Manchester Geological Association

President: Dr Margaret Hartley

December 2023

www.mangeolassoc.org.uk

Founded 1925

MGA Council vacancies

Various members of MGA Council will be stepping down at the AGM in February 2024. There will be vacancies for the positions of **Indoor Meetings Secretary, General Secretary, Website Manager** and **other Council Members.** Members of the Council are always willing to help with ideas for speakers. There is no obligation to attend all meetings. For more information on any of these roles please contact the secretary. The MGA cannot function without these posts being filled and so it is hoped that members will consider putting their names forward.

Lost Property

A small item was left behind after the October meeting. Please contact the Secretary to arrange collection.

Quick Diary

Outdoor Meetings

17th July	Crummack Dale
TBA	Todmorden Moor

Indoor Meetings

Wednesday	**10 January**	Zoom. Dr Mark Sutton (Imperial College London), Worms and Wonders: Silurian 3D Soft-Bodied Fossils
Wednesday	**24th January**	Zoom. Prof Emrys Phillips (British Geological Survey), Deformed Dirt: research on the deformation caused by glaciers and ice sheets
Saturday	**17 February**	**AGM**. 13:30 start and 16:30 finish. Presidential address & member presentations
Wednesday	**6 March** Zoom.	Lydia Whittaker (PhD. Research Student in Volcanology, Trinity College Dublin), TBA
Thursday	**21st March**	Joint with Geographical Association, Manchester Branch Manchester Metropolitan University, Brooks Building on Birley Campus Dr. Rhodri Jerrett (Manchester University), Sediments and climate change

Who's Who in the MGA

Officers

President: Dr Margaret Hartley

Vice-President: Dr Rufus Brunt

General Secretary: Sue Plumb

Membership Secretary: Steve Daniels

Treasurer: Peter del Strother

Indoor Meetings Secretary: Ken Jacobs

Field Excursions Secretary: Peter del Strother

Newsletter Editor: Lyn Relph

Webmaster: Peter Giles

MGA Archivist:

Other elected members of Council
Prof. Ray Burgess
Nicola Fowler BSc (Hons)
Sally Dulieu

The Immediate Past President, Manchester Geological Association: Niall Clarke

RIGS Representative: Dr Chris Arkwright

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

Subscriptions

Please note that subscriptions are due on the 1st of January.

Please note that **Subs will go up as from 1st January 2024 for those Members who receive the printed copy of the Newsletter** (this is to cover the additional cost of postage and printing). Please remember to amend your Standing Order payment.

Full member, correspondence by email (no change)	£16.00
Full member, **correspondence by post**	**£26.00**
Full member and an associate member, correspondence by email (no change)	£18.00
Full member and an associate member, **correspondence by post**	**£28.00**

Alderley Edge

by David Tyler and Lyn Relph

Nine of us set off on a not too promising day to look at the Middle Triassic rocks of Alderley Edge, (Fig 1) which form an outlier in the Cheshire Plain. These rocks form the upper section of the Sherwood Sandstone Group and are comprised of aeolian and fluvial deposits which were laid down in a desert environment.

During the Triassic the British Isles lay 15-20° north of the equator in the northern tropical dry zone, similar to today's Sahara Desert (18-30°), and moved north during the Permian.
At this time a half graben was developing as the land to the west dropped along the Red Rock Fault against the Pennine block. It was into this developing low that the sandstones and conglomerates of the Sherwood Sandstones were deposited.The rocks young to the south where there are Jurassic sediments. In the upper part of the Sherwood Sandstones is the Helsby Sandstone Formation which hosts the copper dominated polymetallic mineralisation. These ore bodies display features consistent with fluid migration away from faults and with a modified diagenetic-brine-expulsion model, i.e. transport of chloride complexes in brines. The source of the copper is considered to be red-bed sedimentary basin fill, derived from a mixture of igneous, sedimentary and metamorphic sources.

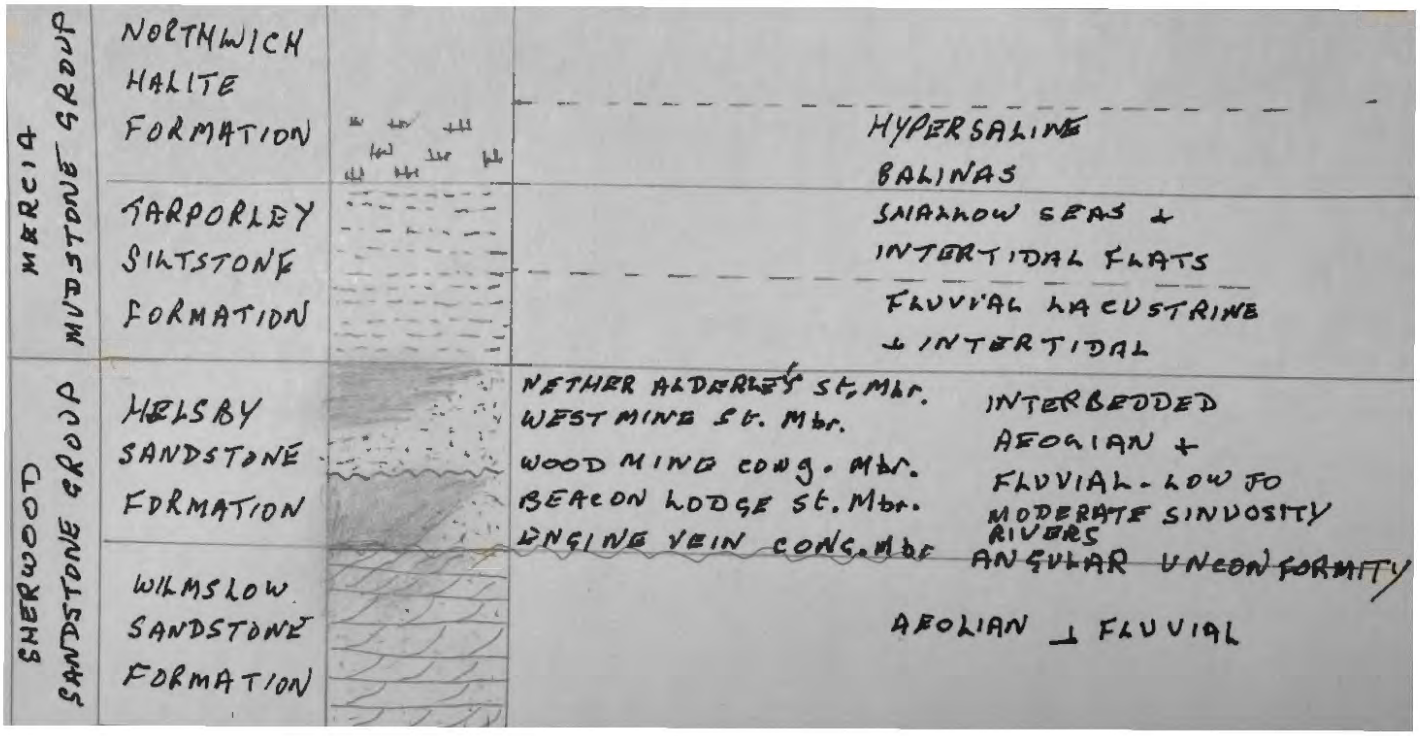

Fig 1. Dispositional environments

It was originally thought that the Sherwood Sandstones at Alderley Edge were part of a series of fining up cycles, but is now thought to be the result of delta development as river channels migrated across the delta.

Our first stop of the day was Church Quarry behind the Wizard Café, which serves delicious cake and bacon baps. The upper bed is the Wood Mine Conglomerate. It was removed as overburden to get at the Beacon Lodge Sandstone that was used as a building stone. Note the early tool marks on the cut face. This is a wind-blown desert deposit. The Wood Mine Conglomerate above is a flash flood deposit and was part of a massive, northwards flowing drainage system originating in northern France. The two beds are separated by an unconformity We moved on towards the

Wood Mine conglomerate

Flash flood deposit with pebbles from northern France. Removed as overburden.

Unconformity

Boston Lodge Sandstone

Aeolian, wind blown desert dunes. Quarried for building stone. Note the ancient tool marks left by the quarrymen.

Fig 2. Church Quarry

Castle Rock where we looked at some barite needle like crystals in outcrops of the Engine Vein conglomerate (Fig 3). The crystals formed at a depth of 2.4 km and
are thought to have reduced the permeability of the conglomerate to such an extent that further mineralisation was very limited.

Fig 3. Barite needles in the Engine Vein conglomerate

The next stop was to look at the underlying Wilmslow Sandstones (Fig 4).

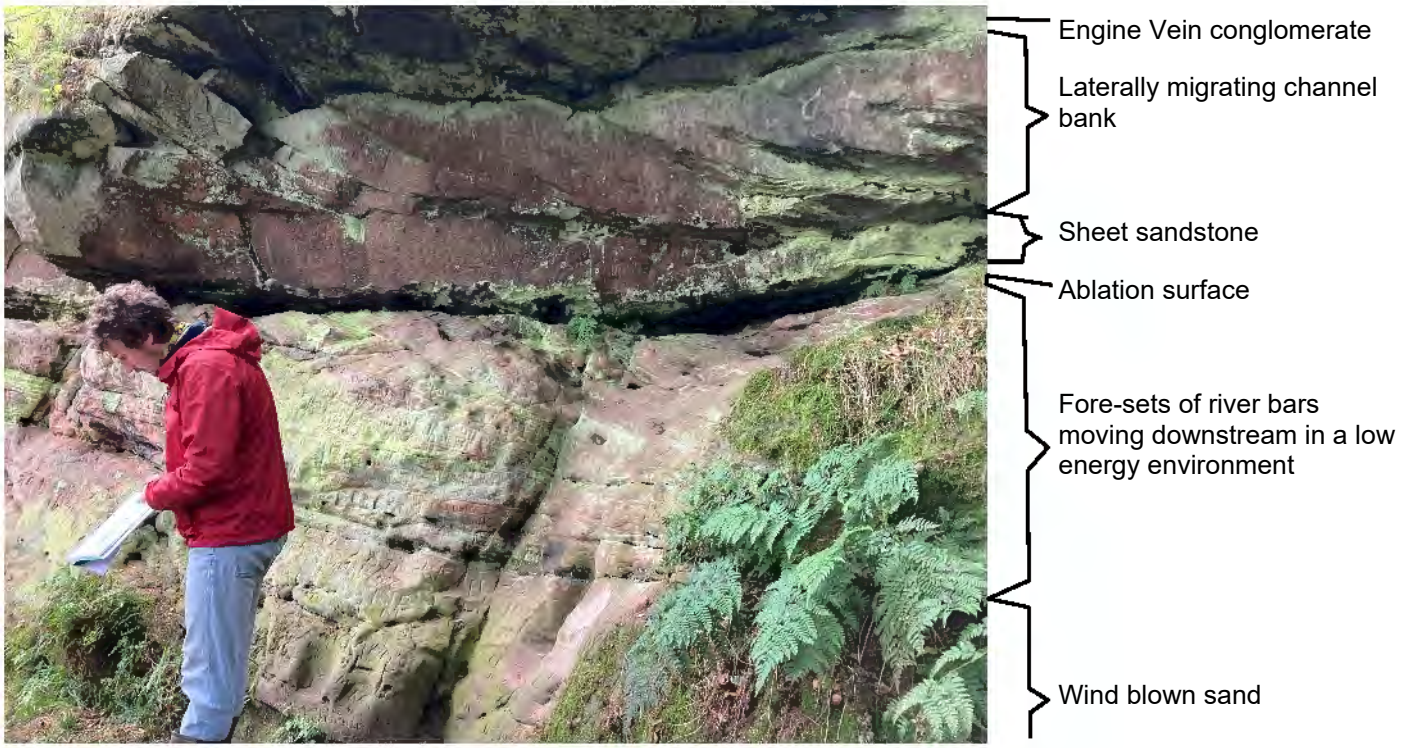

Fig 4. Wilmslow Sandstone Formation

The lower sandstone beds are composed of thin horizontal beds of aeolian sand, reworked by water: the Wilmslow Sandstone Formation. The red sections are iron stained, but a fluid passed through removing the iron and whitening the rock. In Figure 4 can be seen the fore-sets of river bars which moved downstream in a relatively low energy system. At the top of this bed is an ablation surface. The beds just above Antons head, are horizontal. The surfaces dipping to the right represent successive positions of the depositional bank of a channel as it migrated laterally to the right of the photograph. The very top of the photograph is the Engine Vein Conglomerate.

Fig 5. Stormy Point fault.

Our next stop was Stormy Point where we stood on top of a fault (Fig 5).

The low section is the mudstone covering the fault. To the right are river sandstones of the Wilmslow Sandstone Formation and to the left are the Engine Vein conglomerates. Below the conglomerate is a bed of red and white mudstone, which the miners used as a marker horizon when searching for copper ore Fig 6. The white mudstone is leached this is usually the result of reduction by hydrocarbons

Fig 6. Stormy Point. Grey band is the result of hydrocarbon leaching fluids

The sandstones do not contain any fossils except for a few ostracods found in one place within the Engine Vein Conglomerate.

Next a well-earned lunch break at the Wizard café; very good bacon baps and huge slices of cake.

Part two of the trip to the Engine Vein mine will be in the next issue of the Newsletter.

OTHER SOCIETY EVENTS

BCGS http://bcgs.info/pub/

13 January	Geoconservation - Portway Hill, Rowley
15 January	Indoor Meeting - 'A Recipe for Disaster'
10 February	Geoconservation Day at the Wren's Nest.
19 February	'A very British summer in the late Triassic': the Arden Sandstone Formation of the English West Midlands and the dawn of the dinosaurs'
9 March	Geoconservation Day at Saltwells National Nature Reserve
18 March	Indoor Meeting - AGM and talk tbc.
6 April	Field Meeting to Castleton, Derbyshire looking at the limestones in Cave Dale and the sandstones and landslip on Mam Tor

Leeds Geological Society http://www.leedsga.org.uk/

GeoLancashire https://geolancashire.org.uk/lectures-and-excursions/

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February 10 AGM. This will now be followed by a talk by Brian Jeffery on 'The Undara Lava Tubes', but it covers Australian cratons, orogenies and vulcanicity from 4.5Ga to the present day with only the last part being about the 200,000 yo Undara eruption

OUGS North West Branch https://ougs.org/northwest/

January 8	"Whats going on in Iceland" Prof Hazel Rymer, Open University
January 20	AGM.
February 19	Cold, Hot, Cold, Hot, Hotter, Very Hot, Very Cold, Very Hot: BepiColombo, and its Journey to Mercury. Speaker Jack Wright
March 11	Landscape and geomorphology of Iceland Speaker Prof. Harriet Allen, University of Cambridge
March 17	Geomorphology and Active Erosion at Lyme Park Leader: Jane Michael.
May 25	Fossil sites of Germany with Dr John Nudds

Manchester Geological Association

MGA outdoor meetings 2024

Contact: **outdoors@mangeolassoc.org.uk**

17th July Crummack Dale

Indoor Meetings 2024

Wednesday 10 January Zoom 7.00pm to 8.00pm

Dr Mark Sutton (Imperial College London), Worms and Wonders: Silurian 3D Soft-Bodied Fossils

Wednesday 24 January Zoom 7.00pm to 8.00pm

Prof Emrys Phillips (British Geological Survey), Deformed Dirt: research on the deformation caused by glaciers and ice sheets

Saturday 17 February 2024 AGM 13:30 start and 16:30 finish

Presidential address & member presentations.

Dr Margaret Hartley (President), TBA

David Tyler (MGA), Geology of the Garvellachs

Niall Clarke (MGA), The Geology of the Omey Granite and its country rocks

Wednesday 6 March Zoom 7.00pm to 8.00pm

Lydia Whittaker (PhD. Research Student in Volcanology, Trinity College Dublin), TBA

Thursday 21st March 5.15pm -6.30pm

Joint with Geographical Association, Manchester Branch

Manchester Metropolitan University, Brooks Building on Birley Campus

Dr. Rhodri Jerrett (Manchester University), Sediments and climate change