



The  
Geological  
Society

North West Regional Group

# Newsletter

Autumn 2016



## **Your guide to Geological Society events in the North West - 2016/17**

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## Committee News

We welcome you back to the regional group for a new season of lectures and fieldtrips. In accordance with the constitution of the Society, Malcolm Henderson and Mark Parkin requested to step down as Chairman and Treasurer. It should be noted that Mark has also served as Secretary and Chair for the regional group. Both Malcolm and Mark have had a long term in office which we are truly grateful for. The current status of the committee is as below:

**Chair:** Nik Reynolds

**Secretary:** Catherine Kenny

**Treasurer:** Rob Hunt

**Outreach Officer:** Dr Katherine Harrison

Marie Convery

Martin Lucas

Mark Parkin

Dr Laurance Donnelly

Andrew Moore

Laura Ward

The committee would like to thank both Malcolm and Mark for all the hard work put in over the years with the committee in their roles, and has made the regional group one of the most productive groups in the Society.

*The photograph used on the cover of this year's newsletter is a copper deposit within the Engine Vein Mine, Alderley Edge.*

## Looking Back at 2015/16

I hope you all enjoyed our previous season of lectures, and judging by the numbers of members attending, we seem to be doing something right! It seems we are tempting more and more members from their armchairs to attend the lectures we put on which is good news as a lot of hard work goes into organising these events.

We have continued with the joint ventures with our regional Geological Association groups and ran the 4<sup>th</sup> annual meeting with both the Liverpool Geological Society and the North Wales Geology Association. These lectures are not associated with a professional discipline, rather a traditional geological lecture which is not based on subject matter relevant to most of our '9 to 5' professional lives. If you have not had opportunity to attend these talks, I would strongly recommend that you take the plunge! These are based in Chester University (North Wales Geology Association) and John Moores University (Liverpool Geological Society).

We ran the Alderley Edge fieldtrip again (last run in 2012) with two separate tours, the first tour exploring the Engine Vein mine system and a second tour exploring Wood Mine. A summary of these trips will be discussed later in the Newsletter.

Unfortunately, we were not able to run our careers afternoon showcasing different professions to undergraduates and graduates. We intend to run this in 2017.

## A-Level Revision Event

We ran the second A-Level Revision event in April at Manchester University. With Easter sitting over an extended 4 week period, this resulted in a lower turn out than anticipated. The original intention of the event was to run a lower and upper sixth lecture series in adjoining lecture theatres. Due to the reduced numbers, one lecture was omitted, and the lectures combined within one theatre.

The lectures ran comprised:

**Metamorphism** – Prof John Wheeler (Liverpool)

**Mam Tor (case study)** – Prof Ernest Rutter (Manchester)

**Milankovitch Cycles** – Dr Margot Saher (Bangor)

**The position of the UK over time** – Dr Charlotte Jeffrey Abt (Liverpool)

Approximately 90 students attended the event and we received very good reviews from both students and teachers. We also received good reviews from parents who accompanied several students and appreciated both taking part/understanding a section of their children's education, and the opportunity to see what University lectures were like and the courses on offer with the regional establishments.

## Photographic Competition

We had a brilliant response to the regional groups photographic competition with Briony Harvey receiving two prizes for her submissions.

As the competition was progressing, there was a behind the scenes competition with the associated Secretaries for the number of entries per group. It should be noted that the North West provided 70% of all entrants!

The calibre of photographs was very high, and following one of the evening lectures all attending committee members sat through a slideshow of all entrants to whittle the number of photographs to circa 150 photographs. Committee members then choose their top 15 photographs.

Ben Hill (Fellow of the Society based in Chester) kindly spent a lot of time devising a spreadsheet to allow us to provide a weighted top 15 based on the committees votes. This spreadsheet was then used by Dan Welch (West Midlands Chairman) to then weight the choices from all the regional groups.

As this was such a success, we have worked with Dan Welch for the 2016 photographic competition. It was decided that there were to be 3 No. categories:

Year of Water: Open to all

Year of Fieldwork: 16 – 18yrs (aimed at A-Level)

Year of Fieldwork: Undergraduate and over.



Again, there will be cash and publication prizes for winners with fieldwork prizes for the fieldwork competition.

The poster has been attached to the following page.

Due to the success of last years competition, this is almost countrywide now - plenty of competition!!! We hope to see plenty of entrants from the North West!!!

### Chartership Meeting

Stephen Fryer and Bill Gaskarth came to Manchester University on 28 April to present a workshop on the benefits of chartership and how to become chartered.

This was very enlightening for prospective candidates to become chartered and allowed candidates to ask both speakers specific questions about the process to become chartered.

During this meeting, Bill explained the change in thought about CPD. This is still a very important aspect of chartership, however the weighted points system will be phased out. In its place will be a non weighted hours requirement. To help fellows, a mind map (attached to this newsletter) was presented indicating the ways that Fellows can look to achieve their CPD.

Feedback from people attending was very good and this event was followed by an afternoon event in Manchester.

On July 1<sup>st</sup>, a scrutineers' training session was held at the Copthorne Hotel in Manchester, lead by Bill Gaskarth. The session was very well attended, by both scrutineers with long experience and by those who had only undertaken one or no interviews.

The morning session focussed on discussion groups which debated the mix of scrutineers (one specialist, and one non specialist) at interviews, the best approach to assessing health and safety and professionalism, the cut off dates for the return of the forms and dealing with applications via the 20+ years route. Many of us found it extremely useful to meet other scrutineers, and to be able to discuss these topics, and others!

The afternoon session comprised a workshop on mentoring, delivered by John and Trudy Arthurs, which covered basic mentoring skills, and included a coaching demonstration and practice.

This was an excellent event, and I hope that further such events will encourage more people to become scrutineers.

For information on how to become a scrutineer, see: <https://www.geolsoc.org.uk/Membership/Chartership-and-Professional/Scrutineers>

### School's Challenge

Altrincham Grammar School for Boys hosted the 2016 School's Challenge as they won the previous regional at Manchester University.

Unfortunately, we only had one other school that was prepared to put a team against the Grammar School - South Cheshire College.

Last year we managed to wangle a small number of copies of 'The Geology of England and Wales' from the publishing house as prizes for the 2015 winners. We were given a smaller number for 2016 and decided that it would be more appropriate to find a permanent prize for the winner, something to be fought over and suitable for display in the School trophy cabinet! Having spent a significant time looking for an appropriate prize, I received an offer from Treak Cliff Cavern, Castleton of a sizeable chunk of the famous Blue John which could be presented as an annual prize. This was therefore a brilliant first prize.

I then received an offer of a large fluorite crystal from the Weardale Mines by Ed Coghlan. This was therefore a brilliant second prize, although side by side, both were very impressive specimens and would be a very worthy prize.

We had bases for the minerals made by volunteers from the Cheshire 'The Men in Sheds' group, an Age UK Cheshire Project which was set up to fight social isolation in the over 50's (<http://www.ageuk.org.uk/cheshire/our-services/men-in-sheds/>). Special thanks goes to Bill Cowburn for his fantastic woodworking skills!



Blue John specimen with the Treak Cliff Cavern streak





Fluorite crystal from the Weardale Mine

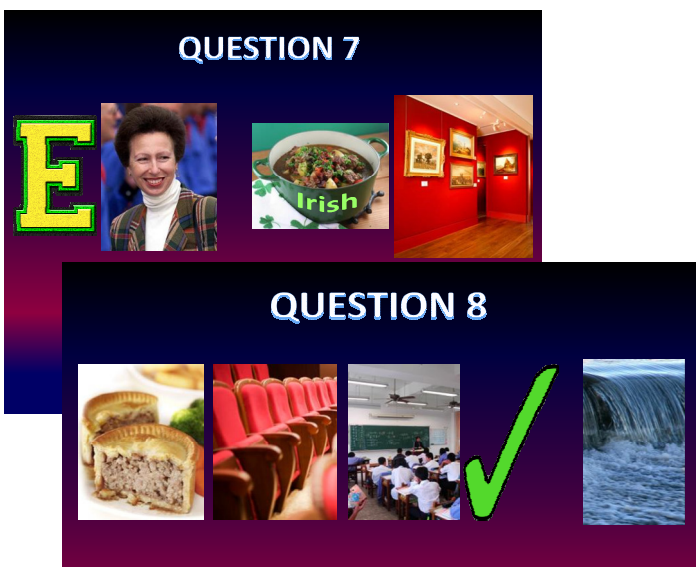
Both groups of students provided excellent presentations and very high quality posters, and performed impressively in the discussion of the chosen subjects. Altrincham Grammar School for Boys presented on the origin of diamonds and South Cheshire College on the Cretaceous Extinction event.

The Geological Society provided the regional groups with a quiz for the regional heats this year, which was in parts very challenging, with questions on William Smith, Photo-fit questions (examples below for Questions 7 & 8 for those who fancy a try - Answers on a postcard), odd one out and guess a famous geological location.

We had three judges to assess the content of the talk and the content of the poster, with the checking of the points for the quiz. This year's judges were Catherine Kenny (Secretary of the North West Regional Geol Soc), Andrew Moore (WSP and member of the North West Regional Geol Soc) and Dr Rufus Brunt (Manchester University).

Altrincham Grammar School only just pipped South Cheshire College.

Examples of the Photo-fit questions:



Altrincham Grammar School for Boy's represented the North West region in the finals held at Burlington House on the 25<sup>th</sup> April.

Their presentation won the finals! They were presented with their prizes by Paul Maliphant and Sarah Fray (Executive Secretary of the Geological Society).

We wish to thank both schools for excellent presentations and a good evening for the regional heats!

That means that as winners, Altrincham Grammar School for Boys will host the 2017 event. We are now looking for schools to take part in this challenge. The title of the talk is open to the schools, although it may be prudent to note that 2017 will be the 'Year of the Geohazard'! We anticipate that the date for the regional heat will be in January, although we will confirm this in due course.



South Cheshire College team



Altrincham Grammar School for Boys team.





## Field Trip to Halkyn Mountain and Hendre Spar (13 September 2015)



Warning for old mineshafts and historical mining levels seen in the Halkyn Quarry cut face.

Following the excellent lecture presented by Andrew Moore of WSP on the risk assessment and mitigation of mining infrastructure on Halkyn Moor, it was decided to take a trip to see the features discussed. It was decided to split this event into two, with a surface trip to see the quarrying and the exposed geology as well as the mitigation to the mine workings. The second phase of the trip was a journey underground to Halkyn Spar mine lead by Tim Watts from the United Cavers Exploration Team based in Mold. The second trip was limited in numbers due to health and safety requirements.

We were lucky to have Rachael Watson who is the Ranger for the Mountain to guide us across the common and show us several exposures, and discuss the industrial heritage of the area. We were also very lucky to have John Watson (who worked with WSP during the assessment and mitigation), as well as Tony Kirkham (who had a significant wealth of knowledge of the quarry we visited) on the tour whose contributions were excellent. It was great to see that many members brought their children with them. Outdoor fieldtrips are great for children!







The tour started from the old school building in Rhes-y-Cae on the common which had a significant shaft collapse adjacent to its boundary (<http://www.bbc.co.uk/news/uk-wales-18016191>). We then stopped at several shafts to see the method of mitigation, from fencing to capping. We walked around the Halkyn (Pant-y-Pwll Dwr) Quarry and could see the extent of mining within the exposed faces of the quarry with historic mining levels clearly visible. On the way to Waen Brodglas Limekilns, we saw an excellent crinoid bed, as well as the infamous Clwyd Caps for old shafts. The limekilns were well worth the walk, and these were in the process of restoration.



We headed back via the former Pen-yr-Henblas Quarry to see the Pentre Chert deposits and several sedimentary features such as an impressive channel formation. The journey back to the school took us around the remaining edges of the Halkyn Quarry and past several mine shafts with an array of mitigation measures.



Waen Brodglas Limekilns and Pen-yr-Henblas Quarry.

After a well deserved sandwich break, those who were lucky to get spaces on the Hendre Spar trip went underground...

The trip started from the car park of Y Dderwen (The Oak) public house with a walk uphill to a large shaft, which we entered with the aid of the Caving Team using a long ladder, which bounced gently under each step as we descended into the dark below. We had a fantastic tour of the mine, viewing mineral deposits, cave pearls, speleothems, and mining features, with some quite challenging ascents and descents (for those of us with a fear of heights, and the dark!) on ladders and rope-assisted scrambles!





Climbing down to a deeper level



The entrance shaft





## Field Trip to Alderley Edge

As usual, this fieldtrip is very well attended. Due to the type of tour, this is restricted in numbers who can attend to 14. As such, we had two full tours booked. The Derbyshire Caving Club provided the guides for both tours.

### **Engine Vein (19 May 2016)**

The first tour down the Alderley Edge went to Engine Vein. This was accessed from a short walk to the north east of the National Trust woodland. Before entering the mine via an old bank safe door, the tour guide explained the mining history of the area and the mitigation measures the caving club have been undertaking over the years to make this safe for people using the area. This included the recently encountered mine shaft found between the drive for the Wizard pub and the National Trust car park!



Collecting helmets in the cottage opposite the Wizard.

This years tour took the group into the general mine explored in 2012, however this year via ladders, we accessed additional areas of the former workings where we saw extensive blue and green deposits of copper which have oozed along the walls. At the lowest level we were shown a folded zone of ductile clay which was sandwiched between the sandstone. One the way out of the mine, one of the pumps had broken and we all ended up with wet feet, and legs as we had to wade through water which in areas came to your knees - no match for rigger boots and most wellies!

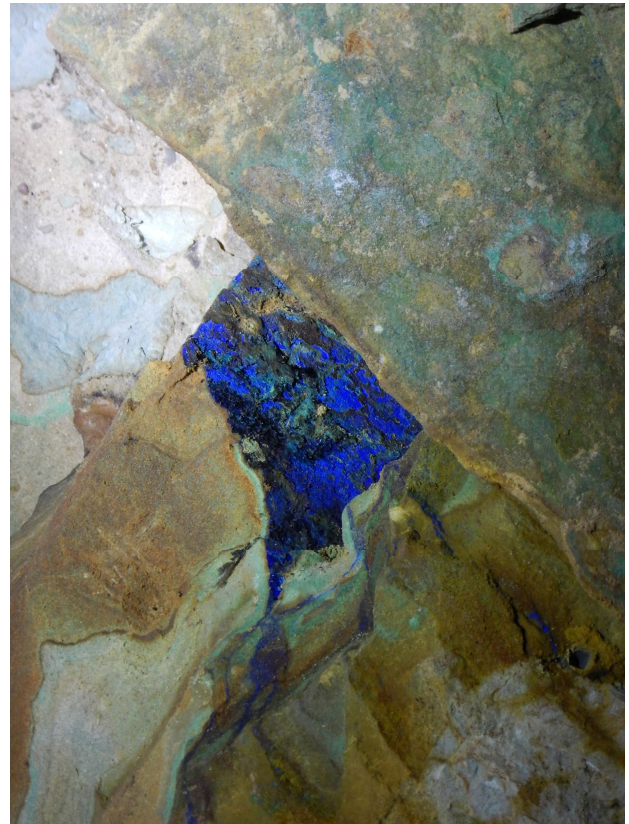
Once out of the mine, we were taken to the Edge and shown several mine shafts as well the sandstone quarry.



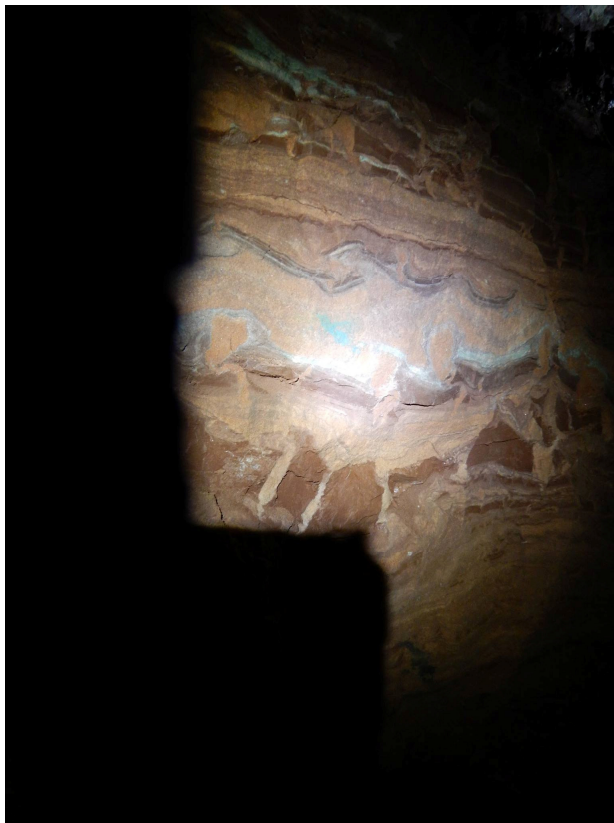




Azurite balls which were on the floor of the mine



Copper deposit on the roof of one of the galleries.



Ductile clay band.



Copper deposit around the ladder sections (Ed for scale)

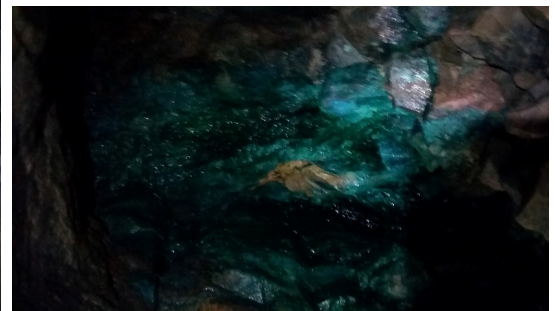




### Wood Mine (26 May 2016)



The Wood Mine Trip started with a short walk through the area of the former mine tailings, still bare of wildlife, then went deep into the damp mine where we saw lots of copper deposits, including azurite, some trace fossils on the roof of the mine, and a fault zone. The youngest member of the party also had a go at squeezing along a tiny tight passage which lead through the back of the deepest chamber and back to where we were (rather anxiously) waiting!



Within the Wood Mine and a deposit of copper

This was an excellent trip and if you were not fortunate enough to be have come on this trip, we recommend that you look out for the open days the caving club have for the general public.





### Field Trip to Anglesey (10 & 11 September 2016)

Our field trip began with an introduction to the very complex geology of Anglesey by Margaret Wood, Director of Geomon. This was followed by a tour of Parys Mountain from David Jenkins, formerly of Bangor University and the Amlwch Heritage Trust, whose long involvement with the site notably included the draining of a 50,000m<sup>3</sup> acidic lake which had accumulated in the abandoned workings. This averted a major environmental disaster which would also have wiped out a significant chunk of the neighbouring towns and villages. David told of a partly submerged abandoned vehicle found in the lake (pH2!!) which was dragged out as part of the clean-up, and found to have mostly dissolved below the waterline!



Parys Mountain

Having admired the incredible scenery and other-worldly landscape (and found some nice chalcopyrites) we moved on to Cemaes with Stuart Campbell of Geomon /NRW to view the oldest fossils in England/Wales: stromatolites, part of the Precambrian melange which exhibits an impressive swarm of dykes.



Paleozoic Dykes with baked margins which stand proud, due to weathering. (Wylfa in background)

From here, we visited Gadlys Quarry where, unusually, Miocene sediments have formed solution subsidence features in the limestone olistolith. We then took a very pleasant walk in the sunshine around the coast to Llanbadrig where we viewed a sedimentary melange, visited the church and St Patrick's Cave.





Llanbadrig

After a lovely evening in Menai bridge, we headed out on Sunday to Llanddwyn Island's spectacularly colourful rocks, named here (melange) by Edward Greenly in 1919. some of the best pillow lavas I have ever seen! We were once again blessed with excellent weather (with only a brief soaking, at the furthest point from the cars!). A thoroughly enjoyable trip, with some great discussion amongst the group, and some amazing geology proving Anglesey's status as a UNESCO Global Geopark is very well deserved.



Melange and Pillow Lava Basalts







## Lecture Series 2015/16

Instead of a September lecture, we thought we would throw chance to the wind and have a field trip – to Halkyn Mountain. The weather gods were very kind to us and we had a great day out looking at the heavily scarred natural landscape. A summary of this fieldtrip has been presented earlier in the newsletter.

The first lecture we held was the 4<sup>th</sup> joint lecture with the North Wales Geological Association. Dr Ian Stimpson from Keele University brought us all up to speed with the massive advances in plate tectonics which have occurred within the last 20 years, including the discovery and replication of bridgmanite. This lecture was one we held on the 1<sup>st</sup> A-Level revision session and thought the content so good, we would bring it to an adult audience.

Dr Julian Mecklenburgh from Manchester University delivered our November lecture on “Getting Gas Out of Shale: What Can Experiments Tell Us?”. This very topical lecture expelled a few myths about shale gas and fracking, as well as a discussion of some of the issues affecting the industry and provided an interesting insight into the experimental work ongoing at Manchester University.

Our Christmas lecture was taken by Dr Lucy Thomas, the Chair of SoBRA at the Centre in Birchwood. The talk was discussing the way forward for risk assessing sites with the potential of, or known asbestos within madeground. This also considered the health and safety of engineers in the field. This was based on one of the working groups for SoBRA. The lecture provided an insight into what is now the CAR-SOIL document for the ‘Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition Materials: Industry Guidance.

We were hoping to put a workshop on in January for the release of the replacement for CIRIA SP32 on ‘Construction over Abandoned Mine Workings’, however this still has not been completed. CIRIA have released selected chapters of the forthcoming replacement document, although those associated with risk assessment have not been approved for release to date. Following from the discussion associated with the lecture presented by the CIRIA team we hosted in January 2014, that there would be a significant risk based approach to mining risk assessment, this appears to have been a bridge too far and consensus appears not to hold. We anticipate that risk assessment will revert back to the rule of thumb (10T – 10 times seam thickness) even though the justification behind this is rather scant within SP32. Should the new document be radically different as initially proposed during the lecture, we will look to put on a workshop to get consultants up to speed, however should the document recommend that we carry on as usual, we may put on a best practice lecture later in the season/next year – depending on the final completion of this document.

In January, Andrew Moore presented a lecture at Manchester University on the technological innovations which are creeping into field engineers tool boxes – including tablets and advanced ground data software. This showed that where there is sufficient data to populate ground models in the virtual space, assessment of contamination as well as geological situations are likely to be more rational and less time consuming than by hand. The advantages of adding telemetry into the data gathering was also discussed.

February is our traditional month for the joint lecture with the Liverpool Geological Society. Professor Richard Worden presented a very insightful talk on the Formby Oil field where onshore petroleum plays have been taken from the well known oil fields in Morecombe Bay. The talk discussed the limited life of the onshore play, the situation of the Morecombe Bay oilfield as well as continuity between the two sites. The potential for unconventional plays (shale gas and shale oils) were also discussed.

In March Dr Ted Nield came to Manchester University to discuss his recently published book ‘Underlands’. This was a talk both about the Nield family as traced back by Ted and the terrible accident which occurred in Aberfan where the Nield family lived in the 1960’s. Ted provided a detailed case study of the Aberfan Tragedy and the mechanics behind the disaster.

As our excuse to visit the pub for meetings had been curtailed by the renovation of the meeting room above The Swan pub in Newton, we decided it was time to find a new local to have a talk. The Pied Bull in Newton le Willows was chosen as they had a meeting room for 50-60 people and they were willing to put chips and sandwiches on! We were very lucky to have three members of the team who were involved with the investigation and mitigation of the Crag End Landslide. Paul Berry (Atkins) provided a detailed assessment of the investigation, with Harriet Kirk (Atkins) providing a detailed discussion on the modelling of the slope stability and decision process for the mitigation. Jonathan Archer (Volker Stevin) talked about the engineering problems and ways these were addressed.

The May lecture was replaced by the Alderley Edge field trips which are discussed above.

Attendance at lectures was noted to vary between 35 and 72 people. As our regional membership is circa 730 – this equates to circa 5% to 10% (assuming all attendees are fellows) per lecture.

We put on lectures for all of our members, as well as any willing member of the public, and we try to please the majority where possible as this allows us to request for funds to put these talks on. There are few things free these days, and our talks at the moment are one of those.





Many of the talks presented last season usually have a high ticket value when presented as part of a conference, and it is an ideal opportunity to hear the speaker, to gain up to date information of the subject, to learn new subjects, to gain CPD points as well as to network and meet your peers.

### What's Happening in 2015/16

The committee have been very busy this summer arranging the new programme for 2015/16. The programme this year is broad with pure geological talks which bring us back to why we studied geology in the first place, contamination, geotechnical engineering, industry guidance and much more!!

Our first lecture of the season will be presented by Dr Andrew

#### 29 September 2016

##### The Geological Map - Its development, the British Geological Survey and the future,

(Manchester University) Dr Andrew Howard

##### **29 September 2016 (Manchester University) Dr Andrew Howard**(British Geological Survey)

Last year, 2015, marked the 200<sup>th</sup> anniversary of William Smith's famous geological map. The first national map of its kind, it set a template for geological maps and surveys that remained largely unchanged until the start of the 21<sup>st</sup> century.

William Smith used observations from mines, rock outcrops and the general shape of the landscape to assemble, in his mind, a fully 3 dimensional understanding of the geology and stratigraphy of the rocks beneath our feet. The paper map was the best available technology at the time to communicate this understanding to his fellow scientists, and to the engineers and miners who needed this knowledge to build and fuel the industrial revolution. His other outputs, notably his cross-sections, stratigraphical tables, memoirs and texts, demonstrated an extraordinary vision of how to organise and communicate geological knowledge and are the direct precursors of the geological information systems of today.

Modern geological surveys are similarly tasked to provide the essential knowledge needed for secure energy and water supplies, critical mineral resources, and a safe and sustainable environment. We also face all the challenges, opportunities and expectations presented by 21<sup>st</sup> century technology for publishing our science, and communicating contentious geoscience issues to the public. This talk will highlight the challenges that motivate the William Smiths of tomorrow and that define

the purpose and mission of a geological survey, and will discuss the tools and technologies we will use to map and model our subsurface environment in a rapidly changing world.

Dr Andy Howard has been a geologist with the BGS since 1984. A Sheffield University graduate, he went on to complete a PhD on the sedimentology and environments of the Yorkshire Jurassic, starting his career at BGS working on the Department of Energy funded hydrocarbons programme in the southern and central North Sea. In the late 80s he moved on to onshore geological mapping focussing on urban areas in the midlands and north west England, also working with the International Union of Geological Sciences and EuroGeoSurveys to develop best practice in urban geology for planning. He joined the BGS senior management team in 2005, mainly with responsibility to deliver the BGS National Geological Model, and currently leads the BGS national programmes in geology and regional geophysics.

*This will be a great introduction for geology students, as well as professional geologists with an interest in the history of our chosen subject as well as understanding where geological mapping is heading.* 20 October 2016

#### 20 October 2016

##### The Borrowdale Volcanic Group as a potential host rock beneath West Cumbria, (Manchester University) **Jon Black**

Many of the countries around the world that have nuclear power industries, including the United Kingdom, have had intermittent and expensive programmes investigating locations for deep repositories for nuclear waste. Much of the effort is focused on trying to understand the flow of groundwater at depth. This talk is an attempt to re-examine the deep groundwater aspects from a hydrogeological rather than modelling viewpoint.

Following a degree in Geology and a Masters degree in Hydrogeology, John Black was employed by the British Geological Survey for seventeen years before resigning to start an office of Golders Associates in Nottingham. Nuclear repository work first appeared on his list of projects just over 35 years ago with fieldwork at Dounreay, Altnabreac and many potential research sites across Britain. He designed integrated test campaigns for the UK programme in the 1980's, for three European national programmes and for two commercial repository developments.



This lecture will be of interest to geologists with regional interest, hydrogeology as well as those with an interest in radioactive waste storage.

10 November 2016

**Assessing the hazard of low frequency, high magnitude landslide events; the role of the engineering geologist.**

(University of Chester) Steve Parry

**Joint lecture with the North Wales Geology Association**

During a severe rainstorm on 7 June 2008, over 2,400 landslides were recorded on Lantau Island, the largest island in Hong Kong. Numerous road links were severed and many landslides impinged on existing residential developments. This was one of the most notable storms to have occurred in Hong Kong in several decades, with a 4-hour rolling rainfall equated to a return period of 500-1000 years. A number of the landslides developed into major debris flows, with significant secondary entrainment and long run out distances. Such hazards were underrepresented in the existing data sets at that time. The presentation will outline the approach to landslide assessments in Hong Kong, discuss the hazard from debris flow with reference to the 2008 storm, illustrate the uncertainty associated with assessing debris flow hazard and examine how this uncertainty can be reduced.

Whilst there are limited historical records of debris flows in the UK, they have been documented in North Wales, the Lake District and Scotland, with the impact on the A83 Rest and be Thankful being most notable. There is also evidence that the frequency of such events is increasing and the lessons learnt in Hong Kong are useful for the evaluation low frequency, high magnitude debris flows in the UK.

Steve is an engineering geologist with over 30 year's experience in the application of engineering geology to the assessment of geohazards, heavy foundations, dams, tunnels, quarries, geomaterials and contaminated land.

He was principal technical reviewer of "Engineering Geological Practice in Hong Kong" the Hong Kong Government's guidance document on the application of engineering geology and co-author of "Guidelines for Natural Terrain Hazard Studies" which forms the basis of landslide risk assessment in Hong Kong. Steve led the recent technical review of the guidelines for landslide assessments on behalf of the Hong Kong Government

Steve has recently commenced a part-time PhD at Leeds University, co-sponsored by the British Geological Survey and Leeds University, examining the relationship between landscape evolution and landslide hazard in the UK. He is also assisting with the Leeds Engineering Geology MSc course.

16 November 2016

**Gold Rush: Prospecting and Small Scale Mining for Gold and Diamonds to the Present Day**

16 November,

(Manchester University) Jim Richards- Jim Richards

Gold rushes have had a major impact on world history; from the settlement of California to the development of Australia, and modern rushes continue to shape parts of West Africa, Brazil, Indonesia and elsewhere. This talk follows the journey of British and Australian geologist Jim Richards who has been involved in various modern-day gold and diamond rushes around the world; prospecting, alluvial mining and exploring for minerals.

This includes time spent in Guyana in South America, mining bonanza grade gold and diamond deposits from the rivers on top of the tepui plateaus of the Pakaraima mountains; hunting for giant gold deposits in the jungles of Laos in South-east Asia; and finding high grade gold mines in the deserts of Western Australia.

Currently, Jim is the Executive Chairman of a publicly listed mineral exploration company based in Perth, Australia. His lead project is an alluvial diamond prospect in the remote Kimberley region of Western Australia which contains some of the world's finest yellow diamonds BlinaDiamonds. Jim's memoir *Gold Rush* is being published by September Publishing due out in the UK on 4 November 2016.

*Jim Richards became obsessed with finding gold and diamonds in his teens. He went on to be closely involved in numerous mineral discoveries around the world. This includes the Omai gold deposit in Guyana, which became the largest gold mine in South America, and the Railway iron ore deposit in Western Australia, which was acquired by BHP Billiton in 2010 for A\$204 million. He has founded a string of successful mining businesses and is today one of the industry's leading executives. Currently, Jim is executive chairman of an Australian publicly listed minerals corporation. Prior to his prospecting, geology and mining career, Jim served in the British Army Parachute Regiment, with operational experience in Northern Ireland. He was educated at Goldsmiths College, University of London (Geology) and the Royal Military Academy Sandhurst. Jim lives in Perth, Western Australia.*



8 December 2016

**Control the Drainage: the Gospel according to Sinkholes** (The Centre, Birchwood) Dr Tony Waltham

Tony will be presenting a reprise of his Glossop Award winning lecture.

Karst is a landscape that is distinguished by underground drainage normally formed on limestone or gypsum. Its impact on engineering geology is the distinctive suite of karst geohazards, which are largely related to the holes in the ground of varying size and unpredictable nature. The most widespread and frequent geohazard is the development of new sinkholes within the soil profile over a cavernous limestone developing by suffosion. New suffosion sinkholes are nearly all formed by rainstorms, new drainage inputs or water table decline; they are therefore largely avoidable if the gospel of drainage control is obeyed. Rock collapse developing new sinkholes represents a further geohazard. Most sinkholes in soil and most collapses on rock are induced, wholly or partially, by civil engineering activities, and are therefore largely avoidable. The 16th Glossop Lecture will address the challenges related to karst using examples from around the world and clearly illustrate that drainage control is the golden rule in karst.

This lecture will also address regional sinkhole issues

19 January 2017

**Good practical guidance when supervising compaction** (Pied Bull, Newton-le-Willows) Malcolm Henderson

Malcolm will be discussing "Good practical guidance when supervising compaction". This talk will be a must for all graduate geologists as well as those more experienced professionals who are involved in both the geotechnical as well as the geoenvironmental fields. Professional geology has been dominated within the last decade by geoenvironmental specialists, however it is essential for geologists in this field to also have geotechnical knowledge and experience.

Malcolm is currently a senior engineer at Wardell Armstrong, and formerly worked for British Coal.

TBC February 2017

**Subject TBC (Liverpool John Moores University) - joint lecture with the Liverpool Geological Society**

TBC February 2017

**Drift Mine Tour at the National Mining Museum (TBC)**

**Fieldtrip** For those who did not have the chance to attend this a few years ago, this is well worth attend We will be looking to access the mine from the drift entrance which is not accessible to the public. This tour will explore a coal mine in its working form and will give geologists treating former colliery areas a true appreciation of the infrastructure we spend most days treating.

16 March 2017

**Rock slope engineering for a road through densely faulted Middle Pennine Coal Measures, Gateshead, UK.**

(Pied Bull, Newton-le-Willows) - Athena Livesey

A curved, 300m long and 8m high rock cutting into the Carboniferous mixed geology of, Middle Pennine Coal Measures (MPCM) which comprises sandstone, siltstone and mudstone was cut at a batter angle of 60°. The geological mapping identified at least 20 faults of which three coincide with the published 1:10000 geological map. These faults each appear to throw progressively towards the North and have divided the area into a set of blocks. It is possible that these are subsidiary faults which accompany the two major faults as they have parallel strikes. The majority of the faults undulate and forms curved planes and are filled with a very distinctive gouge.

Due to movements along these faults the bedding has been warped and dips out of the face from North to East between 5 and 15°. Bedding adjacent to the fault has formed drag folds and reduced the competency of the bedding due to new fractures forming along the fold and opening bedding planes. All the faults act as conduits for groundwater seepage despite being filled with weak mineral deposits. The mapping also identified two zones of highly disturbed bedding possibly complicated by the presence of collapsed mine voids. The cut has normal, strike-slip and thrust faults some of which have been exploited by glacial erosion, creating a very irregular rockhead level and reducing the rock mass quality below the deposits.

A series of treatments have been designed using cable net, mesh, dowels, rock anchors shotcrete and drainage. The author is providing construction phase supervision throughout these works which will be finished by January 2016.





Athena is the Principal Engineering Geologist in the Manchester office for WSP/Parsons Brinckerhoff. Athena is a UK and European Chartered Geologist with over ten years of international experience. She has travelled from the UK to Australia and across the Arabian Peninsula, creating a global network and leaving behind a legacy of impressive projects that have helped millions of people improve their daily lives. Previous companies Athene has worked for comprise Peter Brett Associates, Atkins, Arups and Coffey Geotechnics.

**30 March 2017**

### **Pioneering Female Geologists**

(University of Chester) Cynthia Burek

This lecture will be the rescheduled lecture from last year.

Various roles women have played a part in the development of geology: 1870-1930. Some case studies from the first female fellows of the Geological Society. Women have played crucial roles in certain areas of the development of geology at the end of the Victorian era up until 1930. This talk will focus on the first female fellows of the Geological Society and use members from that elite number to illustrate various roles that women undertook. These roles will be examined within certain discipline areas and case studies shown of women and how they have influenced the development of geology within the set time period. The social context will also be set for their work. The contributions of Catherine Raisin, Maria Ogilvie Gordon, Gertrude Elles, Ethel Skeat and Ethel Wood will be among the work examined.

Prof Cynthia Burek is at the University of Chester and holds the first chair in geoconservation in the world (2005). She is attached to the Centre for science communication and the Dept of biological sciences. She also works for the Open University and has done so for 35 years.

Her first and PhD degrees were from Leicester University and her MSc in information science is from City University London.

Her main research areas are in geoconservation, raising public awareness, and in the role of women in the history of geology.

She is a director of the Anglesey Geopark holding the portfolio for education and a director of British Federation of University Women and trustee of their scholarship Fund, giving away thousands of pounds to final year female PhD students. She has published over 100 articles

and scientific papers and has edited 3 books for the Geological Society of London. She has 4 PhD students working on limestone pavement microclimate and conservation, soil conservation, the Hirnantian mass extinction and geoconservation and finally female science higher education in Afghanistan. She serves on several national committees and is external examiner for University of Essex on their Writtle College conservation modules.

At present her teaching is confined to conservation issues, sedimentary record of environmental change, applications of geology to forensic science and within the biological sciences and the history of science.

**27 April 2017**

### **Monitoring Construction Works and Lessons which have been learnt**

(Keele University) Peter Hewitt

The presentation follows the development of Laing O'Rourke's internal Instrumentation and Monitoring Dept, to look at the dramatic changes which have occurred in the way construction work is monitored over the last five years. This will primarily look at ground movement and asset protection monitoring, but will also touch on environmental monitoring such as noise, dust, vibration and water quality. The talk will draw on experience and lessons learnt on projects such as London Gateway Port, St Peter's Square Manchester, Davyhulme and leading onto HS2 and beyond, to provide practical guidance on how monitoring should be undertaken, including some classic blunders. Changes in measurement technology will be looked at, as well as looking forward to future developments in areas such as Fibre Optics, Laser Scanning and Satellite Imagery.

Peter Hewitt is the Geo-environmental Engineering Leader at Laing O'Rourke. He is responsible for the Land Surveying, Monitoring, Geotechnical and Contaminated Land Team for Laing O'Rourke. An Engineering Geologist by training, he has over 25 years of experience in the construction industry and has worked for Laing O'Rourke for the last 7 years and set up the Monitoring Team 5 years ago.

### **Our May lecture is to be confirmed later in the year.**

TBC May 2017

#### **Field trip to West Mine, Alderley Edge**

This talk will be a joint lecture with the Mid Staffs and Cheshire ICE groups.

We look forward to seeing you at the events we provide during this season.



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We will also be hosting a **Schools Challenge** around January, a **careers afternoon** in March and our **A-Level revision lecture series** (to be held at Liverpool University in 2017) in March/April.

We are very pleased to say that the **annual regional group photo competition** is being run again this year (with cash prizes)!!! There are several categories (fieldtrips and water) with one new group for those between 16-18 (A-Level students). The flier for this has been attached.

Fliers for all the lectures will be forthcoming and all our lectures will be 6:30pm start, with the exception of the Chester and Keele lectures which will be 7pm.

For the programme, we have included the events from other groups which may be of interest to our members, and also to try and stop me double booking dates!

**It should additionally be noted that there may be reasons why our events change. This may be associated with problems with a speaker or venue which cannot be avoided. We will aim to have fliers issued a month before each event, and will keep our members informed about any variations to programme to the best of our ability.**

If you have any comments or questions regarding the events organised by the North West Regional Group please feel free to make contact using the details provided below.

We wish to thank again all the speakers who made our programme last year and hope you enjoy the programme for the up and coming year.

Best regards to you all on behalf of the Committee.

**Catherine Kenny**  
Secretary

and **Nik Reynolds**  
Chair

North West Regional Group of the Geological Society of  
London



## Social Media

Just a reminder that we also have an active Facebook and LinkedIn webpage which we encourage you to visit. We try and keep these sites up to date with information regarding meetings and other relevant interesting geological bits and bobs we find!!!

We have found that although members appear to have joined the LinkedIn service, no one is contributing or appears to see posts which have been made. We will post information regarding up and coming lectures, but will be keeping the Facebook page more up to date.



<https://www.facebook.com/groups/geologicalsociety.northwest/?ref=ts>

and

[http://www.linkedin.com/groups?gid=2737408&trk=hb\\_side\\_g](http://www.linkedin.com/groups?gid=2737408&trk=hb_side_g)

## Our Friends in the North West

**Manchester Geological Association**  
[www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

Formed in 1925 to bring together professional and amateur geologists in and around Manchester, the Association is actively concerned in the conservation of key geological sites in the area. The Association organise field excursions during the summer to places such as the Lake District, Scotland, Peak District and North Wales. In the winter monthly lectures are held by expert speakers at the School of Earth, Atmospheric and Environmental Sciences at the University of Manchester. Quarterly newsletters giving full details of trips and other news are mailed to members.

**Liverpool Geological Society**  
[www.liverpoolgeologicalsociety.org/meetings.htm](http://www.liverpoolgeologicalsociety.org/meetings.htm)

Formed in 1859 the Society still flourishes, and is still composed overwhelmingly of ordinary people who have an interest in geology in all its many aspects - from volcanoes to floods, deserts and seas, mountains and glaciers, minerals and rocks, and fossils. Ever since the Society's first open meeting, on 10th January 1860, The Liverpool Geological Society has invited the knowledgeable and famous to come and tell all those interested in the wonders of the world and its even more amazing history, beginning some 4,600,000,000 years ago. All LGS indoor meetings are held the modern James Parsons Building at Liverpool John Moores University, Byrom Street Campus. The LGS offers programme illustrated practical sessions and field trips.





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#### **North Wales Geology Association** [www.ampyx.org.uk/cdgc/cdgc](http://www.ampyx.org.uk/cdgc/cdgc)

The North Wales Geology Association was established in 1994 to act as a focus for geologists in the North Wales area, to focus attention on the geology of North Wales and to promote the understanding of Geology within North Wales. The Association draws upon the rich international experience of members, both amateur and professional, to create a wide-ranging programme of events. It is a branch (Local Group) of the Geologists' Association, an organisation that has existed for almost 150 years promoting the cause of the informed amateur geologist. Meetings are held along the North Wales Coast area on a monthly basis, indoors during the Winter and outdoors as appropriate during the Spring and Autumn. The Association also co-operates closely with the North Wales branch of the Open University Geological Society, whose meetings are primarily field-based.

#### **North West Branch of the Open University Geological Society**

<http://ougs.org/index.php?branchcode=nwe>

The North West Branch is the largest OUGS branch, in terms of membership, with 219 members at the end of 2013. The branch covers a large geographical area from North Wales to the Scottish Border and includes the Isle of Man. However, the majority of the branch members live in the central urban region, around Liverpool, Greater Manchester and Preston.

This is an active group, organising monthly field trips from late February to October and lectures and/or social events during the winter months. If you are new to geology, one of the best ways to gain experience is to come along to the field trips where you will see how geology determines the landscape and study rocks in situ. You will also meet and learn from other members. If you are a more experienced geologist we look forward to any input you are able to give. Over the past years their field trips have taken them to many parts of the British Isles (Outer Hebrides in 2009, Devon in 2013) and they have also had the opportunity to visit more exotic geological areas worldwide such as Iceland, Italy (Island of Elba in 2010), France (Corsica in 2012) and Hawaii. As well as providing interesting, enjoyable trips we hope to provide useful practical experience for those involved with geological studies.

#### **University of Manchester, School of Earth and Environmental Sciences**

[www.seaes.manchester.ac.uk](http://www.seaes.manchester.ac.uk)

Geology and related Earth Sciences have been studied at Manchester since 1851. Today the School is one of the largest Earth Sciences teaching and research centers in the UK, with around 30 academic staff and a similar number of specialist researchers and support staff. Research in the Department is funded by most of the major research councils (NERC, EPSRC, STFC, BBSRC), by the Royal Society, and by the petroleum, mineral and nuclear industries.

The Department is housed in the Williamson Building on Oxford Road, at the centre of the campus, where the excellent facilities include lecture theatres, library-reading room, computer suites and laboratories for teaching and research. The latter include newly refurbished laboratories for isotope geochemistry, and for petroleum geoscience and (as part of the interdisciplinary Williamson Research Centre) new laboratories for high P/T work, geomicrobiology, geochemical kinetics, mineral and surface analysis, solution analysis and rock and mineral sample preparation.

#### **University of Liverpool, Department of Earth and Ocean Sciences**

[www.liv.ac.uk/earth](http://www.liv.ac.uk/earth)

The Department is highly rated for both teaching and research. In the most recent Research Assessment Exercise (Dec 2008) the department is rated as having 75% of academic staff as world leaders or of internationally recognised excellence in research. The department consistently achieves the highest ratings in government evaluations of teaching quality.

#### **North Staffordshire Group of the Geological Association**

<http://www.esci.keele.ac.uk/nsgga/index.html>

The NSGGA is the regional group of the Geologist Association in North Staffordshire.

Lecture meetings are held monthly during the autumn and winter, at 7.30pm in the William Smith Building at Keele University, ST5 5BG. Field meetings are held at approximately monthly intervals over the spring and summer.



**Programme for 2016/17**

Date	Group	Venue	Event	Speaker
29/09/16	NWGS	Manchester University	The Geological Map - Its development, the British Geological Survey and the future	Dr Andrew Howard , BGS
20/10/16	NWGS	Manchester University	The BVG as a potential host rock beneath West Cumbria - did Nirex undersell it 20 years ago?	John Black
10/11/16	NWGA / NWGS	University of Chester	Assessing the hazard of low frequency, high magnitude landslide events; the role of the engineering geologist	Steve Parry
16/11/16	NWGS	Manchester University	Gold Rush: Prospecting and Small Scale Mining for Gold and Diamonds to the Present Day	Jim Richards
8/12/16	NWGS	The Centre, Birchwood?	Sinkholes and hydrogeological hazards	Dr Tony Waltham
19/01/17	NWGS/ ICE	The Pied Bull, Newton Le Willows	Good practical guidance on supervising compaction	Malcolm Henderson Wardell Armstrong
Feb (TBC)	NWGS/LG A	Liverpool University	TBC	TBC
TBC February 2017	NWGS	Coal Mining Museum, Osset, Wakefield	Coal Mining Museum Field trip	TBC
Mar	NWGS	The Pied Bull, Newton Le Willows	Rock slope engineering for a road through densely faulted Middle Pennine Coal Measures, Gateshead, UK	Athena Livesey WSP/Parsons Brinkerhoff
30/03/16	NWGS	University of Chester	Pioneering Female Geologists	Cynthia Burek, University of Chester
27/04/16	NWGS /Staffs ICE & West Mids Group	Keele University	Monitoring Construction Work: Lessons Learned	Peter Hewitt, Laing O Rourke
May	NWGS	TBC	TBC	TBC
May	NWGS	The Wizard, Alderley Edge	Alderley Edge Fieldtrip	TBC

NWGS - Northwest regional group of the Geological Society of London

ICE - Institute of Civil Engineers (see also <https://www.ice.org.uk/events>, select "northwest region")

NWGA - Northwest Geological Association

LGA- Liverpool Geological Association





## Venue Information

### **Northwest Regional Group of the Geological Society**

**Williamson Building**, Oxford Road, Manchester M13 9PL (Building 52 on the below map).  
This building is situated opposite the Manchester Museum.

**Birchwood Centre**, Birchwood Park, Warrington WA3 6YN  
<http://www.thecentreatbirchwoodpark.co.uk/location.aspx>

**The Swan**, Golborne Road, Winwick, Warrington, Cheshire, WA2 8LF  
<http://www.chefandbrewer.com/pub/swan-winwick-warrington/c1916/>

**Lecture Theatre 137**, James Parsons Building, John Moores University, Byrom Street, Liverpool L3 3AF  
<http://www.liverpoolgeologicalsociety.org.uk/lgslocation.php>

**Beswick Lecture Theatre**, Chester University, Chester CH1 4BJ  
<http://www.chester.ac.uk/sites/files/chester/Open%20Day%20Campus%20Map.pdf>

### **North Wales Geology Association (all events usually start at 7:30pm)**

**Pensychnant**, Sychnant Pass, Conwy, North Wales LL32 8BJ  
<http://www.pensychnant.co.uk/page7.html>

**Llandrillo Technical College**, Llandudno Road, Rhos-on-Sea, LL28 4HZ  
<http://www.llandrillo.ac.uk/the-colleges/coleg-llandrillo/rhos-on-sea/contactfind-us/>

**Treborth Botanic Garden Laboratory**, University of Bangor, Bangor, Gwynedd LL57 2RQ

### **Northwest Regional Group of the Institute of Civil Engineers**

**Renold Building**, University of Manchester M1 3BB (Building 12 on the following map)

**John Dalton Building**, Manchester Metropolitan University, All Saints Campus, Oxford Road, Manchester M15 6BH

**Foster Building**, University of Central Lancashire, Preston PR1 2HE

**James Parsons Building**, John Moores University, Byrom Street, Liverpool L3 3AF  
<http://www.liverpoolgeologicalsociety.org.uk/lgslocation.php>