, it wasn't until 1713 that Abraham Darby of Coalbrookdale had developed the technique sufficiently for smelting with coal to become more widespread.

Clifton furnace and coking stacks

An engraving of Clifton Furnace from R R Angerstein's 'Illustrated Travel Diary 1753 – 55' which is sub-titled 'Industry in England and Wales from a Swedish Perspective'. A translation of the diary from the original Swedish by Torstein and Peter Berg was published by the Science Museum in 2001, and makes interesting reading.

The Little Clifton furnace was quickly followed by one at Frizington in 1728, then Maryport (Ellenfoot) in 1752, and Seaton (Barepotts) in 1763. The first furnace at Seaton used charcoal from Scotland and the iron produced was refined on site but this was quickly followed by a second furnace burning coke. The other sites produced cast iron only. At Maryport ore was shipped in from Furness as some of the partners mined hematite there but the other furnaces obtained their ore locally. In the 1950's much of the Maryport building still remained. Its importance was summed up at the time by the well-known industrial historian H R Schubert: "It is greatly desirable that means should be found to preserve this monument of the Age of the Industrial Revolution which laid the foundations to Britain's industrial greatness". The furnace was lost when workmen unaware of its historical significance demolished it in 1963.

This part of Cumberland was an area where charcoal was scarce but coal was plentiful. Iron ore however had to be transported some distance and, according to Lancaster and Wattleworth, hematite was brought to Little Clifton by pack-horse from Frizington, a view supported by the discovery of spillage along the track by which it

was conveyed during drainage operations near Asby. As well as kidney ore, the French metallurgist Gabriel Jars who visited the Little Clifton furnace in 1765 mentions the smelting of "rounded stones found at the edge of the sea, a sort of ore that is called *iron-stone*". These nodules (or sometimes flat cakes) of ferrous carbonate are most frequently found in the shales and clays of the coal measures and sometimes in the sandstones notably along the coast between Whitehaven and Parton and at Harrington; also nearer to the Little Clifton furnace at Branthwaite. As well as providing a source of ore they also acted as a flux and were known as *catscalps*. Slag analysis at the site shows it to consist almost entirely of ferrous silicate indicating an appreciable loss of iron.

Jars makes several comparisons with the larger furnace at the Carron Ironworks near Falkirk, which was the first coke-fired furnace to be established in Scotland (in 1760). He states: "As the Clifton coal does not burn as readily as that at Carron they roast the ore by another method. They have furnaces rather like those used in England and France for burning limestone (with) pit-coal; they put the coal and ore in successively and roast them in that manner for as long as they can". He says that two types of coal were used - Top-Coal from the upper part of the seam and Felling Coal from below that. These occur in the Main Band and in the Clifton district; both are known to be about eighteen inches in thickness. He also describes the primitive method at Little Clifton for producing coke, describing it as "rather like that for converting wood into charcoal". Basically large coals were arranged in heaps 10 to 12 feet in diameter at the base and 5 feet high and set alight in the upper part, then covered with straw (paille) followed by a layer of earth and coal dust. The burning was controlled and any holes on the windward side stopped up. Unlike that at Carron the resultant coke resembled very porous cinders. As well as the "tall" furnace for smelting ore Jars mentions two reverberatory furnaces "where they smelt pig-iron, which comes in a large part from the Principality of Wales, and where they cast all kinds of small utensils such as cooking pots, etc.".

Our first destination was Furnace House about 500 metres west from the river. The footpath to it passes close by a shallow drift mine, now collapsed and part of someone's garden. This would have worked Main Band, which according to the geological map outcrops at that point. On enquiring at Furnace House we were directed back to the road where, on closer inspection, we realised that a single storey building opposite displayed the name "Cinder Bank" on the gatepost. Here and further down towards the river on private ground were the slag banks. The furnace site was apparently disturbed when the railway line was built, but according to Marshal and Davies-Shiel, writing in 1969, the base was still discernible "some years ago". According to L and W the furnace foundations were certainly there in 1930. At that time the coke-making bases were still visible in a nearby field as sandstone slabs, roughly circular and some 10 feet in diameter. A return visit to the site is called for.

After a quick drive to **Maryport harbour and marina** via Workington (by special request from the sea-faring members of the party) we returned to **Brigham Hill Mansion** to complete the historic circle. The mansion, now split up into several properties, was in

its heyday home to a series of local industrialists. These included James Peart Ley, partner in Tulk, Ley and Co, who owned the Lowca Iron Foundry and Engine Works from 1830 to 1857 and also the Seaton Ironworks. Then followed William Fletcher who, with his brother Isaac, carried on his father's business working coal mines in the vicinity of Greysouthern and Clifton in the 1850's and 60's. William Fletcher was also the chief promoter of the Cockermouth to Penrith railway in 1860, one of his main arguments for the link being to ease the transport of Durham coke to the ten furnaces then operating at Workington. He also became MP for Cockermouth, managing director of the Allerdale Coal Company and chairman of the Cleator and Workington Junction Railway Company that ran an 0-4-0 tank engine named "Brigham Hill". The engine was built at the Lowca works, then owned by Fletcher, Jennings and Co, another branch of the Fletcher family. As we sat in the "drawing-room" at the mansion drinking coffee it was interesting to speculate on the mining adventures, the industrial enterprises, and the business deals that must have been planned and discussed over the years under that roof, and maybe in that very room.

Dave Bridge, 3.2.04.

References

W G Collingwood - Elizabethan Keswick. 1912

Harold Bowtell - Rails Through Lakeland Vols I and II. 1989 republished 1999/2000

Juliet Barker - Wordsworth, a Life. 2000

Ronnie Calvin - Cumberland Mines Rescue Service 1914-1986 in The Mine Explorer Vol 4. 1994

Mannix and Whellan - Directory of Cumberland. 1847

John Marshall - Forgotten Railways Vol 9 - NW England. 1992

David Joy - Railways of the Lake Counties. 1973

Victoria County History, Cumberland. 1905

Alfred Fell - The Early Iron Industry of Furness and District. 1908/1968

Baron F Duckham - A History of the Scottish Coal Industry, Vol I.1970

J Y Lancaster and D R Wattleworth - The Iron and Steel Industry of West Cumberland. 1977

H R Schubert - The Old Blast-Furnace at Maryport, Cumberland - J Iron and Steel Inst, Vol 172, Nov 1952

Gabriel Jars - Voyages Metallurgiques, 12th Memoire, Forges et Mines du Duche de Cumberland. 1765

Eastwood et al - The Geology of the Whitehaven and Workington District, Mem Geol Survey. 1931

J D Marshall and M Davies-Shiel - Industrial Archaeology of the Lake Counties. 1966

Robert Western - The Cockermouth, Keswick and Penrith Railway. 2001

Thanks to Denis Hinde and Ronnie Johnson for information on the Brigham quarries.

Roanhead Meet, 22nd February

Present: P Timewell, D Robson, A Wilson, S Barker, D Borthwick, J Morland, P Flemming, M Simpson, Meet Leader P Sandbach, and dog.

Roanhead mines are completely absent from the 1850 OS map. The earliest record of mining is a lease dated December 1852 in which Charles Storr Kennedy leased the mineral rights from Myles Sandys of Greythwaite. C S Kennedy had been a shareholder in the Ulverston Mining Company from 1838, and had previously worked the Greenhaulm mine. The mines remained with the Kennedy family throughout their working life.

The day was bright and sunny and felt like spring on the odd occasion when the wind dropped. We began with a visit to the store, and while Dave and Paul examined the roof for leaks, the remainder of the party had a look at the ore tub which is intended to go on Lindal Green. Some of us felt that it is too good to leave out in the rain, but it is not ours to worry about. The store is first recorded on a mineplan of 1873. The plan shows a brickfield and a limekiln nearby, so it might have been built from materials found on site.

We then carried on to No. 16 pit. My articles in newsletters 40 and 58 explain why this engine bed never wound ore, though it did serve as an air raid shelter.

From No.16, we trekked through the jungle to the site of Garden Pit, No.11. The reason for stopping here was to view the boundary between Park and Roanhead. Garden sop fell to the Kennedy Brothers, California sops (High pond and Low pond to the anglers) to Barrow Haematite Steel, but the boundary left a slice of the Burlington sop in the Roanhead royalty.

We then looked at the massive slate changehouse at Katherine pit. This building has been on the point of collapse since I first saw it, but it is now so bad that it is no longer fit to store farm machinery. Behind the changehouse, there are a few limestone millwheels, a relic of the paint works which operated here between 1895 and 1908. We did not stop to find them, because I was becoming concerned that a full day was not enough to cover the mile and a half from Roanhead to Askham. Peter Flemming showed us the site of Katherine shaft, which he remembers being visible, but there is no trace of it now. The privy is still there, almost as overgrown as when we first found it, but beyond that there is only wasteland. In 1998, we photographed the engine bed at Rita and the ore handling area behind it where ore was washed and loaded into railway trucks. This has all been levelled and infilled.

A circuit of the sop brought us to the overgrown area around Violet pit. The massive base of the Hathorn Davey pumping engine still dominates the scene. Other relics from the modernisation begun in 1903 are the bases of the winding engine, dynamo and capstan and the outline of the boilerhouse. Mark disappeared into dense scrub to look at some brick piers, probably the base of the previous generation of boilers. In the field behind Violet pit there are a series of ponds, the remains of the reservoirs and cooling ponds. The brick leat is still visible which took hot water from the condensers to the furthest part of the system. There are a lot of earthworks and ponds in this area which I am unable to explain. I think that the concrete thing and an associated brick engine bed are the remains of an ore washing machine installed here in the previous

modernisation between 1883 and 1889. It was replaced by the one at Rita in 1929.

We then sought a route out of the trees to Peggy Pit. Peggy and Ethel pits, like the privy and Violet pit changehouse were part of the fit of investment that occurred between 1883 and 1889. An undated mine plan shows Peggy pit connected to Peggy pit No. 2 by a line of pumprods, but the 1895 OS map shows the second pit as Ethel pit, with it's own engine house. At Peggy pit, the winding engine bed is tilted at a crazy angle as the ground slumps towards the shaft.

The next site took us across the road and out of the Roanhead royalty. The Sandscale Mining Company was established in 1877 by Woodbourne, Arnold, Mocatta, Barrett and Stearns, names more usually associated with the Hodbarrow Mining Company. Kennedy Brothers took over the mines in 1893, using Sandscale No.1 to work the last of the ore in Peggy pit ground. It may not have been worth the trouble, because in 1906, the stock of ore consisted of 74 tons of good ore and 9411 tons of poor ore. The main feature of the site is a tall sandstone engine bed, unlike anything else in the area. There is also a smaller brick engine bed, a reservoir, a well made railway track which joins the main line at Sowerby Woods, the concrete base of a building and the remains of a magazine. Had we the time and permission to clear out the shaft, we would have found the stonework around the shaft head in good condition and the end of a pumprod sticking out of the infill. Finding what shelter we could amongst the engine beds, we stopped for lunch. The dog worked hard at scrounging, then decided that he was with a bunch of skinflints and whined to be on the move. He was right there, it was too cold to hang around.

A few steps down the road, in the National Trust car park, we came to the least likely relic of the day. Peter Burton reckons that the ice cream shop served as the Roanhead mine office before it was moved to it's present site If so, it is a remarkably long standing hut.

The anglers' footpath begins behind the toilets and passes the bridge to the old Roanhead farm. It is a feature of this walk that all the big houses were moved due to subsidence. The old Park farm was on the site of Burlington sop, replaced by a new building across the railway. Moor Foot was on the site of Sandscale No.1 sop and the old Roanhead farm was moved to it's present site in 1903. The exception is Sandscale farm. The present farmhouse replaces one demolished by British Cellophane. We climbed to higher ground above Nigel sop, pausing at the airshaft and waded through the mud to Nigel No2. The engine beds were probably cast in concrete in 1933, when new equipment was installed. The mine was worked out in 1942. Cairds foundry leased Roanhead mines in the fifties. The car park at Rita is the result of their tipping slag into the subsidence. At Nigel pit, a large shearlegs stood until about 1996. This was used by Cairds for breaking up ingot moulds.

From Nigel pit, we followed the farm track through the farmyard to Burton pit. It was not the most important of mines. The deposit was discovered in 1928 and after working intermittently, closed in 1939. We have photographed a flat concrete plinth, which supported an electric winder and a large pond, but could find no trace of it on Sunday. Burton sop was not

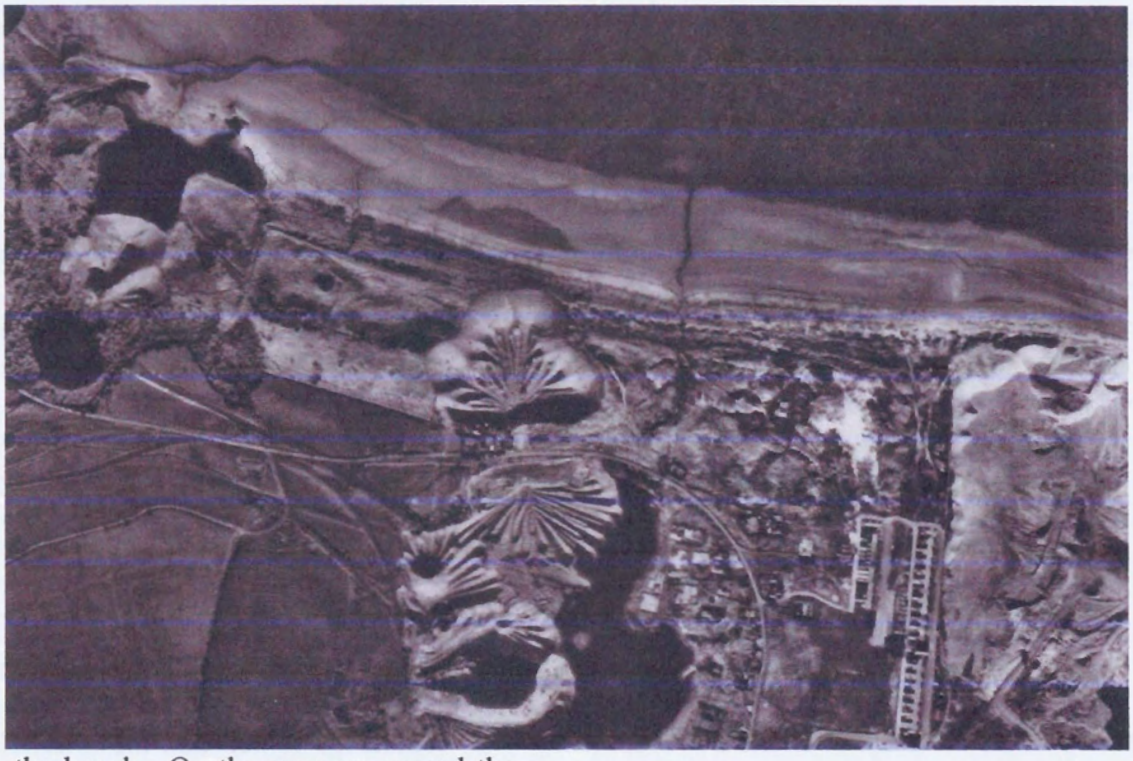
managed by the Furness Fishing Association, so now it is gone.

The Roanhead section of Roanhead mines contains hardly any spoil heaps. The Askham section is different. The earliest mine plans of Woodhead pit are from 1873, and they show the mine almost in it's final state. There are two shafts on different levels and an outer barrier to keep the sea out of the lower sop. The mine was standing in 1903, when a large subsidence occurred, creating the upper pond. They kept the pumps running until 1909 in the hope of reopening the mine, but both the mine and the tramway (now the farm track) were damaged beyond repair. After admiring the view from the spoilheaps, we took the path down to the beach. On the way we passed the base of the pumping engine, the capstan base and the site of Woodhead No2 shaft. Like No16 shaft, this is a sinister black pool. The tidal barrier was broken long ago and is now only a line of stones.

Returning to the farm track, we continued toward Askham. S5 pit is the site of two brick engine beds and some spectacular spoilheaps.

S3 lies amongst a wasteland or spoilheaps and brambles. On this occasion, the vicious horse had the company of some nervous sheep. The spoilheaps were more interesting than the site of the mine, especially as the shaft is used for disposing of dead sheep. S3 and S5 closed in 1923, largely as a result of the coal strike. I lost three members of the party on the way to S3. If the horse did not get them, they could be still lost on the lotts.

Peter Sandbach.



Arial photograph showing the Askham sop and Woodhead pits, c.1960. Several generations of tramways were visible then. I think that the big collapse near S3 is the site of S4.

William Gawith's notebooks, the Ulverston Mining Company and Alexander Brogden

There was an auction of documents at the Coot in Urswick in July 2000. I failed to buy two notebooks attributed to Harrison Ainslie, but obtained photocopies from the purchaser. One book lists 470 shipments of ore between 1856 and 1870. It also contains a list of customers and details of salary and expenses. The salary was £15 per quarter from 1856 to 1859, then £4 4s until 1872. The other notebook lists 309 shipments made between 1859 and 1864, with details of commission (1d per ton) and expenses. Many of the financial entries are addressed to A Brogden Esq., All are signed "settled, W G " or "settled W Gawith". Taken together, the two notebooks account for 67,000 tons of ore. William Gawith was the shipping agent to G B Ashburner, the Ulverston Mining Company and Stainton Mining Company. The latter two companies were controlled by Alexander Brogden at this time.

Destinations

The notebooks cover only a fraction of the ore from Brogden's mines. Lindal Cote and Eure Pits produced 42,700 tons of ore in 1872, with a further 1800 tons from Stainton. The bulk of it must have gone by rail. There are some pages concerned with railway traffic, 10,589 tons in 1856, and 1289 tons sent to the Haematite Iron Co. of Hindpool in 1862, but if William Gawith's duties normally included handling railway shipments, then the records were kept elsewhere. Even so, the list of consignees gives some indication of the areas where Furness haematite was used.

Porthcawl was the destination for 262 shipments totalling 26,000 tons. The Llynvi Iron Co. took Eure pits ore and the Tondu Iron Co. required Lindal Cote No1 pit blast ore. Other South Wales customers were the Dowlais Iron Co. via Cardiff. They used Eure Pits ore in some of their 17 blast furnaces and 161 puddling furnaces.

The Ebbw Vale Iron Co. shipped via Newport. They preferred Lindal Cote North Pit ore for their 237 puddling furnaces.

Several companies in Leeds were supplied through Morcambe and the North Western Railway, namely:

J Witham and sons, who owned 40 puddling furnaces,

The Monks Bridge Iron Co. with 12 puddling furnaces,

The Kirkstall Forge Co. with 24 puddling furnaces,

E Darke of Swinton, Kilnhuish.

Rushton & Eckersley were supplied with puddling ore via Fleetwood. Shipments to Morcambe and Fleetwood ceased in August 1857, with the opening of the Ulverston and Lancaster Railway.

The West Midlands was supplied via the Shropshire Union Canal with ore transhipped at Ellesmere Port or Saltney, and via the Trent and Mersey with ore transhipped at Runcorn. Customers in this area included:

The Osier Bed Iron Co., who made tin plate at Wolverhampton,

Brown & Freer, who had puddling furnaces at Brierley Hill,

Bradley & Co. who produced high class forge iron at Walsall from puddling ore shipped via Runcorn.

James Sanders of Oldbury, Wolverhampton. They took a cargo of North Pit and a cargo of puddling ore each fortnight.

Two other purchasers are worth mentioning: S Dalton of the Deeside ironworks; Saltney was a regular customer, and the Sheffield based mineral agents, Green Chaundy & Co. had 1000 tons of ore shipped to Mostyn. The Lancaster Iron Co. were building two furnaces at Mostyn in 1872, and this was probably the last major shipment handled by William Gawith.

The Brogden Family

The story of John and Alexander Brogden's establishment as railway contractors, coal and ironmasters and land developers, and their eventual failure is described in Leonard Higgins' article, an abridged version of which appears in newsletter No. 72. There is more on the subject at www.brogden.info. They were also ship-owners; The 1867 Lloyds Register includes the following entries:

Hermes of Swansea, a 93 ton brigantine built in 1823, recently acquired by J Brogden.
James Garstang of Swansea, a 548 ton iron screwsteamer built in 1866 for A Brogden. The entry is marked "Wrecked".
John Brogden of Swansea, another steamship of 548 tons from the same builders in the same year and owned by A Brogden.
Ogmore of Swansea, a 146 ton iron screwsteamer built in 1866 for A Brogden.
Saphire of Liverpool, a 70 ton schooner built in 1860 and owned by J Brogden
Alexander also had an iron paddle tug, *The Thames* built in 1866 to serve his new dock.

Alexander Brogden married Ann Garstang, daughter of James Garstang and was MP for Wednesbury from 1868 to 1885.

The Stainton Mining Company

Alexander Brogden took the lease of Stainton Mine in 1850. The mineral statistics indicate that it was owned by the Brogdens until 1890. About 3000 tons of ore was raised annually until 1883.

The Ulverston Mining Company

The first reference to the Ulverston Mining company is in a lease dated July 1838, in which Lindal Cote mines were leased by the Duke of Buccleuch to George Huddleston (4 eighteenth shares), James Park (4 shares), Thomas Petty (4 shares), Charles Storr Kennedy (2 shares), Richard Smith (2 shares) and Henry Kennedy (2 shares), trading as the Ulverston Mining Company. The partnership was deemed to start at this time, but the lease implies that the partners were already in possession of the mines.

In 1839 the Company built the third jetty at Barrow. This would be the Northernmost pier in the 1846 map, marked as Kennedy & Co., but it was not the site where the Gawith shipments were loaded. The four old piers were replaced by the new railway pier in 1849.
In 1841, George Huddleston assigned his shares to Henry Kennedy of Brighton, and for a time the company was known as Kennedy & Co. By 1850, a Cornish engine of 40 horsepower was used to drain the workings to 22fm, but the ore was still raised by horse gin. In 1857 the lease was renewed in the name of John Brogden, Alexander Brogden and Henry Kennedy of Brighton. The next lease is dated 1872. Alexander Brogden MP appears as the sole lessee, and it cannot have been long after this that the ground rent fell into arrears. This lease probably indicates the conversion to a limited company, as the tenth and last AGM was held in 1883.

By 1878, the Duke was becoming concerned. In October 1879, Alexander was called to a meeting with the Duke's agents. Mr Wadham and Mr Manisty had previously agreed that Alexander Brogden was personally liable, but it was no use pursuing him for the debt because he was pressed by creditors on all sides, and had made over the furniture to his wife. They must pursue the company. Mr Brogden gave the first intimation that if money were forthcoming for investment, then the fortunes of the company would be revived and the debt repaid.

The list of shareholders for 1879 shows the company divided into 8000 £20 shares. The shareholders

included Alexander Brogden, 506 shares, Henry Brogden, 376 shares, James Brogden, 210 shares, George W H Brogden, 200 shares and James Garstang Brogden, 420 shares, 21% of the company in all. Other shareholders were Henry James Grieveson, coal proprietor, of Saltburn by the Sea, with 500 shares and John Grieveson, his agent, with 100 shares. In November 1880 James Grieveson was appointed as manager and expected to be appointed Managing Director. Alexander Brogden or his son, James were to have no further part of the concern. It was not just the rent and royalties which were in arrears. With the shortage of capital, vital exploration and development work had been neglected. Wadham reckoned that £10,000 of development would put the mines on a sound footing.

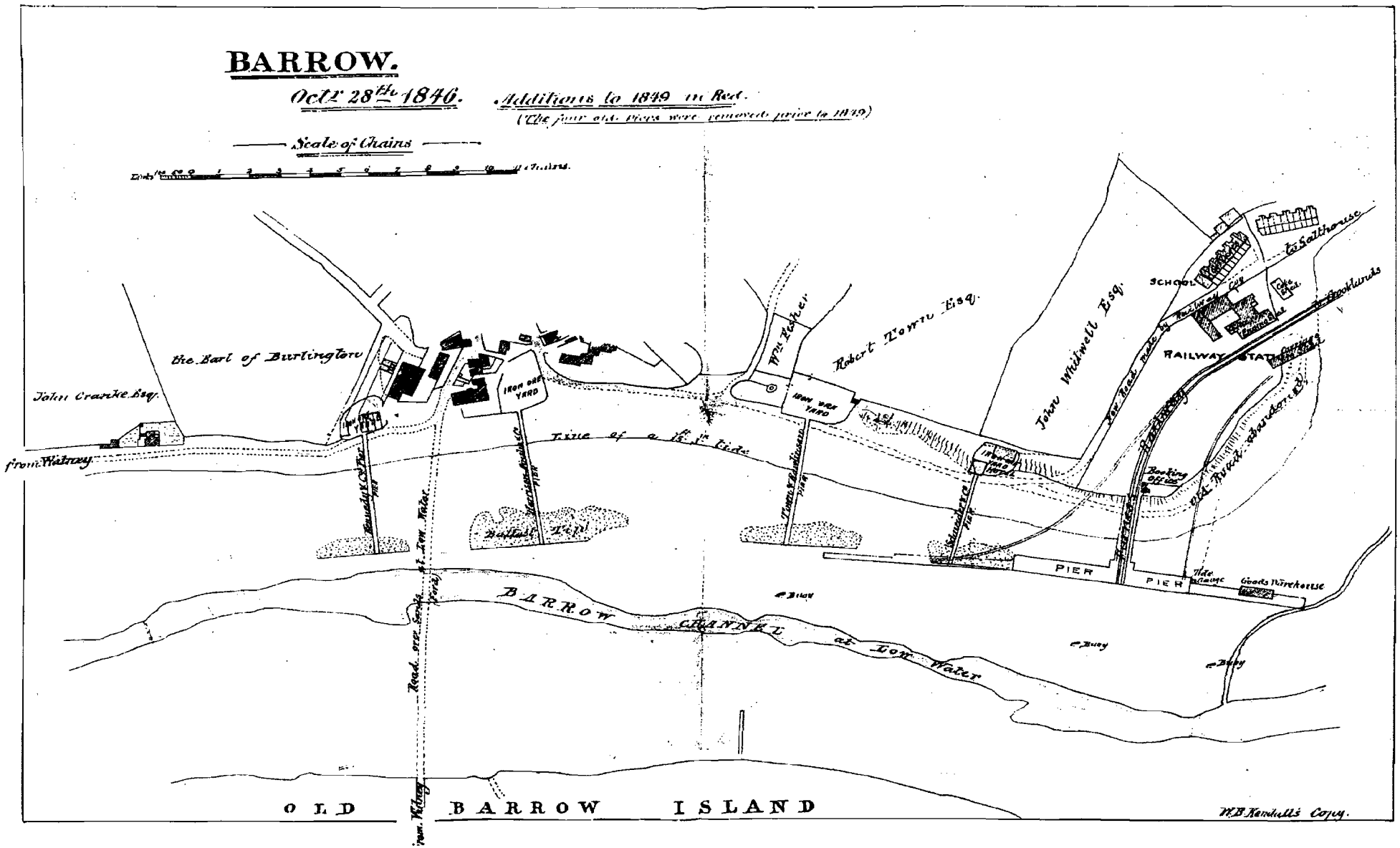
In 1882, Henry Grieveson signed an agreement whereby the Duke would convert £5,000 of debt into 4% debentures. The company would raise another £10,000 by issuing debentures and that money would be used to develop the mines. The debentures could not fail, because they were secured against the lease of the mine, valued at £33,000. A new lease was granted on the strength of this, but rent and royalties were to be paid monthly.

At the ninth AGM, on 6th April 1882, Alexander Brogden and Henry Grieveson were present as directors. There seems to have been a call on shares, though this was not mentioned. Henry Grieveson worked hard to sell the debentures, writing to shareholders not present at the meeting that the capital was only needed to develop the property as it should have been years ago, by which dividends could have been steadily earned and paid. The lease is offered as security to the debenture holders and valued at £50,000. Notice had been given to Mr Brogden and others that their shares were now forfeit.

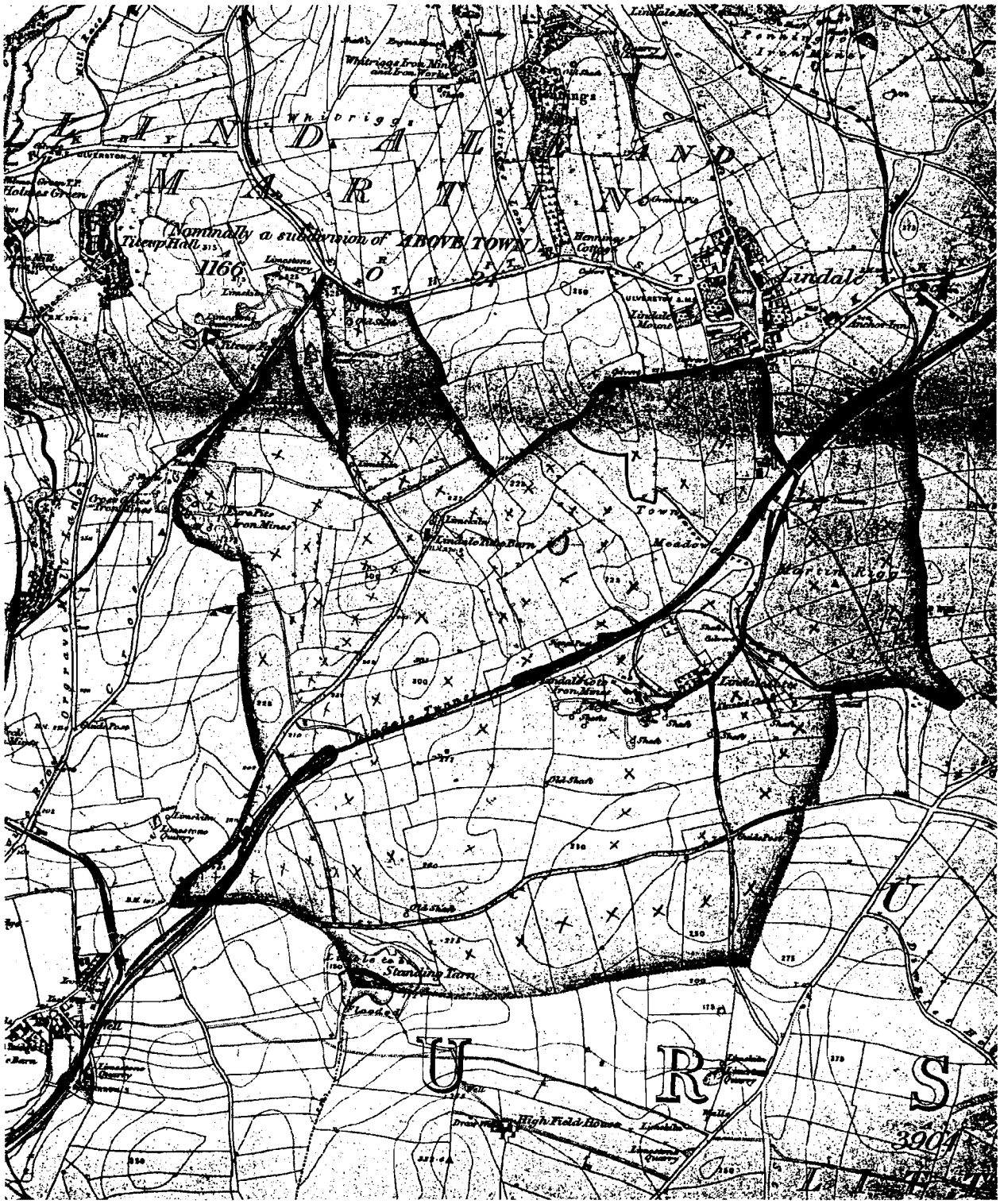
At the tenth AGM the managing director, Henry Grieveson, had to say that the issue of debentures had been only partially successful. In fact there were few takers other than the Duke, and the holders of 2647 shares forfeited them rather than answer the call on capital. Mr Wadham remained optimistic. He felt able to tell the shareholders that they had the most valuable mining property in Furness, but a large portion of it is wholly untried. The debentures were still on offer. By the end of 1883, the company was clearly bankrupt. The Duke would have liked to sell the lease to Barrow Haematite Steel, or failing that, Sir James Ramsden, but they did not come forward. No doubt Myles Kennedy was also glad to be out of it.

The company's debts in July 1885 amounted to £26,327, and the main creditor was the Duke. He was owed £2,049 in rent and royalty, £5,000 for the debentures and £488 interest on the debentures. The other creditors give an indication of the expenses of a mining company. There were bills for auditors, tar, advertising, coal, stationary, corn and bran, castings, manure, surface damages, inspection and insurance of boiler, saddlery, spades, soft soap, red lead, flannel, leather, signal wires, water rates, ropes, glass, straw, lamps, lime, fuse, rubber goods, capstan rope, tallow and candles, dynamite, timber, paper and spent hops. Perhaps the soft soap and flannel were for use on the auditors and boiler inspectors. The mines were sold in three lots on 15th October 1885. The only taker was Harrison Ainslie. Along with the lease they bought:

At High Crossgates: an office, store house and smithy, cap house, a pumping and winding engine house with a horizontal pumping engine and a winding engine, an engine house at Derby pit with a portable winding engine, a joiner's shed, dynamite store and labourer's



Barrow in 1849, showing the Ulverston Mining Company's pier and the Furness Railway pier that replaced it.



The Lindal Cote royalty, from the 1872 lease, based on the 1850 OS map, BD/BUC/61/1/4

cottage. (The finger of land near Tytup Farm which is excluded from the 1872 lease was a Derby royalty, worked on a different lease.)
At Eure pits: a dry house, a large engine house and boilerhouse with a large Cornish pumping engine, a watchman's cottage, locomotive shed, store house, smithy, and a narrow gauge locomotive.
At James Pit: a large engine house with a compound differential horizontal pumping engine, a winding engine house with it's winding engine, a smithy, boilerhouse and 60 ft chimney.
At Bercune: an incomplete engine house and a portable drawing engine.
At Lindal Cote: the engine houses for No1 and No2 Cornish pumping engines, with the engines, winding engine sheds at No2 pit, No15 pit and Pindar Ring, all with engines, smithy, engineer's shop, sawmill, weigh-bridge, dry house, coach house, stables for 7 horses, an office with three rooms, store house, joiner's shop, cap house, dynamite store, and a pump gear house.
At Grieveson pit: headgear.
At No 50 pit, No51 pit and No44 pits: a headgear and horse gin.

Harrison Ainslie were in no position to take on a mine set in need of development. Only two of their charcoal iron furnaces were still working and their schooners had been sold off. Besides which, Lindal Cote was the lowest point in the area, and water pumped from the surrounding mines, particularly Harrison Ainslie's Lindal Moor mines, drained towards Lindal Cote. By 1893 they were pleading for a reduction in rent and royalties. In 1899 they were obliged to convert to a limited company which went bankrupt in 1904 and again in 1914. In spite of this the Lindal Cote royalty continued to produce ore. The Crossgates pits were worked until 1902 and Lindal Cote until 1911.

The sites today

On the road from Crooklands to Urswick, there is a stone pillar. It was built to support the gantry which took the ore from Grieveson pit across the road and onto the tramway to Lindal sidings. The engine bed of Lindal Cote No1 pit survives amongst a pile of rubble and old farm machinery, but if you go there, the landowner will warn you off the public footpath. The smithy at James Pit survives as a barn. Some of the Eure Pits buildings survive, close to the Melton roundabout, but very modified. The sops at High Crossgates were filled with spoil from the bypass. Bercune pit is under Colony Candles. It should not be confused with the neighbouring Bercune pits, worked by the Wigan Coal and Iron Co. and by Thomas Ormandy

The railway pier at Barrow was abandoned in the next phase of development, about 1860. Morrisons supermarket now occupies that site, and the next phase of development could see the last of the Furness Railway buildings demolished
Alexander Brogden's dock at Porthcawl was closed by the GWR in 1906.
The Tondu ironworks closed in 1896. It has recently been excavated and has been the subject of a "Time team" dig. It has become an industrial heritage centre, and is supposed to be the best preserved Victorian ironworks in Wales.

References

The Gawith Notebooks: These were bought by the Honiton Old Bookshop, Devon in 2000. The photocopies have been deposited in the CAT library.
Guide to the Iron Trades of Great Britain, Samuel Griffiths, 1873
The Lancashire and Westmorland Mineral Statistics, Roger Burt et al, 1983
CRO, Barrow, BD/BUC/box61
The Iron Moor, A McFazdean
British Archaeology magazine, June 2001

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

Committee Meeting held on the Monday 12th January 2004 at the BMSC Hut at Coniston.

Agenda.

1	Apologies for absence	2	Minutes of the last meeting
3	Matters arising	4	Secretary's Report
5	Treasurer's Report	6	Membership Secretary's Report
7	Meet Report	8	Newsletter
9	Publications	10	Library
11	Coniston Coppermines	12	Hudgillburn
13	NAMHO 04	14	Date and venue of next committee meeting
15	Any other business		

Present M. Simpson (MS), J. Aird (JA), S. Barker (SB), I. Matheson (IM), J. Brown (JB), P. Fleming (PF), M. Mitchell (MM), M. Scott (MSc). The meeting commenced at 6 00 pm

1 Apologies for absence from: A. Wilson (AW).

2 Minutes of the last meeting

The minutes of the committee meeting held on Monday 10th November had been previously circulated to members. It was **PROPOSED** by MM and **SECONDED** by IM 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 3.**1 PF had written to Levens Hall asking for any information on items seen by R Bland - no answer as yet.

3.2 **Item 3.4** PF had met John Hodgson (JH) at Gold Scope (12 Dec.) to discuss the re-opening of the portal of the Coffin Level. He had agreed in principle and would contact the National Trust & English Heritage. If all were in agreement, he would then consider applying for funding to help with the cost of the work. IM reported that evidence of further components of the site had been discovered, these to be discussed at the Mines Forum meeting.

3.3 **Item 4.4** IM had answered the letter from Mark Brennand of the Cumbria C.C. Community Economy and Environment Unit and had received an answer. Please send any information on primary sources to Ian Matheson.

4 Secretary's Report

Received since last meeting:

4.1 a) LDNPA The report on the consultation of the National Park Management Plan, Part 1 (polices) is now available. A copy can be seen on the LDNPA website www.lake-district.gov.uk or they will send us a CD.

b) Several members attended the Archaeology Day conference in the Lake District on 29th November.

c) There will be a mines forum meeting on 16th January at Threlkeld.

4.2 NAMHO is producing a promotional leaflet and would like any suitable photographs.

4.3 The draft constitution of the BCA was agreed at the AGM held on 1st NOV. The BCA comes into being on 1st Jan 2004.

4.4 SB had written to MOLES regarding Greenside Mine maintenance work, but had not received an answer to date.

5 Treasurer's Report

JA presented the Balance sheet to the 12th January, the current a/c stood at 2140.83 and the Scottish Widow a/c at 11100.00.

The public liability insurance that had run out on the 7th November was now up and running. JA would send a letter to all members explaining the details of the new PLI insurance.

See separate notes.

The BCA had already paid this year's premium, so they required clubs to send the money in ASAP.

It was decided not to renew the library insurance next year, as the Armitt Library did not consider it necessary to insure their contents, the contents were kept in fireproof conditions and most of the contents were un-replaceable, so there was no point in paying the premium.

MS suggested that CAT should think about joining the CBA, which would give us access to useful information and contacts. They have about 200 members, cost £43 per year. We would need 2 sponsors.

6 Membership Secretary's Report
80 members had renewed this year to date, fewer than this time last year.

7 Meets Secretary's Report
The next meets list to be discussed at March committee meeting.
JB said that there were now work meets at Greenside every Sunday, last weekend they had carried in enough steel for 3 sections of supports, there had been another minor collapse on the vein.
JB estimated the cost of this maintenance work would be in the region of £2000. It was **PROPOSED** by JB and **SECONDED** by MM that this essential work should be carried out, to safeguard the 'Through Route'. All were in favour.

8 Newsletter
The next newsletter would be going out shortly.

9 Publications
It was decided to take stock of our publications in March. If any body is holding a stock of our books, please count them and let SB know the numbers.

9.1 PF **PROPOSED** that CAT should produce a book about the Coniston Copper Mines, **SECONDED** by MS, all were in favour. Eric Holland's book was now out of print. A new publication was overdue, to be discussed at the next meeting. SB and PF had met with Richard Newman (RN) CC Archaeologist on 24th November, to discuss various subjects:
9.2 **Furness Survey** RN thought this was an important work, as very little had been recorded about the Furness Iron Mines. He would like to enter details into the Cumbria Sites and Monuments Record and also offered to make a copy of the whole survey so it could be deposited in the Barrow Record Office.
9.3 **Woodbine Chimney** RN thought that Grade 2 Listing would be suitable and would offer some protection. SB to write to Department of Culture Media & Sport to try and get it listed. He also suggested we contact DEFRA as they sometimes fund the repair of historical buildings on farms under a stewardship scheme. This usually has several conditions, including that the farmer has to be agreeable.
9.4 **Diamond Pit** where the tips were at risk. RN would contact the appropriate authority. Which he did; and appropriate action was taken.

10 Library
IM was trying to locate more of the Coniston mining records, including the rest of the ' Cost Books', as these held a wealth of information. Several other members were also involved in research, for the new Coniston book and the Furness Survey. It was decided that the Society should buy a basic laptop and possibly a digital camera to aid this and survey work.
JB **PROPOSED, SECONDED** by MM that CATMHS should buy a laptop computer at a value of not more than £750, all were in favour. Action IM.

11 Coniston Coppermines
PF reported that SMC had been granted for the re-opening of Levers Water mine. There were 4 conditions that had to be adhered too. See separate notes. Four dates were decided to do this work: Feb 8th, 15th, 29th & 7th March, to be put in NL. MM will produce risk assessment forms.

12 Hudgillburn Mine
SB had taken several NAMHO members into the mine, they had taken digital photographs of the graffiti and had given us copies on a CD. She had also taken Russell Bulman (local geologist) into the mine, he had written a article which was being published in the NPHT newsletter.

13 NAMHO 2004
Arrangements for the event were going well, most of the speakers were booked. Chris Irwin had offered to arrange the stalls. JK was well advanced in organizing the trips; but needed more suggestions. Goldscope was suggested for a whole day trip. The condition of existing ropes needed to be checked - action IM. The booking form details were discussed, they would be ready to go out by the end in January.

14 Date and venue of next Committee Meeting
To be held on 8th March 2004 at the BMSC Hut, Coniston, at **2.30PM.**

15 Any other business
Christmas Dinner -PF asked if the event was considered a success, all agreed it was and PF was asked to book again for next year. There being no further business the meeting closed at 10.00pm.

SB 15/1/04 Signed M Simpson, Chairman

CUMBRIA AMENITY TRUST MINING HISTORY SOCIETY

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