



Manchester Geological Association

President: Dr Ray Burgess
June 2015

Founded 1925

www.mangeolassoc.org.uk

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Winter Lectures

Williamson Bldg unless otherwise advised

Wed 14th Oct	7pm	Dr Katie Joy – Scientific Exploration of the Moon
Sat 14th November	1-4pm	Current Earth Sciences Research at Manchester – four talks from PhD students about their geological research.
Sat 5th December	1-4pm	Climate change in the geological record – three talks from palaeoclimate experts who will talk about how the climate has varied throughout time; its underlying causes and consequences.
Wed 10th February 2016	7pm	MGA President - Ray Burgess
Wed 2nd March	Time to follow	Dr Fiona Tweed - Past eruptions and future risks - should we be concerned about Iceland's volcanoes (joint with the Geographical Association).
Sat 12 March		Broadhurst Lectures – talks on New Zealand tectonics. This is likely to be an all day event and further details will be published shortly.

Who's Who in the MGA Officers

President: Ray Burgess PhD

Vice-President: Jane Michael BSc (Hons)

General Secretary: Sue Plumb BSc

Membership Secretary: Vacancy

Treasurer: Niall Clarke MSc

Indoor Meetings Secretary: Vacancy

Field Excursions Secretary: Penny Heyworth MPhil

Newsletter Editor: Lyn Relph BSc (Hons)

Webmaster: Peter Giles MSc

Other elected members of Council

Nicola Fowler BSc (Hons)

Jennifer Rhodes

Norma Rothwell

Ex officio members of Council

The Immediate Past President, Manchester Geological Association: Peter del Strother MBE BSc CEng MIMechE MBA MPhil

RIGS Representative: Chris Arkwright PhD

The Association's representative on the North West Geologist's editorial team: Peter del Strother MBE BSc CEng MIMechE
MBA MPhil

President of the Student Geological Societies of the University of Manchester

MGA Archivist: Derek Brumhead MBE

MGA email addresses

To contact our President: president@mangeolassoc.org.uk

To contact our Vice-President: vicepresident@mangeolassoc.org.uk

To contact our General Secretary: secretary@mangeolassoc.org.uk

For membership enquiries: membership@mangeolassoc.org.uk

For field visit enquiries: outdoors@mangeolassoc.org.uk

For indoor meeting enquiries: lectures@mangeolassoc.org.uk

For newsletter correspondence: newsletter@mangeolassoc.org.uk

For other enquiries: info@mangeolassoc.org.uk

Brymbo's Fossil Forest gets National Recognition and Protection

A Press release by Natural Resources Wales



A fossil forest, in Brymbo, near Wrexham, which pre-dates dinosaurs has been designated a Site of Special Scientific Interest by Natural Resources Wales.

Covering an area nearly half the size of a football pitch, the site contains a fantastic variety of 300-million year-old fossilised plants and trees (see front cover), making it a world-class site for plant fossils. They are the remains of plants that grew in hot, humid conditions near the equator and include 20 fossilised giant clubmosses that look like massive tree stumps, [also many fine examples of seed ferns and calamities (horsetails) —Editor].

First revealed in 2004 on the former iron and steel works site in Brymbo, much of the fossil forest remains buried for its own protection. Plans are underway, led by Brymbo Heritage Group, to establish an excavation and visitor centre on the site that will ensure the right conditions to study and display these fragile fossils.

Raymond Roberts, NRW geologist said, “The SSSI designation will help safeguard the fossil forest into the future as a superb scientific and educational resource. Fossils have a wide appeal and this site, developed with the right expertise and care, has the potential to be a popular tourist attraction contributing to the local economy of this area.”

Gary Brown, of Brymbo Heritage Group said, “There is an extraordinary story of tell at this site, linking the geological history with Brymbo’s industrial heritage. Our aim is to secure funding in time to open the excavation and visitor centre in the summer of 2018.”

In the meantime, Brymbo Heritage Group organises guided tours, open days and community digs for people to see the fossil forest and industrial heritage. The next event is an open day on Saturday 26 September. To arrange a visit contact Gary Brown, Heritage Officer, Brymbo Heritage Group on 0800 772 0981.

The SSSI designation follows work to conserve the site by the land owner, Brymbo Developments, Natural Resources Wales, Wrexham County Borough Council, National Museum Wales, Geoconservation Cymru and Brymbo Heritage Group.

Some of the best and rarest fossils have been removed and are being conserved in the National Museum of Wales. They will be returned to Brymbo for public display once a suitable building is ready.

It is illegal to remove fossils or damage a Site of Special Scientific Interest.

ROBIN NICHOLSON (1932 – 2015)

by John Pollard

Sadly with the death of Robin Nicholson, in March this year, the MGA lost a long standing member, friend and former president. For more than 30 years Robin taught structural geology in the Geology Department of Manchester University; and carried out meticulous structural research in the UK and abroad. As the complete field geologist for twenty years he mapped and analysed the structure of the Caledonian metamorphic rocks of northern Norway, becoming an expert on the Scandinavian Caledonides. Latterly he also studied the Alpine tectonics of the Island of Mallorca. Using the microscope, Robin studied the petro-fabrics of deformed limestone and igneous intrusions in the Isle of Skye, also the quartz-calcite and mineral veins in the Welsh Borders and Portugal.

Robin was born (17th August 1932) and brought up in Berwick on Tweed; the son of a railwayman who was a locomotive driver on London to Edinburgh main line and a national union official of the NUR. After his education at Berwick Grammar School, Robin entered Hull University in 1950 to study geography. However, he was dissatisfied with the course and so left to do his National Service in the RAF. There he trained in Canada as a pilot officer on Gloucester Meteor fighters.

On returning to civilian life Robin changed his course and career by enrolling to read geology at University College, London 1953 -1956. After graduating and winning the Sir Henry Mier's Prize, he stayed on at UCL for a PhD, joining Professor S.E. Hollingworth's research group in Nordland Norway. Before completing his PhD he became an assistant lecturer in geology at Bedford College, London (195 –1960). In summer 1960 (at the request of Professor B.C. King of Bedford College (Q.J.G.S. 1965)) Robin spent three months in Uganda working on the Proterozoic Ntungamo gneiss dome. He also met his wife Judy there when she was a zoology student.

In autumn 1960 Robin was appointed as lecturer in structural geology at Manchester by Professor Alex Deer; at the same time as John Dewey. This was one of the first appointments of the University expansion of the 1960s, anticipating the Robin's Report (1963), and was a pioneer appointment in the newly developing field of structural geology. Each summer in the 1960s to 1970s he had a field mapping season in north Norway (Fig.1), publishing his results solely or jointly in a number of journals including the Norwegian journals *Norges geol. Tidsskrift* and *Norges geology Undersokelse*.



Fig. 1 Robin in his field area Lommifjell mountains at Norwegian–Swedish border , summer 1964.

In 1964 Robin and I co-led the first foreign field trip from the Manchester Department, taking 20 second year students on the Fred Olsen ferry 'Blenheim' to Oslo where Fred Broadhurst was on a year's sabbatical leave. After the field trip I accompanied Robin to the Bodo –Sulitjelma area to search the low grade metamorphic limestones for fossil crinoids and gastropods which might enable the rocks to be dated. Unfortunately after frigid camping on the Svartisen ice cap, fording glacial streams and arctic camping in the Sulitjelma mountains, we failed to find the fossils as the snow melt was later than usual that year. However, I had learnt the art of mountain camping from Robin (Fig.2) and had the benefit of a cruise from Tromso to Bergen on the 'Hertigruten', Norwegian coastal steamer, on my return. So not an entirely wasted experience!

Also in 1960s following a student field trip to Skye, Robin became interested in the deformation of the Durness Limestone, including the Tertiary dykes and sheet intrusions, of the Broadford Anticline around the southern margin of the Red Hills Granite. This work resulted in some five papers in 1970s and 1980s in *Geological Magazine*, *Scottish Journal of Geology* and *Geological Journal*. The folding and

recrystallization of calcite-quartz veins in the folded Silurian slates of the Llangollen area, spasmodically occupied Robin's research time in mid 1960s to 1980s, particularly using thin section petrographic techniques. In the 1990s Robin used this knowledge in studying W-Cu-Sn bearing hydrothermal quartz veins from Portugal as a co-worker with David Polya and others in the newly reorganised Earth Sciences Department.

Robin's teaching of structural geology and leading of field courses always showed meticulous preparation and organisation - at times, no doubt, seemed hard for the students! Two or more field trips to Mallorca in early 1980s led to a new field of research for Robin, the structure and tectonics of the Betic Alpine mountains of the Sierra del Norte of Mallorca, especially the Formentor Peninsula (Fig.3). This also resulted in the publication of the first brief guide in English to the Geology of Majorca by Adams and Nicholson (Amateur Geologist 1982 volume 10 (2), p.13 – 26). This pioneer guide was superseded by Tony Adam's guide in 1989 and a larger G. A Guide in 1990 as Mallorcan holidays for geologists became more popular. Robin's last paper published in 2006 in the new Journal of Maps was the Geological Map of the Formentor Peninsula, Mallorca.



Figure 2. Field camp at Lommivatn, nr Sulitjelma, north Norway, summer 1964.

From the 1980s accelerating health problems and decreasing mobility brought Robin's field work to an end and he finally retired from the University in 1994. In 1999 Robin and Judy moved to his birth place, Berwick on Tweed, where they soon became active in the local community. Robin became a Rotarian and was active in the Literary Society where he was able to indulge his love of reading and radio listening. For several years in Manchester he was a member of the BBC Listeners' Panel. He was also an early member of the Geological Society's History of Geology Group (HOGG). This last interest led to his kind act to the MGA by presenting to our archives the 300 page geological notebook of Mr R.W. Palmer 1910 – 1912 (MGA Newsletter September 2014). It appears that Mr Palmer was either a keen amateur geologist or perhaps a student in geology in Sir T. H. Holland's Department, as sometimes he joined excursions of the Manchester University Geologists' Association. His notebook shows that he was a field geologist after Robin's own heart as he went on field excursions, alone or with others, from Dorset to Scotland, including Llangollen, to increase his knowledge of British geology. Perhaps this illustrates the familiar maxim 'The best geologist is the one who has seen the most rocks'!?



Figure 3. Manchester student party with Robin (right) viewing the Alpine thrust sheets of the Formentor Peninsula, Mallorca, December 1981.

Such a statement could be applied to Robin Nicholson who has left us a strong heritage of structural geology in SEAES today; a portfolio of more than 50 papers and the memories of a greatly missed colleague and friend. He is survived by his wife, Judy, son Hugh, a senior geologist with BP in Stavanger, his daughter Sally and three granddaughters.

Joint MGA/OUGS trip to Bosley Cloud

Leader: Paul Aplin

22 August 2015

Report by Penny Heyworth

The aim of this trip was to examine the Chatsworth Grit in the Bosley Cloud area and to appreciate the geology and scenery from the Cloud, including folding, faulting and glacial action. The view from the top of Bosley Cloud is a summary of this trip. Often Liverpool and Wales can be seen from here, but not on 22 August.

Chatsworth Grit is part of the Millstone Grit; it is immature, feldspathic sandstone. The Macclesfield Memoir describes the Chatsworth Grit as a persistent formation 47 – 60 metres in thickness, with its maximum development near the Cloud. It is massive, coarse-grained, feldspathic sandstone with bands of quartzitic pebbles; it commonly forms crags in which foreset bedding is seen. The outcrop, round the synclinal coalfield of the Potteries, is marked over much of its length by a distinct ridge which is broken in places by faults.

Bosley Cloud rising to 330 metres OD is of Chatsworth Grit. It owes its shape, in part, to the passage of ice around its flanks. The Cloud is covered in drift up to about 275 metres thick, but the top probably stood above the ice as a nunatak during the Devensian glaciation.

The Cloud is the northern end of the synclinal Potteries Coalfield. The nose of the syncline dips towards the south. Sediment from the north filled the northern Craven Basin first, then the more southerly Pennine Basin and finally the Staffordshire Basins. The sediments therefore are progressively younger further south.

On both the way up and down from the Cloud, we stopped at a small quarry to determine dip, strike, look for slickensides, faulting and cross bedding; then compare these findings with those from elsewhere. We also searched for cross bedding, grain size and form on the top of the Cloud.

To the south, Congleton Edge and Mow Cop (Fig. 1) ridges mark the edge of the Potteries coalfield. The younger coal measures are preserved in the centre of the syncline. Congleton Edge is a hog's back; there is no scarp slope because of the steep dip. The grain of the rocks is related to the type of fold which forms; regular or irregular. Also to the south is the Bridestone Fault which we went to investigate in the afternoon. At first sight this could be taken for a lateral fault. It is, however a normal fault with dip slip. Nearby are the Bridestones a Neolithic burial chamber which is said to be Cheshire's finest ancient monument.



Fig.1 View towards Mow Cop from Bosley Cloud.

Looking west from the Cloud; the Red Rocks Fault runs along the edge of the high ground and the Cheshire Plain marking the dividing line between these two contrasting areas. The Red Rock Fault now forms a degraded fault-line scarp and can be traced for some 30 miles from Stockport into Staffordshire. The throw of the fault is a matter of debate, but some 2000 metres to the west has been suggested near Astbury.

The Cheshire Plain is a deep basin accommodating some 4500 metres of Permo-Trias sediment. Bedrock is mostly obscured by glacial drift, up to 90 metres thick, which is responsible for the subdued landscape.

The market towns of Macclesfield on the River Bollin, and Congleton on the River Dane, have grown up where the high moorland and plain meet. The steep gradients of the streams leaving the moorlands, and the abundant pure water supply they provide, helped the early establishment of the textile industry in the towns.

To the north are the whale back humps of the Rough Hay, Sutton Common and Bosley Minn anticlines. The Minn beds of Sutton Common and Bosley Minn are the oldest, older than the Chatsworth Grit; their source is from the south. Beyond are the high points of Shining Tor and Shuttingsloe both are of Chatsworth Grit. Shining Tor is Cheshire's highest peak. Also to the north is the Goyt Sincline formed from Roaches Grit which is older than the Chatsworth Grit.

The water shed, east to west, across England can be picked out from the Cloud. The Dane flows into the Weaver and then out to the Irish Sea. The Churnet flows into the Trent which in turn flows to the North Sea.

Irish Sea ice moving south was deflected around Bosley Cloud and into the river valleys. It was stopped by the Pennines. The valley of Rudyard links the valleys of the Dane and the Churnet. Rudyard is one of several valleys cutting across the North Sea/Irish Sea watershed between the Trent and Mersey drainage basins. The valleys are all thought to be glacial melt water drainage channels; the melt water flowing from ice on the Cheshire Plain into the Trent drainage system. Many melt water lakes formed, though Rudyard Lake is not one of these. It is much younger, dating only to 1797, constructed to store water for the nearby canal. It is apparently the longest lake outside the Lake District.

For the most part the Pennine foothills to the east of the Cloud are of steeply folded sandstones and shales, belonging to the Millstone Grit Group, which typically form cuesta and vale topography. The view of the Pennine foothills to the east completes the all round view from the Cloud and a summary of the day. (Fig. 2). After thanking our leader Paul Aplin for a very interesting day we walked back down the Cloud to our cars.



Fig. 2 MGA on Bosley Cloud

Photographs by Eileen Fraser

'BUILDING OUR FUTURE'

Geologists' Association Annual Conference

9th-10th October 2015. British Geological Survey, Keyworth, Nottingham, NG12 5JY

Building Stones in the UK have faced a decline in usage over the last century. Combined with the loss of many quarries to brownfield development this has led to a review of the state and supply of Building Stone in industry. Presenters from the English Stone Forum, the British Geological Survey, academia and Industry will come together at this conference to discuss the future for the building stone industry in the UK.

Friday Morning Sessions

Rocks and stones: curating urban geology - Ruth Siddall

Building stones of Sussex - David Bone

The amazing Devonshire marbles - Gordon Walkden

Building Stones at the BGS - Steve Parry

Small blocks of embellishment: polished stone - Monica Price

The stone cycle, a story of dimensional stone - Iain Kennedy

Lunchtime tour of BGS Geological Walkway

Friday Afternoon Sessions

The Global Heritage Stone Initiative- Brian Marker

Building stones of the Pennant Formation - Graham Lott

Digital SIGMA mapping of building stones - Emily Tracey

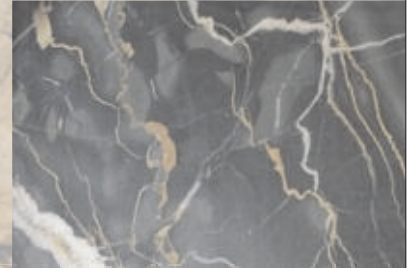
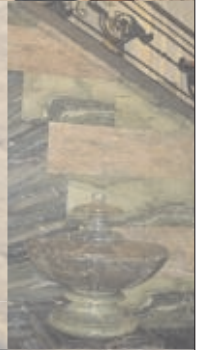
Geology awareness using town trails - Cynthia Burek

Maps, measures and models of building stone - Tony Brook

Future of the Building Stone industry - Discussion

To register email conference@geologistsassociation.org.uk

Or visit www.geologistsassociation.org.uk 02084



Saturday Fieldtrip #1

The building stones of Nottingham

Local walk and tour, including exclusive access to Nottingham Broadmarsh caves in the morning. These caves are some of the most significant of their kind with Ancient Monument status. In the afternoon we will visit other city centre monuments, churches, halls and buildings with a focus on the building and facing stone used in construction.

Led by Tony Waltham and Graham Lott



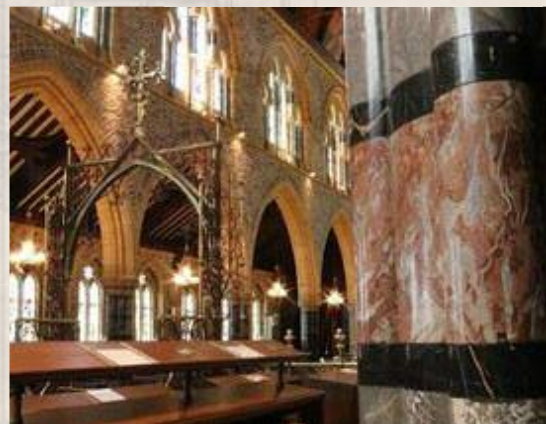
Nottingham Caves. C Graham

Saturday Fieldtrip #2

The Devonshire marbles of Birmingham

This building stones trip including interiors of the Birmingham Museum and Art Gallery - perhaps the best Devonshire Marble interior in Britain. The Town House and Birmingham Cathedral marbles, art and stained glass.

Led by Gordon Walkden



Devonshire marble interior. G Walkden



**GA Conference Booking Form
"BUILDING OUR FUTURE"**

**Friday 9th – Saturday 10th October 2015
British Geological Survey, Keyworth, Nottingham NG12 5JY**

Professional title

Forename

Surname

Email address

Phone Number

Mobile Phone Number

Friday 9 October Day of Lectures Including book of abstracts, tea, coffee, sandwich lunch (Please indicate any dietary requirements)	GA & Affiliates	£30	Please tick <input type="checkbox"/>
	Non Members	£35	
	Students	£15	
	TOTAL		
Saturday 10 October Excursions 1. Birmingham City Centre to see Devonshire Marbles and a tour of the building Stones	GA & Affiliates	£15	<input type="checkbox"/>
	Non Members	£15	
	Students	£5	
2. Nottingham based. Tour of caves and building stones	GA & Affiliates	£15	<input type="checkbox"/>
	Non Members	£15	
	Students	£5	
Please make your cheque payable to 'Geologists' Association' and send to: Sarah Stafford, The Geologists' Association, Burlington House Piccadilly, London W1J 0DU			

Accommodation You will need to book this yourself. A list of reasonably priced accommodation based in Nottingham will be emailed to you upon request.

Parking: There is parking available at BGS but you must inform us of your car registration here

We will be having an informal icebreaker in the "Old Trip" pub in the cave below Nottingham Castle. If you would like to attend, please indicate here with a tick here, this won't subsidised.

Conference Dinner: please do join us for this informal style buffet in the "Indian Nights" Curry House in Keyworth at 6.30 for 7.00 pm. The approximate cost of this will be approximately £19.95 per person. All dietary requirements can be catered for. Please tick here if interested

Posters: we would welcome posters. They must be A1 portrait size and abstracts must be sent to Sarah Stafford by 1st June: conference@geologistsassociation.org.uk. 0207 434 9298.

**Further information will be sent to you by email
Please email any questions to Conference@geologistsassociation.org.uk**

Geology at the Wilmslow Guild – with Chris Arkwright

Geological Maps and Minerals

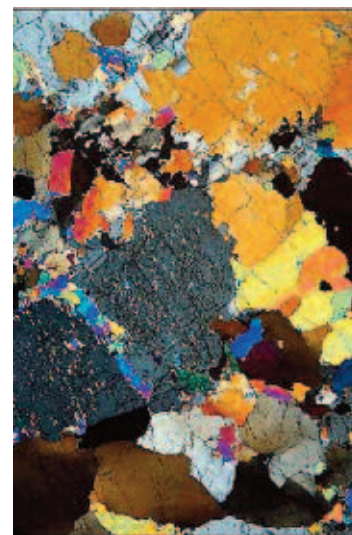
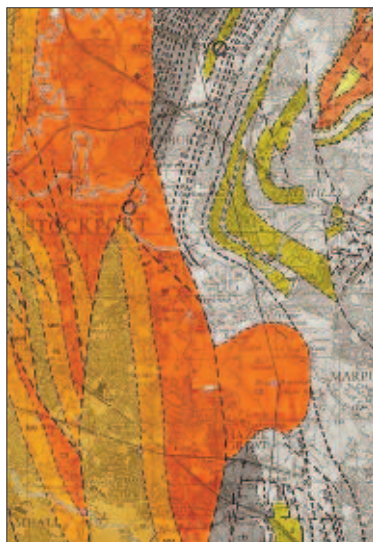
Using visual presentations, geological maps and mineral specimens learn more about:- how a geological map is made, drawing map sections and graphic logs, recognising mineral properties in hand specimen and microscope sections. There will also be a field trip to help put map theory into practice and possibly a microscope session. Sounds very technical but I'm sure you will find it interesting and, as usual, just do as much of the practical work as you like.

Autumn Term 2015

Weds 1.30 to 3.30 at Dean Row Community Centre

Starting Weds 23 September for 10 weeks.

Cost £74



UNESCO Geoparks in Britain

What is a Geopark? How many are there in the UK? How have they earned that status? Who are they for? Using visual presentations, geological maps and rocks, these questions and more will be answered by investigating the geology, trail guides and visitor facilities of each Geopark, via their web sites, to discuss and assess how successful they are. Sorry, but all the UK Geoparks are too far away for a day field trip, but you may want to visit one yourself after finding out more.

Spring Term 2016

Weds 1.30 to 3.30

Starting Weds 6 January for 6 weeks

Cost £44

For booking and further details:

www.wilmslowguild.org

or

chrisarkwright1@gmail.com

01772 335316



Other Society Events

North Staffordshire Group of the Geologists' Association <http://www.esci.keele.ac.uk/nsgga>
Sunday November 15, 2015. Exhibition at Apedale Mining Heritage Museum
Field trip to Apedale Country Park and opportunity of a 'deep' mine tour for NSGGA members.

Thursday November 19, 2015,
19:30. Keele University The Wolverson Cope Annual Lecture by Prof Hugh Torrens on William Smith

Black Country Geological Society. <http://bcgs.info>
3 October, 10:00 Geoconservation Day - Saltwells Nature Reserve
19 October, 7:30 'In search of ancient subduction sites in the UK'
7 November, 10:30 Geoconservation Day - Barr Beacon, Pinfold Quarry
16 November, 7:30 'Insights into the glacial history of the British Isles: the newest methods and theories'

Leeds Geological Society
2–4th October Residential weekend: North Lakes

Winter Lecture program

All lectures apart from the Saturday joint meetings are held at Leeds University on Thursdays at 7.15 p.m. in the Conference Centre Auditorium 2. The meeting place and program on Saturday November 14 will be announced later.

8th OCT Palynology in the Service of Man. Speaker: Dr Jim Riding BGS
5th NOV Bubble, Burp, Bang! Big Experiments in Volcano Physics. Speaker: Dr Ed Llewellyn Durham University
14th Nov (Saturday) Joint meeting with the Yorkshire Geological Society. Speakers and venue to be confirmed
3th DEC AGM and Short Talks and Displays by Members

Liverpool Geological Society <http://liverpoolgeologicalsociety.org>
Oct 6th Presidential Address by Maggie Williams.
Oct 17th Campus & Cathedral Treasure Hunt with Jim Marshall
Oct 27th Members' Evening with Maggie Williams
2016
Mar 8th The Society Annual Dinner @ Villa Romana, Liverpool

Lancashire Geological Society <http://www.lancashire-geologists.co.uk>

Open University Geological Society North West <http://ougs.org/events/index.php?branchcode=nwe>

Oct 18 Stockport building stones and air raid tunnels with Chris Arkwright
AM. Follow the building stones trail around Stockport town centre. PM. Guided visit to natural rock air raid shelter tunnels
6th Dec Winter Lectures at Yealand near Carnforth
6th Feb 2016 Branch Annual General Meeting. NW Branch AGM 6.30pm at The Pines Hotel, Clayton-le-Woods, Chorley, PR6 7EB, followed by Branch Dinner at 8.00pm.

Manchester Museum <http://www.museum.manchester.ac.uk>

For more details of other Societies please check their websites (note that Lancashire website is being rebuilt).