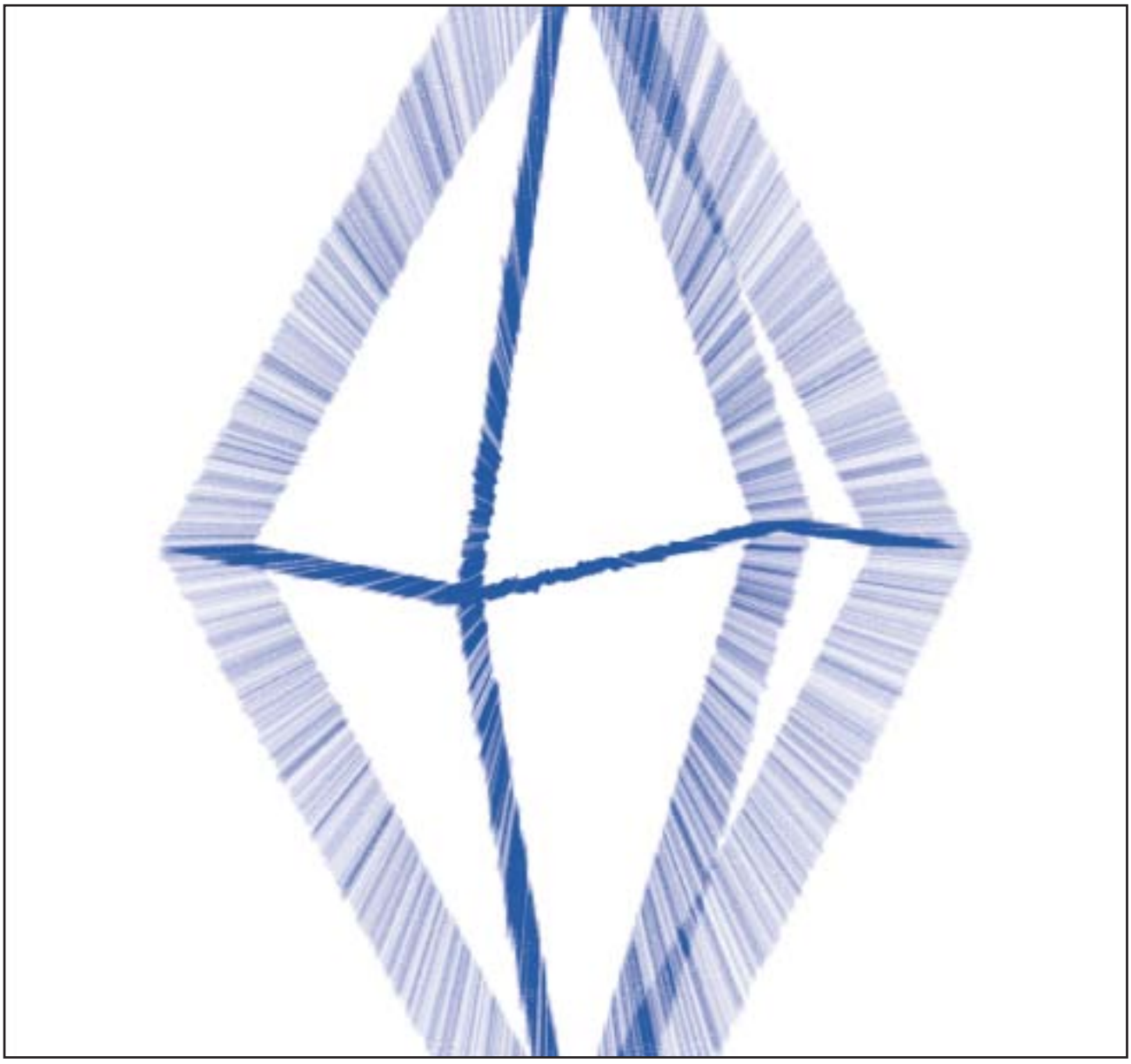
The Russell Society Newsletter



Number 63
September 2013

The Russell Society is a society of amateur and professional mineralogists which encourages the study, recording and conservation of mineralogical sites and material.
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The Russell Society Health and Safety Policy:

Adopted by Council 27th September 2009.

• It is the policy of the Russell Society, so far as is reasonably practicable, to ensure that health and safety issues as applicable to the Society have been and will be properly addressed.

• All members of the Society are to take reasonable steps for the H&S of themselves and others who may be affected by their acts or omissions.

• All members of the Society are to co-operate with the Society, so far as is reasonably practicable, to enable the Society to comply with any duty or requirement imposed on it.

• In the event of an accident or injury members of the Society should seek the appropriate medical attention and notify Society officials who will properly document all details.

• Any member of the Society can bring to the attention of Society officials any suggestions or ideas which could improve safety and prevent accidents.

One of the aims of the Russell Society is to encourage the study, recording and conservation of mineralogical sites and material. Among the various activities undertaken in pursuit of this aim, members make many field visits to sites around the country and attend many lectures and other indoor meetings. The Russell Society promotes a high degree of responsibility amongst its members in the achievement of its aims, especially with regard to Health and Safety (H&S) matters.

It has

A Health and Safety Policy
A Risk Assessment Form
A Guide to Good Practice
A Field Leaders Indemnity Form
An Incident Report Form
A Field Visit Check List

These documents are to encourage enjoyable and interesting visits and meetings that are educational, involve conservation and recording, and are incident free. They also show the responsible attitude that the Russell Society and its members have to health and safety issues.

The views and opinions expressed in this Newsletter are those of its correspondents, and are not necessarily agreed with or shared by the Editors, the Council, the Russell Society or its Members. The accuracy of submissions is the responsibility of the authors or Society branches and will not necessarily be checked by the Editor for validity.

Editorial

The seasons roll around and, once again, a Russell Society Newsletter lands on your doormat (at least I hope it does; I would hate to think I was sticking stamps on 370 envelopes for nothing). A lot has happened since I last sent out an issue, not least a most successful ASM meeting in Kendal, Cumbria in April. This was greatly enjoyed by the 40 or so members who attended. It is still slightly disappointing that more members did not feel it worthwhile to attend the Society's biggest event of the year, so – you people out there who have never attended an ASM weekend - why not think seriously about next year's event which is being organised by the Southern Branch and will take place between the 11th and 13th April 2014? Put those dates in your diary and try actually to be there. You won't regret it.

By the time you read this the summer will be largely over and the field collecting programme for the year will be into its latter stages. I hope you have been "out there" on at least some of the Society's field trips this year and have, in consequence, bags and boxes of self collected material. This will keep you occupied with identification, cleaning and trimming through the winter months and will also provide material to trade next year with those less fortunate individuals who missed the trips. I know it's one of my perennial hobby horses but I make no apology for banging on about it again. The Russell Society, by virtue of its position and the tireless efforts of its field trip organisers and leaders, provides pretty much unrivalled opportunities for mineral collecting in Britain. As you will see in the report of the AGM meeting later in this issue 135 different members clocked up 464 "person-visits" in the preceding year. For a Society with more than 350 members and a field trip programme comprising more than 40 one day trips and multi-site weekend trips that's not actually a very impressive number. There must be many of you out there who are missing opportunities for interesting and potentially fruitful collecting trips; some of them probably quite close to where you live. Go on – dig out the collecting bag, dust off the hammer and sharpen the chisels. There is stuff out there just waiting for you to collect it.

I have mentioned previously my interest in all aspects of mineral cleaning and "preparation" (including the rationale and philosophy, specific methodology and so on) and the possibility of gathering together up to date information to provide a resource for the collecting community generally. I have had a few responses from people expressing their interest in this area and one or two messages about specific problems and possible solutions. What I really need is a more substantial sharing of people's thoughts and approaches. What problems have you had and how did you approach them? What worked well (and what didn't)? Where did you source the equipment and chemicals you used? Please take a moment to "ping" me an e-mail (m.t.doel@talk21.com) with your thoughts, suggestions, tales of woe, etc.

This issue of the Newsletter is actually slightly larger than the last one but this is mainly because of the large number of field trip and meeting reports this time. The fact is that, field trip reports aside, we are looking at something of a decline recently in the number of items received from members for publication. I would not want this to become a real, ongoing problem so this constitutes a serious plea for you to get your thinking caps on and provide me with some material, be it general mineral related news items, book reviews, information or comment on specific topics, anecdotes of collecting in the "good old days" or whatever. Fire up those e-mails, sharpen your goose feather quill or whatever other technology you are comfortable with and let's hear from you.

While on the subject of field trip reports, can I remind field trip leaders and others delegated to write trip reports that we try to limit individual locality reports to a maximum of no more than 700 words. "Long Weekend" type multi-locality expeditions obviously require quite a lot of words in total but, overall, please try to keep your reports fairly succinct if possible. Can I also remind people that pictures to accompany trip reports need to come to me as separate .jpg files attached to your e-mails. Pictures embedded in Word documents and the like always seem to cause a variety of problems.

The last issue of the Newsletter was the first one that we have sent out as a pdf document to everyone for whom we have an e-mail address. I received quite a lot of positive messages from recipients – which is gratifying – but I also received more than 20 "undeliverable" messages, which indicates that the e-mails we had on record for some of you were incorrect or outdated. I know that some of you have taken steps to remedy this but can you all please make sure that the Membership Secretary, Neil Hubbard, has your current, correct e-mail address in his database (send him a message at neilhubbard@talktalk.net). I shall be sending out pdf copies of this issue shortly after the paper editions hit the streets, so don't miss out. We might just manage to get the paper version of this Newsletter printed in colour, but the e-version will always be in full colour – make sure you look at it!

However you choose to do it, enjoy your newsletter.

Michael Doel

From the President:

Our new President on top of Goat Fell, Arran, in 2010.

As you will no doubt be aware Roy Starkey stood down as President of the Society at the April AGM in Kendal. Firstly, I would like to thank Roy for his tireless efforts in supporting the Society and for the work he has done in implementing a more modern approach to its running. The benefits of embracing technological advancements and the digital age may not be apparent to some, but without them we would be facing much higher membership fees in order to keep pace with ever increasing postage costs.

I would also like to express my thanks to the North-West Branch for organising such a successful Annual Society Meeting (ASM) in Kendal. The weather was beyond their control, but the venue and events were superb and everyone I have spoken to enjoyed themselves enormously. For those new members who are not aware of the event the ASM is weekend of fieldtrips, talks and displays, with a meal and auction on the Saturday evening. It is a great way to meet new people, catch up with old friends or to acquire a few new specimens all within a relaxed environment. The Southern branch is hosting next years event, on the south coast of England, so put the date (11-13 April) in your diary and I look forward to seeing you all there.

For those of you who don't know me it is, perhaps, worthwhile me introducing myself. I am Curator of Mineralogy at Amgueddfa Cymru – National Museum Wales, in Cardiff, where I have worked for thirteen years. My work involves curating new accessions and conserving older collections including the fine collection assembled by the Society's founder, Dr Bob King. I research aspects of the museums collection both historically and analytically through my running of the museum's X-ray diffractometer and research new localities and discoveries through fieldwork and with the help of enthusiasts who are ever willing to send in material for identification. Many interesting mineral species, some new to Wales or the British Isles, have been identified and through my involvement in the museum's website dedicated to Welsh mineralogy new discoveries are presented. You may also come across me giving talks on mineralogical subjects to the various branches and to other societies or, perhaps, leading a fieldtrip to some long forgotten mine in Wales.

I joined the Russell Society fifteen years ago, perhaps surprisingly not for the fieldtrips, because I was studying at Aberystwyth University but, because I liked reading the journal articles. Over the years I have lost count of the times that I have been asked, 'why did you join?' because I often stand out as the youngest one in the group. This to me seems strange and is not so much an issue now, but will become one in the future if we fail to attract younger members.

Everyone has a different reason why they are interested in a subject. My interest in mineralogy began as a teenager from fascination and intrigue of the heavy metallic 'rocks' that could be found on mine dumps in Mid-Wales during walking trips. My parents had no idea what the 'rocks' were, but through their support, we worked out that they were ores of lead and zinc. Family holidays were booked to regions of mineralogical interest and my knowledge grew from every discovery. Little did I know that an encyclopaedic knowledge of Welsh mineralogy would lead me to a job in a museum.

It is over twenty years since the Russell Society last had a museum mineralogist as President when Dr Bob Symes of the Natural History Museum, London, served for five years. The museum sector has been hit particularly badly during the financial crisis and the effects are still trickling through. No museum in Britain has been unaffected and the consequences will, I am sure, be felt for many years to come. The number of mineralogy curators in the UK can now be counted on two hands, but more worryingly there do not appear to be any younger people with the necessary skills or knowledge of mineralogy to adequately curate the collections.

I believe that one of the biggest challenges facing us, as a Society, is encouraging children into mineralogy. As a society we have very few student members and this is particularly worrying. Without mineralogical knowledge being passed down to younger members, the future for museums looks bleak.

Detailed mineralogy is rarely taught in universities. As a consequence, the majority of geology graduates would struggle to identify many of the mineral species represented in the collections of our members, let alone within a museum collection. In my view knowledge is better gained through first-hand experience in the field, from other mineralogists or

collectors and I would like to see us as a Society using our knowledge base to educate others. Let us not forget that when the idea of the Russell Society was conceived, in 1972, it was based around evening classes led by Bob King.

I would like to see more educational, or family friendly, fieldtrips aimed at encouraging new members to join the Society and to learn from each other. I hope that this can be achieved without detriment to the already popular collecting based trips, but as extra trips.

One obvious problem in trying to attract junior members is age restrictions on quarry visits, so I will be looking at arranging visits to coastal sites and countryside localities where no restrictions on age apply. I encourage all branches to think about the possibility of incorporating an educational trip into next year's summer programme. This will require organisation and time, but I do think that we need to look to the future of mineralogy.

I would also like to see the Society forge closer links with museums, both nationally and regionally. Many of our branches have arranged visits to view museum collections, or have members who work as volunteers within museums, but we can still do more. Museum and University Collection visits were highlighted as attractive to a number of members in a Society survey carried out in 2011 and I will press forward with arranging visits. If any members have specific museum collections that they think would be of interest then do please contact me. More and more historic institutions and their collections are threatened from both internal and external factors so try and support them remembering the old adage, 'use them, or lose them'.

Tom Cotterell
Hon. President

SOCIETY NOTICES

OBITUARY: Julie Margaret Green (1968 - 2013)

Julie and David at the bottom of Whim Shaft, Whitesmith Mine, Strontian in April 2009. Photograph: David Green.

Julie was born at Meriden in Birmingham, the only daughter of Bill and Alice Ballard. The family moved from the city centre to the suburbs as she grew up. Changing schools several times meant that Julie made relatively few friends and perhaps contributed to slight difficulties socialising in later years. She loved animals, however, and had a very close relationship with Smoky, her pet cat, about whom she constantly worried.

Julie did well at school and her interest in Natural History led to Reading University where she read Botany and Zoology. She made a small circle of friends there and remembered the first year of study as one of the happiest of her life. She graduated near the top of her year, and was asked to stay on for a PhD, but as luck would have she was offered a job in Weed Science at ICI. It was there she met my brother Andrew.

We met in 1990 by the most unlikely chance at the ICI Bonfire Night Barn Dance (the only time either of us ever attended such an event). That began a long distance relationship, where we spent holidays and weekends together. As we grew together, Julie took up my passion for mineral collecting and I hers for Natural History. She was fascinated by insects of all sorts, particularly butterflies, and (in common with a number of other mineral collectors) grew carnivorous plants.

Julie loved computers and when the chance came to become a database manager, she took it; it was a job she could do from anywhere. At about the same time I got a dream job curating the mineral collection at Manchester Museum. In 1996 we found a house together at Birchwood near Warrington.

I have not counted the number of field trips we made, but it exceeds 500. Our first forays, in 1993, were to Coldstones Quarry, an easy journey from Leeds. In the early years we also spent holiday time collecting in the Caldbeck Fells, the Isle of Skye, Cornwall and Ireland. Later, we made several visits to the Tucson Show and collected in Arizona, with memorable nights camping in the desert at Melissa Mine, where wulfenite is common. In 2004 a round the world holiday included a field trip to Broken Hill in New South Wales, where we were looked after by Bernie Day.

Time at home, following redundancy in 2004, allowed Julie to develop her computer skills. She became much more involved with the team at the UK Journal of Mines and Minerals and became its webmaster, designer and database manager. She also helped out correcting photos and producing some diagrams for the Journal of the Russell Society.

Julie loved photography and became expert at combining high magnification digital images, many of which are illustrated in books and journals, but she never wanted any credit for all the hard work. Indeed, she shunned the limelight.

Holidays for many years from 2002 onward focussed on Strontian in Scotland where we stayed with Dot and Donnie Macpherson. Together with Dave McCallum and Peter Briscoe, we uncovered some of the secrets of the abandoned mines. We explored the local hills making the long horseshoe walk to Sgurr Donald several times. The descent of Whim Shaft was one of our most ambitious adventures. At the end of each trip we would have a stream-cooled can of seventy shilling, sitting in the car, watching the sun set.

When Julie's Mum and Dad moved to Burnham on Sea, we had memorable trips to Sidmouth in Devon, often accompanied by Keith Corrie. The cliffs produce beautiful baryte crystals. An out of season trip to Cornwall yielded wonderful botallackite from Cligga Head; probably our best discovery ever. We found excellent quartz and chalcopyrite with Tom Cotterell at Nant Helen Mine in South Wales and ewaldite and paralstonite at Dolyhir Quarry with Peter Todhunter, Neil Hubbard and David Roe. Our last big underground adventure in 2011 was at Wet Grooves Mine in Yorkshire where beautiful baryte and fluorite were seen.

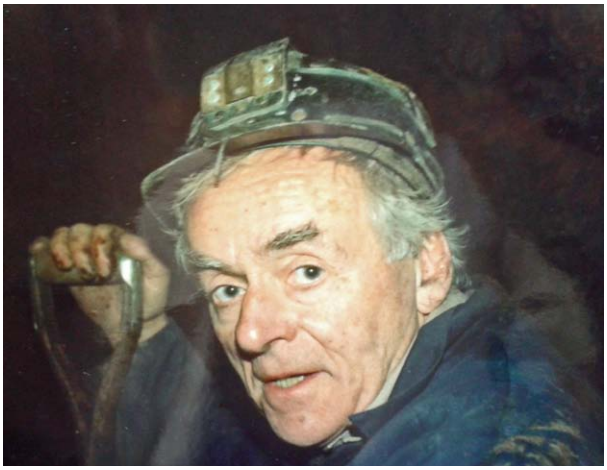
In 2012 we made two memorable trips to the Cairngorms. We saw a glory projected onto the clouds on the great cliff of Ben Avon. The sight of the two of us framed by the light is one I will not forget. Our last trip out, to Boulby Mine, was in early February of this year. In the time we spent together Julie amassed a small mineral collection, much of which was self collected, including some lovely specimens. She had a remarkable ability at spotting specimens and her favourite sort of collecting was wandering around picking things up.

Julie was unwell in February; she was diagnosed with cervical cancer in early March. The news from then on was the worst possible. Through the kindness of the Registrar we were married at home on 21st of April. Julie passed away 11 days later on the 2nd of May aged only 45; she spent just one day in hospital.

Julie is survived by her husband David; mother, Alice; and brother Alan. We had a remarkably close relationship, without a cross word for 20 years. Her untimely death came as a terrible shock. I miss her more than I can say.

David Green

OBITUARY: George William Hall (1924-2013)



George Hall. A major figure in British Metalliferous Mining History.

Dave Smith's Jazz Band at George Hall's Funeral. 25 July 2013.

I first met George at a Welsh Mines Society event back in the early 1980s. He was already a well-known figure in the world of British metalliferous mining and mining history, and author of two standard works on the subject The Metal Mines of Southern Wales (1971), and The Gold Mines of Merioneth (1975). A second edition of The Metal Mines of Southern Wales was published in 1993.

George was educated St Wilfrid's preparatory School at Seaford in Sussex, followed by Wycliffe College at Stonehouse. During the war Wycliffe was evacuated to Lampeter in Cardiganshire, which no doubt played an important role in encouraging his love of Wales. He developed a lifelong interest in mines and mining and was for short time at The

Royal School of Mines in London. When called up in the latter stages of the Second World War George volunteered for the mines as his National Service. The authorities were primarily seeking coal miners but George applied to work in metalliferous mining
and was placed in the New Dunn Mine near Coleford in the Forest of Dean, some twenty miles from his then home in Gloucester.

Throughout his life he had three great loves: cycling, mines and Wales. Cycling was a natural consequence of his father's business (a cycle shop in Gloucester), and his interest in mines, principally UK metal mines, never faded. He was a close friend of the late David Bick and together they spent many years exploring remote corners of Wales in pursuit of their mining history interests. When David founded the Welsh Mines Society at Dylife in June 1979, George was at his right hand as confidante and expert assistant, later taking a lead role in organising many successful field meetings over the following thirty odd years. In March 1998 George hosted an informal Spring Meeting at his home, which then became an annual event hosted each March - an ad hoc gathering of interested parties with impromptu talks, slide shows and discussions.

With his father he formed The Elenith Mining Company in 1946 which was intended to reopen the Esgair Mwyn Mine in Cardiganshire. The planning application was called in following objections from Welsh Water. George asked his good friend Gerard Noel to present the company's case at the ensuing three-day public inquiry in Aberystwyth, and to their joint astonishment they won the case against formidable odds from the Water Board on grounds of pollution. Unfortunately Elenith's plans for the mine never reached fruition. Neil Hubbard spent some time working with George in the 1980s trying to get the old mill and processing equipment into an operational state, but this too was later abandoned when the water company finally got its revenge and brought things to a close. George was also a director of Force Crag Mines (U.K) Ltd, originally incorporated in 1972, and dissolved in 1996.

As a consultant, he assisted the financier Mark Weinberg (later Sir Mark) in a project to reopen the Gwynfynnedd Gold Mine in North Wales in 1981. Although the mine did produce gold, it was unfortunately not in sufficient quantity to be commercially viable. Things might have been different at today's metal prices. The mine later changed hands and underground mining eventually ceased in 1998. Bob Symes once told me that he received a telephone call from George about 11.00am one morning to say that they had hit an astonishingly rich patch of gold, and if the Museum wanted to see it they'd better come NOW – could he be there for lunchtime? Bob explained that getting from South Kensington to Dolgellau in an hour or so was a big ask, but that he'd try and get there for mid-afternoon. Accordingly Bob and Frank Greenaway (the museum photographer) were despatched from London to make the journey to Dolgellau in time to photograph and study the exposed face, staying on after the shift had finished and not leaving the mine until around 8pm. A little-known aspect of the mine's activity however was the presentation of a one kilogram ingot of gold from the mine to Her Majesty the Queen on her 60th birthday in 1986. The gift was made by the then owners of the mine, a consortium chaired by Sir Mark Weinberg, thus ensuring the supply of Welsh gold for the traditional royal wedding rings for future generations. This gold bar is on display at the National Waterfront Museum at Swansea.

George amassed a comprehensive library and archive of books and documents relating to metalliferous mining, most notable amongst which perhaps is his run of the Mining Journal. He told me that he had travelled down to London to consult the MJ in the Geological Museum Library, as he had done on many previous occasions, and was aghast when told "Oh we've chucked them all away, and sent them for pulp!" "Where?" says George, and promptly hot-footed it to the paper merchant and managed to rescue the fragile bound series from a partly water-filled skip! The MJ is perhaps one of George's proudest possessions, and it has proved an invaluable resource to many mining history researchers over the years, including myself.

Even more remarkable is the fact that George, completely undaunted at the size of the task, produced a manual index to every volume, by noting the page number on which every named British mine was mentioned, and copying this information into a series of school exercise books, by hand! He was thus able to provide a service to researchers wanting to know what references were made to any given mine, something which I was able to make use of in my own project to document the history of the famous Herodsfoot Mine in Cornwall, and saving hundreds of hours of search time.

His knowledge of the past mining industry supplemented his prodigious knowledge of Wales. He was as at home in the mountains as he was underground exploring disused mines. In 2000 he produced a compilation of accounts from the Mining Journal under the title Mines of the Sixties (the 1860s), and over the years wrote many well researched articles for the newsletter of the Welsh Mines Society, and most recently for Welsh Mines and Mining. George featured in Country File for Radio 4, broadcast in March 2007, talking about gold mining in North Wales, and I think that he never quite gave up hope of hitting the big time with a Welsh mining project.

He was an extremely warm and enthusiastic person who always seemed to have time to “talk mines”, and invariably provided a thoughtful response to any question. He was a very willing correspondent and cheerfully dealt with all manner of queries directed his way. He was married three times: first to Rosemary, secondly to Maureen and by whom he had two sons, Thomas and William. Thirdly, to Nyeng, who brought considerable joy to his later years, and became a familiar face to attendees at the Spring Meetings at their home in Ludlow.

George’s longstanding friend, Gerard Noel, read a fitting eulogy at the funeral and I have drawn on some of his content here. He concluded his address by noting that “I have often found that friends have a favourite quotation. George would occasionally remind us of Longfellow’s words: “Life is real! Life is earnest! And the grave is not its goal.” — but always with a smile upon his face.” George passed away on Sunday 14th July 2013 in Ludlow Community Hospital, following a short illness. In addition to being the President of the Welsh Mines Society, George was a founder member and former Director of the Welsh Mines Preservation Trust. Our sympathies go to his two sons Thomas and William and his wife Nyeng. The funeral, held in glorious sunshine on 25th July at Gloucester Crematorium was attended by some eighty or so friends, relations and colleagues, with proceedings being accompanied by Dave Smith and his jazz band, which really saw George off in style. He was perhaps the last of the grand old men of British metalliferous mining, particularly in Wales, and was truly both a gentleman and a scholar. We shall all miss him enormously.

Roy Starkey

OBITUARY: Mary Hyde (1937 - 2013)

Mary Hyde at a Welsh Mines Society meet in 1993 (with John Henner in the background)

Mary was born in the London area in 1937 and attended boarding school at two different convents, only able to go home for the long summer holidays. Thereafter she was educated at Blackheath High School, and later studied for a degree in history but did not complete the course and decided instead to train as a teacher.

She had an uncle, Frank Cottrill, an important archaeologist, who in 1949 was appointed as the full time curator of the Winchester City Museum. As well as recording all archaeological evidence from trenches for services, foundations for new buildings and other activities, he also began a programme of scientific archaeology, inviting young archaeologists to carry out excavations in advance of development. As a result of this connection she met her future husband, Roy, at an archaeological dig in Winchester. Mary had two children and the whole family lived for a time in the USA near Washington D.C. Upon their return from the USA Mary took up a post providing holiday cover for the receptionist at a local GP practice in Cheltenham.

She became interested in geology and minerals, and this interest blossomed. She was a very active member of the local Cheltenham Club and also the Russell Society. Her interests broadened to embrace mining history and industrial

archaeology and she was a familiar figure on early Welsh Mines Society Meets. Through the WMS she became firm friends with David Bick and George Hall, both of whom are sadly no longer with us. Always enthusiastic and interested to learn new things, Mary was a popular member of the Wales and West Branch of the Russell Society and a regular participant on field trips to various quarries in the Mendips and South Wales areas, and also a familiar face at various mineral and gem shows. She had a passion for antiquarian books and spent many happy hours trawling the local second-hand bookshops in search of "hidden treasure".

In later life, Mary suffered two strokes, the first in March 2004, from which she recovered pretty well, and another in March 2009 which reduced her quality of life significantly. In March of this year she was admitted to hospital and sadly passed away a few days later on 26th March 2013.

Our condolences go to Roy her husband, daughter Kathy, son Eddy and grandchildren Josie, Alex and Oliver. We shall miss Mary's infectious enthusiasm and her enquiring personality.

Roy Starkey

The "Maisemore Event" 2013.

The popular annual event organised jointly by the Russell Society Wales & West branch and the Cheltenham Mineral & Geological Society is scheduled to take place at Maisemore Village Hall, Maisemore, Gloucester on the 20th October 2013 from 10.30 until 16.00. The theme this year is to be 'Carboniferous Coalfields'. This theme will be picked up by the three speakers and a number of displays. The speakers are:

Tom Sharpe (Amgueddfa Cymru – National Museum Wales) – Geology of the Coal Measures.
Dr Stephen Plant (Russell Society) – The Mineralogy of the South Wales Coalfield.
Dr Chris Cleal (Amgueddfa Cymru – National Museum Wales) - Fossil plants of the Coal Measures.

There will also be teas, coffees & soft drinks (available from 10.00) and a buffet lunch. Tables will be available for swaps and "freebies". Microscopes and UV lamps will be on hand for use by any of the attendees and as aids to indentifying your finds.

The day is free entry but we would appreciate a donation to offset costs. If possible we would like to know if you are interested in attending so that sufficient buffet can be made available. Please contact Marashean on marashean@talktalk.net or on 01452 618015 for further details or to indicate you are likely to come – guests are welcome. I look forward to seeing you at Maisemore.

Marashean Parker (RS W&W & Chair CMGS)

DIG IT! A "Thank You" From Our Immediate Past-President.

At the 2013 AGM I was presented with a voucher for a "Dig-a-Day" experience on the occasion of my retirement from the role of President. The voucher was redeemable at Blackstone Farm, Ayrshire, and I arranged to do this en-route to the Cairngorms at the end of June. The weather was resolutely grey and wet, but I had an enjoyable couple of hours nonetheless. After a short initial briefing on safety etc. I was sat in the cab of a mini-excavator to get a feel for the controls and to try my hand at digging a hole, and then back-filling it. Once I had mastered the basics to the satisfaction of my instructor we progressed to a 13 Ton Komatsu PC130 bucket excavator with some serious "muscle". The reach and power of this machine was truly impressive, and would be ideally suited to turning over mine tips, if one could get the necessary permissions and access!

Roy getting down to it under testing conditions. Where are the "L" Plates?

Any construction equipment buffs amongst you can read more about this amazing piece of kit here:- http://www.

komatsu.eu/displayBrochure.ashx?id=83914

Once again I was invited to dig a (BIG) hole, and heap up the soil to one side. Then, (and not as easily as one might think) my task was to back-fill the hole, and level the ground – a job which my instructor kindly completed, leaving the site ready for the next contestant.

Thanks to everyone for this unusual gift, which was a very interesting and enjoyable couple of hours, in spite of the generally miserable weather. Thanks too to the team at Blackstone Farm. If you are interested in trying your hand, you can find out more here - http://www.rsduncanplanthire.co.uk/digaday.html

Roy Starkey

Wales & West Branch Visit to the Bath Royal Literary & Scientific Institution.

A visit has been planned to the Bath Royal Literary and Scientific Institution for the Wales and West branch on **Saturday 30th November**. We will be having a private viewing of the BRLSI mineral collection which is not on public display. The collection, which comprises more than 2300 specimens, has a strong Mendips Hills bias as would be expected. Pictures of some specimens from the collection can be viewed on-line at http://www.brlsi.org/museum-collections/online-museum/minerals

There will be a small charge (dependant on numbers) to cover the cost of hiring their education room. This visit is timed to coincide with the famous Bath Christmas Market which runs from 28th November to 15th December and is an attraction in itself. Members from all branches are welcome to attend, but need to contact Tom Cotterell (tom.cotterell@museumwales.ac.uk. or 07964 143773) in advance.

Tom Cotterell.

The Northwest Branch Presence at the Darwen, Lancashire, "Sci-Fest". 24th February 2013

Summer Fun-4-All is a voluntary group who provide fun and local activities for children and young people in Darwen and the surrounding rural areas. They work in partnership with local schools to offer a co-ordinated approach to the programme of events. During the February half term a "Sci Fest" had been arranged, in the Learning Studio of Crown Paints.

As last year the Northwest Branch of the Russell Society had a bay for activities based around 'Rock Formation and Properties'. We produced a timed quiz and, to supplement this, we also had a presentation on looking at 'Rocks Around Darwen' and 'Crystal Hunters'. The event was very popular and we were inundated with forty-five individuals, families and groups attempting the timed challenge set up.

Young visitors enjoying the quiz.
Photo: Harry Critchley

The children were very good at sorting the rock property and rock formation information cards and assigning rock samples to each of the three rock groups. The times various groups took to sort the cards varied from 3 minutes 45 seconds to 2 minutes. Individuals tended to be quicker with many talking less than 1½ minutes to complete the sort. There was also quite an element of competition, with several people returning to the challenge in an attempt to get the 'quickest sort'. In the end Molly and Jessica broke the 1 minute barrier, with Molly completing the challenge (on her fifth attempt) in just 25 seconds!

Verbal permissions have been given for this photo to be used in the Newsletter.

Christine Critchley.

NEWS ITEMS:

Mineralogy of the Mendips. An Update to July 2013.

Overall, things have been quiet in the Mendips for the last year or so. Some quarrying is still taking place but at a greatly reduced rate compared with that of a few years ago. No (new) significant mineral finds have been made during that time as far as I am aware, and given that things seem likely to remain slow for the foreseeable future I don't really expect much of interest to happen for a while.

Mineral News

On the mineral front, we have just finished characterising another new Pb oxychloride mineral from Merehead that has been named yeomanite, $Pb_2O(OH)Cl$. The mineral and name have been approved by the IMA (as IMA 2013-024) and we are working to finalise the formal descriptive paper at the moment. This mineral has been known since the 1970's as 'fibrous mendipite' – it resembles white asbestos fibres that grow out of [normal] mendipite. However, it was previously impossible to characterise, due to the material being a variable mixture of yeomanite with other minerals such as paralaurionite.

Another phase from Merehead is being studied at the moment and is perhaps another new mineral. This phase has the structure of parkinsonite (a Pb oxychloride-molybdate) but has a chemistry close to that of (the unrelated mineral) asisite, so it seems to be another Pb oxychloride-silicate, and we suspect that it may exhibit the same type of 'building block' structure that we first discovered in hereroite. Visually, the phase resembles the powdery type of parkinsonite, but instead of being carmine-red it is deep orange, and it occurs on a matrix of cerussite and calcite (rather than in mendipite, which is where parkinsonite is found). Under (very) high magnification the (minute) crystals look visually similar to iranite in appearance. I have found several pieces of this material collected over the last 10 years or so, including in material from the 2002 RS AGM trip to Merehead, and from the 2005 trip that yielded the mereheadite and fornacite specimens, so it's worth keeping your eyes open when you look at your own material.

Work on Manganese Deposit Formation Temperatures

As some of you will know, I have been trying to get additional data related to deposition temperature in the manganese deposits, in order to help try and resolve the still open debates related to the formation mechanisms and geochemistry. We have had some success, but – as with everything to do with these deposits, it seems – the results are both confusing and tend to raise more questions than they answer.

Direct Temperature Measurements

Firstly, a technique called clumped isotope thermometry has been used to try and determine the formation temperature of calcite from Merehead. In this technique, a mass spectrometer is used to determine the joint occurrences of different carbon and oxygen isotopes, and the isotope abundances are then plotted onto standard calibration curves (there are two of these) that in turn yield temperature estimates.

Unfortunately however, the results we've got so far don't make a lot of sense. The bulk of the temperature measurements cluster either in the 12-25ºC range – using one curve – or in the 60-70ºC range using the other. Whilst the 60-70ºC range is believable - and similar to the range obtained in the only other direct measurements I know of, made by Chris Alabaster using fluid inclusions in material from the Wesley Mine, the separation between the two temperature ranges is too large to be trusted. There are also outlier values – a few are much higher on one hand, and some well below freezing point on the other. The latter being simply impossible, of course, for groundwater mediated formation, as the water would long since have turned to ice.

Additionally, as well as temperature information, the technique yields data on 'calibration constants', which are expected to be small(ish) positive numbers. Unfortunately, the Mendip samples yield negative numbers, and the magnitude of the negative value increases as temperature increases. This is contrary to every other deposit tested by this method, so something odd is going on that we don't understand yet. We're going to try to do more work here when circumstances permit, but as of now the results cannot be taken to be reliable. In fact, the data seems to suggest more than anything else that the standard calibration curves are not applicable to the Mendip deposits, and this needs looking into as well.

Synthesis of Pb-oxychlorides

Secondly, we have now discovered how to synthesise the defect-layered Pb oxyhalide compounds (e.g. the 'symesite group' minerals) in the laboratory. This process is now understood well enough that it is possible to select which phase to form, and we can also create novel phases – a Pb oxyhalide-germanate being one such recent example.

As expected, it was found that a very high pH (>10) is needed to form these minerals, but the temperature required turned out to be unexpectedly high. Using high pressure hydrothermal synthesis, it turns out that a peak temperature in the range of 200-210ºC is needed, followed by rapid quenching of the melt. If the peak temperature is outside this narrow range, or if the mixture is allowed to cool slowly, the 'symesite group' type phases do not form – you get a mixture of mendipite and litharge instead.

Using direct methods – i.e., synthesis from salts such as $PbCl_2$ and $Pb(OH)_2$ – the temperatures required are much higher, in the region of 750ºC. This temperature is not far from that already known to be needed to synthesise other Mendip phases such as crednerite in the lab, so there is some consistency here. Even allowing for the effect of higher pressure 'in the field' due to burial during formation reducing temperature requirements, this data would seem to suggest that (a) the Pb oxyhalides are not low temperature minerals after all, (b) that the oft-quoted statement that 'minerals such as mereheadite are not stable above 30ºC' is simply wrong (and interestingly, whilst this statement or very similar ones appear in the literature quite a few times, I can find no 'original source' for it), and (c) that higher formation temperatures were needed 'in the field' too.

The need for rapid quenching further seems to support the idea that there were 'short, hot pulses' of hydrothermal activity – this would have provided both heating to the necessary peak temperature, followed by the rapid cooling necessary to quench the melt and thus stabilise the Pb oxyhalides.

Future Work
It is clear that more work is still needed in all these areas, and this will take place as and when there is an opportunity to do so. I will keep members posted as and when things progress.

Finally…
Although not directly related to the Mendips, it may be of interest to members to know that the 'unidentified pink Pb oxyhalide' from the Kunibert Mine in Germany (Rouse & Dunn. *Neues Jahrbuch Mineralogie, 1990, pp337-342*) turns out to be mereheadite, and structurally identical to that from Merehead. The mechanism that gives it a bright ("dayglo") pink colour is unknown, but we're investigating the chemistry of the phase to see if we can find out.

Rick Turner

Free Offer: Haldane's MINDEX for All.

This is an offer from Russell Society Member Chris Haldane. He writes:

To all Mineral Enthusiasts - this is an offer to anyone wishing to avail themselves of a personal copy of this mineralogical database on a DVD with a unique search programme to suit even 'non-techies' as long as you have a PC, mouse & keyboard and DVD drive working with any version of Windows.

MINDEX is a work in progress and contains a collation of information from many sources describing all known minerals. It was originally conceived as an aid for a novice collector (me) to identify self collected specimens by the sparse descriptive details published in 'hobby books' of minerals. It was thus designed to be easily searchable on all the properties that were usually used to identify minerals in such books. Also advice was obtained from Bob Symes of what should be included in such a project. He informed me of the Hey's Mineral Index (systematic numbering system) to add to my list of things to include in the database and that opened my eyes to the true scale of my undertaking.

Since those days, and with the help of many contributors (too many to list here but many thanks once again, your contributions are in noted in the relevant parts of the database), MINDEX has grown to include data on more than 4800 mineral species, more than 2500 pictures and crystal drawings, 9000 locations etc., and is fully searchable on more than 40 'parameters' usually used to describe any mineral. These include full or partial name, synonyms, chemical formula; systematic numbering systems (Hey's, New Dana, Lapis and others TBA), useful for the sorting of minerals according to chemistry; description / habit, colour(s) & streak, lustre etc., geological context, associated minerals, all using simple words or pick-lists (useful for finding "pegmatite" minerals or "hyperagpaitic" ones; Location, selected worldwide (as published) plus Type Locations noted where known; Crystallographic data (numeric data can be searched / sorted using whole numbers, less-than / more-than); Optical properties; Physical properties: Hardness, Cleavage, Fracture Tenacity, Density, plus such things as Fluorescence, Magnetism, Solubility etc, where published; Sel. Refs.: lists sources used in the compilation of the data for that record (mineral species). Unlike other mineral databases where it is necessary to 'know' the Name and/or Formula/Chemical classification, and/or Crystal system, MINDEX allows for obtaining all information on a single or group of minerals based on ANY chosen starting point such as "Blue" "Bluish-

green" "Greenish-blue" and then refining this search further selecting "Pegmatite" or "Secondary" or "Acicular" etc. etc. etc. This makes it much more 'User Friendly' and far more flexible than any on-line database and collection of books, and is also more useful to the less expert among us (my starting point). It can also bring together groups of minerals from a systematic numbering system and their geological context.

My current 'projects' are to a) continue updating, b) obtain/create animated GIF files of crystal drawings to display in the database, c) build an automated sensity (SG) calculator (ideal and empirical formula) with thanks to Bill Bolton for the necessary formulae instructions d) increase the number, quality and species of pictures. e) 'rationalise many of the location data where probable duplication has occurred due to varied sources (such as all the varied Tolbachik volcanic complex locations), plus add longitude & latitude details where possible.

I am happy to supply any enquirer with a copy of this DVD along with installation and getting started instructions for the cost of materials + p&p say (£2.50). For that there will also be a fully functioning copy of Cardbox for Windows(c) the British designed database/search engine typically used in libraries as their search-tool of choice. This would allow anyone so inclined easily to create their own database(s) for their mineral collection, household items, stamp collection etc. etc.

I hope that the above is of interest and would also be a motivation to contribute, make comment, give suggestions on improvements, correct errors etc. I in turn will provide any help or assistance to anyone to get the most out of MINDEX and Cardbox for Windows. In the first instance and to obtain your copy of MINDEX please contact me as follows:

Chris Haldane, The Wheelwright's Cottage, Warboys Road, Pidley, Cambs. PE28 3DA
01487 840 315 chris.haldane@talktalk.net

Editor's Note: The system described here is distinct from the similarly named MinDex which is produced by L.R. Ream of Coeur d'Alene, Idaho, USA. This latter is a compilation which indexes every mineral species ever mentioned in a range of mineral magazines and includes all locality data published for these mineral. See http://www.johnbetts-fineminerals.com/jhbnyc/mindex.htm

Editor.

Availability of an X-Ray Diffaction Mineral Identification Service.

Members have sometimes remarked on the difficulty of getting XRD identifications of their "difficult" minerals, either in terms of accessing a suitable facility or in terms of the time taken to get a result. A communication was recently received from Mr. John Attard of Attard's Minerals, San Diego, California, who offers a "remote" service which could be accessed by British and European collectors. He writes;

I am an analytical chemist by training (University of London – albeit a long time ago!) and I run an X-Ray Diffraction Service to identify minerals for collectors and dealers at close to cost price with a fast turn-around from expensive equipment. The price for this service would be £26 (Roughly $40 or €30) per sample. If interested please send me a rice grain sized sample through the post in a padded envelope. Within two days of receipt you will receive a full report. I have been doing this very successfully for about 10 years. Payment can be made via PayPal, credit card or other means.

John Attard
Attard's Minerals
5081 Field Street
San Diego
California 92110 *attard@attminerals.com*

Any UK collector interested in using this service should probably contact Mr Attard initially, before sending materials/ samples, to confirm the exact current terms and conditions.

Editor.

Stop Press: In issue 61 we published - correctly - a new address for Trevor & Shelagh Bridges. Trevor tells me he is still having problems with items being mis-addressed. Can you please note that their address is now:
1 Mill Court, Waddingham, Gainsborough, Lincolnshire. DN21 4SD.

SHORT REPORTS & PAPERS.

An incompletely characterised new phase, $Cu_5(OH)_7Cl_3.5H_2O$, from Penberthy Croft Mine, Cornwall.

Introduction and Investigation.

Penberthy Croft Mine in St. Hilary, Cornwall, is a source of a wide variety of supergene minerals and is the subject of prolific literature. An excellent general account of the mine and its mineralogy is that of Betterton *et al*. (2000). Samples collected by one of us (M.G.H.M) from the dumps in 2000, and submitted to R.S.W.B. for identification, contain what is probably a new mineral. This canot yet be fully characterised due to lack of material but is reported here in order to make its existence known to a wider audience.

The material investigated consists of apple-green indistinct blades, in compact sub-radiating clusters typically 2 - 4 mm in diameter, lining fracture surfaces in quartz and grey killas, and associated with small (about 0.2 mm) spherules of bayldonite, small patches of micro-crystalline brochantite and an off-white carbonate, not in distinct crystals (Figs. 1a, 1b). The blades are very soft and friable, and lack transparency, and grade into a soft white pseudomorphous alteration product. Microchemical tests on the greener portions indicated the presence of copper and chloride, and the absence of zinc. The soft white outer zones gave positive results for silicate, and negative for both copper and zinc.

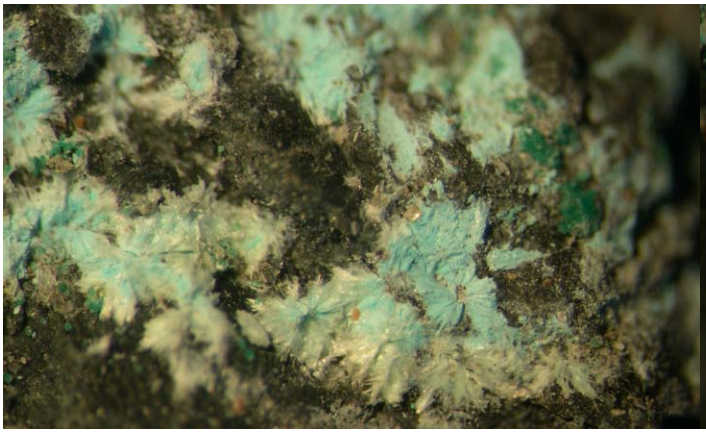


Figure 1a. The apple-green blades from Penberthy Croft Mine, Cornwall. Field 16mm across. Note outer whitish alteration zones.

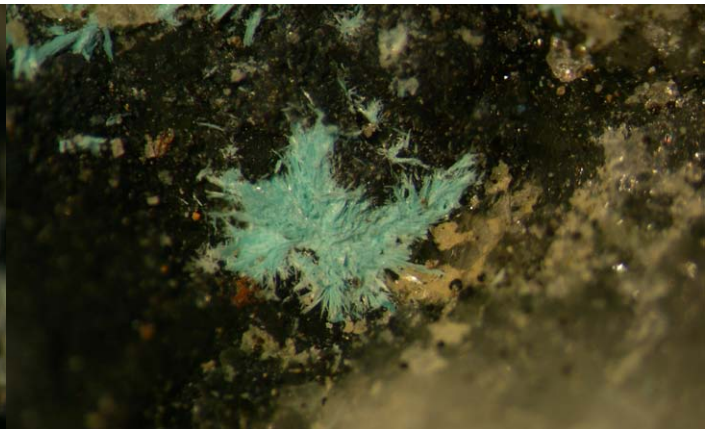


Figure 1b. The apple-green blades from Penberthy Croft-Mine, Cornwall. 4 mm cluster.

Infrared spectra of the greener portions gave variable results, suggesting a mixture, but some of the absorptions are related to those of kapellasite, a copper-zinc hydroxy-chloride (Krause *et al*., 2006). Small differences, mostly involving some complication of the spectrum, suggest decreased symmetry of the metal-OH vibrations, analogous to that displayed by the spectra of paratacamite and clinoatacamite compared with that of herbertsmithite (Braithwaite *et al*., 2004). The spectra of the white material shows a strong, fairly broad Si-O absorption at 1024 cm-1 and O-H and H-O-H absorptions indicative of water. The white material is an amorphous hydrated silicate, not opal, analogous to but not allophane.

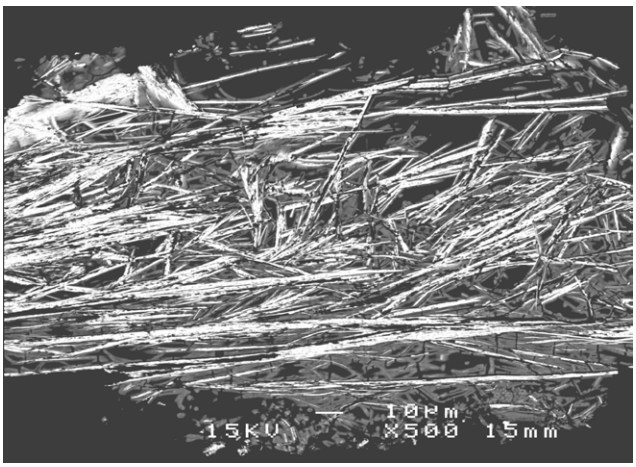


Figure 2. Electron back-scattering photograph of the apple green blades

Consistent absorptions in 5 spectra of the greener portions include the following: O-H stretching bands at ~3495 (vs, sp) and ~3445 (s, sp) cm-1; probable metalO-H bends at ~882 (w), ~852 (wm), ~ 797 (s) and ~765 (s) cm-1; probable metal-O stretching bands at ~523 (m) and ~500 (ms, sp) cm-1. (s = strong, m = medium, w = weak, v = very, sp = sharp).

A sample of the greener part was submitted to Mr. Merfyn Jones for X-ray powder diffraction. The result was too weak to be useful, showing that most of the material is amorphous.

Mr. D. Plant prepared a microprobe slide using what appeared to be a reasonable crystalline sample of the greener material.

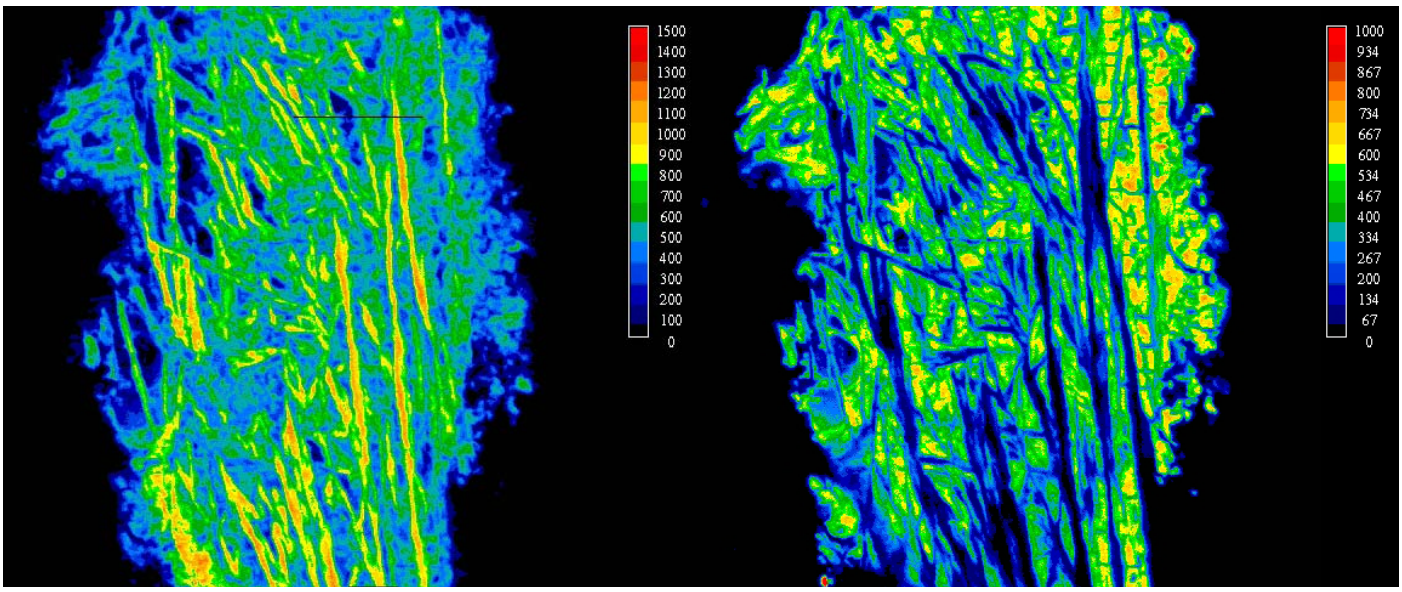


Figure 3a. Copper distribution in the apple green blades. **Figure 3b. Silicon distribution in the apple green blades.**
Note that where copper is rich, silicon is poor, and vice versa.

It proved to be a mixture, a compact mass of sub-oriented blades, some with thin distinct relict cores, grading into an alteration matrix (*Fig.2*). EDAX and element mapping for elements with Z>9 showed the white alteration product to contain only Si (O and H are not detectable), and the cores of the blades to contain only Cu and Cl (Figs 3a, 3b).

It is possible that a range of phases might be present as a result of the alteration. Physical separation of the cores from the matrix would be extremely difficult or impractical, and very little core material is available. This renders physical measurements difficult, and explains why the infrared and XRD results are not completely satisfactory. Only spot methods of analysis are reliable, so complete characterisation of the core mineral must await the possibility of finding better, unaltered material.

Six consistent spot microprobe analyses of the core material were measured, and the results are given below.

Table 1. Electron microprobe analyses of the green core blades.

Atom %	**1**	**2**	**3**	**4**	**5**	**6**	**Average**
Cu	61.46	62.97	64.02	62.57	63.94	60.82	62.63
Cl	38.54	37.03	35.98	37.43	36.06	39.18	37.37

Ratio 62.63 / 37.37 = 1.67, i.e 5/3 : 3/3, giving Cu^{2+} 5 / Cl 3.

This requires 7 x OH^- for charge balance, plus 5 H_2O for agreement with weight % results, giving formula below.

Weight %	**1**	**2**	**3**	**4**	**5**	**6**	**Average**
Cu	45.85	50.54	51.90	51.96	51.70	49.54	
Cl	16.04	16.58	16.27	17.34	16.27	17.81	16.72

Weight %	7	8
Cu	50.2	50.2
Cl	16.7	16.8

Column 7: Found, average of analyses 1 – 6 (Two decimal places not justified).

Column 8: Calculated for $Cu_5(OH)_7Cl_3.5H_2O$.

The core material is therefore $Cu_5(OH)_7Cl_3.5H_2O$. No mineral of this composition has been reported, so it is probably a new species. Hydroxy copper chlorides are not uncommon, such as the atacamite-clinoatacamite group, but hydrated hydroxyl copper chlorides are rare, the nearest known species in composition being bobkingite, $Cu_5(OH)_8Cl_2.2H_2O$, with weight % Cu, 56.66, Cl, 12.66 (Hawthorne *et al*., 2002). Others are anthonyite, $Cu(OH,Cl)_2.3H_2O$, calumetite $Cu(OH,Cl)_2.2H_2O$ and claringbullite, $Cu_4(OH)_7Cl.0.5H_2O$.

Without further characterisation the material is not acceptable to the Commission on New Minerals and Mineral Names of the International Mineralogical Association, and cannot be named. Acceptability will have to await the discovery of much better material. The author hopes that this preliminary publication may stimulate the finding of such material. Readers with access to material from Penberthy Croft mine are recommended to check their samples for similar green blades. Unaltered material may be a darker shade of green than shown in Figs. 1.

Acknowledgements:

The authors thank Mr David Plant of the School of Earth, Atmospheric and Environmental Sciences for electron microprobe analyses, and Mr. Merfyn Jones, of the School of Chemistry (both Schools in the University of Manchester) for X-ray diffraction studies.

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Krause, W., Bernhardt, H.-J., Braithwaite, R.S.W., Kolitsch, U. and Pritchard, R. (2006). Kapellasite, $Cu_3Zn(OH)_6Cl_2$, a new mineral from Lavrion, Greece, and its crystal structure. *Mineralogical Magazine*, **70** 329-340.

Richard S.W. Braithwaite (School of Chemistry, University of Manchester, Manchester M13 9PL)
Mike G.H. Merry (Simian Cottage, Higher Pengegon, Camborne, Cornwall, TR14 7UG)

Branch Meeting and Field Trip Reports

Saturday 23 March 2013. Southern Branch Field Trip to Stancombe Lane Quarry, Flax Bourton, Bristol, [ST 503 687].
Leader Chris Finch, Reporter Tony House.

Only three members turned up for the 9 am start. Chris Finch and Steve King drove down from the Oxford area, where 100 mm deep snow was still falling when they left at six. I only left home at seven, driving through rain driven by a freezing cold wind. How we suffer for our specimens! Can I just ask where have all the "men" gone? That includes our lady members as well, although they have probably got more sense. Come on you lot! Just because there's a chill in the air and the wind is a bit "fresh" at times that's no reason to stay in bed pretending to be asleep. When I first started collecting, with 'tuppence' in my pocket and brown bread, we used to cycle miles (before cars were invented) to get into quarries like this.

Courtney Walker the Quarry Supervisor came over for a chat while I was having the first of many cups of coffee of the day to keep my hands warm. He showed me a large lump of galena with areas of baryte attached, found in the quarry some years ago. There were also some of the Carboniferous-age *Productus* and *Siphonodendron martini* (colonial coral fossils) recently found that he likes to present visitors, along with an interesting specimen of "dry bone ore".

Once signed in and kitted up - and looking for all the world like three daffodils - we were given the safety talk and then driven up to the top level. It was explained to us where we were not to go, which allowed us gradually to work our way around the benches descending down the ramps to the next level as we went. Having a free inside pocket I carried the radio phone which was quite surreal at times as now and then it would burst into sound, frightening the life out of me.

With diligent searching we started to find cubic crystals of purple fluorite to 4 mm in the small calcite lined vugs which, as the day progressed, were also found to contain beautiful saddle shaped crystals of dolomite. On the quarry floor I found a piece with a vug containing small glass-clear baryte crystals with their classically formed beveled edges; more reminiscent of the quarries of north Cardiff than the Mendips. As this quarry is between the two it may mean that some other element was at work when they formed. Baryte in the Mendips predominantly show 'Cocks Comb' forms while the crystals from Cefn Garw quarry, for example, near Tongwynlais form glass clear, prismatic crystals. However, at Taffs Well quarry, about a mile away we are back to the 'Cocks Comb' form.

"The Three Daffodils" preparing to enter the quarry.

Productive areas were few and far between but, as we descended, every now and then we would hit the same area of vugs. At one very uninspiring spot Steve King broke into a vug containing tiny blobs of hydrocarbons and multiple micro fluorite crystals attached to the sides of small scalenohedral calcite crystals. These looked more like the amethystine quartz specimens coming out of Brazil than plain old calcite. They would look fantastic under a microscope. Another area contained masses of small hollow bivalves almost all containing tiny crystals of fluorite, calcite and dolomite, again fantastic under a microscope. Going down we came across what appeared to be an in-filled cave or sink-hole full of massive to botryoidal baryte inter-grown with galena cubes to 10 mm, which was probably where Courtney's galena and 'dry bone' ore came from. After one more look around the lowest level we made our way back to our cars 'de-mudding' our boots by stamping as we went. Anyone watching us in our "yellows" must have thought we were performing some sort of medieval "leaving the quarry" dance. Anyway no-one called the police so we are all still at large.

Speaking to Courtney after we had given our thanks I asked him about the quarry wildlife as this is another of my main interests. Apparently the quarry produced four peregrine chicks last year, living on any unfortunate pigeons that inadvertently ventured near. Deer, hares and, interestingly, the occasional green woodpecker are also seen on the quarry roadways. I mentioned I had seen the ravens performing their aerobatic mating displays during the day where they fly one above the other, the lower one then turns on it's back and they grab at one another's feet while "cronking" joyously.

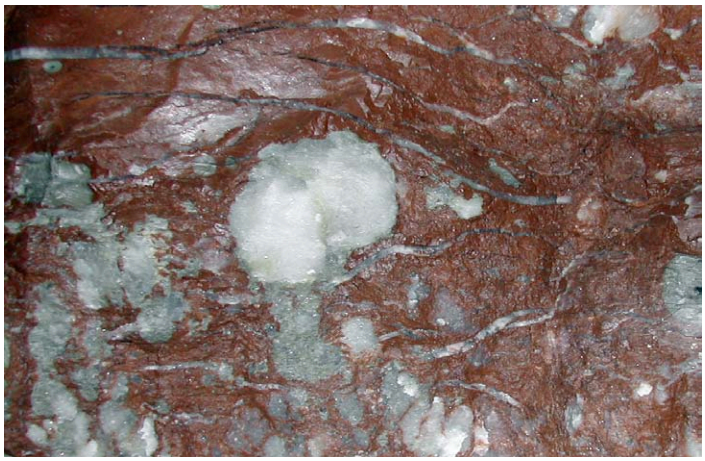
All in all, on a cold, day, some went home with full bags while others just went home with a few “choice” specimens. It was a most enjoyable day with our appreciation again going to Chris Finch for all his work in arranging the trip and especial thanks to Neil Hoddinott and Courtney Walker, and Lafarge Tarmac for allowing the Russell Society access. Gentlemen it is appreciated.

Friday 12th April 2013. AGM Field Trip to Fauld Mine, Tutbury, Staffordshire, [SK 181 283]. Leader and Reporter: Chris Finch

This trip had been organised as one of a number of collecting locations for those on route to the AGM. This was a really good idea and will no doubt be followed in subsequent years. This particular trip seemed to be made up of the Council of the Russell Society as myself, Roy Starkey and his wife Mary attended along with incoming President, Tom Cotterell.

Our visit was hosted by the Mine Manager, Jim Daykin, and Noel Worley formerly the Minerals and Estates Manager for British Gypsum. The underground visit was preceded by an overview of the history and geology of the site plus a health and safety briefing. The mine extracts alabaster, a massive fine-grained variety of gypsum, which is now used solely for agricultural and industrial use due to its high purity. We were able to be transported underground in one Land Rover and were taken to the working area where the alabaster is extracted using a room and pillar method.

We visited a number of working faces to see the geology and had the opportunity to collect from loose material on the ground. Noel explained at length the unusual geological circumstances that had thickened the gypsum and anhydrite beds making this particular site more economically attractive to work. The gypsum had been laid down as a bedded deposit in early Triassic times and is part of the Mercia Mudstone Group, however the area had been subjected to shearing which had, in places, caused the gypsum to rise up and break through the bedded roof creating diapirs.



“Fish eye” reduction spots in the mustone walls of the mine roadway.

We were also shown “fish eye’ reduction spots in the roadway sides that are similar to those found on the South Coast, unfortunately we could not collect any as they were in the roadway sides. At the end of the roadway there was loose rock available and we were able to collect some translucent, pale blue, anhydrite and mottled white and orange alabaster. The intention was to make some available at the AGM auction. The other interesting mineralogical sighting underground was of halite stalactites – these are caused from water seeping through from the rocks above and as the water evaporates it leaves the halite behind.

Our underground visit was soon over and the Land Rover proved its worth transporting us several miles through the maze of old workings back to the surface. We were treated to a delicious buffet and after thanking our hosts we headed north to the AGM at Keswick. Our thanks go to Jim and Noel for giving their time to share their knowledge and experience with us and to British Gypsum for allowing the visit and being so generous with their hospitality.

Friday 11th April 2013. ASM Visit to Winsford Salt Mine, Cheshire, [SJ 652 658]. Leader and Reporter: John Davidson.

Eleven of us were met at the visitors centre on a bright and sunny day by Gordon Dunn and Tristan Bailey who would escort us on the guided underground tour. Gordon explained the geology of the mine which is about 5 km by 4 km in extent. Mining is currently being carried out in the “F” salt bed and a new 1 in 10 decline is being driven in the “F” bed into the “B” salt bed which should produce salt for about 30 years. Further ground can be purchased from the land owners that will enable production to continue for many more years; and about 1.25 million tonnes of salt are produced every year, all for use on our roads!

Before we could go underground we were given a safety induction by Gordon and were all given the PPE we would require for our visit. Once we were all properly attired, Gordon and Tristan escorted us to number 4 shaft and we descended in the lift 130 metres down into the workings; where we would board a mini bus for the tour of the workings.

Our first stop on the tour was in one of the salt panels that are being worked at the moment by a small underground workforce of ten men. Of these, six are the miners and the rest are fitters and electricians. The mining is done by continuous mining machines that can cut 4.5 metres up into the roof of the panel and 4.5 metres down this gives a total height of the panel of 9 metres and each panel is about 9 metres wide. The miners now only take 70% of what is mineable so that the roof is self-supported. Miners in the past took most of what was available without causing any underground collapse, but this caused stability issues above ground!

Members of the group with some "serious" salt cutting equipment.

The continuous miner machine is an impressive site and is all controlled by remote control by one miner! It was here that we were allowed to collect some samples of rock salt, but unfortunately no cavities are present in the salt so there were no crystals!

Gordon then took us to where the salt bed folds and this was an impressive site with all its contortions and a fault that had a down throw of several metres. One of the last places we visited was "Deep Store" where paper records and books are kept forever in a dry environment in the worked out salt panels as part of the national archive! Very impressive!!

Our thanks must go to Ian Dossett whose determination and persistence with the Mine Manager enabled us to visit the mine; and our guides on the day Gordon Dunn and Tristan Bailey from Salt Union, a Compass Minerals company.

Friday 12th April 2013. ASM visit to Birkshead Mine, Cumbria [NY 666 257]. Leader Ian Dossett. Reporter Tom Goodland.

Birkshead Mine, produces gypsum ($CaSO_4.2H_2O$) and anhydrite ($CaSO_4$). It is the central mine of the Kirby Thore complex, and the only one currently active. It is owned by British Gypsum, itself owned by Saint-Gobain. It mines a mix of gypsum with some included anhydrite and compacted mudstone. The total extracted rock is then crushed and fired to produce plaster for plastering. It is not currently used for plasterboard which is instead made from flue gas desulphurization by-products.

We were given our safety talk and tour by the Manager Jim Davies. He showed us a large map on the wall of all the workings which are worked by a block and pillar method on multiple seams. Consequently it is a maze of tunnels. Jim didn't know how many kms of tunnel there were in the mines, but it must be hundreds. Only two of us went down the mine, which in a way was good as we could all three of us fit in the Land Rover.

First stop was near the bottom of the No 2 adit in a now defunct part of the mine to collect daisy-bed gypsum included in pale gypsum. Jim explained that the pale gypsum was originally anhydrite which had been penetrated by water which then re-crystallised some material as the typical daisies. Much interesting material was evident both on the floor and *in situ.* Jim was tolerant of us spending about half an hour collecting large and rather friable pieces lying at the foot of the tunnels. A later stop to collect less friable specimens was less successful as there was little on the ground, and specimens were hard to find.

We were allowed to extract one or two samples from safer parts of the tunnel wall, taking care not to cause undue disturbance. We later collected anhydrite from deeper down at the crusher site, and the last stop was "satin spar" gypsum from Knockmare SE; some of this was quite translucent. The calcium sulphate occurred as anhydrite in the deeper parts of the mine, presumably where surface water had had less opportunity to cause hydration.

We emerged after about two hours underground, and thanked Jim, as we knew he was a busy man and had been generous with his time. Representative samples of the material collected were donated to the ASM auction and were readily rehomed. Many thanks are due to Jim Davies and Saint-Gobain for permission to access the site and for assistance during our visit.

Friday 12th April 2013. ASM Visit to Kendal Museum.
Leader and Reporter: Alan Dyer.

Kendal Museum was founded in 1796 by William Todhunter and numbers John Dalton and Adam Sedgwick amongst its early members. Alfred Wainwright also served as an Honorary Curator.

Currently it houses the Bill Shaw and John Hamer collections of minerals. That of Bill Shaw concentrates on local Cumbrian specimens- especially copper ones from the Coniston Copper Mine. John Hamer collected some 2000 minerals – some splendid ones from abroad – but many from long-disused Lake District mines such as the Force Crag lead and baryte mine and the Fleetwith Mine in Buttermere.

We were hosted by Carol Davies, the Manager/Curator, who guided us through the mineral collections. Time limited a full look at the Bill Shaw Collection but we are grateful to Carol and her staff for an enjoyable visit.

Friday 12th April 2013. ASM Visit to Coldstones Quarry, Greenhow, North Yorkshire, [SE 125 642] Leader and Reporter: Steve Warren.

Over the preceding months Coldstones had been living up to its name, with roads blocked by deep snow drifts late into the spring. A full complement of 14, from far and wide, headed to the quarry in thick fog and, despite the lack of orientation, were pleased to see that the snow had finally gone. We had noticed, on an earlier trip, that the Sun Vein was exposed in the quarry floor and Shirley, the Quarry Manager, had kindly arranged for some of the floor to be cleared away from the side of the vein. Hopes were high then that this would be a 'good one' as we headed down into the quarry.

The west end of the opened vein mainly comprised sugary fluorite and, despite a fair amount of digging, did not really improve into anything firmer or more interesting. The group working in the centre and east end of the vein had more luck, with reasonable clear fluorite with hemimorphite and smithsonite appearing. Michael Doel uncovered an area of rich galena in fluorite, which yielded cerussite with zinc secondaries.

Members of the party digging on the exposure of the Sun Vein.

A blast had been due to take place that morning, before we arrived, but had been delayed due to the fog (each blast needs to be physically seen and a video taken). We were ferried back to the quarry offices and had an early lunch while the blast took place and then headed back to the Sun Vein area. Bags and specimens that had been left there were intact, proving that blasting is indeed a relatively precise science these days. After a bit more work the conclusion was that the interesting part for the vein was getting too deep for us and was hading under adjoining cover, so we headed for the ore pile on the higher levels.

Again, Shirley had been helpful, arranging for the ore pile to be turned over after the preceding autumn visit. It was clearly a day for those named 'Michael' as Michael Dunmore broke open a block that contained a rich covering of good sized sprays of hemimorphite, probably the find of the day.

All in all, not quite the bonanza some might have been expecting but some decent specimens turned up and the 'atmospherics' made for an interesting experience. Thankfully the fog cleared and we headed to the ASM in bright sunshine. Our thanks go to Shirley Everett and the Hanson quarry team for their help and their patience during what was obviously a busy day in the quarry.

Saturday 13th April 2013. The Russell Society Annual General Meeting. Best Western Hotel, Kendal, Cumbria.

It was agreed at the 2012 Annual General Meeting (AGM) that rather than use the valuable space in the Newsletter for the full AGM minutes a summary would be published in the Newsletter and the full minutes would be made available, as last year *via* the Russell Society website at www.russellsoc.org/pubs.html. Should anyone not be able to gain a copy of the minutes via the internet please contact Chris Finch for a paper copy - contact details are in the inside back cover.

The AGM was held at The Castle Green Hotel, Kendal, Cumbria on 13 April 2013 and was attended by 42 members. Apologies were received from 51 people and the minutes of the 2012 AGM were agreed by all present as a true record of the 2012 AGM.

The meeting moved on to hear reports from the officers of the society.

Roy explained that when he assumed the role of President a number of issues facing the Society were identified, since then, with the help of the membership we have tried to find ways to address them but there are still areas where work remains to be done. In Roy's term a wide-ranging review of the Society Health and Safety documentation and procedures has resulted in this area of Society business now being in excellent order. The efforts to drive membership back up towards 600 have, unfortunately, been unsuccessful and the implications of a falling, or continuing lower membership are clear, and the Council is ever mindful of the need to manage and control costs, however this may result in future increases in Membership Fees.

Roy expressed concern that increasing attendance at the AGM weekend is something that has eluded us despite strenuous efforts to encourage more people to come. This year, we once again had about 50 delegates for what will undoubtedly be a hugely successful and enjoyable weekend. A lot of work has been undertaken to improve engagement with the "sleeping" membership. This involved extensive consultation with the membership which resulted in a good response rate, gathering much useful data and generating some very clear messages about what people like and value. Field meetings were highlighted in the consultation results as being the most important aspect of the Society, followed by the Journal and the Newsletter.

The Society have produced two Newsletters and a Journal in the last 12 months and Roy expressed his thanks to Michael Doel, Norman Moles and Frank Ince for their efforts in this regard. Roy thanked Norman who will be standing down in the near future after 8 years in the role and was pleased to announce that Malcolm Southwood will take over the role. Finally as Roy is standing down as President he wished the incoming President Tom Cotterell, Mineralogy Curator at National Museum Wales, all the very best for the future.

Christine Critchley as Vice President explained that there had been 464 person-visits by 135 different people attending field trips (including 9 visitors) over the last year and stated that there had been no incidents on the field trips.

Chris Finch as General Secretary explained the administrative activities undertaken to support the Society over the last year.

Denis Martin as Treasurer explained the financial position over the year to December 2012. Denis explained that the increased spending in the year and the difference between opening and closing balances were largely atypical and that the annual receipts and expenditure is broadly equal. However, Denis explained that there is little room to assimilate unanticipated expenses and he expected the Society will need to decide on whether to increase income or reduce expenditure in the near future.

Roy Starkey on behalf of Neil Hubbard as Membership Secretary highlighted the reducing trend of membership over the last five years and noted that at the time of the AGM there were 362 fully paid members and he considered that a target membership should be around 400. Neil requested that all members who pay income tax to change their covenant to Gift Aid if not done already as there are over 100 subscriptions that are not gift-aided and it is a valuable income for the Society.

Norman Moles as Journal Editor described the content and time-line for the production of JRS 15 (2012); subsequently, he indicated that he had received some manuscripts for JRS 16 (2013) and outlined the schedule for its production. Frank Ince as Journal Manager described the financial details related to the Journal for 2012 and described the publication and circulation details for JRS 15 (2012). Frank also explained that Norman Moles will be retiring from the position of Editor at the end of 2013 and was looking forward to working with Malcolm Southwood who as he is based in Victoria, Australia will be using electronic production methods more extensively.

Michael Doel as Newsletter Editor explained that since the last AGM report two issues of the Newsletter have been produced and circulated. Michael hoped all members received them safely and liked what they read and is keen to receive feedback from members on any aspects of the Newsletter including any comments or suggestions on the content and presentation of future issues.

Chris explained to the meeting that as a result of the change to the Constitution it was only necessary to hold a postal

ballot should there be more than one person nominated for any of the officers of the Society. As only one person had been nominated per position Chris was able to report that the nominations received and therefore the officers for the next year are:

Office	Candidate
President	Tom Cotterell
Vice-President	Christine Critchley
Treasurer	Denis Martin
General Secretary	Chris Finch
Journal Manager	Frank Ince
Membership Secretary	Neil Hubbard

Chris Finch (Secretary)

Saturday 13th April 2013. Southwest Branch Visit to Bampfylde Mine, North Molton, Devon. [SS 738 327] Leader and Reporter: David Roe.

The Russell Society visit to Bampfylde always evokes for me the beginning of spring and the start of more clement collecting weather – but this year Devon shared the miserable winter weather that bedevilled Britain for so many grey, dreary, months. The drive up the valley from Heasley Mill highlighted some of the scars from the weather – in several places the winter torrents had washed away the road verges and severely eroded the river banks. Surprisingly - despite the unpromising weather – and even less promising forecast – there was a full complement of a dozen participants at the start point. We set off across the meadow towards the woods on the other side of the river only to discover that the bridge to the site access point had been washed away – so the lucky ones with Wellington boots smirked as the rest of us got very wet feet crossing the river. Not a good start for some of us!

Spirits lifted at the sight of the green encrusted tips and a great deal of work was carried out in search of malachite, pseudomalachite and the much rarer libethenite. Later on, after a damp lunch we moved to the top of the hill and our search for the green stuff was helped by the recent construction of a riding track through the woods. On this field trip no-one reported finding any libethenite – which is unusual. A number of us optimistically fostered the hope that some gemmy clusters of chunky crystals would prove to be libethenite – alas the later judicious addition of dilute acid proved otherwise.

Specimen of malachite & pseudomalachite – after extensive cleaning.

As always collecting at Bampfylde is frustrated by copious coatings of ochreous clay on promising specimens which can be unbelievably difficult to shift. I persevered with a 100 x 100 mm quartz face covered with pseudomalachite and then over coated with malachite – subjecting it to an unprecedented 8 hours of ultrasonic cleaning and was rewarded by a handsome cabinet specimen. Patient cleaning also revealed a very nice hand specimen of ochre covered with thousands of 1 mm balls of light blue pseudomalachite. Certainly for me it was one of my rewarding visits to Bampfylde and a return in 2014 is already eagerly anticipated. In particular I shall be searching for the better half of a large vugh I found this time - quartz crystals coated with blue green pseudomalachite - it's got to be on that tip somewhere!

Our thanks to the Land Agents for the estate for allowing us access to this private land.

Sunday 14th April 2013: ASM Visit to Shap Blue Quarry [NY 563 106] and Shap Pink Quarry [NY 558 084], Shap, Cumbria.
Leader: John Davidson. Reporter: Philip Taylor.

Following a very pleasant dry and sunny day on Saturday, when all ASM activities were in the comfort of the Castle Green Hotel, we set off on Sunday morning for our respective field trips in heavy rain which became more torrential, horizontal and foggy as we approached Shap. Those members who had elected for indoor activities that day must have

been feeling somewhat smug, and I rather envious.

Shap Blue Quarry is situated 4.8 km due south of Shap village, just to the west of the M6 motorway, and a good number of cars were assembled at the quarry office by 10:30. From here we relocated to the lay-by adjacent to the entrance to Shap Blue, where we donned severe wet weather gear and set off into the quarry battling against driving wind and rain, but fortunately quite a mild temperature. The group comprised of about sixteen which scattered around the various benches to begin searching. The wet conditions in some respects enhanced the ability recognise rock types and features of potential mineralogical interest, but continually caused safety glasses and hand lenses to mist-up. The mention of Shap always conjures pictures of the famous pink granite with feldspar phenocrysts, but this lithology is restricted to the Pink Quarry, which is situated within the Shap pluton. The Blue Quarry lies just to the east of the pluton and exploits thermally metamorphosed rocks of the Borrowdale Volcanic Group; mainly hornfels, which are not particularly blue, but more grey in colour!

Although well-known to collectors for andradite-grossular series garnets and beautiful epidote, according to Mindat there are 23 recognised mineral species, which include polymetallic mineralisation (e.g. chalcopyrite, covellite, galena and sphalerite). To my knowledge no significant finds were made of any of these, but for my first visit to this quarry, I was pleased to find a couple of lustrous lozenge-shaped garnets to 4 mm which I managed to remove on a little matrix from a large bolder.

By 1 pm thoughts were turning to lunch and wending all our ways home. However, true to the forecast, the weather suddenly changed to a dry afternoon with much blue sky. Simultaneously with this event Steve Warren and Chris Finch discovered a large clay-filled pocket on which they went to work. This produced many tens of miniature to hand sized specimens of well crystallised quartz, calcite and cockscomb baryte. Dozens of specimens were generously laid out from which everyone could make their own selection. Coated in thick tenacious clay, the specimens were well protected but difficult to assess, but on soaking at home revealed some delightful groups.

One of the quartz/calcite/baryte specimens recovered from the clay filled pocket.

The party made its way back to the cars around 4 pm. Four of the party who had not visited Shap Pink Quarry before then drove the short distance south (2 km). The towering cliff-like quarry face is an imposing sight and, for the newcomer to this locality, the distinctive granite is a wonderful sight. Shap Pink is famous for around 40 distinct mineral species, most of which occur in miarolitic cavities. In the past, beautiful cabinet size specimens of large smoky quartz crystals on equant orthoclase were sometimes found; occasionally sprinkled with tiny deep inky-purple fluorite cubes. Careful raking around on the lower bench uncovered specimens peppered with chalcopyrite and molybdenite, and the occasional chunk of miarolitic granite, pervaded with micro-cavities of between 1 to 3 mm. These have yet to be examined, a task for winter evenings.

Many thanks to Alan Stewart and CEMEX for permission to visit and collect in these two quarries.

Sunday 14th April 2013 ASM Visit to the Caldbeck Fells.
Leader: Ian Dossett. Reporter: David Aubrey-Jones.

“I must be mad, I must be mad…..” was the thought going through my mind as we fought the driving rain and struggled on the uphill track up to the Old Sandbeds Mine! Despite several supposedly waterproof layers, some of the rain seemed to be getting through. What was originally a reasonable sized party for the trip seemed to have been magically transformed into just the leader, Ian Dossett, and myself. I was just thinking that perhaps I should have opted for an indoor trip to see some mineral collection when we arrived at the large dumps of the Sandbeds Mine. Then, after a quick prayer, the rain virtually stopped!

We soon had our eyes down scanning the wet rocks for signs of colour. Much of the green in evidence we dismissed as malachite stains, but there was some rather poor pyromorphite. Finally Ian found a rather nice phillipsburgite, and we decided to move on. Moving above the main dumps we again faced the full force of the wind, but the rain continued to hold off. We had a quick scan of the bell pits, but anything of interest was either submerged in a snow drift or in a

miniature lake.

The joys of collecting! Driggeth Mine dumps on a cold wet day

On reaching the Driggeth Mine we were decided to take a look at the open cut which is well known for its characteristic 'curved' green pyromorphite. However, despite a thorough search we were unable to find any. Maybe this too was buried by one of the snow drifts. So we wandered down to one of the dumps and, just I was beginning to give up hope of finding anything of interest, I saw some bright blue on a rock. Linarite - and then more linarite. Linarite seemed to be everywhere, and soon it was quite hard not to find any! Fed up with linarite, we moved downhill a little to search for ianbrucite but, despite searching high and low, we failed to find any. However, a baryte boulder yielded some rather nice malachite. Soon afterwards I split a rock to reveal some tiny crystals sparkling in the sunlight (yes, we did have a few shafts of sun). I was about to dismiss this, but thinking better of it I got my lens out to reveal a lovely small leadhillite. Our luck had changed! We scanned the large lower Driggeth dumps, finding an orange pyromorphite with crystals to 4 mm. Ian did some rapid digging to get warm, revealing a quartz boulder full of small yellow and orange crystals. More pyromorphite, which he generously shared with all other members of the trip!

Time was moving on, and by this time we were getting very cold so we decided to regain our sanity and return to the comparative warmth of our cars to enjoy the long drive home. Despite the weather, it had certainly not been an abortive trip.

Sunday 14th April 2013. ASM Visit to the Mineral Collection of Mike Leppington, Cockermouth, Cumbria. Reporter: Alan Dyer.

Viewing the weather, cold, misty, and raining as we left the ASM venue - an opinion was taken that the visit might have been a wise choice! We were greeted by Mike with tea and biscuits whilst we had an armchair viewing of his fine uranium minerals, noting that Sellafield is not too far away.

The next hours were spent admiring his magnificent collection of hand specimens of world minerals, many reflecting his time in Africa and his time spent in the Caldbecks. Time limited the experience and we left without having seen his micros - but with an open invitation to see them on our next visit.

Many thanks are due to Mike for his time and hospitality.

Friday 19th April 2013 and Friday 14th June 2013 Southwest Branch Visits to Hingston Down Quarry, Cox Park, Cornwall. [SX 409 719]
Leader and Reporter: Sheila Harper

The party hard at work on "Sheila's rock pile" at Hingston Down.

Firstly I would like to thank the Manager Dave Jenkins of Hingston Downs Quarry for kindly giving permission for me to take groups into Hingston. Also Acting Manager Jerry Cribb. Both gentlemen have gone out of their way to facilitate our visits over the years.

For our April trip Jerry had kindly put aside a pile of 'rock for Sheila's group'. As there were eleven of us all together working space was at a premium so I stepped aside to let the gang get at the material. As usual one person did really well and that was David Clough who notably spotted the lone granite boulder with arthurite on it and in it.

The main rocks we had to work on included some of mainly crystalline quartz, mica, sphalerite, pyrite and chalcopyrite.

In this material were well-crystallized langite ranging from pale green blue to deep blue and also green blue chalcophyllite, aurichalcite, scorodite, immaculate micro arsenopyrites and honey coloured sparable tin. Members of the group also collected fluorite crystals (some tiny and perfect) as well as molybdenite and tourmaline. David also got a cracking langite which I could see from my position on the roadway some safe feet away from swinging hammers. I also collected some of the 'sand' rock – originating from a band that runs across the quarry which produced anatases and scorodite.

On our June trip seven of us went back to Jerry's rock pile and found similar material. Then David Clough came over to me a showed me a small cavity with a possible scheelite in it. On July 12th David sent me an email which read – 'Remember the peculiar crystals I found along with the apparent scheelite on the last trip (14th June)? After testing, NHM advise raspite! Second Cornish occurrence, I believe, after David Green's find at Cligga [Green, D.I. & Tindle, A.G. (2013) Raspite, stolzite and phillipsbornite: Three rare lead minerals from Cligga Mine, Perranzabuloe, Cornwall. *UK Journal of Mines & Minerals, 34, 29-32*]. Thought you'd be interested for inclusion in your field trip report for Newsletter'. Say no more!

24th April 2013. Central Branch Visit to the British Gypsum Barrow Mine, Barrow upon Soar, Leicestershire. [SK 595 166]
Leader: Neil Hubbard. Reporter: Steve Critchley.

Five members assembled at the British Gypsum works to be treated to an excellent visit to explore what turned out to be an amazing complex of underground workings extending under a large area of rural Leicestershire.

After the usual formalities for Health and Safety, an overview of operations and the guidance in the use of our personal safety kit, we were ferried underground by Landrover driven by our guide for the day Tony Shaw, Mine Maintenance Manager. The access used was an inclined drift descending underground and at a vertical depth of some 300 feet we drove into a vast bewildering complex of former pillar and stall workings stretching for some miles in each direction. The mine was on maintenance status for the day and so we were able to drive to and examine the working faces without the usual dust, and noise.

Being relatively soft the gypsum beds are cut by a remote controlled (the operator stands well behind with a button pad) mechanical continuous miner before being transported from the cutter by specially designed trucks to the conveyor belt and then to the surface. We were able to examine close up an example of this state of the art, not to say expensive piece of mining equipment, which cuts the gypsum using cylindrical drums armed with rows of tungsten carbide teeth. The mined gypsum once transported to the surface, is processed to remove impurities and used as the feedstock for the bagged plaster and plaster board manufacturing facility which occupies the bulk of the surface site.

Located within the Triassic Mercia Mudstones Group Branscombe Mudstone Formation, the Tutbury Gypsum beds worked at the mine are up to 3 m in thickness, relatively flat bedded and with limited impurities in the form of marl nodules and partings, therefore are ideal for mechanical mining methods. The upper and lower margins of the worked seam are defined by irregular reddish marl beds with some green reduction spotting. Precise assessment is needed prior to cutting the seam to ensure that as little as possible of the marl beds are taken to avoid undue contamination of the raw gypsum.

The roof zone is relatively stable, but safety maintenance is carried out each day and loose or fractured material is brought down in a controlled manner. Recent work had produced some worthwhile specimens of satin spar in the resultant debris and this provided some excellent material for the members. The inevitable dust produced by mining and the passage of vehicle meant that all surfaces quickly become coated with a thick layer of white gypsum dust making collectable specimens hard to identify. Satin spar apart, there is an abundance of massive white semi-translucent gypsum, but little else mineralogical of note.

The gypsum beds have been formed by the hydration of the primary anhydrite and portions and irregular zones of this mineral are occasionally found during working. Because of its relatively greater hardness than the gypsum, these zones are avoided due to the increased (and expensive) wear inflicted on the cutting teeth of the mining equipment. On our return journey Tony showed us an area where an anhydrite zone was located in older disused workings, so we could examine the material in situ. Hammering soon showed its hardness and with some effort specimens of compact pale blue to white anhydrite were collected.

Our final location of the day was a visit to the maintenance workshops and storage areas for parts and equipment, all well protected from dust ingress by sealed doors. Bright and spotless, these facilities were a credit to the management and a complete contrast to the dusty covering of all surfaces seen elsewhere in the mine. Unfortunately our allocated

time underground went so quickly and we exited the mine to bright sunshine. Altogether an excellent visit and for the writer a first to a gypsum mine. Thanks must go to Neil for arranging the trip and Tony Shaw for giving up his time to take us on the tour.

Sunday 28th April 2013. Wales and West Branch Visit to Ffos-y-fran Land Reclamation Site, Merthyr Common, Dowlais, Merthyr Tydfil [SO 066 063].
Leader and Reporter Tom Cotterell

10 members enjoyed a sunny morning spent in search of millerite and diamonds – 'Merthyr diamonds' that is. We were joined on the trip by MTCBC Landscape Architect Tom Bramley and his son, fossil enthusiasts. Following a very civilized introduction, with tea, coffee and biscuits, in Miller Argent's Education Centre the group were given a safety briefing and driven into the site where 367 hectares of derelict industrial land is being restored to upland common.

First stop was the lowest stratigraphic horizon at the base of the southern end of the workings near [SO 0672 0632]. Unfortunately none of the clay ironstone nodules showed any evidence of containing the much sought after metallic needles of millerite and so we rapidly moved up to the next level.

The group progressed northwards inspecting backfill material along the base of the western edge of the pit. The occasional small, doubly-terminated, 'Merthyr diamond' type quartz crystal was found until a concentration of large, productive, clay ironstone nodules were found in the northern corner of the workings near [SO 0671 0707]. These not only contained some fine examples of quartz crystals (see photograph), but also some rich sprays of fine, hair-like, acicular millerite crystals and waxy hydrocarbons within cavities. The origin of this backfill was uncertain.

Quartz crystal specimen recovered from the back-fill material.

We inspected the higher workings in the vicinity of the Big Seam, near [SO 0700 0702], but despite an abundance of clay ironstone nodules the septarian cavities were all completely infilled with quartz and carbonates leaving no space for crystals to form.

It was decided that the backfill at the northern end of the workings was the most productive area and so we ended our visit scouring the earlier locality. An unusual-looking fossil was discovered by Dave Evans and Tom Cotterell which was identified at the National Museum of Wales as a *Calamites* stem but, unusually, containing the leaf nodes still attached and flattened to form radial patterns.

Our thanks go to Miller Argent for once again allowing us permission to visit their site and to Kylie Jones, Lewis Jenkins and Luke Thompson for giving up their time to show us around.

Saturday 4th May 2013. Southern Branch Visit to Whatley Quarry, Wells, Somerset [ST 733 483].
Leader: Chris Finch, Reporter: Nick Millett

A cold dreary Saturday morning met the 8 members from the Russell Society arriving at Whatley Quarry. After the usual greetings and signing of forms we were taken in two trips to bench seven where there had been some recent activity.

Nothing much was found apart from some calcite and small goethite but our team leader found a manganese pod, which had fallen from an area about three feet under the surface at the top of the quarry.

After everyone had a piece of the manganese pod we proceeded to level one. Nothing of interest showed itself so we proceeded to the dumps. After an hour of scrambling around it was time to leave once again.

Many thanks to the quarry management team, especially our guide – Shaun Hartland who accompanied us throughout as he was doing a report for Heidelberg on a sustainability project associated with the quarry.

Thursday 9th to Monday 13th May 2013. Northwest Branch Long Weekend Visit to Scotland.

Thursday 9th May 2013: Strontian Mines [NM 836 658]
Leader: Ian Dossett, Reporter John Davidson.

Our first port of call on what would turn out to be fantastic long weekend of collecting was at Strontian. But after a long drive and a very early start the intrepid collectors met at the café in the village before going on to the mines. Ian was joined by John, Jim, Graham, Craig and Frank.

We all made our way up to the Whitesmith Mine in pleasant sunshine and made our way through the open cut to a small enclosed area; where brewsterite can be seen lining the walls. Worldwide it's a rare mineral but at the Whitesmith Mine it's locally abundant. It did not take too long to find some good examples of brewsterite, together with possible ancylite-(Ce). On breaking open slabs of baryte some good examples strontianite were collected.

The great opencut of the Strontian Baryte Mine.

The intrepid collectors lead by Ian walked down from the Whitesmith Mine into the Strontian Baryte Mine open cut, to an area where good harmotome can be collected. Some good material was found by all. However, just as we were packing our bags to go, John turned over a hand sized lump of rock and found harmotome crystals to 10mm covering the lump of rock and once cleaned at home these turned out to be excellent!

As it was getting late and we all had to drive to the Isle of Skye for the rest of our weekend of collecting and we all hoped the weather would be good!! Our thanks must go to Dan McDonald for allowing us access to the mines.

Friday 10th May 2013. Moonen Bay, Isle of Skye [NG 136 479]
Leader: Ian Dossett. Reporter: Jim Robinson.

This location is very difficult to access and the rain is not a help for the beach trek. All six of us set off with the goal of reaching the waterfall; this can take up to 1.5 hours but the damp, wet conditions made the journey extremely difficult.

After negotiating the walk through the fields and the climb down to the beach we were faced with very slippery rocks and boulders. Several loose boulders from falls off the cliffs showed good analcime and apophyllite these were left until the journey back.

By the time we reached the waterfall the weather had improved and the morning sun that had been forecast was trying to break through. As always there were very good samples to collect from all around the waterfall. No new big falls were evident but fresh broken smaller rocks revealed good specimens and people were happy to work on the older rocks.

Fine apophyllite specimen, 14cm x 9cm, from Moonen Bay.

Some good sample of chabazite, stilbite (stellerite?) and analcime, and some excellent sprays of apophyllite were collected. The waterfall was the strongest I had seen it for many years and the first time I had seen a flow on top of the rocks here.

Everyone was wary of the tide and the additional time it took to get here, so we set off back with time to spare but the drying weather helped make the journey back much easier.

Saturday 11th May 2013. Talisker Bay, Isle of Skye. [NG 324 302]
Leader: Ian Dossett. Reporter: Graham Thornes.

Wind and rain greeted our party of six as we parked at the end of the tarmac road leading to Talasgair (Gaelic spelling). The bay, situated on the west coast of the island, was approximately 20 miles from our lodgings in Portree. The walk began along the left hand track which emerges at the southern end of the bay. Talisker Bay is a beautiful beach of stones and sand, to the north formed by vertical cliffs and a waterfall, whilst to the south guarded by Heddle's Stack.

Ian led the party over the rocks and onto the beach and gamely crossed the River Talisker which was flowing well as it was only a couple of hours after high water. You can lead a mineralogist to water but you can't make him wade! John, Frank and Jim opted for dry feet and made their way south following the outgoing tide between the cliffs and the sea stack to begin their search. Ian, Craig and I continued over the river and explored the northern end of the bay under the cliffs of Sgurr an Fheoir. The conditions were far from easy with wet slippery rocks.

Calcite crystal specimen from Talisker Bay.

The breakaway party of three re-crossed the river (wet feet again!) to join the others who were now south of the stack beneath the cliffs of Beinn nan Cuithean. The weather began to clear around lunchtime which improved conditions underfoot, and with low tide at 14.20 a pleasant afternoon was spent collecting. Some fine examples of analcime, chabazite, calcite, Red Cuillin (orange and brown) calcite, thomsonite and mesolite were collected throughout the day. Of particular note was Craig's substantial prize specimen containing superb mesolite sprays. Full marks for negotiating the boulder field cradling his prize in both arms, until finally arriving back at the car - relieved that it was still in one piece.

Sunday 12th May 2013. Little Scatwell Mica Mine, Loch Garve [NH 384 572].
Leader & Reporter: Ian Dossett.

Craig, Frank, Graham and I drove from Skye to the Loch Garve area to visit the Little Scatwell Mica Mine. This is situated 500 m to the northwest of Little Scatwell House, on an east facing spur overlooking the River Conon and Luichart Dam. The quarries and associated spoil heaps range over an area of 500 m between the 70 m and 180 m contour. The area has a cover of commercial forest, although the lower quarry on the east side of the track is in birch woodland. There are 12 discrete quarry faces with associated spoil heaps that can be divided between upper and lower workings and these are reported to represent at least two distinct periods of quarrying activity, the upper being worked during the Second World War whilst the lower workings are earlier.

We parked at a convenient point close to the most obvious signs of working near a large area of spoil. Also nearby was a large adit disappearing in to the hillside. We explored the tips but there was little evidence of mica. We believe this tip is associated with the adit which on reflection we believe to be associated with the nearby dam.

At this point we decided to walk further up the hillside but to no avail. We then headed down the hill on the road and eventually noticed a low rock face exposed amongst the pine forest. This showed no obvious signs of working, nevertheless according to Frank's GPS we were close to the reported workings. A little exploring up the hillside resulted in evidence of mica which increased the higher and deeper in to the forest we went. Eventually we found a very overgrown tip and on exploring, several overgrown low faces and evidence of workings. The next hour was spent foraging around in the moss successfully collecting some representative samples of phlogopite mica in feldspar with a few small garnets. Amongst the debris was one boulder with very weathered mica faces to 20 cms.
Many thanks to Mike Wall the Estate Keeper for permission to visit.

Sunday 12th May 2013. Pass of Ballater [NO 368 972].
Leader & Reporter Ian Dossett.

We left Little Scatwell and drove SE towards our accommodation for the night at Banchory. En route we stopped at the pass of Ballater to examine the lower screes for signs of beryl and bertrandite. Within a few minutes Graham found dark pea green coarsely crystalline beryl some 8 cms by 2 cm on pink granite. Despite all the subsequent efforts of Frank and

l no further examples were found.

Monday 13th May 2013. Pitscurrie Quarry, Pitcaple, Inverurie [NJ 728265].
Leader: Ian Dossett. Reporter: Frank Bouweraerts.

This, our first port of call, was something of a novelty, a municipal quarry run by Aberdeenshire County Council. By 9:00am Graham, Ian, Craig and Frank had registered and entered the quarry, examining the piles of broken rock for suitable specimens.

All that we came across at first were traces of epidote on joint surfaces. Then we were directed to the highest bench by the Quarry Manager, Graeme Allan, where we found a pegmatite vein that contained abundant tourmaline var. schorl and a little mica. Mostly the schorl occurred as masses and individual crystals embedded within a quartz/feldspar matrix. However, Ian found a large crystal segment and Craig a slightly smaller incomplete yet terminated crystal. It proved impossible to extract the crystals in matrix using hammer and chisel and we concluded that the two loose individuals were a remnant from earlier blasting.

Thanks very much to Graeme, the Quarry Manager, for being so helpful and accommodating.

Monday 13th May 2013. Todhead Point, Stonehaven [NO 866774].
Leader: Ian Dossett. Reporter: Frank Bouweraerts.

We drove south via the outskirts of Aberdeen until we reached this locality, which is a sea cliff exposure next to a lighthouse south of Stonehaven. By now Craig had left the group (one of us had a job to go to!) but fortunately the weather remained gloriously sunny.

Rough flights of steps led down to sea level beneath cliffs of large-bouldered conglomerate. Here we found lavas containing brick red stellerite and heulandite, mostly completely filling vesicles but very occasionally as free standing crystals. Later, under the microscope Ian identified tiny crystals of red analcime, white laumontite, pale green prehnite and white quartz.

Monday 13th May 2013. Goat Quarry, Aberdour, Fife [NT 175867].
Leader: Ian Dossett. Reporter: Frank Bouweraerts.

This involved a lengthy drive further south, bypassing Dundee and not arriving until after 5.00pm at the quarry. We were met by Stuart Rae, a local Tarmac manager, who showed us around this large quarry that had been disused for at least five years.

Because of its disuse, there were no fresh exposures of the shales that once yielded crudely crystallised masses of pyrite. There were a few remnants but with one feeble exception the pyrite had disintegrated. Stuart was very patient and generous with his own time; we checked out several areas of shale exposures but none was productive.

By now the fine weather had given way to a biting cold wind, accompanied by a few driving showers of rain. Before we reached the comfort of our cars we did at least get superb glimpses of the Firth of Forth bridges.

Our many grateful thanks go to Ian for a superb, well organised weekend trip.

Saturday May 11th 2013. Central Branch Visit to Cloud Hill Quarry, Worthington, Leicestershire. [SK 413 215] Leader: Neil Hubbard. Reporters: Steve Critchley and Mourice Czerewko.

On a bright sunny day 12 members from various branches of the Russell Society, led by Neil Hubbard visited this now well-known locality under the able guidance of Stuart Shrimpton the Assistant Quarry Manager for Breedon Aggregates. Following the customary formalities and kitting-up at the quarry office, the party headed off on foot to the viewing platform for an update of the changes since the previous visits. The party next proceeded to the area of hematite mineralisation, which in previous years has yielded some excellent specimens. Sadly the area located in the southwest part of the quarry adjacent to the upper extraction bench, was significantly depleted of any mineralisation and no longer accessible.

Cloud Hill, for those who are unfamiliar with the locality, is one of a group of Carboniferous Limestone inliers unconformably overlain by Triassic Red Bed deposits outcrop in this part of Leicestershire and which have been extensively quarried for many decades. The current quarry is deep being constrained by a number of geological parameters which dictate its

development. It works a series of beds belonging to the Dinantian Milldale Limestone, Cloud Hill Dolostone and Ticknall Limestone Formations which have been extensively deformed and faulted with many beds, particularly in the eastern section of the quarry lying near vertical. In places the limestone has undergone significant dolomitisation with volume changes producing vugs and small cavities. Prior to and during the Triassic the inlier was subjected to karstic erosion at both outcrop and underground with a series of caves and fissure formed along the zones of cavitation and joints, before being progressively buried by marls and mudstones of the Mercia Mudstones Group in a semi-arid desert environment.

Mineralisation observed in the quarry can be divided into two phases. The first introduced a widespread dolomitisation of the limestone (accompanied by helpful cavitation in many beds), with some deposition of galena and subsidiary baryte noted previously in the deeper levels of the quarry. Secondly there are extensive mineralisation features developed during the Triassic introducing (or remobilising) additional lead and copper sulphides with baryte into the karstic features and cavities in the dolomitised limestone. In recent years a locally extensive goethite mineralisation at the unconformity between the limestone and mudstones has been exposed in the south west portion of the quarry.

As the area of iron mineralisation that was popular on previous trips was all but gone and inaccessible, other than a few relict lumps of goethite collected by a few members, attention was turned to the underlying bench area. The main focus for the mornings collecting lay with the sulphide mineralisation associated with a cave infill and several smaller voids elsewhere on the same bench which contained abundant dogtooth calcite crystals dusted in part with chalcopyrite crystals.

The party concentrated their attention on two immediately adjacent areas in the southwest corner of the site comprising of a wide section of bench platform with significant stockpiles suitable for the morning collecting. The members were soon busy extracting and abundance of crystallised specimens of galena, chalcopyrite, marcasite, dolomite and baryte particularly from the cave wall rocks cavities whilst others busied themselves delicately extricating calcite crystals often coated with a rich scattering of well-formed chalcopyrite crystals up to 3 mm in size from other narrow often clay filled voids. Many of the calcites were found loose in these voids perhaps dislodged by past seismic activity associated with the close proximity of the Breedon Fault before being encased with fine calcareous muds deposited by descending groundwater.

Small cerussite crystals on octahedral crystals of galena from a Cloud Hill pocket.

Secondary mineralisation was very limited with traces of malachite and cerussite to be seen on a few sulphide groups becoming evident following more detailed examination after cleaning. Others yet to be confirmed may also be present as micro crystals of perhaps the elusive wulfenite which is known to be associated with similar mineralisation seen elsewhere in the Breedon area.

By the end of the allotted time all members had collected their fill of specimens which was timely because this part of the quarry will soon be gone. Works currently underway to access additional reserves involves blasting away the benches on the west side to go deeper and so to safeguard the future workings below, the exposed faces are being nailed, meshed and locally reinforced with sprayed concrete. Regrettably this will both remove this collecting locality and make future access impossible.

Much good quality material was collected to enhance members collections, accompanied by the depletion of many a local councils recycling stream as copious amounts of newspaper were consumed in the wrapping process. As a consequence of this abundance rucksacks were full to the brim and very, very heavy. For those of you who have been here before it can be a long steep haul out of this quarry so it came as a relief to many of the older, and perhaps less fit, members when Stuart offered to fill his truck with rucksacks and ferry these and any members who wished out of the quarry over a number of trips. Finally as the last of the samples and passengers were delivered back to the office car park, the weather took a turn for the worst, with the sunny weather rapidly replaced by torrential downpours as the successful morning's collections came to a timely conclusion.

Thanks must go to the leader Neil for organising yet another productive venture and particularly to Stuart for his help in making the morning's collecting a very pleasurable experience.

Saturday 18th May 2013. Southern Branch Visit to Wheal Mary Ann, Menheniot, Cornwall, [SX 287 636]. Leader Chris Finch, Reporter Steve Plant.

On a brilliant sunny morning ten Russell Society members were met by Tony Aldsworth, "custodian" of the site. Tony Lee had facilitated the visit and we were fortunate to have him in the group as he was able to give a brief introduction to the site, describe the minerals most likely to be found and, most importantly, where to start digging with a good chance of finding something.

The main collecting area on the Wheal Mary Ann dumps.

The site is heavily overgrown so potential mineral finds require extensive excavation within the undergrowth and amongst the interminable tree roots. Midges were only a minor nuisance during the day. The party dispersed into the undergrowth to mark their spots. Several shallow trenches were dug to reveal fresh spoil. Soon, specimens of blue and yellow fluorite turned up with occasional octahedral chalcedonic pseudomorphs after fluorite. A few lumps of vuggy siderite yielded cubes of pyrite to 3 mm. Galena was rarely found as cubes to 2-3 mm associated with fluorite. Whilst the Russell Society was visiting the site some of the local Cornish contingent were extracting gossan from a vein adjacent to the footway shaft. The gossan comprised a decomposed quartz-barite vein, with minor galena, and coated with a black film of iron/manganese oxides. Some of this veinstone was rich in microcrystals of green pyromorphite. Wulfenite was fairly common amongst the paler varieties of pyromorphite. It occurred as typical bipyramidal and tabular lemon-orange crystals, although many other morphologies have been reported from this locality. Minor cerussite was also noted.

By 4.00 p.m. the party was ready to depart. At this stage of the day most of the party were satisfied with their day's collecting and decided to return to their accommodations, however, a few stalwarts were ready to move onto the next venue. A small group, led by Tony Lee, went on to visit Stowe's Shaft at Caradon, Bodmin Moor. Chalcosiderite was found during a short period of time by Steve King. A specimen of henwoodite (var. turquoise) was tentatively identified but was immediately discarded by one member as being an insignificant micro!

Our thanks go to Tony Lee and Tony Aldsworth for arranging access and to Tony Lee for helpful advice throughout the day.

Sunday 19th May 2013. Southern Branch Visit to Herodsfoot Mine, Lanreath, Cornwall, [SX 212 605]. Leader: Chris Finch. Reporter: Rob Tripp

Tony Lee pretending to be a JCB on the Herodsfoot dumps.

Early on the Sunday members of the Russell Society including Tony Lee (who had arranged our visit to Wheal Mary Ann the previous day) and David Lloyd, spent the morning collecting on the dumps of the Herodsfoot Mine. The visit was arranged through Richard Humphrey, who owns the property, lives in the former mine Count House, and is working to restore the mine area.

The mine dumps are old and covered with considerable vegetation. Richard had used a JCB to excavate a trench about 10 meters by 3 meters in one of the dumps. Most of our collecting took place here, although breaking some of the large rocks along the track also yielded a few finds. The early collecting turned up small amounts of massive ore minerals - galena, bournonite (or perhaps tetrahedrite), sphalerite, and chalcopyrite, as well as a few sub-mm euhedral crystals of tetrahedrite, 2 mm bournonite crystals,

small pyrite cubes, and a few pockets of siderite crystals.

Close to the time we planned to leave, Steve King removed a large piece of rubble from the excavated area. Although muddy, a few small bournonite crystals were visible on the surface together with significant green copper staining, indicating that there might be more inside. He and Steve Plant worked to break the piece down and found areas of bournonite veining as well as bournonite crystals in a number of small pockets, in association with groups of tiny quartz crystals. Many of the bournonite crystals were large enough that their distinctive habit was easily recognizable with the naked eye; some areas of crystallization extended to over 1 cm. In addition, a couple of the vugs also included quartz pseudomorphs of thin baryte crystals. There were also some areas of small siderite crystals and in a few cases these hosted small, amorphous blebs and a few spheres of acicular crystals of a white carbonate mineral, perhaps aragonite. (In the afternoon, Tony and Richard found another piece in the same area and it reportedly yielded some excellent bournonite crystals.)

The find of significant bournonite crystals at arguably the world's best-known location for the species sent everyone home in high spirits. The success of the visit was due in no small measure to the work and exceptional hospitality of Richard Humphrey and his wife we are indebted to them for allowing us to invade their property on a Sunday morning.

Saturday 25th May 2013. Northwest Branch Visit to Dolyhir Quarry, Old Radnor, Powys. [SO 242 584] Leader: Ian Dossett. Reporter: Adam White.

Five of us entered the gentle arsenic and silica winds of Dolyhir. As we looked for arcane mineral treasures we began to slowly cook in this welcoming grey hell. We passed dolomite dykes on the upper levels and carboniferous limestone beds slip sliding around like inebriated ice skaters on our journey to the Precambrian.

Initially little was found aside from a few crumbs of harmotome: on the upper levels the copper area had not even been touched by the machinery since last year. However the Quarry Manager said that work will commence late in the year. I wonder if the rich azurite specimens from years back will return.

At the lowest level of the quarry huge boulders with sections of calcite and quartz were found. The vein that coughed up these boulders could be seen clearly from a distance - a beautiful and dramatic inverted arc through the Precambrian strata. We proceeded up another level where the party attacked a barytocalcite vein with mild fury, rapidly unearthing a man shaped trench and were rewarded with fine clusters of witherite.

Then back for the rare stuff at the ewaldite area. Alsonite and paralstonite were found by those of us blessed with the subatomic eye (i.e. Ian and John). Finally a little aimless wandering produced some bitumen and baryte hinting at 'blue' to anyone who believed it enough. Maximum persistence points are due to Steve Warren who spent hours extracting spectacular aesthetic florets of quartz, baryte and pyrite from the large boulders.

Fine crystals of witherite in a cavity from Dolyhir.

Overall it was a good day in areas with much future potential. Grateful thanks are due to Tarmac Western Ltd for allowing access to the quarry.

Friday 31st May 2013. Wales and West Branch Visit to East Pit Opencast Coal Site, Gwaun-cae-gurwen [SN 732 129]. Leader and Reporter: Tom Cotterell

This was our first trip to this opencast coal site which is an extension of the earlier East Pit Extension site. Celtic Energy, who operates the site, mine high quality anthracite coal from twelve individual seams which lie up to one hundred and fifty metres below the surface. 10 Members assembled at the site offices on a warm sunny morning. Wayne Evans, Mine Manager, gave us a safety briefing and the group were then transported into the opencast workings by Land Rover.

Firstly, we were taken to a viewing area above the south face of the opencast where the scale of the operations could

be seen. The opencast extends north-south with the working face advancing eastwards and the western side consisting of backfill (see photograph).

View over the East Pit Opencast Site.

The deepest workings were inaccessible during our visit, but we were able to view the upper faces along the eastern side of the pit. The thicker sandstone horizons showed some evidence of jointing, but the surfaces contained massive milky quartz and no crystals. Clay ironstone nodules were conspicuous by their absence, but this was not unexpected this high up in the Coal Measures succession. As we walked back to the Land Rover an area with a low face was passed which showed evidence of a slightly thicker quartz vein. Coarsely crystallized quartz was present, but unfortunately rather shattered. A few specimens were collected along with what appeared to be coatings of botryoidal 'blister copper', but which on later inspection proved to be pyrite.

With no access to the deeper workings we decided to investigate the extensive bank of backfill on the west side of the open pit. Large clay ironstone nodules occurred in profusion, but most were devoid of cavities. Some the large sandstone blocks displayed veins and coatings of attractive, orange-brown, bladed siderite crystals. Steve Warren collected one of the better specimens with fudge-coloured, curved, siderite crystals to nearly 1 cm on edge.

Our thanks go to Celtic Energy and in particular Wayne Evans, Mine Manager, for allowing us permission to visit the site.

Saturday 1st June 2013. Wales and West Branch Visit to Nant Helen Opencast Coal Site, Abercraf. [SN 812 113]. Leader and Reporter: Tom Cotterell

Twelve members assembled at Celtic Energy's site offices bright and early on a lovely summer morning. Ian Price, Assistant Manager, gave us a safety briefing and the group were then transported into the opencast workings by Land Rover.

Nant Helen Extension opencast coal site is the largest of Celtic Energy's sites, producing approximately 400,000 tonnes of high quality anthracite coal per year. The coal is extracted from up to thirteen different seams to a depth of one hundred and fifty metres below the surface. The site layout changes little, year by year, as the working face gradually progresses south-west. The thick sandstone beds associated with the Nine-Feet Seam were once again a prominent feature of the lowest workings and were the focal point for our visit.

An initial inspection of the sandstone bands exposed alongside the haulage road suggested that the number of quartz-bearing cavities was limited, but a trail of fragmentary quartz crystals in the floor gave indications of some potential. Indeed systematic excavations of the ground produced a number of nice individual quartz crystals.

Exploration of the lower levels revealed several areas of interest and a number of productive cavities were discovered. Steve Warren produced many specimens of quartz crystals on matrix from one pocket and Tom Cotterell and Chris Finch were able to collect a few more from the same cavity. Alan Thorogood who, had, busied himself beside another cavity unearthed one of the best individual crystals yet collected from the site – a 10 cm long doubly-terminated quartz crystal with a slight smoky tint (see photograph). Allan Dean discovered one cavity containing hair-like millerite in sprays to several centimetres in length. Once again everyone came away satisfied with their finds from a thoroughly enjoyable morning.

10 cm Smoky quartz crystal from Nant Helen.

Our thanks go to Celtic Energy and in particular Richard Davies, Mine Manager, and Ian Price, Assistant Manager, for once again allowing us permission to visit their site and for taking the time to show us around.

Sunday 9th June. Central Branch visit to Dolyhir Quarry, Old Radnor, Powys. [SO 242 584] Leader: Neil Hubbard. Reporter: Clive Minker

In comparison to recent UK weather trends, there was all the promise of a productive day's collecting in that the sun was actually shining thus creating ideal collecting conditions for the rare and small specimens this quarry has become known for. With the usual formalities complied with, it was only left for our trip leader to put into words the essential essence of the risk assessment in a now well-practised and succinct manner that all would understand: "Right you lot - just behave yourselves!" and with that we all marched off to the quarry.

The group's leader in characteristic pose.

On previous visits it would have been normal for most collectors to make their pilgrimage to the "old site" noted for its ewaldite. However, an exploration of the levels above seemed the first priority on this day although only a small pocket of unremarkable calcite was the reward. From here a general exploration of the quarry was undertaken by small groups on all levels. The "old site", however, did again yield ewaldite and in addition alstonite and harmotome. On the same level but nearly opposite, a recently worked calcite and baryte vein did produce some specimens worthy of wrapping. Proceeding further along, boulders with surface deposits of calcite, themselves covered with small blue baryte crystals to about 8 mm, were found.

On the top levels some small azurite and malachite specimens were collected from a previously worked vein. In the same area mixed sulphides were collected for later identification and on the very top level fossils were searched for. It was also reported that the Strinds formation, on the west side of the quarry, contained pinch and swell veins of baryte.

Minerals reported on the day were ewaldite, alstonite, baryte, azurite, malachite, tyrolite, calcite, galena, quartz, chalcopyrite and harmotome. Minerals yet to be confirmed were barytocalcite, bornite, djurleite, covellite and sphalerite.

All agreed this was an interesting and enjoyable day's collecting. Our thanks go to Mike Jones and the quarry team for their continued Sunday support.

22nd June 2013. Northwest Branch Visit to Mynodd Nodol Manganese Mine. [SH 859 391] Leader: Ian Dossett. Reporter: John Davidson.

This year's trip to Mynodd Nodol was a greater success as three members of the Society turned for what proved to be a successful trip. The weather was tropical for Wales in the middle of June i.e. no rain if a little windy.

We started our explorations in the small quarry at the top of the mine track looking for hollandite that consists of botryoidal masses of shiny black manganese oxides and several samples were found by the intrepid collectors. After a couple of hours, the three collectors explored the extensive open cuts and the filled in adit level on the north side of the hill from the quarry overlooking Llyn Celyn, including some deeper workings, an incline and the remains of buildings.

On the west side of the hill most of the workings appear to be shallow surface excavations, although there are indications of run-in levels. But little could be found on our exploration of the area as it was overgrown with vegetation. On the north side of the hill near the adit level there appeared to have been excavations for possible farm track repairs, nothing of interest was found here though.

Our thanks must go to Bob Matthews and Ray Roberts of the Countryside Council for Wales for allowing us to collect representative samples of hollandite from a SSSI.

22nd June 2013. Northwest Branch Visit to Moel Llyfnant Manganese Mine [SH 8091 3501]. Leader: Ian Dossett. Reporter: John Davidson.

After the successful morning trip to Mynodd Nodol Manganese Mine we travelled a few miles across country by car to our next site. It was only a 6 mile walk or so according to the map but we had to make a very steep ascent up to the summit of Moel Llyfnant which was just by chance very windy on the top and we had to fight to keep our feet! The low

cloud and strong winds made it very difficult to find the mine site that is just below the summit. Once the mine adit was located we started to find cryptomalene but some lithiophorite was also located that appeared to be combined with the cryptomalene as feathery growths.

Before we left the mine tip we made a trip down the adit that is open but not very long, and with no sign of ore that could be seen, it must have been a very desperate venture to drive a short adit to mine manganese ores. We found it a welcome break from the wind, but a place to avoid in the winter!! There appears to be a shelter near the adit and some excavations into the lode near to the adit entrance as well as a quartz vein.

Our thanks must go to Bob Matthews and Ray Roberts of the Countryside Council for Wales for allowing us to collect representative samples of hollandite from a SSSI.

Saturday 22nd June 2013. Southern Branch Visit to Pindale Adjacent to Hope Quarry, Bradwell, Derbyshire [SK 165 813].
Leader and Reporter: Mourice Czerewko.

The full complement of eight members assembled at the hardstand area south of Pin Dale adjacent to Hope Quarry after 9am for a 9.30am start on what started as an overcast breezy morning. The formalities were attended to with introductions and risk assessment. The background to the morning's distraction ahead of the afternoon's collecting trip in Hope Quarry was briefly outlined once everybody was appropriately kitted out. This comprised of light weight backpacks, spare weatherproof clothing for the promised showers and light collecting equipment due to collecting constraints over most of this area due to its largely archaeological SSSI designation.

A brief explanation of the area was provided as background for the field visit against the panoramic backdrop afforded from the meeting point. After a brief summary covering the geological setting, mineralisation and long history of exploitation dating back to Roman times the party commenced down Pin Dale accompanied by low cloud and drizzle to the old abandoned quarry. At the north side of the site which borders onto Hope Quarry a recent rock fall had exposed a pocket of iron stained calcite and purple fluorite mineralisation form which samples could be collected. Next a visit was made to inspect the rock face exposure and abandoned blast pile scree in Pindale Quarry where loose blocks containing cubes of amber fluorite and occasional galena were collected. Interestingly a recent mined opening was discovered in the southwest part of the site but other than speculative suggestions as to its origin no further inspection was carried out.

At this point of the mid-morning as the weather took a dramatic change to clear sunny conditions the party decided to split into two groups as Steve Plant was keen to visit the location of Red Vein located at the foot of Pin Dale, immediately south of the ridge onto which Pindale Road is located. Steve was escorted by Mourice Czerewko to show him the exact location and accompanied by Chris Finch and Lionel Birch who fancied a stroll into the wooded area. The rest of the party remained in the area of the ancient scree slopes and open cut vein workings located on the west side of Pin Dale. The group reconvened later than anticipated, with a number of locations to visit, and it was concluded that in the available time, this would be reduced to just two. The next stop was to inspect the surface remains of the old How Grove lead mine with a brief discussion on the old mining methods, inspection of the circular stone lined buddles, the crushing wheel track, the miners coe, shaft and other surface remains of the ore processing operation and adjacent partly grassed waste piles. Following the inspection a quick visit was made to the adjacent open cut in Dirtlow Rake, which abound with boulders of barite in the form of pink cawk and nodular cockscomb aggregates with subordinate calcite, fluorite and scattered galena.

Surface remains of the old How Grove lead mine.

Due to the time constraints, individuals made a hasty retreat of the kilometre or so back along the rough track to hardstand assembly area to kit up and break the morning fast before timely reconvening at 1pm to be met by Ken Dawson of Hope Quarry for the afternoon's collecting trip.

Saturday 22nd June 2013. Southern Branch Visit to Hope Quarry, Bradwell, Derbyshire. [SK 165 813]. Leader: Chris Finch, Reporter: Lionel Burch

Following the morning visits to Pindale and Dirtlow Rake, the seven members returned to their vehicles to grab lunch before being met by Ken Dawson, Hope Quarry Foreman who was to transport us into the quarry. We were chauffeured into the quarry in a short wheelbase Land Rover fitted with rollover protection bars which meant that sitting in the rear was something of an achievement with four people and their collecting bags. However, I am always reminded of my coal mining days "a bad ride is always better than a good walk", something I still hold dear even now! By early afternoon, the sun was out and it started to feel a little warmer, the quarry top is very exposed and the northwest wind was still blowing a near gale!

Hope Quarry is now a vast excavation extending ENE-WSW, approximately 1 km in width and is being developed towards the WSW in increasingly high ground. The quarry extends to eight benches at the SW end, although progressive rollover restoration is taking place towards the northeast in the direction of the cement plant. Annual production is around 2 million tonnes of shelf facies Carboniferous Bee Low limestone, a low silica limestone of high purity and is the primary raw material for Hope Cement Works, now operated by Hope Construction Materials. A broad NNW-SSE trending fault zone passes through the northwest faces of the quarry. This is dominated by clay and probable glacial infill. The fault is sporadically mineralised, during previous visits in 2009 and 2010 mineralisation had been distinctly sparse, however this year fluorite in particular was abundant.

After splitting into two groups for transport into the quarry, Ken initially took the visitors to the viewing platform on the south-eastern side, after which we gathered on the lowest bench above the lowest sinking. Here the mineralised ground was evident with large amounts of blocky fluorite of a variety of colours, ranging from clear, pale blue to orange-brown. Locally small amounts of baryte were evident, though I am not aware of any significant amount of calcite being found here. Sulphides were rare, although traces of galena were noted in baryte, but nothing of significance.

After spending sometime on the lowest bench, Ken transported the party in two groups to the bench above. Although the vein appeared to be very similar to the bench below, virtually no fluorite appeared to be present. Well-formed slender calcite scalenohedra were found in large blocks of limestone. Chris Finch located a cavity in a large block and managed to extract some very reasonable parallel groups of calcite scalenohedra, which he kindly shared with several of the group. The calcite was particularly interesting as it was coated with secondary calcite and very small (<1 mm) dark reddish crystals which were tentatively identified as sphalerite, though this is awaiting confirmation.

Scalenohedral calcite crystals to 80 mm with tiny crystals of sphalerite (?).

Prior to leaving the quarry, Ken transported the visitors to the second bench from the top on the north side where the quarry has been working through a cave for a number of years. This appears to be a phreatic cavity, approximately 25 m below the surface at this point. The cave was lined with flowstone, and some of this could be collected from the bench near the cave. This was particularly interesting as the material appeared to be translucent calcite, which appears to comprise parallel growth groups of clear crystals about 10 cm thick having a reniform exposed surface – nothing like flowstone I have seen in other quarried cave systems. We eventually departed around 4.30 pm – I believe everyone found quality fluorite in a variety of colours, and some interesting and well crystallised calcite.

Finally I would like to thank Chris for making the arrangements for the field trip, Hope Quarry management for permission to enter the quarry and collect and especially Ken Dawson who gave up his Saturday afternoon to supervise and transport us around the quarry.

Saturday June 29th, 2013 South West Branch Visit to Phoenix United Mine, Linkinhorne, Cornwall [SX 262 713]
Leader and Reporter: Sheila Harper

Gerry Nichols, Richard Humphrey, Tony Lee and I made up the group and we headed first to Stowes Section. The

weather was just right. Having looked up the site on 'Mindat' previously I had seen a new mineral was listed – Steve Rust had added gorceixite and that was my target. Hah! Well I did get some rock with chalcosiderite in it while Richard collected some goethite. Richard and Tony had to be elsewhere after lunch so Gerry and I went down to the main Phoenix dumps on our own.

The view over Wheal Phoenix dumps from Stowe's Section.

We started near the Count House where the libethenite occurs and then decided to go to one of the banks below what was the old mineral railway line. We soon got on a roll. Highlights included Gerry collecting gemmy cassiterite in chlorite, then I found meta-torbenite – not that hot when I checked it with my radiation counter so I don't think it is meta-zeunerite. We both found pseudomalachite and malachite, then Gerry found an adamantine pristine cuprite. The last rock I broke was good quality chlorite with many sparkling square faces. I initially said "anatase" as I looked at it with my 10x lense, but Gerry said "francolite". 'Thinking there were too many to be anatase, I looked with my 20x lense and Gerry was right. It's a hand-sized rock and there are hundreds of gemmy water clear crystals running along both faces of the rock where broken. At home I reduced most everything else I collected to gravel. From Stowes Section I got micromounts of gemmy chalcosiderite, a big ugly bundle of needles which I think are cacoxenite, glassy hisingerite, the usual goethite, pale blue balls which could be henwoodite - and no gorceixite.

In the material I collected from the bottom section of Phoenix were crystals of aurichalcite, brochantite, malachite, pyrite, quartz, gemmy black chlorite and sparable tins with the francolite and some more libethenite. There was also what looks like chenevixite and massive henwoodite. Some of the libethenite was in the form of long slender needles and looks identical to olivenite. Thirty years ago I sent some similar to the Natural History Museum for identification because I didn't think it was olivenite even though my peers said it was. It was libethenite. I think there is also a problem with field identification of pseudomalachite and cornwallite on a sites such as Phoenix as phosphates and arsenates are both present there.

My thanks are due to Dr Ruth Osborn for organizing this trip and to the Duchy of Cornwall and English Nature for granting permissions. Ruth asked if I could lead the group and I was pleased to do so.

Saturday 29th June 2013. Wales and West Branch Visit to Cwmdwyfor Mine, Cwm Pennant, Snowdonia [SH 541 506].
Leader and Reporter: Tom Cotterell

A group of eleven members assembled at the parking area at the head of Cwm Pennant on an overcast, but warm and humid day. Two of the group, Steve Plant and Tom Goodland, had independently and rather adventurously hiked across the mountains from Beddgelert, but were evidently feeling very fit.

The party trekking up the Cwmdwyfor Mine incline.

The itinerary for the day was flexible depending on our rate of progress and it was clear from the initial short, sharp, steep climb from the car park up to the old tramway that we would not be attempting the full 'mountain' route. Once the tramway was gained, progress was good and, we meandered our way along the edge of the valley to the base of an incline. Another sharp ascent ensued broken only by a short missing section spanning a stream, where we had to divert from the incline in order to continue our progress. At the top the mine came into view and, spurred on by the thought of lunch, the group marched onwards to the dumps.

Cwmdwyfor Mine, also known as Blaen-y-pennant Mine, was a lead mine in the copper-dominant central Snowdonia orefield. In common with many mines established during the late 19th century it was developed before any considerable

deposit was identified. Huge sums of money were spent on infrastructure during the 1870s but only about 18 tons of lead ore were sold and the mine was an unmitigated disaster for investors. Cwmdwyfor Mine is of interest to mineralogists because of an abundance of pyrrhotite within the quartz vein material. A demonstration of the magnetic properties of pyrrhotite was made using a compass whereby the needle can be diverted using the dump material. Chalcopyrite occurs with the pyrrhotite and minor pyrite, galena and sphalerite were also noted.

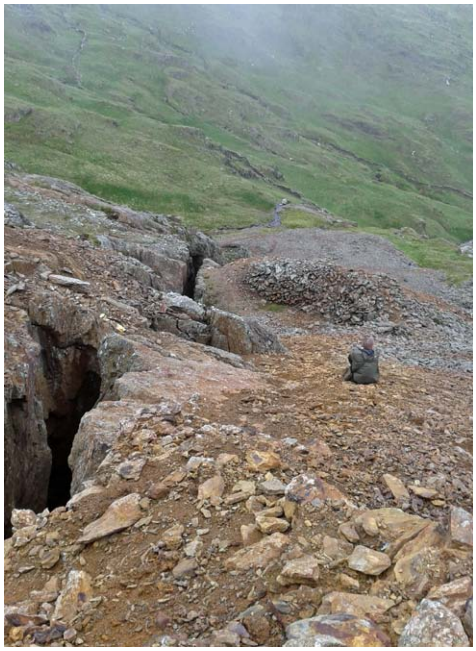
From Cwmdwyfor Mine we retraced our steps down the incline and along the old tramway. We then took an unmarked footpath uphill to the Prince of Wales Slate Mine. The slate was excavated from underground chambers accessed via a series of adits and shafts. A small number of milky quartz veins were seen, but the vein filling was massive and no other minerals of note were observed. The group gradually dispersed with Steve Plant and Tom Goodland heading back over the ridge to Beddgelert while the others descended Cwm Trwsgl to the cars.

The group reconvened in the evening for a pleasant meal at the Tanronnen Inn, Beddgelert.

Sunday 30th June 2013. Wales and West Branch Visit to Lliwedd Mine, Snowdonia [SH 634 530]. Leader and Reporter: Tom Cotterell

The group of us who stayed overnight in Beddgelert were joined by Ian Dossett, John Davidson and Graham Thornes at the car park near Hafod-y-llan. We followed the Watkin Path, one of the main routes to the summit of Snowdon, for the first mile and then crossed the slate bridge and a newly laid hydroelectric pipeline to pick up the steep miners track. Lliwedd Mine is one of the most spectacular mines in Snowdonia and, despite being only 2½ miles from the car park, it is also one of the most inaccessible. Consequently much of the original machinery remains on-site and provides interest for industrial archaeologists.

The history of this mine is poorly documented but David Bick's book, *The Old Copper Mines of Snowdonia* (1982), provides a useful account. Mining is believed to have commenced about the end of the 17th century, but the majority of work occurred between the 1820s and 1840s. From a distance the most conspicuous feature of the mine is the spoil heaps, stained orange by the oxidation of iron minerals. On closer inspection it is the building remains and the opencast workings that draw the eye. A deep, chasm-like, excavation on what was a single, but laterally persistent, vein forms a conspicuous scar upon the hillside above the derelict crusher house and lower adit. The main open cut (photograph) extends for over 100 metres uphill in a west-north-west direction before veering, significantly, towards the west and continuing as a series of smaller open cuts for about the same distance.



The Lliwedd Mine opencut.

The dumps have, in many places, become cemented by iron oxides formed by the oxidation of iron-bearing sulphides – pyrite, pyrrhotite and chalcopyrite. Chalcopyrite, the main ore of copper, occurs abundantly on the tips. This indicates that either the ore-body was extremely pure and the miners very selective in what they transported down the mountain, or that some of the working are of great antiquity and therefore the methods of ore processing were very primitive and inefficient. Sphalerite also occurs abundantly, as the translucent gemmy variety, and galena less so.

Our thanks go to Ray Roberts of Natural Resources Wales and David Smith of the National Trust for permission to visit the site.