



The Black Country Geological Society

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Newsletter No. 223

February 2014

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**Copy date for the
next Newsletter is
Tuesday 1 April**



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For enquiries about field and geoconservation meetings please contact the Field Secretary. To submit items for the Newsletter please contact the Newsletter Editor. For all other business and enquiries please contact the Honorary Secretary.		

Future Programme

**Lecture meetings are held at Dudley Museum & Art Gallery,
St James's Road, Dudley, DY1 1HU. Tel. 01384 815575.
7.30 for 8 o'clock start unless stated otherwise.**

**Please let Andy Harrison know in advance if you intend
to go to any of the field and geoconservation meetings.**

Saturday 8 February (Conservation day): The Rowley Hills Reserve, Rowley Hill, just south of Bury Hill Park. Meet at 10:30 at The Tower Road end of St. Brades Close, off Tower Road which is off the Birmingham New Road - A4123. The day will focus on bramble clearance across this important grassland site and creating better access and views of the very important geological features on the former quarry faces. Please respond directly to Paul Stephenson (Birmingham and Black Country Wildlife Trust) - Office Tel: 0121 454 1207, Mobile: 07884 074827 to express an interest in attending.

Monday 24 February (Indoor Meeting): 'The Precambrian Fossils of the Long Mynd, Shropshire'. Speaker: Dr Alex Liu, Henslow Junior Research Fellow (Girton College), Department of Earth Sciences, University of Cambridge.

Sunday 2 March (Conservation day): Barr Beacon. Meet at 10:30 for 11:00 at the entrance on B4154 Beacon Road, opposite Bridle Lane (the southern entrance to Barr Beacon) Grid ref: SP060 967. Wear old work clothes, waterproofs and stout footwear. Please bring gloves and garden tools; loppers, secateurs, forks and spades if you have them. Also bring lunch. Finish at 14:30.

Sunday 23 March (Conservation day): Lickey Hills. Quarry clearance session in conjunction with the Lickey Hills Geo-Champions, directed by Steve Hinton, Senior Ranger, Lickey Hills Country Park. Geological Society WM Branch also invited. Meet 10.30 at the Lickey Hills Visitor Centre. Bring hard hats if you have them, gloves and a packed lunch. (There are some hard hats available at the VC for those who haven't got their own.) This session will concentrate on the quarries where work is most needed to expose or refresh the geological features. Wear old clothes and boots or strong shoes. Tools will be provided. Finish at 2.30.

Monday 24 March (Indoor meeting, 7.00 for 7.30 start): AGM followed by **'From the Depths: how Speleothems reveal Quaternary Climatic History'. Speaker: Professor Ian Fairchild,** Head of School of Geography, Earth and Environmental Sciences, University of Birmingham.

Car Sharing for Field Trips

If transport is a problem for you or if you intend to drive and are willing to offer lifts, please contact Andy with at least 48 hours notice. We hope that this will encourage members to attend the more distant field visits.

Saturday 12 April (Field meeting): Barrow Hill and other Geoconservation sites, led by Andrew Harrison. Joint trip with the Warwickshire Geological Conservation Group. Starting at Barrow Hill, we will then visit Springvale Park, Barr Beacon and Rowley Quarry. Meet on Vicarage Lane, Barrow Hill Nature Reserve, Grid ref: SO 915894, at 10.30. Bring packed lunch and stout footwear. From Barrow Hill we will need to car-share due to restricted parking at Springvale Park and Rowley Quarry. From Barrow Hill we will head to Barr Beacon Quarry first. Please contact the Field Secretary (details above) to show your interest in attending.

Monday 28 April (Indoor Meeting): 'Wine, Whisky and Beer: the role of Geology'. Speaker: Professor Alex Maltman, University of Aberystwyth.

Saturday 10 May (Field Meeting): Visit to the Oxford University Museum of Natural History. Led by Professor Paul Smith (Museum Director). Meet at the Museum, 10:00 for coffee/tea, an introduction from Paul and tour. Take in the main court displays and hopefully a tour of the archives to look at work the museum have been doing on the William Smith maps and papers; the Mesozoic vertebrate stores; the Palaeozoic collections, and the Huxley Room, where the Great Debate between Huxley and Wilberforce took place. The Museum website - <http://www.oum.ox.ac.uk/> provides a good insight into what is held there. Unless members have other plans, lunch can be purchased in the Museum cafe. We will finish the visit around 4.00 - 4.30. Please contact the Field Secretary to express an interest in attending this event.

Tuesday 13 May (Indoor Meeting at Wolverhampton University starting at 6.30) Speaker: Professor Hazel Rymer, Open University. This is a joint meeting with the West Midlands group of the Geological Society. Details tbc.

Sunday 15 June (Field Meeting): Lickey Hills. Led by the Lickey Hills Geo-Champions. Meet at 10.30 at the Lickey Hills Country Park Visitor Centre, Warren Lane, Rednal, Birmingham, B45 8ER. Following our recent involvement in geo-conservation work in the Lickey Hills, this will be a chance to gain a better understanding of the geological formations of the Lickey Hills and their context within the wider landscape. In the morning we'll following the Champions Trail (approx 1.5 miles). In the afternoon we will explore other sites of geological interest in the Lickey Hills area. Trip ends 4.00 - 4.30. Lunch at the Visitor Centre, snacks available, packed lunch advisable. Sensible footwear. Please contact the Field Secretary (details above) to show your interest in attending.

Monday 22 September (Indoor Meeting): Forensic Geology (title tbc). Speaker: Dr Haydon Bailey FGS, Senior Vice President of the Geologists' Association.

Monday 20 October (Indoor Meeting): 'The Island of Rum, Diary of a 60 Million Year Old Magma Chamber'. Speaker: Dr Brian O'Driscoll, Keele University.

Monday 17 November (Indoor Meeting): 'The Galapagos - geology, fauna and flora'. Speaker: Dr Les Riley, Consultant Stratigrapher.

The Society provides limited personal accident cover for members attending meetings or field trips. Details can be obtained from the Secretary. Non-members attending society field trips are advised to take out your own personal accident insurance to the level you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

Leaders provide their services on a purely voluntary basis and may not be professionally qualified in this capacity.

The Society does not provide hard hats for use of members or visitors at field meetings. It is your responsibility to provide your own hard hat and other safety equipment (such as safety boots and goggles/glasses) and to use it when you feel it is necessary or when a site owner makes it a condition of entry.

Hammering is seldom necessary. It is the responsibility of the hammerer to ensure that other people are at a safe distance before doing so.

Other Societies and Events

BCGS members are normally welcome to attend meetings of other societies, but should always check first with the relevant representative. Summarised information for the **next two months** is given in our Newsletter. Further information can be found on individual Society web sites.

Shropshire Geological Society

Wednesday 12 February: Water along fault zones. Speaker: Sian Loveless.

Wednesday 12 March: Shetland-Scottish geology. Guest speaker: Chris Darmon.

Lectures are generally held at Shire Hall, Shrewsbury, commencing at 7.15 for 7.30. A nominal charge is levied for attendance by non-members. Further info at: www.shropshiregeology.org.uk/

Woolhope Naturalists' Field Club - Geology Section

Friday 21 March: Eyjafjallajökull 2010: Aerial Geohazards - Sue Hay & Gerry Calderbank.

Sunday 13 April: Penarth led by Dr Tom Sharpe.

Guests are welcome, but must take day membership of the Club: £2.00. Further information: Sue Hay on 01432 357138, email svh.gabbros@btinternet.com or visit their web site: www.woolhopeclub.org.uk/Geology_Section/default.htm

Mid Wales Geology Club

Wednesday 19 February: 'The Origins of Life'. Speaker: Dr Geoff Steel.

Wednesday 19 March: 'The Late Ordovician Ice Age: a mass extinction'. Guest Speaker: Keith Nicholls

Further information: Tony Thorp (Ed. newsletter & Hon. Sec): Tel. 01686 624820 and 622517 jathorp@uku.co.uk Web site: <http://midwalesgeology.org.uk>

Teme Valley Geological Society

Monday 17 February: Geology, Work and Health. Speaker: Tim Carter.

Monday 17 March: Escape from the 2011 Christchurch Earthquake. Dr Richard Hamblin.

Meetings are generally held in Martley Memorial Hall, Martley. £3 non-members or join on day. For more details visit: <http://www.geo-village.eu/> or contact Janet Maxwell-Stewart, 01886 821061

Geological Society, West Midlands Regional Group

Tuesday 11 March: Advanced Technologies for Contaminated Site Remediation. Dr Jeremy Birnstingl - Managing Director, Regenesys, University of Wolverhampton. Located within Building MA on the South Campus, within the City Centre. Refreshments will be available from 18:00, with talks due to commence at 18:30. Room TBC.

For further details and enquiries, please contact the Group Secretary, Daniel Welch at: geolsoc_wmrg@live.co.uk

Manchester Geological Association

Wednesday 5 March at 18:30: Living in Europe's Supervolcano: Volcanic hazard and emergency management in the Bay of Naples - Dr Martin Degg, University of Chester. Joint Meeting with the Geographical Association.

For further information about outdoor meetings go to: <http://www.mangeolassoc.org.uk/> or please contact Jane Michael by email: outdoors@mangeolassoc.org.uk Visitors are always welcome.

North Staffordshire Group of the Geologists' Association

Thursday 13 February: Rebuilding terrestrial ecosystems after the end-Devonian mass extinction: a major turning point in terrestrial evolution. Speaker: Prof. Sarah Davies, Leicester.

Sunday 30 March: Hillend, South Shropshire. Leaders: Joe Crossley & Hazel Clark. Book with the Field Secretary, Steve Alcock (steves261@aol.com) by 10 March.

All talks are held in William Smith Building, Keele University, at 7.30. Further information at: www.esci.keele.ac.uk/nsgga/ Non-members pay £2 to cover temporary membership giving them insurance cover. A field fee of £2 per head is normally charged to cover the leader's expenses.

Warwickshire Geological Conservation Group

Wednesday 19 February: The Cambrian Explosion: News from the far North. Speaker: Prof. Paul Smith (Director, Oxford University Museum of Natural History).

Wednesday 19 March: The Palaeocene Lava Fields of NW Scotland - Monotonous Piles of Old, Cold, and very Boring Basalt? Speaker: Dr Ian Williamson (ex-BGS and Natural England).

Venue: St Francis Church Hall, Warwick Road, Kenilworth CV8 1HL. For more details visit: <http://www.wgcg.co.uk/> or contact Ian Fenwick swift@ianfenwick.f2s.com or 01926-512531. There is a charge of £2.00 for non-members.

Herdman Society Symposium

Saturday 22 February 9.30 - 5.00: 'Geoscience Frontiers 5'

A day of lectures at the Sherrington Lecture Theatre, University of Liverpool, and wine reception from 5.00 - 6.00. Further details available on the website. The charge to non-students will be £10, which includes programme, buffet lunch, tea/coffee and wine reception.

Prof Brian Bluck (Glasgow): 'Putting Scotland together: the role of the Old Red Sandstone'.

Prof Simon Conway Morris (Cambridge): 'Eight evolutionary myths: The closing of the Darwinian mind?'

Dr James Hammond (Imperial): 'Science without borders: Unravelling the mysteries of Mt. Paektu Volcano, North Korea'.

Dr Katherine Joy (Manchester): 'Moon impacts: unravelling the history of inner Solar System bombardment'.

Prof Tim Lenton (Exeter): 'Revolutions that made the Earth'.

Prof Andrew Scott (Royal Holloway): 'Wildfire: The burning issue - the geological history of fire'.

Persons interested in attending should contact Helen Kokelaar, e-mail: herdman@liverpool.ac.uk

Lapworth Lectures

Monday 17 February: Microbes, minerals and the decontamination of Fukushima. Dr Stephanie Handley-Sidhu Research Fellow, University of Birmingham.

Monday 3 March: North Wales - a landscape carved by ice. Dr Emrys Phillips, British Geological Survey Anglesey.

Monday 17 March: Eleanor Brown. GeoConservation UK. Title to be confirmed.

Lectures at 5.00 in the Dome Lecture Theatre, Aston Webb Block A - Building R4, University of Birmingham. All are welcome to attend and there is no admission charge. For further information phone: 0121 414 7294 or visit: <http://www.lapworth.bham.ac.uk/events/lectures.shtml>

'Wild About Perton' - Spring Festival

Saturday 12 April 10.30 - 3.00 at Perton Library. This is a community festival with a strong wildlife and environmental focus, organised in partnership with Staffordshire Library Service and South Staffordshire Council. BCGS will be represented along with displays and activities from: RSPB, Halfpenny Green Owl & Falconry Centre, Forest of Mercia, Butterfly Conservation, Bumblebee Conservation, Chainsaw Carver, University of Birmingham Biological Sciences - and more expected. The Festival, now in its 8th year, attracts a broad audience including young families, and in 2014 there is a special emphasis on attracting older teenagers and men.

West Midlands OUGS Day of Lectures

Saturday 15 February 10.30 - 16.00 (approx.) Dome Lecture Theatre, University of Birmingham. Registration and coffee from 09.30, lectures start at 10.30. Bring your own lunch. There will be a charge of £5.00 for non-UGS members. (*Very limited availability at the time of writing. Ed.*)

Dr Howard Falcon-Lang (Royal Holloway, University of London): Darwin's Lost Fossils
Dr Conall Mac Niocaill (Exeter College, Oxford): Taking the Pulse of a Plume
Dr James Verdon (Bristol University): Using geophysical techniques to monitor hydraulic fracture
Dr Sarah Gordon (Anglo American): Mining: a risky business
Dr Richard Butler (Birmingham University): Airborne giants: how and why did pterosaurs become the largest flying organisms of all time?

To book a place, please contact Sandra Morgan, west.midlands@ougs.org

The Oxford Colloquium & Fringe

Saturday 8 March: The Colloquium Day of Lectures. Six distinguished speakers will give illustrated lectures in the MNH lecture theatre, on topics drawn from across the Earth sciences. The speakers are: Prof. David R. Bridgland, Prof. Jennifer Clack, Prof. Gideon Henderson, Prof. John Ludden, Prof. Chris MacLeod, Prof. Iain Stewart.

Saturday 8 March Fringe Events: Geofest, Oxford Young Geoscientist of the Year, Oxford Mineralogy Symposium, book readings, Chairman's Drinks and The Geology of Beer Festival.

Sunday 9 March Fringe Events: Cotswold Field Trip, Goring Gap Field Trip, The Big Debate, and a guided walk: The Building Stones of Central Oxford.

Colloquium tickets cost £15.00 and tickets for all events must be purchased in advance. Full details are on the Oxford Geology Group web site at: <http://www.ogg.uk.com/#!colloquium/czzi> including on-line ticket purchase.

Natural History Museum Symposium

Wednesday 21 May: Woodward 150: fossil fishes and fakes. Flett Theatre, Natural History Museum, South Kensington. Open to everyone and free to attend, but places are limited and **you need to register in advance online**. The symposium will celebrate the life and work of Sir Arthur Smith Woodward on the 150th anniversary of his birth. He contributed widely to our knowledge of fossil fish, extinct animals and regional geology. Eminent speakers will discuss his influence on palaeontology, his involvement in the Piltdown Hoax, and the legacy of his work at the Museum. Fossil specimens and memorabilia will be on display and there is a post-symposium buffet for delegates (optional, at an additional cost approx. £10-15).

Full details are on the [Natural History Museum web site](#) including an on-line registration form.

Volunteers Needed for BCGS Committee

Gordon Hensman and Mike Williams will be leaving the committee after the AGM in March. Gordon has been a member of BCGS for a quarter of a century. He spent many years as Meetings Secretary, and the last six as Chairman. Mike has been our treasurer for the last ten years, but he and his wife have now moved to Church Stretton. We thank them both for their long and dedicated service to the Society. We will still be seeing Gordon at our meetings, and I hope we'll see Mike from time to time. We also said goodbye to Alison Roberts recently when she took up a new PGL Instructor's post, this time in Lancashire. We thank her for her enthusiasm and the contribution she has made to the Society, and wish her well in her career. To ensure the continuing success of the Society, we need new volunteers to step forward for election to the BCGS Committee at the AGM.

Volunteers/nominations are needed for the posts of Chairman and Treasurer

Additional committee members would also be welcome. If you would be interested in either of these posts, joining the committee, or for further information please contact:

The Hon. Secretary, **Linda Tonkin**, secretary@bcgs.info

Editorial

This issue heralds a full programme of BCGS events through to November, plus many lectures and events organised by other societies and organisations which we are welcome to attend. We are pleased to be able to bring to your attention four day-long feasts of lectures: OUGS in Birmingham, The Oxford Colloquium, the Herdman Society Symposium in Liverpool, and the Natural History Museum Symposium in London. These all-day events are usually greatly enjoyed by those who attend, so do look at the information above and on relevant web sites.

We also have to announce changes on our committee with the resignations of Gordon, Mike and Ali (see the item above). We would like you all to give some serious thought to the possibility of serving on the Committee. Do you have any particular skills which might help with the Society's administration? Or would you just like to know more about how the Society ticks? Please don't wait to be nominated. The Secretary would love to hear from any of you, and we are particularly hoping to attract some of our younger members. Do you have any ideas for the future of our Society? The committee meets generally four times a year, and being a member does not necessarily have to involve lots of time. Please contact the Secretary, Linda Tonkin, if you are interested.

You can hardly miss the two-page spread announcing another Photo Competition! If you didn't get around to it last year, do have a go this year. Once again, there are **prizes!** (Full details on pp.8&9.)

Finally, the New Year brings a new-look front page to our new Newsletter. We intend to feature one of the photos sent in with your contributions - but you'll have to read on to find its identity at the relevant place in the text! ■

Julie Schroder

Have a look at our website at: www.bcgs.info

WEST MIDLANDS REGIONAL GROUP & BLACK COUNTRY GEOLOGICAL SOCIETY



PHOTOGRAPHIC CONTEST 2014



WHAT LIES BENEATH OUR FEET

PRIZES:

ALL ENTRIES WILL BE DISPLAYED AS AN EXHIBITION AT DUDLEY MUSEUM & ART GALLERY
TOP 3 ENTRIES WILL BE CHOSEN BY AN INDEPENDENT JUDGING PANEL

FIRST PRIZE: £200

SECOND PRIZE: £100

THIRD PRIZE: £50

DEADLINE 31 AUGUST 2014

FOR COMPETITION RULES AND INFORMATION ON HOW TO SUBMIT YOUR ENTRIES, PLEASE FOLLOW:

WEST MIDLANDS REGIONAL GROUP

WWW.GEOLSOC.ORG.UK/WMRG

GEOLSOC_WMKG@LIVE.CO.UK

BLACK COUNTRY GEOLOGICAL SOCIETY

WWW.BCGS.INFO

SECRETARY@BCGS.INFO

Photographic Contest 2014

Terms And Conditions

If you wish to enter the Competition, there are a few rules to remember.

1. The Contest is only open to UK residents who live within the postal district of the West Midlands Regional Group of the Geological Society London; post-codes starting **B, CV, DY, HR, ST, SY, TF, WR, WS** and **WV**.

NB: The Group reserves the right to request proof of address in the event of a prize being awarded.

2. It is first and foremost a bit of fun and is aimed primarily at amateur photographers. It isn't open to professionals and because we want something original, entries must not have won other competitions.

For the purposes of this competition, a professional photographer will be considered to be someone who makes more than half their annual income from the sale of their photographs.

Entrants under the age of 12 years need to have parent or guardian consent to enter.

3. The title for the contest is 'What Lies Beneath Your Feet'. This is open to individual interpretation, but should include some geological content.

Whatever you decide to photograph, please do it responsibly. Take care not to disturb any animals or damage the environment. And always follow local laws and the countryside code.

4. Entrants can submit **up to four photos, which must be their own work** and **must not** be merged or manipulated.

Entrants may crop, enlarge, and enhance photos to remove spots or scratches, make it brighter, clearer etc. but they must not manipulate the content. In all cases, the Judges reserve the right to exclude any image whose authenticity they believe to be questionable.

5. There are **two** ways to submit entries:

Electronic Images - Email

Entries should be emailed to geolsoc_wmrg@live.co.uk together with the entrant's name, address and a note of where the images were taken. Entries can only be accepted as high-quality JPEG files (suggested minimum of 2400x1800 pixels) of at least 1Mb in size (maximum of 5Mb).

Printed Images - Post

Entries should be sent to **Geological Photographic Competition 2014, c/o Graham Worton (Keeper of Geology & Manager), Dudley Museum & Art Gallery, St James Road, Dudley, DY1 1HU** together with the entrant's name, address and a note of where the images were taken. Images must be no larger than A4 (210mm x 297mm).

The Group/BCGS do not accept any responsibility for any problem with the postal service which may result in any entry being lost or delayed. Sorry, we cannot return any entries.

6. Entrants will retain copyright in the photographs that they submit. By entering the competition all entrants grant to the Geological Society the right to publish and exhibit their photographs on the Geological Society's website, social media channels and Geoscientist magazine.
7. The competition closes at midnight on **Sunday 31 August 2014**.
8. All entries will be judged by an independent panel of Judges during an evening talk to be hosted by both the Group and Black Country Geological Society, scheduled for early September 2014.
9. The Judges will select the 10 best based on their composition, technical ability, appeal, geological content and originality. The Judges will then select the 3 overall winners. If after reasonable attempts a winning entrant cannot be contacted, the Group reserves the right to offer the place to the next best entry. The person who takes the overall winning image will receive a cash prize of £200. Second and third placed entrants will receive £100 and £50 respectively. ■

The Eifel Volcano Park

Visiting volcanically active areas of the world is, understandably, popular for many in these days of readily available package tours. However, there are other areas which are dormant, or have only recently (geologically speaking) become extinct that offer much interest. A well known example that receives a good number of visitors (though probably not too many 'Brits') each year is the Auvergne with its well known chain of 'Puy' volcanic cones.

Last summer I had the pleasure of travelling around another overlooked gem situated within the Rhenish Slate Belt ('Rheinische Schiefergebirge') located between the Rhine and Moselle rivers to the west of the city of Koblenz. The region is perhaps better known to Formula One enthusiasts as the home of the Nürburgring, which lies between the western and eastern Eifel sub-regions.



Pulvermaar, Wikimedia Commons

The Eifel lends its name to one of the Devonian stage names, and it is mainly Devonian slates and subordinate limestones and sandstones that host the much younger volcanic rocks to which I draw your attention. It would be remiss, however, to pass over these Devonian rocks without mentioning the world-class reef faunas to be found more especially in the western Eifel: the area around Gerolstein is particularly noteworthy in this respect, and forms a continuation of the Ardennes. There are a number of provincial museums with wonderful collections in this part of the world.

If your approach happens to be from west to east, you will first be impressed by the number of 'maar' features on your map. These are circular basins representing various stages of erosional development of volcanic calderas; everything from perfectly rounded crater lakes to dried-up lake basins. In one case near Daun they occur like beads on a necklace, strung out one beside another as the volcanic centre shifted through time producing several successive outbursts. In the same area, the Meerfelder Maar and the almost perfectly circular Pulvermaar make photogenic places to explore, the former having an especially good viewpoint on its northern rim. By contrast, the Dreiser Weiher between Daun and Gerolstein is a perfect example of a dried out maar lake-bed; all that remains is a spring from which a mineral-water bottling plant obtains its source material! This caldera previously produced many fine examples of peridotite 'mantle-xenoliths' that adorn local museum displays and which confirm the deep roots of these volcanoes. Much by chance I was fortunate to track down another active quarry that produced more of the same, including some good fist-sized specimens.

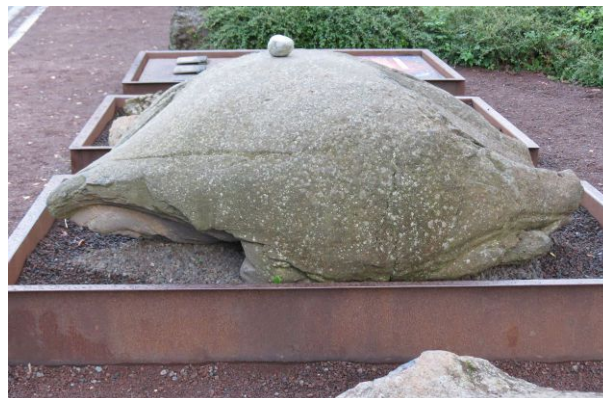


The 'Brubbel' cold water geyser

One must-see feature is the 'Brubbel' at Wallenborn. This may be somewhat over-hyped as the 'world's tallest cold water geyser', but is still worth the effort of seeing for real (you can enjoy it by banging 'brubbel' into a search engine). Unlike the more common thermally activated geysers, cold water types are driven by gas (carbon dioxide) pressure in the underlying aquifer. Brubbel reliably repeats itself every 29 minutes or so - needless to say I arrived just after a performance, so can verify the timing precisely! Much as Rossini is supposed to have described a Wagner opera, there are wonderful moments but some tedious half-hours.

A more instructive location is not far away at Strohn. Featured on much of the publicity for the area is the so-called 'Lavabombe'. (See *the frontispiece, Ed.*) This 120 tonne, 4+ metre diameter boulder stands by the roadside having been removed from the nearby quarry in which it dropped from a working face in 1969. For a while an attached notice assured folk that it was a volcanic bomb hurled out from a volcano. Today the display has been more correctly added to with a selection of genuine, aerodynamically shaped 'lava bombs' (some of impressive proportions, if not quite so large) with information boards drawing attention to the differences between real and supposed 'bombs'. The 'big fellow' is simply the product of spheroidal weathering, though still quite impressive for all that. ►

Another location of interest is the Kalem volcano near Birresborn, where a notice board of the 'you are here' type usefully informs you that you are presently perched on the surface of the earth's crust somewhere in middle Europe (who says the Germans have no sense of humour)! Many pocket-sized 'pseudo-lava bombs' were to be found here.



The real 'Lavabombe' nearby

Time then to progress eastwards to the Laacher See in the east-Eifel. This area is of some historical renown in being associated with the early advocacy of a primary, magmatic origin of calcite in the odd suite of rocks known as carbonatites, although their occurrence here is limited. Nevertheless, they give the clue to the nature of the volcanism in this part of the Eifel as being highly alkaline... characteristic of intra-continental rifting. The setting is along (or just offset from?) the main line of the lower Rhine rift valley. A similar occurrence may be explored further south in the Kaiserstuhl, approaching the French and Swiss borders, where outcrops of carbonatite are more readily found.

The geological map of the area that was locally available (and bilingually presented in German and English) shows that the volcanism intruded Lower Devonian slates, quartzites and greywackes, dating from several specific phases. The earliest are alkali basalts of Oligocene / Miocene age (30-20Ma). But the more interesting stuff is of Quaternary vintage (ie 'sub-recent'), with separate deposits dated at 650-450ka, 450-350ka, 215-190ka, 150-100ka and the last burst being a 'super-eruption' which resulted in the formation of the Laacher See caldera some 11 thousand years ago. One website gives the periods of activity as 400, 220, 130 and 13ka for the 'East Eifel Volcanic Field'. Either way, the largest event seems to have been the most recent eruption, estimated to have been a VEI 6 Pinatubo scale explosion that sent some 16 cubic kilometres of material high into the heavens and a further 6 cubic kilometres of lava flowing across the landscape.

The Eifel Volcanic Field as a whole includes over 200 separate volcanoes, including dozens of maars. Magmatism resulted from heating, stretching and thinning of the continental crust as the region underwent considerable uplift during the Tertiary period, accelerating in the Quaternary. In fact the region is still rising at 1 or 2 millimetres a year suggesting that the Laacher event might not prove to be final! The whole is believed (by some) to be sustained by one of those much debated mantle plumes (the Eifel 'hotspot'). Partial melting of the lower crust in mid-continental settings results in highly alkaline, silica lean magmas and gives rise to a host of unusual rock types, notably phonolites; also to unusual minerals such as feldspathoids and related species that replace the more usual feldspars. These minerals (and rocks) are formed from magmas of low silica content, enriched instead in such elements as sodium, potassium and calcium. (Carbonatites are an extreme case of silica depleted magmas, comprising almost pure carbonate-species).

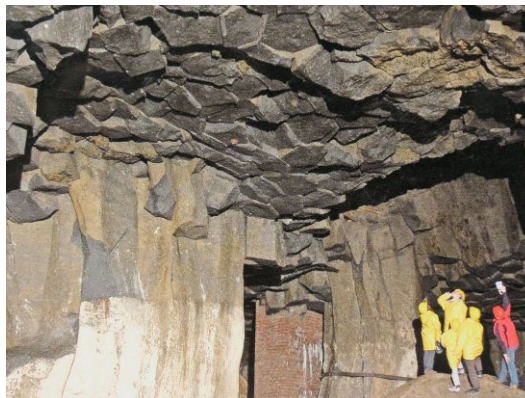
Amongst the unusual minerals are nepheline, leucite and melilite, which are often included in the names of the various volcanic products adorning the detailed geological map. I should add however that these minerals are usually difficult to appreciate in hand specimen (at least to the uninitiated like myself!), and their identity generally requires proving in thin-section. Nevertheless, some of the rocks you find look distinctly odd, even if you can't quite 'put your finger on their oddness'. This is particularly true of some of the porphyritic lavas, which have slightly unusual hues and where the phenocrysts are sometimes of the unusual minerals alluded to above. A good example comes from the quarry at Brenk where the rock is described as 'nosean-phonolite'. A porphyritic texture is clear to see, but whether the phenocrysts are of nosean, I don't know without expert confirmation. This quarry has, apparently, long been a supply of material from which green glass wine bottles (characteristic of Moselle wines... think 'Piesporter Michelsberg') have been manufactured. ►



Häüyne on augite, Somma-Vesuvius, size of crystal 2 mm. Wikimedia Commons.

The list of obscure minerals discovered in these volcanic rocks is seemingly endless (again, I refer you to the wonders of the internet if you are more interested in minerals than your correspondent). There was one mineral that really did capture my interest however, and which has long been associated with the Laacher See area. That mineral is haüyne (pronounced 'how-eeen'). Why was this of interest? It has arguably the most vivid blue colour in the mineral world, even more so than lapis. It occurs as individual specks within some of the tuffs and pumices and was relatively easy to spot (thanks to the colour!) at a couple of localities near Mendig, in particular the Wingertsbergwand, which is an especially instructive location for seeing depositional structures and textural variations in the tephra deposits.

Roaming around the area relatively aimlessly (at first) it was easy to spot the characteristic mound-like ash cones, each representing a separate volcanic event. Also there were more 'maars'. The Laacher See itself is the best of the lot, with waymarked 'geo-trails' on offer in some of the local guidebooks I came across (in German). In nearby Mendig there are visitor attractions which include the opportunity to enter a chamber *beneath* a layer of columnar basalt (imagine a worm's eye view of Fingal's Cave!). As well as lavas, it is probably true to say that pyroclastics predominate, with some quarries specifically working 'tuffsite' (i.e. a uniform-looking tuff cut and excavated in regular, large blocks) and another locality in which a positive rabbit-warren of tunnels had been excavated in the extraction of a coarse-textured tuff known locally as 'trass'. This has been worked since Roman times as it is well suited for use as a hydraulic mortar like the better known Neapolitan pozzolana.



The 'Lava-cellar' at Mendig

Many of the working quarries in the area seemed to be off-limits, certainly without prior notice, although it was usually possible to find loose material lying around the perimeter. More homework would be needed to establish whether, for instance, a quarry working (according to the geological map) 'melilite nephelinite scoria cones, lava flows and tephra deposits' was worth pursuing. (It did have faces in which nice sills and dykes could be clearly seen criss-crossing bedded tephra.)



Partially fashioned millstone at Mauerley

One particular locality in the guidebooks that seemed worth exploring further was another site with Roman connections quarrying rock for the production of millstones. This was the Mauerley volcano and its surrounds which proved to be in wooded terrain along an escarpment formed by the margin of a thick lava flow, now somewhat dissected by subsequent drainage development. Partially hidden by trees and loose fallen blocks were a good number of partly shaped-out blocks of basalt evidently abandoned at some point in time when millstone manufacture went out of fashion, perhaps with the withdrawal of Roman legions as the empire declined. There were no fewer than 17 information boards on site explaining the geology, landscape evolution and method of millstone manufacture. It all had a ring of the Millstone Edge quarries about it (near Hathersage, Derbyshire). The best unfinished millstone I came across later was back in Mendig near the visitor attractions, but I doubt it was fashioned by the Romans!

This account doesn't do justice to an area with much more to offer. Indeed, I haven't mentioned half the places I visited. More information in English would certainly help to maximise one's time, and to improve the planning of an itinerary rather than my haphazard approach. I always end up thinking 'I must get back again'... but the world's a big place, and there's much else to see! But, if you're looking for somewhere a little unusual to visit with geological interest by the bucket load, you could do worse than head across to this corner of mainland Europe. You could take in the Ardennes on the way. ■

Mike Allen

Rowley Hills - From the Depths of the Earth

This poem is from a book that will shortly be published by Aldridge-based publishers Mapseekers (www.mapseeker.co.uk). The book is called 'Wildfire Through Staffordshire' and it is about the Wildfire locomotive as it travels up the Grand Junction Railway in 1838. The narrative is based on the eyewitness account of a man called Osborne who describes the people and places of the Black Country - but in particular, he has a keen eye for the geology: the coal seams, alluvial beds, sandstone and limestone and how the rocks beneath our feet have affected the landscape - the building materials, industry and environment. The Rowley Hills are mentioned and Rowley Rag - what other encouragement did I need to write this poem and preach to the unconverted?

Rowley Hills - From the Depths of the Earth

Geology matters, secrets in rocks,
An ancient history of what has been;
Keys to the past, bolted doors now unlocked,
Extinct fish, birds and mammoths can be seen.
Science of rocks is called geology,
Geologists detecting rocks for clues:
Earthquakes, volcanoes and ecology,
Climate change and how the land should be used.

Lulworth Cove and site of the Jurassic Coast
Or Wrens Nest in Dudley and trilobites;
Rowley Rag is the Black Country's proud boast,
A grey molten rock known as dolerite.
Rowley Hill's rich geodiversity
Was a pirate's map of buried treasure;
Employment and years of prosperity,
Quarries for the roadstone and Coal Measures.

Roman soldiers came here on the Portway,
Rowley Rag on their roads in the Empire:
Rocks trodden down like a giant's causeway,
Footing for conquerors that does not tire;
In drystone walls, Roman coins have been found,
Emperor Galba, AD 69:
They came to extract rocks beneath the ground
And mineral ores in the ancient mines.

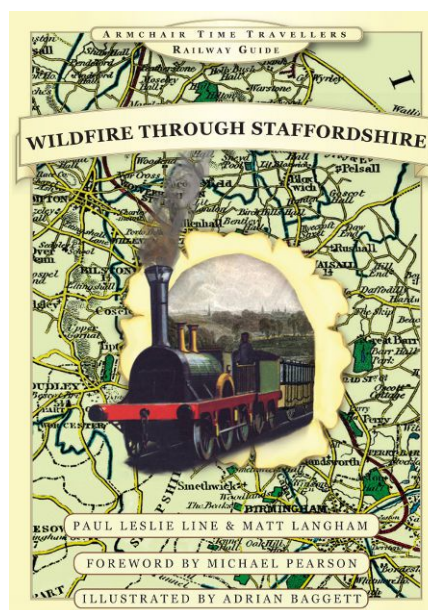
Rocks define the landscape, houses and walls,
Biodiversity on Rowley Hills;
Rowley Rag was once used for cannon balls,
At Dudley Castle and now for landfill.
Secrets in rocks, fossilised plesiosaurs,
Geologists uncovering the past:
How magma erupted from the earth's core,
Tropical forests and how rocks were cast.

Note:

In the early 1800s the now long lost Peal Quarry in Rowley Hills captured a lot of interest for its beautiful columns and jointing displayed in the rocks. James Watt commissioned Creighton to draw it in 1808 and it became subject of an engraving to illustrate Thomas Thomson's geological paper in 1816. Two other illustrations of Pearl Quarry appeared in William Hawkes Smith's 1838 Birmingham & Vicinity and Murchison's Silurian System the following year. ■

Deserts covered Walsall, Bilston had dunes;
Bentley bathed on a Silurian shore.
Darlaston looked like the face of the moon,
Molten rocks welling up from the earth's core.
The advancing glaciers carved the land,
Flood waters depositing new sand beds;
Mammoths and reindeer on frozen grasslands,
Rowley Hills becoming a watershed.

Rocks tell the story of changing climate,
Rowley Rag quarried for the turnpike roads
On an industrial scale, aggregate,
Crushed rock, to help merchants transport their loads.
Rocks define the local environment,
They are used for cobblestones and paving,
Kerbstones, gutters, castles and tenements,
Rowley's quarries captured in engravings.



Ian Henery, June 2013 (Walsall Poet Laureate 2013 - 2014)

Reference: 'From the Depths of the Earth - Discovering the ancient past of the Rowley Hills' - a free leaflet downloadable from the BCGS web site: http://www.bcgss.info/download_leaflets.html

Geobabble

Climate change is now generally accepted as a fact: or is it? I have met many people who deny that it is happening, although when I discuss it with them it appears they are confusing climate with weather. Even so, there are many people who maintain that there is little evidence for temperature changes on the planet, and ignore the science, refusing to look at the peer reviewed evidence.

I recently watched for the second time the documentary film '*Chasing Ice*'; it is available on DVD and if you have not seen it, it is well worth getting a copy. The photography is spectacular from various glaciers around the world and time lapse cameras enable the changes in position of various ice fronts to be tracked over a number of years. As the Guardian newspaper put it: 'If any film can convert the climate-change sceptics, *Chasing Ice* would be it: here, seeing really is believing.'

However, there is also other research into the behaviour of the planet from the geophysicists, and I read an article in a recent issue of that splendid magazine *New Scientist*. It has been known for over 100 years that the Earth 'wobbles' on its axis of rotation. Measurements have been taken during this time and the North Pole has been moving southwards, very slowly. Research by Chen, using gravity data indicates

that in 2005, this southerly direction has changed to the east, and has speeded up. The explanation is thought to be the melting of ice, leading to a redistribution of the Earth's mass. The annual mass of ice that melts is thought to be about 620 gigatonnes. A gigatonne is one billion tonnes.

The article is by Anil Ananthaswamy in the *New Scientist* dated 13 December 2013, or you can find it online by putting; '*Earth's poles are shifting because of climate change*' into a search engine.

Why the temperature is rising is another thing and I am pleased to have written this without mentioning Anthropogenic Climate Change. ■

Bill Groves



Two views of The Briksdal glacier photographed by Simo Räsänen, Wikimedia Commons

Members' Forum

A Cornish Pasty?

Andy's puzzle in the last issue asking for identification of this peculiar object, elicited some interesting responses. To remind you: it was found on the East Garston Downs, near Lambourn, Berkshire. The underlying geology of the Downs comprises Cretaceous White Chalk Group containing seams rich in flint nodules. Now read on... ►



From Christine Hodgson:

Gregg edibula ?

I'd describe this object as indigestible rather than peculiar - hence the abandonment. Suggested that it was found quite soon after deposition. There is little sign of erosion on the edge of the specimen, although possible avian or impact damage on the upper and lower faces respectively may be present.. The pattern round the rim is common on many shop-bought pasties and pies. Without further analysis the contents of the farinaceous exterior will remain unknown but some sort of animal material seems most likely.

From Jon Radley (Curator of Natural Sciences, Warwick Museum):

I'm guessing it's a patinated flint? I'm pretty sure it's the broken rim of a sponge.

From Andy Harrison, the truth revealed!

The object in question is indeed flint and has been identified as a fossil sponge called Plocoscyphia, possibly of Cenomanian Age. It is a stationary, filter feeding organism belonging to the class Demospongiae, the largest class in the phylum Porifera.



Flint fossils are commonly found in chalk strata especially corals, burrows and echinoids. Flint represents re-precipitated silica sourced from sponges and siliceous plankton. At depth, pressure causes the silica to become soluble and able to pass through pore space and voids within the chalk during diagenesis. Once the soluble silica reaches a zone of lower pressure it re-precipitates infilling voids and enveloping shells to produce seams of flint nodules. ■

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