The Northern Mine Research Society

Newsletter - May 2002

Society Meetings -2002

Provisional Field Meet Programme (Dates & details to be confirmed)

Saturday 22nd June	**Swinnergill level** (Near Keld)- mainly underground.
Friday - Monday 5-8 July	**NAMHO 2002** (Aberystwyth, Wales). "The application of water power in mining".
Saturday 20th July	**Whiteaside / Summerlodge / Moulds** (Swaledale-Arkengarthdale) – underground.
September	**Boulby Potash Mine** - underground, limited numbers and subject to approval.
October	**Autumn General Meeting** - slides / social.
Saturday-Sunday 26,27th October	**Teesdale** - details to be announced.

Meet Leaders

The secretary will always welcome offers from members to organise and lead field meetings. If you have a suggestion for a meet, please contact:
Steve Mitchell (c/o 38 Main Street, Sutton in Craven, Keithley, West Yorkshire DB20 7HD)

Inside this issue;

Society News

CONONLEY MEET

A dozen or so Northern Mines and Peak District Mines members braved an unpromising day to be shown round the Engine Shaft area by Mike Gill. He described the mine's layout and history, and the work done by the Friends of Cononley Mine, whilst Martin Roe described his work around the engine house and at the Upper Adit.

Mike Gill

JOINT MEETING WITH PDMHS

On April 13th, some officers of this society and of the Peak District Mines Historical Society Ltd met at the Magpie Mine Field Centre to discuss matters of common interest and the potential for forging closer links. Because there were no proposals on the table, it was agreed to hold a seminar, rather than a formal meeting, in order to allow ideas to be introduced and discussed freely. Three areas were identified for discussion: Membership, Publications and Assets/Responsibilities.

We agreed that, in common with many subjects, interest in Industrial Archaeology is not as strong as it was and, as a result, the membership of both Societies is at best static. Whilst both societies have sufficient funds, their officers are in general short on time, as most do need to make a living, and both societies sometimes experience difficulties in getting new volunteers/committee members. Both Societies, therefore, need to have a strategy for managing the possible/likely decline in membership. Any such strategy should take into account members' interests and the advancement of mining history. Some 12 years ago, it was estimated that our memberships overlapped by around 15 percent, so it was also agreed to recalculate this figure.

The area of joint publications is one in which savings could be made in the unit cost of production. Between them, the societies hold the two best titles in this field and both could continue, possibly with *British Mining* being used for monographs and *Mining History* for memoirs.

Our greatest difference is in the field of Assets/Responsibilities. The NMRS has no buildings, museum etc, whilst the PDMHS has a number.

The meeting was a good opportunity to get to know each other and to discuss matters of common interest. Apart from agreeing to hold a joint social event (see elsewhere in this Newsletter) and to meet again, no proposals were made.

Mike Gill

JOINT SOCIAL EVENT

Please note that this is extra to the published meets programme. This society and the Peak District Mines Historical Society are to hold a joint social event on Saturday, November 9th. It will consist of a series of short, illustrated talks showing the sort of work being undertaken by each society's members. If you would like to give a talk, please contact Mike Gill (01535 635388). The venue, which will be in the Sheffield – Chesterfield area, has not been fixed yet, but full details will be available in the August Newsletter.

THE MEADHURST CLUB

The Society gratefully acknowledges the receipt of £239.16 from the Meadhurst Club which has disbanded its Industrial Archaeology section and is distributing its assets

SERVICES TO THE SOCIETY

In recognition of their important contribution to the society, glass tankards were awarded to the retiring editor, Hazel Martell, and to Harry and Sue Houghton. The photo shows Harry about to use his tankard, which is engraved with the recipient's name and the society's logo.

PLEASE HELP US KEEP IN TOUCH WITH YOU

With an ever growing and what sometimes feels like a constantly moving membership we sometimes lose touch with members. Please help us by remembering to let us know your new address if you move. If you do not hear from us for a while, we aim to send out:-

Newsletters

Late February
Late May usually with a Monograph
Mid August
Mid December usually with the Memoirs

If you do not hear anything by a month after those dates (remember we are doing the job in our spare time and things sometimes drift) - please shout out. (The Secretary, c/o 38 Main Street, Sutton in Craven, KEIGHLEY, Yorkshire, BD20 7HD. Tel/Fax 01535 635388 or Email martgill@legend.co.uk).

Cornwall's oldest mining artefact?

During the first week of March a potentially very significant object was discovered by Geoff Treseder of the St. Just Mines Research Group. Recent heavy seas had removed boulders from the area in front of the adit of Wheal Hermon, near St. Just. The adit is just above the high tide level.

The object was excavated by the Cornwall Archaeology Unit with the co-operation of the National Trust, the landowners, and staff from Geevor Tin Mine Museum. It was hauled up the cliff and taken to the Museum where it is being stored in water before dating and conservation work are carried out. The National Trust has agreed to undertake this work and it is hoped that the artefact will eventually be on show at Geevor. The excavation and recovery were video recorded by Mines Group member John Potter, who has made many films on local mining themes.

The artefact has been provisionally identified as part of a pump column, probably made of elm, which was later re-used as a section of pipe to take water out of the adit. The section is reinforced with a wrought iron band and is very similar to Agricola's illustration of pumps from 1566.

Hermon is one of the oldest mines in the St. Just area. There have been suggestions that it was worked underground as early as the 16th century. It was worked extensively in the 18th Century and sporadically up to the 1940's.

The lodes running through the cliff and across the rocks of the beach are obvious and it seems likely that they would have been followed underground at an early date. This would entail working below sea level. A small winze can be seen just inside the adit.

The object may thus give some hard evidence for the earliest date at which underground mining as opposed to lodeback working began in the local area.

Bill Lakin. Chairman of Trustees, Pendeen Community Heritage, Geevor Tin Mine.

Killhope Lead Mining Museum

An impressive display of minerals from the North Pennine has been opened in the Museum. The display has been dedicated to Sir Kingsley Dunham who was the president of The Friends of Killhope until his recent death.

Nenthead News Release

For the past few years I have been involved in a project, of which one remarkable feature is the way that it has been kept secret. Now, being virtually completed, it is time to reveal all.

If one enters the Caplecleugh High Level, in the Upper Nent Valley, it is possible to explore this level for a distance of about 500 metres to a solid collapse. There have been attempts to dig through this fall in recent years, all unsuccessful. Many contemporary researchers dismiss the Caplecleugh High Level as simply leading to Bog Shaft. This could not be further from the truth.

If one could "spirit" oneself through this fall, one would be able to pass other falls to eventually find oneself in virtually solid passage driven mainly in the limestone. One would then be able to proceed for about a mile, in a westerly direction, passing through several recent digs to eventually reach the forehead about four hundred meters from Longholehead Whimsy.

The level from the portal follows the Cowslitts Cross Vein to its intersection with the Caplecleugh North Vein, this is the area of the fall that blocks the level. The level then follows Caplecleugh North Vein passing several branches on the left. These crosscut the Caplecleugh Vein and Caplecleugh Sun Vein, one reaching the Caplecleugh Engine Shaft. None of this area is shown on the abandonment plan, possible a factor that has lead to confusion.

Proceeding westward one would pass several sumps leading down to lower workings; these have concrete dams put in by the Veille Montagne Company as this level was used as a spillway from the compressors in Bog Shaft. Soon one would be in the area covered by the abandonment plans, and reach a crosscut to Longcleeugh Vein going off on the left. This level is blocked by collapses, but would have originally led to Bog Shaft. Proceeding further to the west, one would pass Baisbecks Crosscut on the left and further on the head of Archers Rise, which would be seen to be rigged for SRT, this being the access point from the Caplecleugh Horse Level below. In this vicinity is the name "Isaac Archer " and "Priorsdale House Age 18 1850". Further to the west a branch to the left follows Archers Vein, while the main passage continues through a series of tight digs, and areas containing gas and bad air, to end eventually at the forehead.

The last known people to enter these workings, was a survey party including Thos F Walton, who is the signatory to the abandonment plans. A curious fact is that this party all left their names on the wall, and the date "February 23rd 1926". Yet the abandonment plans are dated December 6th 1922.

There are also a few lines of poetry signed by an L. W. Pattinson

In darkest shades if thou appear
My dawning is begun
Thou art my souls bright shining star
And thou my rising sun.

L.W. Pattinson (a member of Thos Waltons survey group) Feb 23 1926.

The chalk survey marks are to be seen on the walls going west as far as the Longlcleugh Vein crosscut; there was no sign that anyone had been in the westerly extremity for any number of years.

Since the early 1990s I had been exploring the Caplecleugh workings, and climbing the various rises. Later, I was to team up with Ian Hebson, a fellow member of several northern mining societies. Ian is a better climber than me, and together we have managed to climb virtually every rise from the Caplecleugh Horse level into the Great Limestone workings. Ian also gained Archers Rise and fitted it out with SRT ropes, however at this point in time I am not prepared to describe the route in detail because of safety considerations. Both Ian and myself have put a lot of effort into this project, Ian's climbing on several

occasions put himself at personal risk. I myself have spent up to ten and a half hours digging in there, carrying materials including two Acro props through the working s and up the various SRT rises.
Others, including Ian's girlfriend Kirsten Crowther, have been part of team on and off.
As I have stated in the forgoing text, the main level from the collapse in the entrance section, to its forehead in approximately one mile. If one includes the various side passages, stopes, rises and sumps, there is probably about two miles of working not previously accessed by modern explorers.
I would council a great deal of caution to anyone considering attempting to locate the routes and explore these workings. The routes itself is slightly unstable, and the western end of the high level has gas and bad air. In sharp contrast the eastern end is very strongly ventilated, in fact TOO strongly. It is the coldest place I have ever visited underground and therefore carries the attendant risk of someone going into hypothermia.
It is my hope that this discovery will prompt an organised effort to dig the collapse in the main level. This would provide an easier access route for proper research, and greatly add to the famous "Nenthead Through Trip".
I am also in the process of writing a book about Caplecleugh. This will include a diary of events relating to the re accessing of the high level network, told as it happened. In the mean time I welcome discussion with any contemporary researcher or historian who has an interest in the area.

Roy Fellows. March 2002

Nenthead mines access

The following new admission arrangements have been issued by the North Pennines Heritage Trust to cover the mines situated in the region under their control, i.e. the mines upstream from the Nenthed Garrigill road.

Nenthead Mines

Admission arrangements for NAMAHO Groups and Independent Mine Explorerers.

1. All visitors are required to obtain the permission of the Trust before entering the site.
2. The Trust assumes that all visiting groups will comply with statutory Health and Safety requirements. The Trust expects that visitors will have third party liability insurance.
3. Visits can be arranged in advance or during the open times of the visitor centre. You can contact NPHT by phone, email, fax or personal call. When the visitor centre is closed during the winter season our staff can be contacted via the Trust office in the Rampgill Mine wood yard.
4. The admission charge is £1.00 per person for each visit. NPHT members are not charged.
5. No person may descend Brewery Shaft without making special separate arrangements with the Trust. You should contact the Trust office by post or via email with a detailed proposal. Proposals will only be considered for periods when the Visitors Centre is not open to the public.
6. Vehicles must be parked in the Visitor Centre car park. There are no car parking spaces at the end of the byway at Mill Cottage.
7. No vehicles will be allowed to travel to Smallcleugh Mine or any other mine entrance.
8. Club members may visit Carrs Mine with a Trust official and normal visitor charges will apply
9. Payment will be made in advance or at the time of the visit.
10. Members of any group must obey all Health and Safety warnings, follow any instructions on NPHT notices, and comply with the directions of NPHT employees and Directors.
11. Groups will not be permitted to remain overnight on the site except as residents of the Mill Cottage bunkhouse.
12. Mines on the Nenthead Mine site include Carrs, Caplecleugh Low, Rampgill , Smallcleugh, Hodgsons Low, Hodgsons High, Firestone and Middlecleugh levels, and Brewery and Hangingshaw Engine shafts.
13. Contact numbers are

Visitor centre	01434 382037
Trust office	01434 382045
Fax	01434 382294
Email	np.ht@virgin.net

North Pennines Heritage Trust, Nenthead, Alston, Cumbria CA93PD

Members wants

NMRS "Teign Valley Lead Mines" ISS No.6 1973.
Please contact David R. Neal on 01341 423026 (N. Wales) or dneal10478@aol.com.

New Newsletter Editor

This is the first Newsletter to be produced by myself. If it seems a little different to the excellent productions made by John and Alison Hunter I can only plead inexperience coupled with the untimely death of my computer.
Thanks to all who contributed to this newsletter. Material received and not used this time should appear in the next newsletter. Please keep sending articles and other material suitable for publication - it is greatly appreciated. Items relating to mining in the northern Pennines are particularly welcome. Contributions can be in text (*.txt) format by email or diskette, but please don't hesitate to send submissions on paper if necessary. If sending printed text, 12 point Arial scans nicely. Photos, plans and sketches can also be scanned, but please advise us of the copyright ownership. Diskettes will be returned with the following newsletter unless instructed otherwise. Contributions for August newsletter by mid-late July please, to:

Mr. R. A. Fairbairn, Pethfoot Cottage, Allendale, Hexham, Northumberland. NE47 9ND

raymondfairbairn @lineone.net

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Mining Biographical Sketches

Sir Clement Le Neve Foster (1841 - 1904)

Clement Foster was Inspector of Mines and Professor of Mining at the Royal School of Mines and was the second son of Peter Le Neve Foster, secretary to the Society of Arts from 1853 to 1879. His mother was Georgiana Elizabeth, daughter of the Revd. Clement Chevalier. He was born at Camberwell on March 23, 1841 and was educated first at the collegiate school in Camberwell then later at the College Communale of Boulogue.

In 1857 he graduated Bachelier de Sciences of the Empire of France. In the same year he entered the School of Mines in London, where he took many prizes and established a brilliant record. Thence he went to the Mining School of Freiberg. In 1860 he was appointed to the Geological Survey of England and for the next five years was engaged in fieldwork in Kent, Sussex, Derbyshire and Yorkshire. His first scientific publication was a memoir prepared with William Topley on the subject of the valley of the Medway and the denudation of the Weald, which was published in the Quarterly Journal of the Geological Society (Vol.xxi).

In 1865 Clement Foster graduated as a DSc at the University of London, and in the same year he resigned his post with the Geological Survey and became lecturer to the Miners' Association of Cornwall and Devon, and secretary to the Royal Cornwall Polytechnical Society. In 1868 he was employed by the Khedive of Egypt on an exploratory expedition to examine the mineral resources of the Sinai peninsula. He also reported in the same year on a Venezuelan goldfield and from 1869 to 1872 he was engineer to a gold mining company in northern Italy. In 1872 he was nominated Inspector of Mines under the new Metalliferous Mines Regulations Act, being appointed to Cornwall. Eight years later, in 1880, he was transferred to North Wales, where he remained for 21 years.

In 1890, on the death of Sir Warington Smyth, he became Professor of Mining at the Royal School of Mines, an office which he held concurrently with his inspectorship. He proved to be an excellent teacher. In 1897, as Inspector of Mines, he investigated the cause of an underground fire in the Snaefell lead mine on the Isle of Man. The cage in which he had descended with an exploratory party became jammed in the shaft and the party was then subjected to a process of slow poisoning by the carbon monoxide generated by the fire. All the contemporary accounts of this accident attest to the courage with which, in the face of apparent certain death, Foster noted his own sensations for the benefit of science. Foster never fully recovered from the cardiac injury sustained during the process of gradual suffocation. He was incapacitated for nearly a year.

Besides his official work, Foster produced numerous reports and advised on many questions connected with mining legislation. He served on various departmental committees and Royal commissions, including those for the Chicago and the St. Louis Exhibitions. He was a juror at the Inventions Exhibition in 1885, at Paris in 1867, 1878, 1889 and 1900 and also at Chicago in 1893. He received the Legion of Honour at Paris in 1889 for his services, became an F.R.S. in 1892 and was knighted in 1903. In 1901 he resigned his inspectorship, but the professorship he retained until his death, which occurred on April 19, 1904 at Coleherne Court, Earls Court, London. He was serving on the Royal Commission on Coal Supplies at the time.

Foster translated a work by Peter van Diest, in Dutch, on Banca and its tin stream works, learning the language especially for this purpose (Truro, 1867), and in 1876, together with William Galloway, he published a translation from the French Professor Callon's treatise on mining. His principal work was a textbook on 'Ore and Stone Mining' (1894. 7th edition revised by Professor S. Herbert Cox in 1910), and he wrote the article on Mining in the 9th edition of Encyclopedia Brittannica. He was also author of a textbook on 'Mining and Quarrying' (1903) and of numerous memoirs and papers in the Proceedings of the Geological and other scientific societies and in various scientific periodicals. From 1894 he edited the mineral statistics issued by the Home Office and the annual reports on mines and quarries.

While he achieved a considerable reputation as a geologist and metallurgist, it was as a miner and a mining expert that he was really eminent. Though at the beginning of his inspectorship his energy in imposing novel restrictions and in insisting on the reform and improvement of existing methods was little appreciated by the mining community, he ultimately gained in both of his districts the esteem of miners and mine owners alike. In 1872 he married his cousin, Sophia Chevalier, second daughter of Arthur F. Tompson of Belton, Suffolk, and together they raised one son and two daughters. His widow received a civil list pension of £100 in August 1904.

Proc. Roy. Soc. Lxxv.371 (by Prof. Judd)
Nature, 28.4.1904 (H.Bauerman)
Journ. Soc. Arts 29.4.1904 (by H.T.W.)
Trans. Am. Soc. Min. Eng. 1904 Vol 35, p362.
Engineer 22.4.1904.

Tony Fretwell

Book Reviews

THE GLASDIR EXPERIMENT by Peter R Jenkins 2001 edition 21 pp, 3 illus. SB £2.50 post free from the publisher, Dragonwheel Books, Sandcott, Rectory Lane, Pulborough, West Sussex, RH20 2AD.

During many visits to Glasdir Copper Mine, near Dolgellau, in mid Wales I had often puzzled over the remains. Well, now all is explained by this handy booklet. This was the site of an experimental process known as floatation, a method vital to the modern mining industry. Using this process minerals can be extracted from an ore that can contain as little as a few parts per million. Peter Jenkins describes the trials and tribulations of the various miner owners culminating with those of Frank Elmore who refined the technique of crushing the ore with water to produce a fine slurry and adding oil which adhered to the copper pyrites. Air is introduced at the base of the holding tank to produce a froth of bubbles which rise through the slurry. Mineral particles gather on the surface of the bubbles. Subsequent developments soon overtook Frank Elmore's work but the Glasdir experiment marked a turning point in the history of extractive metallurgy.

Tony Oldham

THE ELMORE MYSTERY / The inventive Elmore family and their role in the development of Flotation Process for Mineral Concentration by Peter R Jenkins 2001, 201 pp, 77 illus. SB £24.50 post free in the UK from the publisher, Dragonwheel Books, Sandcott, Rectory Lane, Pulborough, West Sussex, RH20 2AD.

From Glasdir Copper Mine in mid Wales to the Broken Hill Mine in Australia this is a fascinating account of intrigue and invention. Of court cases won and lost and one case going as far as the House of Lords.

This book is based on Peter Jenkins's postgraduate research at Bath University. His investigations into the flotation processes tell us something about Herbert Hoover, before he was president of the USA, but when he went as a financier and mining engineer to Australia. There he formed the Zinc Corporation to extract zinc from the mine waste at Broken Hill. Technical problems led to the building of the most important Elmore vacuum plant, which saved the Corporation from financial ruin and played a vital part in supplying Britain with zinc during WW2.

The Elmores had a talent for innovation, and for promoting businesses to market them. They had been largely responsible for devising a system for making copper tubes by electrolytic deposit. They invented the Elmore dynamo with its low voltage and high current, it was just the job for electrolysis. When the family bought the Glasdir Mine, Frank Elmore found a way of using oil to collect mineral particles from the crushed rock.. It had been tried unsuccessfully by previous owners, but it was Elmore who developed a process that was practical to utilise on an industrial scale.

The book is concluded with a catalogue and description of the patents filed by William, Frank and Stanley Elmore between 1879 and 1945 in the fields of electometallurgy and mining, with such other curiosities as a meter for recording passenger traffic in tramcars and a primitive linear induction motor. As always the Biography make interesting reading from the Public Record Office at Kew to the Herbert Hoover Presidential Library in the USA. An essential reference work.

Tony Oldham

ON THE DRESSING OF ORES / Methods and Machines of the 1870s by John Darlington, Mining Engineer, Author of Miner's Handbook.. From Ure's Dictionary of Arts, Manufactures, and Mines Edited by Robert Hunt FRS (1878) 2002 pp vii + 72-161, 127 illus. SB £12.95 post free in the UK from the publisher, Dragonwheel Books, Sandcott, Rectory Lane, Pulborough, West Sussex, RH20 2AD.

Visit a disused metal mine today and you could well wonder how the mine was operated. Any implement made of wood or metal will have long gone, either decayed or recycled. This reprint of a rare and expensive book will go some way in to showing some of the tools and equipment being used in the halcyon days of British metal mining. The contents include washing and separating ores, grinding and crushing machinery, stamps, jigging machinery, separators or classifiers, the strake, tye and strip, sand and slime dressing machinery, forwarding and lifting apparatus. The descriptions are brought to live with some fine steel engravings. There are a lot of interesting facts: e.g. spalling was usually performed by women. This was the breaking up of the stone to the proper size for the bucking hammer or crushing mill. The hammer was made of cast steel and was set with a light

pliant handle. It weighed about 16 ounces and cost eightpence. A practised spaller could produce about one ton of stuff a day. The book then goes on to describe the work of the stone breaker. Here, a machine with 24 inch jaws needed 15 horse power but could produce 13 cubic yards of stone an hour.

Then there is the Arrastre or Tahona. This was a horse or mule power machine which could grind silver ores to powder ready for amalgamation.

A unique insight into Victorian machinery which could be compared to works of art, and which, in many instances, were far ahead of their time.

Tony Oldham

BURTERSETT QUARRIES

A Wensleydale Mining Community. By David Hall

This small booklet is back in print again. The 1st Edition was in 1985. Reprinted August 2001 with additions by the wife of David Hall, June Hall. Published by Unicorn Projects. Printed by The Country Press. Swiss Cottage, The Newkin, Bainbridge North Yorks. ISBN 09514639 8 5.

I obtained my copy from The Dales Visitors Centre at Hawes for a few pounds. It tells the story of Burtersett Community and its Quarries from the 1870s to when they finally ceased in 1931 This is a excellent little book for anyone who wants to know more about Burtersett Quarries, which little is known. The book has maps on East Shaw, Scarhead, Braygill, Seavy, Old and Raygill Quarries. It has plans of the Quarrymen's Cottages and photos of quarrymen outside Redgate Level Mouth. c.1885 and workmen and managers at Old Quarry. c.1895.

Barry Jones

THE PRACTICE OF BRITISH GEOLOGY, 1750-1850, by Hugh Torrens. Ashgate, Variorum Collected Studies Series, March 2002, 372 pp., ISBN 0 86078 876 8. £59.50

This collection of papers explores an area seldom considered by mining historians, the contribution made by geological practitioners to the advanceof mining in the growth period of the Industrial Revolution. The papers, listed below, largely focus on the advantages of understanding thest ratigraphical column in mineral prospecting, confining attention to the search for clays, limestone, ironstone and, of course, coal which are found in stratified form. Prospecting for minerals occurring in veins is given only passing mention and there the author assigns supremacy to other countries whose 'mining traditions were very much longer', whereas there is good evidence for prospecting in English non-ferrous metal mines as far back as the early 14th century. We are apt to forget that it was not until the beginning of the 19th century that the stratigraphy of rocks was understood and it took a lot longer for that understanding to permeate to the mining community. The concept of coal as a stratiform mineral and the means by which it might be prospected were known in the 17th century. Percussion boring rods, the principal tool for coal prospecting, continued in use well into the 20th century despite being rendered obsolete in 1805. An excellent account is provided of the development of the core drill by an Irish-born mining surveyor, James Ryan, and the failure of the British mining establishment to appreciate its advantages, even when its use was reduced to the provision of low cost, large diameter bores capable of ventilating mines. Torrens' papers are punctuated with accounts of futile trials for coal in unsuitable strata, some well into the 19th century, where better understanding or the use of appropriate techniques would have quickly curtailed the waste of time and money.

The use of percussion boring rods destroyed the very evidence that might identify the rocks through which they passed. Up to the late 18th century fossils had been studied as curiosities in their own right but it was William Smith who, in the 1790s, used them to identify the rocks in which they were found. In doing so, Smith could unravel the stratigraphy of rocks, establishing a sequence in which the principal coal bearing strata, the Carboniferous Coal Measures, could be placed with accuracy. Smith built on the work of his predecessors and was often assisted by that of other practical men of the period. Torrens has identified the role of these men, practical surveyors and miners, men with little or no formal training. Men like John Williams, who identified and worked the coals at Brora, in Sutherland, and died whilst surveying for minerals in the Venetian republic in 1795, or Arthur Aitkin whose mineralogical survey of Shropshire preceded, and provided a basis for, that of the better known work by Murchison. Others took the new, scientific approach of mineral surveying to new mining fields in America, to Chile in the south, Virginia in the north, and laid the foundations for the geological survey of Canada.

Friction between the practical geologists and the 'gentlemen' of the Geological Society of London is highlighted in Torrens paper on Sir Joseph Banks, and a second, co-authored with Dr Trevor Ford,

exploring the work of John Farey. Banks' early patronage of the practitioners brought him into conflict with the new scientific establishment. The economic benefits of the former were clearly in evidence on Banks' own estates in Derbyshire, and he made representation to the Society on behalf of both Smith and Farey, yet he and the establishment tend to be at the forefront of geological historiography whilst the practical men seldom warrant a mention. Torrens' work has countered that tendency. Despite what he describes as the 'papyrophobia' of such practitioners his accounts paint a credible, well researched picture of men who influenced the direction of mining in Britain and abroad at a time of increased industrial demands, but whose work has largely gone unrecognised.
As in all such collections in the Variorum Series, the papers retain their original pagination. The original language of publication is also retained which, in the case of one paper in French and substantial sections of another in Italian, still makes them inaccessible to a largely English speaking audience.

Contents:
Some thoughts on the complex and forgotten history of mineral exploration, Journal of the Open University Geological Society 17 (1997).

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Coal hunting at Bexhill 1805-1811: how the new science of stratigraphy was ignored, Sussex Archaeological Collections 136, (Lewes, 1998).

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The Scientific Ancestry and Historiography of The Silurian System, Journal of the Geological Society 147 (Bath, 1990).

Joseph Harrison Fryer (1777-1855): geologist and mining engineer in England 1803-1825 and South America 1826-1828 - a study in 'failure', Geological Sciences in Latin America: Scientific Relations and Exchanges, ed. M. M. Lopes and S. F. Figueirôa (Campinas, 1995).

William Edmond Logan's geological apprenticeship in Britain 1831-1842, Geoscience Canada 26 (St. John's, 1999)

James Buckman (1814-1884), English consulting geologist and his visit to the Guyandotte coal-fields in 1854, with William R. Brice, Southeastern Geology38, (Durham NC, 1999).

Peter Claughton,
Blaenpant Morfil,
Rosebush,
Clynderwen,
Pembrokeshire,
Wales SA66 7RE.

Durham Collieries
The Durham County Record Office published this book in 2001: Price £7.50 (incl. p&p), 113 pages, available from DCRO, County Hall, Durham DH1 5UL. The book consists of a main alphabetic listing of collieries, 3 indexes and an introduction which reviews the sources that were consulted. Indexed are the owners with their collieries, the townships with their collieries and, thirdly, a map reference index. The main listing includes details of which historic OS maps each mine appears on, dates of sinking/closure etc.