



# Welsh Mines Society

(Member of the National Association of Mining History Organisations)

NEWSLETTER 45

December 2001

## Editorial Thoughts

1. Welcome to 'The Newsletter', it is another bumper edition, and includes several items submitted for the last publication, but which never made it due to time constraints. I haven't however managed to include all material submitted to date, so some will be carried over to the next N/L - if your contribution has not yet appeared, don't worry it hasn't been forgotten! (We appear to have a glut of publications covering mining in Wales and reviews thereof. Several reviews were duplicated, so I apologise for not being able to include all submitted.) As always, many thanks to all contributors for the material received, articles are duly credited as appropriate - please do keep sending them in.

One area I'd appreciate a bit more support for however, is that of reports of the WMS field meets. I feel it's only fair to the organiser and others who contribute, to at least acknowledge the meet, and of course, it's of great interest to those who weren't able to be present. In the absence of reports from others, I've penned the last three myself, but it's hardly a welcome task on top of producing the newsletter - so if you're lucky enough to be able to attend, please do offer a couple of paragraphs. You don't have to have any literary qualification nor a thorough knowledge of the history of the sites visited, observations of what we did and what we saw are quite sufficient. So, at the next meet, give me a shout and tell me you're going to do the field report !!

Now that we're in the midst of the long, dark, Winter evenings, pour yourself a brew (or perhaps something a bit stronger!) and immerse yourself into a bit of Welsh mining...

## Events - Dates for Your Diary

### 2. WMSoc. 2002 Programme

**Winter Meet - Sunday 17<sup>th</sup> March.** Host; **George Hall**, Tel./Fax. (01584) 877 521. George has again offered the use of his home for an informal indoor one day winter meet. He lives at 'Abilene', Sheet Road, Ludlow, Shropshire, SY8 1LR. Arrive at any time from 10:30 a.m. onwards, tea and coffee will be provided. If you want a buffet lunch these will be available, cost ca. **£6-00** (pay on the day) but need to be booked **a week in advance**, otherwise just turn up and bring a few slides - all are welcome!

To get there - Sheet Road goes into Ludlow from the southern of the two roundabouts on the Ludlow by-pass (A49), 'Abilene' is about 200 yards down on the right, the third house beyond the N.F.U. Mutual Office.

**Honorary President: DAVID BICK**, The Pound House, Newent, Gloucester, GL18 1PS.

Secretary/Treasurer: **DAVID ROE**, 20 Lutterburn Street, Ugborough, Ivybridge, Devon, PL21 0NG.

Editor: **MIKE MUNRO**, 64 Bron Awelon, Garden Suburb, Barry, South Glamorgan, CF62 6PS.

WMS Home Page [http://www.mike.munro.cwc.net/mining/wms/wmsoc\\_hp.htm](http://www.mike.munro.cwc.net/mining/wms/wmsoc_hp.htm)

**Summer Meet - Weekend 8<sup>th</sup>-9<sup>th</sup> June.** Leaders; **David Seabourne** Tel. (work) (01341) 424 439 & **George Hall**. Location; **Dolgellau Gold Belt, Merionethshire**. Headquarters; **The Fairbourne Hotel**, Fairbourne, Nr. Dolgellau, LL38 2HQ. Tel. (01341) 250 203. It has 22 twin/double rooms and offers B&B for £25 per head per couple/2 sharing with a £5.00 surcharge for single room use. Adjacent to the hotel is a campsite, also two guesthouses are to be found nearby at Friog on the A493 Dolgellau to Tywyn road, these being Einion House Tel. (01341) 250 644 and Sea View, Tel. (01341) 250 388, the latter property even boasting a small solar heated outdoor pool.

**Saturday - Meet at 11 a.m.** at the bridge in **Bontddu (NGR SH 669 186)** limited parking is available alongside the A496 between the Halfway House pub and the bridge, with overspill parking available in lay-bys situated before and after the village. We will walk to the Vigra mine and packed lunches should be brought. In the afternoon a visit will be made to Clogau/Old Clogau [subject to access] or Cross Foxes Iron Ore Quarry/Mine. Further information will be given in the Spring newsletter.

**Saturday Evening - Dinner at The Fairbourne Hotel** £11.50 per head, **6:30 for 7pm**. Menu details will be provided in the Spring Newsletter - available earlier from the website. If members wish to give a short presentation please contact George who will ensure a slide projector is available.

**Sunday - Meet at 10 a.m.** at forestry lay-by above Tyn y groes Hotel, **Ganllwyd, (NGR SH 716 236)** for a visit to Cefn Coch Mine, packed lunches should be brought. After lunch members can either visit Glasdir Copper Mine or take part in a guided walk courtesy of geologist John Mason, on a new geology trail he has devised in Coed y Brenin.

As per usual, will members who wish to stay at the Fairbourne Hotel make their own bookings direct, mentioning the W.M.S., as soon as convenient.

**NAMHO 2002 - Weekend Conference. "The Application of Water Power in Mining"** Hosted by the **Welsh Mines Society** and held at the University of Wales, Aberystwyth, UK. Friday - Monday, 5<sup>th</sup>-8<sup>th</sup> July 2002. See last N/L, Item 7 and enclosed 'flyer'. The conference papers are to be published as a set of proceedings.

Help is still needed for this event. This is obviously an ideal opportunity for the WMS to pick up new members, so some form of display would be required. Is there anyone out there prepared to pull this together or contribute some suitable material such as photos of previous meets etc. ? If you'd like to support the event, please contact the conference organiser, Peter Cloughton, Tel. (01437) 532 578, E-mail: [P.F.Claughton@exeter.ac.uk](mailto:P.F.Claughton@exeter.ac.uk)

**Autumn Meet - Weekend 21<sup>st</sup>-22<sup>nd</sup> September.** Organisers; **'Mole'** (aka John Hine) & **David Bick**. Location; **Forest of Dean**. Full details in the next Newsletter, but for now....

### A Freeminers Slogan :

Gold for my lady,  
Silver for the maid,  
Copper for the coppersmith,  
Who is cunning at his trade;  
But said the miner picking up a fall,  
A big churn of iron ore,  
Is better than them all.

**Other Societies & Organisations**

If you're aware of events or trips which other organisations are holding or making to/intro Welsh mines, please let me know and I'll include them in the next Newsletter.

**Important Announcements****3. Obituary.**

It is with much sadness that I report the death (25/7/01) of George Barnett, formerly of B.P., later principal of the Lea Cross Geophysical Co., of Hanwood, near Shrewsbury, at the age of 92, while still working. Members will remember the talk he gave us on the early days in the Iranian oil fields, at Machynlleth on the Autumn 1997 meet, reckoning it as one of the best we've had.

*G.W.Hall*

**4. Welsh Mines Society sweatshirts** - John Alder asks; 'If enough people are interested in obtaining a WMS sweatshirt, (Gold WMS logo on blue sweatshirt) I will order a re-run. Anticipated cost is £16.00 each, inc. p&p.' Please let Daveleen Alder know your requirements, (i.e. number and size), at 43 Rowlands Crescent, Solihull, West Midlands, B91 2JE, or Tel. (0121) 711 1049, or by e-mail [aggie@custom-uk.net](mailto:aggie@custom-uk.net)

(Note: This is not to be confused with the possible special edition for NAHMO 2002)

**5. Missing Caplamp** - At the WMS September 2001 meet, some members went underground at Parys Mountain and (may) have borrowed an Oldham caplamp from the Parys (Mountain) Underground Group. Alan Kelly, access officer for PUG wonders if you still have it (it should have 'PUG' marked on it !) as they have lost a lamp.

Alan can be contacted on Tel. (01407) 711 094 or by e-mail [alan@innovate.clara.net](mailto:alan@innovate.clara.net)

**New Members**

**6. The Welsh Mines Society** says 'a croeso' (hello and welcome) to the following new members:

Michael Lees	Isfryn Talwrn, Llangefni, Ynys Mon, LL77 7TD. E-mail: <a href="mailto:pintaguinness@hotmail.com">pintaguinness@hotmail.com</a>
Richard Fletcher	20 Deganwy Road, Conwy, North Wales, LL31 9DG. E-mail: <a href="mailto:rjfletcher@talk21.com">rjfletcher@talk21.com</a>
Pam Cope	Hendre Coed Uchaf, Llanaber, Barmouth, LL42 1AJ. E-mail: <a href="mailto:pcope@btinternet.com">pcope@btinternet.com</a>

**Field Reports**

**7. WMS Summer Field Meet** - Weekend 9<sup>th</sup>-10<sup>th</sup> June 2001. George Hall organised a most enjoyable weekend for the Society in the Lake District, and despite limitations due to Foot and Mouth, Ian Tyler (Mines Of Lakeland Exploration Society), arranged for an underground trip to a working mine and a most instructive yomp up and around the surface workings for slate on Honister Crag.

Twenty WMS members initially congregated at the Threlkeld Quarrying and Mining Museum, and from there we headed off to Florence Heamatite Mine, near Egremont, for a very educative tour by Gilbert Findlayson, owner/manager of the mine. We were first shown

a model indicating the location of the ore deposits and geology of the locality. This was in the museum situated on the mine site and is run by members of West Cumbria Mines Research Group. Heading outside, we took a look at the shaft winder. This is currently out of commission, the operational costs outweigh its benefits given that the tonnage out of the mine is a small fraction of what it once was. Originally the mine produced iron ore which was used directly in steelmaking, and yearly output was in the tens of thousands of tonnes. Due to changes in steelmaking processes and the demise of the foundry business in the UK, who were large users of hematite for annealing of castings, the market now being focused on is 'colour' i.e. dyes and staining. The actual tonnage of ore needed to satisfy this market is relatively small, compared to previous outputs from the mine, but does require the ore to be ground down to a few microns in size by ball mills before being of use to customers.

We entered the mine by an inclined drift, driven in the 1980's, and now the main access into the mine. Geological features were explained as we descended the drift and made our way along the main haulage level towards the area currently being worked. Here we were shown underground machinery such as Eimco and Atlas Copco loading shovels (the former being rail mounted, the latter being rubber tyred.), 'slushing' winches and the obligatory rock drill. Some fine examples of 'Kidney Ore' were pointed out near the working face, which had been drilled, but was awaiting charges and firing.

We then descended further to reach the water level in the mine, some 8 ft below sea level, and 180 ft below the surface. The cost of electricity to run the pumps which maintain the water at this level is £67,000 per year, without the pumps, the mine would flood to surface.

A return to daylight, up the drift (which now appeared to be somewhat steeper than it was when we descended it !), and a change out of our gear which in many cases was nicely stained with dense red mud and ochre ! If you visit this mine, don't forget to take some old clothes - red ochre is a fine challenge for the best of washing powders !

Thanks go to Mr Findlayson for a most enjoyable and informative tour.

Our evening meal, at Bernard Moore's Middle Ruddings Hotel, Braithwaite, was nicely rounded off by a series of slides presented by Ian Tyler, who provided an armchair tour of some of the surface and underground mining remains in and around Cumbria.

On the Sunday, we again started at the Threlkeld Quarrying and Mining Museum, where we were able to peruse the mining artefacts or wander around the extensive collection of narrow gauge locos (diesel) and quarrying machinery - much of it restored to working order.

Thankfully, access restrictions due to F&M had been lifted sufficiently to allow access to the fells around Honister Slate Mine, we then made our way to the carpark at Honister Hause, the location of the workshops of Honister Slate Mine. Slate is still being extracted from the underground workings at Honister by Mark Weir and his small workforce, who produce roofing slates, fire hearths plus many other traditional slate items.

From The Hause, Ian Tyler led us up along the edge of the fell, past the remains of the Kimberley Incline winding drum, and up to Bull Gill quarry and its bothy and riving sheds. Lunch was taken here, with spectacular views down the pass and across it to Yewcraggs Quarry. The location of the entrance to Margaret's Level was noted - driven when Bernard Moore ran the Mines, it's now used as a 'second way out' of the working mine.

Features such as the slidders track were pointed out and explained. In the 1800's dressed slates (up to a quarter of a ton at a time) from the quarries were loaded onto sleds or 'hurdles'. Then, under the 'control' of skilled operators who ran in front while clutching the

two handles of the sled, the load was then literally 'sledged' down the frighteningly steep scree slopes to the pass way below. Once at the bottom the slates were loaded on to carts, and the sledder would then carry his sled back to the quarry for another load, using the paved track. This journey would be made several times a day !

We continued up the fellside to the open workings of Ashgill Quarry more or less to the summit of Fleetwood Pike. From here we progressed in a southerly direction to Dubs Quarry, where the remains, including the roofed bothy, were interpreted by our guide.

After a gentle climb up to the remains of the drum house at the head of the Dubs Incline, we made the final descent down the disused trackbed to return to The Hause and our vehicles. The weather had been kind to us, with bright and sunny conditions allowing many a descent photograph to be taken by the group.

Our thanks go to George and Ian Tyler for organising a great weekend despite the restrictions imposed by the measures to control the F&M outbreak.

*Mike Munro*

**8. WMS Autumn Field Meet** - Weekend 8<sup>th</sup>-9<sup>th</sup> September 2001. Our thanks go to George Hall for organising a most splendid weekend in the northern most part of Wales, namely Anglesey and Llandudno. Professional support was generously supplied by the following local groups, all very active in exploration and research of their locale, Amlwch Industrial Heritage Trust, Parys Underground Group & Great Orme Exploration Society. Thanks in particular must go to Dr. David Jenkins and Bryan Hope of AIHT and Stephen Lea of GOES.

A full report of this meet (well, those aspects I was party to !) will be in the next Newsletter.

**9. Overground, Underground In France**, May 12<sup>th</sup> - 13<sup>th</sup>, 2001

Hard hat, lamp and battery pack and passport. It's one o'clock on the morning of May 12<sup>th</sup>, and I'm off down the motorways to join up with 37 other members of Subterranea Britannica, for a two day poke around-under France, well not all of it ! Just around Arras and Pitardy in general.

We board our coach and head off via. Le Shuttle from Ashford Station, so onto gain daylight 35 minutes later in France.

First stop is the Atlantic Wall (Blockhouse) Museum, just west of Calais. This 'Atlantikwall' was built between 1941 and 1944 by the forces of German occupation. The wall extends from France through Belgium and the Netherlands to Germany and Denmark. There are more than 10,000 bunkers along the length. This blockhouse originally held four 380mm guns, firing shells about a tonne each. Manned by 21 soldiers, with their duty being to shell any shipping in the channel, and stop any allied landings. Well worth a visit, with a splendid little bar, just around the corner.

Siracourt VI storage bunker was our next port of call. Siracourt is 2.5km from St.Pol, about 450 feet above sea level, and it was from here that the V1 flying bomb or doodlebug, were fired. Bombing raids by the U.K. and U.S.A. forces dropped 2,650 tons of bombs on Siracourt, destroying the village and bunker. Just to make sure all had been destroyed, in the final raid in June 1944, 6 ton 'Tallboy' bombs were used. The top part is accessible, with the interior being muddy. Crawling through a section of the interior, I came face to face with one of the largest cows I have ever seen, and decided that a tactful retreat was called for ! It was an interesting perfume that percolated the coach as we made our way to the Ronville Tunnel at Arras - a gentle mix of Siracourt mud and cowpat.

On arrival at Arras, we were met by the City Archaeologist, Alain Jacques, who was to be our guide through part of the twelve mile complex of tunnels beneath Arras. The Ronville tunnels were dug by soldiers from New Zealand between 1916 and 1917, joining up existing underground chalk quarries, with the intention of tunnelling beneath the German lines.

We visited the kitchens, hospitals and water plants, all fed by a complex system of electric wires, supported from the chalk walls and ceilings, by green coloured glass insulators, all in good condition. Boots, belts, soldiers' identity tags, and coins can still be seen. One section of tunnel, we were later told ran for about 3 miles, still showed evidence of a two foot gauge railway system ! Some three hours later we returned to the surface, thanked our guide, Mr. Jacques, climbed once more onto our curiously perfumed coach, showering our driver, this time in chalk dust, and made our way to the Hotel Ibis in Arras, for a seven course dinner, and kip.

Sunday, 9 o'clock, and we were off to meet the Mayor of Bouzincourt, who held both the entrance key, and permit, to enter the Picardy 'Muches'. Around Picardy, scores of villages are mirrored underground by subterranean 'Villages', which included houses, stables, stores and streets.

Under the leadership of Frederick Willmann, and a wave from Mr. Mayor, our party entered the village church, and via a bit of a tight squeeze behind the crypt, entered the labyrinth beneath the village. The muches were constructed in the 16<sup>th</sup> and 17<sup>th</sup> centuries as refuges during the French Spanish Wars. Some were undoubtedly developed from earlier mediaeval quarries. Most sites are located under or very close to Churches, and I would guess that the Church Tower played an important part as a lookout during times of conflict. Should the enemy gain access, the twisting passages and low ceilings, would put them at a disadvantage against those who knew the layout. Smoke from underground fires was led into surface buildings so as to reappear through a normal farm chimney ! Due to their proximity to the front line, in World War One, many were used for shelter.

With our thanks to the Mayor, and Mr. Frederick, it was off to Naours Bolves, a public site, some 35 miles south of Arras. Naours is the largest underground village in Picardy open to the public.

It dates from the Roman times, if not the Stone Age, and is well worth a visit. There are three large interconnecting rooms, laid out as a Chapel, and sizeable spaces at the crossing points of the underground streets. Doorframes can still be seen at some of the underground rooms. As at Bouzincourt, smoke from fires from the refuges, was carefully routed through surface cottages.

The caves were occupied at times by sheltering troops in World War One, with the German High Command making use of the tunnels as their H.Q. A good restaurant can be found on site, and a bouncing castle, for those who must !

One last call before Le Shuttle, and that was to a V1 doodlebug 'Ski' launch site at Vacquerie Le Bouch. The launch was effected by steam, produced by mixing Hydrogen Peroxide with Potassium Permanganate, not all launches went off as planned ! Over 8000 V1 rockets were launched, but many were to be shot down by fighter patrols and anti-aircraft batteries. Crawling again through what was left of one of the Ski storage areas, I again came face to face with yet another enormous French bullock, and as before, made a hasty retreat to the charabanc !

A return visit to Arras is a must, as is to other Picardy 'Muches'.

*Robert W. Barnes*

## News & Developments

**10. Abergynolwyn Again** (and again !) - I spent many happy weekends dossing in the bunkhouse between trips underground, about thirty years ago, and was horrified when I visited the site the year before last to see the extent and density of the trees that had been planted there. I was completely lost and all memory of what had been there was totally useless so I got back into my car and went home. An old friend of mine swore that he had worked there in the late 1940s, or early '50s, and I had always presumed that the bunkhouse dated from this period. Have I been spun a yarn ?

With regard to what has been done at Blaen Cwmsymlog, (see Item 15) the same could be done at Bryneglwys but I am afraid that the additional costs involved will knock clear-felling into touch.

*Simon J.S. Hughes*

**11. Miniature Railway at Llywernog** - Peter Lloyd Harvey, of the Llywernog Silver-Lead Mining Museum, is in search of track and rolling stock for a proposed passenger-carrying 10¼in gauge line. *Narrow Gauge News, No.245, p. 24*

**12. '£1m for repair of historic buildings announced'** Some of the buildings which are likely to benefit are those of the former Navigation Colliery, Crumlin. 'The colliery was built between 1907 & 1911 and was a show pit of the period with high-quality buildings and state-of-the-art machinery. It was one of the earliest collieries in South Wales to be built in brick rather than local stone, with brick dressings.' *Western Mail, 23/10/01*

*Submitted by Brian Evans.*

**13. Environment Agency in Wales: priority list of 50 metal mines requiring remedial work to reduce water pollution.**

In late September Christopher Williams, in his role as secretary of the Welsh Mines Preservation Trust (WMPT), was sent a list of 50 metal mines in Wales which the Environment agency had selected for priority remedial work. For each mine there was a questionnaire to be completed with a view to identifying sensitive sites. Only one of the three groups of questions was related to mining history and archaeological interests - 'Are there any special architectural or historical structures on the site ?' and, if the answer was Yes, 'Is the structure scheduled ?'.

Two problems are immediately evident:

1) A lack of communications when, over three weeks into the Environment Agency's consultation exercise, the Welsh Mines Society was contacted indirectly via the WMPT, leaving less than three weeks in which to respond.

2) An evident lack of understanding on the part of the Environment Agency as to the potential for damage to archaeological features on mine sites. There is more to mining archaeology than standing structures. On every one of the sites listed consideration has to be given to surviving earthworks, access to underground features and the potential for subsurface archaeological evidence. Scheduling is, of course, an area concept, related to all significant features not just structures.

In the short time-scale allowed, and the number of mines involved, it was not possible to itemise individual features on each mine. Christopher Williams, David Bick, Rob Vernon, Roger Bird and myself, with help from Harold Morris and Tony King, have provided a brief

assessment of the features on each site and defined a boundary, within which significant features would be found, on a map accompanying each questionnaire. I also sent a covering letter, the text of which is reproduced below along with the list of mines.

Simon Hughes, having been advised of the Agency's action, has submitted personal responses in respect of a number of the Ceredigion mines. The various, county based, archaeological trusts, Cadw and the Royal Commission on Ancient and Historic Monuments in Wales have also responded.

The Environment Agency's consultation exercise is only the beginning. In a short time we are likely to be presented with a list of perhaps ten mines from the priority list which will be targeted for immediate remedial action. If the society is to be effective in limiting the damage it needs detailed information to support calls for restraint on the part of the Environment Agency. You only have to look at mines like Parc, Cwmsymlog, Cwmerfin and Ystradeynon to see the damage that can be caused by ill-advised reclamation and 'landscaping' schemes.

There are members who take an active interest in a number of the mines on the Agency's list, but there are many sites on which we would be pushed to assemble the required information to present a firm case for their protection. Members are happy to visit such sites on field meets, leaving the details to the likes of Bick and Hall who are the mainstays of such events.

Look carefully at the mines on the list. There are some interesting sites which warrant detailed research. If you can help with any of them please do so - providing even the smallest amount of information can be effective.

### Environment Agency Wales - Top 50 Metal Mine Priority List (September 2001).

1	ABBEY CONSOLS	Ceredigion
2	ABERDAUNANT	Powys
3	ALLTYCRIB	Ceredigion
4	BOG	Ceredigion
5	BRONFLOYD	Ceredigion
6	BRYNYRAFR	Ceredigion
7	BWLCHGWYN	Ceredigion
8	CAEGYNON	Ceredigion
9	CASTELL	Ceredigion
10	CWM RHEIDOL	Ceredigion
11	CWMSYMLOG	Ceredigion
12	CWMYSTWYTH	Ceredigion
13	CYSTANOG	Carmarthenshire
14	DAREN	Ceredigion
15	DOLAUCOTHI (OGOFAU)	Carmarthenshire
16	DYFNGWM	Powys
17	DYLIFE	Powys
18	ESGAIRFFRAITH	Ceredigion
19	ESGAIRLLE	Ceredigion
20	ESGAIRMWYN OLD	Ceredigion
21	FRONGOCH	Ceredigion

22	GEIRIONYDD MINE	Conwy
23	GLOGFAWR	Ceredigion
24	GOGINAN	Ceredigion
25	GRAIGGOCH	Ceredigion
26	GROGWYNION	Ceredigion
27	GWYNFYNYDD	Gwynedd
28	HAFAN	Ceredigion
29	HENFWLCH	Ceredigion
30	LEVEL FAWR	Ceredigion
31	LLANFAIR	Ceredigion
32	LLANFYRNACH	Pembrokeshire
33	LLWYNTEIFY	Ceredigion
34	LLYWERNOG	Ceredigion
35	LOGAULAS	Ceredigion
36	MYNYDDGORDDU	Ceredigion
37	NANT MINERA	Wrexham
38	NANTYCREIAU	Ceredigion
39	NANTYMWYN	Carmarthenshire
40	PARC	Conwy
41	PARYS	Anglesey
42	PENRHIW	Ceredigion
43	PENYCEFN (COURT GRANGE)	Ceredigion
44	POWELL'S	Ceredigion
45	RHEIDOL UNITED (GWAITH GOCH & ERWTOMAU)	Ceredigion
46	TEMPLE	Ceredigion
47	TRELOGAN WEST	Flintshire
48	TY'N-Y-FRON	Ceredigion
49	WEMYSS	Ceredigion
50	YSTUMTUEN	Ceredigion

#### The covering letter, a response on behalf of WMS;

In the short time scale allowed, and the number of mines involved, it has not been possible to itemise individual features on each mine. We have provided a brief assessment of the features on each site and defined a boundary, within which significant features will be found, on the accompanying map. A full response will be provided when we are in receipt of detailed information on the perceived causes of pollution on each site and proposals for remedial work. We would, however, make the following general points regarding mining archaeology and the value of metal mines within the historic landscape.

The single question on the questionnaire regarding structures does not do justice to the historic importance of the sites. There is more to mining archaeology than standing structures. On every one of the sites listed consideration has to be given to surviving earthworks, access to underground features and the potential for subsurface archaeological evidence. It should not be forgotten that the material seen as being a principal source of contamination, the tailings heaps, are a part of the archaeological record.

It is essential that mine sites are considered within their landscape context. Of the thirty six historic landscapes included in the first edition of the Register of Outstanding Landscapes of Historic Interest in Wales (Cadw: Welsh Historic Monuments, Cardiff, 1998) eleven have a strong mining element. Mining is a central feature of the Upland Ceredigion Landscape, with mines like Cwmystwyth being cited as essential elements in the landscape. It is important to retain all those contributory features, from tailings heaps to chapels, in a landscape which has an important role in the economic regeneration of an area increasingly reliant on the tourist industry as a source of income.

We need to move away from the narrow view which motivated earlier reclamation and 'landscaping' schemes in Wales. When the mines within the Rheidol catchment were considered in the Clouston report, for Dyfed County Council, on the Cambrian Mountains Metal Mines Project (unpublished final report dated December 1988), the view was largely negative. No account was taken of the landscape value of the mine sites, absolutely no regard was given to the archaeological value of the sites which include workings from at least the 17<sup>th</sup> through to the early part of the 20<sup>th</sup> century, and surviving structures were seen as of no significant value. As a society we would take issue with such a view. All structures on any mine site are significant, they and the earthworks which make up such sites are important features in any interpretation of the history of the area and its part in the wider landscape. Any scheme which seeks to retain only a small number of sites and structures, as examples in a museum setting, is in effect degrading the landscape value of the area.

The Environment Agency should seek to use the minimum amount of remedial work necessary. Detailed consultation and planning is essential to reduce potential damage to both archaeology and landscape whilst addressing concerns over waterborne pollution. To that effect we believe consideration should first be given to the reasons why earlier remedial action on a number of mine sites has evidently failed. Certain sites on the current priority list, e.g. Abbey Consols, Cwmsymlog and Parc, have already been the subject of publicly funded reclamation schemes involving the treatment of tailings but are still seen as the source of pollution.

We look forward to co-operating with the Environment Agency in addressing the problems of waterborne pollution and, at the same time, protecting the archaeology and landscape value of metal mine sites across Wales.

*Peter Cloughton*

**14. NLW and Welsh Mining on the WWW** - Simon J.S. Hughes informs us that; "The National Library of Wales, due to departmental changes has decided that WWW material appertaining to Wales needs to be logged. This will be a momentous task, but of particular benefit to the WMS. When the system is up and running, you will be able to log in to a phenomenal collection of material which is continually updated." But he continues... "Don't try logging on for a year or two."! Simon will post further updates in due course.

#### 15. Blaencwmsymlog - Forestry & Mines

Blaencwmsymlog has been clear felled by the Forestry Commission in recognition of the historic value of the site and it is hoped that the remains will receive some measure of conservation. It is now a scheduled ancient monument and a worthy easterly extension to that area scheduled at Cwmsymlog. Within the recently scheduled area is an escheat enclosure known as Cae Sion y Gof which contains a bothy which was probably the house from where

the murderous blacksmith departed for the Dylife mine in 1719 and was then forfeited to the Crown for his crimes.

The New Shaft wheelpit and drawing house / bob pit look far better for being exposed and it is hoped that the Old Blaencwmsymlog House will become better defined and examined. This building would appear to be one of those built by Charles Evans in the 1580s. There is a lot to see on this site when the undergrowth is removed. I wonder if consent might be forthcoming to reopen Waller's adit ? Closed since the 1880s the position of the portal is quite obvious.

*Simon J.S. Hughes*

David Bick sent in a news cutting from the Cambrian News, p.7, Thurs. 23<sup>rd</sup> August 2001 (as did Brian Evans) which details the clearance work around the mine by Forest Enterprise which involved felling 3.1 hectares of Sitka Spruce. Skylining equipment - which carries whole trees on overhead cables - was used, along with other winching techniques so felled trees can be winched over mine features without touching the ground. It is claimed that the planting of the conifers over fifty years ago has actually preserved the surface features.

David comments "The Forestry Commission did a vast amount of damage here years ago - now they are the heroes !" One wonders how much would still remain if they had taken as much care when they were planting the forests in Wales in the 1950s & 60s.

**16. Nant yr Eira** - This ancient mine has also benefited from the clear felling of the surrounding trees, which has revealed otherwise hidden features such as the barracks building. Clwyd-Powys Archaeological Trust are apparently working with Cadw and the Forestry Commission to enhance access and incorporate the site in a 7km 'Archaeological Trail'.

**17. Cwm Elan Mine** - (See also item 38) While undertaking some research in the Wiltshire R.O. Peter Donovan recently came across a sheet of accounts entitled "Sir Thomas Bonsall, his Account at Cwm Elan Mines...12<sup>th</sup> Nov. 1803 to 16<sup>th</sup> Dec. 1804". Peter has photographed the document and is prepared to loan the prints or negatives to any interested parties. E-mail Peter on [prd@waitrose.com](mailto:prd@waitrose.com) or call him on Tel. (01793) 750 017.

**18. Cwmystwyth on the BBC's 'Countryfile'** - During last June, the BBC approached your Editor via the WMS web site, asking if I knew someone who knew something about the Cwmystwyth Mine. As part of one of the Countryfile programmes, John Craven was to drive the scenic route (in a rather fine Austin Healey 3000) between Presteigne and Aberystwyth, and wanted to stop off at areas of interest en-route such as the mine workings at Cwmystwyth.

Simon J.S. Hughes was duly contacted, which resulted in him gaining a couple of minutes of fame on National TV, as he explained some of the historical features still to be found at Cwmystwyth to John Craven. The programme was shown a few days later on BBC 1, 8<sup>th</sup> July 2001 at 11:30.

**19. Gold Mining - exploration work** - Our Dolgellau correspondent informs us that Stoic Mining & Exploration Co. Ltd. intend to carry out small scale underground exploration on the lower western slopes of Foel Ispri, approximately 1½ miles west of Llanelltyd. It is proposed to create new access to an existing old level (NGR SH 695, 204) to allow further exploration along a quartz vein. It is anticipated that the work will last a couple of months.

**20. More Gold, 'An expensive Twist'** - Jeweller Nigel Blayney faced a legal bill of £300,000 when he was awarded £23,000 in damages by the High Court after Clogau St. David's Gold Mines had infringed the copyright on his 'Lover's Twist' ring, made using Welsh gold.  
*Eric Gray-Thomas - Daily Post, Saturday, 21<sup>st</sup> July 2001*

**21. Storm Damage around Dolgellau** - An article in the *Cambrian News*, 12<sup>th</sup> July 2001, details the extensive damage along the Afon Wen and Mawddach, including the destruction of some of the bridges. Eric Gray-Thomas informs us that the flash flood scoured river banks down to the bed rock, although he still managed to pan a few specks of gold !

**22. Nantymwyn and Carnarvon & Bangor Slate Co Ltd** - Michael Messenger recently noted a couple of Welsh mine references when going through the Royal Cornwall Gazette for 1867. Both were sale advertisements on 21<sup>st</sup> February 1867 for:

i.) New Nantymwyn Mining Extension Co. Ltd., New Nantymwyn, Gulfach, Glan Towy, Carmarthenshire.

ii.) Carnarvon & Bangor Slate Co. Ltd., Talysarn.

**23. Rescue at Cerrig yr Wyn** - A terrier fell about 80 feet down the whim shaft and was rescued by Tom Price of South Darren. *S.J.S.H. - The Cambrian News 13<sup>th</sup> Sept. 2001*

**24. Forgotten Archive** - Long ago, I acquired a quarto volume entitled "13<sup>th</sup>-16<sup>th</sup> Reports of the Commissioners of His Majesty's Woods, Forests, Land Revenues, Works and Buildings". This seemingly dry-as-dust document contained a surprising amount of interesting details of leases etc. of Crown lands for mining and quarrying between 1836 and 1840, mainly in mid-north Wales, and even about coal mining in the Isle of Man.

Jeremy Wilkinson tells me that a full set of reports goes from about 1810 to 1930, and sometimes includes correspondence available in the P.R.O. He is well versed in these records and would be pleased to help, Tel. 01625 524 535.

*David Bick*

**25. 'Slate Inclined'** An update from our roving correspondent visiting N.Wales;

**Llechwedd Slate Quarry** - The tourist operation is vital to the working company as more money is generated from this than slate sales. The Deep Miners Tour was closed during part of July after heavy rain knocked out the electrics. There are 20 men employed on slate production.

**Maenofferen Slate Quarry** - The old Cooke's Level bore visible from around the old Tuxford workings has been shortened through blasting. The gate and the first 25 yards approx. have now gone. There is no working at this quarry at present (source Llechwedd employee), although there appears to have been some work since my last visit in the old 2 and half quarry.

**Rhiwbach Tramway** - Since my last visit the breached bridge section has been infilled and skirting around through the boggy land can now be avoided and trench foot. There still are a number of areas along the tramway that are very wet but it is well worth the visit.

**Dinorwic Slate Quarry** - There has been a 'recent' fall at the quarry and a section of track on the Braich side is now suspended in mid air. I am unsure of the exact level but it is thought to be Bonc Roller.

**Chwarel Fawr** - It appears that part of the retaining wall off the 'new road' has collapsed.

**Cambria Wynne Slate Quarry** - There has been a large fall underground in recent months and much of the area is unsafe according to a local source.

**Dorothea Slate Quarry** - The asbestos removal has been completed on the beam engine house, work is in progress on waterproofing.

*John A. Knight 14.9.2001*

**26. Roman Copper** - Simon J.S. Hughes informs us; "I recently noticed that Lewis Morris, in a letter dated the 18<sup>th</sup> October 1761, gives a wonderful account of his journey to Brecon. At a wife's relation he had to eat out of a cup with a wooden spoon, which he refers to as a stick. On to Lampeter, and then 'To Caio, a small village near the famous Roman work of copper or mercasite, - a very surprising sight.' Letters of the Morris Brothers. Vol. 2. 1909. p.393."

**27. Mining Landscapes in Ceredigion.** A Response to the Ceredigion Unitary Development Plan.

Ceredigion County Council have published the Pre Deposit Version of their Unitary Development Plan included in which are the policies for Historic Landscapes (ENVL 1.10) and Metal Mines (ENVP 3.3). The Unitary Development Plan replaces the old Local Plan (Deposit Version).

Ceredigion appear to have formulated an approach to the protection of the historical landscape which acknowledges the remains of metal mining as significant features within that landscape. In linking mining to landscape they have addressed the adverse comments made by WMS in respect of the old Local Plan. Their proposals for 'the protection and improvement of the quality of the environment' in respect of metal mine sites (ENVP 3.3) place great emphasis on the restrictions to further 'reclamation, capping or works associated with the restoration or the development of derelict metal mines'. In stating their reasons for the policy (ENVP 3.3) they emphasis the landscape, historical and archaeological value of mine sites. They also emphasis the wildlife habitat value of the sites, including their priority for local biodiversity - evidently responding to work carried out by John Warren at the University of Wales, Aberystwyth.

However, after stating that work had already carried out on safety or pollution grounds, the council still includes a proposal 'to carry out a rolling programme of works to reclaim, cap and enhance the remaining derelict metal mine sites'. Such a blanket proposal, without any evident reasons on the grounds of safety or pollution problems, would appear to be at odds with the restrictive nature of the policy as defined in ENVP 3.3.

The following response was therefore made on behalf of the Welsh Mines Society.

#### ENVL 1.10 Historic Landscapes

The society fully supports the policy where 'proposals which adversely affect the historic and cultural landscape will not be permitted'. We are pleased to see that the development plan acknowledges the place of mining remains and settlements in the historic landscape of upland Ceredigion and includes them in the reasons for promoting the above policy.

#### ENVP 3.3 Metal Mines

The society is encouraged by a policy which ensures that 'reclamation, capping and works associated with the restoration or development of derelict metal mines' will only be permitted under strictly defined circumstances. However, the continued emphasis on the reclamation of mine sites potentially undermines the policy (ENVL 1.10) to protect the historic landscape of Ceredigion

The reasons given for the policy (ENVP 3.3) states that 'These activities (metal mining) have left a legacy of old shafts, adits and spoil heaps scattered across the countryside', with

the implication that remedial action is required to rectify this situation. Such features of past mining activity are as much a part of the historic landscape as the structures and other remains which the policy identifies as potentially of archaeological and historical importance. A policy where 'the Council proposes to carry out a rolling programme of works to reclaim, cap and enhance the remaining derelict mine sites' continues to be at odds with the proposal to protect the historic landscape.

We would expect the council to remove its proposal for 'a rolling programme of works' from the development plan. The council should only draw up a proposal for reclamation and capping works in respect of individual sites as and when there is a clear and verifiable case for such works on the grounds of public safety. Clearance of rubbish, e.g. abandoned cars, domestic and farm scrap, from mine sites should be encouraged. The 'enhancement' of mine sites should be limited to the clearance of such unrelated rubbish and the stabilisation of deteriorating historic structures. Restoration work on structures should be carried out by competent groups or contractors to a standard agreed with Cadw and supervised by an experienced body such as the Welsh Mines Preservation Trust.

*Peter Cloughton*

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### Query Corner

(Please reply direct to the correspondent. Any follow-up info will however be gratefully received by your editor to allow a suitable response to be placed in the next newsletter for the benefit of all.)

**28. More (again) on Caron/Bron Mwyn Mine** - George Hall continues the discussion ...

I first went to Bron Mwyn about 1941, at which time the deep adit was open and dry. As I have notes from then headed 'Bron Mwyn or Caron' I must have known both names, though on what grounds I then equated them I can't recollect.

The adit entered as a cross-cut at right-angles to the lode, then curved round to the left, reaching the lode at about the position of the new engine shaft, beyond which were collapsed stopes. I seem either to have got past this block, or in from further west, or down another shaft, as I noted that there was an open level without stopes through to the eastern shaft, but blocked beyond there by a fall.

Just before the new engine shaft a drive went off south-east, and small levels, largely filled with rubble, formed a rectangle on the south-west side of this last, with a rise, apparently not going anywhere, at the east corner.

This puzzling layout was explained several years later when I came across a letter from Charles Kneebone in the M.J. of 1877, p.1188. He wrote, inter alia : "I first brought this mine to attention eight years since... I was enabled with local aid to open good lead in the shallow workings, and to find an old level, intended to cut the lode at a deeper point, but... this level was put a long way round the corner until nearly half way out again they failed to recognise their object. About that time I transferred the mine to the present vendors, made the old men's crooked level straight, by communicating the side to the end, and opened the way into the ore ground..."

The Caron Lead Mining Company (Limited) was formed in the autumn of 1877, with a nominal capital of £20,000 in £2 shares, 'to work minerals upon a farm in the occupation of Mr. Thomas Roberts, of Caron, Cardigan'. I expect this explains the name chosen. They, under the management of John Kitto, at once drained and cleared out the old workings, which

had been sunk to a 22 fm. level below adit at the old engine shaft, made new wheel-pits, erected a large wheel for pumping, drawing, and crushing, and a small wheel, presumably for dressing purposes, put up a dressing plant, and sank the new engine shaft, which ultimately reached a 46 (?) fm. level in February 1882.

The lode was nowhere worth more than one ton of galena per fm., not enough to pay at the best of times, and apparently became poorer still in depth. But in the late 1870s the price of lead was failing, and the last parcel sold (February 1881) only realised £9.3.0 per ton, which would have been very discouraging, and certainly not profitable.

I don't feel that I can agree with Simon (Ref. N/L #43, Item 30, p.21) that the Bron Gwyn, active in the mid-1850s, is Bron Mwyn, partly because reports in the M.J. in the 1870s, e.g. 'so long unnoticed,' suggest to me that the mine had not been worked for many years before the 1870s. There are several other sites in Cardiganshire where there could be a Bron Gwyn mine, e.g. near Cefn Gwyn or Bwlch Gwyn, and there was a Bryn Gwyn active in Flintshire in the 1850s and 60s.

I see I read the date over the adit portal as 1810. Is it definitely 1870 ?

*G.W. Hall.*

[A check during a brief visit, 3/8/01, confirmed that the keystone has **1870 WP** cut into it, albeit in a very rough manner. *M.P.M*]

**29. Lead Mines Hill** - (Ref. N/L #44, Item 20) Simon J.S. Hughes cautions - "Lead Mines Hill is an absolute horror to climb with a 4x4 in all except the driest of weather as there is a tendency to slide over the edge. Creeping downhill in low gear is a better option but I have found trees blown down across the track and it is easier to reverse downhill than it is uphill. It is a very good place to get severely and expensively stuck. If you can get dropped off at Ystumtuen and walk down to Cwm Rheidol to be collected, this is a far safer and easier option."

**30. 'New Wheal Treharne'** - In the last N/L, Item 26, David Bick makes mention of climbing out of this mine, located in South Wales and working Baryte, some years ago I presume. This is a new one to me, although I'd take a guess that it could have been one of the mines (Vale of Towy ?) located a couple of miles to the east of Carmarthen. Hopefully David will clarify the matter for us !

**31. 'Mine Information'**, South Wales Collieries - 'Top tourist attraction, the Rhondda Heritage Park, is appealing for anyone with information on the former Lewis Merthyr, Hafod, Coed Cae, Great Western and Ty Mawr Collieries to contact them. The park is interested in any photos, images or news cuttings of the mines. Contact them on Tel. (01443) 682 306.

*South Wales Echo, 1<sup>st</sup> August 2001.*

**32. John Kitto** - Simon J.S. Hughes wonders if new member David Kitto-Smith, as mentioned in the last N/L, Item 7, is a descendent of mining agent John Kitto of Llanidloes. Perhaps David can enlighten us ?

### **33. Mines around Pontrhydfendigaid.**

George Hall states; 'I read with interest Simon Hughes' contribution on these mines in the October 2000 Newsletter, Item 30, and would like to add a few comments.'

'Cwm Mawr, on the farm of Pen-y-wern-hir. There is a letter in the M.J. of February 10<sup>th</sup>, 1872, which says, inter alia, '...Such a cross-course or flookan of unknown width... passes at the eastern end of West Florida Mine... It will be found to go through or close by the richest

mines in the county, viz.- Penwemhir (anciently called Fairchance), Llwynllwyd and Llwyngwiddil, Esgairmwyn, &c...'

I have drawn our President's attention to this entry, which suggests that Fairchance is Cwm Mawr, and not Llwyn-llwyd, and David is going to give it some thought.

According to my reading of the Lists of Mines, the Mineral Statistics, and the Mining Journal, Cwm Mawr was, in 'modern' times (i.e. post-1845), only really active from 1911 to 1918 (Lease granted in 1911, relinquished in 1919), in the ownership of the St. James' Syndicate in 1911, Cambrian Lead and Zinc Mining Co., 1912 to 1915, and Cambrian Lead and Zinc Mines, 1916 to 1918. I believe these latter names were only re-capitalisations of the original Syndicate.

Bron-berllan, Abbey Consols (active 1856 to 1861), and Florida (active, on and off, from 1870 to ca. 1899, were different names for the same mine. I find Simon's piece confusing in places. At one point he says '...It adjoins the Florida Mine now being worked as Bronmwyn,' which I believe is wrong, but I'm not clear where Simon is quoting others, and which are his own statements. Elsewhere he equates Bron-berllan with Abbey Consols and Florida, which I am sure is correct.

According to the Lists of Mines, Florida/Abbey Consols was worked by the St. James' Syndicate only from 1908 to 1911, after when their attention was concentrated on Cwm Mawr. Production figures appear in the Mineral Statistics in the years 1848 (BB), 1852 (BB), 1856-61 (AC), 1871-73 (F to and including 1905), 1875, 1878-80, 1882, 1886-94, 1896-98, 1905, 1908-09 (AC). The only years when more than 100 tons of dressed galena were produced were 1856 (122), and 1872 (287). From 1871 the production of blende was generally larger than galena.

I went into the deep adit here, and down one of the shafts into a large stope, in the early 1940s, and sketched a plan of the workings at that time.

East of Bron-berllan there are some slight ancient workings, and a level was driven on the farm of Gargoed by the Florida Co. in 1872, and again, by the East Florida Silver-Lead Mng. Co., in 1881.

Of the mines just south of the village I have found several entries for Cardigan South Bog (a Birmingham company, 1857-58, 60) and Bryn Hope (1861, 63, 65) in the M.J. These companies both worked both the Bryn Hope and Bryn Crach setts. There were already fairly extensive, but shallow, workings in existence in 1858, with four water-wheels (one 40-ft.). Both companies worked Phillips's, and other, shafts, east of the Tregaron road, and Bryn Hope, to the west.

An interesting feature here is the wheel-pit, backing into the rising ground near Cnwch, which pumped the shafts in the boggy ground by a long line of flat-rods, requiring nearly 400 pulley-stands.

West Florida (company formed in 1872) covers, as Simon, points out, Taverndy, Tymawr, and Cnwch, and is therefore, I think, synonymous with Bryn Crach, although it apparently included a much smaller area than Cardigan South Bog. I do not think this company ever did any work.

I should say that I don't consider that an entry in Hunt's Lists of Mines can be relied on to mean much, if, indeed, anything at all.

The only entries I have been able to find in the M.J. under Bendigaid are in 1880. They contain no exact location, but do say 'It is nearly 40 years since this mine was first worked, when a small shaft was sunk, from which a large quantity of lead was obtained... A fresh shaft

was commenced some time after to cut the lode at 35 fms. in depth; this was never completed and the mine has been idle many years...'

If this is to be believed, the mine can't be Bron-berllan or Bron Mwyn, and, if it's near Pontrhydfendigaid, unless it's somewhere I've never found, it seems to me it must be Bryn Crach.

It may be of interest to quote from Smyth (1848), Spargo (1870), Liscombe (1872), and Francis (1874), such information as bears on the locations of Bendigaid, Bron Mwyn, Bryn Crach, and Cwm Mawr.

**Bendigaid** - Francis : Sometimes called West Florida. Worked about 30 years since. Four shafts carried down about 10 to 12 fms.

**Bron Mwyn** - Smyth : Worked 40 years ago.

Spargo : Six men now driving an adit.

Not in Liscombe.

Francis : A few years ago a fine lode discovered at surface... An adit driving..

Mines around Pontrhydfendigaid : p. 3.

**Bryn Crach** - Smyth : (Bryn-y-gors) Trials lately made.

Spargo : On top of this vein there is a bog... sunk 10 fms. only...

Liscombe : On north (!) bank of River Teifi. 15 tons of lead extracted from a bog here. A shaft has been sunk 10 fms. only.

Francis : See Bendigaid above.

**Cwm Mawr** - Smyth : An old mine, 35 fms. deep, once very productive.

Spargo : Worked 15 fms. under adit... Abandoned 25 years ago...

Liscombe : On south (!) bank of River Teifi. A long time since an adit driven and a level 15 fms. below...

Francis : An anciently wrought mine, worked for a short time by the present Lisburne Mines Co., who sank it to 15 fms. under adit...

I therefore feel confident with the following identifications:

**Bron-berllan = Abbey Consols = Florida @ SN 744 662**

**Bryn Crach = West Florida = Bendigaid @ SN 7305 6595**

**Bryn Hope @ SN 7250 6595**

Cardigan South Bog (1857-60) and Bryn Hope (1861-65) Cos. worked both **Bryn Crach** and **Bryn Hope**.

I do not know how many New Lisburnes there have been, but one with a brief existence ca. 1857 was a name for Bwlch-rhanos, on the Hafod Estate.

Finally, here's a question for Cardiganshire enthusiasts: Where is West Wheal Lisburne ? Answer in the next Newsletter !

G.W. Hall.

**34. Mystery Share Certificates** - In response to a query by Graham Levins in the last N/L, (Item 21), Andy Bowman says that **Carreg Fawr Slate and Mineral Co. Ltd.** was registered 1.6.1860, with a nominal capital of £25,000. Its registered office was at Skinners Place, Size Lane, London and it was formed to quarry slate at Carreg Fawr in Caernarfonshire. Graham believes that this company could have worked Carreg Quarry at

NGR SH 163 293, north east of Aberdaron on the Llyn Peninsular. Apparently the WMS visited this quarry on a field meet a few years ago !

**35. Iron Mines of Cader Idris / Mystery Mines** - I offer the suggestion that the promotion of the Cader Idris Ironstone & Tramway Company (N/L 43, Item 25) was probably a scam. First, it is well known geologically that the ironstone workings at Cader Idris lay **north** of the spine of the mountain between Llyn y Gadair and Cross Foxes and that no ironstone is present **south** of the spine, presumably in the Llyn Cau to Minffordd area, where the 'open quarry' is mentioned. A possible, and charitable, explanation could be the misidentification of rusty weathered basic volcanic tuff as ironstone. Second, the gradients and probable operating costs on the never-built but proposed tramway from the latter area to Upper Corris, i.e. crossing the Tal-y-llyn valley, are simply mind-boggling. [*Perhaps even more mind boggling is the proposal to extend the nearby Corris Tramway to the above mentioned iron mines at Garthynfawn, near Cross Foxes - see Item 55 Ed.]*

The possible equivalence of this 'venture' with the South Cader Idris site mentioned by David Bick (N/L 43, Item 32) must be doubtful. In the former area there is no reasonable combination of a nearby 'road' (not track or path) in line of sight together with slopes into which southerly-directed drivage could be made - most slopes here face south. The 'dark' rock reported by David is probably slaty as most of the volcanic rocks on Cader Idris south of the spine and across the A 487 to Craig y Llam are acidic and light-coloured. Beyond this I am lost.

David James

Furthermore, (Ref. last N/L, Item 22) David Bick informs me that with help from David Seabourne and Roger Bird, **South Cader Idris** has since been located at NGR SH 728 103 (~¼ mile east of the head of Tal-y-llyn.) It is shown on the 'current' 6" OS (SH71SW) as a slate trial, but the level is now run in. The 1st. Edn. 6" OS (circa 1880s) shows it simply as 'level'.

Simon Hughes points out that **Blaen y Cwm** is a dangerous name to adopt on account of its geographical frequency. [*And it still remains lost ! Ed.]*

**36. Whatever happened to... 'Mining Shares Listing' ?** (An update.)

In response to my query posted in N/L 43, (Item 33), and further to Item 23, last N/L, Robert Protheroe Jones, Curator, of the 'National Museums & Galleries of Wales' has offered to list the extensive collection of Welsh mining shares held by the NMGW Department of Industry. It's possible that this, combined with other sources could be made into a separate publication, which could include images of some of the certificates. Further discussions are therefore needed with involved parties to define the outcome. If you feel you'd like to contribute details of your own collection, please do get in touch with your Editor.

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### Book Reviews & Bibliographical References to Welsh Mines & Mining

#### Available Soon

**37. 'The Elmore Mystery'**, by Peter R. Jenkins. Published by Dragonwheel Books, Sandcott, Rectory Lane, Pulborough, West Sussex, RH20 2AD. s/b, A4, 201pp., c/w 77 illustrations. ISBN 1-870177 50 9 £24.95 post free (in the UK). Peter, a WMS member, has

sent your Editor a promotional 'booklet' for this soon to be released publication which covers the development of the Floatation Process for Mineral Concentration by the Elmore family. The book details, amongst other issues, processing methods used before floatation was developed, some of the trials carried out at Glasdir mine near Dolgellau, and developments at Broken Hill, New South Wales and elsewhere which lead to the modern floatation process. It looks like an excellent read for those interested in this aspect of mining history - my cheque is already in the post !

### Book Reviews

**38. 'Metal Mines of the Elan Estate'**, produced by *The Elan Valley Countryside Rangers*, s/b, 16pp. Available from the Elan Valley Visitor Centre, Rhayader, Powys, LD6 5HP. £1.77 inc. p&p (Cheques payable to 'United Utilities Operational Services Ltd.')

This little publication is a handy field guide to the metal mines located near the Elan Valley reservoirs, namely Nant y Garw, Nantycar North & South, Dalrhiw and Cwm Elan. The notes covering the historical development of each mine draw heavily on G.W.Hall's 'Metal Mines of Southern Wales' but these are accompanied by a description and a plan (courtesy of The Clwyd-Powys Archaeological Trust) detailing the remains at each site. All sites are accessible and the booklet includes notes on how to get to them. For the price, it's great value.

One small gripe is with the cover which is adorned with an old photo of a water wheel at (one presumes) one of the mines, but it doesn't say which one, or when it was taken, perhaps someone can enlighten us ?

M.P.Munro

**39. Slate Quarry Album** by Gordon & Ann Hatherill. Published by RCL Publications, Cambrian Forge, Garndolbenmaen, Gwynedd LL51 9RX. 96pp. with 77 duotone & 85 colour photos plus drawings, diagrams and sketches. ISBN 0-9538763 2 2 softback & 0-9538763 3 0 hardback. £19.99 & £27.99 respectively, plus p&p.

This is superbly produced on high quality paper. The book is concerned mainly with three quarries Maenofferen, Llechwedd and Aberllefenni. The full extent of the quarries are explored. There are chapters on tramways, trackwork of the tramways, inclines, working the tramways, horses and locomotives, wagons and other equipment and the use of electricity etc. Gordon is a trained Railway Engineer and the book has meticulous detail. I have enjoyed the book very much, and it is well worthy of the price tag if you have an interest in slate quarries. There is one wonderful photograph of a squashed rail at Aberllefenni overloaded with slate wagons.

A number of years ago I spent a few hours with Gordon and Ann, at their home, looking through numerous photographs and I have recently spoken to Ann who thinks in due course they may produce a book on the Aberllefenni Quarries. I imparted words of encouragement !

John A. Knight

**40. Underground Wales**, by Martyn Farr. (Gomer Press, h/b, 95 pages £12.95) This sumptuously illustrated book covers caves, mines, slate quarries and underground power stations across Wales. Many of the colour photographs are spectacular - capturing the enormity of Olwyn Goch limestone mine, the stalactites of Ogof Darren Cilau cave and (my favourite) a wonderful photograph of Cwmystwyth's surface features. The author would obviously far rather be exploring a hole rather than writing about it - the prose is sometimes a trifle wooden and the proof reading could have been improved. At one point 5000 gallons

per minute turns into 1400 cubic metres a second at Milwr tunnel - but the enthusiasm for underground marvels shines through. The precise audience to whom this enthusiasm is directed towards is sometimes unclear - some expeditions are little more than underground family strolls while others are at the extreme end of physical exertion and risk. Similarly a fair part of the book is taken up with a beginner's guide to mining history and techniques rather than the mines themselves. But for all that it could prove to be an excellent gift for a young niece or nephew - but be warned, it might lead them to a life long desire for risking life and limb in the subterranean Wales - and there are a lot worse things they could be doing !

David Roe

**41. Mining in Cornwall Volume Four: Hayle to Kerrier and Carrick.** L. J. Bullen (Tempus Publishing Ltd. £10.99). I recently had a violent argument with a Cornish Nationalist which started with me decrying the shabby corrugated iron ruin of South Crofty and ended up with her pronouncement that corrugated iron buildings should be preserved as an essential part of Cornwall's heritage. Having read and immensely enjoyed this book I can understand why - there are over 200 photographs of mining activity in the far South West this book and few do not feature corrugated iron. Each photograph has a very brief description - almost too brief - for example I longed for an explanation of how an apparently aerial photograph of Seleggan smelting works was taken "circa 1900". The scenes are almost all from the 20th Century and show Cornish mines being erected, in operation and being demolished and the book manages to create an intense aura which clothes the present day ruins in the reality of men and machines from an era which is fast fading from our memories. Replace the corrugated iron with stone and the average Welsh mine site leaps into life through these photographs.

David Roe

**42. A time of Tears.** T. J. Witts, h/b, 238pp. (Whitchurch Books Ltd., Cardiff, £20.00) A quality produced book on the historical and social history of the Coal Mines in Llanharan and Brynna, South Wales. Information is provided from archival and personal sources with rare Black and White photos, plans and sketches. There is information and photos of the surface and underground at Meiros Colliery, Llanbad Colliery and Drift, Wern Tarw Colliery & Coalite works, Brynna Wood Drift, Llanharan Colliery and of the Ynsmaerdy Explosion. The author uses personal interviews and photo's to full effect. This is a well written and interesting book that also details the movement of Miners from the Forest of Dean who settled in the Welsh Valleys. This is definitely one to add to the collection.

Mike Moore

**43. Collieries Of South Wales : 1.** John Cornwell, 2001, h/b, 255pp. 275 photos (Landmark Publishing Ltd, £22.50)

My recollections of John Cornwell go back over 40 years, when I first met him down a cave wearing just a pullover and swimming trunks. His reason for wearing this unusual garb was that it saved having to repair his caving clothes after every trip. Since then John has gone on to photographing mines and over the years he has produced a number of books illustrating Welsh coal mines, of which there are now very few left.

John has perfected a rather unusual method of underground photography using existing Coal Board lighting as electronic flash guns and similar devices are banned in coal mines. For close up he uses a mining cap lamp on a time exposure. By "painting" the area with the light from the cap lamp he has produced some remarkable photographs. For larger scenes he

uses the approved Locomotive lamp which has two batteries. With this technique he photographs shafts 1,000 feet deep and long lengths of underground roadway with remarkable clarity. John does not say what sort of camera he uses, but judging by the quality and superb definition of his photographs, I would guess at some like a whole plate [10 x 8 inches] camera.

To demonstrate the importance of a book like this it should be borne in mind that in 1975 there were 47 working collieries, today, there is only one deep pit [Tower] and a few private drift mines. This book presents a historical record of 35 pits which are no longer in existence, from Cynheidre in the west to Tirpentwys in the east. For each colliery there is a brief historical account, date of sinking, and details of ownership - all collieries before nationalisation 1947 were in private ownership. Depth of shaft, owners, number of men, production figures are all given together with large scale OS maps and as mentioned previously, some superb photographs of both men and horses at work underground. How did he get them to stand still for so long ?

There is an exquisite symmetry and balance within the subjects chosen for photography. The magnificent sweep of underground roadways, the neatness and precision of the pitprops, the silhouettes of winding gear, the artistry and attention to detail on the gargantuan machinery. And overlooking the surface scenes, more often than not a row of miners' cottages, again built with that same symmetry and precision. How sad that the expertise and commitment of the miners should only exist today through the printed page.

Tony Oldham

**44. A-Z of Collieries.** Colin Jackson, p/b, spiral bound, A4 66pp. (Published by the author, £11.00) A useful guide which lists over 2,200 Collieries in the UK, their pre-1947 (i.e. before Nationalisation) owners and dates of operation. Includes 13 pages of black and white photographs of Brass Mining Pit Checks or Tallies as a sample for various mining regions. There are also 10 A4 Photostat photos of Collieries from various regions including A/B Winning (2), Alfreton Colliery (2), Bonds main, Brindsley, Halls - Swadlincote, Holmewood, Morton, Parkhouse, Pilsley, Shirland, Southgate - Clowne, Sutton, & Tibshelf nr. Newton. This is not the best produced publication but is a useful source of information.

Mike Moore

**45. Hardrock Gold.** Thank you Tony Oldham, I've been after this book for nearly ten years, written by Tom Morrison who I knew in the early 1970's when he lived in Dolgellau. Tom wrote a good book on Goldmining in Western Meirioneth, an article on Croeso Quarry and two pictorial volumes on mining in Cornwall where he studied at Camborne and worked at South Crofty. Tom never wanted to sit in an office as an engineer and preferred a career as a technically educated miner, shiftboss or captain. A dirty nails man and therefore a man after my own heart. He now has the reputation of being amongst the best mine captains in North America. I can well believe it.

This is not an autobiography as such, they are a wonderful collection of miner's tales told as a third person narrative. It is very rough humour involving some very rough men, and little edited rough language. It is a treasure well worth searching for.

Possibly the saddest tale in the book was of the miner who arrived too late for his cage and tried to slide down the cable. Every couple of pages I was seized by fits of laughter - one incident, which I have experienced myself, involves slowly emptying the tepid contents of your Thermos through the muddy floor grating of the upper deck in a double cage,

particularly if those lads on the lower floor have irritated you during the day. They are as captive as rats in a cage and always suspect the worst. If you have never been in a mine cage (1) never tell anyone that its your first time and (2) always try and get on the top deck !

Another tale relates to two miners walking down the drift to the shaft. They passed three men, one of whom was smoking a cigar whilst dressed only in a pair of socks a miners lamp and a helmet. 200 yards further on his partner turned to him and said "That's Albert" but offered no further explanation or comment !

**46. The Great County Adit** (Cornwall) - J.A. Buckley, p/b, A5, 144pp. (Penhellick Publications, £9.99) I knew that this publication by J.A. Buckley would be well worth reading unless he had radically changed his style since writing "South Crofty". I was not at all disappointed and read it twice in two days. Allen Buckley has the most wonderful knack of being able to cram a chapter's worth of information into every paragraph. His years as a working miner have given him a far better command of the subject than most authors. If you have an interest in adit drainage schemes then I would urge you to obtain a copy. A book such as this cannot be summarised adequately in a single paragraph. After you have read it, you will realise the significance of the Williamses of Scorrier and the great rift that occurred with John Taylor over the proper management and development of mines. It is such a shame that they lost their shirts in Cardiganshire otherwise we would undoubtedly be looking at considerably deeper and interlinked mines.

**47. Llanymawddwy Church** - The history of the ancient Llanymawddwy Church [~3 miles NE of Dinas Mawddwy - Ed.] is set out in an A5 booklet by Alun Hughes, Lolfa £2.00, which considers the many notable clergymen associated with this church and also the fact that prior to 1849, Rector William Edwards held services at Cywarch with the miners. When Lewis Morris visited the church in 1746 he noted an ancient memorial stone with a Latin script, which has since been lost but can now be dated to about the year 500 AD.

*The above three Items, by Simon J.S. Hughes*

### Bibliographical References to Mining in Wales

**48. 'The Chronicles of Pendre Sidings'**, John L.H. Bate, 264pp., casebound. Available from RailRomances, PO Box 85, Chester, CH4 9ZH, £32.00 + £3.75 p&p. This publication is stated to continue the history of the Talylyn Railway, from 1950 (where James Boyds book 'ended') to the present day. *Reviewed in Narrow Gauge News, No. 245, p.21*

**49. Mining Miscellany** - Supplied by Tony Oldham;

**Descent:** The magazine of underground exploration. Aug/Sept 2001 (161)

p. 9 Surveying Bixhead [Stone Mine] Forest of Dean by John Elliott. Photo and survey.

p.28 Big Pit, part of Blaenavon World Heritage Site. [photo]

**Descent:** Oct/Nov 2001 (162)

p.17 Mines on the map. 1657 map in British Library.

p.29 Grosvenor CC N/L (113) Croesor-Rhosydd through-trip. Survey of Rhosemor Mine.

**50. Welsh Mines Preservation Trust** - August 2001 Newsletter, A4, 6pp. Virtually all six pages (inc. two photos) are devoted to the historical development and significance of the 'Glyn Pits' engines & engine houses and the surrounding features. Both engines are still in-situ. The rotative beam engine (of 1845) from the Neath Valley Ironworks being the sole survivor of their work. The other, a vertical winding engine (post 1850) is one of only two

large examples to be found in the UK, and the only one remaining in-situ. The both deserve a visit if you've not yet seen them, and can be found near Pontypool at NGR ST 265 999.

**51. Welsh Mines Society on the 'World Wide Web'** - Since the last Newsletter, the Society's web pages (URL on the front page) have been restructured to improve navigation and incorporate a few new features. One of these is the on-line 'membership details update form' allowing an semi-automated update of your membership details. I've also added a printable 'membership application form' to encourage new membership. Links to other web pages containing information on Welsh Mines & Mining continues to expand with sections on museums and some extensive on-line research resources. At over 130 links there are too many to list here, but a recent addition is a neat website by Dave Linton, covering the Manganese Mines of Merioneth. It contains maps, historical details & recent photographs of the mines presented in a straightforward and concise manner, and can be found at:

<http://www.btinternet.com/~birchlands/Merioneth-Manganese>

I've also discovered that 'Wild Wales' by George Burrows is available in plain text from the Internet. The text can then be easily searched on mines or mining to see what he saw in the 1850's at places like Cwymystwyth and the Rheidol valley. Far quicker than reading through several hundred pages of text. To download this and other texts, go to:

<http://promo.net/pg>

Please do help me to keep the Welsh Mining links and WMS web pages up to date by letting me know if you find a duff link or a web-site which isn't currently listed. If you have some material you'd like to be placed there, perhaps photos of a previous field meet or some archive material you've unearthed, please do send it through to your editor/webmaster.

## 52. Ore genesis in Central Wales

*Principles, problems and progress.*

As a geologist, one is frequently asked (generally underground when dangling from a rope !) to explain how this or that ore came to be where it is. The following notes are intended as a simple introduction to this subject from a personal perspective; the basic work on which they draw is not my own and is fairly widely scattered in the technical literature.

To form an ore it is necessary for a suitably chemically active fluid to dissolve metallic ions present in low concentration in many common minerals in a rock that we may term a source and to precipitate metallic compounds in high concentration in a rock that we may term a host. This precipitation generally results from a reduction in fluid pressure and temperature and a change in its chemistry. To understand the how and when of this process we need to identify the sources of both metals and fluids, as either one or both may be earlier or later than the host rock.

For many years the sources were largely speculative and the timing of ore precipitation was based solely on what may be termed textural evidence, namely crosscutting or enveloping relationships seen either in the field or under a microscope. Thus, in Central Wales, the mineralised lodes are clearly later than the folding of the early Palaeozoic sedimentary host rock and earlier than the Pleistocene glaciation; which is not much help as this is stratigraphically a very large gap ! Likewise the clear field and microscopic evidence for numerous distinctive episodes of ore precipitation cannot estimate either duration or spacing of these events.

Over the past thirty or so years various technologies have advanced to the point that reliable analytical evidence can be obtained from the ore and gangue minerals, which allows vastly improved constraints to be placed on both sources and timing. High precision measurements are now feasible on:-

### a) Fluid inclusions

Irregular growth of a crystal may encapsulate tiny samples of the fluid from which it was precipitated. If later cooling has exsolved a gas phase then reheating to the single phase condition allows an estimation of a minimum temperature of precipitation; moreover, measurement of the freezing point depression allows an estimation of fluid salinity by calibration with model salt systems.

### b) Stable isotopes

Many elements, e.g. hydrogen, oxygen and sulphur, exist as mixtures of isotopes, the relative total abundance of which has not changed over geological time and which have subtly different chemical behaviours which lead to their fractionation. Thus the relative abundance of light and heavy isotopes in a fluid inclusion or mineral precipitate may yield useful insight into the physico-chemical or biological processes that have operated to produce the fluid and whether it originates at depth or from surface water.

### c) Radio-active isotopes

Some elements, e.g. uranium and thorium, exist as mixtures of isotopes, the relative and absolute abundance of which have changed over geological time as they decay into daughter elements (in these two cases different isotopes of lead). As the decay rate is known the absolute, geochronological rather than stratigraphical, age can, in simple cases, be calculated from relative abundances of parent and daughter isotopes. Fortunately, these abundances are not susceptible to later physico-chemical or biological alteration and, in complex cases, afford useful evidence for multiple sources of the lead.

How have these techniques been applied in Central Wales ?

The major advance has been the realisation that the lead isotope evolution has been of simple type and dates two episodes of mineralisation at 390 and ca. 360 - 330 million years ago. These correlate respectively, and most satisfactorily, with the 'early, complex' and 'late, simple' episodes recognised by recent paragenetic studies - the textural technique using microscopy mentioned above. Moreover the isotopic results strongly suggest that the source of the metals lies within the Lower Palaeozoic sediments which include the host rocks of the ore field. The host rocks are now known from correlation with isotopic studies elsewhere to have an age of ca. 445 - 428 million years and they were folded and cleaved ca. 410 - 400 million years ago during a phase of intense tectonic compression. The source of the fluids is still speculative - but see below.

Some fluid inclusion and stable isotopic work is available in Central Wales but is particularly informative for the Shelve ore field, where there is no isotopic dating using lead but where wall rock alteration has been dated using a similar technique, but with potassium-argon isotopes, at 355 million years ago. The Shelve fluids appear to have been highly saline and to have precipitated ores at a temperature of ca. 100 - 200 degrees Celsius. They probably originated from sea water or basinal brine and formed an Upper Palaeozoic hydrothermal circulation system at near hydrostatic pressure and at a time well known to be one of tectonic extension when the lodes of Central Wales would have been reactivated. A correlation with the 'late, simple' mineralisation in Central Wales is appealing and seems

supported by the apparently continuous distribution of barium ores in the two provinces. It is here implicit that a lateral temperature gradient existed at this time between the ore fields and some adjacent Upper Palaeozoic sedimentary basin to drive the hydrothermal system. Unless the 'late, simple' ores are simply local redistributions of the 'early, complex' precipitates, the folded / cleaved Lower Palaeozoic must have retained, or developed on uplift, adequate permeability for a second phase of metal scavenging at this time. This is possible but is favoured at relatively shallow depths.

If this correlation to the Shelve is accepted, the major outstanding problem in Central Wales is the source of the fluid that precipitated the 'early, complex' mineralisation. Two principal possibilities exist (there being no evidence for magmatically sourced fluids). First, the fluid could have been generated / mobilised from within the Lower Palaeozoic host rock; if so it is easy to explain the high pressure that appears to be required by the hydraulic fracturing associated with at least the first phase of lode development, particularly if uplift of fairly tight rock accompanied the tectonic extension that is known to have followed closely on the compression. In this case the fluid can originate only from compaction and dehydration of deeply buried low porosity rock and its volume may be many times smaller than that possible in hydrothermal circulation which effectively taps a fluid source of 'infinite' volume given adequate time - it would thus need to be a relatively efficient solvent, probably of high salinity. Second, a low pressure hydrothermal system might have developed in the time between folding / cleavage of the host rock and the first mineralisation. This is possible within the precision of the dates but time may be short and regional stratigraphy suggests that the fluid would be of low salinity. On this model the development of hydraulic fractures seems difficult. The first possibility is supported by modern work suggesting that more connate water can be retained during deep burial and deformation than previously realised and that release of such water from deep in the deforming pile can post-date (i.e. associated structures cross-cut) cleavage / dehydration structures at more shallow levels according to the timing of heating. It is much to be hoped that new and more focused fluid inclusion and isotope studies will soon either allow choice between these alternatives or the development of new.

*David James, Cwmystwyth*

## Glossary

**Palaeozoic, Pleistocene;** divisions of geological time which may be defined both in relative terms by the succession of rock units (stratigraphically) or in absolute terms (geochronologically) in years. In the latter case the Palaeozoic is approx. 545 - 248 million years old, Pleistocene (the last ice age) has been going since 2 million years ago.

**Isotopes;** varieties of an element with equal numbers of protons but different numbers of neutrons.

**Hydrothermal;** the movement of water caused by variation of temperature, and thus density.

**Tectonic;** the forces by which the Earth adjusts to internal processes, ultimately driven by heat distribution - earthquakes and folds in solid rock are tectonic phenomena.

**Permeability;** the resistance to flow of fluid / gas through a porous solid.

**Magma;** molten rock.

**Hydraulic fracture;** cracking induced by high internal fluid pressure.

**Connate;** present within a rock at deposition.

**Cleavage;** the property of splitting along parallel planes (e.g. slates).

## Selected References

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## Miscellaneous

**53. 'The Coffin Levels of Mid Wales'** - With reference to Simon J.S.Hughes article in the last Newsletter, (Item 44), Robert Protheroe-Jones offers the following:

It is important to clarify that a modified coffin profile continued to be used into the early gunpowder era. Bushell's Level at Cwmerfyn contains shotholes although it is largely handcut. Day Level above Cross Roads, Nant Trefach Level, and the level above Kings Stope, all at Cwmystwyth, were each mined with gunpowder. These levels retain an anachronistic coffin shape although it is generally of a somewhat debased form - probably due to the relative imprecision of blasting compared to hand cutting. Certainly each of them is constricted; some more than others. In addition to the examples above (all referred to by Simon in N/L 44) there may be added Henry's Roman Level, also at Cwmystwyth, which also contains shotholes.

The entrance of this last named level is easily accessible and I therefore cite it an intriguing example of a **very** constricted level whose dimensions leave one wondering why, when gunpowder was available, a more commodious level was not excavated. Yes, gunpowder was more expensive than it would later become but the slow rate of advance in grotesquely tight adits must have substantially offset the saving in powder and the long term inconvenience must have been considerable.

In all the above cases the shotholes are of a somewhat lesser diameter than those usually encountered in nineteenth century workings; a feature that would seem to be a potentially useful diagnostic tool in identifying the potential age of adits. A number of these adits were driven along joints and faults to take advantage of these lines of relative weakness. In plan they tend to be somewhat zig-zag (Bushell's Level at Cwmerfin and the entrance section of Henry's Roman Level at Cwmystwyth being good examples) as they not infrequently alternate between following joints that lie approximately at 90° to each other, or alternate

between being cross measure tunnels and following joints that lie approximately at 90° to the cross cuts. Floors generally slope steeply compared to nineteenth century adits. These too are potential tools to aid dating.

There is indeed a coffin level at Goginan; it is in fact the Brynpica Adit Level. (See BM 35 page 86). It is at a very shallow depth, constricted, entirely hand cut and terminates at a fall (from surface ?) after perhaps 30 metres. Tom Pryce of Cwmsebon found a wooden wheelbarrow wheel at its innermost end in June 1988.

Other early and constricted levels are Sir Hugh Myddleton's Level at Cwmsymlog, notable for its narrowness; the highest but one level at Tyllwyd Mine, and there are a number of sockets and isolated lengths of such level high above Lefel Fawr at Cwmystwyth. I've undoubtedly visited and recorded others but without an exhaustive trawl of my files cannot presently recall further examples. Suffice to say that they are numerous, frequently still accessible, and of significant interest: they certainly deserve study. Elucidating their dates is problematic; however as they span the period in which gunpowder was adopted, they constitute an important category of historical evidence.

The passageway below Carreg Cennen Castle referred to by Simon is a natural cave, apparently unmodified save for the walling up of its outer end. The castle sits on a faulted outlier of Carboniferous limestone.

*Robert Protheroe-Jones*

**54. 'Ore'** - A few more words ... Robert Protheroe-Jones comments; 'Having followed this discussion with interest, I can add the observation that in all the nineteenth century smelters' accounts I have studied, as well as in contemporaneous metallurgical texts, the dressed ore/concentrate that smelters bought is consistently referred to simply as 'ore'.

**55. Port of Garreg** - I recently had reason to refer to Lewis Morris's charts of the coast of Wales, published in September 1748, and had forgotten that he shows the copper mine on the Great Orme as a waypoint. Unfortunately there is no detail.

The prime reason for examining these charts was to see what was left of the Port of Garreg [*near Garreg Farm at NGR SN 697 971 ? - Ed.*] at that date but it would appear to have fallen into disrepair as it is neither shown nor noted. Even in Waller's day, it did not provide a regular berth and the cargoes were frequently unloaded and loaded at Aberdyfi and brought to Garreg by horse via Machynlleth. However, about two and a half miles upstream of Garreg lies Quay Ward (SN 711 995), near Derwenlas, which continued to function as a port for ocean going schooners until 1878, 14 years after the coming of the railway. Its main outbound trade was slate delivered by the horse drawn Corris Tramway and concentrates delivered by wagon from Dylife. The inbound trade is known to have consisted of powder and other mining supplies.

In 1864 it was proposed to extend the Corris Railway by six miles to communicate with the iron mines at Garthynfawn in the Parish of Dolgellau, in which case iron ore would also have been loaded and shipped from this quayside. (See also D.E. Bick, 'The Old Metal Mines of Mid-Wales Pt.V.' p.14.)

*Simon S.J.S. Hughes*

**56. Some Old and New Words** - With reference to Item 47, last N/L, John Hewitt tells me that '**comminuting**' is a term he is familiar with, it is term used in the pottery industry, but he tends to normally say grinding or milling.

### 57. Secretary/Treasurer's Thoughts

I have been giving some thought about the WMS insurance in the light of the NAMHO conference we are organising. We currently have an insurance policy organised for us by BTCV, which is splendid for above ground and run of the mill underground trips, but I would not feel 100% easy about guaranteeing cover for the more adventurous trips. (Please remember that any insurance – car, holiday, household contents – could refuse to pay out in unusual circumstances or where you are considered to have been foolhardy). To minimise the risk I will arrange for WMS to rejoin the BCRA NAMHO insurance scheme for 2002 which is more suited for adventurous trips. Any NAMHO participant who is not covered by their own group's membership and is not a member of the WMS could join the WMS as a temporary member.

The address label has been redesigned so that it can be cut out, and if you desired, encapsulated, so as to provide a WMS membership card for those of you who may wish to possess such a thing.

Some of you may have felt that my treasurer's report at our AGM was overlong. If I may expand on the report further - "We have around £1,100 in the bank and that looks OK to me."

*David Roe*

### 'Tailings'

**Acknowledgements** - Many thanks to all those who have provided me with contributions and feedback for the newsletter. If you don't see your work in this edition, don't worry, it has been held over to the next one. Note that all items are credited to the contributor, unless submitted by your editor.

All contributions welcome - see note below about format. Absolutely any field reports/ notes, or news item from the local paper, T.V., radio or 'heard down the pub' are sought. Without these the Newsletter would cease to exist, so please don't stop sending them in !

*Mike Munro & BronwenDog* 🐾

**Electronic Newsletter** - If you have e-mail then perhaps you'd prefer to receive the newsletter in electronic format (Word for Windows Ver. 6.0 or Word 2000). Not only does this mean you'll receive it a few days sooner but it will also help save the society costs - and David Roe a bit of time too ! If you're interested, please send an e-mail to me at [mike.munro@cwcom.net](mailto:mike.munro@cwcom.net) and .cc David Roe at [david@d-roe.freeseerve.co.uk](mailto:david@d-roe.freeseerve.co.uk)

**WMS Membership** - Annual membership is £4, (or to ease administration - £8 for 2 years). The paid up date is shown on your address label - on the envelope you've just thrown in the bin !! If you are "paid up to DEC 2001" or earlier, then the date will be **highlighted in red**, your subs are now due, and your treasurer, David Roe (address on front page), would be most grateful if you could pay promptly.

'**Copy**' date for the next newsletter, **31<sup>st</sup> March 2002**, publication due April - promise! Articles (preferably typewritten and ideally on 3.5" disk, MS Word 6.0 or Plain Text format) to be sent to Mike Munro, (address on front page) or E-mail as above.

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