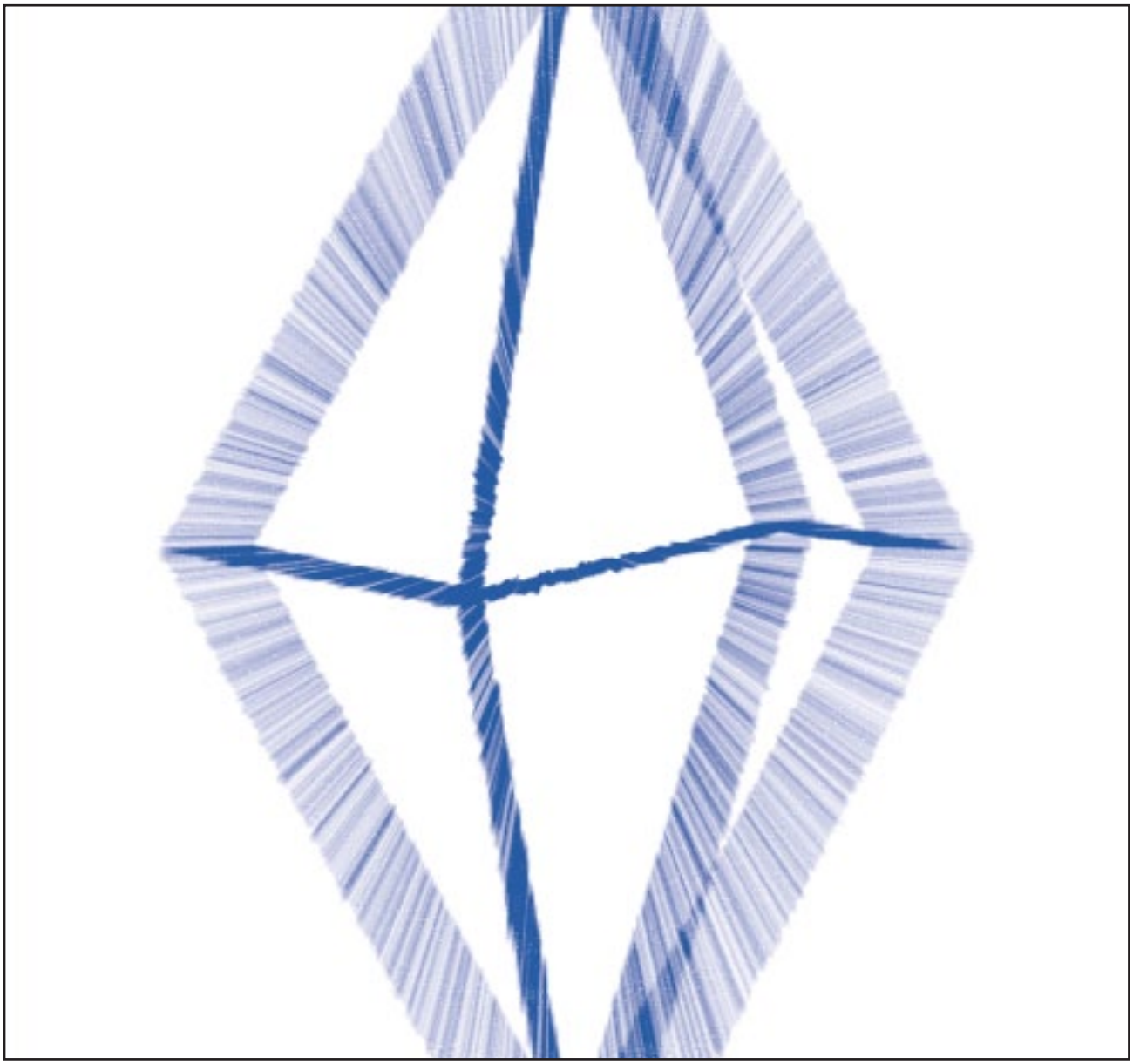
The Russell Society Newsletter



Number 71
September 2017

The Russell Society is a society of amateur and professional mineralogists which encourages the study, recording and conservation of mineralogical sites and material.
Registered Charity No. 803308

The Russell Society Website www.russellsoc.org

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Much

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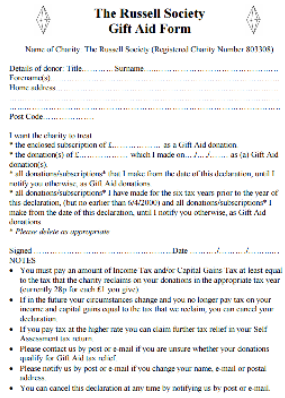

The Russell Society
Gift Aid Form

Name of Charity: The Russell Society (Registered Charity Number 803708)

Details of donor: Title..... Surname.....
Forename(s).....
Home address.....
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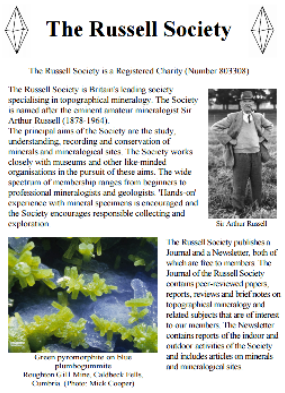
I want the charity to treat
* the enclosed subscription of £..... as a Gift Aid donation.
* the donation(s) of £..... which I made on.../.../..... as (a) Gift Aid donation(s).
* all donations/subscriptions* that I make from the date of this declaration, until I notify you otherwise, as Gift Aid donations.
* all donations/subscriptions* I have made for the six tax years prior to the year of this declaration, (but no earlier than 6/4/2000) and all donations/subscriptions* I make from the date of this declaration, until I notify you otherwise, as Gift Aid donations.
* *Please delete as appropriate*

Signed.....Date.....

NOTES
- You must pay an amount of Income Tax and/or Capital Gains Tax at least equal to the tax that the charity reclaims on your donations in the appropriate tax year (currently 28p for each £1 you give).
- If in the future your circumstances change and you no longer pay tax on your income and capital gains equal to the tax that we reclaim, you can cancel your declaration.
- If you pay tax at the higher rate you can claim further tax relief in your Self Assessment tax return.
- Please contact us by post or e-mail if you are unsure whether your donations qualify for Gift Aid tax relief.
- Please notify us by post or e-mail if you change your name, e-mail or postal address.
- You can cancel this declaration at any time by notifying us by post or e-mail.



The Russell Society

The Russell Society is a Registered Charity (Number 803708)

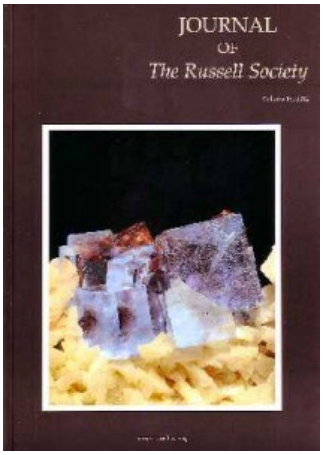
The Russell Society is Britain's leading society specialising in topographical mineralogy. The Society is named after the eminent amateur mineralogist Sir Arthur Russell (1878-1964).
The principal aims of the Society are the study, understanding, recording and conservation of minerals and mineralogical sites. The Society works closely with museums and other like-minded organisations in the pursuit of these aims. The wide spectrum of membership ranges from beginners to professional mineralogists and geologists. 'Hands-on' experience with mineral specimens is encouraged and the Society encourages responsible collecting and exploration.

Sir Arthur Russell

Green pyromorphite on blue plumbogummite
Roughton Gill Mine, Caldbeck Fells, Cumbria. (Photo: Mick Cooper)

The Russell Society publishes a Journal and a Newsletter, both of which are free to members. The Journal of the Russell Society contains peer-reviewed papers, reports, reviews and brief notes on topographical mineralogy and related subjects that are of interest to our members. The Newsletter contains reports of the indoor and outdoor activities of the Society and includes articles on minerals and mineralogical sites.

Few



Clicks!

The Russell Society Website has been changed & updated. Be sure to check it out!

Russell Society Newsletter

Number 71 September 2017

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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

"Editorial"

September is upon us once more and again we find ourselves looking down the barrel of the season of mineral shows and mellow fruitfulness. The Summer has been a good one (by British standards at least) and this should have encouraged the mineralogically inclined to head out with their hammers in search of interesting mineral occurrences.

Now that's a reasonably well attended field trip. Collectors swarm over a rock pile at Franklin, New Jersey earlier this year. Photo courtesy of Natures Rainbows.

There have certainly been a lot of Russell Society collecting trips happening over the past few months. I have been out on a few of them and have invariably had a good time – I hope that you have been doing the same. Our field trip organisers put in a lot of effort to identifying suitable sites and obtaining the necessary permissions for us to collect. I notice that, in the reports submitted, a few trips seem to have attracted only small numbers of participants, which is a little disappointing. As someone remarked in one of the visit reports "If you don't look – you don't find". Whether or not you have personally been active, I hope that you will be interested in the visit reports in the following pages. It's great to have received so many reports - a big "thank you" to all those who produced them. Even trips where nothing of great note was observed are still worth writing up as part of the historical record. In fact I have received so many reports that I have had to hold a few of them over until the next issue to avoid making this one unfeasibly large.

After a short respite from obituaries, this issue regretably contains two more. The sad demise of Peter Wallace – Chairman and long-time stalwart of the RS Southeast Branch – robbed us of one of our most active, effective and well-liked members. Also, the death of Dr. Trevor Ford, known to many as "Dr. Blue John", on account of his long interest in and deep knowledge of that Derbyshire speciality, and who died earlier this year was a loss to the mineral community generally. They will each, in their separate ways, be greatly missed.

You will also find a note on the recent changes to the RS Branch structure, which have seen two of the Society's Branches combined with neighbouring Branches. This will hopefully bring administrative and operational benefits. However, the main thing is that all the members of all the Branches feel that they are a part of the Society and able to take part freely in its activities. Remember that any member is entitled to participate in the meetings, field trips or other activities of any Russell Society Branch.

Among the usual eclectic selection of news items, there are a couple of contributions on slightly more unusual topics – Adam White's description of his project to construct and display a geological map of the UK using only mineral pigments and the first part of Kevin Garrod's description of his recent collecting exploits in Spain. I hope that you enjoy reading these.

I would like to say "thank you" to all the various members who have contributed to this issue. I know I am always nagging you to provide material and it's nice to be able to add a few new names to the authors list. Please keep the contributions coming. I'm always keen to hear from you about anything of mineralogical interest that you may have seen, heard or done.

In any event, I hope that you find this issue interesting and even a little informative. Enjoy your Newsletter!

Michael Doel

From the Vice-President:

As we are currently without a President it falls to me to fill this slot.

On behalf of the whole Society I would like to express thanks to the North-West Branch committee for organising and hosting the excellent ASM weekend in Llandudno. The attendance was very good and it was very positive to see a number of new faces. Field trips had last minutes changes due to quarry decisions but all were able to 'fit' onto other trips. The ASM was a little different this year with the opportunity for those who had the time to stay for three days. Many who did 'stay over' felt the extra day was a time to actually sit down and talk to each other, a theme linked to ideas in Tom's 'From the President' message in the last Newsletter. Important dates for your diary for the next ASM are Friday 6th to Sunday 8th April 2018. This is being organised by the Central Branch and will be held at the College Court Conference Centre Hotel, Knighton Road, Leicester, LE2 3UF.

The AGM saw a change to the Society's Council as Tom Cotterell stepped down as President after four years in post. During this time, he has represented and promoted our society at numerous events, including mineral shows, and also at the Mineralogical Society of Great Britain and Ireland's President's Lunch. He set himself a 'project' and offered each branch the possibility of a talk. I know we in the North-West Branch (as we were then) really enjoyed the presentation he gave. He has overseen the recent changes in the Branch structure and is currently organising analytical time to enable members to have specimens characterised/identified by SEM-EDS for chemical analysis, or XRD for structural analysis. I am sure all members will join in thanking him for all his hard work and dedication. Tom will continue to be involved with our Society as Conservation Officer where he will continue to offer his expertise and time to our Society. I hope that you will join with me in welcoming him to his new position.

Following the AGM Weekend, a celebratory e-mail from Roy Starkey was circulated, saying ".. I wanted to let you know the fantastic news .. the Lapworth Museum (www.birmingham.ac.uk/facilities/lapworth-museum/index.aspx) has been shortlisted for Art Fund Museum of the Year 2017, along with Tate Modern, The Hepworth Wakefield, Sir John Soane's Museum, and The National Heritage Centre for Horseracing & Sporting Art". The shortlist, announced on BBC Radio 4, prompted immediate press coverage on the theme of David *vs* Goliath! In the event, the prize went to the Hepworth. Wakefield but congratulations to everyone at the Lapworth Museum for making the final. Apparently visitor numbers have already risen greatly as a result.

Continuing our aim of promoting the Society, Steve Warren and Michael Doel manned a table at the Leyburn Show in May. The associated Treasure Hunt proved popular with the children and the display case of Leadhills and Wanlockhead minerals from Steve's collection was a talking point for the adults. A number of leaflets and 'business cards' were taken away and hopefully this may lead to some new members. The Russell Society was also represented at the North Pennines Mineral Expo on 29th and 30th July in St. John's Chapel, County Durham. Entry to the Expo was free and it provided a fun weekend, and a good opportunity to meet. Looking forward, the Bakewell Show will be held on the weekend of 14th and 15th October and we will once again be organising a Scavenger Hunt for the children and have a display for the adults. Anyone who would like to contribute to a display is encouraged to get in touch with the Vice President. We are also requesting donations of minerals for the Scavenger Hunt; wrapped or boxed please and with a label mentioning the Russell Society and giving the species and location. Last year we gave away over 100 prizes!

While searching the web recently, I stumbled upon a reference to "European Minerals Day". The 2017 event, from 22nd-24th September, marks the 10th Anniversary of a "successful pan-European awareness raising initiative by the European minerals sector" (www.mineralsday.eu). Every two years Europe's citizens are invited to open door events at quarries, mines, plants and museums all over Europe. The theme for each event is "Making the link between a quarry or mine and the products used in everyday life". The last Minerals Day, in 2015, welcomed thousands of visitors to events in 22 countries in Europe and 7 around the globe. This year, more than 150 sites (quarries, mines, processing plants, museums and tourist mines) across Europe are offering a range of activities to the public, including guided tours, workshops and animations for children (carving, mineral exploration games, fossil hunting, drawing and painting), activities around biodiversity, visits to rehabilitated areas, exhibitions, even bird watching tours to quarry sites. I enthusiastically went to the map showing the locations of the events and found – nothing at all in the UK! What a pity. Clearly, we cannot offer trips of this sort to members but we do offer a large number (possibly fifty or more) of field trips over a year. I offer a personal "Thank You" to all our Field Trip Officers for all the work they have put into planning these activities for the membership over the years.

Christine Critchley. Honorary Vice-President.

SOCIETY NOTICES

OBITUARY: Mr. Peter Wallace (1933 - 2017)

Peter engaging with a clearly enthralled young visitor, enjoying the delights of Elsie Hansford's carousels of micromounts on the BMS stand at the Sussex Mineral Show. Photo J.Hall.

Sidcup Chairman Graham Bell (left) presenting Peter Wallace a Life Membership certificate for his commitment to the Society over the years. (Photo courtesy of Sidcup Lapidary and Mineral Society).

I first met Peter at the British Micromount Symposium held at Leicester University in September 1985. His son Paul had attended a couple of previous Symposia, and his enthusiasm had clearly convinced Peter that micromounts were going to be part of his future!

Peter served a five-year apprenticeship to become a stereotyper, at the "hot metal" end of the newspaper printing industry, a technically challenging role which required metallurgical training, practical dexterity and excellent attention to detail. In those days, the printing process involved casting the words for the stories and headlines out of molten type-metal, using Linotype and Ludlow machines. The composing room was where editorial and printing staff met - production and subeditors working with compositors to fit the stories onto the pages on the composing stone. There were strict rules about who was allowed to do what, in a tightly unionised environment. Many readers will probably recall the Wapping dispute in 1986 which effectively brought about the end of hot-metal type-setting, and ushered in the new era of computerised production.

The printing trade kept Peter employed for the rest of his working life – initially with the *Evening News*, and latterly at the *Daily Mail* and various other newspapers. Over the span of his career he saw the demise of traditional "hot metal" type and its replacement by cut and paste of artwork using a scalpel on the layout board to arrange the pages, and ultimately the transition to digital printing.

His interest in geology, like that of many other people, started, with polishing pebbles from the local beaches, which he then turned into simple jewellery, drawing on his practical nature. Peter became fascinated, and wanted to know more. His enquiring mind and willingness to learn new skills led him first to the world of palaeontology where he became extremely knowledgeable about fossils, later "seeing the light" and swapping over to the world of mineralogy. Peter was a very meticulous and thorough person, and anything to which he turned his hand was done 'properly' and to a very high standard. His beautifully curated and catalogued mineral collection is testament to the colossal amount of time and effort which he invested in building it.

The Sidcup Mineral and Lapidary Society was a major force in Peter's life (and that of his family too). For many years he was the Field Trip Organiser, and back in those days it was not uncommon for 50-60 people to attend a field trip. The sand pit at Sturry, near Canterbury was a favourite local haunt where the club would collect gypsum 'sand roses'. His son Paul well-remembers trips to Bonsall Moor in Derbyshire where a convoy of thirty or so vehicles would arrive, and fifty people set up camp for the weekend! Peter's hallmark was a friendly welcoming style, and it is typical of his nature that Elsie Hansford recalls Peter being the first person to engage with her, and make her feel at home, when she joined the Sidcup Club.

Graham Bell remembers a Sidcup field trip to collect fossils on the coast at Hunstanton in Norfolk, where, after everyone

had eaten their sandwiches, Peter enquired of one of the members (Valerie) “Can I have that ammonite you’re sitting on?” The assembled throng then watched in awe as Peter proceeded to pick up the two foot diameter fossil and struggled back up with it to the waiting motor coach for the journey home!

Peter, Pam and Paul were regular attendees at the British Micromount Symposium for many years, and he took on the role of leading the SE Branch of the BMS when Austin Lockwood sadly passed-away. This was perhaps the strongest gathering of micromounters in the UK, with a regular attendance of some 20-30 members at each meeting. In 2010, Peter was the recipient of the BMS Founder’s Cup, in recognition of his tremendous service to the Society.

Not content with running the BMS in the SE, Peter also became Branch Chairman for the SE Russell Society, organising a very full and successful programme for many years. It is a mark of his commitment and tenacity in keeping the Branch going for so long, that it has sadly ceased to function after he was unable to devote sufficient time to it, due to Pam’s ill health in recent years.

Peter was always keen to learn from others, especially professionals in the field, and he developed an excellent relationship with David Alderton at Royal Holloway College of the University of London, which resulted in a number of practical chemical analysis and identification workshops for members.

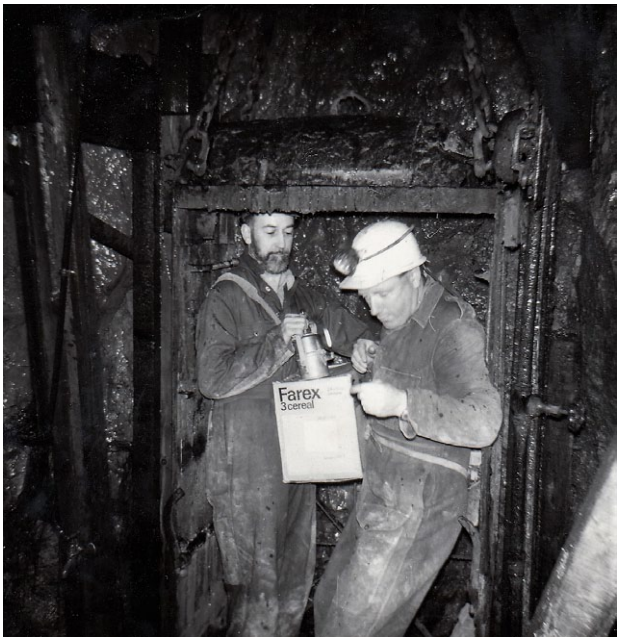
Peter worked tirelessly for the benefit of others in all of the various clubs and societies in which he was active – organising museum visits, quizzes, practical workshops and so on. He clearly gained an enormous amount of satisfaction and enjoyment from his hobby and interests, but also put back in a vast amount for the benefit of others, and for that he will be remembered with great affection.

He will be remembered by all who knew him, as an absolute gentleman, with an endless fascination for everything around him, and who loved talking to people about geology, and minerals. Our condolences go to his wife Pam and four children; Bill, Sally, Tina and Paul.

I am grateful to Elsie Hansford, Graham Bell, Vicki Packard, John Hall, John Pearce, Richard Belson and Peter’s son Paul for their assistance in preparing this obituary.

Roy Starkey

OBITUARY: Dr. Trevor Ford, O.B.E, Ph.D., B.Sc., F.G.S. (1925 – 2017)



Bob King (L) and Trevor Ford (R) underground on the 60 fm. Level of Golconda Mine. 15th March 1966. Photo courtesy of Sally King.

Trevor Ford, one of the giants of traditional British Geology and Senior Lecturer in the Department of Geology until he retired in 1987, died on 22 February at the age of 91. Early in his career he was recognised as an astute and energetic

geologist from the quality of his work on the Ingleton and Stainmore Coalfields, and his growing interests in speleology, geomorphology, and the mineral deposits of the Peak District. In 1952 he was appointed as an Assistant Lecturer at University College, Leicester to join Mac Whitaker and between them they taught all branches of Geology up to the standard required by London University External Honours Regulations. As the department grew and the University was granted its Royal Charter enabling conferment of its own degrees, his teaching was mainly in Stratigraphy, Palaeontology, Micropalaeontology, Map interpretation, Quaternary Geology, Economic Geology (mainly coal, oil and water-supply), Environmental Geology and the History of Geological Science. He also taught a variety of extramural courses at Vaughan College and elsewhere. He was an enthusiastic lecturer and field course leader, and despite a deceptively gruff manner was greatly respected and appreciated by his students for the encyclopaedic knowledge of his subject and his kind understanding in helping with their problems. Many of them became lifelong friends. Trevor was well-known internationally for his tremendous geological output on Derbyshire and elsewhere; specifically, his work on tufas, and the variety of fluorite known as Blue John became well known.

The aspect of Trevor's work that had the greatest international impact concerned his description of the Precambrian fossil Charnia. This frond-like organism was found in Charnwood Forest by a Leicester schoolboy, Roger Mason (himself later a well-known geologist), and described scientifically by Trevor in 1958. It was one of the first convincing organisms to be described from rocks that were incontestably Precambrian. Charnia and its relatives are now renowned as members of the enigmatic Ediacaran biota, following further discoveries in many parts of the world as well as in Charnwood itself. Their interpretation continues as a lively and controversial field of research, discussed at special conferences, including one in Leicester in 2007, the 50th anniversary of Charnia's discovery, at which Trevor was revered as a founding father. He himself followed up the Charnwood discoveries with visits to Australia, Newfoundland and especially the Grand Canyon, on which he became an authority, leading many field trips to the National Park. For many years he was a geological guide on raft cruises down the Colorado River.

He supervised 22 research students and examined a similar number of PhD's. He held visiting professorships in both US and Australian Universities. He published over 500 papers, books, guides and reviews. He was promoted to Senior Lecturer in 1980 and retired from the University in 1987, after 35 years of service. He was then given the title of University Fellow and maintained links with the Department, continuing his work on local geology, mining history, and caving. He was a frequent visitor and may be described as an iconic figure in the Department. He became immobile in his final years but more than welcomed home visitors who never ceased to be astonished by his lively mind and extraordinary memory.

Trevor was born on 19th April 1925 at Westcliffe-on-Sea in Essex. His family moved to Sheffield soon after, where he attended the King Edward VII School from 1939 to 1941. He became a temporary wartime bank clerk from 1941 to 1944 before being called up to the RAF. However, he was soon transferred to the Royal Navy because of his colour-blindness. He was a Stores Assistant from 1944 to 1946 with service in Ceylon, India, Burma, Singapore and Hong Kong. At the age of 22 he went to Sheffield University to study geology, following his BSc with a Ph.D. on the Ingleton and Stainmore Coalfields before coming to Leicester.

He served the University extensively, as a member of the Board of the Faculty of Science and an elected member of Senate and Council, serving on the Honorary Degrees Board, Sites and Buildings Committee, Higher Degrees Board, Research Board, Board of Education, Departmental Assistants Board, Collegiate Studies Board, Part-time Degrees Committee, Vacation Awards Board, V.C.'s Committee on Teaching Methods, and as an Assessor for the Disciplinary Committee. He was Senior Tutor and later Associate Dean for Combined Studies in Science. He was chairman and Convenor of the Board of Studies in Earth Science at Nene College, Northampton from 1974 to 1987.

Trevor's standing in the community is reflected in the posts he held outside the University. He was elected Honorary Editor of the Cave Research Group in 1964 (later the British Cave Research Association), and also of the Peak District Mines Historical Society in 1965. He held both posts until *circa* 1990 and was Chairman or President of both organisations for various periods. He was President of the East Midlands Geological Society from 1982-1985. He was Honorary Editor of the Transactions of the Leicester Literary & Philosophical Society from 1986 to 2000, and President of the Society in 1982. He was the series Editor of "Limestone and Caves of...." books, of "The Science of Speleology", and general editor of the Proceedings of the 7th International Congress of Speleology, 1977.

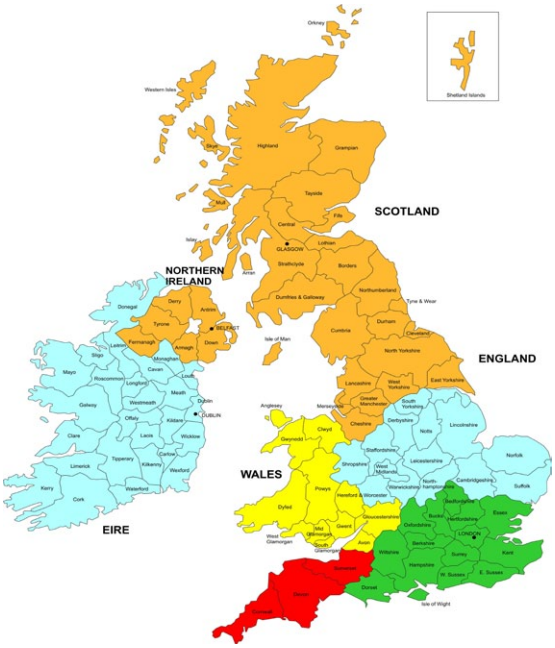
Trevor's achievements have been well-recognised by a number of awards culminating in an O.B.E. in the 1997 Queen's Birthday Honours List, for "Services to Geology and Cave Science". He was awarded the "Champion of British Sport" medal by Derbyshire Caving Association in 1998. In 1974 he was awarded a moiety of the Lyell Fund by the Geological Society of London. In 2016 the Honorary Degree of Doctor of Science was conferred by the University of Derby (at his home because of his limited mobility) in recognition of his contributions to our understanding of the geology and

landscape of Derbyshire.

Trevor's first wife Ann (nee Thornhill) died in 1956. In 1958 he married Betty (nee Thomas) who died in 2006. He is survived by his two daughters, Alison Tagg and Janet Baxter and his granddaughter, Kirsty Baxter.

Aftab Khan and Janet Baxter.
March 2017

Russell Society Branch Reorganisation and Boundary Changes.



In the last issue mention was made of a consultation on a proposal to merge some of the Russell Society's Branches as a means of circumventing some of the problems experienced in some areas.

This has resulted in the merger of the former RS South-East Branch with the Southern Branch and the former Northern Branch with the North-West Branch. The two new Branches are now known as the "Southern Branch" and the "North Branch" respectively. The committee structures for the new Branches are displayed on the back pages of this issue and the area which each covers is depicted on the accompanying map. Some may be interested to note that the Central Branch covers Eire. In fact, for administrative convenience, all of the Society's foreign members are deemed to be members of the Central Branch.

These changes have been positively received by all the Branches involved and it is hoped that they will result in benefits both to the members of the Branches and to the Society generally.

Editor.

Charnwood Rocks: Our Geological Heritage.

In collaboration with Charnwood Museum (Queen's Park, Loughborough), the Central Branch of the Russell Society organised an exhibition that was open to the public during April and May 2017 (see photo). The exhibition coincided with the 60th anniversary of the first scientific discovery of a Precambrian fossil in Charnwood Forest: in April 1957 by a Leicester schoolboy (Roger Mason). The fossil was subsequently named *Charnia masoni*. This discovery was an important milestone in the development of Precambrian geology in the UK and had a major impact on the progress of Precambrian geology and palaeontology worldwide. The exhibition brought together a variety of exhibits and information panels that put the fossils that occur in the Charnwood area into the context of the local geology. The exhibition also highlighted the rich mineralogical diversity of this part of Leicestershire (the combined area covered by Charnwood Borough Council and the proposed Charnwood Forest Regional Park).

Exhibits.

Seven cases contained a variety of fossils (three cases), rocks (one case) and minerals (three cases):

- Plaster replicas of Late Precambrian fossils that showed the diversity of the organisms that were alive about 560 million years ago. These casts were on loan from the BGS, Keyworth.
- A variety of fossils and trace fossils from the Late Precambrian, Cambrian, Carboniferous, Triassic, Jurassic and Quaternary periods. These specimens were on loan from various collections: New Walk Museum, Leicester; Geology Department, Leicester University; Dennis Gamble, Leicester Literary and Philosophical Society; BGS, Keyworth.
- A selection of specimens that showcased the remarkable array of minerals and rocks occur in the Charnwood area. These specimens were on loan from the collections of Neil Hubbard, John Jones and Frank Ince.

Information Panels.

Ten professionally-printed information panels were produced and they provided details of the following topics:

- An introductory panel describing the scope of the exhibition.
- A panel containing a geological map and a brief description of the diverse geology of the Charnwood area.

- Six panels containing more information about the variety of rocks, fossils and minerals that occur in the Charnwood area.
- A panel containing a summary of the quarrying and mining industries; their locations were shown on the geological map of the Charnwood area.
- A panel describing the history and activities of the Russell Society; together with acknowledgements to the people and organisations who had contributed to the exhibition.

The printing of these panels was made possible by a project grant from Russell Society funds.

The staff at Charnwood Museum indicated that the exhibition had been very popular, with about 3000 members of the public visiting the gallery. During the period of the exhibition a few 'crafty days' for children were organised by Margaret Ince in the museum's Education Room. John Jones accompanied members of a local U3A group during their visit to the exhibition. Members of the East Midland Geological Society included the exhibition in their programme of summer field trips; during their afternoon visit, I gave them a talk that covered the background to the exhibition and various aspects of the geology, mineralogy, etc. An evening talk was incorporated into the spring programme of the Friends of Charnwood Museum; in this presentation I included a more general description of the geology, rocks, fossils and minerals of the Charnwood area.

A general view of the exhibition room in the Charnwood Museum. Photo: Frank Ince.

Frank Ince,
Chairman, Russell Society Central Branch.

Russell Society 2018 Annual Society Meeting Weekend.

This is a first notification to get next year's RS ASM weekend into your diary. The Society's Premier Event of 2018 is being organised by the Central Branch and will be held between the Friday 6th and Sunday 8th of April at the College Court Conference Centre, Knighton Road, Leicester, LE2 3UF. This venue will be well known to any members who are also members of the British Micromount Society. The BMS has held its annual Symposium at College Court for the past several years. The facilities there are really excellent and should provide a great base for the weekend.

There will be the usual mixture of talks, demonstrations, exhibits, competitions, auctions, dinners, field trips and, of course, the opportunity to talk about minerals to your heart's content. Further details and a booking form will be circulated with the RS Journal Vol. 20 (hopefully) in November. Watch out for it and book yourselves in. It's always a highly enjoyable weekend and you really ought to be there.

Editor.

The 2017 Maisemore Event: Final Reminder.

I can't believe that there is anyone out there who does not know, but the annual "Maisemore Event" is taking place on Sunday 22nd October in the Village Hall at Maisemore, Gloucestershire, GL2 8JE. The programme will include several talks, along with a number of mineral and fossil displays and the usual mixture of "swaps and freebies", as well as the opportunity to talk minerals and fossils for hours on end with like-minded people. The catering at this event is also quite outstanding!

For further information on the programme, please contact either Tom Cotterell or Marashean Parker.

Anyone who intends to attend this unfailingly pleasant and interesting event should let Marashean know in advance, so that appropriate levels of catering can be provided.

Editor.

Russell Society Council Meetings: Attendance of Branch Representatives.

Do you ever wonder how the Russell Society's Council works - and what it actually does? It might be worth reminding people that Society Branches are free to send a representative to the Society's Council meetings. The Council meets twice a year in the Church Hall in Stoke Prior, near Bromsgrove, B60 4DN, and meetings last from 10:00 to 13:00 or 14:00 depending on the amount of business. In recent times rather few Branches have availed themselves of this option.

Attendance provides an opportunity to hear (and perhaps join in) the discussions on a wide range of issues relevant to the Society or to bring up issues you feel to be particularly important to your Branch. Perhaps you might like to consider paying a visit. The next Council meeting is scheduled for Sunday 29th of October. If you do plan to attend, please let the Society's Secretary, Steve Warren, know in advance.

Editor.

Russell Society Promotional Table and Mineral Display at the Yorkshire Mineral and Fossil Fair, Leyburn, North Yorkshire.

The weekend of the 27th and 28th of May saw the second year for this specialist collector's fair, held in the splendid setting of Tennants Auction rooms in Wensleydale, and it offered many attractions. Entry was free from 10:00 each day and there was ample free parking and an excellent café and restaurant on site. Early entry was available on Saturday, at 09:00, for a fee of £5. At least a few people took advantage of this and were greeted by a selection of dealers – a few of the "usual suspects" but also a sprinkling of people not so often seen at shows – offering a wide range of minerals from the UK and abroad at a wide range of prices. There were also a sprinkling of fossil and gem and jewellery dealers.

The RS table, with promotional material, mineral display and lucky dip. Photo: Steve Warren.

Steve Warren organised the Russell Table this year putting on a striking display of Leadhills and Wanlockhead minerals from his own collection. This created a good talking point and visitors were keen to see the minerals from these areas and to hear about the Russell Society. The Lucky Dip for children, a box with specimens hidden in aggregate so that the youngsters had to dig for them, was very popular. They loved rooting around and seemed really pleased with what they found. Many thanks to those who donated the prizes.

Michael Doel, who also manned the table, reported that quite a number of people showed interest in the Society and took away Russell leaflets and cards. It would be good if we were able to have a similar presence regularly at other mineral shows and similar events. Perhaps other members would like to put on a display of British Isles specimens – and promote the Society - at a forthcoming show? Anyone interested in doing this should contact any member of the RS Council. Also, please remember that any (reasonable quality) spare specimens you may have, which would be suitable for the children's lucky dip, are always welcome. Please remember to include a label with any specimens, mentioning the Russell Society, the mineral species and the locality it came from.

For your diary, next year's fair will be on 19th and 20th May.

Christine Critchley.

NEWS ITEMS:

The 2017 Annual Society Meeting Weekend – Llandudno, North Wales.

This year's Annual Society Meeting had more than its fair share of complications, but was a great success, as usual. The original venue at Tal-y-bont, near Llanrwst was unfortunately unable to honour the booking made many months in advance, and so arrangements were put swiftly in place to move the event to alternative accommodation in the splendid seaside resort of Llandudno.

Llandudno Bay and the Great Orme.

Due to the short notice, the organisers had to settle for a split-venue, with meals and sleeping accommodation being at The County Hotel, and the Friday evening talks and Saturday conference, being a short distance along the promenade at St. George's Hotel. The management teams at both hotels looked after us well, and many delegates quite enjoyed the chance for a gentle stroll along the promenade for dinner.

As is the usual arrangement, a selection of field trips took place on Friday afternoon (reported separately in this Newsletter), with quite a few people opting to go and explore the beautiful gardens at Bodnant, just up the Conway Valley. The azaleas were truly spectacular (but no minerals!).

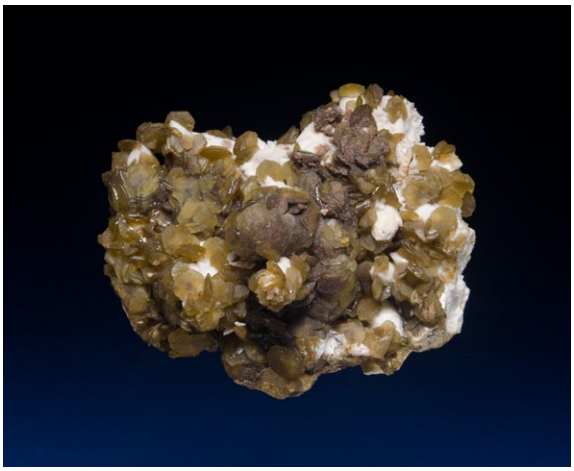
It's a 3D World (If you've got the glasses for it)!

Our guest speaker for Friday evening was John Chapman, who treated us to an excellent talk and demonstration of 3D Macro Photography – you really had to see it to appreciate the potential of this technique. Due to a diary clash, John had to drive straight back to Leeds to attend another meeting, so was unable to join us for dinner.

The second scheduled talk (by Tom Cotterell) was moved to Saturday due to a programme change caused by Phil Taylor's house move to Somerset which had caused him to cancel his attendance. Back at The County Hotel, we were served dinner by a highly efficient and professional team, followed by a pleasant social evening chatting in the bar.

Saturday morning saw a few more delegates arriving, and those already in town made their way back to St. George's Hotel, where piles of books, magazines, and mineral swaps were building up in the conference room.

Christine and Harry Critchley welcomed delegates to the ASM weekend, and introduced our first speaker of the day - Charles Lamb, with a sequel to his highly popular talk given last year 'Durham ASM to Wales ASM' looking at pyromorphite. Next up was Steve Plant who gave us a fascinating look at 'Synthetic and natural occurrences of linarite and pyromorphite in Wales', followed by Tim Colman speaking on 'Britannia Mine' on Snowdon. A slight delay in the arrival of lunch meant that Tom Cotterell stepped forward to give his talk 'Solving a mystery regarding the early history of witherite', before, rather than after lunch.



Siderite on quartz, Virtuous Lady Mine, Devon. Frank Bouweraerts specimen, photographed during the mineral photography workshop.

We all enjoyed an excellent buffet lunch and opportunity to chat, look at swaps, giveaways etc., before the afternoon's activities got under way. At the 2016 AGM, Steve Warren had suggested that the Society should run a workshop on mineral photography, to encourage members to develop their skills, in the hope that this might result in more contributions for the Journal. Frank Ince and myself agreed to put something together, and the afternoon session consisted of a presentation by each of us, looking firstly at photographing hand specimens, and secondly, photomicrography using combination (stacking) software. After the presentations, delegates split into groups to participate in practical workshop sessions, which proved very popular and highly successful. We were able to look at some of the resulting images, projected onto the screen after the AGM.

Retiring President Tom Cotterell presents The Russell Medal to Dr Margaret Ince.

The auction! Fierce interest as always.

The Annual General Meeting followed its usual format, and delegates were clearly delighted to see Dr. Margaret Ince presented with the Russell Medal, by Hon. President, Tom Cotterell, for her services to the Society over many, many, years – well done Margaret! Minutes of the AGM are included in the Meeting Reports section of this Newsletter. After the AGM, delegates gathered up all their belongings and made their way back to The County Hotel in time to get changed for the Annual Dinner.

Donations for the Society Auction were laid out in the dining room, and delegates were able to peruse these over coffee, and for a short while after the meal. Auctioneer Roy Starkey dealt swiftly with the fifty or so lots, and some £830 was raised for Society funds – many thanks indeed to all the generous donors (and bidders).

Chris Finch's winning calcite from Whatley Quarry.

Retiring President Tom Cotterell presented the Trevor Bridges Award to Chris Finch for his splendid calcite crystal group collected at Whatley Quarry in the Mendips (see photo). A small "hard-core" of delegates stayed on to chat until the bar closed, and then gradually dispersed to bed.

Breakfast on Sunday morning saw delegates heading off in many different directions – some to field trips, some to Bangor University and others, starting long journeys home. Many thanks to all the organisers – Christine and Harry Critchley, John Davidson, Ian Dossett and the field leaders too. We all had a great time and look forward to seeing everyone for the 2018 ASM weekend, which will be hosted in Leicester, by Central Branch.

Roy Starkey.

A Brief Jaunt Around Spain. May 2017.

My interest in Spanish mineralogy was sparked upon reading an article in the *UK Journal of Mines & Minerals* back in 1991 when Messrs. Green, Freier and Briscoe reported on "A Journey through Northern Spain". As well as being somewhat urged on by my increasing collection of the excellent Spanish Mineral publication *Bocamina*. During the intervening years there has been more than the odd trip to the Iberian Peninsula in search of Minerals.

Part 1 – Week 1

So, this year's holiday for myself and my partner Natalie was to be to that wonderful, and sometimes overlooked, country of Spain. After many months of planning, on the 30th April we headed south to Plymouth in our trusty steed (Betsy No. 4, my Land Rover Defender). Loaded with camping gear we boarded the Pont Aven ferry destined for Santander, a crossing of some 20 hours. Arriving in Spain we headed south for a brief 1 night stopover at Castrojeriz just west of Burgos before heading further south to our first proper destination of Valle de Iruelas in the Sierra de Gredos mountain range some 60 miles west of Madrid. As we pitched our tent we were greeted by several Azure Winged Magpies, I should point out that Natalie is a Biodiversity Officer, so she now has a very packed memory card in her camera of anything that flew, grew and crawled! So here begins our 3 weeks of mineral collecting, geology, flora & fauna excursions - and maybe the collecting of Vino Tinto and olives, etc. along the way!

Day 1 – Cadalso de los Vidrios (Madrid Province).

Cadalsa de los Vidrios Quarry. Granite blocks awaiting preparation.

A selection of smoky quartz crystals from cavities in the granite. The centre back crystal is 5.5 cm x 4.2 cm.

For our first full day we headed to the granite quarries around the small town of Cadalso de los Vidrios. This area has many quarries working granite for ornamental uses, some highly polished destined for the international market and others more rustic for the local construction market. We stopped at a yard adjacent to cantera (quarry) "Venero 1" where a group of workers were breaking down large granite blocks with pneumatic drills. It's in these blocks that cavities of up to 60 cm, containing a wide suite of minerals occur. We were able to look over the waste dump for specimens and, after about an hour of searching, we had a fairly decent collection of single specimens of smoky quartz up to 5.5 cm., and good assemblages of muscovite mica, microcline, albite, prehnite, chabazite, chlorite, garnet and bavenite. So, a good few productive hours spent at this interesting locality and, as the working lifetime of these quarries is good, well worth a return visit in the future.

Day 2 – Pantoja (Toledo Province).

This was to be a very long day! It was our moving day and also I had, in my wisdom, arranged with a member of the

Pantoja Quarry: Levering out the clay blocks containing aragonite rosettes.

Aragonite rosettes extracted from the clay in the Pantoja Quarry.

Grupo Mineralogista de Madrid (GMM), Lino Antonio, to meet him at the next locality at 10 am. This was a 1.5-hour drive from our campsite, so an early start and breaking of camp was necessary. We arrived in good time and found the Clay Quarry at Pantoja, which is 22 miles north east of Toledo. These quarries have been working the Triassic facies “Arcillas Rojos de La Sagra” (red clays of La Sagra) for the past 90 years for use in ceramic tiles for roofing etc.

Lino and his family arrived and we got kitted up. As Lino had been here twice before he was more than happy to show us where we could find the beautiful but very fragile aragonite rosettes for which this locality has long been known. They form in nodules no larger than 2 -3 cm within the clays, some being encased in thin crusts of the clay which resemble the make-up of a wasp nest. In the first hour or so we found only empty nodules but, with persistence and the levering of many a clay block, we did find a very nice selection of these beautiful aragonites, both as loose nodule rosettes to 2.5 cm and 1.5 cm rosettes in the clay matrix. Four hours later, after much delicate wrapping, we said “Hasta Luego!” to Lino and his family; a true joy to meet a family so keen on mineral collecting. We then headed off on the 3 hour journey to our next campsite at Albarracin (well worth a visit for its architecture alone!) some 24 miles west of Teruel, stopping on many occasions to gasp in awe at the fabulous limestone scenery of the Serrania de Cuenca.

Day 3 – Mina Barranco ,Ojos Negros (Teruel Province).
The very next day we headed to Ojos Negros (which translated means Dark Eyes) a very well-known little mining town in the Sierra Menera range within the province Teruel. The mining of iron has taken place here from 1900 – 1987 and the Barrio Minero (mining district) once housed 3000 residents but, since the closure of the mines, only 40 people now live there. Also of note was the building of a 204 km mineral railway to take the ore to the port of Sagunto on the Valencian coastline of the Mediterranean Sea. Here there were blast furnaces until 1985 and steel and some ore from here was exported to much of Europe.

Specimen of dolomite from Ojos Negros. Width: 9 cm.

Specimen of “manganomelane” from Ojos Negros.

We headed up into the vast open cast workings which now have a good track through them thanks to the wind turbine installations, we were in search of dolomite specimens which are well known from here, however it was not long before we found nice goethite, siderite, quartz, calcite and manganomelane (Editor’s Note: “manganomelane” is an obsolete name for poorly characterised manganese oxides including psilomelane, pyrolusite and wad.) on the tips in the upper workings. We then headed down to the lower tips where we found some dolomite specimens though on the outsides of very large boulders. With a little chisel persuasion, we managed to free some fairly nice specimens with good rhombohedral crystals. All in all, this was a very nice 4 hours or so of collecting and very much helped by the semi-arid climate of middle Spain as the dumps never seem to disappear under a mountain of vegetation, having previously visited this location in 2001.

Day 3 – Mina Arancha, Noguera de Albarracin (Teruel Province).
Whilst driving back to our campsite from Ojos Negros we came across a few iron stained tips and what looked to be a possible remnant of a mine building at the side of the road on the edge of the village of Noguera de Albarracin. We pulled over and investigated further and, after a little scouring the 3 small tips, we soon found some small but brightly iridescent specimens of goethite. This had obviously been an iron mine and the building was the smelter, the mine only operated from 1960 -1964.

Part 2 - Week 2 to follow……

Kevin Garrod, RS Wales & West Branch.

A Visit to the Royal Ontario Museum.

I recently visited the Royal Ontario Museum (ROM) in Toronto. It is located in the university district just North of the downtown area but the walk proved worth it. What an amazing mineral collection! But I get ahead of myself.

The ROM covers art, world culture and natural history and is based in Toronto, Canada. It is one of the largest museums in the world attracting more than one million visitors every year, according to the brochure. The museum was established in 1912 and is an off-shoot of the University of Toronto, from which it became independent in 1968. According to the website it contains more than six million items and forty galleries. It houses the world's largest collection of fossils from the Burgess Shale, apparently more than 150,000 specimens. The $20 admission price was definitely worth it for this engaging place.

But I came to see the mineral gallery that was boosted several years ago by the purchase of a collection from American collector Bill Pinch. The collection contains minerals housed in well-lit, eye level cabinets that are suitably shallow to allow a good view of the minerals. The museum and earth sciences collections are well-financed by major Canadian mining companies; Teck, Vale-Inco and Barrick. In the Teck Suite of Galleries minerals are located on level 2 in the Earth's Treasures galleries.

Part of the Tsumeb section of the ROM display.

An expanded view of part of the Tsumeb display.

Specimens of rocks, precious minerals and gems along with moon rocks and meteorites fill the galleries with approximately 3000 specimens on display (I believed the sign and did not bother to count). Displays on the formation of the earth, world of modern mining and the geology of space contain the now obligatory digitally enhanced games and other interactive exercises aimed to keep the modern generations engaged. There is a touchable wall of gold ore and large quartz and amethyst pieces but the centre piece for me was the cases of some of the best mineral specimens I have seen on public display for a long time. Cases explaining what minerals and rocks are, Canadian minerals, gems and, my personal favourite, minerals of the oxidation zone are well positioned in the gallery. I spent an enjoyable 4 hours wondering around this gallery and it was definitely worthwhile as the photographs show. Fortunately, I am back in Toronto in a few months and will undoubtedly try to find good reason to come here again.

A really nice touch is that, 5-6 times a year, the ROM host a mineral and rock identification clinic where you can get identifications undertaken by the mineralogy department staff and members of a local club. A friend with whom I visited told me they often get new members through this open day. Not a bad idea……..

Pictures by Rob Bowell. For more information on the ROM go to http://www.rom.on.ca/en#

Rob Bowell, RS Hon. Treasurer.

The Creation of a Giant Watercolour 'Petrifaction by Numbers' from Rock Pigments.

My main medium is watercolour, and giant 8 x 5 ft experimental watercolours are my speciality, so I set myself the challenge of remaking the geological map of the British Isles using purely rock pigments. Kneeling before the beauty of a geological map I've always thought that it was a thing of beauty in itself, an epic achievement and half-accidental aesthetic artwork, showing the volcanic and sedimentary rocks of Britain through the last 2,700 million years.

Having a passion for all things geological since brat-hood, I decided that I could make the map from real mineral

pigments, tapping into the archaic belief that a votive object (i.e. the map) has more power if made from the substance it symbolizes. The geological map is partially a Victorian sermon to itself, the worship of diligence and industry, part incantation, part medicine to lovers of human time.

The finished picture. Adam White photo.

I was aware of the ever-ongoing urge for some people (so-called 'fabricators') simply to make the artists' actual artwork, helpfully bypassing the tedium that accounts for so much time in creating artwork. Not being keen on this financially exclusive brand of minting artworks like those executed by former art students to the Hirstian slaughter, I decided to reinstate the joyful tedium of grinding rock pigments into paint *via* the artist's hand. Furthermore, part of that endeavour would involve collecting pigments *in situ* direct from mineral veins in quarries and coastlines. Had I made a rod for my own slightly twisted vertebrae?

Living in Gloucestershire, I knew the Forest of Dean secreted away many iron-based pigments. I was fortunate to collect a good range of pigments from yellow ochres to burnt sienna from vugs and bedding planes. These came in the form of dense clays which, through a simple process of sieving and crude centrifugal sloshing, could be rendered into a rich brown myriad of earth colours. I further supplemented these pigments with malachite-greens from Llynclys, Dolyhir, Devon and Cornwall. Concentrated blacks were readily crushed from tourmaline hewn from Grylls Bunny Mine at Botallack, and blacks with slight purple sheens from pyrolusite from Merehead Quarry. I had also collected an alarmingly saturated orange-red from the bottom of a volcanic hole at Moons Hill Quarry.

Blue pigments proved more elusive. Whilst Cornish turquoise and chrysocolla hinted in that direction, in the same way as the mythic blue rose, it seemed only azurite could deliver the glowing punch I required. The paltry amounts collected at Dolyhir Quarry would not suffice, and Cornish classic specimens I deemed too historic to be shamefully destroyed for mere artwork. So I decided to 'cheat', or become a self-deluded prisoner to my own puritanical endeavours. I had to expand my quest to encompass the use of Australian azurite - or accept ignominious defeat.

To grind the pigments, I'd improvised a paint 'muller' from a beached bottle-end glued to a wooden door-knob. Processing proceeded rapidly except for the azurite, which only yielded results when it was ground for 2 or 3 days. "Come hither lackey or willing apprentice" I lamented to my arthritic bones. I couldn't help but think I was grinding my weak-willed joints more successfully than the azurite!

Other pigments went horrifically wrong: Jurassic wood collected from Hock Cliff kindly spat forth a non-committal brown with an oily residue – sometimes age does not confer inner beauty, only sludge! The side effect of all this pigment collecting was that I never had to trouble the paint companies and their ill-labelled fugitive concoctions ever again. If my colours disappeared over time, it was completely my own fault.

Excluding mineral collection time and processing, I was able to complete the artwork within 3 months. 'Petrifaction by Numbers' seemed an appropriate title. The map has a colourful information key, in which I've willfully blended science and my own mischievous labelling in an attempt to claim back this beautiful object from any fact-bound interpretation by any authority other than your own. Geologists will hate me for this.

The colour key to the map. Adam White photo.

I was completely unaware of the date of William Smith's original map, 1815 – I had coincidentally made this painting on the 200th anniversary of its creation. The painting was subsequently selected for the Centre for Contemporary Art in the Natural Worlds' touring show at 'Create' Bristol, Falmouth Museum and Plymouth University. It was also shown, along with other geologically-inspired artworks at my solo show at Stroud Museum in the Park from 27th May – 25th June.

The Exhibition was titled: 'Palaeontology is a Dangerous Beast: All Things Geological Through an Artist's Fossil Myopia' and included a live performance on 9th June by artist Dr. Richard Dean, involving radioactive nodules from Sidmouth, a full body radiation suit, bomb rubble and the pleasing whine of a Geiger counter! Also included were two talks on Saturday 17th June at Stroud Museum in the Park featuring Tom Cotterell on 'The Iron Mines of the Forest of Dean' and Cindy Howells on 'The recent discovery of a new Welsh dinosaur'. Between talks there was live rock splitting of the fossiliferous Aust Bone-bed for all. (Free fossils!)

Adam White, Wales & West Branch.

N.B. You can see Adam's artwork website at: www.adamwhiteartist.co.uk.

Editor.

History of Geology Group Conference.

Members may be interested in a conference organised by the History of Geology Group for later this year. The History of Geology Group (HOGG) exists to encourage interest in the lives and work of those scientists and philosophers who influenced both the study and the practice of geology. It is open to anyone with an interest in the subject and is affiliated to the Geological Society of London.

Entitled "The Society of Arts and the Encouragement of Mineralogy and Geology, 1754-1900" the all-day meeting will be held at the Geological Society in Burlington House, Piccadilly, London on the 9th of November. Registration is now open and attendance costs £35 for members and £45 for non-members of HOGG – this includes lunch and refreshments and abstracts of all the presentations. The meeting conveners note that "The Society of Arts' role in the history of geology and mineralogy is a generally overlooked aspect of development of our disciplines, which this conference will begin to rectify and, hopefully, to stimulate further research".

For further information and to register go to: http://historyofgeologygroup.co.uk/the-society-of-arts-and-the-encouragement-of-mineralogy-and-geology-1754-1900/. Thanks to Roy Starkey for drawing this event to my attention.

Editor.

UK Mining News Snippets.

a) Ups and Downs of Gold Mining in Northern Ireland.

The Canadian company Galantas Gold, which is trying to develop a gold prospect near Omagh in Northern Ireland, has certainly experienced the bumpy road which can confront would be mining operations in this country. Two reports this year on the mining website "mining.com" made an interesting contrast. The first on March 17th – under the headline "Galantas Gold soars on news of Irish mine expansion" – described the enthusiastic response of stock markets in the UK and Canada to the news that the company had begun underground development and had boosted its local workforce to 17. It intends eventually to create some 130 jobs in Northern Ireland.

However, the second report, on 24th April – under the headline "Galantas Gold plummets as it halts Irish mine expansion on terrorism fears" – recounted how the company had been forced to put its plans on hold after the Police Service of Northern Ireland (PSNI) had said that resource constraints would prevent it from providing sufficient "anti-terrorism cover" for the company's blasting operations. This cover is considered necessary for mines and quarries in Northern Ireland to prevent the possibility of blasting materials ending up in terrorist hands. There was talk of long delays and of redundancies among mine workers on account of this problem.

The latest news suggests that Galantas may now be attempting to sue the PSNI, claiming "substantial compensation for the costs of delays". How this eventually works out is anyone's guess, but it demonstrates that, even when you think you have sorted out all the economic, mineralogical and ecological problems, there are still things that can turn round and bite you.

b) Progress - Physical and Financial - for the North York Moors Polyhalite Mine.

An article in "*Mining News"* in May this year reported the commencement of work on the somewhat controversial new polyhalite mine in the North York Moors National Park. It is predicted that, when in full production, this mine will be the largest "potash" mine in the world. Development work at the site is reported to be well advanced and shaft sinking is expected to begin in the third quarter of 2017. The company developing the mine, Sirius Minerals, has named the new development the "Woodsmith Mine" after two of its geologists, Peter Woods and Frederick Smith.

Polyhalite is a polymetallic mineral ($K_2Ca_2Mg(SO_4)_4.2H_2O$) which, when used as a fertiliser, offers potassium, calcium and magnesium as well as sulphur in the form of sulphate. All of these are essential nutrients for plant growth. The product is being promoted as offering, among other thing, both yield improvements and a lower global warming potential than other potassium source fertilisers.

A spokesman for the North York Moors National Park Authority said: "Sirius Minerals has confirmed that the construction of its polyhalite project at the Woodsmith Mine site near Whitby formally commenced on 4 May 2017. The North York Moors National Park Authority continues to work with Sirius Minerals to ensure that the amenities of local residents and the surrounding sensitive environment are adequately safeguarded from the impacts of the construction".

On the financial front, Sirius Minerals, which now has a market capitalisation of around £700 million, has decided to relinquish its listing on "AIM", which is the London Stock Exchange's international market for smaller growing companies. The company is now listed on the LSE's Main Market where it has obtained a Premium Listing and was recently added to the FTSE 250 index.

c) A New Opportunity for Mining in Cornwall?

It will not have escaped anyone's notice that the lithium ion battery has become ubiquitous in modern life. From mobile phones to Tesla cars they seem to be everywhere. An unfortunate fact, at present, is that only some 5% of lithium batteries are recycled and so a constant supply of fresh metal is essential to maintain production. This has elevated lithium to the status of a highly desirable strategic metal and demand for it has caused prices to double in roughly 18 months.

Great interest is being generated in countries that have significant reserves of this light and extremely reactive metal. Notable among these are Argentina, Chile and Bolivia which all have large "salars" or areas of salt crust desert containing large quantities of alkali metal salts – including those of lithium.

However, many other countries, including Australia, also have potentially valuable deposits. China, as always, has major players in this field. One Chinese lithium mining company has seen a nearly 75% rise in its value in this year alone and the country apparently has plans to establish manufacturing capacity able to produce more than 120 gigawatt-hours of battery storage per year by 2021.

A "Salar" in the Chilean Andes. Source of large amounts of lithium. Photo: Wikimedia.

What about lithium closer to home? A report in the *Guardian* newspaper earlier this year noted that a company called Cornish Lithium was planning to explore an area of about 300 km^2 around the traditional mining centres of Camborne, Redruth and St. Day. They propose to drill boreholes some 400 metres deep to reach hot brines which hopefully carry useful quantities of lithium. If sufficient lithium is found processing capability will be installed to isolate the metal. The hot water "by product" might be used to generate power to reduce processing costs. It should be noted that the isolation of lithium from brines to a purity suitable for battery manufacture is neither easy nor cheap – although new solvent extraction processes could change that picture.

The presence of lithium underground in the hot salty springs in Cornwall has long been known but until now the water was regarded as a nuisance, because it flooded tin mines, rather than as a business opportunity. It is thought the presence of high levels of lithium in the Cornish springs is a result of the interaction between highly saline water from a nearby sedimentary basin and the hot granite under Cornwall. Some of the granite rocks in Cornwall are enriched in

lithium and, over millions of years, it appears to have become dissolved in the waters that have interacted with the rock. Cornish Lithium has secured rights to explore for lithium and to exploit lithium bearing brines in the target areas. It also has rights to the associated geothermal energy. It is now seeking £5 million of investment to enable it to carry out its exploratory activities. This is clearly a project in its early stages, with many questions to answer and a long way from commercial fruition, but it possibly represents another interesting string to the bow of Cornwall's mineral extraction community.

Editor.

Memories of Cornish Mining – An On-line Exhibition.

In March of 2018 it will be 30 years since the closure of the last tin mines in Cornwall. To commemorate this, an on-line exhibition called "Mining Memories" was launched earlier this year by the Royal Cornwall Museum in Truro. After a 2-year project aimed at capturing the memories of miners from the South Crofty and Wheal Jane Mines the results can now be seen on the RCM website. (See: http://www.royalcornwallmuseum.org.uk/exhibition/mining-memories)

The exhibition covers the period from 1970 up to the date of closure and includes material obtained from interviews with ten miners and other mine employees. It covers topics such as memories of working underground, the community atmosphere and peoples' personal stories of the closure of the mines. Central to the exhibition is the photo-archive of John Peck who was a freelance photographer employed by the mining companies to record the operation of the mines and the work of their employees. These pictures, which were used when interviewing the miners, are now held by the RCM.

The memories recorded are said to be "humorous and emotional" and to give "a real insight into the last days of a long tradition of mining in Cornwall". RCM Curator Sarah Lloyd-Durrant remarked that "This project is really important for the museum, as it captures the memories and stories of a way of life that has now disappeared from Cornwall." The exhibition will run until April 2018.

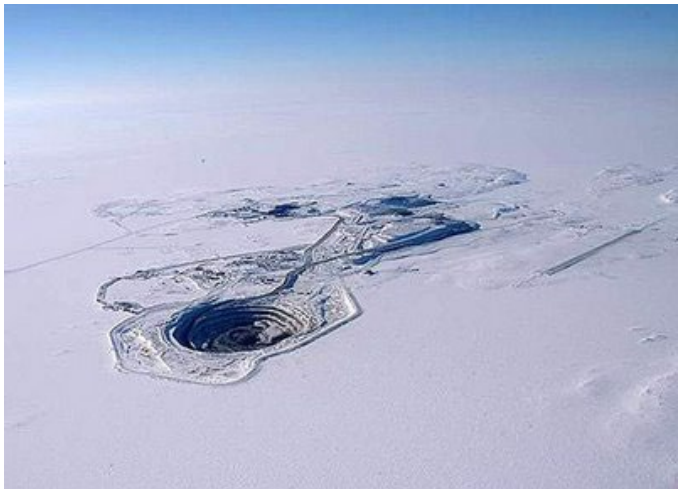
Editor.

Tales of Expensive Carbon: More Large Gem Diamonds.

a) Lucky to Survive: The Largest Gem-Quality Rough Diamond Ever Found in North America.

We have rather got used to the idea that large, gem-quality diamonds come from southern Africa, many of them from a very small number of mines, such as the Lucara company's mines in Botswana, which produce an unusually high number of large stones. However, from time to time large stones turn up elsewhere and one such is the 187.6 carat stone known as the "Foxfire Diamond". This exceptional gem, which was discovered at the Diavik Diamond Mine in the Canadian arctic, has the distinction of being the largest gem quality rough diamond ever produced in North America.

The Diavik Mine, which is operated by Rio Tinto, works several Kimberlite "pipes" in an area of tundra about 300 kilometres northeast of the town of Yellowknife in the Northwest Territories. Since it began production in 2003 it has produced in excess of a hundred million carats of diamond. However, it is not normally noted for producing large stones and its processing plant is optimised for production of much smaller material. For this reason, the Kimberlite ore is crushed to less than 30 mm. before processing and this would normally have destroyed so large a stone. Critically, however, the Foxfire Diamond has an unusually flat shape and this enabled it to pass unscathed through a series of screens.



The Diavik Diamond Mine: The Arctic tundra is an un-friendly place in Winter. Picture: Wikimedia.

After its initial discovery in 2015 the stone was purchased, for an undisclosed sum, by Amadena Investments who, unusually, decided to keep it in its natural state, at least for a while. It has since been on a world tour and also put on show at the Smithsonian Institution in Washington for several months.

One of its more interesting attributes (at least to me) is that it fluoresces a bright blue under long wave UV light, due to the inclusion of nitrogen atoms within its crystal structure. It is also notably phosphorescent (i.e. it continues to emit light after the UV is switched off) displaying a deep orange colour initially that slowly fades to a creamy white. Smithsonian scientists have been studying the stone's luminescent behaviour in an attempt to understand this phenomenon.

The Foxfire Diamond. 187 carats of very expensive gem-quality carbon. Photo: Amadena Investments..

The name "Foxfire" is an allusion to a term used in Canadian folklore, which describes the luminescent Northern Lights as the swirling of fox tails in the sky. It is an interesting fact that gem diamonds from North America are seen as particularly desirable on the basis both of their high clarity and also that they can be sold as 'conflict free'. Canadian provenance can be proved by microscopic maple leaves and polar bears etched into their surface after cutting.

Editor.

b) Africa Strikes Back: Yet More Large Gem-Quality Diamonds.

More recently however, a report on the mining.com website shows that the overall dominance of Southern Africa in the large gem diamond business has been reinforced by the finding of multiple large stones at the Letšeng mine in Lesotho. This continues a string of major discoveries at that location in 2017. The finding of the 126 carat high quality D colour Type IIa diamond followed closely on the discovery of two other massive diamonds at the same mine; a 151 carat Type I yellow specimen and another high quality 104 carat, D-colour Type IIa stone. Type IIa diamonds contain very little or no nitrogen atoms (in contrast to the Foxfire Diamond described above), which places them among the most desirable, and therefore expensive, stones.

An exceptionally clear 198 Carat diamond from the Letseng Mine. Photo: Gem Diamonds Ltd.

The kimberlite rock being worked at the site has a low grade (less than 2 carats per 100 tonnes). However, the company Gem Diamonds, which has owned the Letšeng operation together with the Government of Lesotho since 2006, has recovered four of the 20 largest white gem-quality diamonds ever found - including one of 493 carats. This gives the mine the distinction of being the world's highest "dollar per carat" diamond operation.

The Kingdom of Lesotho is a small land-locked country completely surrounded by South Africa. At an elevation of 3,100 metres (10,000 feet) above sea level, Letšeng is also one of the world's highest diamond mines.

Editor.

Branch Meeting and Field Trip Reports

Friday 10th February 2017. North-West Branch Annual General Meeting. Reporter: Christine Critchley.

This meeting included the Branch AGM, where the main topics of conversation were the Society ASM which the Branch is organising this year; the possible merger of the Northern and the North West Branches; and the changes to the Branch Committee. Following on from this we had a show and tell session from Ian Dossett, who had brought "Minerals from a trip to Tearsall Quarry, Derbyshire" with an interesting story.

The quarry is run by British Fluorspar and the material extracted is sent to Cavendish Mill at Stoney Middleton for processing. The trip had started high up in the quarry, but not much of great interest was found there in the way of minerals. Later in the day the group descended to the bottom of the quarry, where a grey vein yielded samples containing galena and some cerussite. One person is believed to have found a crude cerussite crystal to 1 cm. which was a good find.

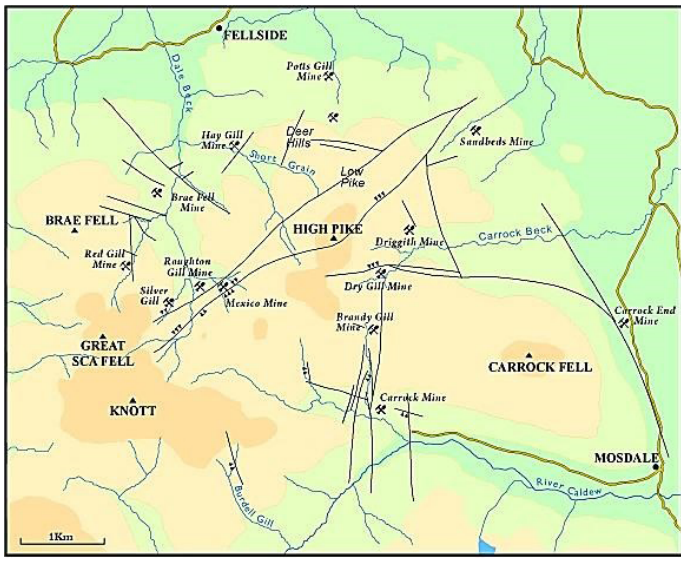
Ian Dossett displays his specimens from Tearsall Quarry.

Ian then noticed that people were collecting the galena etc. in a broad line heading down into the deeper part of the excavation towards an iron stained area of the face. Below this there was an outcrop of pale limestone in the form of a 'lump' of material obviously left by the quarry excavation. He investigated this further, clearing away loose material pushed up against it. Once removed, this revealed a vugh measuring about 1 metre by 1 metre by 20 cm deep. Inside, the vugh was largely infilled with a granular, fluorite rich, sand and twenty or so floater groups of calcite crystals. Some of these calcites groups were to 10 x 10 cm in size. Enough were found to share between all members on the visit. On cleaning, these pieces were translucent white to clear colourless calcites, some doubly terminated and one showing axe-head twinning.

John Davidson also had some material from last year's trips to show, which was very interesting. Then Ian filled the 'grab table' with a great selection of spares! Many thanks to him for sharing his 'story' and his spare material.

Friday 10th March 2017. North-West Branch Meeting. "The Micro-minerals of the Caldbeck Fells". Reporter: Christine Critchley.

The Caldbeck Fells, although part of the Lake District National Park, has never had the mass tourism appeal that other areas of the Lake District enjoy, but for the mineral collector, its rolling treeless hills have been a mineralogical mecca. In size it is a relatively small geographical area, but the complex geology, numerous episodes of mineralisation and subsequent oxidation processes has provided excellent specimens of copper, lead, zinc, iron and tungsten minerals with world class specimens of caledonite, campylite (variety of mimetite), hemimorphite, linarite, and plumbogummite. In total 160 or so different species have been identified from the Caldbeck Fells. An important attraction to collectors was that many of the species were rare oxidised ores only occurring in small crystals, potentially therefore good specimens could be found on the old mine dumps and outcrops. Carrock Mine's relatively recent re-working also contributed to drawing mineralogists to the area. Apart from the veins worked at Carrock, crystallised primary ores such as galena, sphalerite and chalcopyrite are rare. During the latter part of the 20th century the work of amateur mineralogists has resulted in a crop of new species discoveries for the area including bechererite;



Some of the localities within the Caldbeck Fells. (Map courtesy of Peter Briscoe)

chenite; claudetite; elyite; fülöppite; langite; mixite; mattheddleite; ramsbeckite; scotlandite and others. In the late 1990s conflicting pressures on the area has led to a licensing system for collecting, the mechanism for which effectively means that for most amateurs collecting is no longer possible. The latest arrangement for collecting is that the Caldbeck Fells are now 'Traffic light' zoned with areas classified for collecting as red, amber or green. The details of these can be found on the Lake District National Park Authority's website.

This information is taken, with permission of Peter Briscoe (many thanks), from http://www.steetleyminerals.com where there is more information about the Caldbeck Fells, its mines and the minerals from the mines. See also M. P. Cooper and C. J. Stanley's book '*Minerals of the English Lake District - Caldbeck Fells'*, and the *UK Journal of Mines & Minerals*, Issue Number 22 'Minerals of the North of England'.

The BMS had loaned the branch micros from their collection, this time minerals from the Caldbeck Fells. These came with comprehensive notes about each of the specimens and a DVD of images of most of the pieces. We would at this point like to acknowledge our thanks to the BMS, and to Trevor Devon who had "separated" these into a suite and had arranged for their collection. Our meeting started with a slide show of the images on the DVD. The notes for each specimen were read and people discussed each of the pieces shown. After a break for refreshments we then moved to the microscope and looked at groups of the minerals with the notes for each group available. The suite included minerals from 15 of the sites in the Caldbeck Fells (Balliway Rigg - Roughton Gill, Brandy Gill East, Brandy Gill Mine, Carrock Mine, Deer Hills, Iron Crag, Low Pike, Poddy Gill, Potts Gill, Red Gill, Roughton Gill, Sandbeds Mine, Short Grain, Silver Gill, and Wet Swine Gill). The minerals represented were adamite, agardite, aikinite (first UK locality), anglesite, apatite, aragonite, arsenopyrite, aurichalcite, beudantite, bismuth, brochantite, caledonite, claudetite (not gypsum as we had initially thought on seeing the image), corkite, cornwallite, cosalite (first UK locality), duftite (first UK locality), erythrite, hydrocerussite, joseite, langite, leadhillite, linarite, mattheddleite, mimetite, molybdenite, mottramite, parasymplesiste (first UK locality), phillipsburgite, plumbogummite, pyromorphite, pyrrhotite, queitite (first UK locality), rosasite (first UK occurrence), scheelite, schultenite (first UK occurrence), scorodite, scotlandite, senarmontite, stolzite (first substantiated locality for UK), susannite, tsumebite, wulfenite. Not quite all of the 160 or so minerals identified from the area but if any members have spares of any of the 'missing ones' I'm sure that the BMS would welcome additions to the suite! Using the images and specimens members were able to not only see the variety of minerals from the Caldbeck Fells but many took notes home to use when looking at their own pieces. A really enjoyable and educative evening.

Saturday 11th March 2017. Southern Branch Visit to Durnford Quarry, Long Ashton, Bristol. [ST 535 714]
Leader: Chris Finch. Reporter: Steve King.

A mild, overcast morning in Bristol isn't anything unusual but, in early March, it was welcomed. Especially as a full complement of twelve members had arrived for the first field trip of the season. After catching up with winter news and a safety briefing we were ferried into the quarry by minibus.

The quarry team had generously pulled and spread large boulders on to a bench allowing for safe examination, at first glance they appeared to contain many cavities filled with soft clay. However, these were only wash holes within the rock and proved of little interest. Some iron nodules were worth a whack and a few goethite samples were taken but nothing other than representative pieces. Good specimens were found, including an attractive quartz cluster of around 4 cm collected by Roger and a doubly terminated calcite on quartz by Chris.

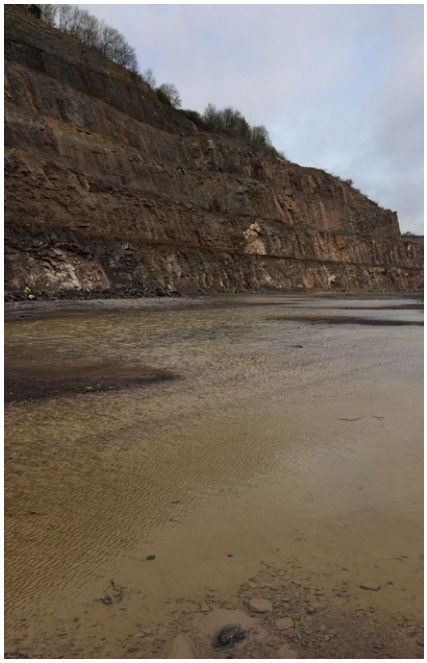
Quartz goup from Durnford Quarry. Width 4 cm.

After walking and looking along other accessible benches with no new material, the group examined the tip area. In previous visits this area has been largely ignored as more promising material has been in a fresh blast area but, as a lot of the iron material is tip bound, it was deemed worth a look. However, on this occasion it didn't produce anything either. At least it was dry and mild. Minerals noted on the day were, calcite, quartz, goethite, and small rosettes of baryte.

Many thanks to Nelson Scott, the quarry supervisor for allowing and supporting our visits and to the Lafarge Tarmac Group for their continuing permission for mineral collecting visits.

Saturday 18th March 2017. Southern Branch Visit to Hampstead Farm Quarry, Chipping Sodbury, Gloucs. [ST 724 840]
Leader and Reporter: Steve King.

A slightly depleted number of members arrived on time for our earlier than usual start, the sullen early morning skies made it feel rather chillier than it actually was. After signing in and a safety talk we made our way down into the quarry. It was suggested that the areas of interest safest for collecting were more likely to be at the very bottom of the working area where fresh material from a blast was being shifted.



No shortage of water in the Hampstead Farm Quarry.

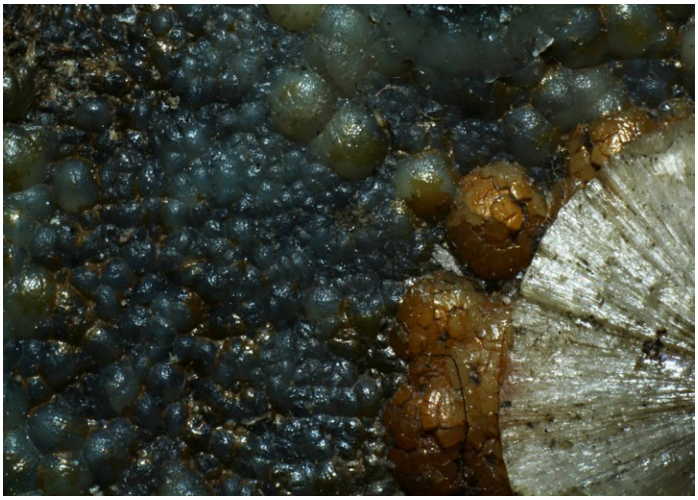
Lots of boulders were accessible for examination, however this was a challenge only met by people with boots in good condition as the majority of the area was under a shallow layer of water. Not deep at around 5 cm in areas but it made for careful route planning or wet feet. As usual the sulphide and baryte veins were clearly visible in the rock face. After what seemed like an exhaustive and tactical search it was fairly evident that the most interesting material was still within the face or inaccessible. Many pieces of pyrite were scattered throughout over the floor, on inspection they were reasonably attractive, but with the tell-tale smell of sulphur, they will probably be short lived and so were left behind.

Clive was encouraged by a find of quartz in one boulder and decided it was worth taking plenty home. The sphalerite and banded baryte of years past seemed elusive in any great quantity and certainly no yellow fluorite on this occasion. After circling the very bottom of the quarry several times, it was deemed that very little else was worth collecting and as access to other benches was unsafe due to drilling we made our way back to the car park.

Many thanks to Richard Blannin for allowing access on the day and the loan of the 4x4 pick up and to Quarry Manager James Veakins for continuing to allow us to collect specimens in this important and unusual mineralised area.

Saturday 25th March 2017. South-West Branch visit to High Down Quarry SSSI, Filleigh, Devon. [SS 653289].
Leader and Reporter: David Ifold.

This visit was arranged as a joint visit between the Russell Society and the BMS. There was a total of five attendees of which four were Russell Society members. Weather and light levels in the increasingly overgrown quarry were good. Three of us returned six weeks later to take photos and examine exposures and the tree canopy had closed over making it a very gloomy place.



Variscite Micro. A broken part hemisphere of wavellite sits in the bottom right corner with the rest of the field of view filled with variscite. From experience, I would suggest the larger hemispheres of variscite have a core of wavellite. Max. FOV about 5mm. Photo: David Ifold.

There are several very good reasons for doubting that this is the actual type locality for wavellite but these will be discussed in an article at a later date. Certainly this quarry has been the most productive source of wavellite and variscite in Great Britain and possibly the rest of Europe.

Our visit concentrated on the area where variscite can be found although some quite nice wavellite was found too. Everyone left having found both mineral species. The quarry is part of a shooting estate and is filled with vegetation as cover for the pheasants. Recent years have seen many small laurel plants appear each winter.

Our thanks go to Paul Smalley, the Estate Manager, who

gave us permission on behalf of the Castle Hill Estate. Special thanks go to Becky Aston, the recently appointed officer from Natural England for allowing us to remove samples from the SSSI.

Saturday 25th March 2017. Central Branch Mini-Symposium.
Organiser: Neil Hubbard. Reporter: Roy Starkey.

The daffodils were in full bloom, with the sun shining in a bright blue sky as members assembled for the first Mini-Symposium, organised by Central Branch. The venue was Woodhouse Community Hall, 201 Forest Road, Woodhouse, Leicestershire, and this proved to be an excellent choice, with nice modern facilities, a useful kitchen and ample car parking.

Members perusing displays at the Mini-Symposium.

A light lunch was provided on arrival, courtesy of Margaret Ince, and it was great to see a good turnout of both Central Branch regulars, and members and guests from farther afield. A total of 22 people, including the speakers enjoyed three excellent talks with a Cornish theme:-

Rob Bowell	"Wheal Gorland"
Steve Plant	"Nickel and Cobalt Minerals in Cornwall"
Frank Ince	"Minerals of the China Clay Pits"

Table displays of nickel and cobalt minerals, plenty of free "giveaway" specimens and journals, and a babble of mineralogical conversation all made for a very pleasant afternoon.

Everyone agreed that the event had been a considerable success, and there is certainly the prospect of another similar event in the future. The hall will easily accommodate more people, so watch out for details and come and join us.

Thanks to everyone for their various contributions.

Sunday 2nd April 2017. South West Branch Visit to Ting Tang Mine, Gwennap, Cornwall (surface remains only). [SW 7275 4090].
Leader: Ian Soper. Reporter: David Ifold.

This venue always attracts a good turn-out and with a good weather forecast this was no exception. At the same time as this branch was visiting the Sussex Mineral and Lapidary Society were also 'on tour' so the site was busy. From memory, I think that nine members from the South-West branch were present, but then the majority of us are also members of the Sussex group.

Hard at work on a beautiful day on the Ting Tang Mine site.

The usual mineral species were well represented including arsenopyrite, azurite, liroconite, olivenite, pharmacosiderite, scorodite and zeunerite (visual ID only for all). Tony Lee found the best specimen of the day – a lovely zeunerite. Clinoclase was again notable by its continued absence.

Collectors who take their own water supply for washing really do have the advantage at this site. The granite here is kaolinised resulting in lots of fines that obscure targets. Specimens are getting smaller so it may be the case of bringing in a digger to re-arrange the site.

Most collectors went away happy with their finds, so we hope to back again next year.

Saturday 8th April, 2017. North Branch Visit to Coldstones Quarry, Greenhow, North Yorkshire. [SE 125 641]
Leader and reporter: Steve Warren.

Eleven members turned up for what was expected to be an unproductive visit given that the quarry is not currently working in areas that intercept Sun Vein and Garnet Vein. We began by presenting Shirley Everett, the former quarry manager, with a retirement present on behalf of the Russell Society as a whole, as thanks for her many years of support and encouragement for the Society. A magnum of champagne and a signed copy of Roy Starkey's *"Crystal Mountains - Minerals of the Cairngorms"* were gratefully received and certainly well deserved. Shirley intends to do a lot of "camper-vanning" with her husband and they like Scotland, so Roy's book was just the job.

We then met Richard Green, who is the new quarry manager. Richard explained that he had to open the quarry to a classic car rally on the Sunday so would let Shirley run this last trip on his behalf. Moving into the quarry we walked down the ramp at the north-east edge of the workings and were about to continue into the main body of the quarry when we noticed a further ramp leading to a dead-end area that had been newly worked. Shirley said there was nothing down there but we thought we might as well have a look anyway.

A natural cavern had been partly opened up on the north quarry wall and some adjoining vertical discoloration indicated the presence of a vein structure. We followed this across a roadway and tracked it down to an accessible *in situ*, horizontal exposure along the vein at [SE 12499 64213], elevation 391 m AOD, where pieces of galena and fluorite were showing amongst surface debris. After a couple of trial sections were cut to confirm our suspicions the whole party launched at the vein. The normal range of Coldstones minerals then started appearing in profusion with 25 mm on edge clear and blue/ pink tinged fluorite, white cockscomb baryte, coatings of lustrous and transparent hemimorphite, etched cubic and cube-octahedral galena and cerussite groups to 10 mm across, being recovered. John Davidson noticed that clear fluorite from a cavity of he had just opened up turned a pinkish colour after exposure to half an hour of sunlight. A future research project for someone?

We spent the rest of the day working the vein and most people left with full bags. Shirley described the vein as being a minor north-south trending stringer east of Garnet Vein. So, from low expectations this turned out to be one of the better trips to the quarry in recent years, a fitting result for Shirley's retirement.

Our thanks go to Hanson Aggregates for allowing the visit and to Shirley and Richard for looking after us on the day. We also wish Shirley a long and happy retirement and note the outstanding contribution she has made, along with colleague Bob Orange, in enabling the important mineralogy of Coldstones Quarry to be recorded, understood and conserved in the thousands of specimens that are now in museums and private collections across the country. We look forward to working with Richard and wish him well in his new role as quarry manager.

Saturday 8th April 2017. South-West Branch Visit to Bampfylde Mine. North Molton, Devon. [SS 738 328]
Leader and Reporter: David Roe

The Russell Society SW Branch visit to Bampfylde was treated to the first touch of spring – blue skies, April sunshine and the stirring of green in the vegetation – which made a noteworthy change from the previous year's field trip which had included snow flurries.

Five members attended and divided into two groups who explored this large and historically fascinating site on both sides of the valley. A visit to the top of the escarpment on the western side returned to a small tip which had yielded a few brilliant emerald green malachite crystals in the previous year. Interestingly the colour of these specimens does not appear to have markedly changed over the last 12 months – so often the gemmy nature of malachite appears to be lost over time to become a duller grey tinted colour. This visit yielded little malachite but large boulders of siderite attracted some attention as did the presence of what appeared to be chlorite in the ocherous matrix found at this spot.

On the main tips on the eastern side of the valley the minerals listed were the usual Bampfylde assemblage as follows

Malachite (both sprays and botryoidal)
Pseudomalachite (botryoidal and encrusting; varying in colour from green to decidedly blue)
Libethenite (a fine crust of barely discernible crystals with malachite)
Chalcopyrite with bornite
Chalcocite (probably) with bornite. The bornite was the usual grey appearance when first viewed but tarnished to a

spectacular royal blue within hours.
Hematite, (grey-black massive; submetallic grey massive; micaceous; specular; sub-metallic red, ochreous & botryoidal)
Red hematite (ochreous, sub-metallic and botryoidal)
Goethite (some nice, little, black botryoidal crusts)
Quartz - a couple of vughs, one (cathedral quartz) with malachite, the other with red hematite.
Additionally, there was graphite-grey material with hints of a blue tarnish that was possibly digenite which has previously been reported from this location. As usual, the sulphides are all massive, intergrown and of site interest only.

This site is still capable of producing impressive mineral specimens – and usually they turn up on the surface as though they have just been placed in position by a mineral philanthropist. This year David Ifold found a one of the largest sprays of malachite in ochre that I have seen in the last decade – as so often "Just lying there".

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

Saturday 15th April 2017. Southern Branch Visit to Whatley Quarry, Wells, Somerset. [ST 720475] Leader and reporter: Chris Finch.

A number of late cancellers left five of us for the visit. Last year the poor weather had been the reason for cancellations and it was forecast for poor weather again. However, last year we found some amazing calcite. This allowed the reporter to use the best specimen to win the Trevor Bridges prize for the best specimen at the 2017 ASM, so who knows what this year may provide.

We were hosted by a new production manager – Oliver Ashton, who had a lot of contractors on site, which complicated our visit for him. However, after the safety briefing I was given a quick tour of the quarry to look at the areas that may prove most valuable and then went back to get everyone else.

We started our trip on Level 4 where there was a fair amount of loose rock about. At the northern end there was a sizeable cave infilled with clay but there was nothing of a mineralogical interest about. We they moved to Level 6 where there was a lot of recently blasted rock around. This contained some interesting iron coated calcites which unfortunately could not be extracted without shattering into small pieces – we were not after micros!

Our final collecting location in the quarry was the tips, normally the location of some interesting material. However, after much tramping around we could not find much of interest at all. At this stage Oliver came to see how we were getting on and located the most recently dumped material only to find much of it mud coated as the recent rain had made conditions in the quarry very muddy. Overall, not the best trip to Whatley, but if you don't go you don't get.

The mud-filled cave on Level 4. Photo: Chris Finch.

Thanks go to Andy Fussell for organising the visit, to Oliver Ashton for looking after us on the day and to Hanson Aggregates for supporting our visit at a very busy time for the quarry.

Friday 21st April 2017; ASM Visit to Braich-Yr-Oen mine SSSI, Cwm Llan, Snowdonia, Wales. [SH 6158 5168]. Leader: Ian Dossett. Reporter: Steve Plant.

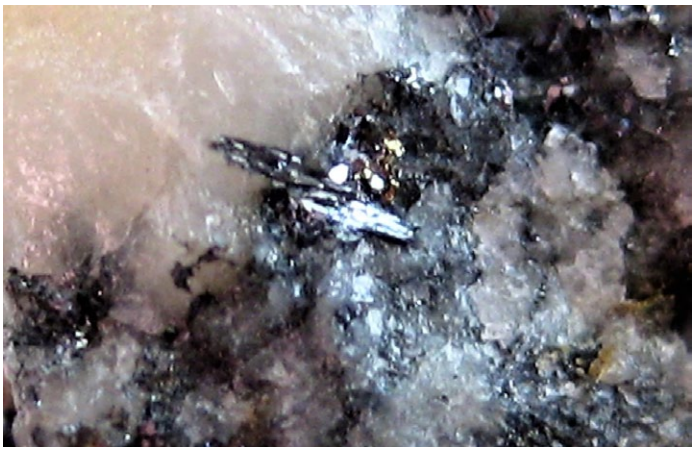
Seven members set off from the Nantgwynant public car park following the old miners track up the Cwm Llan hanging valley. The walk involved a steady ascent of 450 metres passing the dressing floors of Hafod-y-Llan copper mine on the way. After a steep final ascent the party reached the large quarry-like excavation of Braich-yr-oen.

The mine is an old one, records are sparse, but it was certainly at work in the eighteenth century. It was worked more extensively in the nineteenth century and ceased working by 1886. The main vein was extensively stoped-out and there must have been a large pocket of ore which required working the vein by opencast methods. Around the rim of the quarry could be found extensive spoil tips which yielded rich specimens of chalcopyrite, galena, pyrite and sphalerite. The

acidic nature of the decomposing ore resulted in an almost complete absence of secondary mineralisation. A cross-cut adit leading through to the bottom of the quarry was explored but did not reveal any mineralisation of interest.

Several specimens of the rare mineral cosalite were also discovered. cosalite is a lead-bismuth-sulphide, $Pb_2Bi_2S_5$. It occurs as elongated lamellar crystals up to 1 mm in length, usually protruding from galena. Associated minerals are chalcopyrite and sphalerite within quartz veinstone. Further quartz veinstone directly below the dressing floors did not yield any further specimens of cosalite.

The party then descended to the valley floor and across to where further workings were examined on the hillside above. Nothing of further interest was found.



Cosalite as elongated lamellar crystals to 1 mm protruding from galena (in the centre of the image). Photo: Ian Dossett.

Our thanks go to David Smith of the National Trust and Raymond Roberts of Natural Resources Wales for permission to visit the site and collect representative samples for study.

Friday 21st April 2017. ASM Weekend Visit to Cavendish Mill, Stoney Middleton, Derbyshire. [SK 205 753]. Leader & Reporter: John Davidson.

Panoramic view of the Cavendish Mill site. Photo: John Davidson.

Seven members of the Society gathered at Cavendish Mill at 10:00 am and were met by Chris Large the Manager who gave us a safety briefing. Chris said the bulldozer drivers would move any material that we requested to be turned over to get better access to any of the material we found.

We all made our way down to the stock pile after getting into our PPE to start our search of the large blocks of material that had been brought in from Milldam Mine and Tearsall Quarry. All through our visit fresh material was being brought in, so we all had to be aware of the traffic and not go too near the deliveries when dumping.

Several large boulders were located that contained fluorite and some was extracted, it ranged in colour from blue to colourless up to about 25 mm across the individual crystals. But was not as good as in previous years as the mine is going through a development stage. What was arriving was mainly mud and very fine fluorite and this the bulldozer drivers were picking up so that it could pass through the processing plant. Samples of baryte and galena were found but no wulfenite was located.

After several hours work the members present made their way to North Wales and the ASM.

We would like to thank Ian Dossett for organising the trip and to Chris Large of British Fluorspar for giving us permission for the visit.

Sunday 23rd April, 2017. ASM Weekend Visit to Mynydd Nodol Mine, Llanycil, Gwynedd, Wales. [SH 859 392]. Leader and reporter: Steve Warren.

A party of six turned up turned up on a warm, dry and sunny Spring day, were we in the right country? After getting over the shock of the fine weather, and leaving the waterproofs in our cars, we followed a track to the trial workings on the

west side of Mynydd Nodol and examined the spoil for specimens. The old workings lie within the Migneint-Arenig-Dduallt SSSI and Special Area of Conservation (a large area of upland designated for its dry heath and blanket bogs) and are designated as a Geological Conservation Review site.

A number of representative small samples of black, lustrous, botryoidal and metallic, acicular hollandite were found within loose blocks lying on the surface of the tip and within a shallow washout area at the top of the eastern tip edge. It was difficult to determine whether the washout material was of natural origin or had been earlier waste that had since grassed over. Some of the botryoidal specimens had a nice iridescent sheen on the surface. The manganese mineralisation was also noticed as occurring in situ as thin veins and joint fillings in exposed altered, buff coloured tuffs on the east side of the working. After a relaxing couple of hours collecting we headed back to our cars full of the joys of Spring.

Our thanks go to Raymond Roberts of Natural Resources Wales for permission to visit the site and collect representative samples for study.

Sunday 23rd April 2017 ASM Weekend Visit to Benallt Mine, Rhiw, Lleyn Peninsula, Gwynedd, Wales. [SH 222 279].
Leader & reporter Ian Dossett.

The Benallt Mine was opened in 1886 and continued to produce manganese ore until 1894 when the site was abandoned. It was reworked in 1904 as the Benallt No 2 Mine, when further reserves of manganese were delineated.

Benallt was reopened by the Ministry of Supply in 1939 to produce minerals for the war effort; this final working incorporated the Rhiw Mine, together with the small Tyddyn Meirion and Ty Canol mines immediately to the south. Benallt Mine was also one of the first to use a magnetometric survey to locate ore reserves. The survey indicated three anomalies, two of which produced 10,000 tons of manganese ore. The mine worked until the end of 1945.

Eleven members of various levels of experience turned up for the visit to Benallt which is a SSSI. The day was bright and dry, a rare occurrence for Wales. The group based its investigations on the first large tip and quickly found small specimens of celsian and cymrite, plus a small specimen of what in the field resembled paracelsian. The group then spread out to the other areas and several specimens of jacobsite were easily found with the help of a strong magnet. Several other interesting bits of massive material (potentially bannisterite) were located but these require further study. The most interesting sample on the day was of tiny red epidote (the exact mineral needs further analysis) crystals in massive celsian, found by the sharp eyes of Neil Hubbard.

Our thanks go to the landowner Mr. Hardon and Raymond Roberts of Natural Resources Wales for their support for the visit.

Sunday 23rd April 2017. ASM Weekend Visit to Frongoch Mine dumps, Dyfed. [SN 722 744].
Leader: John Davidson. Reporter: Jeremy Fraser-Mitchell.

A small group (John Davidson, Jeremy Fraser-Mitchell and Steve Plant) left the hotel in Llandudno to undertake the 3-hour drive to the Frongoch Mine dumps in mid-Wales. Frongoch is located about 10 miles ESE of Aberystwyth.

The mine was first mentioned in the late 1750's, initially as a lead mine (galena) and later from the 1840's zinc (sphalerite) as well. The mine worked almost continuously up to 1903, when the underground mine was closed. The dumps were reworked on a substantial scale from 1924-30, then on a smaller scale up to the 1950's. The mine had a total estimated production of 61,000 tons of lead ore, and 50,000 tons of zinc ore. Silver production (from the galena) has been estimated at 24,000 oz.

Steve stopped off at an area near Vaughan's new shaft where there had been some recent disturbance of the waste tips. Some large blocks of sphalerite and galena are still abundant in the area. Steve's collecting recorded the following micro-minerals:
Anglesite- rare blocky prisms with roman-sword terminations on decomposed galena.
Bindheimite; canary-yellow powder within quartz cavities.
Caledonite; fairly common amongst decomposed galena/quartz veinstone as radiating sprays of pale blue needles associated with susannite.
Cerussite;common in most samples.
Covellite (?); metallic-blue coatings on galena.

Linarite; fairly common, deep-blue coatings and occasional good micro-crystals within cavities, associated with cerussite and malachite.
Mattheddleite (?); unknown colourless/white acicular crystals associated with decomposed galena and cerussite.
Malachite; uncommon but occasional rich patches found, some with radiating fan-sprays.
Pyromorphite; rare, a few poor-quality specimens of the brown variety were found but not collected.
Ramsbeckite (?); one single emerald-green slightly-flattened ~ barrel-shaped crystal was observed which looked like ramsbeckite.
Schulenbergite; fairly rare as light blue rosettes and cleaved platelets.
Susannite; fairly common on decomposed galena/quartz/mudstone matrix. One patch approximately 2 x 2 cm yielded dozens of pale green pseudohexagonal plates & elongated prisms.

John and Jeremy collected from the SSSI dump area. The following minerals were collected or noted there:
Bechererite; pale blue/ green sprays, found by John
Bindheimite; yellow powder, as above
Cerussite; common, nice clear crystals with twinning
Galena; very common
Linarite; some small sprays of crystals
Malachite; lighter green spiky balls, and darker green radiating fan-sprays
Pyromorphite; a spray of purple-brown crystals to 4mm. Trimming of this specimen uncovered further sprays which were much paler, almost clear. Other specimens were tiny green balls, and yellow through white.
Sphalerite; common

Spray of purple pyromorphite crystals to 4mm. from the SSSI Dump area.

Our thanks to the landowner, Mr. Bray for giving us the permission to collect at the site and also to Mr. R. Roberts of Natural Resources Wales for their support for the visit.

Friday 21st to Sunday 23rd April 2017. Russell Society AGM. St. George's Hotel, Llandudno, LL30 2LG.

(Editor's Note: This is a condensed version of the official minutes of the AGM. The full minutes can be found on the Society's website at www.russellsoc.org/.)

Forty-one members again attended this year's AGM. The minutes of the 2016 AGM were agreed.

After four years as President, Tom Cotterell is now stepping down from the role. He gave thanks to all the Council members, past and present who have supported him and to all members, for making his time as President so enjoyable. Tom will maintain an involvement in the Society in his new role as Conservation Officer. In the absence of a volunteer to take on the role of President, Tom announced that Christine Critchley, our Vice-President, will be acting President, in line with the Society constitution, until a new President can be found.

Tom confirmed the changes to our Branch structure, which are necessary due to several Branches not being able to maintain a committee structure. The Northern Branch, including Scotland, now becomes part of the North-West Branch. After discussion with both Branch committees, the North-West Branch has been renamed the North Branch. The Southern Branch now takes over the area previously covered by the South-East Branch and will remain as the Southern Branch in name. Members within the old Branches will be automatically transferred to their new Branches. Other Branches are not affected by the changes.

Before signing off Tom had a major surprise for Margaret Ince, in awarding her the Russell Medal for her many years of outstanding support and contribution to the Society, including during periods of ill health. The award was warmly welcomed by all present. As far as the writer is aware, the Ince's have achieved the fully deserved status of being the only couple in the UK (the World even!) with his and hers Russell Medals!

Finally, Tom wished all members of the Society the very best for the future and asked us all to consider whether the time is now right for us to become the next President of the Russell Society.

Our Vice-President, Christine Critchley, summarised field trip attendance in 2016: a total of 36 trips with a total of 287 person/visits. As in the previous year, Christine was very pleased to report there had been no incidents on the field trips.

Christine also noted that the Society's H & S information has again been reviewed to take on board the requirement for lace up safety boots at most quarries and to give guidance for field trip leaders on late arrivals. All field trip attendees must read the risk assessment before the trip and must sign the Field Trip Indemnity Form before becoming 'active' on a trip. For quarries, this means the form must be signed before entering the quarry workings.

Christine noted that the Society will be holding a Scavenger Hunt again this year at Bakewell. In addition, a Lucky Dip would be held at the Leyburn Show, together with the first putting for the Society's new display cabinet. The idea is to hold changing displays of member's collections at the shows we attend. The Scavenger Hunt and Lucky Dip have great appeal to children, hopefully the cabinet will now appeal to adults. Please let Christine know if you have any suitable donations that can be used as children's prizes or if you wish to put on a display in the cabinet. Help in manning the Society stall at shows is, of course, always welcome!

Christine took over from Tom at the AGM and is now our acting President. On behalf of the Society, she thanked Tom for his sterling efforts over the past four years and arranged a thank you present of the book *Mines and Minerals of the Mendip Hills* by Peter Burr.

Steve Warren, General Secretary, confirmed that in accordance with the Russell Society constitution (25.5) Council had agreed the Branch changes and that a new Branch map would be placed on the Society website. He also confirmed that our Society insurance was now with Aviva (previously Zurich) via the Geologist's Association and that the new details had been added to Field Trip Indemnity Forms by Christine. Steve thanked Michael Dunmore for his continuing help in running the website and keeping it up to date.

Rob Bowell, Treasurer, gave a presentation to explain the financial position for 2016; covering the financial year from January 1st 2016 to December 31st 2016. His report was underpinned by the Independent Examiner's assessment of the Society's Accounts for this period. The budget for 2017 was set out, including agreed increased expenditure on JRS Vol. 20 and monies in support of the Charnwood Rocks exhibition set up by Central branch. Rob thanked Gerallt Williams, our new Independent Examiner for the accounts, and the accounts and Treasurer's report were unanimously approved.

Rob and Neil reiterated the need for members to pay their subscriptions through Gift Aid wherever possible and to please make sure payments are made promptly, preferably before the end of January and certainly before the end of March; otherwise administration of Gift Aid becomes more complicated.

Neil Hubbard, Membership Secretary, provided an overview of membership numbers and trends. The rate of decline during 2016 seems to have slowed compared to previous years. At 20th April 2017, we had 306 members compared to 373 for 2016. The discrepancy, however, was due to Neil not being able to see bank statements in time for the ASM rather than a dramatic drop in membership. Neil stressed that it is up to all of us to try and recruit new members, although Council will also be considering ways to attract new members. Finally, he thanked those members who pay their subscriptions on time and encouraged those not already using Direct Debit or Standing Order to do so.

Malcolm Southwood, our Journal Editor, could not present at the meeting so, on his behalf, Frank Ince (Journal Manager) explained the work they had undertaken in 2016 to produce JRS 19, summarising the production process, contents, distribution and the related financial structure. Frank advised that 392 copies of JRS 18 were produced and 310 copies circulated to members whilst staying within the annual budget.

Frank then set out the planned schedule for JRS 20 that will be published in December 2017. Due to the number and size of papers submitted to date, JRS 20 promises to be a large volume, or may be published as a two-part volume. In light of this, Council has agreed a larger annual budget for JRS 20 and part of the Bob and Sally King donation also remains if needed. Although JRS 20 is looking very promising, Frank is thinking ahead and still needs members to contribute papers. Members should not be shy about providing papers, help and encouragement can be provided where needed.

Although Frank has agreed to stay on as Journal Manager for now, to ensure that members continue to receive the publication, it is time for someone else to step up to the plate. Please have a think about this, perhaps you could become the next manager of JRS?

Our very own Newsletter Editor, Michael Doel, presented highlights of the production and costs of Newsletter 68 (March 2016) and Newsletter 69 (September 2016). Michael commented that the flow of contributions to the Newsletter has again just been 'adequate' to fill it and that the same small pool of contributors provide material. On the positive side, he noted that 2016 had been a good year for field trip reports, with all Branches making a contribution (please keep this up!). Michael encouraged all members to make a contribution (it is your Newsletter!) and stressed that help could be

provided to write articles if people felt they needed it. It was noted that, currently, 260 members have provided e-mail addresses and receive the Newsletter in electronic format. For those members who have not sent in their e-mail details to Neil please make a point of doing it this year.

With the exception of the vacant role of President nominations for Honorary Officers and Trustees for 2017 were unanimously approved.

Council and all those present thanked the North-West Branch (now the North Branch) for all their hard work and perseverance in organising such a successful weekend, particularly after the difficulties encountered with the cancellation by the original venue

The 2018 AGM, will be hosted by the Central Branch from Friday 6th to Sunday 8th April at the College Court Conference Centre Hotel, Knighton Road, Leicester, LE2 3UF. Further details about the event and a booking form will be circulated to members with JRS 20 towards the end of 2017.

Saturday 6th May 2017. Southern Branch Visit to Stancombe Lane Quarry, Flax Bourton, Bristol. [ST 504 681]
Leader: Chris Finch. Reporter: Mike Milward

We were met with the usual warm welcome to the quarry from Production Supervisor Courtney Walker who kindly offered us all coffee or tea on a dry, cloudy morning, neither hot nor cold, but with a brisk breeze. Courtney gave the four of us the lowdown on the recent changes of ownership of the company, and, with the aid of an aerial photograph, went into some detail on the plans to expand the quarry, pointing out which neighbouring field was about to become a large hole in the ground. After the safety briefing and equipment check, he loaded us into his vehicle and drove us through the quarry and up the other side to take us around the doomed field, showing us the test pits, before dropping us off at the top level at the back of the quarry at about 9.30.

Vug containing calcite crystals before trimming, FoV 150 mm.

The top two levels failed to produce much of interest to anybody, so we walked on down to the third level, noting the graphic appearance of what was taken to be a wadi, where the dark grey well-bedded sediments gave way to a reddish, rocky infill. The third level, however, had plenty of good vuggy limestone boulders to attack, and a quantity of decent calcite was collected, some crystals up to 10 cm; mostly creamy in colour, but some grey or colourless. Fragmentary fluorite and galena were visible in some of the crystal mass. At least one quartz-lined vug was also found. After an hour and a half on this level we moved on down. Level 4 offered a substantial area of large boulders of Black Rock Limestone, the source of some good finds in previous visits, but only small vugs were encountered this time, all with the characteristic hydrocarbon smell but nothing much to collect apart from a little dolomite. Sadly, the bottom level was found to be unproductive, so at about 14.00 we called it a day.

Our thanks for continuing to support our visits go to Neil Hoddinott the Quarry Manager, and to Courtney for looking after us on the day.

Sunday 7th May 2017. Wales and West Branch Visit to Tower Colliery Regeneration Site, Hirwaun, Rhondda Cynon Taff, Wales
[SN 9423 0578 – offices/ SN 9447 0488 – centre of regeneration site].
Leader and Reporter: Tom Cotterell

Five members attended on a pleasant sunny spring day. Tony Shott, Director of Tower Regeneration Limited, greeted and escorted our group around the extensive site. Coaling operations have now ceased at this site, but the process of restoring the opencast workings back to upland common and moorland is in full swing.

We began by viewing the remaining ‘highwall’ from a distance. A number of coal seams could be seen, but were not accessible. The first areas of backfill which we looked at were devoid of any noteworthy clay ironstone nodules. Those

which were present were compact and contained no cavities. One small pile of compact coal was observed amongst the backfill with clean masses showing a noticeable conchoidal fracture. This was probably nearer to the anthracite grade of coalification. Surprisingly little in the way of plant fossil material was to be seen.

We moved on towards the eastern end of the site where our guide allowed the group to board one of the huge excavators. The scale of these vehicles is staggering and it was a real privilege to be able to see inside the cab.

Nearby, the backfill contained much more promising looking clay ironstone nodules. A few were broken open to reveal millerite, albeit in sparse delicate filiform crystals, in a quite decomposed ironstone. Chris Finch discovered a few specimens, but compared with classic examples of millerite from the South Wales Coalfield they were very poor quality. Nearby one good '"Merthyr diamond"' doubly-terminated quartz crystal was found attached to the centre of a rare, hollow, clay ironstone nodule.

We continued to look across a wide area of backfill, but there was disappointingly little of mineralogical note to see. Large areas of backfill towards the south-eastern part of the site contained the occasional large clay ironstone nodule. A number of these were collected as representative examples of what these nodules look like.

Our thanks go to Tower Regeneration Limited and in particular Tony Shott for allowing us permission to visit the site and for his enlightened views on the future (or not) of coal mining in Britain.

Sunday 21st May, 2017. North Branch Visit to Closehouse Mine, Lunedale, Co. Durham. [NY 849 227] Leader: Steve Warren, Reporter: Keith Lee.

Four members attended on a day when the BBC had promised sunshine and warm breezes. The low cloud, drizzle and biting wind did nothing to raise our spirits, but the weather did improve in the afternoon. Sunscreen was still not needed.

The areas of the site known to have been productive in the past were thoroughly examined. A large vein section of galena and baryte on the east side of the overburden tips yielded anglesite to 8 mm. Several hand specimens of cerussite and pyromorphite (acicular crystals to approximately 1 mm) in baryte were found on the north side of the open cut. A loose block at the mouth of the open cut, which had previously yielded cerussite coated galena cubes with tabular baryte fans was broken up but the resulting cavities only contained thin, often broken, tabular baryte coated with weathered calcite.

We would like to thank Wemmergill Estates for permission to collect on their site, with special thanks to their gamekeeper for his friendly and helpful welcome.

Thursday 1st June 2017. Wales and West Branch Visit to East Pit East Extension Opencast Coal Site, Gwaun-Cae-Gurwen, Neath Port Talbot [SN 735 130]. Leader: Tom Cotterell. Reporter: Roy Starkey

Four members, Tom Cotterell, Steve Plant, Kevin Garrod and Roy Starkey attended on a pleasantly warm, partly sunny day. Richard Atkins escorted us around the site, providing "chauffeur driven" Land Rover transport. We drove initially to the bottom of the pit, which has been pumped out for the final phase of extraction (on previous visits the bottom of the pit has been a lake). We examined various exposures, looking particularly in the sandstone horizons, but turned up little of interest. The impressively black, shiny, anthracite exposed on the pit floor was admired and sampled.

Kevin Garrod's fine quartz crystal (approx. 10 cm tall). Photo: Roy Starkey.

After stopping at various points on the haulage way to examine exposures and waste material (which yielded a few poor specimens of siderite and quartz), we eventually drove back up to a spot near the top of the haul road where an area of freshly blasted sandstone which had been noted on the way in proved to be much more interesting. Yippee – a veritable bonanza! Large euhedral crystals of quartz associated with siderite on the sides of fissures in the sandstone were quickly spotted, and as the team settled in to have a serious look it was immediately apparent that much good material was lying loose in the fractures – just

waiting to be scraped out and picked-up. Unfortunately, we had less than an hour to work this area, but everyone got a good range of specimens, some of which looked very good in the late morning sunshine. (The precise grid reference for this locality is [SN 73492 13460] at an elevation of 172 metres).

Examination of these quartz crystals under the microscope has revealed that large fluid inclusions are abundant, and some of these contain free-moving bubbles.

Our thanks go to Celtic Energy and in particular Richard Atkins our guide, Aled Lewis and Wayne Evans (Mine Manager) for granting permission to visit the site.

Saturday 3rd June 2017; North Branch Visit to Southam Mine Dumps [NX 995 120]. Leader: Ian Dossett. Reporter: Susan Thompson.

A beautiful June day, the stunning scenery of the Lake District and non-stop banter, set the scene as four members made their way to the Pallaflat area and the nearby Southam Mine dumps. With all the housekeeping completed, Ian recalled how it had been over 20 years since he had last visited Pallaflat with the Russell Society, when they had been pointed to the nearby Southam dumps. At that time some baryte was seen but time did not permit a proper investigation. Southam mine is close to, and related to, the Pallaflat Mine workings which were known for their exceptional calcite groups of clear, transparent nail-head and scalenohedral crystals with some 'Butterfly' twins. Some specimens had displayed 'selective' coating with hematite, colouring one side of the crystals red or brown. Baryte specimens were also produced there, with combinations of transparent pastel green crystals in association with calcite. During the 1980s, the nearby Pallaflat dumps were worked by a group of local collectors and many fine specimens were recovered.

At Southam two large tips were visible in the woodland area. These were very overgrown compared to how Ian remembered them. Our initial attempt to access the tip proved difficult, but we soon found an alternative access point. Several trial holes were dug with nothing of interest turning up. A small potentially fruitful location was eventually identified and we began digging. The soil was rich in iron ochre, hence we were all sporting a red powder coating within a short space of time. After much digging, all of us located aggregates of lustrous bladed baryte. Both Ian and John found blocks to 10 inches. It was noted that some of the freshly excavated baryte had a clearly identifiable aqua hue on fresh surfaces, however this seemed to fade after a short time in the daylight. Curiously, given the proximity to Pallaflat, no evidence of calcite was seen.

Ian was keen to ensure the site was reinstated to its former glory, hence all the boulders, branches and vegetation were returned to cover the areas we had worked. According to the farmer previous collectors had discarded excavated material against his fences and understandably he was initially reluctant to allow our visit. Credit is due to Ian, who had however managed to negotiate access, despite the unfortunate backdrop of previous irresponsible collectors.

Our thanks go to Mr. T. Beatty for his permission to explore Southam dumps.

Saturday 10th June (Central Branch) and Saturday 24th June (North Branch) Visits to Dolyhir Quarry, Old Radnor, Powys. [SO 242 584] Leaders: Neil Hubbard and Ian Dossett. Reporter: Roy Starkey.

Panoramic view of the ever-changing Dolyhir Quarry. Photo: Roy Starkey.

These two visits took place only a fortnight apart, and it therefore seemed sensible to combine the reports, particularly since several members were so keen that they attended both trips! Attendees numbered about ten on both occasions, and Steve Warren, Steve Plant and Roy Starkey participated in both visits. The second trip was markedly warmer and

brighter than the first, but both parties escaped getting wet.

For the Central Branch trip, interest centred initially on the upper area of the quarry in the limestone, where good specimens of azurite and various copper sulphides have been collected on previous occasions. Scratching around yielded a few representative examples, but after an hour or so most members descended to the lower levels in search of alternative entertainment. Steve Warren, however, decided to "get stuck in" and excavated a sizeable hole in the rubble at the base of the limestone face. His efforts were rewarded, and recorded, by a bemused Mike Howe, who saw the birth of a new collective noun "a coat-full" of azurite.

A very happy looking Steve Warren with a "coat-full" of azurite. Photo: Mike Howe.

The hole produced rich azurite and malachite after chalcocite with remnant calcite/ limestone and occasional quartz (to 25 mm) [SO 24512 58644] elevation 242 m. The azurite ranged from micro crystals to one crystal about 7 mm long on specimens from thumbnail to 200 mm across.

The remainder of the party turned up a selection of the "normal" minerals – baryte, calcite, realgar and harmotome from various spots on the lower levels. The principal interest turned out to be the remnants of a narrow baryte-calcite-barytocalcite vein, with minor quartz, harmotome and chalcopyrite on what is now the first bench up from the bottom of the quarry **[SO 24573 58553**] elevation 184 m.

Here, Steve Plant and Roy Starkey worked hard to extract some excellent specimens of tabular bluish baryte crystals to a centimetre or so, on cream-coloured calcite, and Neil Hubbard found a loose incomplete crystal of baryte over 30 mm long. Several nice small specimens of coarsely crystallised harmotome were also recovered. A few pieces of matrix bearing pale pink tapering hexagonal crystals, up to 3 mm across, of an unknown phase were discovered after examination under the microscope. It is hoped to get a definite identification of the pink crystals in due course.

Unknown very pale pink tapering hexagonal crystal (crystal is approx. 3 mm across) on baryte-barytocalcite-calcite matrix. Photo: Roy Starkey,

The North Branch visit saw the party descending firstly to the baryte-barytocalcite-calcite vein area in search of more tiny pink crystals (sadly, to date, no participants have reported finding any). However, much vein material was removed and collected for later examination. The remainder of the trip saw members explore other parts of the quarry, and migrate upwards in search of azurite "left-overs". Further work was done, significantly to enlarge Steve's pit, producing small but very attractive azurite crusts.

Our thanks, as usual, go to the Quarry Manager Mike Jones and also to Andrew Brick of Tarmac, for granting permission for the visits.

Saturday 17th June 2017. Central Branch visit to Cavendish Mill, Stoney Middleton, Derbyshire. [SK 205 752]
Leader and Reporter: Neil Hubbard.

There was a full complement for this visit to the stock piles at Cavendish Mill. We were met outside of the offices by Chris Large of British Fluorspar Ltd., who explained that the mine was currently going through a development stage and so was producing little ore, but output had been increased from Tearsall Quarry to try to compensate for this.

On arrival at the stock piles there were a few small heaps of fluorite bearing boulders from Milldam and a large heap of mud containing boulders of limestone from Tearsall. The fluorite from Tearsall is largely contained in the mud and so was not collected, but a few small calcite crystals were collected from the limestone boulders. The Milldam material

was far more promising. Although much of the fluorite is granular, cavities do occur and small specimens of colourless to purple fluorite crystals to about 10 mm were collected. There were also small calcite crystals, baryte and a little galena. Secondary minerals were uncommon, there were a few bright yellow stains of cadmium sulphide, variously called greenockite or, more bizarrely, hawleyite, but as they are almost certainly amorphous, it is neither of these. Small amounts of smithsonite were also collected, usually as tiny crystals on fluorite but also replacing small calcite crystals. A boulder rich in this was last seen heading for Wales. There were very few lead secondaries, a few small cerussite crystals and even smaller wulfenite crystals although at least one crystal to about 2 mm was found. Surprisingly, there is enough cerussite present in the ore to make it worthwhile separating and sending to the smelter (in China!).

I would like to thank British Fluorspar and particularly Chris Large, for allowing our visit.

Sunday 18th June, 2017. North Branch Visit to Lunehead Mine, Lunedale, Co. Durham. [NY 847 205] Leader and reporter: Steve Warren.

After our last venture into Lunedale we wondered if the weathermen would get it right this time. They certainly did, five of us turned up in glorious sunshine, with temperatures hitting 27°C by the end of the visit; not bad for the Pennines.

Sometimes the sun shines. A "relaxed" group of collectors at Lunehead Mine. Photo: Steve Warren.

After a short walk down the mine track we systematically checked the mine dumps scattered to both sides of Cleve Beck. The beck was dry for most of its length through the tip, partly due to the dry Spring but also because it was being swallowed up by a collapse in the bed and bank, possibly due to underlying old workings, although there is also a cavern system in the area. As expected, baryte was abundant in forms ranging from massive to crystalline but few terminations had survived.

Keith Lee's "strange" specimen. Just baryte ....or?

The main aim of the visit was to track down carbonate cyanotrichite for which the site is known. After breaking up many baryte blocks we found malachite, in small blades and balls, azurite and a few small patches (several millimetres across) of possible carbonate cyanotrichite amongst the malachite and azurite. A few large blocks of witherite were also found, some containing small cavities with terminated crystals. Keith Lee found a very strange specimen, it looked like very thin white tubes with a line of diamond shaped white crystals speared by the tubes, probably just baryte but unusual all the same.

Once again we would like to thank Wemmergill Estates for their kind permission to collect at the site.