

CUMBRIA AMENITY TRUST



BACKBARROW FURNACE IN 1850.

MINING HISTORY SOCIETY

DECEMBER 89

NEWSLETTER NO. 25

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The society would like to welcome two new members - David & Denise Robson
from Ulverston.

My grateful thanks to all those who have assisted with the newsletter,
without whose contributions it would not have been possible. ED.



Merry Christmas
and a
Happy New Year

Special thanks to Margaret Fleming
for photocopying.

CALDEECK MINING MUSEUM.

Members Ian & Jean Tyler and Warren Allison have opened the 'CALDBECK MINING MUSEUM' The museum and shop which is situated in the superb Priests Mill complex at Caldbeck will be open 5/6 days - March -Oct and weekends in winter Nov -Dec. Closing Jan -Feb. The museum has an excellent display of mining artifacts and photographs from the Tyler and Allison collections. The shop will sell outdoor gear plus mining books, minerals, lamps, photographs, in fact anything to do with metal mining.

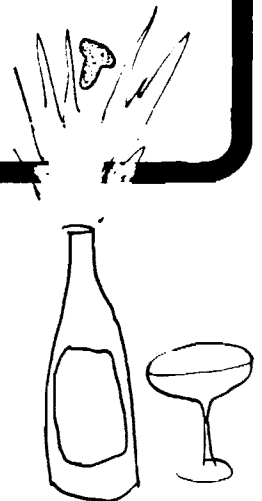
BOXING DAY MEET



Why not work off excess Christmas fayre by coming along on the C.A.T. trip on Boxing Day at Coniston. Bring along the children, grandmas, grandads, mothers-in-law, the dog--. The plan is to walk up the Old Man as far as the Saddle Stone Quarries and then spend a little while clearing the entrances to underground systems which have been blocked for as long as anyone can remember.

Those who don't want to grovel and thrutch with the rest of us can climb the Old Man and back down again by which time it should be opening-time in the village.

If we manage to gain access to the extensive closeheads off the blocked middle level, a bottle of bubbly will be cracked open to celebrate. Meet at 10:30 at the Walna Scar fell gate (up the Station Hill above Coniston).



JANUARY C.A.T. MEET (HONISTER) -- CHANGE OF DATE



Because of a clash with a C.O.M.R.U. practice, the Honister trip which was on January 14th is now to take place on January 7th.

We apologise for this and hope that it does not inconvenience too many people especially as a lot of members have already said they are planning to go.

For those who have not thought about it yet, the trip is to be recommended as there is now much new ground to be viewed in Honister Crag and there is a possibility of entering as yet unexplored and unknown areas. The meet is graded E/D. For more information contact Alastair Cameron on 0386 750494 or Coniston 41330.

BOULEY POTASH MINE - MEET APRIL 23rd 8pm Meet leader Ian Matherson



Horse Whinn formerly used for drawing Coals and Water. After Langon.

MEETS SECRETARY'S REPORT FOR 1989

The most important event of 1989 was the NAMHO conference, which was hosted by the Lakeland Mines and Quarries Trust and ourselves. Part of our contribution was to organise a programme of field meets which involved both surface and underground visits. At the instigation of the NAMHO Committee, who thought our provisional programme of surface walks and walk in visits rather tame, a through trip from Levers Water Mine to Brow Stope and the Top Level Extension was included. This entailed a considerable amount of work beforehand, requiring several visits in order to re-open Levers Water Mine, and to dig open and make safe the Brow Stope Connection. The trip took place on the Saturday of the Conference, but unfortunately it was poorly attended, the nine NAMHO delegates being outnumbered by thirteen CATMHS helpers. I am not sure whether the poor attendance was because the meet clashed with some of the lectures, or because of its adventurous nature, but whatever the case the other field meets were better attended. On the Friday preceeding the Conference thirteen delegates were guided around the mines and quarries at Tilberthwaite, whilst on the Sunday, after the lecture programme at Charlotte Mason College had been concluded, 33 delegates visited Force Crag Mine. The following day some 25 visitors toured the Newlands valley. Thanks are due to all the twenty or so CATMHS members who helped during the Conference.

In addition to the NAMHO programme and the regular monthly social evenings at the Haverthwaite Railway there were twenty regular weekend meets during 1989, and eight evening meets. As I said in my report last year this was a slight reduction over 1988. I believe that this is still rather too many, and for 1990 there will be a programme of about sixteen meets. This is to give those members who regularly lead or attend CAT meets greater opportunity to arrange their own visits and for more exploration and development, an area which has been rather neglected of late.

Attendance at meets has been varied, a fairly typical turnout being ten or so members. The best attended meet was at Force Crag in May, which attracted 21 people; in April fifteen took part in a fell walk to visit the Stone Age Axe factory sites on the Langdale Pikes. Sixteen individuals abseiled down the Paddy End Through Trip in November, and thirteen adults, four young children and two dogs put in a hard days work at the Low Water Power House in October. The visit to Boulby Potash Mine in Cleveland in September did not take place, but a visit has been arranged for next April with a limit of ten participants. The Easter meet to North Wales was very disappointing, particularly in view of all the work put in by the Meet Leader. He was joined by just one other member, and so for 1990 there will be an Easter meet at Nenthead instead of the traditional Welsh Meet.

There have been suggestions of a visit to the Isle of Man and elsewhere, but whilst I firmly believe that such visits should be part of our Society, I feel that they are best organised by individuals and publicised through the Newsletter rather than through the Meets List. Last December Two members made a six day visit to the copper mines at Rio Tinto and Tharsis, in South West Spain, and to a haematite mine which used to be owned and worked by the Millom and Askham Mining Co. A follow up is planned, and perhaps in 1991 a full scale CATMHS summer expedition to the Spanish mining fields will be arranged.

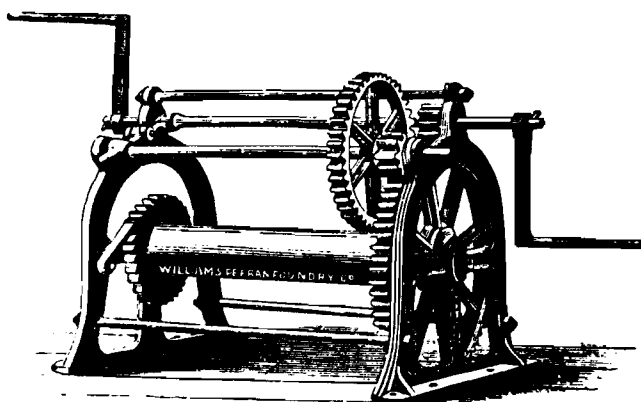
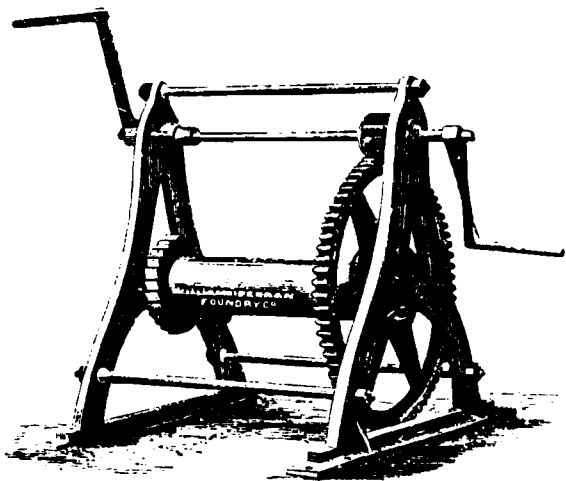
Nothing is forever, and mining remains continue to disappear from the landscape, either as a result of natural decay, or of deliberate intent. The mill at Carrock Mine has been removed and most of the entrances have been blocked, Greenside has been further landscaped, and Phillip Johnson continues to disguise the Copper Works at Coniston by building structures upon it. Earlier this year the disused Slate Quarry Power House below Low Water was in imminent danger of collapse, but this has been averted. Three visits have been made, and the bulging walls repaired, the exposed roof gables grouted, and the whole building cleaned out and tidied up. A notice is to be placed in the building describing its use, explaining that conservation work has been carried out, and appealing to the public not to cause damage. A similar project at the Moss Head Brake House will be carried out next year, and there will be a good deal of work to do at Mandells Slate Office at Coniston Station. We have been asked By Dr Marshall to help to preserve the iron furnace at Newlands, which is also in danger of collapse, and work has already started on this project.

It is good to have links with other societies which have related interests. In this connection I think that it is a pity that we have not developed a relationship with the Cumbria Industrial History Society, with whom we were sometimes double booked at the Farmers Arms at Lowick. We have however been approached by the Cumberland Geological Society to conduct some of their members around the Honister Slate Quarries, and this has been arranged for next September. We have also been asked by the Cleveland Industrial History Society to arrange a meet for them in the Lake District, and this will probably take place next June.

The Meets List for the first half of 1990 has been prepared, but publication has been delayed so that the names of the new committee can be added. It is surprisingly difficult to produce a balanced meets list to suit all tastes, which covers the full spectrum of mining history in our area, and which is suitable for the weather conditions which are likely to prevail at different times of the year, so may I conclude with an appeal for your comments, criticisms and constructive suggestions for future meets, so that the meets programme may best reflect the wishes of the membership.

Ian Matheson.

STRONG SINGLE PURCHASE CRABS.
To lift from 2 to 5 Tons, with or without breaks, made in the best manner for general use.



POWERFUL DOUBLE PURCHASE CRABS.
To lift from 4 to 12 Tons, with ratchet wheels, shifting dogs, pinion shafts to slide, so as to work either single or double purchase: these are built in a most substantial manner, and thoroughly adapted for heavy work.

A sunlit mansion set amidst smooth, green lawns and magnificent trees is not where you would normally expect to find NAMHO members but during the weekend of 14th to 17th July they came from all over the country to the excellent facilities provided by the Charlotte Mason College, Ambleside, to share experiences at the conference hosted jointly by LMQT and CATMHS.

As first time delegates we were not sure what to expect and having accepted the responsibility for the club stand we approached the weekend with some anxiety. Hours of preparation by many people had already gone into collecting, mounting and planning the layout of the photographs and literature for the display but would we be allocated a suitable space, how would our efforts compare with those of other clubs, would they tell the story we wanted and would we get everything assembled in time?

It was a relief when late on Friday evening all was in place, thanks to a team effort which coped with problems of portage and positioning and we returned home satisfied with the results.

Early on Saturday morning we were back again and with a rota of helpers manning the display it was possible to look at other stands and attend some of the lectures. A wealth of detailed knowledge, research and skilled presentation was evident.

All too soon it was time to depart for the Coniston field trip. The total turn out was disappointing - nearly as many guides as visitors - especially as club members had spent long hours over the previous weeks clearing the entrance, draining the level and rigging the route. However, the job needed doing so the effort was worthwhile.

The balancing act required for the MAGS catwalk and the journey by Landrover, crammed so tight with gear and bodies that even the rough track failed to dislodge the occupants, were memorable features of the trip.

Back at Ambleside we had time for just a hurried wash and change before dashing to Windermere for the evening event at the Steamboat Museum. Good food, lively entertainment and a relaxing cruise as the sun set over the lake rounded off the day.

Sunday morning started with a quick trip to Coniston with Mike to retrieve the ropes etc. left behind after the Saturday meet and then again to Ambleside for more lectures, including the final one by our own member, Ian, 'Exploring Lake District Mines'. The slides were easily the best of the weekend and the lecture presented with Ian's usual care and thought. What a pity it was so abruptly cut short in time for the formal ending and the trip for most people to Braithwaite and the Force Crag mine.

Now all that remained for us was to dismantle the display, packing it away for possible future use, to return the literature and check on the sales. Suddenly the building which had seemed so full and busy was quiet and deserted. Exhaustion, physical and mental, crept over us after a hectic weekend and we joined the long, slow trail of traffic homewards.

Leeds and the diesel loco

In September 1939, the first flameproof diesel locomotive entered service on a British Coal mine. To celebrate this the Leeds Industrial Museum is staging an exhibition of the history of the diesel loco in the U.K. and the effect it had on the underground environment.

The museum itself, although not one of the better known establishments in Britain, won the European Museum of the Year Award in 1983 and has received many accolades since. It is situated on the site of the Armley Mills which stopped functioning in 1968 and were themselves on the site of an older mill built in 1560. The bottom level of the building has been turned into a mock underground tunnel network which is divided into three stages.

The first stage deals with transportation before the loco came along. There is a stable for a pit pony and an example of the early wicker korf method of haulage where women and children used to pull baskets of coal out of the mine. This was superseded by tubs, an early model of which is on display. These were pulled to the shaft bottoms by ponies and winched out of the mine, a task that soon led to delays and frustration. As pointed out by John Curr before the turn of the eighteenth century, an integrated system was needed that afforded more flexibility at the face and meant less hoisting time. The first criterion was solved by removing the flange from the tubs and placing it on the track so the tubs could move more freely in the workings. The second problem initiated the introduction of pit cages in 1834. A model of a cage setup is also displayed, showing the roll-on tubs and double decks that were employed, along with a typical shaft bottom (although the latter was still under construction at the time of *MM*'s visit).

This advance in transport did mean an increase in power requirement underground and there are three examples of how it was generated, albeit on a slightly smaller scale. It is quite alarming to think that steam engines and coal fired boilers were used to work the hoists and haulage levels, especially when installed underground. The twin cylinder horizontal engine, designed by Nicholas Wood, plus the advent of modern electricity, certainly made the environment much safer. One of the final tubs to be designed (by Hudson in 1941) is on show in a little side heading that has a steel ring support from the Bentley Colliery, circa 1928. It has a 1 t capacity which makes it one of the biggest to be employed in England. The exhibi-

tion also takes a brief look at the three main methods of rope haulage, main and tail, direct and endless.

Meanwhile, around the turn of the 19th century, the transportation problem was becoming a crisis. The face equipment was reasonably well established and the winders fairly competent but between them the bottleneck was becoming tighter. In an effort to combat this Siemens came up with the trolley wire locomotive in 1890. This met with instant success in the U.S., where it became the *de facto* method of removing coal. It also resulted in a surge in the accident rate and became virtually banned in England with the 1911 Safety Act.

Submarine activity during World War I greatly helped the development of the battery locomotive and when the Seven Hours Act was passed in 1920, it meant that employers were going to have to get the workers to face as quickly as possible. It was in 1933 when the first battery locomotive started working underground at a U.K. colliery. Although acceptable for manriding purposes, for which it was intended, it was soon clear that it did not have the power

needed to transport coal as had been hoped.

Meanwhile, the Hunslet Engine Co. Ltd was researching heavily into an "exhaust-gas conditioner", an article on which is given in the November, 1937 edition of *Mining Magazine*. The main problems with diesel engines underground were the unpleasantly odorous aldehydes and the inflammability of hot carbon sparks that may emit from a dirty engine. To combat this Hunslet installed a Gardner engine as the prime mover with special arrangements being made to make the head flameproof in accordance with the Mines Department requirements and the whole of the inlet and exhaust equipment was also specially designed.

In the museum this leads on to the third stage of the exhibition which, set up in a garage context, begins by an explanation and presentation of a diesel engine on its own. An exhaust-gas conditioner is also displayed before the locomotives themselves. There are currently four locos on show in the "garage", each one representing a significant change in underground transportation. The first is the Hunslet No. D. 2008, from 1939,

which is the type first used in coal mines, although only for manriding. The second is a Hunslet 3200, from 1945. This model, with a cast iron frame, was the first loco to start pulling coal. It was in 1945 that a white paper on coal mining was presented to parliament by a technical committee under the chairmanship of Mr Charles C. Reid (*Mining Magazine*, April 1945, p.194). The main consideration in the committee's observations and comparisons had been the output per man-shift of saleable coal (OMS). It recognized that intensified coal cutting had come to stay and that this demanded improved methods of loading and conveying, a view that had been expressed by an article in *MM* the year before. The committee declared categorically that "traditional British haulage practices are wasteful of manpower and call for revolutionary changes". It also estimated that the 1939 British OMS underground, which was 1.5 tons, could have been raised to nearly 2 tons if the same tonnage per haulage worker had been maintained in Britain as in Holland. The Reid Report basically signalled the start of a new era in underground haulage and, as a

consequence, in the mining environment.

The Hudswell D635 (1946), which began the necessary trend towards a bigger, more powerful engine is the third locomotive on view, with the fourth being the first double ended model, a Hudswell 733, a type that became increasingly popular, especially towards the end of the 1960s.

In an effort to show the improvements in environment and general standard of working that the museum's organizers believe came about as a direct result of the introduction of locomotives underground, they have erected a modern day haulage level complete with a 100 hp Hunslet loco and two drop bottom cars. In addition, several types of manriding trains are presented, including the lightweight Wickham cars that were phased out after the 1978 Bentley accident in which seven miners were killed and seventeen injured when three carriages of an underground "paddy train" were derailed after the train lost control of its speed. The mock level is realistic and the progressive improvement in working conditions is easily understood.

Finally, there is a section dedicated to the sponsors, without which the exhibition would have not been staged. Out of the £100,000 which the display cost to set up, £80,000 came from sponsors.

Gold rush enters the age of electronics

Gold prospectors are now cashing in on new technology. David Ansley reports.

A prospector trudges across the New Mexico desert, his back bowed under the weight of a gasoline powered vacuum cleaner. With the nozzle, he sucks up loose dirt and deposits it in a canister in his backpack. Later he will sift through the dust in the laboratory, looking for microscopic traces of gold.

This is one image of modern gold prospecting, an enterprise in which microscopes, lasers and satellites are replacing the traditional pick and pan.

A high demand for gold, and the invention of extraction methods that can profitably pull just two grams of gold from a ton of crushed rock, mean the search for gold deposits has accelerated.

Science and technology are aiding the search. Geologists are seeking a better understanding of gold deposits, and a growing number of prospectors are using advanced sensors and computers to help find them. "The new gold rush is for real," said Ed Spooner, a University of Toronto geologist who studies the origins of gold deposits.

The easy pickings — nuggets

scattered along river beds — were taken in the gold rushes of the past century. Although a few miners have returned to the gold country in search of such treasure, mining companies now concentrate on gold which the 'Forty Niners', the people who rushed to California in the 1840s to mine gold, could not see.

This investment is worthwhile, Spooner says, because gold prices have remained high for a decade. By spraying the ore with gold dissolving cyanide, processors can gather the metal for less than \$2000 an ounce and sell it for twice that price.

Geologists, working for the companies and for the US Geological Survey (USGS) have also gone back to gold. Their task is to calculate where the mineral should be, so prospectors can explore with confidence. This is not easy. For each of the world's major gold deposits, "there is significant lack of agreement on why the gold is where it is", Spooner says.

Deposits scattered around the world are of five types, each the result of a different ancient

geologic process, and the gold is pushed to the surface in different ways. If geologists knew these processes better, they could say, for instance, whether a gold explorer's chances are improved when old ocean floor or old magma beds lie beneath the surface.

However, their studies have already led to big finds.

In the late 1970s, geologists working for Homestake Mining realised that some quartz and gold veins lay along the site of hot springs that were active millions of years ago, according to Bill Bagby, a former Homestake geologist who now works for the USGS.

The geologists know that mercury deposits form in hot springs, so they went looking for mercury mines. At one mine in Napa County, where mercury was being removed from long dead geysers, company prospectors found ore grade gold in 1979. It is now the McLaughlin Mine, tapping a deposit estimated to contain three million ounces of gold. "It's called good luck, with some foresight," Bagby said.

"We feel that we have a good

understanding of epithermal gold deposits (hot spring finds)," Bagby said. One way geologists study such veins is microscopically to analyse tiny bubbles of gas and liquid trapped in the quartz crystals in hopes of learning the depth and temperature at which the crystals were formed.

They believe the gold forming process begins when cool rainwater seeps down through rock fractures. If it is heated by nearby magma, the water rises back to the surface to emerge as a hot spring. Somewhere along the way, the water picks up gold, which it deposits near the surface.

But geologists are still arguing about where the gold comes from, the magma or the surrounding rock.

No matter how geologists explain gold deposit formation, they can only point prospectors in a likely direction. To further narrow the search, some mining companies and the USGS have enlisted remote sensing techniques, with airborne and orbiting instruments. These are used to scan broad areas at low cost before investing millions of



Panning for fun. Commercial prospectors are more likely to use satellites in their search for gold.

dollars in exploratory drilling.

Remote sensing methods "are all tools that lead you in steps to the place you're going to drill, a sophisticated version of what a prospector used to do", said Gary Raines, a deputy chief of the USGS mineral resources office in Reston, Virginia.

Remote sensing does not detect gold directly but looks for faint, indirect hints of its existence. Sensors aboard Landsat satellites can detect desert terrain stained red by rust, evidence of corroded pyrite. Geologists know the pyrite is evidence of deposits that may include kaolinite or sulphur which are two of the few elements that combine with gold.

When the terrain is hidden by thick forest or jungle, explorers may resort to airplane mounted, side scan radar, a military technology adapted for civilian use.

The radar waves cut through vegetation to the rock and a computer program assembles the radar echoes into a stark image of the land below. Hill-sides, ridges and rivers can be studied for likely gold bearing structures.

In two or three years, a Canadian company, Barringer Magenta, hopes to perfect a helicopter mounted 'vacuum cleaner' that can sweep low over the woods, collecting plant debris that can be analysed for gold carried up from the soil.

Why M'lady and the miners have iron in their soul . . .

In the shadow of Sellafield . . . the last iron ore mine in Europe



Frontiers of work

Martyn Halsall
Northern Industrial
Correspondent

TIME was when thousands of men laboured below the coastal fringes of Cumbria, blasting and scouring iron ore from the dark red ground. Today there are just eight, "the last of the red men" at the Florence Mine, working on while tourism experts plan a tea-shop in the old pit yard.

Mining began on this site in a field near Egremont in 1917 and, by 1939, 2,000 men were working in separate mines unified into Florence.

In 1980, when the Beckerment-Florence complex closed, more than one million tonnes of proven reserves were abandoned.

But a year later, an unlikely coalition of experienced miners and the titled guardians of the Egremont Estates reopened the upper levels of Florence. Most of the current miners have a stake in the company, alongside the chairman, Dowager Lady Egremont and her husband, also a board member.

The last iron ore mine in Europe produces about 2,000 tons a year, divided almost equally between ore for the iron and steel industry — particularly in Germany — and industries, such as cosmetics, which use it as a colouring agent.

Now Florence has another future, having been identified by the embryonic West Cumbrian tourist industry as one of eight key projects worthy of development.

The new drift being driven 200ft up a one-in-four incline through the rock will be associated with visitors expected in large numbers next spring.

Consultants have estimated that if West Cumbria could increase its tourism by 5 per cent, its income would rise by £1 million a year and 1,000 jobs could be created over the next decade.

Coal and steel have been replaced as the area's main employer by the almost equally dominant British Nuclear Fuels (BNFL) at Sellafield. Overall unemployment remains between 11 and 12 per cent and the rundown of a major construction project at BNFL will see 6,000 redundancies, up to 4,000 of them local, in 1992.

Tourism is seen as one of the vital ingredients for the future of a 50-mile coastal strip, reaching inland to the beginning of the Lake District national park, at most 15 miles away. Hence the plans for a souvenir shop at Florence Mine.

A narrow metal cage stops with a jolt 400 yards from the present workings, 175 feet down. Sections of the mine go down to 2,000 feet, although some four of the 4.5 miles are flooded today. Florence relies on BNFL for its pumping, without which it could prove unviable.

The way to work lies along

a narrow railway, set in sometimes sticky ground and total blackness. Helmet lamps pick out the way.

At the face, two men are operating an auto-loader, shovelling up the earth and ore. One guides the wheezing machine against the tumbled rock; the other manhandles the pipes which drive it with compressed air.

The darkness bobs to the swaying of the lamps and in the scalloped walls of the cavern the earth grows and rumbles.

A coalition of public and private support is backing West Cumbria's drive for tourists, including the county and district councils, BNFL and British Coal Enterprise. The tourism project officer, Joan Ellis — who has come home after a decade with Oxfam — is sponsored for three years by British Telecom.

She is encouraging a relatively new enterprise culture in an area historically dependent on large and heavy industries. She talks with the civil servants and applauds the farmers' wives' bed-and-breakfast initiatives and sells coastal Cumbria for its unspoilt landscapes and hidden history.

Her sheaf of leaflets advertises the Georgian port of Whitehaven — ranked third after London and Bristol in the 1750s — the Cockermouth brewery's real ale trail and plans for redeveloping 100 acres of once derelict dockland at Maryport. Each attraction means restoration, income — and jobs.

Tim Banks, Colin Nichol and Dave Bridge have unearthed further information which clears up uncertainties in there journal article.

MINES IN THE MANOR OF KINNISIDE
T M Banks, C Nichol and D G Bridge

We are indebted to Dave Banks (no relation!) of the W C M R G for directing us to uncatalogued plans, in the Leconfield Estate Records, of Mere beck, Black How and Hazelholme mines. These allow the positions of Mere beck and Hazelholme mines to be located.

Mere beck mine is shown as 18 yards south of the bridge over Mere beck on the Cleator Moor to Ennerdale Road near Hazelholme (formerly known as Low-mere beck). It consisted of a shaft and two short levels. This discovery together with that of a record of heriots (which shows that Hollin Thorn was an alternative name for Liza Brow) makes it clear that the "conveniently located mine at Low-mere beck" referred to by Hutchinson about 1794 is this mine and not, as speculated in the original article, Kinniside. It is however now certain that the Fisher and Steel operations of a similiar date were at Kinniside Mine.

The abandonment plan of Hazleholme mine, drawn by George Dixon and dated January 1875 shows the shaft to be 55 yards south of the road at Hazelholme and 24 yards west of Mere Beck. An engine house is shown to the west of the shaft. The location of the mine is somewhat nearer to Hazelholme than suggested by Tyler in 1984. From the shaft a number of levels are shown; one joins Mere beck mine (referred to as No.1 pit) where pumps at 25 feet are marked (and the 1873 and 1874 Mineral Reports do refer to both winding and pumping engines). Another level links to another old shaft just one yard from the beck and 48 yards south of the road; presumably one of those sunk by the Wyndham Company about 1853 and "washed out by water". (There is another similiar shaft also close to the beck, probably another of those sunk by the Wyndham Company.) Finally two levels were driven south for a few yards, one a continuation of the old Mere beck level. A fourth old shaft is also shown just to the east of the beck, possibly that sunk by the Kinniside Mining Company (presumably the Wilson family) at a cost of £19.10.0 in 1848 in the grounds of Mr John Hutchinson who then owned the Mere Beck Estate. Many local residents remember Hazelholme as a desirable residence whose owners were keen to keep up appearances- perhaps they were responsible for tidying up all surface remains of these mines.

The plans of Black How, drawn by Walker Hartley and Co. of Whitehaven on 13 February 1908 for the Dent Lead Mining Syndicate showed that the crosscut extended 240 feet to the east (about 100 feet past the present collapsed area). It also showed that the quartz had been analysed for gold and up to 16 grains per ton were recorded.

T M Banks
25 November 1989

Coniston Mine reveals more secrets

Despite the popularity of the Levers Water/Grey Crag Level through trip other lines of descent to the Grey Crag Level horizon in the Paddy End workings have tended to receive little attention after their initial exploration. As early as 1980 it was confirmed that the Paddy End Engine Shaft offered an alternative descent from Middle Level via an access hole beneath the Pinnacle Rock, and since then two other connections from Middle Level to Grey Crag Level have been briefly explored and recorded by Pete Fleming in the CAT journals. One of these (which was first descended in September 1983) leads to an isolated section of Grey Crag Level at the NW end of the extensive stope beneath the twin tunnels of Middle Level and is thought to be on the Paddy End Old Vein. The other (first descended in November 1984 and again in November 1987) leads to the collapsed branch of the Puddingstone Level, itself a branch of Grey Crag Level, on South Vein. A more recently explored route from the end of Earthquake Passage in the Top Level extension is also thought to link with the further reaches of Grey Crag Level.

On 30th July 1989 two of us decided to re-explore the NW end of the stope below the twin tunnels and the short section of Grey Crag Level at the bottom. Angela Wilson carried the ropes. After descending the three pitches from Arete Chamber to the wheelbarrow level below Middle Level, about 250 ft in all, a short scramble up half a ladder took us into the adjacent spacious working at a point 80 ft below the twin tunnels and overlooking the deepest section of the stope which plunges in three great steps down to Grey Crag Level. The footwall here is decorated by a magnificent blue/green deposit which sweeps down from above and can be seen from a viewpoint in Middle Level. This deposit reappears in several places below the stack of deads forming the take-off platform for the final abseil, but the running water associated with the secondary mineralisation has caused the edge to break away and we found it necessary to arrange a bolt belay well clear of the loose rocks.

The clean 135 ft descent from this point does not in fact finish at Grey Crag Level but about 15 ft below in the bottom of a choked depression where the water drains away. Does this promise a link with Deep Level about 200 ft below, or, as suggested by Pete Fleming, to a sub-level that is known to exist in this part of the vein about one third of the way down? As we descended through Grey Crag Level the continuation to the SE was seen to be on timbers and eventually blocked by a collapse but was not investigated for fear of disturbing a magnificent "frozen waterfall" of green copper carbonate underneath. In the other direction the floor of the level is solid until it enters a tunnel where a 20 ft long deep sump halts progress. This was crossed by one member of the party using a rope and long timber to gain a continuation of the level where a small stack of lifted rails was found, some with chairs and sleepers, still awaiting the scrap men. The level beyond is blind but the vein still strong. On the return journey the same member disappeared feet first into the sump (much to Angela's surprise) but the day was saved once it was discovered that his Olympus AF-1 had survived the ordeal. A more important discovery had been that this branch of Grey Crag Level extends for as much as 50 yds beyond the collapse.

After returning to Middle Level it was decided that a further (dry) probe should be made, this time into South Vein which is entered from a short cross-cut (this is a different South Vein from the one containing South Shaft). During a previous descent of this stope in November 1987, when we had reached the collapsed branch of the Puddingstone Level, we had suspected that a length of false floor about 90 ft down leading to the bottom of a partly collapsed ladderway might in fact reveal something more interesting

on closer inspection. We duly abseiled down to this point and penduled with some difficulty onto an unstable pile of rubble which had built up on top of the timbers. The far side of this pile dropped steeply towards the wall at the SE end of the narrow stope and here our efforts were rewarded - a level which had been hidden from view continued along the barren section of the vein into unknown ground. But the biggest reward was yet to come. After a mere 10 yds the level ended and we found ourselves peering into a different stope which to our state of euphoria appeared immense. Initial hopes that this might be the "Great Open" stope at the Hospital Level/Grey Crag Level intersection were short-lived as we soon realised that the floor sloped steeply and there were no recognisable features. So where were we? The working rose to a great height at the far end, probably almost to surface above Middle Level, was a good 20 ft wide in places, and descended to an unknown depth out of sight beneath the platform or "Balcony" where we were standing.

A cross-cut had been driven off to the right to a heading at about 50 ft and before we arrived the only footprints in the levels had been those left by the miner's clogs and hobnailed boots. At the far left hand end of the Balcony, which almost spanned the width of the stope, were workings on a second vein. This we identified as the Paddy End Vein, the massive ore bunch apparently having formed where this and South Vein converged. Large notches in the wall here at different heights indicated a heavy timber construction at one time. We thought it quite possible that the miners would have driven at least one sub-level through the Paddy End Vein here above Grey Crag Level, possibly connecting with the Paddy End Engine Shaft, but from our viewpoint it was impossible to tell.

Apart from another brief visit to the same spot two weeks later for a closer inspection with the advantage of a safety rope at the Balcony it was not until 10th September that a serious attempt was made to explore further, this time by a party three, which included Pete Fleming and Mike Mitchell. On this occasion Chris Jones assisted with the gear up to Levers Water. Now, with the aid of Mike's powerful halogen lamp, a chain could be seen hanging above the Paddy End Vein workings at the far end of the Balcony. This is thought to be the bottom of the chain which can be seen on the through trip hanging into a sump in a chamber just below Middle Level. Also high up near the roof of the stope a possible access hole was visible. It would indeed be surprising if there was no direct connection between this stope and the SE end of Middle Level which is at present blocked off. A pitch was soon rigged at the right hand end of the Balcony using the electric drill and a descent made to the loose steeply sloping floor of the stope about 70 ft below. From here, beneath a huge detached flake, a jumble of large blocks and smaller debris led down steeply through the Paddy End Vein workings to a blank wall at the lowest point. Pete Fleming led the descent of this section from a rebelay, stabilising the slope as he progressed and passing beneath a short section of chain ladder which emerged from a working up above. We were convinced that the lowest point of the stope must coincide with a blocked but venting hole in the roof of the Puddingstone Level or Brimfell Cross Course about 15 yds from where it leaves Grey Crag Level and the "Great Open" stope - in other words we were probably within a few feet of an easy walk out but had no means of proving it at the time.

Before leaving the stope Mike decided to investigate the Paddy End Vein workings from the other end of the Balcony and arranged an abseil behind a small section of false floor and stacked deads which he was able to stride onto from the ledge. When about 20 ft down and out of sight an exclamation of suppressed excitement told us that he had discovered a level in the back of an undercut section of the stope. We could only imagine his antics as he made a difficult traverse against the pull of the rope to gain the level, by the sound of it displacing tons of loose rock in the process. Soon all three

of us were exploring the new ground.

This turned out to be a blind level of some 20 yds long which had been driven along the Paddy End Vein in a NW direction. For part of its length the ground had been stoped out and the false floor was breaking away, at one point revealing a narrow sumped-up working of unknown depth. The first thing we did was to fix a safety line. A wooden wheelbarrow was seen resting on a length of staging above and a heavy iron-runged ladder lay in near perfect condition at the far end. The most interesting feature however was an exit in the right hand wall a few yards from the far end of the level. This was completely blocked by boulders, bits of ladder, timbers etc which had fallen from the other side suggesting that the hole opened directly into a stope or shaft, and as we started to clear the blockage it soon became obvious that it gave access to a well vented part of the mine. Could this be the Paddy End Engine Shaft? Eventually, keeping a wary eye on the rubble still poised above, Pete squeezed through and started clearing away a few loose rocks on the far side which rattled down out of sight. Immediately a voice was heard from below which we recognised as Ian Matheson's! He had walked up to Hospital Level after work and by pure chance happened to standing by the Paddy End Engine Shaft at that very moment. So the connection had been made (thankfully not with Ian's head) and a new through route had been discovered.

A week later Pete Fleming, Ian Matheson, Sheila Barker, Phil Merrin, Mark (from Ingleton) and Dave Bridge were standing on the Balcony peering into the big stope. We had descended from Arete Chamber, pulling the ropes through as far as Middle Level, and were keen that at least some of the party should complete the new through trip. Helped by the previous rigging which was still in place we made our way to the newly discovered hole in the side of the Paddy End Engine Shaft and after arranging a suitable bolt belay backed up by a 14 inch stemple Pete volunteered to descend the shaft. He soon began to recognise the surroundings having climbed the same shaft with Eric Holland in his youth (so he says) using an extending aluminium ladder. At a resting point about 15 ft short of Grey Crag Level from which there were two ways down he was very quickly joined by the rest of the party - all secretly hoping to avoid the awkward return trip to Middle Level. The continuation of the shaft above the point at which we had entered (which was offset in a small stope about 80 ft above Grey Crag Level) was stempled and partly built up with deads, but the section through which we abseiled consisted of clean rock with impressive copper colouration and the occasional side working. Three of the party completed the descent avoiding the copper deposits at the bottom of the shaft while the other three prussiked back up to carry out two further projects. One was to try to make contact with the lower party as they stood by the hole in the roof of the Puddingstone Level by dropping rocks to the bottom of the big stope. A muffled shout from below at the first attempt proved beyond doubt that our earlier deductions had been correct, although to open up the hole would be no easy matter due to the size and instability of the material above it. The other project was to inspect the Paddy End Vein below the mouth of the level from which we had just abseiled. This was done by Dave and Ian from a bolt belay and revealed a small water-filled working in a pocket about 30 ft down, just above the chain ladder seen previously from below. But it was Pete Fleming who made the final discovery of the day when his X-ray eyes spotted a well-preserved clog buried beneath the floor of the Balcony. We then ascended to Middle Level, stripping out the ropes as we went and leaving behind eleven anchor points of both the 8mm and 10mm variety for the benefit of future visitors.

Dave Bridge

Mining Heritage

Last month two speeches were quoted on this page in which minerals industry personnel were urged to take action to promote positive attitudes towards mining amongst the general public. Not to be overlooked is the rôle of the industry's heritage in arousing interest.

The increasing number of open air museums and craft centres now being successfully developed in many places bears witness to the growing interest amongst the general public in the methods and machinery used in the past. Industrial trails and guided walks have become a popular activity, demanding features to interpret and means of interpretation.

The summer 1989 issue of the *Bulletin* of the Peak District Mines Historical Society contains, *inter alia*, a short review by Dr Ivor Brown entitled 'Mining and Tourism in Arizona'. This is based on observations he made on a recent tour, looking at the facilities provided for visitors to see mining activities both past and present. In one uninspiring location the information centre was nine miles from the old mine, up a dirt track, but in contrast impressive facilities are provided by Inspiration Consolidated, which offers free mine tours of two hours duration covering both the 275 m deep open pit and the smelter. Visitors travel in their own cars (carrying an identifying marker) following a guide to a look-out point where all the mine's features are explained. They are next shown the smelter and rod mill before finally returning to the museum and gift shop which sells rock specimens, copper products and books.

Australia

On a previous occasion, Dr Brown was the recipient of a Churchill Fellowship and used it to visit Australia to look at mining's industrial heritage there. He gave his views in a paper presented to the Mining History Seminar held at Keele University in November 1988. A pre-visit study of the brochures for Australia was, Dr Brown found, most illuminating. Potential clients were encouraged to 'have a spirit of adventure', or to 'take a mine tour', one company's itinerary including visits to Mount Isa, Ranger Uranium and Mount Newman.

During his own busy tour, Dr Brown noted that the mines themselves, particularly the newer operations, were finding such tours a useful introduction to good public relations. Viewing points with descriptive 'panorama' boards were to be found at many open pits, for example at Savage River and Mt. Percy, where the ordinary passer-by could stop and view without even entering the mine site. The museum in Coolgardie runs a 5-head stamp battery and attracts over 30,000 visitors a year. All the major mining companies and several smaller ones have been very active in supporting local mining museums — a point also noted by *Mining Journal's* Roger Ellis on a recent visit to Western Australia, where he looked at the facilities in Leonora provided by The Gwalia Historical Associa-

tion, two of whose members are Western Mining and Sons of Gwalia N.L.

U.K.

One of the first to recognize the value of keeping old mining machinery intact and *in-situ* was the late J. H. ('Jack') Trounson, a Cornishman who died two years ago. On July 6 this year Lord Falmouth, Lord Lieutenant of Cornwall, unveiled a plaque to Jack in the Levant beam winding engine house, a building dating from 1840 which contains a steam engine currently being restored to working order. The inscription on the plaque reads: 'The winding engine in this house was restored by the Trevithick Society in memory of the life and work of Jack Trounson, its president from 1981-1987. He was the instigator of the engine's preservation in 1935 by the Society's predecessor, the Cornish Engines Preservation Committee'. The plaque was sponsored jointly by the Trevithick Society and the National Trust, which is responsible for the upkeep of the building.

The Cornish landscape is dotted with numerous old engine houses, and there is considerable public interest in them. *Mining Magazine* was recently invited to accompany a tour in which members of the public were taken to a variety of sites where their history was explained. Also, most importantly, members had the opportunity to go underground to see a modern mine in action. (A similar tour is scheduled for September — see Diary). Elsewhere in the country, a number of mining museums have been opened up at former coal mines, leading examples being Caphouse Colliery in Yorkshire and Chatterley Whitfield near Stoke-on-Trent. Caphouse, opened in June 1988, had 57,000 visitors in its first ten months, while Chatterley Whitfield, opened in 1979 as Britain's first underground coal mining museum, expects around 52,000 visitors this year. About 45% of these are children.

Co-operation

As the numbers show, mining museums and heritage centres draw the crowds and it is important that present-day mining companies take an interest in them. Tourists are (or very soon will be!) voters, whose opinions help shape government and thus the fiscal and environmental laws. Interesting as the old-style exhibits are, they could give a false view of what modern industry is like. Mining companies should help provide each museum with exhibits, films or videos to show what modern mining — and restoration — can achieve. Any company which makes contact with the public by providing a focus for interest, recreation or education is also improving its public image. □

INDUSTRIAL NEWS

WALES

At Parys Mountain a larger winder and stronger headgear has been installed at the exploration shaft. A tunnel is being driven towards the ore zones on the 280m level.

SCOTLAND

Ennex's exploration adit at Cononish near Tyndrum has been driven 2200 ft so far.

NORTHERN IRELAND

Although no announcements have been made it is believed that Ennex's application to use explosives at their Curraghinalt prospect has not been supported by the security forces. Mechanical mining at the prospect is unlikely to be commercially viable.

REPUBLIC OF IRELAND

Connary Minerals vat leaching plant, at the old Avoca mine, has been completed. When in production they hope to be "the first commercial gold plant in the world to use a non toxic thiourea technology on mine dump ores".

CLASSIC REPRINTS

P.D.M.H.S are considering reprinting a number of old mining books, viz.
 "The Miners Dictionary" W.Hooson 1747, "The Compleat Miner" T.Houghton 1729,
 "The Derbyshire Miners Glossary" J.Mander 1824, "The Miners Arithmetic" -
 J.Rosewarne 1836 and "Treatise on Derbyshire Mining Customs" T.Tapping 1852.
 Before they proceed they wish to gauge what the market would be, so any one
 interested contact Roy Paulson - 0629-534775.

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ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

INDUSTRIAL ARCHAEOLOGY REVIEW

Please reply to:

The Editors
 Department of History
 The University
 Leicester LE1 7RF
 22 Sep 1989

INDUSTRIAL ARCHAEOLOGY REVIEW: METALLIFEROUS MINING ISSUE

The Autumn 1989 issue of the Review will include the papers delivered at The British Metal Mining Heritage conference on the conservation and interpretation of mining sites held in June 1989, together with additional contributions on the same theme. The contents of the 120 page, fully illustrated, issue are as follows:

Sandy Gerrard	The Medieval and Early Modern Cornish Stamping Mill
Marilyn Palmer and Peter Neaverson	Nineteenth Century Tin and Lead Dressing: A Comparative Study of the Field Evidence
David Cranstone	The Archaeology of Washing Floors: Problems, Potentials and Priorities.
C.C. Short	The William Bruntons and their Buddle
Ivor J. Brown	Mining and Tourism in Southern Australia
Lynn Willies	The Industrial Landscape of Rio Tinto, Huelva, Spain
R.W. Vernon	Conservation of Mining Sites in the Gwydyr Forest Area of the Snowdonia National Park
D.E. Bick	The Beam-Engine House in Wales
R.F. White	Conservation of the Remains of the Lead Industry in the Yorkshire Dales

Rocky Mountain News
Aug 31, 1984, DENVER

Aid urged for radon homes in Lyons

By KEVIN McCULLEN

Rocky Mountain News Boulder Bureau

BOULDER — County officials are seeking a state grant to connect Lyons-area homes with high levels of radon in the well water to a water line.

Health officials earlier this year detected high levels of radon in the wells of seven homes in a subdivision northwest of Lyons. Levels in one well were hundreds of times above the Environmental Protection Agency's recommended safety standards.

Radon, a colorless, odorless gas, is found in soil or rocks that contain uranium.

Radon apparently was picked up as water seeped through rock into some wells in the subdivision, said Tom Douville, director of environmental health for the county.

Some wells showed higher levels than the EPA's recommendation of 40,000 picocuries per liter, while others showed acceptable radon levels.

Officials estimate 40,000 picocuries per liter in water releases four picocuries in the air, which is the EPA's limit for homes. Breathing radon has been linked to lung cancer.

Lyons' city water line runs through the unincorporated area. Tapping into it could eliminate the potential radon problem for some of the homes, Douville said.

Boulder County has no jurisdiction over the area, but county officials have asked the state for a \$198,500 grant to attach 20 homes in the area to the line, Douville said.

Dickey Lee Hullinghorst, with the county, said she's written the director of the state Department of Local Affairs about a grant and is exploring other funding sources.

A random sampling of 146 Boulder County homes in 1987 and 1988 showed elevated levels of radon in some homes, officials said.

"On that basis, Boulder County could say it has more of a problem than other areas of the state, but it's a short-term reading," Douville said. "We don't have enough details for planning purposes."

Boulder County wants to complete a radon survey of the county, similar to the one conducted in Boulder, Douville said.

No problem areas were found in the Boulder city radon survey, which Douville said was done in part to refine techniques for a county-wide survey that depends on state and EPA funding.

The survey would be used as a "risk assessment" chart for home buyers and builders.

MINES OF GRASMERE.
Evening Meet. 21.6.89

These mines are to be found in Greenhead Gill at NY3509, (Greenhead Gill Trial. Grasmere Mine), and at Tongue Gill, NY3410, (Providence Mine and Fairfield Mine).

The best account is to be found in "Wythburn Mine and the Lead Miners of Helvellyn" by Alen McFadzean, page 36, but information may also be found in "Mines of the Lake District Fells" by John Adams, page 139, Postlethwaite's "Mines and Mining", page 127, and "Mining in the Lake Counties" by W.T.Shaw, page 102.

Providence Mine and Fairfield Mine. Prior to 1709 good quality iron ore was supplied to the Langdale Furnace (Hacket Forge?) from Tongue Gill and Red Tarn. At the same time haematite from Ore Gap (Ewer Gap), which lies between Bow Fell and Esk Pike at an altitude of 2500 feet, was supplied to the furnace at Langstrath. The site of this furnace can be recognised by the considerable remains of charcoal and slag together with some kidney ore fragments at the junction of Langstrath Beck and Greenup Gill. (273130)

In 1873 the price of iron ore rose from 14s per ton to 32s, and several small mines were opened to take advantage of this, but by 1875 the price had dropped back to 14s 6d. Captain John Muse opened Providence Mine in Tongue Gill in 1873 where there were three levels. The vein of solid haematite was 16 feet wide. A miner was killed in the top level in December 1873. In 1874 300 tons of ore were produced.

Nearby to the east the early 17th C Fairfield Mine was also re-opened in 1873, by John Hall. There were two levels, and 204 tons were produced in 1874. Fresh water issuing from one of the levels once used to supply Grasmere village. Both mines carted their ore to Windermere Station in the 19th C, and both had closed by 1877 because high transportation costs and falling ore prices made them uneconomic.

Greenhead Gill Trial and Grasmere Mine. These Elizabethan lead mines were operated by the Company of Mines Royal from 1564 until they closed in 1573. A packhorse road leads up the side of the Gill to the dressing floor where, in 1569, a waterwheel driving a stamp mill and box buddles was erected. The outlines of the walls remain. There is a trial 30' long at the 600' contour, (346085), a cross cut from the north bank of the Gill at 900', and two shafts and some open works at 1000'. (350087).

Ten members took part on a fine summers evening, and first visited Fairfield Mine where one level was found to be open. This is a cross cut about a hundred yards long ending in a blockage which appears to have run from a stope. Part way along the cross cut a short trial right and left follows a clay vein. Anton found a small rock drill in a hole, and this was left in situ. Next the party visited Providence Mine. A pony track can be traced which zig-zags up the fellside, and a gateway in the stone wall has been filled in since the mine closed. There are several substantial spoil heaps but no sign of an opening. A dig might be worthwhile one day. There was no time to visit the Elizabethan mines.

COCKLEY BECK AND SEATHWAITE MINES. 31.8.89. ML Ian Tyler

Having gained access to Cockley Beck mine site with the farmers permission our party of 8 visited the remains of the Low Adit and Shaft, alas now filled in to the collar. (last three months) This was I assume driven for iron.

The ancient copper workings on the north side of Cockley Beck were visited, a fine example of an old dressing floor and smithy still standing. (These should be " Listed Buildings") The only level open was not entered. It is extremely wet and is collapsed after 10 yards.

The original idea was to traverse over Grey Friar Mountain and so on down to Seathwaite Copper Mines, making a days fellwalk and some 2500 feet of ascent. On suggesting this other ideas were submitted for ways to Seathwaite Mines. Eventually it was agreed to take the cars four miles down the road and to go up the walking path by the side of Seathwaite Tarn. The first part of this walk is steep and boggy under foot, but with the long dry spell and the bracken not yet to its full hight made walking a pleasure in the morning sun.

As we approached Seathwaite Dam it was recalled that during the building the workers went on the rampage and wrecked the local pub, which created much ill feeling.

At about lunchtime we arrived at No. 1 Level. This is situated at the eastern end of the lake and is a stone arched level leading into solid rock which cuts two quartz strings. Don and partner, who had arrived later, joined us whilst lunch was being consumed having come over Grey Friar. Stout Fellows. Two members of the party ventured part of the way in, and returned complaining that the water had gone over the tops of their boots.

Lunch consumed the party now ten in total proceeded along the water race past one small smithy/house up to the main mine office just below No. 2. This level was explored recently by members of C.A.T. From here we proceeded to No. 3 Level. Again this level is very wet and very long, and no takers for the cold swim could be found despite variuos threats and chicken sounds. The level is open, having been dug by myself and D. Blundell many years ago. Anyone undertaking this venture must have dry clothes. The level does not drop in water depth from the entrance to the F.H.

The party returned via the south side of the lake to ensure that no trials had been missed. On returning to the cars Peter Fleming kindly drove back to Cockley Beck with Don.

On returning several of the party decided to make for home, whilst Pete Fleming, Don Borthwick and myself went to explore and find two small levels at Stainton. After a walk of some ½ mile the levels were found. After a quick dig the bottom level was entered. (47 yards to F/head). The othe level was badly run and could be not more than 30 yards long. We returned to the cars and decided to call it a day. 7.00 PM.

DEEP LEVEL BELOW SOUTH SHAFT AT CONISTON
Evening Meet 20.9.89

The mine plans show that South Shaft at Paddy End was originally connected to Deep Level by a short spur, but the bottom of the shaft, some 150 feet below Courtenys Cross Cut, is now full of rock and debris. Twice in the past CAT has dug here but given up after a few feet. In 1988 both CAT and LMQT gained access to Deep Level to the west of the New Engine Shaft, and made their way along the Great Cross Course to find it collapsed somewhere beneath Gaunts Level and Kernal Level. It was felt that the only possible way into the remainder of Deep Level would be via South Shaft, and so LMQT applied their skill and enthusiasm for digging to the task, and early this year, after tunneling downwards for about sixty feet, broke through into the Deep Level Spur. Surprisingly little interest was shown by CAT members, who were perhaps put off by accounts of a low crawl where the water almost reaches the roof, and this report is of our first visit to the site.

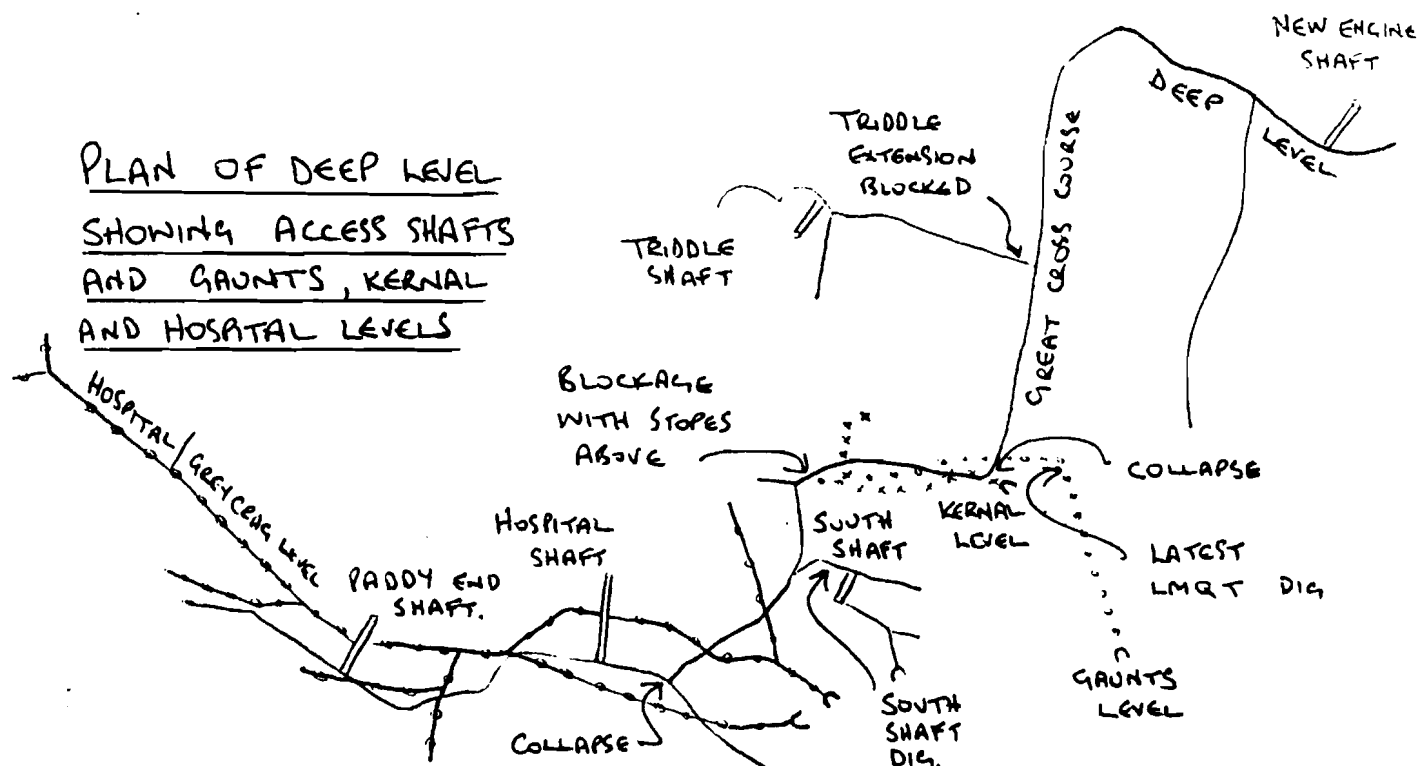
Those present were Ian Matheson (ML), Mark Simpson, Mark Scott, Don Borthwick, Sheila Barker and Guy Jones, although only the first four descended to Deep Level. Peter Fleming, who had to attend a meeting elsewhere that evening, came along much later to the BMSC hut to find out what had transpired.

The dig, which follows the wall of the stope, is an impressive piece of work. The first thirty feet are vertical and close timbered against the rubble. Below this the hanging wall slopes down at about forty five degrees, and one descends a rubble slope at a similar angle for another forty feet. At the bottom is what appears to be a false floor above a blue flooded stope in a small chamber. To the left is a backfilled level which the LMQT diggers originally found to be filled almost to the roof. The fill had backed up the water leaving only a small breathing space, and they had to lie in the water to clear a way through. This part of the spur is about thirty feet long and intersects the main Deep Level Adit. It is now an easy and dry hands and knees crawl, having been cleared from the far end to lower the water level. Deep Level itself at this point is a tunnel cut through solid rock, and is knee deep in water. Tide marks on the walls rather like the growth rings of a tree show dozens of past water levels reaching right up to the roof. These water levels will probably reccur, for all the water draining down from Paddy End through Hospital and Grey Crag Levels flows through here, and nothing has been done to alter the drainage in the main level.

To the left of the junction the level runs south west for ninety five yards to a junction with a short stope running north west, which is blind. Immediately past the junction is a ventilation door typical of Deep Level. There is a similar door beneath the New Engine Shaft and there used to be another between Old Engine Shaft and Bonsor East which was vandalised a few years ago. Fifteen yards beyond the door is a junction with a large stope. Heavy timbers, which have collapsed, were positioned here to support tons of rocks which were dumped from above. This area lies directly beneath Hospital Level and there is a draft which LMQT smoke tested, expecting to find a connection with Hospital Shaft. This proved not to be the case, and Roy Garner believes that the

Returning to the junction with the South Shaft Spur, the main adit was followed northwards for seventy yards where there is another short blind working running west. At this point the main level is stoped upwards, and lies directly beneath and parallel to Gaunts and Kernal Levels. It is narrow and is choked by loose fine rubble which slopes upwards at about forty five degrees to the roof about fifty feet above. Here there is a hole just large enough to wriggle through, and beyond this the rubble slopes back on itself even more steeply. False floors above carry stacked deads which rise some forty feet to the working floor just below the rock roof. LMQT have bolted part way up the side of the stope in an attempt to get over the top and perhaps into the continuation of the level, but this has not been completed. The thought of bringing down some of the deads and blocking the escape hole must be a considerable deterrent, and they are currently attempting to bypass the whole thing by digging through the blockage in Gaunts Level.

Ian Matheson.



LOW WATER POWER HOUSE WORK MEET.
Oct 1st 1989.

This was a very enjoyable meet. The weather was fine, the company good and the project worthwhile. Everyone worked hard and a great deal was accomplished. Those present were Anton and Sheila Chenylle-Proctor-Thomas and Imogen, Paul Timewell, Sheila Barker, Chris Jones and dog, Phil Merrin and Neville, Mike and Barbara Mitchell, Pete Sandbach, and the Meet Leader Ian Matheson with Meg, Alistair, and Clare plus dog. John Helme and Dave Robson arrived later, but made up for lost time by working non stop.

A quarter of a ton of sand and cement was transferred to Chris Jones' Landrover and driven as far as possible along the quarry track. The last bit is now too steep and rocky for a Landrover, so the first load was taken up by a three man wheelbarrow team using hauling ropes. This proved to be too energy intensive, so the remainder was divided into 56lb loads and carried up.

Sheila Chenylle-Proctor-Thomas got all the kids mixing cement, which Ian and Paul applied to the tops of the remaining gable ends, and the rest of the ladies applied themselves to the heavy work of mucking out the smithy. The men, led by Anton, set about the more technical task of recovering an old bogey which lay nearby. This involved setting up a system to winch it up the slope, and once accomplished they set off again to fetch the tub which lay further away, returning much later to report that they had got it more than a third of the distance.

Meanwhile the heavy gang excavating the blacksmiths shop collected a sizeable pile of artefacts, including many of his tools, which lay buried in the debris. These were later removed for safekeeping by the Meet Leader. Whilst making good part of the forge, which had collapsed, John Helme unearthed a home made wire toasting fork. The work was finished by about 4.30, and all had the satisfaction of a job well done.

This completes the project on the Low Water Power House. Next Spring we shall turn our attention to the Moss Head Brake House higher up the mountain. We intend to place the following notice on the site, which Clive Barrow has kindly offered to provide:

LOW WATER POWER HOUSE AND SMITHY

This building houses a Pelton Wheel water turbine which used to provide compressed air and electricity for the now disused slate quarries. The left hand part was the Blacksmiths workshop.

Conservation work has been carried out by the Cumbria Amenity Trust Mining History Society.

Please do not remove or damage anything.



Miners going down a Shaft. After an engraving by Bonhomme.

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