



MANCHESTER GEOLOGICAL ASSOCIATION

President: Dr Ray Burgess

Founded 1925

Date September 2014

www.mangeolassoc.org.uk

Hello and Welcome to your September 2014 Newsletter!!

The summer seems to be over although we still have two more trips including Paul Aplin's trip to Vernon Park and Poise Brook on 4 October. That should be really interesting so make sure you book soon. The joint trip with the OUGS to Formby is now full so if you haven't booked, sorry but you have missed out!

But with the darker nights come the Indoor Meetings and what a brilliant programme Jim Spencer put together before he stepped down as Indoor Meetings Secretary. We start on Wednesday 15 October with Dean Lomax talking on Dinosaur Diversity in the British Isles. We hear lots about dinos abroad so it will be good to hear about the ones who made their home 'around here'!!

Saturday 15 November sees the first of our Saturday afternoon lectures. This afternoon is dedicated to the Zechstein Evaporites and this is followed on Saturday 6 December with lectures about Ophiolite Suites. Saturday 17 January 2015 will be The Broadhurst Lectures and more information about them will follow.

So, get your diaries out, put the lectures in and we look forward to meeting you in The Williamson Building, Oxford Road, Manchester.

NEWSLETTER EDITOR

AKA THE HOUSE ELF

Best wishes

STOP PRESS

Saturday 20 September 2014: Open Day at Hansons Ribblesdale Works
See Page 12 for more information

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QUICK DIARY

Sat 4 October: Vernon Park and Poise Brook
led by Paul Aplin

Wed 15 October: Indoor Meeting: Dinosaur
Diversity in the British Isles: Dean Lomax

Sat 15 November: Zechstein Evaporites

Sat 6 December: Ophiolite Suites

Sat 17 January: The Broadhurst Lectures

Wed 11 February: AGM and lecture

MGA NEWS

From Our Archivist Derek Brumhead

Many will remember Robin Nicolson who was a member of the University Geology Department between 1960 and 1994 and was a long standing member and former President of the MGA. He now lives in Berwick on Tweed. Although unfortunately he is not too well, he asked Judy, his wife, to send me a field notebook, for inclusion in our archives, that came into his possession some years ago .

It is of very great interest, being a notebook (c. A6 size) of over 300 pages compiled of field excursions in the years 1910-12 by an amateur geologist a Mr R W Palmer. The notes include a large number of field sketches. A number of the excursions are with the University of Manchester Geologists' Association (The MGA was not formed until 1925). We have several programmes of this Association in our archives so this notebook fits in very well. Mr Palmer travelled all over the country often by train (not possible now !) walking or cycling. One week's excursion to Shropshire in July 1910 headed 'Excursion to Shropshire by myself' commences 'started on my cycle from home at 6.00 am', with a list of places he passed through. On the way he makes a visit to 'the great Keuper Marl Plain where there is an outlier of Lias beds'. He arrived at Church Stretton at 4.45 pm. The notebook is labelled 'FNB No 1.' One wonder if there were more ? The excursions described are:

1910

25 -28 March. Isle of Portland

30 April. Alderley Edge

7 May. Hayfield to Edale

14 May. Edale to Castleton

15 June. Northwich (alone)

9 July. Buxton via Whaley Bridge and then to Small Dale, Peak Forest, Sparrow Pit and Doveholes

13 -19 July. To Shropshire by myself

9 – 16 August. Matlock Caverns, Belper, Peak Cavern, and includes 'an examination of a basalt pillar brought from the Giants Causeway in a garden at Holbrook near Derby.

5 November. Lymm.

29 December. Snelston Quarry near Norbury Derbyshire. (Lat 52 58 N, 1 46 W)

1911

12 February. From Lancaster to Clough Pike (with Ruby and Miss Edwards)

14-21 April. Excursions along the coast in the vicinity of St Andrews, and between St Andrews, Arbroath and Dundee. Journeys by train from and back to St Andrews.

(The descriptions of these excursions takes up 66 pages)

20 May. Buxton via the Goyt valley to Whaley Bridge

10 June. Llangollen

8 August. Neighbourhood of camp at Windmill Hill, Ludgershall, Andover, Wilts.

12-24 August. Isle of Wight. (21 August. Barton Beds, Christchurch Bay)

1912

4-6 April. Arran excursion.

ARTICLES

The Old Red Sandstone: is it Old, is it Red, and is it all Sandstone?

Thursday 2 - Saturday 4 October, Brecon

Venue: The Elim Church conference Centre, Canal Road, Brecon, Powys.

A three day symposium to stimulate interest in this facies and explore the latest research, it comprises a day of lectures, a day of field excursions and a public open-day of interest to palaeontologists, stratigraphers, sedimentologists and structural geologists.

Thursday 2 October: Day of lectures 10.00 - 17.00, Conference Dinner

Friday 3 October: Field meetings to local sites

Saturday 4 October: 'Geofest' public open day

please contact Dr John Davies, Fforest Fawr Geopark, Brecon or email:
sion_cwm_hir@hotmail.com

North Staffs GA Events

Saturday 13 September at 11am : Scunthorpe

Leader: Paul Hildreth Booking deadline: July 9.

Meet at Scunthorpe Museum (Sign-posted).

Enquiries regarding field trips should be addressed to: Steve Alcock, 01538 360431 or 07711 501028. Email: steves261@aol.com

WINTER LECTURE PROGRAMME 2014/15

Lectures are held in room WS0.06 William Smith Building, Keele University

Thursday 9 October at 7:30pm : 'Living in Europe's Supervolcano: Volcanic Hazards and Emergency Management in the Bay of Naples'

Speaker: Dr Martin Degg (Chester)

Thursday 13 November at 7:30pm : 'Earth After Us'

Speaker: Dr Jan Zalasiewicz (Leicester)

Thursday 11 December at 7:00pm : Christmas Social with talk to be confirmed

Speaker: Eileen Fraser

Thursday 15 January at 7:30pm : 'Dinosaur Embryos'

Speaker: Dr John Nudds (Manchester)

Thursday 19 February at 7:30pm : 'Sinking Cities'

Speaker: Dr Tony Waltham (ex Nottingham-Trent)

Thursday 12 March at 7:00pm : AGM & 'Tunisian Tales Part II'

Speaker: Dr Patrick Cossey (Chair's Address)

Tegg's Nose Rocks!!

On a sunny and warm 1 June, 13 members and visitors including a youngster from Rockwatch, joined leader, Jane Michael, to undertake this year's Fred Broadhurst memorial Field Trip. Jane gave an outline of the regional geological setting.

We were near the top of the Millstone Grit just below the Coal Measures of the Carboniferous, ie is the Namurian/Westphalian boundary – about 315Ma ago. We were in the tropics in an area of large braided river systems. A delta top environment was starting to develop, more like the tropical rain forest seen now in the Congo. The tall trees formed the coal seen round the area. Tegg's Nose escarpment is on the Chatsworth Grit and is apparently about 200 ft thick including shale beds. A little way further west, some small coal seams crop out - evidence of further Westphalian deposition.

As Britain moved further north, the area became desert and the Permo-Triassic deposits of sands and muds were laid down. These could be inferred by the ironstaining seen in places. Subsequent geological history is difficult to decipher until the last glaciation where there are various lines of evidence to show the presence of ice sheets and the erosion caused by them.

We started inside the Visitor Centre, looking at the sandstone walls to find laminations together with 'escape structures'. Jane advised that these were made by the action of 'mussel-type' shells fighting to escape the deposition of sediment. This produced funnel-like structures opening upwards like ice cream cones. Some stone blocks have, however, been inverted. In the car park, the view point gave a better view of the regional geology. Examples of 'parting lineation' were seen in the four stone steps. At the car park entrance we looked at some glacial erratics. At least one has been identified as Eskdale Granite. They were left behind by the icesheets which approached from the south and west from the Irish Sea.

At the next locality, we looked west over the Cheshire Plain. Jane pointed out line of Red Rock Fault and how much flatter it was across the Cheshire Plain. The softer Cheshire Plain rocks of Permo-Triassic age (280Ma) are downthrown against the Tegg's Nose side. This faulting was probably part of a rifting system which formed the Cheshire Basin at that time. As we know, the RRF is still occasionally active – the Manchester Swarm of several years ago. What the total 'throw' was is not clear. However the Cheshire Basin is more than 2500m deep in its centre and underneath are Carboniferous rocks. At the edge near us, it is just over 500m to the base of the Permo-Triassic succession. And we were 200m higher than Macclesfield which is the other side of the fault. We turned to look back towards the Visitor Centre and noticed a gentle slope: a dip slope.



Photo Left:
Escape burrow

Photo Right:
Cross bedding in
Quarry Face



Before continuing to investigate the geology, we were able to take time to have a look at the old machinery which is displayed near the old quarry. There are display boards explaining about the Rock Crusher, the Swing Saw and the area of paving produced with different types of setts.

We looked at the rock face: this Chatsworth Grit showed layers of well jointed gritstone in the lower half, immediately above which was a section of tabular cross bedding. This indicated that the sand was deposited in a river channel flowing from left to right. The layers of muds and shales which “interrupt” the sandstone could represent 'splays' – flooding events. The face perpendicular to the climbing wall is a fault plane. Evidence can be found to bringing a different type of material to this low-sinuosity braided river system which was, it is thought, flowing across a delta top.

We viewed the disused quarry from several places. We climbed up to look down into the quarry and its sloping faces. The large face is a huge joint plane and the quarry men exploited this line of weakness when removing the rock. These are beds of 'massive' sandstone which dip approximately 20° to the west. The crags to the right of the path are more thinly bedded and have been used for roofing slabs and pavements. Along the path we found some blocks which showed extremely good fossil ripple marks. Facing the quarry clearly shows two faces perpendicular to one another. The wall to the left hand side (the joint plane) is now used by climbers who were on it. In both faces it is easy to see large 'holes' in the rock: round or ovate and quite deep. Because of the climbers we did not go down into the quarry. Instead Jane pointed out what we should be able to see if we were closer.

Firstly, the 'holes' we noted from above are very crumbly. The cement holding the grains of quartz together has been attacked and it is weathering away. The holes are the result of carbonate concretions: quartz originally cemented by iron-bearing calcite, a carbonate mineral known as siderite (FeCO_3) rather than silica. Groundwater removed the calcite by solution, leaving iron-stained sand which weathers very easily and a cavity remains in the rock face.



Photo Left:
Ripple marking

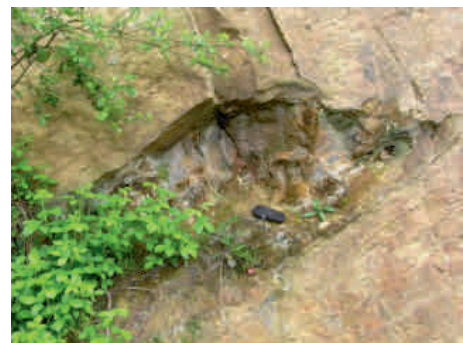


Photo Right:
Cavity left by nodule

The face perpendicular to the climbing wall is a fault plane. Evidence can be found to confirm this by way of slickensides – characteristic polishing and scoring features. Jane said it was possible to find the occasional fossil of tree bark, probably from Calamites, horsetail, which forms the basis of the coal that can be found further over towards Macclesfield.

Using a map and the information board at the viewpoint, we were able to name most of the hills. In particular Bosley Minn and Mow Cop are made of Millstone Grit. Jane also pointed out that the piles of rocks behind us stretching up the hill were spoil heaps from the quarry. Nature has taken over since the demise of quarrying and it does look very natural.

As we made our way round in front of the spoil heaps, Jane stopped to look at the view and point out again the Red Rock Fault. After a short climb we reached the Tegg's Nose Summit with a wonderful 360° panorama – the views were good all day although hazy in the very far distance so we couldn't see The Wrekin!

On our way back to the Visitor Centre we passed through a wonderful wall sculpture which had viewing holes in (based on a pin-hole camera) – despite its distance, you could see Mow Cop clearly. Although we had seen no fossils, the trip had been interesting and enjoyed by the group. Penny Heyworth, the new Outdoor Events Officer, thanked Jane on behalf of everyone.

A walk round the world in Macclesfield Saturday 14 June 2014

Two weeks after the outing to Teggs Nose, the MGA was back in Macclesfield. This time, a group of 12 met for a tour of building stones in the town, again led by Jane Michael. This trip was based on “A Geological Trail around Macclesfield’ by Cheshire RIGS.

Much of the building stone seen, not surprisingly, is Carboniferous sandstone, taking advantage of local abundance coupled with lower transport costs. Typically the local sandstone is used for “every day” purposes such as cobbles, paving, walls, and even the roofs of buildings. However, we also saw building stones from other parts of the UK, Scandinavia, even as far away as Brazil and India. The age of the building stones stretched back to 1.5 billion years.



Jane talks about the Cheshire Cat and Rambler carvings in Victoria Park

Local sandstone is used for the wall around the bowling green in Victoria Park, where we looked for cross bedding as way-up indicators; used as sandstone flags for roofing tiles on Buxton Road; and for a relic of cobbled pavement with a decorative, but protective, edging of harder basalt. We admired the detail on the sandstone statue of a nag's head above the door of the Nag's Head (where else?). Then more locally sourced cobbles and paving on the 108 steps and around Market Square. On the 108 steps, Jane led the search for de-watering structures and an Ordnance Survey bench mark. We discussed and agreed the bench mark is not in its original orientation probably having re-cycled for the steps.

Red Triassic sandstone is used in the Parish Church, the United Reform Church (URC) and for statues of a rambler and the Cheshire Cat in Victoria Park (see photo above), more examples of bedding and way up structures and also recent weathering.

Millstone grit has been used for the Town Hall and Costa Coffee. Pebbles are embedded in the pillars of the Town Hall, prompting one of many discussions of depositional environment and the forces required to transport different sized material.

Other examples where stone, apart from locally sourced sandstone flags, has been utilised for roofing material include slates used for the new housing along Buxton Road. Slates are a metamorphic rock formed by pressure, making splitting into thin tiles possible. This property gives slates a great advantage over heavy flags. The traditional source of slates is Wales. Slates became used more widely with easier (and cheaper) transport. Green Borrowdale slates are on the roof of the Cheshire Building Society on Castle Street. Borrowdale slates are formed from volcanic ash (tuff) which is then metamorphosed.

Biotite granite on Mill Street, described as similar to Cornish granite, prompted a discussion of biotite versus the muscovite granite used for a column in the market centre; Jane told us that the two are on a sliding scale and not mutually exclusive.



Photo Left
Investigating the steps
up to the Church

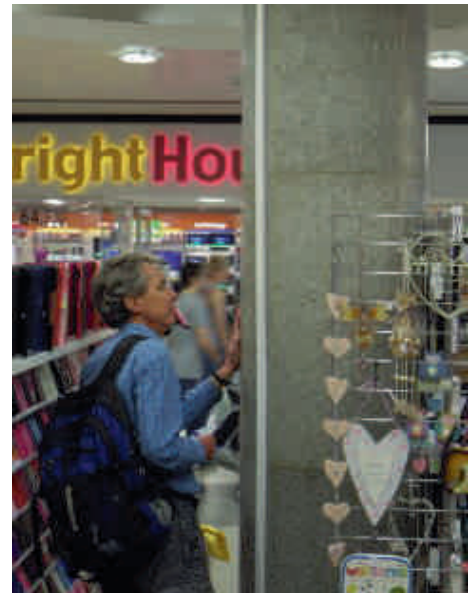


Photo Right
The muscovite pillar
in the Shopping Centre

Portland limestone is used in the Parish Church and the war memorial. It is widely used as a building stone because it can be cut in any direction. We all examined the shells and the recent weathering of the war memorial. The Parish Church has an impressive font of crinoidal limestone. Crinoids are sea lilies, the stems appear as “polo mints” or ladders depending on their orientation.

Granite from Shap (Town Hall) and Ross of Mull (URC) differ in that Ross of Mull has equally sized crystals throughout, compared with Shap which has characteristic large pink feldspars, displaying their attractive twinning property, supported by smaller crystals.

Jane led us round examples of building stones from other countries. These are familiar sights on high streets and were often the “house style” of the original occupants.

Penny Heyworth

Geo Web Watch

Most of us have access to the web either via our own computer or using our local library. There are many geo-themed websites out there and so your Editor thought it might be useful to highlight some of these each quarter.

If you have any favourite sites which you use, please let me know via newsletter@mangeolassoc.org.uk and I'll be pleased to include them next time.

This month I thought I would turn to some websites which enable us to keep an eye on what is going on both with respect to earthquakes and also volcanoes.

London Volcanic Ash Advisory Centre (VAAC)

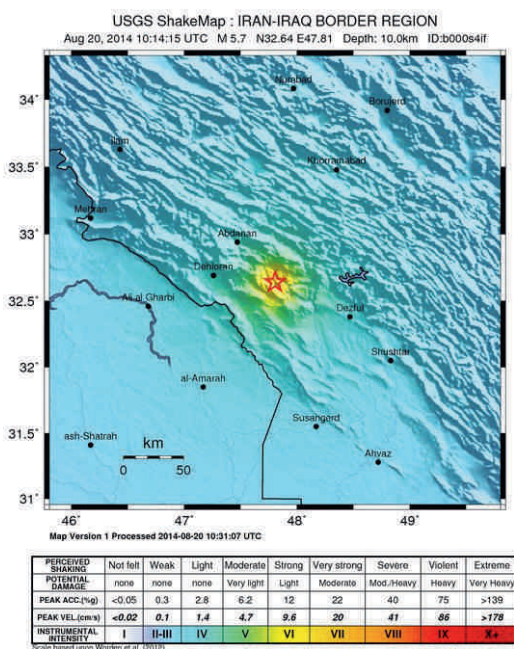
This is an International Civil Aviation Organization (ICAO) designated centre, responsible for issuing advisories for volcanic eruptions originating in Iceland and the north-eastern corner of the North Atlantic. It is 'hosted' by the Met Office and of course was very busy during the Eyjafjallajokull eruption in 2010.

The website address is <http://www.metoffice.gov.uk/aviation/vaac/> : if you are going on holiday and want to make sure there's not delays, keep your eyes on this site!!

Earthquake Hazard Monitoring

If you want to know whether there has been an earthquake somewhere today (yes, lots), then you need to visit <http://earthquake.usgs.gov/earthquakes/map/>. This is part of the USGS which I mentioned last newsletter. However, this link takes you direct to a list of any and all earthquakes. Then all you need to do is click on a quake and a map and a box with more information comes up. Click on Shake Map in that box and you can find out anything you want to know about the quake: strength, intensity and potential damage.

Further links from the page take you to other earthquake related details. On this page <http://earthquake.usgs.gov/earthquakes/feed/v1.0/>, you can register to receive email or text alerts when there is a quake!!



Where In the World

This is a new feature: have a look at the photos below and see if you know or can guess 'where in the world' they are - and what they are too!

These are your Editor's photos this issue but I do hope you will send your pictures for inclusion in the next edition.

Answers can be found on Page 12.



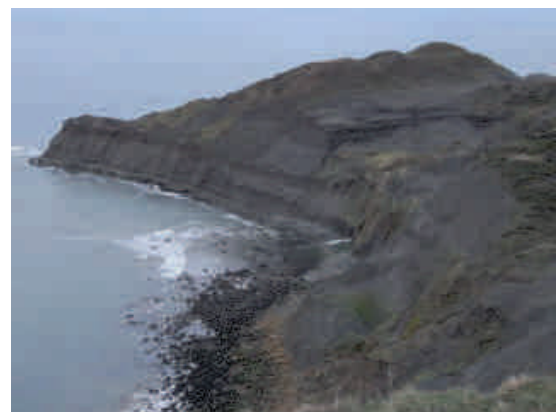
A



B



C



D

INDOOR MEETINGS 2014-2015

Wednesday 15th October 2014 – Dinosaur Diversity in the British Isles
Dean Lomax, Doncaster Museum and Art Gallery

Saturday 15th November 2014 – The Zechstein Evaporites
Eden Valley Deposits – Dr Noel Worley, Yorkshire Geological Society and others

Saturday 6th December 2014 – Ophiolite Suites
Ophiolites and Accretion Models for the Oceanic Crust
Dr Johan Lissenberg, University of Cardiff
Memories of Ocean Basin Opening and Closing preserved in Ophiolite Peridotites
Dr Brian O'Driscoll, University of Keele
Why the Oman Ophiolite did not form at a Mid-Ocean Ridge, Professor Hugh Rollinson,
University of Derby

Saturday 17th January 2015 – The Broadhurst Lectures
The Mineral World
Minerals and Gems of the Cairngorms – Roy Starkey, The Russell Society
From Fluorite to Fluid Flow: an exploration of some iconic Northern Pennine
Minerals – Dr Brian Young, Honorary Research Fellow, University of Durham
The World Class Copper Deposits of Chile - Geology, Exploration and Discovery
Dr. Chris Carlon, Mineral Industry Consultant
+ other speakers to be advised in due course

Wednesday 11th February 2015 – Evolution of the Mars Atmosphere and Hydrosphere
AGM followed by Presidential Address
Dr Ray Burgess, University of Manchester

Wednesday 4th March 2015 – Coastal Dunes and Climate Change
Dr Paul Rooney, Liverpool Hope University
Joint Meeting with the Geographical Association, 6.30pm

Greater Manchester RIGS We need your Help

As many of you will know, Marjorie Mosley has been co-ordinating the work of GM RIGS for several years now.

Regionally Important Geological and Geomorphological Sites (RIGS), designated by locally developed criteria, are currently the most important places for geology and geomorphology outside statutorily protected land such as Sites of Special Scientific Interest (SSSI). The designation of RIGS is one way of recognising and protecting important Earth science and landscape features for future generations to enjoy.

In this respect Greater Manchester is a bit behind some other areas of the country in assessing and then recommending for acceptance suitable sites locally. This is because there are only a very few people doing the work and Greater Manchester has a database of over 800 possible sites which need to be assessed.

GM RIGS

continued

Assessing the sites is not difficult and you do not need to be a professional or very experienced amateur to undertake this. You basically need to 'know the rules' (one of which is easy access - so if you can't get at it, then it probably won't qualify!!) and there are various forms to complete which give you the points to look for. There is help available for anyone who is interested and you won't be 'cast adrift' with no guidance. It is also a great excuse for getting out into the countryside of Greater Manchester (yes, there is a lot of countryside, some well hidden away) and seeing new places. You also do find that your geological knowledge improves!!

If you are interested, then please could you contact either Marjorie Mosley (gmrigs@hotmail.com), Sue Plumb (secretary@mangeoloassoc.org.uk) or Jane Michael (vicepresident@mangeolassoc.org.uk). We'll then take it from there.

MANCHESTER GEOLOGICAL ASSOCIATION Council 2013-2014

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Vice President: **JANE MICHAEL**

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Indoor Meetings Secretary: Vacant

Field Meetings Secretary: **PENNY HEYWORTH**

Newsletter Editor: Vacant

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Website: **PETER GILES**

GMRIGS group: **MARJORIE MOSLEY**, *Email: gmrigs@hotmail.com*

Past President: **PETER DEL STROTHER** MBE

Other Council Members: **NICOLA FOWLER, LISA JEPSON, JAMES JEPSON, JENNIFER RHODES, NORMA ROTHWELL**

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For **indoor meetings** - lectures@mangeolassoc.org.uk

For the **newsletter** - newsletter@mangeolassoc.org.uk

For **General queries** - info@mangeolassoc.org.uk

OTHER SOCIETIES AND EVENTS

Black Country Geological Society (www.bcgs.info):

Contact: Andrew Harrison –
andrew_harrison@urscorp.com

Cumberland Geological Society (<http://www.cumberland-geol-soc.org.uk/>)

Lancashire Geological Association (www.lancashiregeologists.co.uk):

Contact: Jennifer Rhodes – s_j_rhodes@hotmail.com

Leeds Geological Association (www.leedsgeolassoc.freeserve.co.uk):

Contact: Anthea Brigstocke –
anthea.brigstocke@zen.co.uk

Liverpool Geological Society (www.liverpoolgeologicalsociety.org.uk):

Contact: Joe Crossley – 0151 426 1324

North Staffs Geological Association (www.esci.keele.ac.uk/nsgga):

Contact: Eileen Fraser – frasers@netfraser.me

Oldham Geological Society:

Contact: Jo Holt – 01457 874 095

Open University Geological Society North West Branch (www.ougs.org/index.php?branchcode=nwe):

Contact: Jane Schollick – 01704 565 751

Russell Society (Mineralogy) (<http://www.russellsoc.org/nwbranch.html>):

Contacts: Alan Dyer – Aldilp@aol.com or Harry Critchley – 01204 694 345

The Manchester Museum:

Website: <http://www.museum.manchester.ac.uk/whatson>

Wilmslow Guild (www.wilmslowguild.wikidot.com):

Contact: Wilmslow Guild 01625 523903

Answers to 'Where in the World'

A: Hovringen, Norway (probably part of the Norwegian Caledonides)

B: Troglodyte settlement into the soft calcareous tufo rocks at Matera World Heritage site in Southern Italy

C: Frodingham ironstone Formation Quarry, Scunthorpe

D: Mid-Jurassic Cliffs at Runswick Bay, North Yorkshire

Manchester Geological Association members are welcome guests at other societies' events

For more details on any of the societies listed please check their websites

Open Day at Hansons Ribblesdale Works, Clitheroe Saturday 20 September 2014 9am - 5pm

Admission is free. There will be a band and the town crier plus a fire appliance and face painting for children. The geology and cement room displays are in the single storey building near the mineral line. There will various activities and vehicles including a CAT shovel and a locomotive will be on show. Tours of the works by minibus have been laid on with a booking system. New and archive film will be shown in the building.

Address: Ribblesdale Works, Hanson Cement, Clitheroe, Lancashire BB7 4QF

The works is about 3 miles east of Clitheroe just off the A59. Parking will be well signed on the day.