Northern Mine Research Society
Newsletter

Society established 1960

www.nmrs.org.uk August 2022 www.nmrs.org.uk

President's report

Covid has a lot to answer for. It has caused 182,000 deaths of people in this country and curtailed our lives for a couple of years and is still around. It also stopped Society activities. Our membership, however, increased in 2020 pushing us over the 400 mark for full members, the highest since 2007. We thought that this may be due people with time on their hands researching their family histories, and expected to see the number fall in later years. This hasn't happened and I can report that as of mid July we have 433 full members – the highest I know of and possibly the highest of all time. This number does not include family members.

In the past we also had a lively programme of outdoor meetings ranging from gentle surface walks to hard underground trips. Unfortunately too, Covid saw the end of these. These events were led by members to places that they knew, but it requires volunteers to come forward and offer to lead one – will you volunteer to lead a meet in 2023? Again unfortunately owing to the untimely death of Mick, our events co-ordinator, we have no one to do this task and it puts more work onto other committee members. Will you volunteer to do this? It's not a hard job – receive offers, compile a list and inform the committee.

We are also looking for a number of committee members:

- Membership Secretary – I have had an enquiry about this from an interested member and will be meeting with him shortly to go through the role.
- Newsletter Editor – Mike is still filling in on this but it is taking his time away from doing important work on the Records and he would like to pass it on as soon as possible.
- Treasurer – Tim has indicated that he wishes to step down from this post, after many years, and would like to hear from any member who would like to take over.
- Other committee members – we have space for up to 3 other committee members who do not have a specific task and are just there to guide us in making decisions. Discussions all take place by email nowadays with a face to face meeting in February each year (well, we did prior to Covid)

Barbara, our publication officer, has asked for help from any member living close to Nelson, with taking publications to the post office. She can handle the day to day packing and sending out of small orders which can be put in a post box, but when it comes to taking 400+ copies of British Mining to the post office twice a year, this is more than she can handle.

If you are interested in helping with any of these jobs, please contact me at either malcolm@nmrs.org.uk or telephone 07923 441523.

Unfortunately, the AGM which we held in April on Zoom was poorly attended. While we had enough members of the committee present, we had fewer than the 6 voting members that were required under item 27 of the constitution. The meeting was declared void, therefore, and the AGM will now take place at the Autumn meeting in October.

Contents

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Please note that the deadline for inclusion in the November Newsletter is the 30th October 2022.

Submissions that will interest members of the NMRS are welcome. They may be forwarded to me by email or as a USB Flash Drive, by post, or by telephone. If you want anything returning please ask.

Photographs, plans and drawings must be reproducable in monochrome. Colour photo's will appear as such in the electronic version.

Membership matters
As we do at this time each year, the committee are discussing the annual membership fee which has stood at its current rate for the past 12 years. It will more than likely need to increase in the near future, but no decision has been reached yet. Members will be informed at the October meeting and via the November newsletter of the rate for next year.

We are trialling a new membership system which will help to reduce the workload of the membership secretary and make it easier to administer your membership. This is an online system, where you can view at any time the personal data that we hold on you, and make changes if necessary. It seamlessly integrates with our PayPal account, but you still have the option of making payment by cheque or bank transfer. We will run this side by side with the current system for the next couple of years. Please don't worry if you don't have internet access, you will still be able to renew and pay by your current method. Further details in the November newsletter.

Website
With having to wear the Membership Secretary's hat for the past year, no additions and few changes have been made to the website. There's a lot to do and any help members can give me will be much appreciated. You don't need to understand technical things to be able to help.

We were provided some time ago with over 200 photographs of Cornish engine houses; photographs of every remaining engine house and a few of ones that have recently been lost. I have resisted just slapping a photo on a page with no explanation, and with many more website matters, it has been put on hold. Would any members like to get involved with this, writing a paragraph or two or more for each photo? If we only get a handful done, then it's a handful more than we have at present. A similar thing can be done for mines & quarries in other parts of the country. There is a load of information on the internet or in some of our British Mining publications.

Would any member like to get involved with the more technical side of the website? I won't be around for ever and it would be good to have a second person to be able to make updates, to add new publications & newsletters. The website is written in WordPress and does not need any programming skills as has been the case in the past, just a logical mind to understand which box to tick.

Autumn Meeting 2022
Please note - This will be held on Saturday 29th October at Slaidburn village hall, as last year, meeting from 11.00am for tea & coffee, lunch at 12.00, with the meeting starting at 1.00pm. Last year lunch, provided by the staff at the village hall, was cottage pie & vegetables followed by fruit crumble & custard, this is free to those attending. If you plan to come this year you must book with me either by via www.nmrs.org.uk/agm or by email, malcolm@nmrs.org.uk or on 07923 441523.

As usual, after the business part of the meeting we will have a number of presentations from members. If you would like to make a presentation, whether it be a talk, something to show us or just some photos on mining and related topics, please get in touch as above. We have a projector, but you would be advised to bring your own laptop, as mine clearly wasn't up to it as it refused to run these modern PowerPoints.

Malcolm Street


Medlyn Moor Mine

The following are new members since the last list in February:

Mr Brian Abbott - STOKE-ON-TRENT
Miss Gill Barnard - SKIPTON
Mrs Julia Berry - CHORLEY
Mr Ian Blythe - BRAMPTON
Mr John Bramley - SHIPLEY
Mr Stephen Callaghan - LEIGH
Mr Richard Dixon - OXFORD
Mr Neil Finlay - BLAYDON
Mr Jonathan Fryer - MACCLESFIELD
Mr Peter Garrod - REDCAR
Mr Peter Gavagan - BOLTON
Ms Patricia Goulding - ST HELENS
Miss Fiona Gray - HORDEN
Mr Neil Hallsworth - DERBY
Mr Tony Hartwell - BANBURY
Mr Paul Harvey - AUSTRALIA
Mr Neil Holladay - WHALEY BRIDGE
Miss Sally Jack - GLASGOW
Mr Aaron Jackson - ROTHERHAM
Mr Fredrik Jonsson - USA
Mr Aidan Kuhlmann - INGLETON
Mr Paul Lawrence - CUBBINGTON
Mr Malcolm Lindop - ASTLEY
Miss Milda Liuolyte - HOVE
Mrs Valerie Lynch - LIVERPOOL
Mr Dave Murphy - WORSLEY
Ms Helga Palmer - REDRUTH
Dr Stewart Redwood - ROTHESAY
Mr Mike Riddell - RUNCORN
Mr Chris Rothwell - CHORLEY
Mr David Skelhorn - ST AUSTELL
Mr John Sutcliffe - BURNSALL
Mr David Travis - SKIPTON
Mr Ian Turnbull - STANLEY
Ms Lynda Welch - SCARBOROUGH
Mr Richard Wilgoss - ARUNDEL
Mr Les Williams - WELLS

Thank You
I'm pleased to thank contributors to the Newsletter for their support during the last year, and to remind readers there's space for them too. If you can expand on something, please do. You don't have to fill pages, short fillers are welcome. If you have knowledge of some esoteric aspect of mining, please enlighten us.

NL Editor

Member's Comment
Following the article in the May 2022 NMRS Newsletter about "*Scotland set for a Graphite rush*" and the mention of the Seathwaite mine, I would like to draw members' attention to Ian Tyler's excellent book "*Seathwaite Wad and the mines of the Borrowdale Valley*". It explains the history and use of Wad, as the natural lump graphite was known in the past. He also describes the mine in great detail.

Mason Scarr

NB Should anyone need them, the archives covering the Bankes family's mines in Borrowdale are kept at the Dorset Record Office, ref. D-BKL/M/A giving 400 plus items.

NMRS Recorder

Library News
Thank you to David Lewis for a 'pre-loved', but mint condition, copy of "Cwm Gwyrfrai: The Quarries of the North Wales Narrow Gauge and the Welsh Highland Railways" by Gwynfor Pierce Jones and Alun John Richards. (Many NMRS members will have copies of Alun Richard's books on their shelves, and be aware of the careful research he undertakes.) A map gives the location of sites and there are grid references with the detailed descriptions. This is an excellent companion for anyone visiting North Wales, even if it is not for the first time.

Because of Covid, there has been a long delay in my visiting Barbara Sutcliffe to pick up library donations from Rex Cooke and from the late Mick Cooke who was a Society committee member and organised excellent meets for us.

Thank you to Rex for copies of "Down to Earth" "UK Journal of Mining and Minerals" and Trevithick Society Journals 44, 45, and 4-6.

We are also grateful to Mick's family for an eclectic mix of books and journals. There are many caving journals, including several copies of "Speleologist", and copies 1 to 11 of the University of Leeds Speleological Association Review. There are single copies of journals from a wide variety of caving clubs (Bradford, Bristol, Exeter University, Grampian, Kendal, London University, Northern Caving, Red Rose, Settle, Wessex, Yorkshire Underground Research): I will not shelve these immediately so that anyone with a particular interest in caving can telephone for details. There are two non-caving journals from Barnsley and District Mining Society in the 1970s. Books include some standard texts such as Dana's System of Mineralogy, Lyell's Principles of Geology and Peele's Mining Engineers' Handbook. A book previously unknown to me is "The Terrible Coming of Iron" by Jim Bailey: it is a fascinating account of stone and metal objects, it deals mainly with Africa (of which the author has extensive personal knowledge) and the Americas and, with the technological details also describes culture and belief with references from Homer and Aristotle onwards.

Archie Meadowcroft has kindly given several books to the society. They include some on mining in the U.S.A., a country he knows well; and a fascinating booklet on flint working in England. Some of Archie's donations are duplicates of books already in the NMRS library, and he has kindly agreed that these may be passed to Barbara for selling. They include many A5 editions of British Mining, and also books on the Lake District and Cornwall.

Sallie Bassham (Honorary Librarian) (015 2424 1851)

Publications News
You should all have received our latest BM by now and we must thank Nigel A. Chapman and Richard Smith for all the research involved in it. If you are out and about this summer and find a bookshop that could be interested in obtaining copies of this and other of our publications please let me know. We offer generous trade discounts.

We always appreciate donations of books for our library and also those specifically for sale. Hopefully in the near future more books will be appearing on our website, but in the meantime here are some recent donations. If any interest you please contact me at mansemins@btopenworld.com or on 01282 614615. Postage will be at cost.

Mines of the Lake District Fells by John Adams.
P/b 1st edition, Dalesman Publishing 1988. 160pp with plans. Very good condition £10

A Wearside Mining Story by John E. McCutcheon
H/b ex library with stamps. Published by the author 1960. Of coal interest. 100pp with some b/w photos. £9

Life in the Yorkshire Coalfield compiled by David Joy.
P/b 1st edition Dalesman Publishing 1989. 64pp with numerous b/w photos with captions. Good condition £3

The Gold Mines of Merioneth by G.W. Hall
P/b 2nd edition Griffin Publications. 100pp with b/w illustrations, photos and plans, a little fading to spine. £12

Gold mining in Western Merioneth by T.A. Morrison
H/b with d/c a little distressed. Published for Merioneth Historical & Record Society 1975. 98pp with b/w plans, photos & large pull out plan. £22

Slate from Blaenau FFestiniog by J.G. Isherwood
P/b A4, AB publishing 48pp with lots of b/w & colour photos with captions, £3

The Forgotten Mines of Sheffield by Ray Battye
P/b spiral bound A4 1st edition 2004 published by ALD Design & print. 122pp with b/w photos & plans. £18

Barbara Sutcliffe

Congratulations to a Member
It's always good to hear of our members' achievements, especially those of younger ones. I'm pleased to report that one of the latter, Lewis Ashworth, has just been awarded a first class honours degree in history and politics. Well done Lewis.

While working on his dissertation, Nelson-based Lewis uncovered the identity of David Hartley King, born in Salterforth in 1907, who fought with the International Brigades against Spanish fascists in the 1930s. King worked as a weaver in the Nelson area between 1919 and 1924. He then joined the Royal Marines and served with them until 1931, gaining valuable military experience which stood him in good stead when he volunteered to fight Franco's fascists and their Nazi

allies in May 1937.

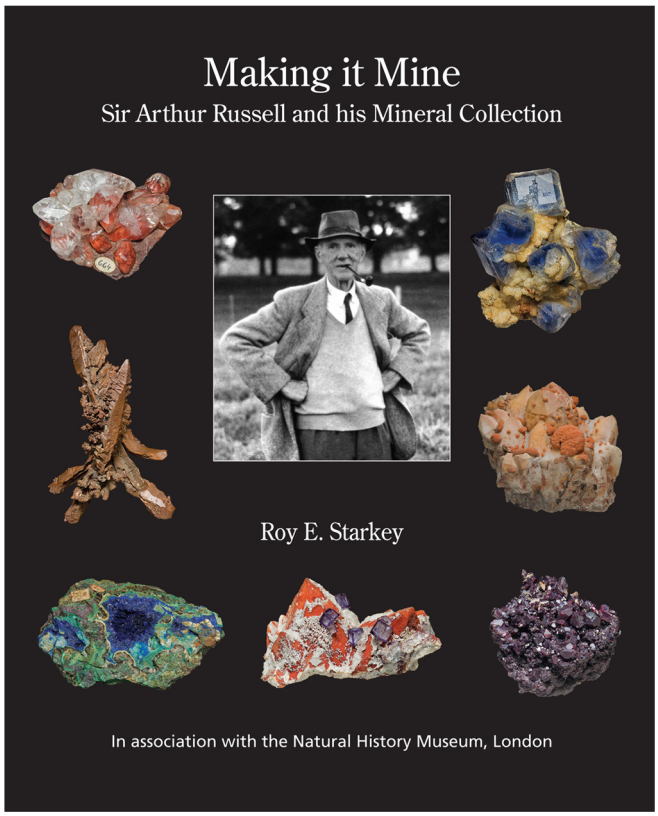
The former Nelson Weavers' Association man had not been considered as a Lancashire volunteer until Lewis's archival research revealed that King had travelled to Spain from Sutton in Surrey, where he was working as a mechanic.

The discovery has been recognised by Burnley's Spanish Civil War memorial committee whose plans are advanced for a permanent memorial to the East Lancashire volunteers and will now need to consider the addition of the new name.

Lewis remarked that "*Researching my local area's involvement in the Spanish Civil War has been fascinating. To uncover the long-forgotten name of someone who fought in the International Brigades and who also originated from my hometown was a proud moment*". He added "*Graduating with a first-class degree and having won the prize for best overall dissertation has really made all the hard work worth it. I'm now hoping to continue my academic studies at UCLan by studying history at a postgraduate research level*."

Let's hope that Lewis takes the opportunity to research some aspect of British Mining.

Mike Gill, Recorder



Making it Mine – Sir Arthur Russell and his Mineral Collection explores the fascinating story of Sir Arthur Russell 6th Baronet as he pursued his quest to build the finest collection of British minerals ever assembled.

Lavishly illustrated with more than 750 photographs and diagrams, including 445 previously unpublished images of specimens from Sir Arthur's collection, the book delves into his family history, the background to his passion for mineralogy and his single-minded determination to secure the very best specimens for his collection. The stories and people behind the specimens are woven into a compelling narrative together with sketches and anecdotes concerning the many colleagues and contacts that assisted him along the way.

Privileged access both to the Sir Arthur Russell Collection of British Minerals, and the Russell Archive, at the Natural History Museum in London, has allowed the author to tell the story in detail. The book will appeal to all those interested in British mineralogy, to mineral collectors and dealers, to historians of mineralogy, museum curators, university researchers and to anyone who is simply interested in the treasures of the natural world. This is neither a coffee table book nor a biography, but rather a blend of the two that takes the reader on an absorbing journey through the last 200 years of mineral collecting.

The book includes many excellent photographs of specimens from mines of interest to NMRS members, including Boltsburn Mine, Burtree Pastures Mine, Cow Green Mine, Fallowfield Mine, Heights Mine, Nentsberry Mine, New Brancepeth Colliery, Rampgill Mine, St Peter's Mine, Stanhope Burn Mine and many others in Cornwall, Devon, Cumberland and Scotland.

432 large format pages (276 × 218 mm); 754 illustrations; 1100 references; comprehensive index. Hardback £40 plus p&p. (ISBN 978-0-9930182-4-4). For further information, or to order a copy, go to www.britishmineralogy.com or email roy@britishmineralogy.com

By Roy Starkey

British Mineralogy Publications, 15 Warwick Avenue, Bromsgrove, Worcestershire. B60 2AH.

A different experience with that great mine safety invention – the flame safety lamp.

Many NMRS readers will know the history of one of the most important developments in improving (underground coal) mine safety - the flame safety lamp. Whether you know them as miner's lamps, flame safety lamps, methane lamps or any other name, they remain one of the most significant innovations in history towards making mining a safer industry. With the Industrial Revolution driving continuing growth in coal production, the resulting explosions, caused by ignition of firedamp (now known as methane), in coal mines led to large scale loss of life across the British Isles and indeed all coal mining areas. Concern finally reached a point where something had to be done. While records from those days are less available and less reliable, the role that methane played (in part) in just five of the world's worst mining disasters of the 20th century alone is estimated to have cost nearly 4,500 lives, and endless sorrow and heartbreak for tens of thousands of family and friends:-

Benxihu	China	1942	1549
Courieres	France	1906	1099
Mitsubishi Hojyo	Japan	1914	687
Laobaidong	China	1960	648
Senghenydd	Wales	1913	439

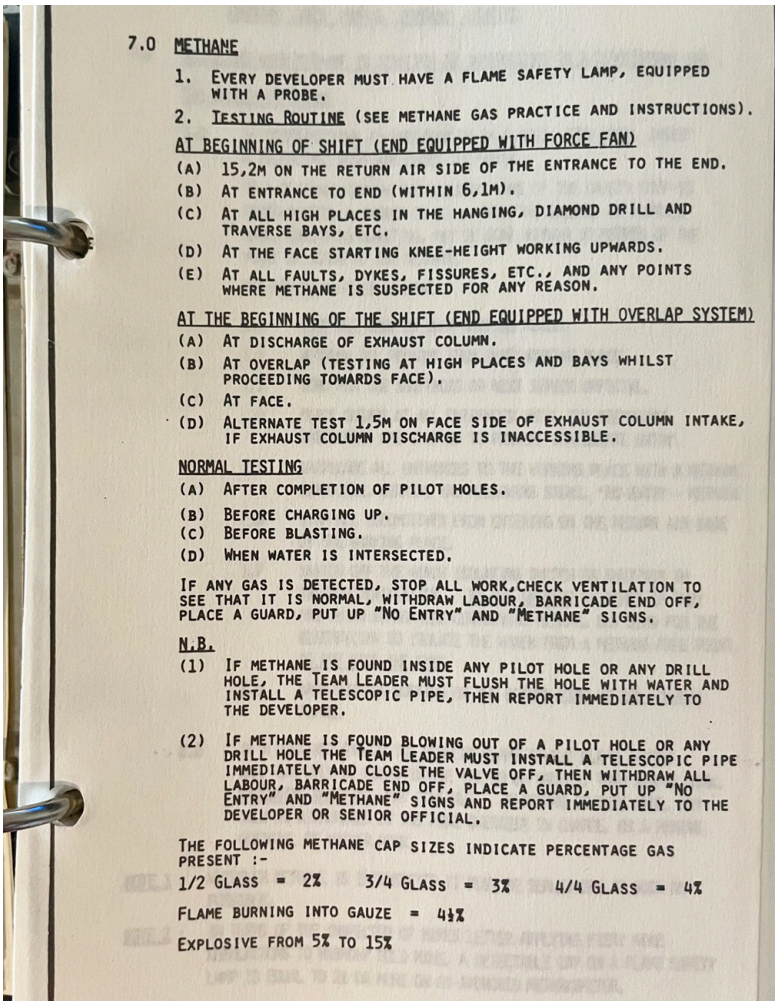
Back in the 19th century, between 1813 and 1815, early work conducted by Dr William Clanny and George Stephenson contributed to the development of the Davy lamp by Sir Humphrey Davy in 1815. The above disasters notwithstanding, the stories of how these lamps have changed and improved the fate of coal miners worldwide have been well told.

But over a century later newer versions of the mine safety lamp were playing a vital role in the safety of gold miners on the other side of the world too. Deep, hard rock gold mines

were not the place you might expect to find a miner taking their safety lamp underground every shift, and conducting rigorous routine checks throughout the shift to test for the presence of methane. As a young mining engineer moving to South Africa from Australia in the 1980s that is what I found, and where I gained respect for, and then an interest in collecting mine safety lamps.

In the deep goldfields of the Orange Free State the gold rich reefs of the Witwatersrand supergroup were overlain by the Ventersdorp sediments, and lavas, which in turn were covered by Karoo sediments containing numerous coal seams. Over later periods dykes and sills intruded the sediments and faults connected massive accumulations of methane dissolved in water, percolating downwards to where 20th century miners were now chasing the deep rich gold-bearing reefs. Some of the many deep vertical shafts that were sunk to access the deep reefs passed through these coal seams and often had to deal with methane-related challenges.

If the extreme depth, often over 2,500m, oppressive heat and seismic activity were not enough, the potential presence of methane added one more significant risk to manage. Mines where methane was known or could be expected were designated by the regulator as Fiery Mines. For good reason this brought an extra layer of regulations and complexity to how the mines operated – training was given to everyone working underground. Detailed gas testing regimes were built in to operating standards. There were remote blasting procedures, strict ventilation standards, electrical equipment required flame proof casing, and controls around hot work (cutting and welding) etc. Even with this knowledge, and with decades of hard-earned industry experience, diligence was always required, with localised explosions and loss of life still occasionally happening in the gold mines through those years in 1980s – reminding us of the ever present danger. But those events were rare and vastly diminished, thanks again to the humble flame safety lamp.



7.0 METHANE

1. EVERY DEVELOPER MUST HAVE A FLAME SAFETY LAMP, EQUIPPED WITH A PROBE.
2. TESTING ROUTINE (SEE METHANE GAS PRACTICE AND INSTRUCTIONS).

AT BEGINNING OF SHIFT (END EQUIPPED WITH FORCE FAN)

(A) 15,2M ON THE RETURN AIR SIDE OF THE ENTRANCE TO THE END.
(B) AT ENTRANCE TO END (WITHIN 6,1M).
(C) AT ALL HIGH PLACES IN THE HANGING, DIAMOND DRILL AND TRAVERSE BAYS, ETC.
(D) AT THE FACE STARTING KNEE-HEIGHT WORKING UPWARDS.
(E) AT ALL FAULTS, DYKES, FISSURES, ETC., AND ANY POINTS WHERE METHANE IS SUSPECTED FOR ANY REASON.

AT THE BEGINNING OF THE SHIFT (END EQUIPPED WITH OVERLAP SYSTEM)

(A) AT DISCHARGE OF EXHAUST COLUMN.
(B) AT OVERLAP (TESTING AT HIGH PLACES AND BAYS WHILST PROCEEDING TOWARDS FACE).
(C) AT FACE.
(D) ALTERNATE TEST 1,5M ON FACE SIDE OF EXHAUST COLUMN INTAKE, IF EXHAUST COLUMN DISCHARGE IS INACCESSIBLE.

NORMAL TESTING

(A) AFTER COMPLETION OF PILOT HOLES.
(B) BEFORE CHARGING UP.
(C) BEFORE BLASTING.
(D) WHEN WATER IS INTERSECTED.

IF ANY GAS IS DETECTED, STOP ALL WORK, CHECK VENTILATION TO SEE THAT IT IS NORMAL, WITHDRAW LABOUR, BARRICADE END OFF, PLACE A GUARD, PUT UP "NO ENTRY" AND "METHANE" SIGNS.

N.B.

(1) IF METHANE IS FOUND INSIDE ANY PILOT HOLE OR ANY DRILL HOLE, THE TEAM LEADER MUST FLUSH THE HOLE WITH WATER AND INSTALL A TELESCOPIC PIPE, THEN REPORT IMMEDIATELY TO THE DEVELOPER.

(2) IF METHANE IS FOUND BLOWING OUT OF A PILOT HOLE OR ANY DRILL HOLE THE TEAM LEADER MUST INSTALL A TELESCOPIC PIPE IMMEDIATELY AND CLOSE THE VALVE OFF, THEN WITHDRAW ALL LABOUR, BARRICADE END OFF, PLACE A GUARD, PUT UP "NO ENTRY" AND "METHANE" SIGNS AND REPORT IMMEDIATELY TO THE DEVELOPER OR SENIOR OFFICIAL.

THE FOLLOWING METHANE CAP SIZES INDICATE PERCENTAGE GAS PRESENT :-

1/2 GLASS = 2% 3/4 GLASS = 3% 4/4 GLASS = 4%

FLAME BURNING INTO GAUZE = 4½%

EXPLOSIVE FROM 5% TO 15%

A sample from part of the procedures in the Shift bosses mining standards manual (1985).

So every time you see a picture of a miner's safety lamp, or visit an old coal pit headframe, or coal mining heritage site, spare a thought for the lives it may have saved.

PS. I'm always looking to grow my small collection so if anyone has or knows someone who sells authentic flame safety lamps of any type or nationality please let me know. mailto: pjharvey05@gmail.com

A Wolf Paterson No 7/RMB flame safety lamp as approved for Harmony Gold Mine that I used in the 1980s.

Left to right
Wolf Permissible (by the US Bureau of Mines) lamp
Davis Derby Boss No.3 lamp for officials, Thomas and Williams of Aberdare
E. Thomas and Williams Ltd lamp, of Aberdare Makers
Koehler Permissible flame safety lamp, of Marlboro Massachusetts, USA
Protector Lamp and Lighting, Type SL, of Eccles, Manchester, UK

Ingot of tin up for auction

May's Newsletter featured an item about pieces of lead recovered from the wreck of the *Earl of Abergavenny*. On July 14th a 56lb ingot of Cornish tin, from the same wreck, was put up for auction in Penzance. It was expected to bring between £2,500 and £3,000.

Ingots of tin from two other wrecks were also offered for auction. These were two from the SS Liverpool, which collided with the *La Plata*, a vessel bound for Lima in Peru, and sank off the coast of Anglesey in January 1863 after setting sail from Cornwall.

Ten more ingots were from the *SS Cheerful*, which collided with the *HMS Hecla*, a torpedo boat carrier/depot ship, and sank in July 1885. They collided around 15 miles off Land's End with the loss of 10 passengers and three crew.

NL Editor

Yet More Pieces of Lead

At the risk of becoming a shadow to Lloyd's List I must add that the earliest known, surviving ship wreck in English waters has been found in Poole Bay, Dorset. Archæologists have identified the timbers as Irish Oak and, using dendrochronology, dated them to between 1242 and 1265, in the reign of Henry III. It was carrying a cargo of worked and unworked Purbeck Marble. The former included two beautifully carved marble grave slabs, evidence of active quarrying and a wide trade network.

Two more recently discovered wrecks (NW96 and NW68), were both on the Shingles Bank in the Needles Channel. It is a well-known navigational hazard for ships entering the Solent from the west. It is thought that the both ships became stranded on the banks before sinking.

The older ship (NW96) was carrying several cannons, a large anchor, at least 50 very large lead ingots with unidentified markings and stone cannonballs. The large size of the ingots suggests that they were a product of bole smelting, and suggest the ship dated from before 1580 or so.

Wreck NW68 had several cannon, one of which was cast in Amsterdam between 1621 and 1661. The initial interpretation is that the ship was of Dutch origin and may have fought in the 1653 Battle of Portland.

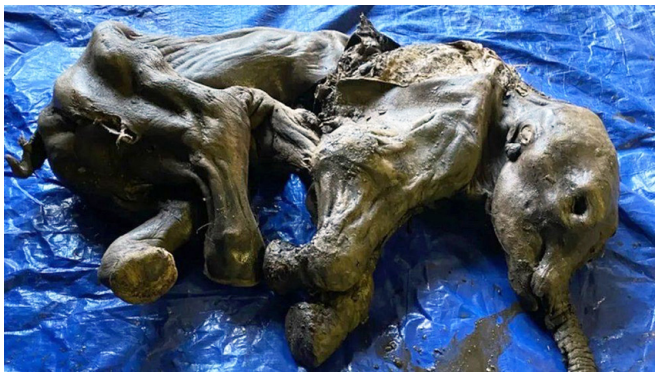
The Guardian, 20/07/2022

Jumbo Find in the Klondike

A miner using a bulldozer to look for gold in the mud at Eureka Creek, south of Dawson City, in Yukon's Klondike region, found much more. Calling for his boss to examine something that he'd hit, it turned out to be a whole baby woolly mammoth, which the permafrost had preserved for more than 30,000 years.

The calf, probably a female, has been named Nun cho ga, meaning "big baby animal" in the Han language spoken by Native Americans in the area. It is in an area belonging to the Tr'ondek Hwech'in First Nation, and is the best-preserved woolly mammoth discovered in North America since the partial remains of a mammoth calf, named Effie, were found in 1948 at a gold mine in neighbouring Alaska. The Yukon government compared it to the baby mammoth, Lyuba, discovered in the permafrost of Siberia in 2007. They are about the same size, but the Siberian example was some 42,000 years old.

BBC News Website, June 27th.



The best-preserved woolly mammoth discovered in North America. [Photo: Yukon Government]

Land of Iron

The Cleveland Ironstone Mining Museum at Skinningrove, in North Yorkshire, has been undergoing a £2.3 million redevelopment and, under the new name 'Land of Iron', is scheduled to reopen this Autumn. This independent museum celebrates the heritage of the ironstone mining industry and heritage of East Cleveland. The museum closed in 2018 after the roof of its iconic Upcast building collapsed. As well as refurbishing the existing buildings, a new extension has been added to create new exhibition and education spaces, a retail area, toilets and archive store. The project has had financial support from the National Lottery Heritage Fund, the Coastal Communities Fund, the Tees Valley Combined Authority and private donors.

Via Barbara Sutcliffe

Cleveland Ironstone Mining Museum (image courtesy Land of Iron)

The Royal Cornwall Museum

Late on the afternoon of June 30th Cornwall Council informed the executive of The Royal Institution of Cornwall, which runs the Royal Cornwall Museum, that its funding criteria for culture in Cornwall had changed and, after fifty years, the council would stop funding the RCM. Cornwall has no county based museum and, hitherto, the RCM has fulfilled that role. The Rashleigh Gallery holds an extensive display of Cornish minerals, the Courtney library is an invaluable resource for those seeking answers about Cornish history, while the expertise, knowledge and information held there is second to none.

The Royal Cornwall Museum is the keeper of a million objects, manuscripts and artefacts that document 4,000 years of Cornwall's story. As such it is a resource for the whole of the county. The summer is a key time for visitors who generate revenue which helps keep it open. The staff pride themselves on creating summer campaigns that are full of exciting and interesting exhibitions and activities that draw people in.

Responding quickly, the executive advised the local MP about the likely impact, and sought a meeting with the Leader of the Council and Arts Council. On July 21st, the RCM team met a delegation of senior officers from Cornwall Council and discussed the short and long term solutions to the critical funding issues facing the museum. Both sides have committed to continue exploring options.

Barbara Sutcliffe

North Pennines Mineral Expo

The weekend of 23rd &24th July saw the welcome return of the above event after an absence of two years due to the pandemic. Held at the Town Hall in St John's Chapel, Weardale, Co Durham and organised by Enrico Rinaldi, it is a splendid opportunity to meet with old and new friends, surrounded by mineral specimens, many of which are local to the area. Unfortunately I was unable to go this year, but did send some quiz sheets up of our website and have already had some entries.

The splendid Black Dene raffle prize.

The weekend took the familiar and popular format. There were mineral displays on the stage with the owners answering questions. The raffle, always popular, was for a splendid Black Dene specimen. Stanhope Silver Band were in attendance on Sunday morning and the afternoon saw the announcement of the photography winners -again our members swept the board. I would like to thank Enrico for organising this event, members Jean Thornley for providing me with all the photos, and Ian Shield for being the point of contact for our quiz sheets and taking them to the event. Watch this space for details of the 2023 event.

Barbara Sutcliffe

Examples of specimens collected in the area.

So much to see.

Spar Boxes
I was much interested in Barbara Sutcliffe's article about spar boxes in the May 2022 Newsletter, and recommend Ian Forbes book "Secret Worlds: Spar Boxes of the North Pennines" which contains many magnificent photographs. Many years ago, I bought a spar box as a special present for my late husband. I remember clearly meeting the maker at a motor-way service station in County Durham to pay for it, but I regret that I cannot remember his name. Actually it was more of a specimen box than a spar box, but my husband was delighted with it and made a special display shelf and spotlights (ordinary light and ultra-violet) to show it off to visitors.

Sallie Bassham

More about Lake District Gunpowder Works
There was an article about New Sedgwick gunpowder works in the February 2022 Newsletter. Additional information is in the July 2022 edition of the magazine "Cumbria". Edward Collin has written an interesting article about the history of gunpowder making and its uses.

Sallie Bassham

More about Wythop silica works
In the November 2021 Newsletter, I wrote about the Wythop silica factory, and said that I would be interested to know more. I sent a note to the British Brick Society, and have had a fascinating reply from Mike Chapman to whom I am very grateful for the following information.

Mike tells me that the first UK refractory bricks were made at Dinas in South Wales where there were very pure quartzite deposits: the term Dinas became a generic name associated with silica bricks. Successful refractory bricks need very pure silica, and there are also specific criteria for grain size and a bonding agent.

After quarrying, or mining, the rock must be washed and unwanted material removed. Then the silica is crushed and ground to produce a fine silica 'flour'. This would need heavy equipment and explains the large engine beds at Wythop. Because silica is a non-plastic material, a chemical binder is required to shape bricks. Early works used a very wet mix, but then a drier mix was used with machine pressing: this produced accurate shapes and made drying easier and cheaper. Drying requires care to avoid cracking. When the bricks are fired, the temperature is increased gradually to 1500 degrees centigrade. At the time Wythop was working, downdraft kilns were commonly used. These were coal fired.

The last major working UK silica brick works is DSF Refractories Ltd, which started in 1892 as Derbyshire Silica Firebrick Company. There have been several silica brick companies in the UK, but most ended in failure. A lot of money was needed to start these businesses, and some of the investors may have mis-estimated the purity and suitability of their basic material, and the difficult of the processing, and the exacting requirements of the finished product. Also, the abrasive nature of the silica rock meant that replacement of working parts was probably more costly than originally estimated. An additional problem would have been more stringent Government health legislation concerning workers' exposure to silica dust. This hazard could have been lessened by changing from dry grinding to a more enclosed wet process; but this would have involved more, and unforeseen, expense.

Sallie Bassham
(Summarised from information provided by Mike Chapman, Chairman of the British Brick Society.)

Alderley Edge Cobalt Mine
Members of the Derbyshire Caving Club, which leases parts of Alderley Edge Mine from the National Trust, found their way into an area of workings known as the Cobalt Mine in autumn 2021. On July 12th a N.T. press release (https://www.nationaltrust.org.uk/press-release/rare-time-capsule-cobalt-mine-abandoned-over-200-years-ago-is-discovered-in-cheshire) announced the discovery and revealed two fly-through films of the workings. The latter are based on 3D scanning.

Cobalt was used to give a blue colouring to pottery and glass. The mine dates from the Napoleonic Wars (1803-1815), when Napoleon I embargoed all European trade, including Cobalt, with Britain (the Continental System) and actively sought to enforce this by interdicting shipping. Alderley Edge was then owned by Sir John Thomas Stanley and, in anticipation of a lucrative cobalt market, he leased out the rights to extract cobalt ore there in 1808. When imports resumed, in 1817, however, the mine was abandoned.

Finds in the workings, which had remained pristine, include a jack-roll, a metal button, a bowl, a clay pipe and a shoe. Because of the availability of the 3D scans, photographs etc, the N.T. and D.D.C. intend leaving artefacts in their place, and sealing the entrance.

NL Editor

Sheep rescued from shaft.
A sheep was thought to have been trapped in a mine shaft near Nantlle, in Gwynedd, for around ten days when a farmer alerted North Wales Police on Tuesday, 5th of July. They called out the Aberglaslyn Mountain Rescue Team (AMRT) and, after a rescue plan was devised, two rescuers were lowered into the shaft.

They were careful not spook the sheep further into the shaft, but despite having lost a considerable amount of weight, it still had an impressive amount of stamina. Nevertheless, after a brief tussle, it was caught and placed in a bag for safe removal from the shaft ... before being handed over to the farmer.

BBC Wales 7/7/2022

Proposed Northside Quarry, Kirkwhelpington
Having submitted an Environmental Impact Assessment (EIA) in July 2021, North East Concrete Ltd followed it, in May 2022, with a planning application to re-open a quarry which was last worked in the 1930s. It proposed extraction of four million tonnes of dolerite, importation of inert infill material and associated highway and landscape works from land at Northside Harle, Kirkwhelpington.

The stone will be extracted at a rate of 252,000 tonnes per year over 15 years. Access to the 28.7 hectare site will be by a new access track from the C road linking the A696 at Knowesgate crossroads to the A68 north of Ridsdale. Not surprisingly, the locals are raising protests about traffic levels, noise and dust. The Northumberland County Council will decide the project's fate by mid-August.

Thanks to Sallie Bassham for this news

Can you help?
While seeking further information about the proposed Northumberland quarry (this Newsletter), I came across an archæological report which referred to lead mining near Kirkwhelpington. Across the nearby river Wansbeck is a spring called Groove Well. With the help of the county Heritage & HER Officer, the trial was tracked to a single hillock, with central depression, at NY995842. According to geological mapping, the area is on Carboniferous Limestone and well clear of the Millstone Grit and Productive Coal Measures, so a coal trial is less likely.

Another possible, larger, site of lead mining was on Shaftoe Moor, with shafts north and south of NZ042826, and a second area at NZ050821. None of the sites is marked on Ordnance Survey maps.

Has any member visited these sites or found historic references, please?

Mike Gill oldgangmine@yahoo.co.uk

Cononish Diary
Good news continues to emerge from the press office of Scotgold Resources, the company mining for gold in the Scottish Highlands, near the village of Tyndrum.

A recent report features a huge building which is equipped with modern equipment to recover the precious metal from rock, ore, gravel, sand and slurry. An announcement by the Chief Executive, Phil Day, "*We continue to move rapidly towards phase two levels of a 23,500 oz run rate of gold*" which helped the company to "*enjoy a share price surge after a record quarter at Cononish*."

Admittedly, as a Scot, I am pleased that Scotland hosts the UK's one and only commercially-operating gold mine. During March, April and May, 3,531 ounces of gold were produced and there are plans to undertake spending initiatives on new technology which ought to boost output from the mine. I hope good fortune continues.

Ron Callender

Processing shed: The Cononish mine building that now graces the West Highland Way

Not the Cononish Diary
Distressing news arrives from the gold-bearing rivers of North Wales. Brian Wright, an enthusiast who is well versed in the antique laws of gold recovery, believes it is NOT illegal to pan in the Afon Wen, but the authorities believe he is breaking the law. Natural Resources Wales took him to court in Llandudno. Brian stood by his guns, claiming he was seeking to promote the cultural element of gold-panning. The district judge observed that Brian was courteous and held strong views, but would not cease on account of his "*principles*".

He was fined £600 and ordered to pay £2,400 costs.
Why is it illegal to pan downstream of a working gold mine?

Ron Callender

One of the unfriendly notices strewn along the banks of the River Mawddach

A fine day at Loch Fyne
In 1976, I worked under the tutelage of NMRS member, the late Geoff Downs-Rose, as an advisor to Wanlockhead Museum Trust. But there was no museum! Geoff had negotiated access to a house on Post Office Row, which was once called Goldscaur Row, and Geoff and I talked about content, layout, archives, design and how we would create a museum of lead mining.

At the time, the Kodak company was awarding bursaries and, with a strong endorsement from Geoff, Kodak awarded me adequate funding to document the lead mines of Scotland … that is, provided I used Kodak film. It was a pleasure to visit the Isle of Islay, to tour Galloway, pause in Strontian, scale the heights above Tyndrum, and to photograph aspects of mining history in the local Lead Hills. With my finances depleting, I considered I had completed the task and drafted the obligatory final report for Kodak.

Geoff broke the bad news. "I have just read about a lead mine on the shores of Loch Fyne in Argyllshire … it ought to be included in your report." I knew Loch Fyne in Argyllshire - it would be a tedious journey northwards for 66 miles via Glasgow, and at Lochgoilhead the route would turn southwards along the shore of Loch Fyne for 90 more minutes. "Could we do it in a day?" I asked Geoff … and he agreed we should try.

One Thursday, we reached a village called Erines on the shores of Loch Fyne, and very cautiously, drove one more mile, before parking my car. We scanned the hillside with binoculars and spotted a spoil heap … then a level. Encouraged, we walked, towards our discoveries and came on the remains of a small, stone croft. To our joy, there was an adit or a level close to it. By now I had made a few exposures, and poked my camera into the level for a partially-successful picture.

There was nothing more to do and it was mid-afternoon. Time to depart but a general view of Loch Fyne called for one last

exposure … as an illustration for my final report. My bursary project ended with a comprehensive exhibition that featured all the lead mines of Scotland, and, understandably, Geoff ensured it included Loch Fyne.

Ron Callender

NB The trial was probably called Allt na Dunaiche. [Recorder]

Fyne 01 Trudging upwards, we came on a dilapidated stone building and the proximity of an adjacent 'hole in the ground' suggested we had justified our mission.

Fyne 02 Nearby, another level on the hillside coaxed us to look inside. Without lighting, or a tripod, it was a challenge to photograph the interior but by relying on daylight and the wonders of digital imaging, a passable shot was secured.

Fyne 03 'The lead mines of Scotland' exhibition covered five regions and circulated to other museums under a scheme of travelling exhibitions.

Mining Revival in South-West England

Cornwall and West Devon's rich mining history is based on the Cornubian batholith (a massive igneous intrusion), exposed as a series of six major plutons, which, between 200 and 260 million years ago, formed the core of a mountain range. During that period the landmass began to split, and part of the range sailed off, on the North American Tectonic Plate, to what is now east Canada. The other part remained and now forms Cornwall and west Devon. As the magma cooled to form granite, ground water was able to leach out metals and redeposit them in higher concentrations. Geologists estimate that there is probably at least as much tin and copper still to be got from Cornwall and west Devon as was raised hitherto.

What follows is a résumé of current activity in the south-west. I'd like to thank Paul Renken, Geologist and analyst and NMRS member, for drawing my attention to his company's podcast as a source for the Newsletter. It has been enhanced using company press releases and BM No.107 (UK Mineral Exploration During the past 60 years) by Tim Colman, company reports and pieces from Business Live South West.

Cornish Metals – South Crofty

Low tin prices forced the closure of Cornish mines between 1986 and 1998. Predicted revivals of Cornish mining are not irregular, but since the closure of the last working mine, South Crofty, in 1998, the price of tin, tungsten and copper has risen considerably because China has resources of the metals it needs and the rest of the world is short supplied. That situation is likely to obtain for some time.

In July 2016, Cornish Metals acquired the mineral rights for South Crofty and United Downs Mines, plus additional rights, covering around 15,000 hectares, throughout Cornwall. Some of these mineral rights cover old mines that were historically worked for copper, tin, zinc, and tungsten.

When Crofty closed it left reserves of low grade tin, which higher prices make pretty good grades and may be worked

profitably. The mine will first need draining, redeveloping, and the stopes converting from the labour-intensive model, used before, to accept mechanisation.

Since acquiring the mine, Cornish Metals has published maiden NI 43-101 Mineral Resources for South Crofty using the vast archive of historical production data and drilling completed between 2007 and 2013. In 2017, Cornish Metals finished a Preliminary Economic Assessment that shows the economic viability of re-opening the mine. Additionally, the company undertook extensive pilot-scale water treatment trials and has been granted the necessary environmental permits to abstract, treat and discharge mine water in order to drain the mine. Planning permissions for the operation of the mine and re-development of the surface facilities have been secured and construction of the water-treatment-plant foundations commenced. The dewatering pumps, variable speed drives and new high-voltage power supply have been delivered to site.

Cornish Lithium
In June this company secured another £9 million ($11 million) from metals-focused investment company TechMet to help fast-track its UK lithium projects. It is the second tranche of an £18 million funding package agreed with the private investor in November.

TechMet's decision to increase its investment in Cornish Lithium follows a full review of the miner's Trelavour Scoping Study, which sets out the design and economics of the namesake project, based upon the production of battery-grade lithium hydroxide. It will allow Cornish Lithium to speed up the construction of a demonstration plant for lithium processing, a feasibility study for its Trelavour project, at St Dennis, and undertake additional drilling.

The Trelavour hard rock lithium project includes an open pit mine of lithium-enriched granite and processing facilities that will yield concentrate of lithium-bearing mica. Lithium hydroxide will then be produced from the mica concentrate at an industrial site nearby. The scoping study sees the mine raising 25 million tonnes annually, yielding an average of 7,800 tonnes of lithium hydroxide. It has a 20-year life.

This is opportune because the European Union is currently rebuilding automotive supply chains around battery metals, and incentivising the adoption of electric vehicles (EVs). European Commission Vice President Maros Sefcovic claims that, by 2025, large-scale battery plants currently under construction will produce cells to power at least six million EVs.

British carmakers have an additional pressure — in only three years, they will have to source local electric car batteries as set by the Brexit free trade deal agreed last year. Under the agreement, all European trade in cars and parts will continue to be free of tariffs or quotas after the Brexit transition period ended on December 31st 2020, as long as they contain enough content from either UK or EU factories.

As more electric vehicles are adopted, a lithium supply gap looms, especially in the UK, given the need for an estimated 75,000 tonnes of lithium carbonate equivalent by 2035, according to The Faraday Institution. Cornish Lithium intends being a key player in the necessary supply chains to bridge that gap.

United Downs project, near St Day
Cornish Lithium is also advancing its United Downs project. Last year it built a geothermal water test site and demonstration plant, which is being used to trial direct lithium extraction process technologies.

The geology at United Downs comprises killas (metasediments) overlying granite. Mines within the area (United Mines, Consolidated Mines, Mount Wellington, and Wheal Jane) worked polymetallic mineralisation, which was found in narrow, steeply dipping lodes, and consists of cassiterite (tin), chalcopyrite (copper) and sphalerite (zinc). Chalcocite and bornite, both copper minerals, were occasionally present.

United Mines and Consolidated Mines located, respectively, 320m and 720m north of the Trenares [lode] Target, worked between the early 1700s and the 1870s, mining high-grade copper ores (reported grades of 7.5% copper) to depths of up to 500m below surface.

The Mount Wellington and Wheal Jane mines exploited similar structures located along strike from United Downs, where tin, copper and zinc mineralisation was mined and processed from 1978 and 1991, respectively. Wheal Jane was mined to a depth of approximately 500m below surface whereas Mount Wellington only reached approximately 200m depth before closing. Mount Wellington is located within Cornish Metals' mineral rights and was still in mineralisation when the mine closed.

Drilling at United Downs was done by Priority Drilling Company Ltd using an Epiroc Christensen CT14 Diamond Drill Rig. Mineralised zones were drilled in NQ (76 mm diameter) to recover a 48 mm diameter drill core. Core recovery was greater than 95%. The core was logged, split, and sampled by Cornish Metals personnel. The samples, comprising half core, were sent for assay at ALS Minerals, Loughrea, Ireland. Sample preparation involved crushing to 70% less than 2mm, riffle split and pulverised to 85% less than 75 microns. The analytical method used was X-ray florescence (XRF) following a lithium borate fusion. Samples were assayed for copper, tin, tungsten, zinc and arsenic. A multi-element 4 Acid Digestion ICP-AES analysis was also carried out to further characterise the mineralisation and alteration assemblages. Overlimit assays on silver were carried out using a 3-acid digest and a HCl leach ICP AES analysis. Comprehensive Quality Assurance / Quality Control programme using standards, duplicates and blanks was included within the sampling programme.

Lithium firm links up with Scorrier creamery
Cornish Lithium has reached a deal with Rodda's to evaluate sites on the clotted cream brand's land where geothermal lithium and heat could be developed on a commercial basis.

C.L. will design and drill a small research borehole as well as obtaining the required planning consents and permits. It said that, were the project found to be viable, Rodda's could use any resulting renewable geothermal heat towards decarbonising production at its Scorrier-based creamery, which currently uses natural gas.

The proposed research borehole will be on a similar scale to one C.L. is currently drilling in the Twelveheads area. These projects will also look to develop supplies of renewable heat to industrial customers and will also evaluate the potential to extract lithium from the geothermal waters.

Cornwall Resources Ltd – Redmoor near Kelly Bray.
During a period of exploration in the later 1970s and early 1980s, holes were drilled and proved the existence of a sheeted vein structure between the Great South tin lode and Johnson's lode. This is a hydrothermal, intrusive related set of parallel quartz sulphide veins, spatially associated with a nearby intrusive. They are closely spaced, distinct parallel fractures or veins filled with mineralization and separated from one another by thin screens or areas of barren country rock. Typically, they will become closer and closer together and mineralization and an increase in silification will be seen as one approaches the intrusive body, which is the source of the mineralization. The structure is up to 80 metres wide and has good grades for Wolframite and Chalcopyrite. Further drilling and trenching in 2018 increased the size of the resource, both laterally and in depth.

In March 2019, Strategic Minerals Ltd bought New Age Exploration's 50% share in Cornwall Resources Ltd, making it the sole owner. By 2021 it had begun seeking potential joint venture partners to help bring the project to fruition. In the meantime, work began on the preparation of a pre-feasibility study to be followed by a bankable feasibility study. It is expected to take four to five years to complete both.

Drakelands Tungsten Mine, near Plymouth, Devon.
This mine, which works the western hemisphere's second largest tungsten reserve, is to re-open. Australian firm, Wolf Minerals Ltd, began the latest period of activity in 2007, when it re-opened Hemerdon Ball for tungsten and tin. Wolf established a large open-pit and a nearby processing plant, but it failed to produce enough metal, and saw global prices fall. In consequence, therefore, Wolf Minerals Ltd ran-up a £100 million loss in its final three years, entering liquidation on October 10th 2018.

The site was taken over by Drakelands Restoration Ltd, a subsidiary of Durham-based Hargreaves Services Plc, in 2019, in order to safeguard and maintain the land. Now, however, Hargreaves has sold Drakelands to Tungsten West Ltd, in a £2.8 million cash deal.

Hargreaves also signed a mining services contract, worth £1 million a year for eight years, starting in 2021, to extract ore, handle all materials on the site, move waste from the processing plant, and provide equipment and personnel. Tungsten West is making changes to improve the processing plant which are expected to be complete in the second half of 2022 and Hargreaves will begin mining from early 2023.

About 30 staff are currently employed at the mine, with about half of them removing and repairing equipment in the production line. When the mine reaches full output it will employ up to 300 people at the site, on the edge of the city, and give a knock-on benefit for the regional economy.

N/L Editor

Aberpergwm Colliery
Energybuild, the operator of the Aberpergwm anthracite mine, near Glynneath, is to continue supplying Tata Steel, in Port Talbot, under the direction of the Welsh Government, as it moves away from fossil fuel production. Tata is Britain's last remaining high-quality steelmaker and we would be vulnerable if imports of steel were relied on. Last year, the company sold 27% of its anthracite to Tata, making 20% of the company's total revenue.

As part of its application for an expanded mining licence, the mine's operator secured planning permission from Neath Port Talbot Council in September 2018. The new licence was approved by the Coal Authority in January, but there had been a row over many months before the licence's approval between Whitehall and Cardiff Bay as to which body had the authority to block the licence application. The Welsh Government has opposed the new mining licence, particularly in light of its climate change emergency announcement in 2019. Now, however, the Welsh Government has begun to engage directly with Energybuild to discuss how the mining operator can move away from the thermal fuel market.

Owing to the mine's geology, Energybuild plans to mine between 200,000-250,000 tonnes of anthracite annually at Aberpergwm over the next 20 years. The company's target for this year is to mine 186,000 tonnes of anthracite and, over the next two years, it aims to supply 70% of its output to non-thermal industries. As well as Tata Steel, the other 30% also supplies the stainless steel works in Sheffield and, surprisingly, it supplies commercial greenhouses in the Netherlands and Germany.

There is still a significant demand for coal for domestic heating in households, especially in rural areas and particularly in Wales, where a lot of places still don't have gas. An estimated 50,000 homes would be short of a source of fuel for their boilers if Energybuild ended supplies to that market.

Aberpergwm currently employs 160 workers, and this is expected to rise to 200 over the next few years.

The non-thermal industries that Energybuild is trying to transition to use a variety of chemical processes. It supplies anthracite to EnviroWales which uses it to recycle the lead out of batteries and this year it will become the dominant supplier of colour to brickworks.

High-grade anthracite is also used for water purification. Energybuild has already built a plant to make anthracite filter media to sell to water treatment companies in the UK and Europe. As the latter's only producer, this trade is expected to grow strongly over the next three to four years.

Energybuild has also begun supplying a Norwegian company called Elkem which produce carbon electrodes. They are used in many chemical processes including electric arc furnaces and battery manufacture.

There is arguably a strategic need to keep Aberpergwm open because, after Aberpergwm, Tata's largest supplier is Russia.

Business Live Wales by Lauren Phillips, 08/03/2022

Welsh Coal Supplies resume.
Our friends in the world of heritage railways have been worrying about their supplies of British steam coal for some years now. Many mining historians share those concerns.

A major panic arose when, on 28th January, Miller Argent, the UK's only remaining supplier of steam coal, stopped production at its Ffos-y-Fran opencast, near Merthyr Tydfil. This was a consequence of a breakdown in its washing and grading plant, which the company judged not worth repairing because coal working is to end in November, as the allotted area will be worked-out). The situation was exacerbated by the sanctions imposed on Russia, a major exporter of steam coal, following its

invasion of Ukraine in February. Railways were, therefore, forced to seek alternative supplies of coal at much greater cost, while stepping up trials of potentially sustainable substitutes to coal.

Now, however, Hargreaves Services Ltd has repaired the Ffos-y-Fran equipment and is working the opencast, presumably in the hope that Ffos-y-Fran is successful in its application for a two year extension to the workable area. Most of the expected output of 350,000 tonnes during this period will go to steel plants in Port Talbot. Otherwise, mining will still end in November, with the loss of 150 jobs.

Heritage railways, both narrow and standard gauge, have welcomed the resumption of the availability of Welsh steam coal from Ffos-y-Fran, but warn that it is only a short-term fix to the coal supplies issue. It has not eased other pressures on the railways – increasing costs, particularly for the fuel used to power the mine's equipment, is forcing coal prices up.

The Heritage Railway Association and seven representatives of Welsh railways also took their case to the Welsh Parliament on May 17th, meeting senedd members to discuss the problems of continuing coal supplies and the major role played by railways in Welsh tourism - there are 19 heritage line in Wales welcoming around 1.2 million visitors and generating £52 million a year for the Welsh economy while across the UK the figure is nearer £600 million.

The Narrow Gauge World magazine [NGW] reported that on May 25th the Heritage Railway Association, the National Traction Engine Trust and the Heritage Fuels Alliance met with mine representatives to discuss the situation in what was described as a very useful visit.

The Welsh Government will make the decision on extending the Ffos-y-Fran licence, though its climate minister, Julie James, told the Politics Show on BBC Wales that it was important for some coal mining to continue.

Meanwhile further trials have taken place with another possible substitute sustainable fuel. Both the Talyllyn and Fairbourne (near Barmouth) Railways tried biomass briquettes made from the waste produced during rapeseed oil production by Phoenix Speciality Oils Ltd.

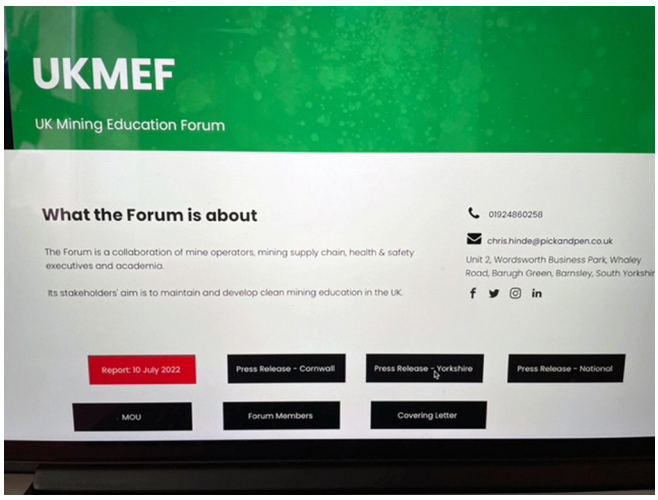
Fairbourne first tried the fuel late last year, but the briquettes, which are an odd green colour, made unacceptable levels of smoke and smell. It was later found that the batch used had been in store for some time and a new batch gave more promising results.

The Talyllyn Railway's trial of the briquettes, using its 0-4-2T "Tom Rolt", reported plenty of steam and a lack of clinker or ash.

Apparently made using crushed olive stones, and developed by CPL Industries Ltd for use with steam loco's, Homefire Ecoal was used for two trials on the 15 inch gauge Bure Valley Railway in 2021. They gave enough confidence to try the new fuel on a full-size steam locomotive.

In mid-February, the Keighley & Worth Valley Railway tried bio-coal using a standard gauge 2-6-0 loco - fired with Homefire Ecoal. Hauling five carriages, as it normally would, the Standard 2MT hauled its trains up the steeply graded, five mile long, heritage line in Yorkshire.

Thanks to Rob Needham for most of the information used.



Mining Skills Shortage

The May edition of the NMRS Newsletter highlighted the interest in new sinkings and mine re-openings in Britain, driven by the huge volumes of minerals that are required to meet the needs of the rapidly increasing global population and the transition from fossil fuels. These new mines will require mining and mineral processing engineers to design, construct and operate them. Over the last thirty years mining departments up and down Britain have closed leaving the Camborne School of Mines (CSM) in Cornwall as the sole underground mining school in Britain. In 2019 CSM "paused" its undergraduate mining engineering courses, prompting the formation of the UK Mining Education Forum earlier this year. The Forum has brought together stakeholders from industry, universities, professional engineering institutions, mining trusts, mine educators (often based at mining museums), mine regulators and finance houses to address the pending skills shortage driven by increasing demand, an aging workforce and insufficient new entrants. On the 10th July the Forum published a report on the UK strategic need for mining and mineral processing engineers. In this report the Forum summarise current UK mines, detail engineering personnel supply and demand issues and propose actions. Some key points from the Report:-

- Of the 1,237 mining and mineral processing engineers registered with the UK Engineering Council 80% are over the age of 50 and 39% over the age of 66.
- Each year the UK requires 48 new mining engineering graduates and 18 mineral processing engineers. While the proposed degree apprenticeship in mining engineering management at CSM is good news, it will only deliver around 15 new graduates per year, leaving a significant shortfall. Mine operators are reporting difficulties recruiting mining and mineral processing engineers.
- Mining departments in the UK and internationally have either closed or are facing severe difficulties due to a lack of applicants for courses, driven by a poor public perception of mining. Education and ready access to quality material on modern mining is required.

The Forum has issued press releases to raise awareness of the Report. The press releases and the Report can be accessed via the Forum website: www.ukmef.org.uk

Steve Bedford

Woodhouse Colliery, Whitehaven, Cumbria
The decision on whether to approve this £165M colliery has been delayed following the debacle of resignations from the government in July. Plans for the coal mine were originally approved by Cumbria County Council in October 2020. Since then, former communities secretary Robert Jenrick called in the decision and asked the Planning Inspectorate to carry out a formal evaluation of the scheme. Its completed report was sent to communities secretary, Michael Gove, and a decision was due by July 7th. The sacking of the latter means it will now be revealed on August 17th.

Whitehaven News 06/07/2022.

A LIFE IN MINING HISTORY - (Part 1) Mike Gill
(In case you think this is self-promotion, the previous NL editor asked me to write it a few years ago and kept badgering me for it.)

I'd been fascinated by my local lead mine, at Cononley, near Skipton, since my first visit in 1958 while out walking with my father. Return visits included the smelt mill, the smelt mill flue and chimney and the various shafts. Walking in Wharfedale revealed even more mines, and family trips to see relatives in the Doncaster area then passed many collieries – I was hooked.

In April 1965, therefore, at the age of 13 and paying the 10s 6d fee for Junior Membership, I joined the Northern Cavern & Mine Research Society. Unlike nowadays, members did not react to the presence of an inexperienced boy by calling for insurance cover, instead they took me under their wings, mentored and encouraged me. As a result I was fired with enthusiasm and, ever thankful for their generosity and patience, am still here 57 years later.

1n 1965, however, a trip to my village library revealed two books on caving – one of them by Jack Myers, a long term NMRS member. There were none on mining or its history. Nevertheless, the librarian was very helpful, telling me about the inter-library loan system, and so I was soon reading such books as Hunt's *British Mining* and *Dr Ure's Arts, Mines and Manufactures*. I also borrowed a copy of the NCMRS. first Transactions, which included Eddy's paper on the Cononley Mine. My reading expanded and became more focussed. When it came round to school prize days, instead of a dunce's cap, I chose such books as Dunham's *Northern Pennine Orefield*, Bob Clough's *Lead Smelting Mills of the Yorkshire Dales* and Hunt's *Lead Miners of the Northern Pennines,* while friends went for cricket annuals and the like.

The society was much smaller then and a high proportion of members came from within a 20 miles radius of Skipton. We met on Friday nights at the Devonshire pub, with committee meetings on the first Friday of the month. As this was a regular event, society members, and those of other clubs, often turned out and discussed their various interests. I was on the start of a long learning curve about mining, caving, geology, cave biology, mineralogy etc.

The late 1960s were interesting times. The society was established, but tensions had grown between the principal groupings, which broadly reflected interests in mining and caving. Most of the founders and early members came from the caving world, where many of them had been rejected for their interest in the new subject of mining history. A significant number of the cavers were involved with pioneering work on the scientific study of caves and some mines. This involved studies of flora and fauna, as well as hydrology and water analysis. For some years the two groups coexisted and even cooperated on joint projects. The Society's first monograph, then called an Individual Survey, was the result of such collaborative fieldwork at Cam Level, Starbotton.[1]

This was a bold attempt to make a multi-disciplinary study of all aspects of one mine and its immediate surrounding area, and present the results under one cover. Much of the fieldwork was done on one day, October 17th 1965.

The level was surveyed using a theodolite and an engineer's chain, and I acted as chainman (see photo by DTR). The following week, I helped Michael Dickinson draw up the plan and sections. This was particularly important for me because it answered one of life's big questions – what did I want to be when I left school.

Surveying at Cam Level. Mike Gill (left), Mike Dickinson (centre) & Caleb Wade (right), 1965

The level's geology was marked on the plan by Roger Harker, and the flora and fauna was recorded by Jean Dixon and Douglas Richardson. The latter also analysed any water entering the mine. Later, Jean and Douglas leased the mine for use as a biological recording station in order to study long-term and seasonal variations in the mine's habitat.

Returning to my experience, despite opposition from the school's Careers Master (I did not live on a coalfield), I got an apprenticeship as a mining surveyor in the National Coal Board's Doncaster Area. Four days a week were spent either underground or in the office, with one day at Doncaster Tech's Mining Department. There we were taught about surveying instruments and their uses, mining law, plan drawing, geology, maths, surveying problems, geodetics etc. Around 1972, we also learnt that America was developing a global positioning system, using satellites, for its military. Now many people cannot find their way to the pub without one. To find north, we still had to find Polaris (the North Star) and, using a theodolite, follow its precession either side of true north (caused by the Earth wobbling on its axis as it rotates).

We also saw a hand-held calculator, which had no trigonometric functions, costing around £200 in 1972. A similar device may be bought for less than £5 today. We did our calculations using a Facit, hand cranked calculator and Peters' *Eight Place Table of Trigonometric Functions for every second of arc.* For longer

surveys, the angles, lengths etc were carefully tabulated and then sent to the HQ, in Doncaster, where women produced punch cards and fed them into the Main Frame computer. This produced more paper than doing it by hand, but provided a check on results.

The problem of finding True North and transferring it down the shaft was settled during my apprenticeship. Hitherto it had been done by hanging two wires, each with a heavy plumb-bob on the lower end, down the shaft (in our case, at Frickley Colliery, the shaft was 665 yards (608 m) deep). The bearing between the two wires was calculated at the surface and, when the wires were still, the bearing was transferred to an underground base-line (as simple as that!). The solution was to use a gyroscopic theodolite in a main air intake near the pit bottom (almost zero chance of methane being present).

Of course, things had not moved so swiftly. In 1852, Léon Foucault, the French physicist, found that a gyro with two degrees of freedom points north. Max Schuler used this effect to build the first surveying gyro in 1921. Probably helped by the development of gyro-technology for WWII rocketry, the gyro-theodolite – then called a "meridian pointer" or "meridian indicator" – was first used underground by the Clausthal Mining Academy, in 1949.

Its acceptance as safe to use in collieries took longer, but this method eliminated awkward procedures and dangers associated with shaft plumbing. It was much safer, and gave excellent control and the highest precision anywhere underground and did not interfere with winding operations and ventilation currents.

Most surveying errors arise during measurement, and the first electronic device for measuring was the Tellurometer, which had a base and remote machines. This was a bulky machine using micro-waves to measure up to 10 kms. The surveyors based in the Head Office always got the best kit to play with, and so they arrived one day with a Tellurometer and set it up in the pit yard, inviting us to come and have a look. It took a while to warm up and then to be tuned in, but sure enough a distance came up on the readout. Clearly, a lot of effort to get a short distance, but it would not take much longer to measure a significantly longer one. I used one later in my career – much smaller and it had a built in radio for communication. This was useful for measuring between the headgear of nearby collieries.

Most of our work, however, involved keeping the main and tail gates serving coalfaces on the same parallel bearing by painting a centre-line on the rings (steel support-arches). There were also face line surveys, to determine whether or not one of the gate ends was becoming ahead of the other and that the face was straight, plus updating working and other statutory plans. Where drifts were being driven across strata, perhaps to recover the seam where it was displaced by faulting, it was also our job to paint grade lines about one metre up the side of the drift. The miners used these to excavate, and set new rings to the correct gradient. Some drifts had shallow dips/rises, but others may be as steep as 1 in 2 depending on their purpose.

During my time in with the NCB I continued with NCMRS, so I was considered odd, because the usual Monday morning question of "*Did you have a good weekend?*" did not get the expected response of "*yes, I went to the game*" or "*I was busy in the garden*". With me it was more likely to be that I'd spent the weekend surveying or exploring some old lead mine. Worse was the time I'd gone underground at Hapton Valley Colliery, Burnley's last deep mine. That was met with incredulity. I'd particularly wanted to see a coal plough they were using in a thin seam (the Upper Mountain Mine), but could not because the deputy had not inspected the face. It was still worth going, however, because the face in the Union Mine was using props and bars throughout for support, with a drum shearer self-loading onto a panzer. At Frickley, all five faces had self-advancing, six-legged hydraulic chocks, except for a few props and bars at each face-end.

Another innovation made while I was with the NCB was the introduction of Dosco road-headers. This machine greatly speeded up the rate of advance in development work because it could break down the shale and mudstone and load it onto a conveyor, as well as lifting new rings into place for setting. Advances of 80 or 90 feet per week were achieved, making more regular visits by the surveyors necessary. The alternative, of drilling and firing the face of a heading, then loading the rubble with an Eimco (usually running on tracks not rails) was much slower.

Surveyors were in the management union (BACM), and one experience that I'd not expected was a spell of eight weeks firing the colliery boilers in the 1972 strike that began at midnight on Saturday, January 8th (that afternoon we'd been surveying at Cononley) and we (two apprentice surveyors) were rostered to take over the boiler house from the normal NUM men. That went smoothly, and we looked to our task. There were five or six boilers, but only one was left working. Our job was to fill the hoppers for the chain-grate stoking mechanism, clean out the ashes and keep the water level within limits. What could go wrong?

Mike Gill shovelling ashes at Frickley's boiler house, 1972

When the steam pressure began to fall, we were about to find out. Having seen a mill boiler before, I had some idea that there was a fan which helped the fire draw. Helpfully, there was a button with fan written on it. On pushing it, the fan started, but instead of the flames going backward towards the flue, they came forward and set fire to the coal hopper that fed the boiler. Panic! The front of the hopper could be opened, so we pulled the blazing coal out into a wheel-barrow, and took it to the ash heap, threw some coal onto the boiler bed to keep it burning, and refilled the hopper from a conveyor belt above, and started again. The problem persisted throughout the strike. We told the colliery mechanical engineer what was happening, but he did not seem concerned. It was only in the week after the strike ended that we discovered that the NUM

boiler men thought that we were going to let the fire burn out, clean the ashes away, and leave the boiler ready for restarting when they returned to work. As a preliminary to the process they had lowered the damper door, at the foot of the chimney, to reduce the air-flow.

Mike Gill at Frickley Colliery in 1973 - The waistcoat was not an affectation. The small pockets held a ball of string, a plumb-bob, pocket tape, spads and chalk. A poacher's pocket, sewn on the inside, held a water-bottle, note book, pencil, and a 100 ft tape.

Having obtained an H.N.C. in Mining Surveying, I entered for the two day practical surveying exam in order to gain a certificate of competence. For this, I and others in my year went to a colliery in another area which was designated as a testing centre. We also took a theodolite and dumpy level, with their tripods and a Sopwith staff, tapes, plumb-bob, note books etc. On the first day each candidate was designated an assistant, who was usually another apprentice in their third year. We were then taken to the colliery's cricket ground and given a surveying problem, which we were left to solve. The examiners (qualified surveyors) walked amongst us, taking note of our progress and asking us about our methodology. This was repeated the following day, with a different problem, and underground.

The notification that I'd been successful was a welcome relief, and signalled a coming change in my life. I knew that I would be changing my place of work, because Frickley had its complement of qualified surveyors. Before that, however, the 1974 strike broke out and we became minders of the colliery compressor house. These machines were kept ticking over to maintain pressure in the mains. All we had to do was, every hour, note down a series of readings from a row of dials. To overcome the boredom, the manager put a TV in the office for us. In 1974, the only TV during the day was for children. We became regular watchers of Sesame Street and fans of Oscar the Grouch.

One night, while back at my digs, the landlady shouted that there was a phone call for me. It was the Contracts Director from a civil engineering company at Skipton, asking if I was interested in a change of job. I offered to meet him and visit a site. He made an offer, I accepted and my mining career ended.

To be continued Mike Gill

3rd IEEC Conference - Advanced Notice

We are pleased to be able to announce firm plans for our third IEEC Conference in March 2024, at Summerlee Museum of Scottish Industrial Life, at Coatbridge, in Scotland. #IEEC3

Stop Press

Redhills – a grand hall created for the Durham Miners Association in 1915 and recognised as amongst the finest trade union buildings in Europe is seeking Unesco world heritage status. Standing on Crossgate Moor, Durham, at its heart is a spectacular debating chamber, nicknamed the "pitman's parliament".

Guardian, 04/08/2022.

Glück Auf

The Legal Stuff

No animals were hurt during the writing of this Newsletter, although some species did become extinct.

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