Manchester Geological Association

Newsletter ~ December 2010

President : Tony Adams PhD

www.mangeolassoc.org.uk

Dear Member,

Well, what a stunning programme we've had so far this season, and more to follow, but please note the various start times of the lectures.

The **Broadhurst** lecture day was so well attended we even had folks queuing in the lobby! Fred's **Plesiosaur**, **Percy**, is in a bad state and his family are raising a fund to provide him with a better home... see page 3



Our Membership Secretary Fred Owen is standing down in February, after 8 years of dedicated service, but I am delighted to say that Lisa Abbot has volunteered to do the job for the next 2 years. However, we would like one or two more members to join us on the Council, please do think about it before the AGM. The Council meets 4 times a year and the tasks are divided amongst us.

Subscriptions are due on January 1st, and it will greatly help Fred and Lisa if you can pay yours promptly. A renewal form is included with this newsletter.

Jane Michael draws your attention to matters regarding the **Geological Association** on page 7; she would like some feed back from members.

The MGA is committed to encouraging young geologists, and to that end a **Geology prize** is given in our name at Altrincham Boys Grammar School. see p 10.

The **Herdman Symposium** will be held in February at Liverpool university. Those of us who have attended these symposia in past years have found them very rewarding indeed. If you intend to go you will need to book in with Helen Kookelar, see page 11.

It just remains for me to wish every one of you a

Very Merry Christmas and a Rockingly Good New Year!

Mary Howie newsletter editor

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Quick Diary ~ 2011 Lectures

Sat 15 Jan - 1.30 pm

The Scottish Dalradian

Wed 16 Feb - 7.00 pm

AGM and Presidential Address

Wed 9 Mar - 6.30 pm

Geohazards





The editor gets a "pat on the back"

I received this charming letter from one of our longstanding members in October...

Dear Mrs Howie,

I refer to the article on the MGA field trip to Germany in the September Newsletter. It was clearly a most enjoyable and interesting trip.

I must especially congratulate you on the high quality of your photographs accompanying the article which have been reproduced with exceptional clarity.

I recall enjoying a television programme on the Messel Pit some time ago. Perhaps you would consider publishing this letter in the next newsletter

Yours sincerely

Michael N. Lentin

Well, what can I say?... It's great to be able to share our field experiences with members who can no longer join us in the great outdoors... and it's lovely to be thanked.

We do have a great time in the MGA at home and abroad... and that is thanks to many dedicated colleagues and leaders!

Your last chance to buy some lovely Rocks and Minerals...... not to be missed



From the estate of the late Luise Earnshaw ~ some beautiful hand specimens ~

including fluorite, copper, hematite, tourmaline, agates, and a lovely piece of fossilized wood from Madagascar.

Prices range from £1.00 to just over £5.00.

Marjorie and Maureen will be selling the last of these during the tea interval on January 15th

All monies collected will go a cancer charity chosen by the family.

Volcanic Experiences are running the following trips next year....

The Big Island of Hawaii and Honolulu April 9th to 20th 2011 (Cost £1795) Sicily and the Aeolian Islands June 5th to 12th 2011 (Cost £995) The South and interior of Iceland (including Heimay) July 19th to 26th 2011 (Cost £1465) Cascade Range of Pacific NW USA: August 28th to Sept 6th 2011 (Cost £1750) Santorini (Greece): September 11th to 18th 2011 (Cost £985)

To get a brochure and booking forms contact Alan Clewlow by email: info@volcanic-experiences.co.uk or telephone 01527-832578 or look at www.volcanic-experiences.co.uk

The next newsletter will be in March. Copy to me by **February 20th** please. Mary Howie - newsletter@mangeolassoc.org.uk or Snail Mail to Kinder View, 118 Glossop Road, Marple Bridge, Stockport SK6 5EL. Tel: 0161 427 2965

Views expressed in the Newsletter are not necessarily those of the Association or its Council.





The Fred Broadhurst Plesiosaur Appeal

Many members will remember with fondness Fred Broadhurst who died in October last year. One lesser known fact about Fred was that back in 1960 he was leader of a student field trip to the Yorkshire coast which found the near-complete remains of a plesiosaur. This was excavated under extreme conditions and taken back to Manchester where it was cleaned and eventually put on display, initially in the Geology Department and subsequently in Manchester Museum. This specimen has recently been identified as being of a hitherto unknown species and hence is of great



research interest and value. Unfortunately the display case has proved less durable than the 180 million year old plesiosaur and is now insufficiently airtight to protect the plesiosaur from damage. If nothing is done the museum would have to remove the entire specimen into storage in order to best preserve it.

Fred's family has decided that the continued display of the plesiosaur will be an appropriate tribute to his contribution to teaching and academic research and they have agreed with the museum that a new case will be provided together with a detailed description of some of the human stories associated with the discovery, excavation and eventual display of the specimen. Unfortunately the museum is currently unable to raise the funds necessary to provide a new case and so an appeal has been launched to do this. The replacement display case will cost approximately £20,000 and this will provide a completely sealed case yet with easy access to the specimen, something which was always a problem with the existing case.

Further details of the appeal and how to donate can be obtained by logging onto www.percyappeal. co.uk or calling Rosemary Broadhurst (01625 877255) who will send you a leaflet.



Our MGA logo was drawn by Fred

IMPORTANT NOTICE: MGA INSURANCE

Each person attending a field meeting does so on the understanding that he/she attends at his/her own risk. The MGA has Public Liability Insurance cover (including member to member cover), for field and indoor meetings and an element of Personal Accident cover.

However, members should always ensure that they have Personal Liability cover (normally part of the standard householder's insurance policy - please check your policy) and comprehensive Personal Accident cover. These are **your** responsibility. Overseas trips are not covered.







MGA LECTURE PROGRAMME 2010 ~2011

Wednesday 13 October 2010 - Meteorites ~ 7.00 pm

Professor Jamie Gilmour, University of Manchester

Saturday 13 November 2010 - 10.30 am

The Broadhurst Lectures: Jurassic Seas, Jurassic Skies

Saturday 11 December 2010 - The Quaternary of the North West 1.30 pm

Saturday 15th January 2011 – The Scottish Dalradian

1.30 pm

The Dalradian of Scotland seen from the roadside and coast ~

Dr. Jack Treagus, University of Manchester

Dalradian Metamorphism: Patterns and Puzzles ~

Dr. Giles Droop, University of Manchester

Dalradian Mineralisation ~ Professor Richard Pattrick, University of Manchester

Wednesday 16 February 2011 - MGA AGM

7.00 pm

followed by the Presidential Address by

Dr. Tony Adams, University of Manchester

Geology in Verse

Wednesday 9 March 2011 - Geohazards ~

6.30 pm

Dr. Jeff Blackford, University of Manchester

A Joint Meeting with the Manchester Geographical Association at 6.30 pm

Meetings are held in the Williamson Building, Oxford Road, opposite The Manchester Museum.

Further information about indoor meetings: email Jim Spencer lectures@mangeolassoc.org.uk

Tea and coffee is served in the interval for afternoon meetings, and before the evening events.

Further information about the MGA from the Hon. Gen. Sec. Sue Plumb, secretary@mangeolassoc.org.uk

VISITORS ARE ALWAYS WELCOME





Lecture Notes

Saturday 15th January 2011 - The Scottish Dalradian - at 1.30 pm

The Dalradian of Scotland seen from the roadside and coast - Dr. Jack Treagus,

University of Manchester

Dalradian Metamorphism: Patterns and Puzzles – Dr. Giles Droop,

University of Manchester

Dalradian Mineralisation – Professor Richard Pattrick,

University of Manchester

Sir Archibald Geikie, searching for a name to give a group of ancient rocks that stretched across the Highlands of Scotland and the northern part of Ireland, settled on the term 'Dalradian', after the ancient kingdom of *Dal Riada*, which was occupied by a tribe of Scottish and Irish Celts and covered the same area.

The Dalradian succession is a thick sequence of sedimentary rocks with minor volcanics that formed on the southern margin of a continent from late Precambrian to early Ordovician times. In early Dalradian times sandstones, mudstones and carbonates accumulated on a stable platform, but this platform started to founder into a series of basins by late Precambrian. Sea level rose during Cambrian times giving rise to a transgression in which shelf sediments were deposited further into the continental margin (the present-day north-west Highlands of Scotland).

In the early Ordovician this sequence of rocks was deformed, metamorphosed and subsequently mineralised during the Grampian Orogeny following the closure of the Iapetus Ocean. The remnants of this mountain chain stretch across the highlands and islands of Scotland, providing classic areas for the study of intensely folded rocks and the zonation of metamorphic minerals.

Jack's new Guide Book to the Dalradian will be on sale at the lectures.

Wednesday 16th February 2011 - AGM followed by Presidential Address at 7.00pm

Geology in Verse, Dr. Tony Adams, University of Manchester

One of the most popular poets of the nineteenth century and, some critics would say, the best English language poet of the twentieth century had strong links to Geology. We shall look briefly at these links, but focus on some of the lesser-known but more interesting poets who considered Geology an appropriate subject for versification.





"Close the coalhouse door boys there's blood inside"

A number of the GMRIGS' Wigan Geology Locality A4 Summary Records, compiled in the early 1980's and stored at the Manchester Museum, detail boreholes and mineshafts. The borehole records contain detailed geology maps, OS maps, and copies of literature searches, for example, the listing of sections of strata from the boreholes, along with other pertinent literature. There are four boreholes on record – Rayners Borehole, south of Astley Green, NGR: SJ 702986, Astley Moss, Chat Moss, NGR: SJ 704972, Jubilee Boring, west of Wigan Road, NGR: SJ 577995 and Spring Pit, Hindley Green, NGR: SD 630030.

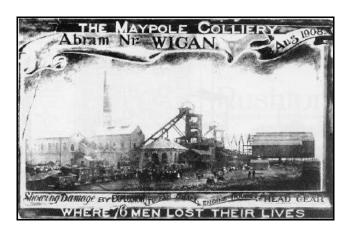
The mineshafts recorded are from individual collieries in the area. As with the boreholes, the records are extremely comprehensive, with OS and geology maps, literature searches plus a general history of the locality, including the owners' names before nationalisation of the coal industry in 1947, and any relevant colliery disasters.

Until the Mines Inspectorate was fully established in 1850 the recording of pit disasters and explosions was vague as to the actual date and/or location because there was no standard of recording such incidents, so few of the records contain pre-1850 disasters.

Fifteen separate pit disasters are recorded on the A4 Summary Sheets, the earliest being on 28 August, 1848 at the Hindley Green Colliery, when five people were killed. The last one on 12 November, 1932, was an explosion at Garswood Hall No. 9 pit killing 27 people. Excluding the Little Hulton Pretoria Pit disaster of 1910 (not one of the recorded mineshafts), when the 344 deaths made it the worst coal mining accident in Lancashire and the third worst in British mining history, the most tragic was the Ince Hall Colliery, when four separate explosions dating from 1852 to 1874 killed a total of one hundred and seventy four workers.

One of the most publicised disasters occurred on 18 August, 1908, at Abram's Maypole Colliery, when there was an explosion in the Cannel Mine (No. 1 Pit) killing 76 men. The blast was

deep underground, and the recovery of the bodies was delayed because the mine had to be flooded to extinguish the underground fire started by the explosion. There were three survivors – Edward Farrell and William Doran from the Scholes area of Wigan, and Richard Fairhurst from Hindley; they had been working in a part of the pit shielded from the main blast. It was not until November of the following year that most of the victims were brought to the surface, and the last body was not recovered until 1917.



Details of the Maypole Rescue Operation, the Inquest, The Inspector's Report and Relief Fund can be easily accessed in the Manchester Museum along with all the other mineshaft and borehole information.

This collection of records provides an insight into an industry that was one the life blood and fuel of the Wigan area.

Marjorie E. Mosley, Secretary, GMRIGS.





Jane Michael is our representative at the **GA** and would like your views on the following:-

Geologists Association Membership Team

- 1. GA has noticed falling membership now 1497 putting it third amongst geological societies/ associations after Geological Society (for professionals and with a membership of around 9500) and the OUGS (2200 December 2009).
- 2. The following issues have been noted as facing the GA:
 - ◆ GA
 - Membership
 - Publicity
 - Profile in scientific community
 - Education
 - Regional outreach
 - Value to individuals
- 3. The GA council have decided to set up a team under the auspices of Paul Olver, the membership secretary, to investigate this and to formulate a plan to reverse the situation.
- 4. Paul was looking for a wide cross section of geological society representatives both GA Groups and affiliated associations. Hence the invitation to me as a representative of the MGA and northern societies in general to a meeting being held at University of Birmingham on 23 July 2010.
- 5. Much discussion ensued with the following topics covered:
 - Is the GA itself needed
 - Why should anyone join the GA.
 - ◆ Cost of membership fees and consequent 'value for money' (or not)
 - ◆ Identity of GA: is it aimed at the professional or the amateur or both.
 - ◆ Are the Proceedings really suitable: too academic for most amateurs
 - How to boost membership
 - What publicity will be needed
 - Is the perceived need to keep a high science profile really needed
 - Who is the target group for membership of the GA
 - Encouragement of regional groups/outreach
- 6. The most important thing to decide was the identity of the GA which seems very confused and does need clarifying. Paul Olver will take this specific topic to the next GA Council meeting. Once this has been sorted out, the question of value for money for membership can be addressed.
- 7. I would be really interested to hear from members their views on the Geological Association and the information I have given above, then I can take these views to the next meeting. Whilst I was unable to attend the last meeting due to work commitments, I am quite happy to continue attending the meetings (likely to be three per year) as I feel I have something to contribute as I am considering not renewing my GA membership for most of the reasons discussed at the meeting. Hopefully actions taken will result in more GA activity locally (joint events with part funding from the GA) which will benefit our members.
- 8. Please email me at outdoors@mangeolassoc.org.uk with your views.





MGA Field Trip to the Good Luck Mine

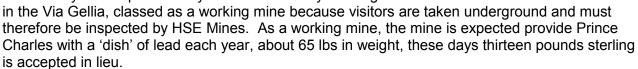
Report by Penny Heyworth

Heavy showers made Saturday 14 August a good day to go underground and hope to stay dry. A group from MGA crammed into a lay-by in the Via Gellia (named after Philip Gell and also giving rise to the name Viyella) to be divided into two groups to take turns underground and investigating above ground.

The present adit to the Good Luck Mine was started in 1830. It took 14 months of driving through 580ft of barren rock to reach the Good Luck vein, when the date and the initials of the miners were inscribed into the wall. The mine only remained productive until 1835. The thickest vein is about 300mm with up to 5% lead, a statistic which shows why the mine was not profitable. There were small returns in 1876-1879 and production was renewed during the Great War. In the 20s and 30s barites was mined. The mine last made money in the 1950s with lead and barites.

Back in the nineteenth century, the two or three workers in the mine probably came from Middleton and typically would have been small holders, working in the mine during slack times on the land. Work would end about 4 pm which was mineral or blasting time. It took two hours to cut the 12 inch shot hole. Earlier methods of loosening the rock had included fire blasting and lime setting,

The Good Luck Mine has now been managed by the Preservation Society for the past three years. It is the only working mine





Stemples across the stope formed a platform for waste rock



The reconstructed Jigger



Outside the mine are the foundations of the associated buildings. Sometimes buildings were built over the mine entrance to keep the entrance dry. Ore was dressed at the mine by women and children on a limestone floor. The jig has been rebuilt to demonstrate how it works. Spoil was dumped down the slope and we inspected the large spoil tip. There's an estimated 40,000 tons and the only vegetation is that tolerant of lead, eg leadwort, orchids, eyebright. The explosives store has also been rebuilt, the door facing away from the mine, down the valley and would have had a turf, not stone, roof - just in case..... A brick floored trough was used for washing barites. There is a warm, dry roofed building originally where the miners changed, stored their tools, carried out any running repairs and where we sheltered from the weather waiting

our turn to go underground.

It is possible to walk upright in most of the mine, but some sections, particularly at the entrance, the mine is very low, just enough clearance to ride the rail wagon into the mine as demonstrated by one of us. To save transporting spoil out of the mine, as much as possible was used to pack the walls or piled overhead on stone stemples, roof supports.

The adit cuts the fine to medium grade limestone of the Hopton Group. This is capped by the Matlock Lower Lava. The Gulph Fault, with a throw of 61m down to the north east, runs through





the workings. The Gulph Fault has caused many minor factures which are mineralised as are tension fractures due to lateral movement. Typically barites is found on limestone and galena is found speckled on the barites.

In the mine there's a display of the minerals found in the mine:

- □ Galena
- ☐ Barite or Cawke speckled onto limestone
- □ Calcite or Spar
- ☐ Malachite with Azurite
- □ Traces of Haematitic Clay
- Traces of Fluorite or Fluorspar
- Traces of Zinc Blend or Wad.

There is also a collection of items found in the mine including shoes with wooden soles, leather patches from shoes used to level the mine's rails, beer bottles from Lowestoft and Doncaster, a jug from Yell and a bottle of Hooley's Elixir dated 1830.

In the afternoon, we had a guided mining archaeology tour of part of Lathkill Dale starting from Over Haddon. Lathkill Dale was quiet and peaceful (and dry), but it was not always so. Lead mining in Lathkill Dale is recorded from 1284 when the Mandale Mine was at work. By 1727 there were two waterwheels at work and by 1730 the Over Haddon Sough (pronounced suff), the first drainage channel was working. The sough was dry on the day we were there, so we could go a short way inside and admire the stone work inside. The



The Miner's Hut in the woods was cosy inside

sough drains the Mandale Mine via the incline which is connected in at the side.

We inspected the remains of the aqueduct used to bring water from up the valley used to work water wheels to drain Mandale Mine. Although in ruins, the engine house is very impressive and worth a visit.



Next stop was Bateman's House, named after the agent. This was built over one of the two large shafts. The shafts were the site of a pumping engine - a primitive type of turbine and there's an information board to explain how it worked. Down the ladder into the shaft, the river can be seen far below with the aid of light generated by turning a handle. The close proximity of the house to the mine enabled a very close and continuous watch on what was going on. No cheating the agent here. There are tales of the floor giving way into the void below!! Now just the walls are standing.

Last stop was the rake to Gant Hole which was worked during the 1880s for lead and ironstone. This is up the very steep hill from the main path. There's no distinct path, so it is difficult to get up to and a slide down when it is wet. Nevertheless most of us made it up to look with torches into the hole. The Gant Hole vein is an off-shoot of the Lathkill Dale vein. Plans were to connect Gant Hole to connect the two, but this project was abandoned.

Our thanks go to Good Luck Mine for showing us round and particularly to Richard who was with us for the whole day.

Penny Heyworth





Manchester Geological Association Prize for GCSE Geology awarded at Altrincham Boys Grammar School to Louis Day

'Louis, like the entire group, took a journey into the unknown by enrolling for Geology in Year 10, especially given that this was Dr Stephen's first attempt at teaching the subject at GCSE! He had the additional disadvantage in being in such a competitive high calibre group- the final tally for the 27 strong group was 24 A*, 2 A and a C. However, like all he does in life, Louis took this in his stride. A quiet purposeful young man, Louis was able to see through many of the generalisations we made in lessons at an early stage. He also had the knack also of asking those awkward questions that often baffle a teacher. The dedication that he showed to the subject was clearly illustrated on the field trip to Pembrokeshire, where he travelled independently to the Youth Hostel straight after disembarking from a journey from Germany with the Swing Band. Despite his late start in the field, this did not stop him from obtaining 100% in his assessed coursework and with 290/300 in the final examination he beat his quality competitors by a significant distance. Despite not taking the subject on to A Level, Louis richly deserves the inaugural Manchester Geological Association Prize for GCSE Geology. Congratulations Louis!'



Louis Day receives his MGA prize from Dr Kevin Stephen

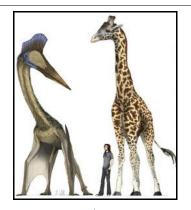
On a separate note the new GCSE Geology syllabus requires students to have an exposure to the careers that geologists undertake; oil and gas exploration and production, mineral prospecting and mining, hydrogeology, environmental geosciences, engineering geology and the role of an academic scientist are specifically mentioned.

If any MGA member would be willing to talk a school group about their career in these fields then I would love to hear from you!

Dr Kevin Stephen.
Altrincham Boys Grammar School.
kstephen@agsb.co.uk

(I have a copy of the current GCSE examination specification and will email it to any interested MGA members. It's really demanding and far too long to include here.

The MGA is really pleased to be able to encourage young geologists.... Mary Howie ed.)



Derek Brumhead often sends me cuttings from the paper. This picture from The Telegraph on November 15th was captioned:-

"The pterosaur, as tall as a giraffe could have flown across continents"

Very timely considering our November Jurassic Day.





Field Studies Council ~~~ Natural History Courses

The FSC are again running Geology Courses at some of their centres in Wales, Pembrokeshire, Devon and Shropshire.

You can see the list of courses at :-

http://www.field-studies-council.org/2011/walkingandgeology/index.aspx
But If you just google FSC courses you'll find it .

More info and a brochure from Louise Pugh, Marketing Assistant, Field Studies Council, Preston Montford, Shrewsbury, SY4 1HW, Tel. 01743 852100, Fax 01743 852101, www.field-studies-council.org

(The centres have comfortable rooms, good food and charming, dedicated staff, and are all located in wonderful areas, I know because I've been to them ...Ed.)



Earth and Ocean Sciences Department

HERDMAN SYMPOSIUM

19th February 2011 GEOSCIENCE FRONTIERS 2



Eyjafjallajökull eruption plume 2010: NASA

List of Guest Speakers & Titles

"Patterns in the history of life." **Richard Fortey FRS** (Natural History Museum)

"The geological history of young continents, old continents and the oceans: why are they so different?" **Prof James Jackson** (Cambridge University)

"Why does life start, what does it do, where will it be?" **Dr Mike Russell** (Jet Propulsion Lab., CalTech., USA)

"Eyjafjallajökull 2010 eruptions: progress, impact and lessons learned."

Dr Thor Thordarsson (Edinburgh University)

"Where was Odysseus' homeland? The geological, geomorphological and geophysical evidence for relocating Homer's Ithaca."

Prof John Underhill (Edinburgh University)

"Deep in the mantle something stirred: why there is recent volcanism within Central Europe."

Prof Marjorie Wilson (Leeds University)

The Herdman Society is the undergraduate society of the Earth and Ocean Sciences Department at Liverpool University; William Herdman was founder and benefactor for the original Department of Geology. Persons interested in attending can contact us * for further information. The full programme with abstracts, times, location of the Sherrington Lecture Theatre and ticket charge will be circulated in December. The charge to non-students will, subject to sponsorship, probably be ~£8, which includes lunch and tea/coffee.

helenk@liv.ac.uk or p.kokelaar@liv.ac.uk

tel: 0151 427 2001





Who's Who in the MGA Council 2010 ~ 2011



President Dr Tony Adams SEAES

University of Manchester

Past President Dr Christine Arkwright

Vice President Peter del Strother, MBE

Sue Plumb General Secretary 20 Ridge Crescent, Marple, Stockport, SK6 7JA

0161 427 5835 secretary@mangeolassoc.org.uk

Membership Secretary Fred Owen 29 Westage Lane, Great Budworth, Northwich,

CW9 6HJ; tel 01606 892690.

Treasurer Niall Clarke 07785 778 250 Indoor Meetings Organiser Jim Spencer 0161 434 7977 Field Excursions Organiser Jane Michael 0161 366 0595 News Letter Editor Mary Howie 0161 427 2965 Peter Giles Web Site mangeolassoc.org.uk RIGS Group Marjorie Mosley gmrigs@hotmail.com

Chantal Johnson

Archivist Dr Derek Brumhead, MBE Other Council Members Lisa Abbott, James Jepson. President Manchester University Geol. Society (ex officio)

> MGA email addresses :-To contact our President or Membership Secretary email info@mangeolassoc.org.uk

> > for Jane Michael and field visits outdoors@mangeolassoc.org.uk for Jim Spencer and indoor meetings lectures@mangeolassoc.org.uk for Mary Howie and the newsletter newsletter@mangeolassoc.org.uk

Our officers may be contacted via the MGA website

Other Societies

Minutes Secretary

MGA members are welcome guests at other Geological Societies' events, some of their events are below.

Black Country Geological Society

17 Jan (Indoor meeting) The new acquisition of the Wenlock Edge guarries. Speaker: Peter Carty, NT

19 Jan Geoconservation field work ~ Wren's Nest:

21 Feb (Indoor meeting) An introduction to Glaciers, Ice Ages and the British Landscape, Dr Richard Waller, Keele Uni 21 March (Indoor meeting) 7.30 AGM

'Problematic plesiosaurs - an unique group of extinct marine reptiles' Dr Adam Smith Birmingham Science Museum

andrew_harrison@urscorp.com Contact

Leeds Geological Society

Sat 26 February Saturday meeting, University of Leeds: Recent Advances in Palaeontology and Palaeoclimatology Contact anthea.brigstocke@zen.co.uk

Liverpool Geological Society

18 Jan - Lecture Meeting.

8 Feb - Distinguished Visitor's Address by Richard Fortey.

22 Feb - Does the answer lie in the rocks? R Brassington.

25 Feb - Annual Society Dinner

19 Mar - Frodsham Field Meeting with Joe Crossley.

22 Mar - Distinguished Member's Address Prof. Tony Harris.

Joe Crossley Contact 0151 426 1324

North Staffs GGA

13 Jan Bio-geochemical cycles; Bugs, bogs and labs by Dr Rebecca Bartlett (Birmingham University)

10 Feb Coal bed methane by Professor Peter Styles Keele

10 Mar AGM and Chairman's Address.

British Earthquakes by Dr Ian Stimpson (Keele University) Contact Eileen Fraser frasers@netfraser.me

Oldham Geological Society

19 Feb Cliff Castle Museum, Keithley, W Yorks 23 Feb Werneth Centre, Healey Dell Geology explained Contact Jo Holt 01457 874095

Open University Geological Society NW Branch

29 Jan - Branch AGM

with Lunch and Social at Bolton Parish Church Hall 27 Feb - Beginner's Field day at Clitheroe:

am "Nick of Pendle" quarries ~ Chris Arkwright pm Salt Hill Trail ~ Alan Diggles

(Clitheroe Museum if bad weather)

27 Mar - Day trip to the Buxton area of Derbyshire leader

Chris Arkwright

Contact Jane Schollick 01704 565 751

Russell Society ~ NW Branch (mineralogy)

Branch AGM followed by a talk

" What's New" by David Green

2 years of mineral discoveries in the British Isles" 11 Feb "On Foot in the Cairngorms".

RS President Roy Starkey,

11 March 2011: Talk TBA Meetings are held in Blackrod

Contact Alan Dyer on Aldilp@aol.com

or Harry Critchley, Tel: 01204 694345

Ring the contact given for further details, or link to their websites and others via ours.



