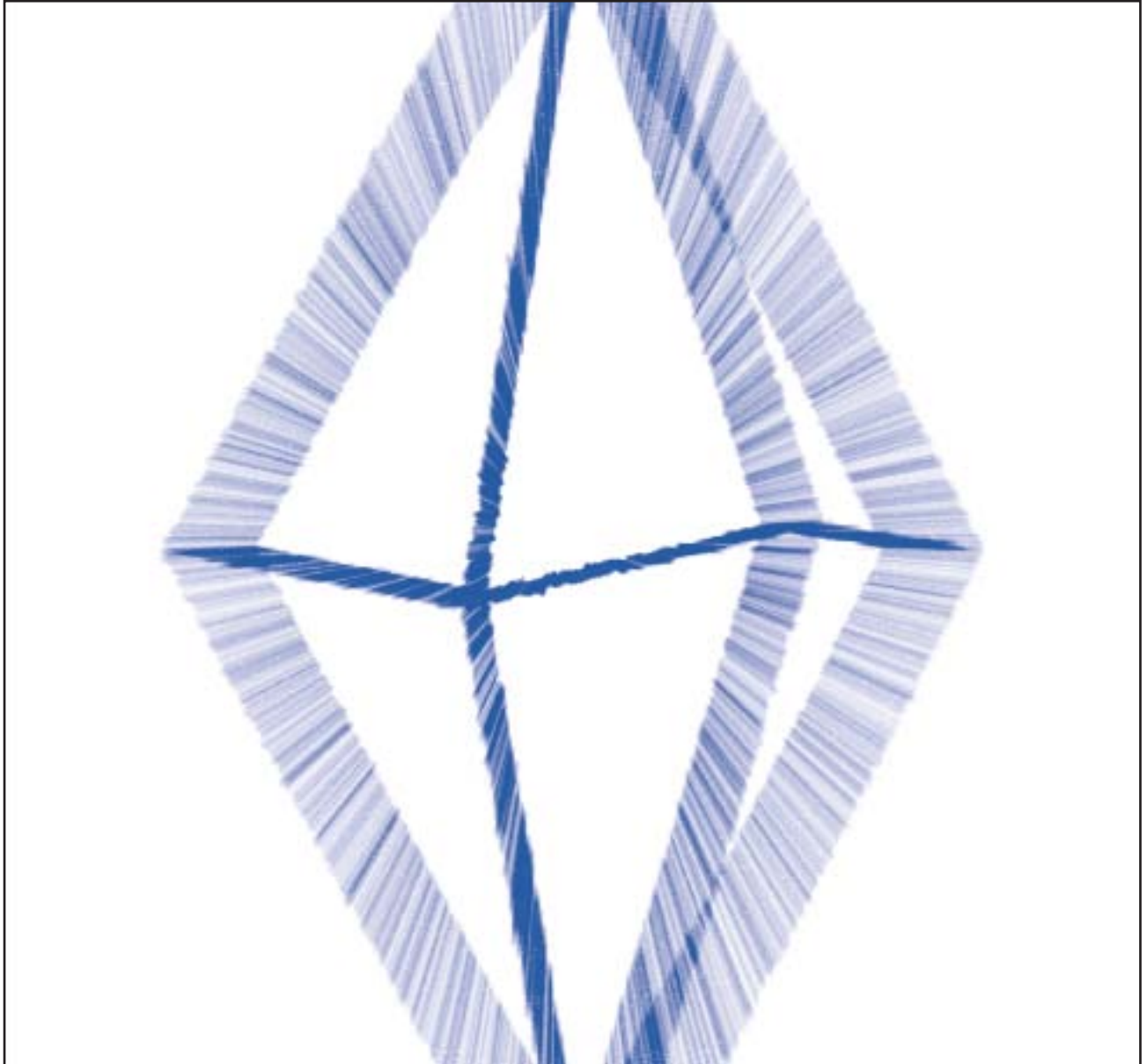




The Russell Society *Newsletter*



Number 68
March 2016

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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Russell Society Newsletter

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The Russell Society Health and Safety Policy:

Adopted by Council 2015.

- 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 Society holds Public Liability Insurance with a limit of Indemnity of £5,000,000 (extended to include Member to Member) and Personal Accident Insurance with Zurich Municipal under Policy No: XAO-122015-4493.

H&S Review 2015

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”

A New Year – and quite a chunk of it has gone by already. I don't believe how quickly the years go by. This is the first Newsletter of 2016 and in the following pages you will find broadly the usual mixture of Society Notices (which I hope you read), news items (which I hope you find interesting) and reports from a variety of Branch meetings and field trips (which I know you find interesting and which I hope inspire you to join in the programmes of events organised for this year by the various Branches).

The News Items represent a mixture of things which have caught my eye in the last few months and things which others have submitted or drawn to my attention. In this issue you will find – among other things:

- UK Mining Snippets – a collection of news items about actual or proposed commercial activities across the UK. Some of these are positive and show projects proceeding well, while others show that it's quite hard these days both to start up a new commercial enterprise, and to keep it going profitably once it's started. Falling world commodity prices are not helping but I am still pleasantly surprised at the level of interest and activity in UK mining. I should point out that these are just plums pulled out of the pudding and are not intended to be a complete or definitive list of what's going on.
- Gem materials are a specialized subset of minerals which float some people's boats but leave others cold. I find them interesting – partly, I must admit, because of the eye-watering amounts of money often involved. Specifically, this time I have included recent stories about impressively large examples of diamond and star sapphire.
- Coming down a step to the “semi-precious” stones, I have noticed a number of stories in recent months relating to Blue John. Always one of my favourites, this “one locality” mineral has a long history of utilization in a range of items from the grandiose to the trivial. The items I have included here reflect both a new type of material coming on to the market at source and the apparently thriving market in worked Blue John artifacts.
- The future of museums and their collections – specifically the geological and mineralogical collections – has been a concern for a long time and is even more so now in a time of massive funding cuts across the board. In the following pages you will see notes relating to two regional museums – one apparently moving into a new and improved incarnation and one which is faced with the threat of closure. Please try to support your local museums whenever possible, both by visiting them yourselves and also trying to ensure that their existence and the benefits this brings are known to those who control the local “purse strings”. It really is “use ‘em or lose ‘em”, you know, and once they go it's very unlikely they will come back.

You will be glad (I hope) to hear that the optical goniometer which was mentioned in the last issue has gone to a good new home in the Southwest. Four members expressed an initial interest in acquiring it; three of these eventually submitted a bid and the winner took possession of their new “toy” in December. The resulting contribution to Russell Society funds was most welcome. I would like to say “thank you” on behalf of the Society to all who took part.

Thanks also to those of you who pointed out a couple of errors in the last issue. In the story about production commencing at the Drakelands Mine I managed to refer to the mine as Drakewalls - not once but twice - in the contents list and in the figure caption. Drakewalls Mine is of course a completely different place some 20 miles away near Gunnislake. I also managed somehow to allow different dates for the Society's 2016 AGM meeting to appear in the “Society Notice” and the “Events Insert”. The correct dates, as you will no doubt have worked out, are Friday 22nd to Sunday 24th of April as given in the insert. My apologies for these lapses and for any confusion they may have caused. *Mea culpa!*

I would like to insert my usual last-minute “plug” for this year's AGM weekend, just in case it has somehow escaped your notice. It is not yet too late to book a place at what promises to be a socially pleasant, mineralogically informative and generally mind broadening event in Durham in April. I love them and go whenever I can, but I often feel that it's a pity more members don't make the effort to attend. Why not make a special (last minute!) effort to go this year? You won't regret it. See the information in the Society Notices pages of this issue.

On this page in every issue I invariably say something like “I would be grateful to receive your contributions (or even ideas for contributions) for future issues”. This remains true and I repeat the plea – with the added comment that I can't believe that you folk have no interesting stories to tell, no snippets of information that would be of interest to other members, no comments or questions about things mineralogical and no ideas about things you would like to see covered in the Newsletter. That being so – I look forward to receiving your contributions!

Enjoy your Newsletter.

Michael Doel

From the President:

Welcome to 2016, just 2016. Having had two-themed years – 2014 was International Year of Crystallography and 2015 was International Year of Light – 2016 seems rather plain. However, I am sure that it will be as busy as ever for everyone and as I write this we are already into February – where does the time go?

Well, on a slightly different note and of some considerable surprise to me, given the normal pleas for contributions, is the amount of material recently submitted to the newsletter. I was going to write of the importance of 'getting involved' in the society, which of course is always welcomed, but a 'surge' in contributions has thrown me slightly off what I was going to write.

The reason I mention this is because it is typically the usual suspects who write articles. I would very much like to stimulate some debate and get members thinking about why they collect, how they curate their collections and to think about the longer term importance of their specimens – whether they be self-collected, or historically important specimens acquired through purchase or exchange.

I was very interested in the 'labels' article written by Brian Craik-Smith in the September 2015 newsletter. Brian's article stimulated me to go away and delve into my label archives to see if I could match any of the labels to known label styles. You can read my response later in this newsletter. Brian's article also got me thinking about using the newsletter as a vehicle for engaging with, and educating, members.

To this end I produced a number of articles on the subject of historic collections and label styles, highlighting the benefits of distinctive label styles and perhaps of equal importance the need to affix labels to specimens. The surprise came when I was asked if I minded one of my articles being kept over for the next newsletter. "Wow!" was my response. I am of course happy for this, but perhaps more happy in knowing that at least for the time being our esteemed Newsletter Editor does not have to run around chasing people for contributions.

The collection I describe in this newsletter – that of Colonel Rimington – is likely to have some specimens in the public domain, so it is worth checking the style of these labels to see if they are familiar to any specimens you may possess. I welcome responses if any of you are aware of the location of Rimington specimens.

There is a fantastic pool of knowledge amongst our membership and this resource could be put to good use in suggesting corrections to labelling errors and in educating others who might have come across old labels. Perhaps some of you have unidentified label styles which you have puzzled over. Well, perhaps you yourself could write a short note or send in a few images to the newsletter for everyone to mull over. It is also good "for the record" to know where such collections of labels reside.

If not labels, then perhaps you are seeking information on a particular mineral or locality. Either way there is no harm in asking through the newsletter. I for one would love to be able to write some replies. So let's all get involved and stimulate some thought processes.

Tom Cotterell
Hon. President

SOCIETY NOTICES

OBITUARY.

Pam Pearce (1938-2015)

(Adapted from notes provided by John Pearce)



Pam and John were regular attendees at Russell Society SE Branch meetings, but given their many other commitments were not able very often to participate in Russell Society events farther afield. Pam lived in Burgess Hill, West Sussex for over 50 years, and in spite of her share of poor health was a tremendously active and outgoing person.

She started her career as matron's secretary at Harefield Hospital before going on to train as a nurse. She later worked in a Civil Engineering firm in Westminster and as a sales assistant in a John Lewis store in Reading, enamelled coins, started a pre-school play group, trained as a primary school teacher in Brighton specialising in art, went on to work at Paar Scientific in Raynes Park for ten years. She started a Sussex osteoporosis support group which raised funds (£30,000) to buy a DEXA wrist scanner and Pam organised volunteers to use it by scanning patients in local GP practices. Over 5000 patients were scanned. In 2000 Pam was awarded an MBE for her work with osteoporosis.

A very creative person, like her father before her, Pam liked to sculpt and paint as well as making jewellery and silversmithing. She loved to travel, and visited every continent including visits to the Galapagos Islands, and an African safari. Her spirit of adventure saw her scuba diving near Green Island in Australia, riding a mule down the Grand Canyon, flying in a helicopter over the forests in Hawaii and paragliding, when 60 years old, in Cancun, Mexico and hot air ballooning across Sussex.

Pam was very active with the local U3A, leading the Discuss and Discover Group for some time, involved in the Gardening and Food for Thought and one of the Luncheon Groups, travelled in the UK and Europe and, with her husband John, cruised with Saga around Norway, the Baltic and the Canary Islands.

The Sussex Mineral and Lapidary Society (SMLS) was a very important part of Pam's life. She joined the Society in 1975 and was its secretary for 15 years. She was actively involved with John in the club's many activities including producing 200 issues of a bi-monthly journal and organising overseas trips including ones to Paris, Krakow, Budapest and Siberia, and memorably, was the first SMLS member to land on Sgurr nam Boc beach on the exposed western coast of the Isle of Skye. This involved jumping from a fibre glass dinghy onto a rock, sometimes protruding from the sea! During the SMLS's first field trip to Leadhills and Wanlockhead in August 1981 Pam discovered some tiny purple crystals in slag from the Meadowfoot Smelter. Subsequent examination of the material at the NHM confirmed that this was the first occurrence in the UK of the mineral elyite. Pam was also a founder member of the British Micromount Society and a member of the Brighton and Hove Geological Society.

She was very proud of her daughter Julie who graduated top of her class in Geology at Hull University and then went on to work for BP, firstly at Sunbury, and then in Houston Texas. She also enjoyed seeing her grandchildren grow up, but was sorry, because of the distances involved, that she did not see them more often.

Pam and John spent many happy holidays in sunny Lanzarote over 35 years, where they sometimes managed to meet up with Russell Society member, the late Jamie Nelson and his wife Doris. Pam loved the sun and sea and just watching waves. She wants her ashes to be scattered over Seaford Head on a windy day.

We offer our condolences to her husband John to whom she was married for 55 years, her daughter Julie and grandchildren Emma and Thomas. We'll all miss you greatly, Pam.

Roy Starkey

The Auction of the Trevor Bridges Mineral Collection.

A pleasantly warm Saturday August 1st marked the auction of the mineral collection of Trevor Bridges, chemist, climber and ambassador of "science for the citizen", who passed away earlier this year aged 79 after a long illness. Prospective purchasers piled into the car park at Salwarpe Village Hall near Worcester eager to peruse the specimens - and refreshments - before the sale got underway at 9.30am.

Manning the gavel, auctioneer John Jones had his hands full before the event even started, with 365 postal bids placed by 18 people for 230 of the lots. Each time a lot with one or more postal bids was reached, John had to hold up a card stating the number of the bidder when their bid became the highest in the auction, and then put it down again as a room bidder took over. At some points it seemed more like a game of poker than an auction! John read a short letter from Trevor's widow, Shelagh, thanking everyone for their support.

A total of 62 bidders were in the room, with notable attendees being Jesse Fisher (from California but *via* Rogerley Mine) and Mike Rumsey from the Natural History Museum, whose attendance was especially appreciated given he was recovering from a bad cold.



Potential buyers eying up the exhibits before the auction.



Some of the tempting items on offer.

The majority of the specimens came from the UK and reflected Trevor's particular interests in the North of England and Cornwall. With boxes already prepped with wrapping paper and their bidder number on them, buyers had no excuse for not digging deep.

A heated battle was played out early on for Lot No. 16, a cuprite from Wheal Gorland, Cornwall, complete with a coveted Richard Barstow white label, which made £1340. This turned out to be the most expensive lot in the auction.

However, Lot No. 318 – fluorite and quartz from Cambokeels Mine, Weardale - more than 'washed its face' (as they say on a well-known TV antiques programme!) at £820.

This was soon followed by a galena, sphalerite, pyrite and dolomite from Silvermines, Co. Tipperary, with a Barstow green stock label, which had been stored in a desiccator to preserve its mirror bright crystal faces. Lot No. 343, this made £720.

In all, 24 lots realised £200 or more. But many specimens sold for under £20, or even less than £10, proving that there was something for every budget.

By the end of the day, all of Trevor's specimens had found new homes and the sale was concluded by Roy, who expressed his thanks on behalf of Shelagh. All that remained was for buyers to wrap their purchases carefully – and for all bills to be paid, with eagle-eyed Margaret Ince, positioned strategically at the door, checking everyone's receipt before permitting departure!

While events such as these inevitably have their sad side – the dispersal of the collection of a much liked and hugely influential figure in the mineral world – there is a positive side too. Other collectors get a chance to take home not just a great specimen but also a piece of history, in turn building and enriching their own collections and adding to the knowledge base for the future, which is what mineral collecting is all about, of course.

As always, the smooth running of the day was due to the efforts of those who gave of their time so generously. Special thanks to Marashean and Tony Parker, Sally King and Shirley Jones for the excellent catering (and surfeit of bananas!), David Roe and Steve Plant who provided overnight security and to Frank Bouweraerts, Frank and Margaret Ince, Neil Hubbard, Phil Taylor, Nigel Moreton and Carol Starkey who provided all manner of useful help on the day.

But especially to Roy Starkey, whose energies as overall organiser, chief cataloguer, assistant auctioneer and all-round 'chivvyer' were critical in ensuring a memorable and successful occasion.

Roy's tribute to Trevor is available on the Russell Society website: www.russellsoc.org/trevor-bridges-1935-2015

Susan Tyzack

The Russell Society Scavenger Hunt: Bakewell Rock Exchange, October 2015

"Bakewell wouldn't be the same without the hunt" said one parent returning for the quiz with children. "I was dragged round from stall to stall the children were so enthusiastic about completing all the questions and winning the top prizes" said another. With the support of the show organisers and a team of ten table holders the 'Hunt' display boxes and labels had been put out ready to be 'found'. As usual each of the answers was on the specimen labels, making this a hunt rather than a test of knowledge. As usual, the parents and grandparents reported they had as much fun as the youngsters, in fact one mother did the hunt herself and gained the three prizes awarded to those who achieved 17 or 18/18 correct.



Faith, and 28 other hunters, gained "full marks".



Will achieved 19 out of 18 for the extras added to his answers!



Hazel, Sarah and Fiona all did "the hunt".

(Verbal permissions were obtained to take and use each photo.)

Several prizes had been donated, including books, posters and minerals. Many thanks to all the donors including Tom Cotterell, Roy Starkey, Frank Bouweraerts, Michael Dunmore, Oneta Wilson, Harry Critchley and the late Sheila MacDonald. Prizes were awarded to every 'hunter', each getting a choice from the lucky dip (for bringing back the pencil

and getting just two answers correctly!), those who achieved half marks could also choose a mineral specimen from the open trays, and those with all correct (29 of our 48 hunters!) received both a book and a specimen from the boxed pieces on the table. Well done to all the Scavenger Hunters.

Bryn was really enthusiastic on this his first 'hunt' "The treasure hunt was awesome, awesome, just awesome. I got 18/18 and three prizes". Several hunters worked in teams looking for the clues, including Ben, Tulip and Bo.

There was interest for membership forms, with those who wished to sign up on the day being 'passed on' to Neil Hubbard, the Membership Secretary, in the main showroom.

Thanks to the Show organisers for allowing us to organise the Scavenger Hunt again, to the prize donors and to those who helped on the day. See you next year.

Christine Critchley

The 2016 Russell Society ASM Weekend.

This is a last minute reminder for anyone who has not yet booked their place for the Society's Annual Meeting which is being hosted this year by the Northern Branch from Friday 22nd to Sunday 24th of April. The base for the weekend is the Bowburn Hall Hotel in Bowburn near Durham and the event promises the usual mixture of socialising, talks and discussions, mineral swapping and trading and of course a programme of museum visits and field trips. Further information can be obtained from Frank Bouweraerts (Tel: 01388 537584, fb@irestone.plus.com) or Martin Walker (Tel: 0191 2374853, martinwalker1@live.co.uk). Members are asked to book their own accommodation, either at the Hotel (which offers a discounted rate for Russell Society attendees) or elsewhere among the range of accommodation available in the neighbourhood.



The Bowburn Hall Hotel, site of this year's Society Meeting.

The Society's weekend meetings are always very pleasant events with a good atmosphere and a plethora of things to look at, listen to and discuss. If you have never been to one you really are missing a trick. **It is not too late to sign up for this year's meeting** - why not treat yourself to a weekend in the North? You won't regret it!

Editor.

The 2016 "Maisemore Event".

The Cheltenham Mineral & Geological Society and the Wales & West Branch of the Russell Society will once again be organising a joint meeting at the Maisemore Village Hall near Gloucester on Sunday 16th of October, starting at 10:30. Put that date in your diaries! The theme for this ever popular event will be the minerals and fossils of "Middle England"* and the day will comprise the usual cocktail of talks (featuring contributions from Roy Starkey and Frank Ince among others), displays, mineral swapping and the chance to discuss all aspects of rocks, minerals and fossils with like-minded enthusiasts.

It will also feature the excellent refreshments of Marashean Parker and her team. There is no charge for entry or refreshments but to defray expenses there will be a set charge of £5 for the buffet lunch provided. If you are interested – as you should be – in attending please let Marashean know (Marashean@talktalk.net, 01452 618015) so that she can estimate the requirement.

* "Middle England" is taken to cover the area from Oxfordshire in the south to Derbyshire in the North and from the Welsh Borders to Northamptonshire.

Editor.

NEWS ITEMS:

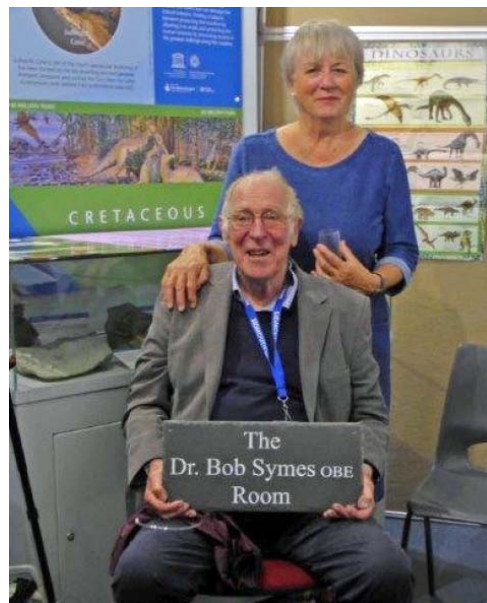
Bob Symes Honoured at Sidmouth Museum.

In September 2015 a ceremony was held at the Sidmouth Museum to rename one of its rooms in honour of its Honorary Curator, Dr Bob Symes. A former Keeper of Mineralogy at the Natural History Museum in London, Bob is a long time member and former President of the Russell Society and, as such, is well known to very many of us. You will know that he has a mineral named after him (symesite, $\text{Pb}_{10}(\text{SO}_4)\text{O}_7\text{Cl}_4\cdot\text{H}_2\text{O}$. Type locality Merehead Quarry, Somerset) – well now he has a room named after him also.

The Land and Man Room at the museum contains geological and archaeological exhibits, as well as wall displays representing Sidmouth's prehistory. It was re-named "The Dr Bob Symes OBE Room" after the present Curator to reflect his specific expertise in geology.

Museum chairman Nigel Hyman described Bob as very much a polymath with many other interests, in addition to geology, which include the arts and sciences. He said these have contributed to his vision of the museum. "Those who were connected, both now and in the past, with the museum have benefited from his encouragement and advice" said Nigel "we all felt inclusive and part of a team."

Bob unveiled the plaque, made appropriately from Cornish slate. He described his work since 2001, and his pleasure at seeing the gradual increase in visitor numbers and the place of the museum as one of the town's main visitor attractions. Although he has had other interests in the town, the museum has always been very special to him - he described it as his 'shed'. Bob has now made the decision to become Emeritus Curator. Those attending felt his continued advice would always be highly valued.



Bob Symes holding the door plaque for his newly eponymous room!

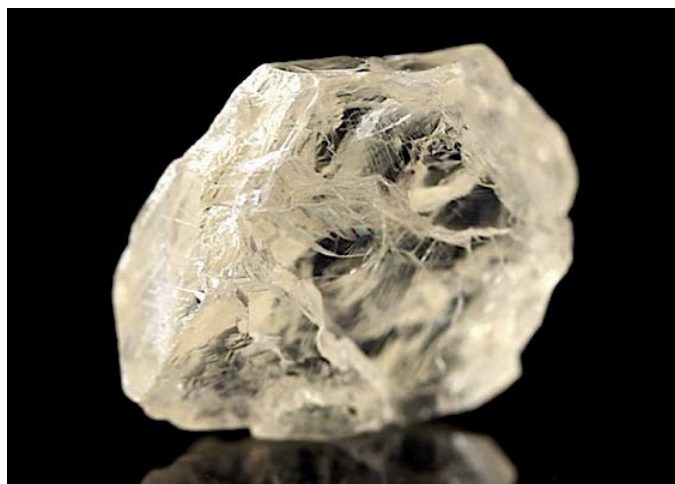
Thanks to Roy Starkey for bringing this item to my attention.

Editor.

Big Stones!

There have been several reports in recent months of unusually large examples of gemstones coming to light.

a) Second Largest Gem Quality Diamond Found in Botswana.



The 1,111 carat stone is about 65mm x 56mm x 40mm.

The world's second-largest gem quality diamond was recovered in November 2015 at the Karowe Diamond Mine 500 km. north of Gaborone, the capital of Botswana. Lucara Diamond Corporation, the company which owns the mine, says that the 1,111 carat "Type IIa" stone is the largest ever found in Botswana and the largest such diamond found anywhere in more than a century. The largest diamond ever recovered, the 3,106 carat Cullinan diamond, was found in South Africa in 1905 and cut into nine separate stones, many of which are in the British Crown Jewels.

The company also pointed out that the stone is the largest ever to be recovered through a modern large stone processing facility. The stone, which measures 65 mm x 56 mm x 40 mm, was recovered by the newly installed Large Diamond Recovery X-Ray Transmission (XRT) machines at the mine site. Larger diamonds are extremely rare and

valuable. However, because of their rarity, many mines do not have appropriate equipment to recover these larger stones efficiently and big diamonds are sometimes inadvertently crushed or broken in diamond processing plants that

are designed primarily for smaller size ranges.

Diamonds are now recovered, after liberation from the kimberlite matrix and gravity concentration, by making use of physical properties of diamond inherently different to those of the gangue minerals present. These properties are X-ray luminescence, atomic density and transparency. XRT technology enables materials to be classified and separated on the basis of their specific atomic density. The X-rays penetrate the concentrate material and are received by an X-ray camera, the data from which is converted into density information and evaluated by a high speed image processing system. This enables the concentrate to be sorted based on the specific atomic density of individual particles which leads to a high purity level in sorted material irrespective of size, moisture content or surface coating.

On 19 November the company also announced the finding of two further large diamonds from the same “lobe” of the Karowe deposit. These were fine white stones of 813 carats and 374 carats. William Lamb, Lucara’s President and CEO, commented, “I am truly at a loss for words. This has been an amazing week for Lucara with the recovery of the second largest and also the sixth largest gem quality diamonds ever mined. We are truly blessed by this amazing asset.”

Collecting trip to Botswana anyone?

b) Blue Star Sapphire – New “World’s Biggest” Reported.

In early January various newspaper and broadcasting sources reported on the emergence of the largest blue sapphire ever found. The stone was cut “en cabochon” from rough material mined (possibly some time ago) in or near the city of Ratnapura in the south of Sri Lanka. It weighs 1404.49 carats in its finished state but the original rough material must have been significantly larger. It has been certified by the Gemmology Institute in the capital Colombo as the largest stone of its type ever reported. However, the previous record holder for a star sapphire weighed 1,395 carats, so the new stone is less than 1% larger – a pretty close run thing!

Initial estimates of the stone’s value suggest that it could sell for something in excess of \$100 million – although there may be an element of “hype” in these. The current owner has suggested that the stone belongs in a museum – do museums really have that sort of money?

The characteristic six pointed star pattern seen on some sapphires and rubies reflects the presence of intersecting needle-like inclusions - often of rutile - which are oriented to the major crystallographic axes. It is best observed when the stone is viewed with a single overhead light source. The stones are invariably cabochon cut and, if this is skilfully done, the centre of the star will be near the top of the dome.



High class corundum. The World’s largest ever blue star sapphire.

Editor

Florence Mine on You Tube.

Many Russell Society members will have visited the Florence Mine near Beckermeth in Cumbria over the years, the source of many wonderful specimens of hematite, fluorite and associated minerals. Whilst looking online for images recently I was interested to see a short aerial video of the Florence Mine site which appears to have been shot from a drone. The image quality and stabilisation is very impressive and it provides a nice record of the mining heritage, much of which has now long since disappeared. You may be interested to take a look at this footage yourselves at <https://www.youtube.com/watch?v=ZL6uQP826dw>.

Roy Starkey

Dudley Museum under serious threat of closure.

In the March 2013 Newsletter I wrote about events to mark the celebration of 100 years of continuous public service in geology at Dudley Museum and Art Gallery. How times change! Two years on, the Museum finds itself under serious threat of closure due to the general cuts in public spending.



An uncertain future - Dudley Museum & Art Gallery.

The geological heritage of the Dudley area is outstanding, and the Keeper of Geology and Museum Manager Graham Worton is one of the most energetic, committed and enthusiastic ambassadors that any local council could wish for. Graham's expertise and capabilities have been recognised by a number of awards. He has picked up gold in the Heart of England Excellence in Tourism Awards, he walked away with the coveted Outstanding Customer Service Award and then went on to win the National Outstanding Customer Service Award at the Enjoy England Awards for Excellence organised by Visit England. In addition to this, in 2013 the Geologists' Association awarded the prestigious Halstead Medal to Graham. The following extract comes from the minutes of the Geologists' Association AGM of that year:

"The President awarded the Halstead Medal for work of outstanding merit deemed to further the objectives of the Association and to promote geology to Graham Worton.

Graham typifies the spirit of the GA at its dynamic best. He lives and breathes geology with involving and inspiring others his reason for being. He devotes his professional life as Keeper of Geology at Dudley Museum and his spare time with the Black Country Geological Society to promoting geology to anyone who will listen from politicians, through engineers and planners to schools and the general public. Over the last 25 years plus, he has brought geology to many who would otherwise have never taken an interest or been involved and he has put geology into the heart of the local authority in which he works, setting often quoted examples of best practice in community engagement, geological promotion and geo-conservation. Graham has published many popularist articles as well as refereed papers, hosted part of the Worcester Conference field visits in 2011, has helped with Rockwatch and gave a lecture on his work to the GA in 2012. Someone once said, "If I had to choose one person to enthuse about geology to save my life, I would choose Graham Worton!" Local museums are of undoubted importance in educating and inspiring both young people, and adults to learn about their natural environment. Many eminent geologists will have had their early interest aroused by a local museum display, or an enthusiastic curator who was able to deal with enquiry specimens brought to them, and to provide outreach activities and the like".

Some of you will undoubtedly have visited Dudley Museum over the years, others of you may not have done so, due to geographical constraints. I am sure however that all of you will at some time have visited a local museum, and it may even have sparked your interest in the earth sciences. Museums are having a very tough time at the moment, and it is not going to get easier anytime soon.

Graham and the team at Dudley Museum really deserve all the support we can muster to try and find a way to keep the Museum open so that it can continue to inspire, educate and enthuse local people, particularly youngsters to take an interest in, and care for their local geological wonders.

Please, send a short email of support, setting out why local museums and their collections are important from your own personal standpoint – whether it be as a museum professional, a hobbyist, and educator or whatever. Write to anthea.jones@dudley.gov.uk, and copy the message to Graham at graham.worton@dudley.gov.uk. Thanks.

Roy Starkey

Lapworth Museum Update.

Over the past two years I have been involved as a member of the Project Team for the Heritage Lottery funded redevelopment project at The Lapworth Museum of Geology, University of Birmingham. The Museum contains the largest and finest geological collection in the West Midlands region and dates back to 1880 and the foundation of Mason College, the forerunner of the University of Birmingham.

The Museum closed to the public in December 2014 and a major exercise to remove all of the collections and display cases to temporary storage got underway so that demolition and building works could commence. The building has been stripped back to its original internal format, opening up exhibition space, and the overall Museum footprint has been enlarged via relocation of other facilities permitting the use of areas previously occupied by the Earth Imaging Laboratory and museum stores. During 2015 a complete refurbishment of the building has taken place and the



The way it was. The old Lapworth Museum display, December 2014.



The way it is. The new Education Room, the first part of the project to be completed.

finished result is a light, airy and very pleasing large central hall, flanked by additional new exhibition space and a dedicated education room for school parties and other visitor groups.

A mezzanine floor has been constructed in the former Earth Imaging Laboratory space, and this will house a completely new mineral gallery, and under the mezzanine will be the active earth gallery focussed on earth processes – ice, oceans, earthquakes, volcanoes and so on.

The main hall will tell the story of the evolution of life on Earth, with exhibits built around many of the fine fossils within the collections, Charles Lapworth's contributions to geology, and a dramatic floor to ceiling rock wall showcasing the diversity of sedimentary, metamorphic and igneous rock types.

The new museum will offer something for everybody, and is especially designed to appeal to younger visitors and family groups as part of the University's commitment to public engagement.

The Mineral Wealth Gallery will have a long, wall to ceiling, display case illustrating the colour and diversity of forms of mineral specimens, and at the rear of this the physical properties of minerals are explained. Themed cases will cover the Shropshire lead mines, West Cumbrian iron mines and British fluorite, and the collecting interests of Matthew Boulton and William Bragge have been picked out to illustrate the contribution of collectors to the study of the science. Birmingham's links with the jewellery trade are reprised in a display of cut gemstones and polished agates.

The ground floor includes a new temporary exhibition space which will run a series of exhibitions on a variety of themes, and I hope that the Russell Society will be able to contribute to this in due course.

The new museum is planned to open on 10th June – more details will be available nearer the date. Keep an eye on the website for updates and more information, or get in touch with me if you would like to know more about the project. We look forward to welcoming Society members to the new museum in the second half of 2016.

Roy Starkey.

Bob King's Thesis Available On-Line:

I have been wondering for a while when, or if, the University of Leicester would get round to adding Bob King's PhD Thesis to the ones available on the electronic archive – well, they have now done so. You can download and save a nice clean, searchable PDF file here: <https://lra.le.ac.uk/handle/2381/35053> - well done University of Leicester!

The thesis title is "The mineralogy of Leicestershire" and the abstract begins with the lines: "The mineralogical bibliography of Leicestershire, up to July, 1972, has been examined and critical analyses have been made of its 1375 references. The 134 mineral species recognized as indigenous to the county have been examined both physically and in relation to their individual geological environments". This is definitely one for those aficionados of Leicestershire mineralogy (you know who you are!). It will be a useful resource for people wanting to read around the subject.

Roy Starkey.

UK Mining “Snippets”.

a) Yet More Interest in Mining Tungsten in the Southwest – The Redmoor Project.

We have all watched with interest the development of the Drakelands Mine at Hemerdon – the first new metal mine to open in the UK in 45 years - which is now producing tungsten and tin concentrates.

However, another company, the interestingly named “New Age Exploration” (NAE), has its eye on another prospect over the Tamar in Cornwall. The so called “Redmoor Project” is focussed around a group of mines (notably Redmoor and Kelly Bray Mines) near the town of Callington which were originally operated in the 18th Century and produced varying tonnages of tin, copper, tungsten, lead and silver. The company has secured exploration licences and an option agreement with the owner of the mineral rights covering an area of 23 km².

The current excitement has been generated by a re-evaluation of earlier drilling data from the 1980s along with new modelling studies and an updated geological interpretation of the area based on these. As a result NAE feel that they could have a commercially viable resource of tungsten, tin and possibly other metals based on a combination of the Johnsons Lode and Great South Lode at Redmoor coupled with a sheeted vein system (a set of thin sub-parallel mineralised quartz veins). It is also suspected that reworking of tailings from previous activities at the site could be commercially valuable. There are indications that the mixture of tungsten and tin at Redmoor could be of a higher grade than Wolf has at its Drakelands operation, with some copper thrown in. The company is careful, however, to note that this is all quite preliminary and that their estimates are “conceptual in nature and there has been insufficient exploration to define a Mineral Resource”. They also note that “it is uncertain if further exploration will result in the determination of a Mineral Resource”.



The site of the former Redmoor Mine, near Callington.
Des Blenkinsop photo.
Reproduced under Creative Commons licence.

Initial results of a mining study have suggested that the Redmoor deposit could be mined using a bench stoping and fill underground mining method at relatively low mining costs, while a metallurgical processing review has indicated that Redmoor ores might be expected to be processed at low cost with high recoveries. Possibilities for ore processing are thought to include a new stand-alone plant or some sort of toll arrangement with Wolf minerals to process ore at the Drakelands site.

A new set of activities, including further exploration work, is being planned for 2016 aimed at firming up some of the initial estimates. Watch this space people – and pray that the world price of tungsten doesn’t fall any further!

See further more detailed information on the NAE website at <http://nae.net.au/projects/united-kingdom/redmoor/>

Editor.

b) Minco’s Interest in the North Pennines Remains High.

We have reported previously on Minco’s exploration project in the northern Pennines which is centred on an area in the vicinity of Nenthead. This was the most prolific area of historic production within the Pennines Orefield which covers a total area of approximately 350 square miles.

Over a period between 2012 and 2015, Minco has drilled 31 holes, amounting to some 7,555 metres, 17 of which intersected mineralisation. Twenty five holes were positioned to explore the Great Limestone and six holes tested the deeper basal succession. This programme has established a significant stratiform component to the mineralisation within the Great Limestone which had not previously been recognised.

Intersections within the Great Limestone have demonstrated the potential for significant stratiform mineralisation adjacent to historic workings. The extent of the stratiform mineralisation discovered in the Great Limestone to date is said to be “encouraging”. Discovery of similar mineralisation within the thicker basal succession would be economically significant.

The intersections of reasonable widths of lead and zinc mineralization at three different levels in two holes drilled on the Whitewood-Barneycraig-Williams fault/vein structure in Northumberland in early 2015, are considered to represent very positive results that indicate the mineral potential of this large structure which was previously demonstrated by historic mining to be mineralized over a strike length of 3.5 kilometres.

On the basis of these encouraging results a second phase of drilling is planned for 2016, subject to conclusion of land access agreements, to explore further the potential within both the Great Limestone and the basal succession with the main target for both being the Barneycraig-Whitewood fault complex.

Editor.

c) Boulby Potash Mine in Trouble?

It is reported that hundreds of jobs may soon be lost at the Cleveland Potash Mine at Boulby in North Yorkshire. At the end of 2015 the company said that it was “in consultation” with about 220 workers and that a further 140 contractor roles would also be cut. The parent company, Israel Chemicals Ltd (ICL) described the move as “painful” and indicated that a further similar number of jobs could be lost in 2018.

The reason for the losses is a reduction in the estimate of the mine’s economically viable potash reserves, which the company now estimates will be essentially depleted by 2018. In recent months geological problems have been encountered in previously high-yielding areas of the mine. In addition, an exploration programme confirmed further geological difficulties which mean that the mine has only a limited level of economically viable potash reserves.

Peter Smith, executive vice President-Potash of ICL, said “The reality of our potash reserves running out by 2018 means that we must develop a new business strategy if we are to continue mining at Boulby.” The plant, which currently employs about 1,100 people, will convert to produce another fertiliser, called Polysulphate. ICL UK said it would invest £20m this year in the site’s infrastructure with a potential further £20m to increase production of Polysulphate from an estimated 200,000 tonnes this year to one million tonnes by 2020.

This news is a further blow to an area which has already been subjected to thousands of job losses from the recent closures in the steel industry.

Editor.

d) Market Conditions Not Favouring Proposed New Polyhalite Mine in Yorkshire.

Sirius Minerals is still proceeding with its plans to open a huge new mine in the North York Moors National Park. The mine would seek to exploit what is described as “the world’s largest and highest grade deposit of polyhalite”, a multi-nutrient fertiliser containing potassium, sulphur, magnesium and calcium. (See RS Newsletter No. 67, page 17). So far all necessary planning permissions and approvals have been granted and the company’s management have suggested that the bulk of the approvals work is now behind them.

The Company is currently finalising its Definitive Feasibility Study (DFS) for the project. Background work has been completed and the Company and its Project Study Manager are engaged in internal reviews of the DFS pending its finalisation. The Company initially said it expected to complete the DFS early in the New Year and to publish the material findings in January 2016. This has now been delayed, however and is now expected at the end of March. Discussions with financing partners are expected to be progressed following the publication of the DFS results. In addition the Company is moving towards the selection of preferred tenderers for three critical elements of the project, namely site preparation, mine shafts and the mineral transport system.

However, all is not entirely rosy for fertiliser producers. Current market conditions are looking difficult for new players and the already oversupplied sector has seen several other major developments going back to the drawing board. Potash is currently trading at around \$300 a tonne while large producers are said to need prices closer to \$500 per tonne to enable them to cover construction costs. Polyhalite is seen mainly as a source of potash, despite its “added ingredients”.

Sirius had originally expected to begin production in late 2016, with initial output of 5 million tonnes per year and had signed some future supply agreements. The current development schedule, however, points to 2018 as the most likely time for production to begin. Don’t break out the champagne just yet.

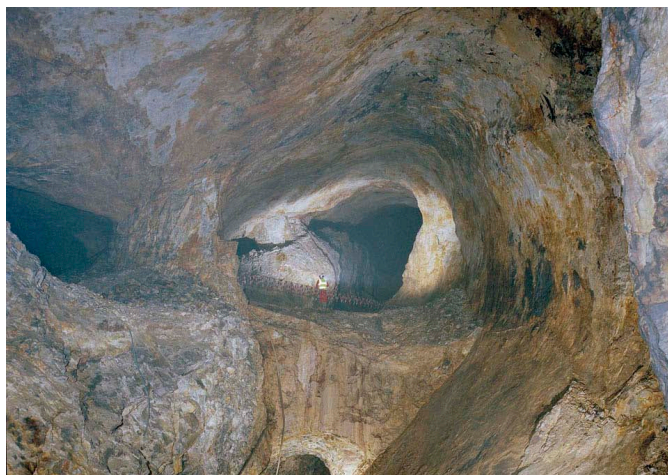
Editor.

e) Possible New Baryte Mine in Scotland.

A report in the Dundee “Courier” in January suggests that Scotland may eventually have a major new baryte mine. We are all familiar with the Foss Mine near Aberfeldy which produces more than 40,000 tonnes of baryte a year – mainly for use in the oil industry. This mine has been operating since the mid-1980s. Its geology is complex and, as it gets deeper, it is becoming harder and less economically attractive to work. Now the owner of the Foss Mine MI-SWACO, a subsidiary of Schlumberger, is apparently looking again at an application for a new mine to be developed on another deposit at Duntanlich on the north side of the Farragon Ridge above Loch Tummel. This would replace the Foss Mine in due course.

A proposal was first put forward in 1991 but was thrown out by various planning authorities and courts on the grounds of “impact on the landscape and visual amenity”. The site is close to the famous “Queen’s View” which is a major tourist attraction. Now the company is trying again with a proposal designed to ensure that the mine and its access roads will be hidden from Queen’s View and other scenic routes and viewpoints in the area. An application for planning permission has been lodged with Perth & Kinross Council and the company is hoping for a positive decision in the Spring.

Although described by the company as “a small barite (*sic*) mine”, this would be quite a major mining operation. The company estimates that the orebody at Duntanlich contains some 7.5 million tonnes of baryte and that they could extract at the rate of 120,000 tonnes per annum. They envisage that this would enable the UK to be self sufficient in terms of baryte production and ensure continuity of supply for the North Sea oil industry. If the application were to be approved the first baryte could be extracted by the end of 2017 or early 2018.



Workings within the Foss Baryte Mine.

The company has a website at <http://duntanlich.com/> on which the planning proposal and project plan can be found.

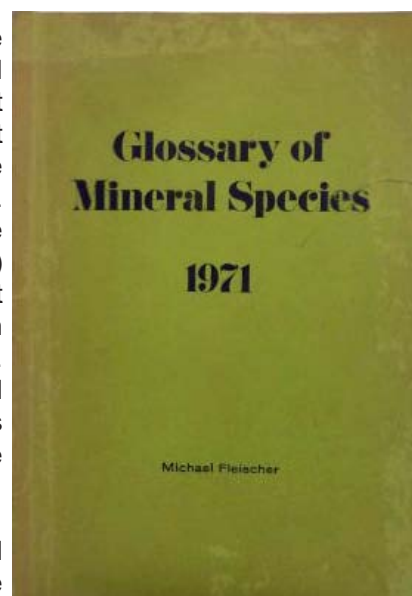
Thanks to Roy Starkey for drawing this report to my attention.

Editor.

Earth’s Mineral Total Passes 5,000 – With More to Come!

After more than two hundred years of investigation by mineralogists around the world, the total number of officially accepted mineral species is set to exceed 5,000. When the German mineralogist Abraham Gottlob Werner published his “Last Mineral System” in 1817, he included a mere 317 different mineral species that were known to exist at that time. With the passage of time, some of those were discarded or refined and new ones were added to the list in a continuing process. At the beginning of 1969, Michael Fleischer of the U. S. Geological Survey (the original author of the “Glossary of Mineral Species” which is now in its 11th edition) estimated the total number of species at 1,950. By early 2014, the official count by the International Mineralogical Association was 4,684, as published in the 11th edition of Fleischer’s Glossary. Since then, 136 new species have been published. If another 226 accepted but “questionable” species are included in the list, the total would reach 5,046 (ruff.info/ima). The current IMA practice is to count these species and so the current lead author of the Glossary, Malcolm Back, will be including the “questionable” species in the 12th edition, scheduled for 2018.

5000+ is a lot of minerals but are there likely to be very many more mineral species discovered in future? Definitely! Dr Robert Hazen of the Carnegie Institute in Washington DC, in a forthcoming article in the Mineralogical Record, has used complex statistical analyses to estimate that roughly 1,500 more unknown



**Fleischer’s original 1971 Glossary
- Not many species!**

species exist in nature and are waiting to be discovered. Even that number may increase significantly if new and more sophisticated analytical instruments are developed in the future. So at this point in history we are in no danger of running out of new minerals!

Editor.

Yet More New (Carbon-containing) Minerals?

How would you like to get personally involved in the search for new minerals? There's no time like the present - apparently!

In December 2015 a series of press releases and weblink-rich e-mail messages announced the start of an intriguing new initiative - "The Carbon Mineral Challenge" - in essence a worldwide hunt for new carbon minerals. This is another activity of Dr Robert Hazen from the Geophysical Laboratory of the Carnegie Institution in Washington DC and his colleagues.

It poses a question to amateur and professional mineralogists around the world – **"how many new carbon minerals can you find by 2019?"**

As mentioned in the story above, Dr Hazen is using statistical methods to predict the number of mineral species currently undiscovered by Man. One of his more specific predictions is that "at least 145" minerals containing carbon remain to be found. You can see a pre-print of his paper, which is currently in press at American Mineralogist, at:

http://www.minsocam.org/MSA/Ammin/AM_Preprints/5546HazenPreprintApr.pdf

A great deal of information about the challenge is contained in a press release made at the American Geophysical Union Fall Meeting in San Francisco last year. You can read it at: <https://deepcarbon.net/?q=feature%2Fannouncing-carbon-mineral-challenge-worldwide-hunt-new-carbon-minerals#.VowAj87XKU>. The Carbon Mineral Challenge involves a number of people and organisations including the Deep Carbon Observatory, concerning which further information can be found at: <https://deepcarbon.net/>.

If your first question is something like "where on earth should I look for these new species?" then there are some hints on the project websites. While there is obviously no "treasure map" where "x" marks the spot, a number of "potentially rewarding localities" have been identified. These include the Poudrette Quarry at Mont St Hilaire in Quebec, Canada, Kukisvumchorr Mountain in Russia's Kola Peninsula and the Clara Mine in the Black Forest of Germany where collectors have already found quite an array of carbon minerals. It is pointed out that a number of the minerals sought are probably already sitting, unrecognised, in the collections of museums and individual collectors. If, like some people I know, you have boxes of Mont St Hilaire and Clara Mine specimens sitting in your garage then you might like to take a further look at them. It is predicted that a number of them will be hydrous carbonates – many of which are colourless, unassuming and easily overlooked. As the website says "don't rule out the possibility of a new carbon mineral hiding out in your own back yard". These hints, along with lists of already known carbon minerals, information on how to get involved, the people you might need to liaise with and the procedures to be followed can be seen on the Mineral Challenge website at: <http://mineralchallenge.net/>.

Thanks to Roy Starkey for bringing this fascinating project to my attention.

Editor.

Computer Printed Crystal Models.

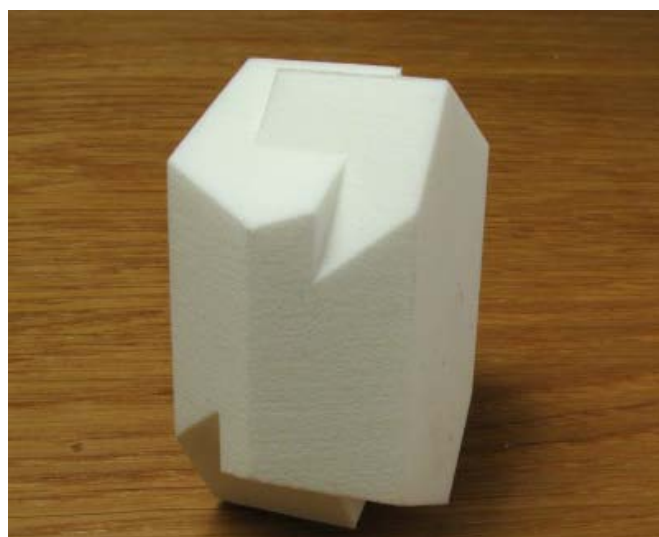
Have you ever looked at those lovely antique sets of wooden crystal models and thought how good it would be to own some – and then looked at the price ? Apart from being eye-wateringly expensive they are also seriously rare items. A few odd models show up from time to time on mineral auction sites but antique sets are seen rarely – usually in the catalogues of auctioneers like Christies and Bonhams with estimates in the tens of thousands of dollars. There are one or two sources of modern wooden models of the commoner mineral forms (Wards of Rochester, New York or Kranz of Bonn for example) but even these tend to be pricey.



The Logo of the new Carbon Mineral Challenge project.



**An antique set of wooden crystal models
- possibly by Kranz of Bonn.**



**Rather more affordable - a computer printed model of an
orthoclase "Carlsbad" twin.**

Well, help just might be at hand. A Dutch company is now offering computer printed models of simple crystal forms and more complex structures, including orthoclase "Carlsbad" twins, "fishtail" gypsum twins, "Japan Law" quartz twins etc.. The models can be produced in a variety of materials and colours and typically have a matte finish and a slightly "grainy" feel. The standard size models have a volume of 125 cubic centimetres, with a maximum dimension of around 5 cm – although larger sizes are available. They are described as "crystallographically correct with sharp edges and flat faces" and as "well suited to educational purposes". Individual models seem to be typically priced between £10 – 20.

For further information, prices etc. see these websites: <http://www.smorf.nl/3dprints.php>
<http://www.smorf.nl/models/> and <http://www.shapeways.com/shops/smorf>.

Thanks to Roy Starkey for drawing this to my attention.

Editor.

Continuing High Level of Interest in Blue John.

The "Blue John" variety of fluorite, with its characteristic pattern of blue and white bands has long been a favourite of mineral collectors, jewellers and makers of decorative items. Since the 18th Century it has been extracted from what is essentially its only locality in the World, the caverns under Treak Cliff near Castleton in Derbyshire, and used for the production of a variety of artefacts. It was particularly fashionable during the Regency period in the early 1800s and graced the tables of great houses, including Buckingham Palace and Chatsworth House. A number of recent stories have highlighted the fact that Blue John continues to exert a strong pull on our interest – and our wallets.

a) New Variety of Blue John Discovered.

The definitive book on Blue John – "Derbyshire Blue John" by Dr Trevor Ford – lists 14 separate veins, all having distinct patterns of banding and some of which have rather picturesque names like the "Bull Beef Vein" and the "Old Dining Room Vein". Now it seems there is a fifteenth vein to add to this list. For the first time in over 150 years a distinctive new vein of Blue John has been discovered and has been named the Ridley Vein after Gary Ridley the miner who found it. The discovery was made in the Treak Cliff Cavern, quite accidentally in the process of trying out a new chain saw.

The new material is described as having "beautiful swirling patterns of purple and blue". Dr Ford commented that this discovery is a major new development in the history of Blue John. By Victorian times the vein names were fairly well established and the few other veins discovered in the intervening years have been regarded as sub-varieties of the 14 named veins. The Ridley Vein is substantially different and enters the history books as variant number 15, the first new variety of Blue John to be discovered in over 150 years.



A section of the Blue John from the new "Ridley Vein"



Part of a huge collection of worked Blue John items offered for sale.

b) A Very Successful Auction.

Should anyone have thought that there was no demand for worked items of Blue John an auction held in October 2015 in Birmingham's Jewellery Quarter would surely have disabused them. On offer at the salerooms of Fellows Auctioneers were more than 250 remarkable Blue John lots. This sale was thought to represent one of the largest collections of Blue John ever to be offered for sale and brought together a vast range of objects, from small souvenir bowls and jewellery through to large museum-quality pieces. Pre-sale estimates for the items ranged from £30 to over £30,000 so there was, as the advertisements suggested "something to suit all tastes and pockets" – at least in theory.

In the event all of the items sold and many of them realised prices significantly in excess of the estimates sometimes up to 10 times. A copy of the auction catalogue, which included much interesting history and information about Blue John and its uses, can be found at <http://www.fellows.co.uk/images/auction/pdf/1441885332@1600.pdf>. If you are really keen further information including hammer prices and many 360° rotating views of the lots can be found on Fellows' website at http://www.fellows.co.uk/The-Blue-John-Sale/2015-10-05#low_estimate=&high_estimate=&keyword=&exclude_keyword=&sort_by=&image_filter=&box_filter=&paper_filter=&filter_360=&export_issue=&arr=&auction_id=9261&list_type=&lots_per_page=&page_no=1¤cy=&search_type=&year=&department_id=

I kid thee not! That really is the address!

c) Blue John Vase Sells for £21,000

The Fellows auction is not the only recent example of Blue John artefacts selling for very significant prices. In December 2015 a 19th Century Blue John vase sold for ten times the original estimate at auction after initially being valued between £2,000 and £3,000. The 48 cm turned vase became the subject of a worldwide bidding battle in the saleroom at Mellors and Kirk Auctioneers in Nottingham. At the sale a number of bidders were in contention for the vase both in the saleroom and on the internet and telephone. The George III vase, which was originally in the collection of Colonel Charles Brocklehurst of Hare Hill Hall, Cheshire sits on a square plinth of white and Ashford Black marble. The auctioneers initially put a reserve of £7,000 on the vase but, after noticing that it was damaged, reduced this to the lower price. Clearly collectors were not greatly worried about the old damage and restoration!

Auctioneer Nigel Kirk said: "This underlines the strength of the market for this unique Derbyshire mineral". He added: "It was a perfect result because both the seller and local purchaser are delighted. I would urge anyone with Blue John items to treasure them; this Derbyshire mineral is as popular as it's ever been."

Editor.

MINERAL SHOWS IN 2016

Date:	Event:	Location:	Organiser/Site for Information:
13 March 2016	Oxford Mineral Show	Exeter Hall, Kidlington, Oxford. UK. OX5 1AB	http://www.oxfordshow.co.uk/
04-06 March 2016	Bologna Mineral Show	UNIPOL Arena, Via Gino Cervi, 2, 40033 Casalecchio di Reno, Bologna, Italy.	http://www.bolognamineralshow.com/
08-10 April 2016	New York/New Jersey & Mindat Symposium lectures	New Jersey Convention & Expo Centre, Edison New Jersey	http://www.ny-nj-show.com
14-17 April 2016	Rochester Mineralogical Symposium	Radisson Hotel Rochester Airport, 175 Jefferson Road Rochester, New Yprk	http://www.rasny.org/minsymp/
22-24 April 2016	Colorado Spring Mineral & Fossil Show	Ramada Plaza Hotel, 4849 Bannock Street, Denver Colorado, USA.	http://www.mzexpos.com/
30 April-01 May 2016	Antwerp mineral Show, "Minerant 2013"	Antwerp Expo, Jan Van Rijswijcklaan 191, 2020 Antwerp, Belgium.	http://www.minerant.org/minerant.html
08 May 2016	Oxford Mineral Show	Exeter Hall, Kidlington, Oxford. UK. OX5 1AB	http://www.oxfordshow.co.uk/
13-17 May 2016	4 th Changsha (China) Mineral Show	Hunan International Convention & Exhibition Centre, Changsha, China	http://www.changsha-show.com
13-15 May 2016	West Coast Spring Gem & Mineral Show	Holiday Inn, Orange County Airport, Santa Ana, California, USA	http://www.mzexpos.com/
21 May 2016	65 th International Freiberg Mineral Show	Huebnerhalle, Dörnerzaunstrasse, D-09599 Freiberg, Saxony, Germany.	http://www.freiberger-mineralienfreunde.de/mineralienboersen.html
23-26 June 2016	Exposition Internationale Mineral & Gem	St Marie aux Mines, Alsace, France.	http://www.sainte-marie-mineral.com/an_index.php
10 July 2016	Oxford Mineral Show	Exeter Hall, Kidlington, Oxford. UK. OX5 1AB	http://www.oxfordshow.co.uk/
12-14 August 2016	East Coast Gem, Mineral & Fossil Show	Better Living Centre, Springfield, Massachusetts, U.S.A.	http://www.mzexpos.com/
03 September 2016	Hampshire Mineral Show	Lyndhurst Community Centre, Lyndhurst, Hampshire, UK. SO43 7NY	http://www.sotonminfoss.org.uk/smfss-how.htm
11-18 September 2016	Colorado Fall Mineral & Fossil Show	Ramada Plaza Hotel, 4849 Bannock Street, Denver Colorado, USA.	http://www.mzexpos.com/
16-18 September 2016	Denver Mineral Show	Denver Mart Expo Hall, 451 East 58th Avenue, Denver Colorado, USA.	http://www.denvermineralshow.com/
08-09 October 2016	Bakewell Rock Exchange	Lady Manners School, Bakewell, Derbyshire, UK. DE45 1JA	http://www.rockexchange.org.uk/the-rock-exchange-2014
28-30 October 2016	Munich Mineralientage	Trade Fair Centre, Munchen-Riem, Munich, Germany.	http://www.mineralientage.com
11-13 November 2016	West Coast Fall Gem & Mineral Show	Holiday Inn, Orange County Airport, Santa Ana, California, USA	http://www.mzexpos.com/
12 November 2016	Sussex Mineral Show	Clare Hall, Haywards Heath, West Sussex, UK. RH16 3DN	http://www.sussexmineralandlapidarysociety.org.uk/Home/Show

SHORT REPORTS & PAPERS.**What's in a label? A mystery solved.**

A recent visit to see Monica Price at the Oxford University Museum of Natural History (OUMNH) led fortuitously to the solving of a mystery I have pondered for some years.

In 1918 Welsh industrialist and Liberal politician Lord Rhondda (David Alfred Thomas, 1st Viscount Rhondda, 1856-1918) purchased the insect, shell and mineral collections assembled by Robert Henry Fernando Rippon (c.1836-1917) on behalf of, and as a generous gift to, the National Museum of Wales (NMW). Rippon's insect collection comprised a staggering 105,760 items and was of national significance and therefore forms the basis of the entomological collections at NMW. His mineral collection was much smaller and of much less significance as indicated by the fact that of the approximate 3,000 specimens that entered the museum only around 400 were accessioned. Indeed, even those registered specimens cannot be described as world-class or even display quality, but Rippon was more interested in systematic collecting (as can be gauged by the size of his insect collection).



Fig. 1. Typical number label from the Rippon collection.

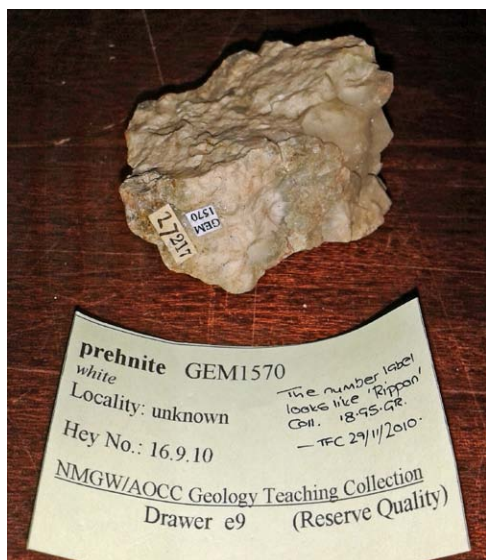


Fig. 2. Label from the NMW education collection.

The mystery for me was the unusual number labels affixed to a large proportion of Rippon's mineral specimens (see Figure 1). Unusual in the fact that the first one or two numbers are handwritten followed typically by two or three typed numbers. The same labels occur on specimens in NMW's education collection (Figure 2).

During my visit to OUMNH Monica briefly showed me a drawer of specimens obtained from Reading University and my attention was immediately drawn to a label identical to the style of 'Rippon'. A quick scan of the drawer revealed others (Figure 3), but how could Rippon's specimens have also been in Reading University. The answer was not so straightforward, but Monica informed me that Reading University had acquired the geological collections from Accrington Museum after it had closed down in the 1950s.

As is often the way another chance encounter provided the vital clue: I recently acquired a set of early newsletters from the Geological Curators Group and within them a treasure trove of collections information was found. One particular article (Taylor, 1978) proved most informative with regard to the history of the geological collections at Oak Hill Park Museum, Accrington. The main contributor to the collections

at Accrington was Colonel John Wilson Rimington (1832-1909) who reportedly donated the majority of the 10,000 mineral specimens in 1900-1901. But how could labels so similar in style be present in both collections?

Finally I was brought back to an article written by a former member of Zoology staff at NMW in 1995 (Kirk-Spriggs, 1995). This article, one of the few written about Robert Henry Fernando Rippon, describes briefly a time (1909 – page 105) when Rippon was trying to source cabinets on behalf of Accrington Museum in which to house the substantial insect collection of his friend Colonel John Wilson Rimington (1832-1909). Then the penny dropped. The distinctive labels are Rimington's who, we already know, also amassed an enormous mineral collection but his collection, or collections, were dispersed far and wide during a number of auctions both during his lifetime and in Paris after his death. Taylor (1978) reported that Reading University are known to have obtained the bulk of Rimington's mineral collection (presumably from Accrington Museum) and Sheffield Museum has a considerable number of specimens (possibly via John Ruskin who was also friends with Rimington)



Fig. 3. "Rippon" label from the OUMNH collection.

from the first two auctions (in 1891 and 1892). Other very fine specimens are preserved at the NHM, London (Symes and Young, 2008), both *via* Sir Arthur Russell and earlier purchases and it now appears that Robert Henry Fernando Rippon also obtained a sizable portion.

So the moral of the story is - yes you've guessed it - always label your specimens carefully. Without such distinctive number labels this forgotten part of Rimington's collection would certainly never have been re-discovered. In this particular case quite what happened to Rimington's equally distinctive tray labels is not known, but the value of affixing numbers to specimens is clearly demonstrated here.

References:

- Kirk-Spriggs, A.H. (1995). Robert Henry Fernando Rippon (ca 1836-1917), naturalist and zoological illustrator. *Archives of Natural History*, **22**(1), 97-118.
- Symes, R.F. and Young, B. (2008). *Minerals of Northern England*. National Museums Scotland and Natural History Museum. 208 pp.
- Taylor, M.A. (1978). Collections and Collectors of Note. 17. Oak Hill Park Museum, Accrington. *Newsletter of the Geological Curators Group*, **2**(3), 102.

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Comments on a recent article concerning the mineral labels of Sir Arthur Russell.

I very much enjoyed reading recent the article in the Russell Society Newsletter (No. 67 p.21) concerning a collection of Arthur Russell labels discovered in a piece of furniture. I have been researching historic British mineral collectors for some time and I have been assembling a database of label styles so this article was right up my street. I have also been travelling around the Russell Society Branches giving talks on the history of mineral collecting.

I have made some observations on the labels which were figured in the article and hopefully this might help in identifying the sources of a few of the unknowns.

Figure 18 (*Ostraea liassica* fossil, Lavernock, Wales) shows similarities with the labels of J.F. Jackson, a well-known palaeontologist who had links with the National Museum of Wales (NMW) in Cardiff and lived for many years on the Isle of Wight and Dorset. Unfortunately I have been unable to find an identical specimen in material donated by Jackson to NMW which seems a bit of a mystery given the proximity of Lavernock to the museum.

Figure 15 (Natrolite, Skye, Scotland) I would say was probably not a Russell label. I have seen similar examples in the collection of William Terrill (Swansea), but whether this is Terrill's handwriting I do not know. I feel that it is atypical of Russell's label style.

Figure 10. The enysite (Carlyon Bay, Cornwall) label also looks familiar, but I cannot place where I have seen this style before. I will keep looking.

The remainder of the Russell labels are good and show how label styles change with time. The Christopher Russell ones are particularly interesting in that they are not as neat as Sir Arthur would have produced so were perhaps written by Christopher Russell as a child. What is slightly odd is that Figure 1 (Pyromorphite etc. Luganure, County Wicklow) is similar in style, but much earlier.

The label in Figure 17 (Pisolitic iron ore) mentions Bristowe and Gibbs. I note that Henry Bristow wrote a memoir on the geology of the Isle of Wight in 1889. I have no idea if it is an Allan label, but I would think it rather unlikely.

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Branch Meeting and Field Trip Reports

Saturday 18th July 2015. North West Branch visit to Rogerley Mine, Frosterley, County Durham [NZ 011 381]

Leader: Ian Dossett. Reporter Michael Dunmore

A small group of members forming this visit were part of a larger group of visitors to the Rogerley Mine. Other visitors included Russell Society members who are also involved with the Southampton Mineral & Fossil Society.

In all, about 20 people enjoyed a day in which the weather and a lack of midges contributed to an informative, enjoyable and productive day of collecting from the dumps, from specimens generously provided by the mine owners, and from within the mine.

The Rogerley Mine hardly needs any introduction. Glorious specimens of gemmy, green fluorite are regular features at mineral shows around the world. This visit gave an opportunity to follow the process from removing specimens from the mine, to selecting and cleaning potential specimens for sale, to the trimming and preparation of the specimens we see at shows. Several visitors took the opportunity to purchase specimens during the visit.

The dumps yielded specimens of fluorite (green, green/blue and purple), typically on a limestone matrix and of a great variety of sizes. The greatest challenge was finding specimens on the dumps that had not been weathered or chipped, particularly as much of the material was covered with mud – making it difficult to assess the quality of a specimen at the site. Though from the amount of material collected, a productive time was had by all.



The group collecting on the dumps at Rogerley Mine.



Material from the mine awaiting cleaning.

As well as fluorite, galena and quartz were also found. Quartz was typically found as tiny crystals in small vugs, where a lens is required to view the crystals, or as slightly larger crystals covering fluorite crystals.

All visitors on the day had the opportunity to join guided tours within the mine, which included viewings of various pockets and the current source of specimens for shows. Several visitors, including the visit leader, also took the opportunity to collect (with permission) from one section of the mine. This yielded a large, very attractive (and very heavy) specimen that required significant effort to transport it from the mine to the car park.

We would like to thank Cal and Jesse of UK Mining Ventures for their hospitality and generosity in carrying out mine tours, for providing specimens at no charge, allowing visitors to collect from the dumps and within the mine, and for enabling such an interesting and exceptional day for all participants.

Saturday 8th August 2015. Central Branch Visit to Breedon Hill Quarry, Breedon on the Hill, Leicestershire. [SK 498 230]

Leader: Neil Hubbard. Reporter: Steve Critchley.

On a clear warm day a keen group of Central Branch members and visitors gathered at the quarry office of Breedon Aggregates, who currently work this quarry on an occasional basis. What exposures are available nowadays are the somewhat inaccessible overgrown and weathered faces of the historic workings for roadstone aggregates, agricultural lime and metallurgical fluxes. Today a small area of the southern part of the quarry is worked in a limited manner, using

mobile crushing and processing plant to produce a few thousand tonnes per year of specialist aggregate. However an extension to the east of the current limits is planned for the future, which will greatly increase the reserves to be worked and hopefully reveal additional areas of mineralisation. The future looks bright for all parties.

The outcrop at Breedon Hill is one of a number of prominent inliers of the Carboniferous Peak Limestone Group in this part of Leicestershire. Many Russell Society members are familiar with another mineralogically productive outlier currently quarried at Cloud Hill a few miles to the south. The geology at Breedon Quarry can be summarised as exposing sediments of the Milldale Limestone Formation, with the unconformably overlying Cloud Hill Dolostone Formation and Triassic dolostone breccia of the Breedon Breccia exposed in the NW part of the quarry. The North West face of the quarry is the Type Locality for the Breedon Breccia, an attractive looking sediment characterised by matrix supported angular clasts of limestone set in a fine grained sandy silty matrix.

Most of the carbonate sediments have undergone a widespread late Carboniferous Period dolomitisation process producing a volume reduction estimated at around 15%. This process allowed the ready development of post Carboniferous/early Triassic karstic features within the carbonates (ranging from solution widening of joint and bedding planes to the formation of large caves), which were later substantially infilled with reddish brown siltstones of the Triassic Mercia Mudstones Group. The blast sectioned remnants of a number of these were observed in the quarry faces, particularly the eastern face where a large inaccessible cave was observed to be partially filled with reddish mudstones and silts.



Current workings in dolomitic Milldale Limestone.

The older weathered former working faces are seen in the background.



Typical cave/karstic feature lines with dog-tooth calcite crystals.

For the visiting group, at more accessible levels a number of smaller cave features were readily examined producing groups of large reddish -brown tipped dog toothed calcite crystals, occasionally scattered with goethite pseudomorphs of chalcopyrite crystals. Large groups were dug out by the patient, though the quality of many was low with the terminations of crystals easily chipped and bruised during extraction. Some of these cavities clearly illustrated the mineralisation process, with angular clasts of dolomitised limestone cemented by calcite with crystals formed in any void or cavity. Deeper down in some of these features layers of massive powdery baryte mineralisation were noted, though the material was generally of poor collecting quality. Elsewhere some of the smaller calcite crystal filled cavities produced reasonable small clusters of chalcopyrite peppered calcites.

Since the quarry was first accessed by the Russell Society in recent years, the target has been to rediscover the wulfenite mineralisation discovered by the late Bob King. I was lucky to be a member of the first visit (when after much careful examination of weathered scree debris at the foot of the old quarry faces), dislodged scattered crystals of galena were discovered, the origin of which was traced back to a much overgrown karstic cave fill within the Cloud Hill Dolostones at the north end of the quarry. After some digging on that occasion we discovered abundant baryte mineralisation with subordinate groups of weathered galena cubes richly invested with micro cerussite crystals. Larger pods of galena crystals covered with both cerussite crystals and malachite spherules were also located, with some showy specimens recovered. Small lustrous yellow wulfenite crystals were noted on a few of the galena crystals and, after the later washing of personal collections, many more crystals were seen up to 2 mm. Following visits located more wulfenite, with Steve Warren of the Northern Branch for one securing some showy specimens.

The latest visit did produce a few more wulfenite specimens after some extensive digging into the remaining mineralised

cavities, though not in the quantity of former visits. Unfortunately this is the only wulfenite locality that has been discovered in the quarry despite extensive and expert searching and so much of the potential has now gone. We can only hope that, once work on the new quarry begins, new mineralised structures and caves will be uncovered and more discoveries made.

Our thanks go to Breedon Aggregates for allowing us access to the quarry.

Friday 14th August 2015. Northwest Branch visit to Blue Anchor Coastal Section, Somerset [ST 033 435].

Leader: Ian Dossett. Reporter: Steve Warren.

Six of us from various branches met at low tide and walked eastwards along the beach from Blue Anchor. This section of the coast forms part of the Blue Anchor to Lilstock Coast SSSI. It exposes limestone bedrock of the Jurassic Lower Lias in the foreshore, overlain by low cliffs of softer marls, mudstones and siltstones of Triassic age. Strong and vivid orangey/red and white gypsum horizons and veins cut through the softer rocks, forming spectacular features, most notably where larger blocks of cliff have fallen away towards the western end of the beach.

We inspected loose material that had fallen from the cliffs and several sections of the limestone bedrock where carbonate infilling of joints was seen. Further east crude crystalline and terminated clear to light blue plates of celestite were found along with clusters of small balls of white strontianite.

Our thanks go to Bob Corns of Natural England for granting permission for the visit to this SSSI.

Friday 14th August 2015. Northwest Branch Visit to Kennisham Hill Iron Mine, Luxborough, Somerset. [SS 963 331]

Leader: Ian Dossett. Reporter: Steve Plant.

Kennisham Hill Iron Mine worked iron ores from one of a series of iron lodes which occur within the Devonian Morte Slate group trending approximately WNW along the crest of the Brendon Hills, across Exmoor and into the country east of Morte Bay in Devon. The strike of the lodes is confined within a narrow belt and seems to be structurally controlled by a sequence of anticlines and synclines. It is conjectured that the action of deeply circulating hydrothermal fluids throughout the Devonian sedimentary sequence leached heavy metals such as iron and copper from the basement rocks. These metal-rich fluids were mobilised and then deposited within fault zones and fracture systems by a process of cooling, change in pH, or pressure reduction or a combination of variables to produce mineralised lodes. Extensive weathering and circulation of meteoric waters has degraded the original sulphide-rich lodes to form a complex series of iron-copper-manganese oxide minerals.

Kennisham Hill Mine had been extensively worked from the original lode outcrop, certainly prior to Morgans' paper published in the journal of the South Wales Institute of Engineers in 1868 (Morgans, 1868). Morgans' mine plan, Figure 1, shows the extent of the workings which were 700 metres in length and lode width up to 5.5 metres. Further work was undertaken between 1874-5 when new engine shaft (Curtis's Shaft) was sunk, accessing, ultimately six levels below adit and to a final depth of 142.6 metres. The mine was finally abandoned in 1883. A more detailed history of the mine can be found in Jones (Jones, 2011).

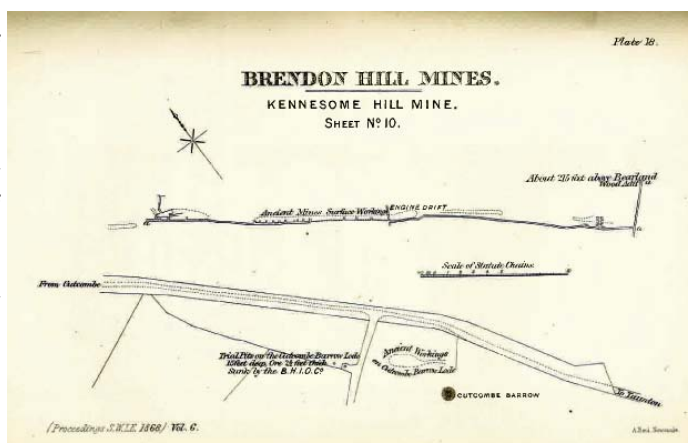


Figure 1. A plan of the mine from 1868.

Mineralogy.

Primary ore minerals: Due to extensive oxidation of the original mineral lode primary ore minerals were extremely rare. Pyrite, FeS_2 . Occurred rarely as sub-mm cubes disseminated within haematite ore.

Bornite, Cu_5FeS_4 . (?) Surface alteration of chalcopyrite shows blue iridescent surfaces, a possible alteration product to form bornite or covellite.

Chalcopyrite, CuFeS_2 . Occurs in massive form possessing a golden-yellow lustre (see Figure 2). Like pyrite, the majority of the chalcopyrite has been completely or partially altered to iron oxides and malachite.



Figure 2. Sample of partially altered primary chalcopyrite and chalcocite (silvery-grey-top left in photo).The sample is 8 x 3.5 cm.



Figure 3. A sample of siderite, partially altering to haematite. The sample is 4 x 3 cm.

Chalcocite, Cu_2S , (?) Has been found rarely, associated with chalcopyrite as massive silvery-grey ore. This needs further confirmation as it may represent an alteration product of chalcopyrite.

Other primary minerals:

Siderite, FeCO_3 . This was the commonest form of ore worked in many of the mines (See Figure 3).

Quartz, SiO_2 . A common constituent of the lodes and country rocks. Generally occurred as massive milky-white veins, poorly crystallised.

Secondary minerals.

The mineralogy of the iron lodes worked at Kennisham Hill Mine and elsewhere on the Brendons is quite complex and is dependent on how much oxidation and alteration has taken place since the lodes were emplaced to form secondary minerals. Morgans (1868) described the iron minerals occurring in the lodes from the Brendon Hills according to the following definitions:

Mining term used for Brendon hills iron ores. Circa. 1868	Morgans' definition.	Modern day mineral name.	Chemical formula.
"White ore" (in fact the ore was a beige colour)	Spathose	Siderite	FeCO_3
"Red ore"	Decomposed spathose	Haematite	Fe_2O_3
"Brown ore", "Black ore", "Potty ore".	Dark brown ores, cellular, stalactitic	Complex mixture of iron (+ or – manganese) oxides. Goethite, manganese oxides, (cryptomelane, pyrolusite etc.)	$\text{FeO}(\text{OH})$

Table 1.

Several specimens were collected from the engine house dumps which met the description of some of the minerals described above.

Siderite, FeCO_3 . Whilst siderite can be a primary mineral it can also occur as a secondary mineral. Only one small specimen was found on this occasion (see Figure 3). The siderite had been partially oxidised to haematite hence its red appearance. Kennisham Hill Mine was not noted for large quantities of siderite because the mine workings were fairly shallow and pinched out in depth.

Haematite (Red ore), Fe_2O_3 . Haematite was common throughout the dumps, mainly as coatings and surface encrustations.

Nothing of specimen quality was collected.



**Figure 4. A sample of botryoidal goethite.
The sample is 4 x 3 cm.**



**Figure 5. Goethite showing internal radiating structure.
The sample is 8 x 3 cm.**



**Figure 6. A sample of dark brown-black cellular ore.
A complex mix of iron (± manganese) oxides.
The sample is 7 x 5 cm.**



**Figure 7. Botryoidal crystalline masses of malachite. The
sample is 2 x 3 cm.**

Goethite (Brown/black ore), $\text{FeO}(\text{OH})$. Botryoidal masses of what was assumed to be goethite were found (see Figures 4, 5 & 6), further analysis of this material is required as certain manganese oxides such as psilomelane look very similar. The radiating fibrous structure suggests that the mineral is goethite.

Bismutite, $(\text{BiO})_2\text{CO}_3$ (?). A rare secondary mineral of bismuth. One small patch of yellow amorphous powder on quartz was found. Bismutite is easily confused with the mineral jarosite so further confirmation is required.

Cuprite, Cu_2O . One thin seam of a metallic red layer sandwiched between layers of malachite was found.

Malachite, $\text{Cu}_2(\text{CO}_3)(\text{OH})_2$. This occurs commonly on the dumps as a grass-green encrustation on oxidised lode material. See Figure 7

Table 2 summarises the list of minerals recorded from Kennisham Hill Mine, based on Mindat entries and minerals located on the Russell Society field trip.

Mindat database	Russell Society field trip 14-8-2015
Atelestite	
Baryte	
Bismutite	Tentative
Bornite	Tentative
Brochantite	
Chalcocite	Probable
Chalcopyrite	Yes
Chlorite Group	

Chrysocolla	
Connellite	
Cuprite	Yes
Goethite	Yes
Langite	
Malachite	Yes
Pyrite	Yes
Pyrolusite	
Pyromorphite	
Quartz	Yes
Siderite	Yes
"Wad" (un-differentiated-manganese-iron oxides)	

Conclusions:

Table 2.

Within the limited time period during which the Russell Society members were able to examine the mineralogy of the dumps (2.5 hours) seven minerals were definitely confirmed, with one "probable" and two "tentative". Much more field work will be required to get a fuller understanding of the mineralogy. More sites will need to be sampled and detailed chemical analysis in the laboratory will be required. It is hoped to plan a return visit sometime in the future to resume this work.

We would like to thank Helen Brown of the Forestry Commission, West England District and Rob Wilson of Exmoor National Park for permission for the visit and to enable us to examine the mineralogy.

References:

Jones, M. H. (2011). *The Brendon Hills Iron Mines and the West Somerset Mineral Railway. A New Account.* Lightmoor Press.

Morgans, M. (1868). The Brendon Hill Mines, *Proceedings of the South Wales Institute of Engineers*, **6** (2) 78-122.

Saturday 15th August 2015. Northwest Branch Visit to Herodsfoot North Mine, Liskeard, Cornwall. [SX 212 600]

Leader: Ian Dossett. Reporter: Clive Minker

This year's North-West Branch visit to Cornwall and Devon included a days collecting at the Herodsfoot North Mine which is now privately owned by Richard and Frances Humphrey.

Clear blue skies looked down on four members as they managed to find their way to a private driveway leading up to a large house and just beyond this an open barn. It was here that all were greeted with warm drinks, biscuits and cakes and in return we handed over the digging fee of £10 per person. Before setting off to the dig site, Richard displayed various specimens including those of bournonite. Bournonite, also called "cog wheel ore", sometimes forms crystals which are composed of four twins in a shape that resembles the teeth of a cog wheel for which this mine is noted.

A short distance through a wooded area brought us to a clearing where a pit had been excavated a few days before to assist our search. This area was only large enough for two human diggers and the remaining members contented themselves with other areas very close by. Other members arriving later, along with a small black and white cat, joined in with the search and although various mineral specimens were found throughout the day not everyone discovered examples of the elusive bournonite "cogs".

This site is a very picturesque place to visit and it is worth taking some time to explore the old mine buildings, woodland and a nearby pond with its abundance of wildlife including the Silver-washed Fritillary.

A contribution from Richard.

We returned from France 6 years ago, I was Scientific and Technical director of a French Biotech company. I am now retired. I can now spend more time collecting Cornish mineral's which I have been doing for over 40 years. We first started showing the mine buildings as they are of great interest to groups such as the Trevithick Society, the mine being the oldest in the district. The lode was known about as



Ruined buildings of the North Herodsfoot Mine.

early as he 1600's and actively being exploited in the 1700's. The Count House was the home of the Lobb family for over 100 years. The land was farmed with the mine buildings being used for that purpose. Both the boiler house and crusher house were fully roofed until the late 1960's. The mine tips have never been turned over in that time. Many people were unaware of their existence and collected only on the southern end of the set. Highlights in mineral finds have been a quartz after baryte with several small bournonite crystals found last year and also a single cog perched on a quartz and pyrite matrix.

Minerals reported on the day include; massive bournonite but no cogs! Calcite, chalcopryite, galena, gypsum, quartz, siderite, sphalerite and tetrahedrite.

Our thanks to Richard for organising the excavator and to Frances for supplying the hot drinks and snacks. Richard has a website with details of the mine, recent visits and mineral finds. For more information go to www.northherodsfootmine.co.uk

Saturday 22nd August 2015. Southern Branch Visit to Stancombe Lane Quarry. Flax Bourton. Bristol. [ST 503 687]

Leader: Steve King. Reporter: Tony House.

A 09:00 start on a clear bright morning came with the rare promise of a day without rain - possibly turning into the hottest day that month, if not the year. Someone mentioned 36°C and walking out at the end of the day with what felt like best part of half a tonne on my back (plus supposedly "The find of the day " cradled in my arms) it felt more like 100°C.

Surprisingly only 3 members turned-up; Steve King, Roger Robinson and myself were greeted by Courtney Walker, the Quarry Supervisor, before being gratefully transported up to the top level. On the way we passed the newly worked Dolomitic Conglomerate being removed to expose the Carboniferous Limestone below. Courtney gave us some excellent information on the workings of the quarry, wished us luck and - having advised where we were allowed to go - left us to it.

The first levels did not produce much, rather unusually as this is where the "Goodies" are often found where the upper mineralisation leaches down through the veins and faults to accumulate (hopefully) into that fantastic find. Dropping down to Level 4 we looked, as always, in the eastern corner for calcite vugs. These now yielded crystals of purple fluorite along with 10 mm black and water clear dogs-tooth crystals of calcite, tabular pink cockscomb baryte along with dolomite and pyrite to name a few. One even contained "blobs" of hydrocarbons with a 5 mm up-standing growth of lepidocrocite.

By this time the heat was murderous, but our little gang trudged gamely on, occasionally finding items worth wrapping. Roger extracted another example of massed 1 mm purple fluorite crystals in rare vein material. However as far as I was concerned Steve King made the most interesting find of the day, a beautifully preserved fossil (!!). This was a 300 million year old tree fern stump complete with root system. The opposing casts of these are often seen as deep dimples in vertical quarry faces.

My so-called "Find on the day" was extracted from a boulder amongst others discovered as always in the last few minutes of the day. We (Steve) managed to roll it over, I chiselled around to form a weakness and after a good belt with a 4lb hammer it came away, a nice 65 mm vug containing a purple fluorite to 15 mm next to a water clear dogtooth calcite, pink cockscomb baryte, dolomite, orange hydrocarbon and small black calcites.

It was another enjoyable day - many thanks to Chris Finch for arranging the trip and especially to Neil Hoddinott, Courtney Walker and LaFarge Tarmac for allowing the Russell Society access.



"The Find!". Fluorite, calcite, baryte, dolomite & hydrocarbons.

Friday 21 August 2015. Northern Branch Visit to Silvertop Quarry, Hallbankgate, Cumbria. [NY 586 606]

Leader and reporter: Frank Bouweraerts

This small quarry is not open at weekends, hence the visit on a Friday that was attended by five members.

It is owned by W & M Thompson Quarries Ltd and works the Four Fathom Limestone, mainly for aggregate. The quarry is very close to the line of the Stublick Fault, a major fracture that runs east-west and along which mineralisation occurs in places.

Current working is at the western end of the quarry, which meant that we did not have access to this area, which in the past produced minor examples of smithsonite, aurichalcite and malachite. Cinnabar had also been found there in tiny amounts.

However, we had almost unrestricted access to the eastern half of the quarry and given its small size it was fairly easy to walk everywhere. Small amounts of crystalline baryte were soon discovered but the day would have been uneventful if some excellent aragonite had not been found in a few loose blocks of limestone. It was unclear where these had originated in the quarry but there was enough for everyone to collect decent specimens of lustrous golden crystals in sprays on goethite pseudomorphs after, presumably, a rhombohedral carbonate.

Due to the quarry's size and limited opportunities for collecting, we had finished by early afternoon and were able to leave before the rain started.



**A view over the Silvertop Limestone Quarry.
Wikipedia Commons picture.**

We should like to record our thanks to the owners and especially to Eddie Collins, the Quarry Manager, who was a very welcoming host.

Finally, looking through my records I found that the previous visit by the Society had been back in 1993, the occasion when Trevor Bridges was presented with the Russell Society Medal. Trevor's death only two months earlier made this a rather sad discovery.

Friday 27th November 2015. Northwest Branch Meeting.

Reporter: Christine Critchley.

Ten people listened attentively as Frank Ince gave an introduction to the 23rd element, its chemistry, and its minerals in his presentation: 'Vanadium Chemistry and UK Vanadates'. The periodic table and electronic structure was used to explain the significance of vanadium as a transition element and its links to Manchester University were explained. This was where vanadium was first prepared by Henry Roscoe in 1867.

The colours of the various hydrated ions containing vanadium were described. An acidic aqueous vanadate solution, VO_2^+ (yellow, V^{5+}) was reduced, initially using iron, to form VO^{2+} (blue, V^{4+}) followed by V^{3+} (green) and finally, with zinc, V^{2+} (lilac – with the eye of faith!). The close relationship of vanadinite (vanadate, $\text{Pb}_5(\text{VO}_4)_3\text{Cl}$) with pyromorphite (phosphate, $\text{Pb}_5(\text{PO}_4)_3\text{Cl}$) and mimetite (arsenate, $\text{Pb}_5(\text{AsO}_4)_3\text{Cl}$), due to similar ionic properties, was shown using a triangular composition diagram and the possibility of substitution in vanadates by other ions was briefly discussed. Vanadate polymerisation, producing di-vanadates up to deca-vanadates with the 'tetrahedral' ions linked by an $-\text{O}-$ bond was also shown.

Soon it was time to look through the geochemistry of vanadium minerals starting with the 'non-vanadates' and then going onto the vanadates and more specifically the vanadates occurring in the UK. These included mottramite, vanadinite, descloizite, tangeite, vésigniéite, volborthite, pyrobelonite, namibite, kombatite, cassedaneite, carnotite, francevillite, tyuyamunite, metatyuyamunite, chervetite, huemulite and pascoite.

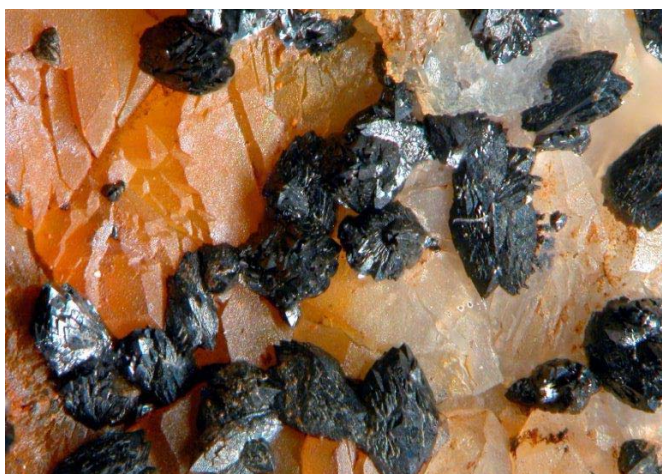


Fig. 1. Mottramite crystal aggregates (to 0.6 mm long) slightly iron-stained quartz from Arm O'Grain, Caldbeck Fells, Cumbria. David Green photograph.



Fig. 2. A pseudo-hexagonal group of tabular volborthite crystals (1 mm across) on calcite from Newhurst Quarry, Shepshed, Leicestershire. David Green photograph.

Following this, UK occurrences of vanadium minerals were listed. There are a number in Scotland, including Leadhills and Wanlockhead; several in the Lake District including the Caldbeck Fells and some in Wales including Ty Côch. There are also several in Central England including a number of localities in Leicestershire (from which Frank developed his interest in vanadium chemistry). In addition there are a number in Southern England including Littleham Cove, Budleigh Salterton; and finally, several in Cornwall including Greystones Quarry.

Then the audience was treated to images of several vanadates from the UK, some of which produced the usual 'oohs and arrhs' for gemmy crystals which had been found and others getting less enthusiastic responses as Frank showed 'blobs and smudges' on rocks! After the talk, as Frank answered questions, members looked at the specimens he brought and discussions continued over refreshments.

Friday 8th January 2016. Northwest Branch Meeting. Reporters: Harry and Christine Critchley

Following on from the Branch AGM we had a 'Show and Tell' session, with the theme being 'Favourites'. Each member had a maximum of 10 minutes to show and tell that which they had brought. This short time slot was designed to encourage everyone to bring something. There were eleven members present and each had brought something to show so we were treated to a full and really enjoyable evening with lots of variety.

Christine started the proceedings with the tale of a blue baryte find from Force Crag Mine, a first for the mine. Taking the piece down to the car (the late) Pete Blezard, one of the then mine owners and our guide for the day, asked "What have you got there?" Christine replied excitedly 'It's a blue baryte' but she did not expect the reply. "Who's told you that? They are having you on!! Let me look". This inspection being followed by a pause then "WHERE did you find that? Exactly where did you find that? We have never had blue baryte found here before." Once the piece was in the car Christine showed Pete that it had been rescued from on top of the grizzly sieve above of the crushing plant belt, too big as it happened to fall through the gap! Pete knew exactly where this 'load' had been from in the mine and so went for a look, following the trip. The site was found but only two other specimens of 'blue baryte chisels' were to be located.

John Davidson reported about two trips this year. The first was to Weardale; a side trip following the Northwest Branch visit to Rogerley; to a very muddy locality. In the wet and gooey mud a piece was 'felt' and brought home for a wash and soak in 'iron out' thus revealing the beautiful green fluorite crystals he had on show. His second piece was from West Pastures Mine, Stanhope where, amongst the heavy bags carried out was an apple green fluorite, which exhibited



John Davidson's fluorites: From Rogerley Mine on the left and from West Pastures Mine on the right.

a wonderful 'glow' in UV.



Harry's specimen of crocoite from the Adelaide Mine.

Harry reported on one part of our trip to the Joint Australasian Mineral Conference in Tasmania (this being the Zeehan Mineral Show) with two hand size specimens of crocoite for his show and tell. "At the show we were able to join a trip to the Adelaide mine in the Dundas orefield, to view crocoite in situ. The mine was about 50 m in and made a sharp turn right after the entrance to remain in the gossan. It was here that the crocoite occurred in voids. We were shown the latest void to be found, which was still partly filled with crocoite needles to about 5 cm long. After this trip into the mine we were allowed on the dumps to collect until our 'taxi' arrived to ferry us back to the show (approximately 30 minutes). During that time we collected a number of specimens some of which had white gibbsite overgrowing the red crocoite. This was a brilliant trip to see, and collect, a mineral which occurs rarely around the world."

John Vanston had a large 'goody box' with specimens for discussion. During this discussion the projector was set up for John Chapman's presentation and green-red 3D glasses were given out! Having worked for Carl Zeiss prior to retirement John was well into microscopes but has now developed an interest in photography in 3D. We were treated to some super images and a 'simple and understandable' explanation of the techniques of stacking, varying aperture, depth of field changes and image 'focus', photo tube slides on a microscope, and 3D! Quite a lot for such a brief time but it was not only a 'wow' for all, it was also very educational. There were several images, but the ones I found special were those of Gordale Scar, of a pot hole at The Strid near Bolton Abbey, of the Hilton Mine galena, and the hemimorphite and baryte from Barras End, but most special was that of The Fly (which is actually a bumble bee)!



Members examining John Vanston's "goody box".



Harry & Judith's specimen from Kosovo.

David Hardman managed to 'follow this' as it were with an impressive piece from Wolverine Mine, Keeweenaw, Michigan which his wife Margaret had treated him to at last year's Bakewell Show (for their 40th wedding anniversary). It was a copper with silver, called a half-breed by those in the know, and far too heavy to allow it to fall onto your toes.

Harry and Judith Holt followed on with a specimen of calcite with sphalerite, pyrite, and manganocalcite from Trepca Mitrovica, Kosovo which he had recently acquired. Being about 35 cm by 20 cm this was viewed by all on the table!

In contrasting size Ian Dossett told a tale of collecting opals in a 'tourist' pay to collect open cut site in NW Nevada, and bringing them back through customs which was just as 'exciting'. He had several pieces to show including some opalised wood and some black opal showing colour iridescence.

Last but not least came Christine but this time with the usual servings of nibbles, teas and coffees.