



# MANCHESTER GEOLOGICAL ASSOCIATION

President: PETER DEL STROTHER

Founded 1925

December 2013

[www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

Dear Members,

Welcome to the December Newsletter!

In this edition we have the usual MGA News with information on subscriptions for 2014 and an article on the recent MGA skills day at The Manchester Museum. We also have two obituaries commemorating the lives of David Thompson and Richard Hugh "Chuff" Johnson, as well as a book review.

This is my last newsletter as editor, so many thanks to all who have contributed material in this edition and over the past couple of years. Please keep the articles, book reviews, and other contributions of geological interest coming in for the next editor, before the last week of February.

Finally, the Manchester Geological Association Council would like to wish all members a Merry Christmas and a Happy New Year.

*James Jepson*  
NEWSLETTER EDITOR



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## QUICK DIARY

Indoor:  
**25th Jan** - Broadhurst Lectures  
(Fossil Birds)  
**12th Feb** - AGM and Presidential  
Address  
**5th Mar** - Volcanic Hazards Naples

# MGA NEWS

## Subscriptions for 2014

Members subscriptions for 2014 fall due on January 1st. It would be helpful if you paid your subs by the end of January. At the last AGM the proposal to increase subscriptions was approved. So may I remind those of you who pay by standing order to please amend the instructions with your bank.

I would also like those of you who do not yet pay by standing order to please consider payment by this means (although cheques and cash are still very welcome!).

On the enclosed pages are the necessary forms for subscriptions renewal including a standing order template.

Please use your surname and first initial as the payment reference and please send the completed forms directly to your bank, not to us.

Please do drop me an email, text message or phone call to let me know if you have set up a standing order.

Following the subs change agreed at the last AGM, the new subscription rates are:

Full membership £16, or £18 if you wish to receive the Newsletter in paper format

Full +Associate membership £18, or £20 if you wish to receive the Newsletter in paper format.

If you have any questions please ring, write or email me.

Thank you,

Niall

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# ARTICLES

## FOSSILS, HOW TO DRAW THEM AND ALLIED TOPICS: THE MGA SKILLS DAY 2013

Saturday 12th October 2013  
The Manchester Museum

On the 12th of October, 18 members and visitors met David Gelsthorpe at Manchester Museum for the 2013 Skills Day which this year was based round three workshops, which are usually offered to Sixth Form geology students.

After an introduction by David where he outlined the day and explained that we would be using real fossils, not plaster cast 'perfect' specimens, we split into our three groups around tables to 'get stuck in'.

### Workshop 1: Fossil Drawing

David and his assistant, Clare, brought round three trays: one of Trilobites, one of Bivalves and one of Brachiopods. Over the course of the next hour, we each had to draw, to scale, one specimen from each group and clearly label each of the 'parts'. Not all specimens showed every feature and David and Clare came round to help us decide what was what.



By the end of the session, we all knew, amongst other things, where the genal spines were on a trilobite (they come off the corner of the back of the head), that ribs are perpendicular to the growth lines on a bivalve and are structural and that the pedicle valve is the large valve on a brachiopod with the brachial valve being the smaller valve. David also clarified for me (and several others I think) that in brachiopods the line of symmetry is perpendicular to the margin of the shell and in bivalves it is along the margin of the shell.

### Workshop 2: Understanding and Interpreting Fossils

After a coffee break, our second workshop looked at a box containing a mix of fossils and we had to decide which were the main fossil groups present, how they are preserved, what environment they lived in and can they tell you how old the rock in which the fossil is preserved. We then had to plot on a range chart where a Ceratitic ammonite would plot.

Firstly David explained the six methods of preservation:

Silicification – by quartz

Calcification – by calcite

Pyritisation – by iron and sulphur

Mould – leaving the outside – like a jelly mould

Cast – leaving the inside – like the jelly

Replacement – by crystals: no original structure only the margins of the crystals.

The box our group had contained crinoids (lots of ossicles and some rare calyxes), tabular coral, spiral goniatites and some brachiopods with shells replaced and filled with calcite. Generally they showed calcification and were casts.

As a group we debated the environment where they lived and decided on warm shallow marine because the coral needed light and so the environment would have to be in the photic zone.

We decided, rightly, that the goniatite was the fossil we would use to tell the age of the rock. Our examples had sharp chamber lines which fitted in with the Palaeozoic information we had been given. Most of us, being local, were prepared to refine it further to the Carboniferous but David reminded us that we could only definitely say Palaeozoic!



Then before lunch, David showed us a wonderful piece of rock filled with trilobite trackways.

### Workshop 3: Unravelling Quaternary Climate Change

The final workshop was fascinating. We were provided with real data for an area in East Anglia (this time two groups each with a different area) covering a graphic log of a cliff section, a box of rocks and fossils and the results of pollen and isotope analysis. We had to record the main fossil groups, the rock types and which environment they were from and why.

Our group had a section of glacial till, the Kesgrave sediments and the Norwich Crag which comprised thin laminations and cross bedding. Our rocks included a mix of pebbles in a sandy/muddy matrix (glacial till), large grey/black heavy smoothed but elongated rocks with striations, which we considered were erratics and some slightly pink, smooth pebbles on which we noticed were polished (drycanta and came from a tundra area). We had a mix of bivalves and gastropods both of which would have lived in the photic zone.

We then had to plot  $\delta^{18}\text{O}$  data on a graph with height in metres against  $\delta^{18}\text{O}$  ‰ (which is a proxy for palaeotemperature). This gave us an S form showing a transition from warmer to lower temperature, increasing slightly again before showing a steady cooling the higher up the section. We decided that this represented two interglacials with temperatures of around 20°C with a very slight cooling in between (which seemed to correlate with the laminated beds showing probable relative sea level rise) in the cross-bedded part of the cliff with then a very steady cooling to -5°C as the glacial tills of the Kesgrave sediments appeared.

Our pollen samples when analysed indicated the same: alder in the interglacial and birch and pine during the glacial. Two members of each group worked with Rachel, another member of the Museum staff whose specialism was pollen.

When both groups' work was added together, the two sections actually formed halves of a whole. A discussion about the causes of glaciations took place when the contribution from the Milankovitch cycles was mentioned.



Finally David brought out some amazing pieces of Baltic amber containing various insects (such as wasps) and spiders. Some of the pieces were large as the photo of Fred Owen examining one shows.

This had been a fascinating day which everyone had enjoyed. We thanked David, Clare and Rachel for their hard work, enthusiasm and giving up their Saturday to help us gain more knowledge about fossils and what they can tell us about environment and climate.

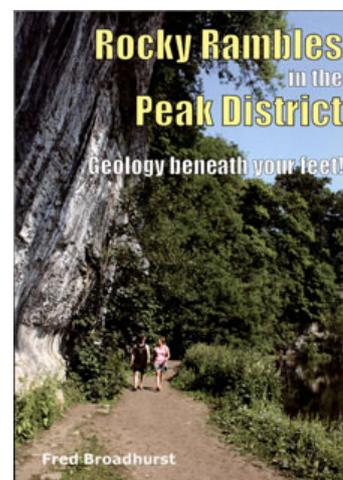
Jane Michael

## ROCKY RAMBLES IN THE PEAK DISTRICT

'Rocky Rambles in the Peak District', written by Fred Broadhurst, revised since his death and published by Sigma Press, is now available from bookshops – retail price £8-99

Copies can be collected at some Manchester Geological Association meetings from Rosemary Broadhurst at a price of £6-00 or can be posted for £7-80 – including post and packing.

Rosemary Broadhurst  
77 Clumber Road, Poynton, Stockport, Cheshire SK12 1NW  
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rose@rosiegarden.com



## FREE COPIES OF THE GEOLOGICAL JOURNAL

Jack Treagus is having a clear out and is offering the following parts of the Geological Journal free to a good home: Vol 10 no. 2 (March 1976) through to Vol 21 No. 1 (March 1986). Please contact Jack.Treagus@btinternet.com for collection arrangement.

## OBITUARIES

### **DAVID BARNARD THOMPSON (1932 – 2013) PAST PRESIDENT OF THE MGA**

Although the sad news of the death of David Thompson was recorded in the September newsletter and obituaries are to appear in Geoscientist and Proceedings of the Geologists' Association, I felt it appropriate to include a fuller obituary here as David was a leading member of The MGA in 1960s and president 1966 -1968.

David was a Manchester man, born and bred. He attended the prestigious Central High School for Boys in Whitworth Street. There he was taught geography and geology by Norman Horrocks, an inspiring teacher, who was a member of the MGA from 1950s to 1999 and the benefactor of the Horrocks Fund (see his obituary written by David in North West Geologist 10, 4-9). David excelled in geography and enthused in geology, and gained academic distinction which led to him being awarded a City Scholarship. On leaving school in 1950 he became one of the pioneer students at the newly formed University College of North Staffordshire, later to become Keele University. Here he achieved a first class honours degree in Geography and Geology along with a Diploma in Education in 1954. This achievement reflects his first priority to become a teacher.



Although he received offers of postgraduate research studentships from several Cambridge Colleges, David decided to fulfil his National Service obligations first and from 1955-1957 was stationed as a weather forecaster at RAF Manby in Lincolnshire. Upon demobilisation his priority to become a teacher took precedence over a higher degree so he became a geology teacher from 1957 -1972 at North Manchester Grammar School for Boys and after 1966 at its successor comprehensive school. While teaching full time David registered for an external MSc at Manchester University on the stratigraphy and sedimentology of the NE of the Permo-Triassic of the Cheshire basin with especial reference to the Lower Keuper Sandstone, supervised by Fred Broadhurst. This entailed 1:2500 mapping of the rocks of Alderley Edge, an interest and expertise that David retained throughout his life and contributes to the forthcoming book "Life on the Edge" edited by Jon Prag. His MSc thesis of 364 pages was said to be worth a PhD by the external examiner but not possible under the regulations then in operation!

During the 1960s David was a keen and active member of the MGA, leading field excursions, giving two presidential addresses in 1967 and 1968 which contributed to two landmark papers on the Triassic rocks of Cheshire published in 1970 in both the Quarterly Journal of the Geological Society and the Geological Journal, as well as in the GA guide to the Manchester region. He was also an editor of the Amateur Geologist, later to become the North West Geologist, where David still published papers in 1990s to 2000.

In 1967 David became a founder member of the Association of Teachers of Geology (ATG), which later became the Earth Science Teachers Association (ESTA). He was a council member for 37 years, journal editor 1979-1986, president 1986 -1988 and Honorary Life member from 1990. In some ways he was the ATG/ESTA for many years where he played a major role particularly on committees, lobbying, formation of examinations and assessment and the development of earth science education in the UK.

David moved from secondary education to teacher training when he was appointed as lecturer in geology and science education at Keele University in 1972. He became one of the founders of modern earth science education, not only training geology teachers for the UK, but receiving overseas visitors and travelling worldwide in promotion of this subject. For this work he received an Honorary Award from the International Geoscience Education Organisation in Hawaii in 1997 and the R.H. Worth Prize of the Geological Society in 2002.

As well as his leading role in geoscience education David remained a keen and active geologist on the Triassic rocks of Cheshire and Shropshire Basins. We worked together on the surprise discovery David made of marginal marine trace fossils in the Tarporley Siltstones along the M56 in 1970s and on the footprint bearing rocks of Hilbre Island in 1990s, published in Proceedings of the Yorkshire Geological Society, The North West Geologist and the Proceedings of the Geologists' Association. David's expertise was sought by oil companies and his skill as a sedimentologist and teacher reflected in the authoritative book "Sedimentary Structures," which he co-wrote with John Collinson and latterly Nigel Mountney, that has been through three editions between 1982 and 2006.

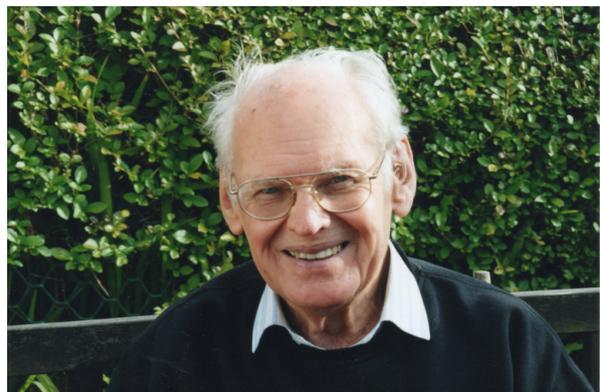
After his retirement from Keele in 1997 David broadened his interests to include the history of geology and particularly the local history of his home village of Betley. This included producing a guide to the history of quarrying at Grinshill, Shropshire, and the connections of Charles Darwin as a geologist around Mere Hall in Staffordshire. Unfortunately the encroachment of Parkinson's disease meant that David had to cease active research by 2006. The last time he was able to participate in a geological gathering was on the visit of the Geological Society / Geologists' Association Darwin Bicentennial field excursion in 2009 to the West Midlands and North Wales held at St Peter's church Mere, the very place where Charles Darwin and Emma were married in 1839.

A simple gravestone in St Margaret's churchyard, Betley, in sight of his home, bears the inscription "David Barnard Thompson teacher and geologist". This is a highly appropriate memorial but an understatement of all that was achieved by a personal friend and member of the MGA for 50 years.

John Pollard

### **RICHARD HUGH 'CHUFF' JOHNSON (1926 -2012)**

During my final undergraduate year at Keele 1961-62 the resident geomorphologist had a sabbatical year and as a consequence Chuff came down from Manchester each week to take the advanced geomorphology option. Although we spent a lot of time discussing British erosion surfaces, it was obvious to the class that we were being taught by an enthusiastic real practitioner of the subject, furthermore one who was actively publishing and supervising research students.



He suggested to me that I might undertake a higher degree but I was not over confident about this and had plans to work for British Railways. Accordingly he invited me over to Manchester one day to privately meet David Hopley who was doing raised shoreline research. I have always been grateful for his understanding at that time and his insight into the needs of a student who might potentially be moving to another university. The rest is history and I subsequently joined David as a graduate student of Chuff's at Manchester.

Chuff was born in Newbury, Berkshire, and reputedly when very young and playing in the garden he used to like simulating steam locomotive sounds and the name stuck. Surprisingly to most, he was not a railway enthusiast! After attending the local state grammar school St Bartholomew's, he did his national service in the Army, serving in India and Burma. He then read for a degree in geography at the University of Reading. There he was a member of Wantage Hall and the university rugby team; an associate recalls his aptitude for high jinks especially on field classes. A. Austin Miller was the professor and he was an active denudational chronologist, as were most academic geomorphologists in Britain at that time. Chuff graduated in 1951 and moved to Sheffield as a junior demonstrator and commenced work on his MA under the guidance of David Linton. Unsurprisingly, the combined influences of Linton and Miller, led him to a thesis topic related to denudation chronology in part of the Peak District (Johnson 1954). His subsequent PhD (Johnson 1966) was partly related to the same theme but also embraced glaciation, reflecting his increasing interest in Quaternary climatic change.

In 1954 he was appointed an assistant lecturer in the School of Geography in the University of Manchester and subsequently was promoted to lecturer and senior lecturer. His entire lecturing career was at Manchester and he chose the Manchester region as his field research area and only rarely ventured outside it. Inevitably, he worked on aspects of the glaciation of the southwest Pennine margin, river development and slope instabilities. He was keen to promote applied geomorphology and was always happy to collaborate in his research with specialists from allied disciplines. In the early 1980's, when universities were being severely squeezed by the Thatcher government, an attractive national early retirement scheme was on offer. Chuff realised that by retiring, he would enable a younger geomorphologist a career opportunity, so in 1983 he took the hard decision to retire at the early age of 55. Freed from an increasingly underfunded university system he continued with his research interests from his home in Marple Bridge in the Pennines. He was able to make a major contribution to the Department of the Environment's national landslide study. In the mid 1990's he was invited to contribute his glacial landform expertise to the multidisciplinary Alderley Edge Landscape Project, a joint venture of the Manchester Museum and the National Trust. The resultant volume, including Chuff's work, is in press. His last geomorphological initiative was to support the 2008 Mellor (southeast greater Stockport area) Project, a venture with a similar objective to the one on Alderley Edge. Significantly his account of the physical landscape showed that Chuff was at ease with a wholly web-based publication. Indeed he spent much of his final years scanning-in his large slide collection.

Just after Chuff retired, we were looking for a replacement external examiner for physical geography at the University of Nottingham. Chuff was suggested as a candidate and to be frank the idea was not warmly received at first, since a professorial figure was expected by some. Nevertheless, in the event he was appointed and proved to be an excellent choice with the doubters soon won over by the breadth of his knowledge, his diligence, industry, tact and humanity. He acted as external examiner for a number of universities where candidates had chosen topics related to the broad field of north of England Quaternary geomorphology.

Undoubtedly the highlight of his career came as a result of the decision by the British Geomorphological Research Group to base the 'First International Conference on Geomorphology' in Manchester in 1985, an event which attracted 675 delegates from 51 countries. The chief conference organiser was Professor Ian Douglas of the Manchester School of Geography. A decision was made to give all the delegates a book detailing the geomorphology of the northwest. In the selection of an editor for the proposed volume there was no contest since all recognised that Chuff was the regional expert. As editor he selected 18 workers to contribute to the book, half of whom were current or past members of the University. The resultant volume was judged to be a huge success and even now almost 30 years on it has not been superseded.

Last May, the School of Geography celebrated its 120th anniversary and although wheel chair bound, with the help of his devoted wife Margaret, Chuff was able to attend and reflect with pride on his 30 years of service to the students of the university.

Peter Worsley  
Wager Building, University of Reading,  
PO Box 225, RG6 6AB

### **CHUFF JOHNSON - BIBLIOGRAPHY**

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### **BOOK REVIEW: *Geology in Verse: Poetic Gems* by Norma Allan (ISBN 978-0-9561249-2-0)**

A Scottish lady in my Knutsford U3A Geology Group drew my attention to this delightful 70 page booklet containing 25 poems, all on geological topics. The author, aiming to help newcomers to the subject remember the meaning of selected terms, has turned them into humorous alternative meanings for the layman. The first poem, 'The Language of Geology' expresses this clearly in the opening verse:

"Geology is a subject with a language all its own,  
With terms of such complexity for different sorts of stone!  
Were such words invented to make it sound inviting?  
To make the studying of rock formations interesting and exciting"

To whet your appetite the collection includes poems titled: 'A to Z of Geology'; 'Schistosity'; 'The Three 'G's', (they are Mr Lewissian Gneiss; Granite Janet and Mr Greywacke) and 'Metamorphosis'. In a more suggestive vein we have 'Geological Relationships'; 'Cleavage Fans'; 'The Geology of Women'; and 'Organisms in Peat!' The geology has been approved by Angus Miller, a professional geologist, to ensure technical accuracy. This booklet will add to the enjoyment of geology in poetry expressed so eloquently by Dr Tony Adams in his Presidential address in 2011.

At £10 + £2 p&p 'Geology in Verse' will make a worthwhile, light-hearted addition to your present list. Available from Norma Allan at [norma@snowgoose.eu](mailto:norma@snowgoose.eu) or 01313371766.

Fred Owen

# INDOOR MEETINGS 2013-2014

**Saturday 25th January 2014 at 1:30pm**

**The Broadhurst Lectures - Williamson Building**

**The 'Avian Dinosaurs': Latest research on some early fossil birds**

Fossil Evidence for the Evolution of Dinosaur Flight

*Dr Gareth Dyke, University of Southampton*

What does it take to fly? The physics of early feathered flight

*Dr Colin Palmer, University of Bristol*

Secrets of Archaeopteryx revealed by Synchrotron Analysis

*Dr John Nudds, University of Manchester*

Synchrotron Rapid Scanning in Palaeontology: A "Bird's Eye" View

*Professor Roy Wogelius, University of Manchester*

**Due to limited space booking is essential – cheirotherium@gmail.com**

**Wednesday 12th February 2014**

Quicklime, Cement and a Short History of Quarrying

AGM followed by Presidential Address

*Peter del Strother MBE, Manchester Geological Association*

**Wednesday 5th March 2014**

Joint Meeting with the Geographical Association

Living in Europe's Supervolcano: Volcanic hazard and emergency management in the Bay of Naples

*Dr Martin Degg, University of Chester - Roscoe Building, Lecture Theatre B, 6.30pm*

MGA Meetings are held in the Williamson Building, Oxford Road, opposite The Manchester Museum, unless otherwise stated.

## **MANCHESTER GEOLOGICAL ASSOCIATION Council 2013-2014**

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For **field visits** - [outdoors@mangeolassoc.org.uk](mailto:outdoors@mangeolassoc.org.uk)

For **Jim Spencer** and **indoor meetings** - [lectures@mangeolassoc.org.uk](mailto:lectures@mangeolassoc.org.uk)

For **James Jepson** and the **newsletter** - [newsletter@mangeolassoc.org.uk](mailto:newsletter@mangeolassoc.org.uk)

## OTHER SOCIETIES AND EVENTS

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

**Monday 27th January** (Indoor Meeting): 'Testing the Bytham River hypothesis'. Professor Philip Gibbard, Cambridge Quaternary Department of Geography.

**Monday 24th February** (Indoor Meeting): **to be confirmed.** Dr Alex Liu, University of Cambridge - will give a talk about his research on the Precambrian of Shropshire.

**Monday 24th March** (Indoor Meeting): 'From the Depths: how Speleothems reveal Quaternary Climatic History'. Professor Ian Fairchild, University of Birmingham  
Contact: Andrew Harrison – andrew\_harrison@urscorp.com

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

**Wednesday 22nd January** (Indoor Meeting): Iron Ore Mine Shaft Collapse at Egremont. Dennis Dickens

**Wednesday 12th February** (Indoor Meeting): Rhyolitic Eruption at Cordon Caulle, Chile: A Glacier of Volcanic Glass. Dr Hugh Tuffen, Lancaster University

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

**Friday 31st January** (Indoor Meeting): AGM and The Geology of Japan. Peter del Strother

**Friday 21st February** (Indoor Meeting): TBA. John Peate

**Friday 14th March** (Indoor Meeting): 150 years of the Archaeopteryx. Dr John Nudds, University of Manchester  
Contact: Jennifer Rhodes – s\_j\_rhodes@hotmail.com

### **Leeds Geological Association (www.leedsgeolassoc.freemove.co.uk):**

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

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

**Tuesday 28th January** (Indoor Meeting): Reversal of the Geomagnetic Field - so is this it are we all going to die? Professor Richard Holme

**Tuesday 11th February** (Indoor Meeting): Geology and Scenery of Tenerife. Gerry Lucas

**Thursday 20th February** (Indoor Meeting): Learning to love the Meteorite. Ted Neild

**Saturday 22nd February** (Indoor Meeting): Herdman Symposium

**Tuesday 4th March** (Indoor Meeting): A Geo-Safari Through the Kenyan Rift. John Collinson

**Sunday 16th March** (Indoor Meeting): A Practical Guide to Fossils. Joe Crossley

**Tuesday 25th March** (Indoor Meeting): Fracking - The Truth!. Professor Peter Styles  
Contact: Joe Crossley – 0151 426 1324

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

**Thursday 9th January** (Indoor Meeting): The Big Chill ... Life, death, and destruction, a story from the end of the Ordovician. Keith Nicholls, Chester

**Thursday 13th February** (Indoor Meeting): Rebuilding terrestrial ecosystems after the end-Devonian mass extinction: a major turning point in terrestrial evolution. Prof. Sarah Davies, Leicester  
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):**

**Sunday 2nd March** (Field Meeting): Beginners Field Day around Pendle and Clitheroe. Dr Chris Arkwright and Alan Diggles

**Sunday 16th March** (Field Meeting): Geology and Industrial Archaeology around Torrs gorge at New Mills. Derek Brumhead  
Contact: Jane Schollick – 01704 565 751

### **Russell Society (Mineralogy) (http://www.russellsoc.org/nwbranch.html):**

**Friday 10th January** (Indoor Meeting): AGM + slide Show by David Green.

**Friday 14th February** (Indoor Meeting): Shap. Steve Hewitt.

**Friday 14th March** (Indoor Meeting): Minerals of North Wales. Tom Cotterell

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):**

**Monday 19th- Saturday 24th May 2014:** Residential trip to the Island of Arran – More details of costs and itinerary will be available later in 2013. Please register your interest now.

Contact: Wilmslow Guild 01625 523903

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

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

