



MANCHESTER GEOLOGICAL ASSOCIATION

President: Dr Ray Burgess

Date December 2014

Founded 1925

www.mangeolassoc.org.uk

Hello and Welcome to your December 2014 Newsletter!!

North West Geologist Number 19 will be arriving shortly (unless you have your newsletter by snail mail in which case you will be looking at it now!!) and we are now planning Issue No 20.

Articles on a geological theme are welcomed. These could be articles about a holiday to a classic geology area, or a report of a field excursion, a review of a book with a geological theme, even just a few good images with a bit of explanatory text.

This is an opportunity to have your work published, so go for it!

If you haven't received your NWG by Christmas, please contact the Newsletter Editor.

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The new edition of 'A Building Stones Guide to Central Manchester' has also been published. See page 2 for more information.

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Don't forget your Membership is due on 1 January
See Page 11 for more information

Meanwhile SEASONS GREETINGS AND A HAPPY 2015 to you all



Must go, Santa's waiting!!

NEWSLETTER EDITOR
AKA THE HOUSE ELF

QUICK DIARY

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Sat 6 December: Ophiolite Suites
Venue: Samuel Alexander Building, South Theatre (SG1) (See Page 10)

Sat 17 January: The Broadhurst Lectures
Venue: The Arts Theatre, Samuel Alexander Building (See Page 10)

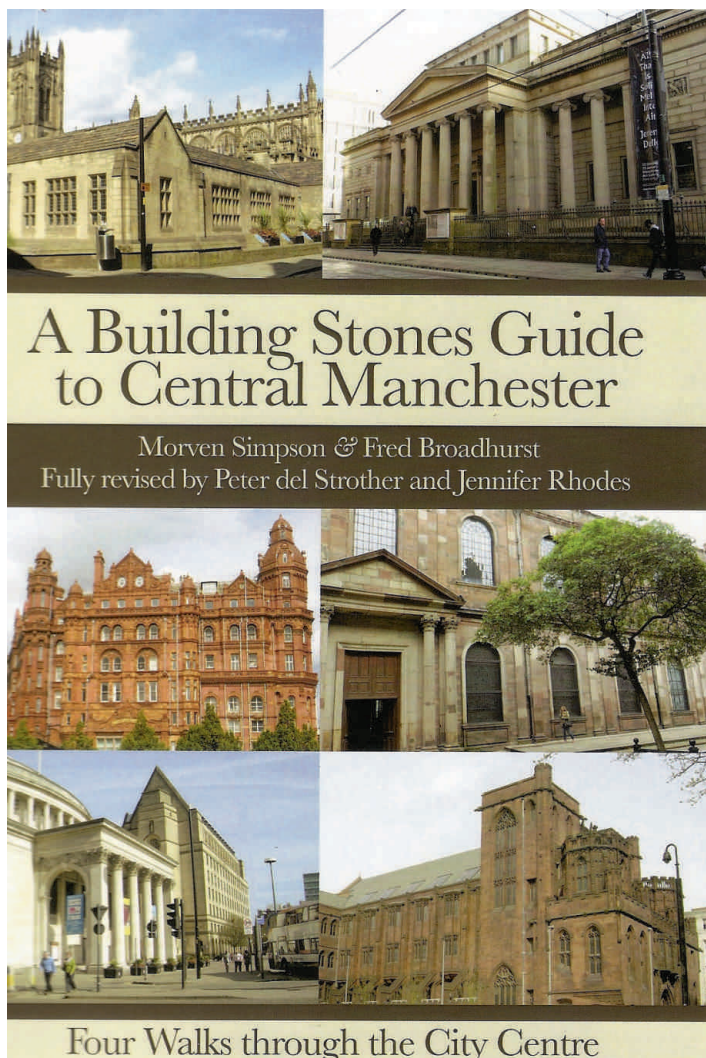
Wed 11 February: AGM and lecture
Venue: Williamson Building start at 7pm

Wed 4 March: Joint with Geographical Association
- Coastal Dunes and Climate Change

MGA NEWS

A Building Stones Guide to Central Manchester

This guide, originally written by Morven Simpson and Fred Broadhurst has been extensively revised in 2014. Four lavishly illustrated circular walks, are supported by fold out maps inside the covers.



Many changes have taken place in central Manchester, most recently major refurbishment of the Cathedral where a new floor has been installed, using two varieties of Carboniferous Limestone from Baycliff near Ulverston. Small squares of the previous floor, crinoidal limestone from Derbyshire, are being sold in the Cathedral shop.

The Central Library has also undergone major refurbishment, opening up most of the building to public access. The building was opened by King George V and Queen Mary in 1934, on the same day as they opened the Mersey tunnel (Kingsway) and the East Lancashire Road (A580). All three projects provided employment during the Depression. The Central Library has been the focus of celebrations of England's oldest public lending library, established in Manchester 150 years ago.

ARTICLES

Manchester Cenotaph, designed like that in Whitehall, by Edwin Lutyens, has been relocated as described in the sample page, below. It is now 'reunited' with the Civic Centre, having been separated from it by the Metrolink tram system, which is currently undergoing expansion.

ROUTE A

Start at the Cenotaph, located south east of the Town Hall.

A1 Cenotaph

The Cenotaph was moved to its present location south east of the Town Hall in June 2014 as part of the refurbishment of Manchester's Civic Centre. It was erected in 1924 and is constructed from Portland Stone, Figure 1, a type of limestone which has been deeply weathered by solution in Manchester's acid rain. Fossil shell fragments stand proud because they weather less rapidly than the matrix. The fossils are mostly marine bivalves, related to today's scallops and oysters, indicating that the rock was once a sea-floor sediment. Close examination (helped by hand lens) reveals that much of the stone is made up of tiny spheres, each about a millimetre in diameter. These spheres are known as ooliths, so this limestone is described as oolitic. The fossils indicate the age of the rock to be late Jurassic, about 150 million years old (see Table of Geological Systems on page 66).

The relocated monument has been set in an area paved with slabs of pale **Crosland Hill Sandstone**, which is Rough Rock of Carboniferous age. The walls are of **Portland Stone** from the Albion quarry on Portland. Around the paved Cenotaph area is a ring of **Broughton Moor** Westmorland green slate of Ordovician age, from near Ulverston.



Figure 1: Portland Stone

Walk along Mosley Street and St Peter's Square to the Central Library.

Copies of the guide are available from Manchester Geological Association.

The cost is £4.50 for members of the MGA - it will be higher at other outlets so buy your copy at the next meetings!!! Or buy several and use them as Christmas presents for friends and family!!

OUGS/MGA joint trip to Formby Point looking at Coastal Processes and Prehistoric Footprints on the beach

21st Sept 2014

Leaders: AM: Steve Suggitt (Edge Hill University) Coastal Processes and PM: Alison Burns (Manchester University) Prehistoric Footprints

On a warm and sunny September day, 25 OUGS and/or MGA members met in the National Trust car park at Formby Point in Merseyside. We were pleased to see that the red squirrels have returned to this reserve after being almost wiped out by a virus several years ago. Formby Point is aptly named because it juts out into the Irish Sea between two estuaries - the Mersey (Liverpool) to the south and the Ribble (Preston) to the north. As this is one of my local beauty spots, I was particularly interested in finding out more about it.

Steve Suggitt gave us a general introduction to the local geology. At Formby, the beach is backed by sand dunes which have been there for about 2000 years. At Formby Point the dunes are being eroded by winter storms with as much as 30 metres being eroded in one year (2013 -14 winter). Thus the appearance of the dunes changes from year to year, something I had previously noticed. The eroded sand is transported by longshore currents south towards Crosby and north towards Southport.

Steve then took us via the sand dunes path and onto the beach. Here we walked south, towards Liverpool, stopping at various points along the foreshore. At several locations, old Christmas trees have been used to make a fence along the dunes, to provide some protection from wind erosion (Fig 1). For a similar reason the dunes have been stabilised by planting marram grass which sends out rhizomes beneath the surface. Unfortunately human visitors tend to trample over the dunes often destroying the marram grass and allowing sand to be blown inland. We noticed wide gaps in the dunes caused by 'blow-outs' – strong onshore winds had blown the sand away at weak points. These gaps act as wind channels. (Fig 2).

In several places the dunes have been eroded by the sea causing landslips which have exposed cross-sections of the dunes. Here bedding and cross-stratification could be seen. We also found a number of brown boulders strewn out along the foreshore. At first I thought they could be erratics but on closer inspection they were too soft and smelled of tobacco! (Fig 3) Steve explained that the boulders were actually 'nicotine waste' dumped in the dunes by a Liverpool cigarette factory to fill gaps left by the removal of sand for industrial use. Now dune erosion is uncovering them near to the appropriately named Nicotine Sand Path.

Nearby we noticed a narrow (few cms thick) soil horizon running across a dune. This was approximately 100 years old and showed that the dunes had been stabilised for some time before the land was inundated again by sand dunes. (This is shown in Fig 4 as the elegant 'S' shaped structure.) Further along, the remains of the Old Lifeboat Station building from the 1700s is gradually emerging, as the sand dunes are eroded. (Fig 5) On our return walk along the beach we noticed interesting ripple marks indicating two different current directions and also rip-up clasts (mud balls) being formed. (Fig 6)

After lunch back at the NT car park in the pinewoods, we were met Alison Burns, an archaeologist researching the prehistoric footprints on Formby beach. Alison gave us a short talk on life and environment during the period. The evidence suggests that the prints were formed between 5400 BC and 2300 BC.

Sea level was lower at that time and the area around Formby would have been a salt marsh, providing a lush coastal environment for Stone Age man and many animals. Alison described how the prints were originally preserved when sand was blown into the cavities left by the prints, filling the hardened impression. More mud then flowed into the reed beds from freshwater streams sealing and burying the prints.

The ancient footprints of red deer, roe deer, aurochs and birds as well as humans have been found in the muddy clay-like beds between the sand beds on the beach at low tide. We were able to identify prints of red deer (Fig 7)and humans (Fig 8) but most of us remain to be convinced of the bird prints (Fig 9) which could easily be confused with modern prints. All prints are transient as they are easily eroded by the tides and modern day activities

Towards the end of the afternoon Alison asked if we would help with her PhD project. We were divided into teams and requested to make footprints in the sand whilst walking , jogging and running. The resulting measurements were then recorded for later analysis (Fig 10). I'm not sure what the visitors to Formby beach made of this activity but it was great fun. I hope it helps Alison with her PhD.

This was an interesting and varied day, much enjoyed by all participants. As the trip was oversubscribed, we hope to run it again in the future. Many thanks to our leaders who had to compete with displays, including the Red Arrows, from a nearby air show,
Report Jane Schollick and Heather Rogers
Photos Stephen Darlington and Heather Rogers

Images from Stephen Darlington and Heather Rogers

Fig 1



Fig 2



Fig 3



Fig 4

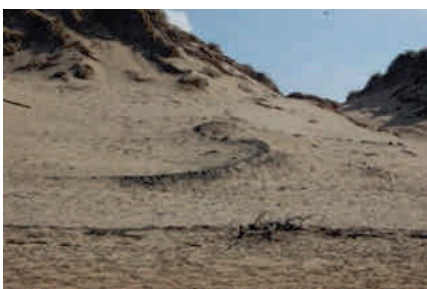


Fig 5



Fig 6



Fig 7



Fig 8



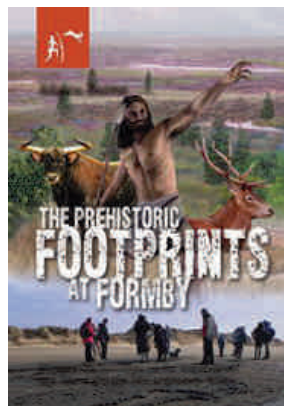
Fig 9



Fig 10



Fig 11



Northeast Greenland Cave Projects

We have received the undermentioned information from Gina Moseley, Post-doctoral researcher, University of Innsbruck (she used to be in Manchester). You might be interested: this is NOT A RECOMMENDATION.

"I am writing to you to introduce you to an exciting geological project that might be of interest to members of your society.

During the summer of 2015, the Northeast Greenland Caves Project will aim to visit the Arctic Circle to explore, survey, photograph, and sample caves of Northeast Greenland for the purpose of palaeoclimate research. This much-needed record of past climate change will be the first of its type from caves in Greenland, and will contribute significantly to our understanding of long-term climate change in Greenland and the Arctic by covering a time period that is out-of-range of the Greenland ice cores. For further information about the project please visit our website www.northeastgreenlandcavesproject.com

Our project has received support from Ranulph Fiennes and many other organisations, but now we are crowd funding in order to raise the remaining funds for the expedition and hope that since you have a like-minded interest, you might be interested in supporting our campaign please. You can donate to the project at <http://www.crowdfunder.co.uk/northeast-greenland-caves-project/>, and in return you will receive a reward for your support."

Black Country Geological Society

Saturday 31 January 2015 (Geo-conservation Day):

A visit to Barr Beacon and Pinfold Quarry, led by Andy Harrison and Helen Sanger. Meet at 10:30 at the entrance on B4154 Beacon Road, opposite Bridle Lane (the southern entrance to Barr Beacon) Grid ref: SP 060967. Wear old work clothes, waterproofs and stout footwear. Please bring gloves and garden tools; loppers, secateurs, forks and spades if you have them. Also bring lunch. Finish at 14:30.

Monday 16 March 2015 (Indoor meeting, 7.00 for 7.30 start):

AGM followed by 'Minerals and Gems of the Cairngorms'. Speaker: Roy Starkey.
Venue: Abbey Room at the Dudley Archives, Tipton Road, Dudley, DY1 4SQ

To attend, please contact Andy Harrison, Field Secretary, 01384 370 188 !
Mob: 07973 330 706 Email: fieldsecretary@bcgs.info

North Staffs GA Events

WINTER LECTURE PROGRAMME 2014/15

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

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)

Advanced Notice

THE HERDMAN SYMPOSIUM

21 February 2015 Speakers to include Prof Iain Stewart

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 a site called Mineralogy Database, www.webmineral.com. The Mineralogy Database contains 4,714 individual mineral species descriptions with links and a comprehensive image library.

Each mineral has a page linked to tables devoted to crystallography, crystal structures, X-Ray powder diffraction, chemical composition, physical and optical properties, Dana's New classification, Strunz classification, mineral specimen images, and alphabetical listings of mineral species. There also are extensive links to other external sources of mineral data and information.

An example of the information is given below:

General Calcite Information

Help on Chemical Formula: Chemical Formula: CaCO_3

Help on Composition: Composition: Molecular Weight = 100.09 gm

Calcium 40.04 % Ca 56.03 % CaO

Carbon 12.00 % C 43.97 % CO₂

Oxygen 47.96 % O

$\frac{\quad}{100.00\%}$ $\frac{\quad}{100.00\%}$ = TOTAL OXIDE

Empirical Formula: (CO₃)

Environment: Found in sedimentary, igneous, and metamorphic rocks.

IMA Status: Valid Species (Pre-IMA) 1845

Locality: Common world wide.

Name Origin: From the Latin, calx, meaning lime.

Name Pronunciation: Calcite Say CALCITE

Synonym: Glendonite - pseudomorph

ICSD 73446

Manganocalcite - variety

Parakutnohorite - intermediate composition between calcite and rhodochrosite

Travertine

And various images such as this:



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

Saturday 6 December 2014: Ophiolites

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 Manchester

Why the Oman Ophiolite did not form at a Mid-Ocean Ridge - Professor Hugh Rollinson, University of Derby

The venue is Samuel Alexander Building, South Theatre (SG1) off Devas Street (turn right AFTER the Students Union Building on Oxford Road - same side as the Museum but further out of town)

Start: 1.30pm

There is an interactive map here:

<http://www.manchester.ac.uk/discover/maps/interactive-map/>

Search for Samuel Alexander Building.

Unfortunately tea and coffee will NOT be available for this meeting: really, really sorry about this but out of our hands.

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

Venue: The Arts Theatre, Samuel Alexander Building - turn right BEFORE the Students Union building and enter through the portico doors.

Start: 10.30am, doors open 10am

Again, **refreshments will not be available** for this meeting either lunch or during the afternoon break. There are various cafes nearby but we would suggest that you bring your own packed lunch. If the weather is nice, there is seating outside in the quadrangle outside the Samuel Alexander Building.

Wednesday 11th February 2015 – Evolution of the Mars Atmosphere and Hydrosphere

AGM followed by Presidential Address

Dr Ray Burgess, University of Manchester

Venue: Williamson Building, Oxford Road. Start 7pm.

Wednesday 4th March 2015 – Coastal Dunes and Climate Change

Dr Paul Rooney, Liverpool Hope University

Joint Meeting with the Geographical Association, 6.30pm

Membership Reminder

The membership year starts on 1 January and therefore membership fees are due on that date. You may send your payment to the Treasurer at 64 Yorkdale, Oldham, Gtr Manchester, OL4 3AR. Or you can pay by Standing Order. If you would like to pay by Standing Order, please print out the Standing Order form from the website, complete fully, and send it to your bank.

Current membership fees are:

Full member, correspondence by email	£16.00	
Full member, correspondence by post	£18.00	
Full member and an associate member, correspondence by email		£18.00
Full member and an associate member, correspondence by post		£20.00

An associate member is an adult residing at the same address as a full member.

If you want to change your type of membership, please contact Niall Clarke to make the necessary arrangements.

MANCHESTER GEOLOGICAL ASSOCIATION Council 2013-2014

President: **DR RAY BURGESS**

Vice President: **JANE MICHAEL**

General Secretary: **SUE PLUMB**

Address: 20 Ridge Crescent, Marple, Stockport SK6 7JA

Tel: 0161 427 5835

Membership Secretary: Vacant

Treasurer: **NIALL CLARKE**, *Tel: 07785778250*

Indoor Meetings Secretary: Vacant

Field Meetings Secretary: **PENNY HEYWORTH**

Newsletter Editor: Vacant

Archivist: **DR DEREK BRUMHEAD** MBE

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**

EMAIL CONTACT:

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** - membership@mangeolassoc.org.uk

For **field visits** - outdoors@mangeolassoc.org.uk

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: Ashway Rocks, above Dovestones Reservoir, Oldham

B: Haigh Hall, Wigan

C: Fossils on Runswick Bay beach, North Yorkshire

D: Cliffs at The Valley of the Rocks, north Devon

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

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