



Manchester Geological Association

President: Dr Margaret Hartley

September 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** and **Website Manager**. For more information on either 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.

New Logo

We are planning to redevelop the MGA website in the near future so this is a good time for a new logo. **Members are invited to submit designs.** All ideas welcome

Quick Diary

Outdoor Meetings

Saturday 30th September. Alderley Edge Copper Mines, underground (Engine Vein) and surface

Indoor Meetings

Saturday	14 October.	Broadhurst Memorial - Volcanology
Wednesday	8 November.	Zoom meeting
Saturday	9 December.	Structural Geology

2024

Wednesday	10 January	Zoom meeting
Saturday	17 February	AGM. Presidential address & member presentations

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

Field Excursion to the Waterfalls Walk, Ingleton, 9th Aug 2023, joint with GeoLancashire.

By Peter del Strother

Eight people, members and guests, participated in this excursion, which was led by Lesley Collins. We started at the car park in fine weather which, despite recent torrential rain, lasted all day. The 4.5 mile route is well marked, but is not for those with restricted mobility, as there are about 1000 steps with a height gain of 150 m.

The purpose of the trip was to examine the oldest rocks exposed in the Yorkshire Dales, the Ingletonian Group, and the Lower Carboniferous rocks which sit unconformably upon them, most obviously at Thornton Force. Also to observe the impact of ice on the landscape and the course of the River Twiss.

In the first part of the trail we passed over the South Craven Fault, for which the evidence in the field is very limited. The North Craven Fault and a trial adit excavated in search of galena are exposed near Manor Bridge (Fig. 1). The Norber Formation contains drag folds close to the fault, but the river level was too high to cross the river dryshod.



Fig. 1: North Craven Fault near Manor Bridge. The black arrow marks the plane of the fault. To the left is the Carboniferous Great Scar Limestone and to the right the Ordovician Norber Formation.

The next main stop was at the Pecca Falls slate quarry (Fig. 2). Across most of the quarry bedding and cleavage are almost parallel, so close examination is required to distinguish between them. A second plane of cleavage is reported. If it is present the cleavage plane spacing is much greater and it is not obvious how one would distinguish it from jointing. Although the rock is mostly mud-sized, occasional thin beds of silt can be found, which show the relationship between bedding and cleavage. We observed a slightly stepped surface along cleavage planes because of the different angles of cleavage in the mud and silt rock types.

Just as Thornton Force came into sight we turned up a grassy track to the north towards a small limestone quarry. On the side of the track the Cove Limestone overlies the Ingleton Group unconformably (Fig. 3), an age gap of more than 100 My. The basal conglomerate contains 10-20 mm scale clasts, but there are occasional boulders on the erosion surface (Fig. 4). There are boulders under the unconformity at Thornton Force (Fig. 5), but the group decided that access was a bit too wet and slippery. Macrofossils in



Fig 2: Slate Quarry at Pecca Falls.

the quarry are sparse but there is one upturned 'triangular' colonial coral colony about 0.3 m high.



Fig. 3: Unconformity, Cove Limestone over Ingleton Group.



Fig. 4: Boulder on erosion surface (seen in Fig. 3). Traces of basal conglomerate can be seen wrapping round and beneath the boulder.



The group ascended the path on the north side of the falls. To the left was the terminal moraine of the Kingsdale glacier (Fig. 6). The moraine damned the dale and when water broke through it cut down through the moraine and underlying bedrock to create the gorge in its current position, offset from the centre of the dale. We then followed the green lane, with a compulsory stop at the ice cream van, towards the Doe valley.

Fig. 5: Thornton Force. The falls flow over a massive limestone unit and have undercut into the (brown-stained) Ordovician below.



Fig. 6: Kingsdale (Kd), its terminal moraine (M) and the course of the river Twiss (T). The black arrow marks the course of green lane which forms the highest point of the Waterfalls walk and joins the valleys of the rivers Twiss and Doe. This composite of three images distorts the perspective.

About 50 m before the green lane passed through a farm gate, a loose boulder on the south side of the track was examined (Fig.7). This is known as Tiddeman's Breccia, which he had recognised in 1870 as evidence of an unconformity in Chapel-le-Dale.



Fig. 7: Tiddeman's Breccia. The larger quartz pebbles are about 20 mm long. (lefthand image courtesy of Lesley Collins).

At a quarry on the southeast of the River Doe just below Snow Falls, a fallen block contains graptolites, first discovered on a YGS field excursion in 2019 (Fig. 8). They have been provisionally identified as being of Tremadoc Age (Ordovician), dispelling the hypothesis that these rocks were of Precambrian age.



Fig. 8: Graptolites on bedding plane on loose block. (Horizontal field of view very approx. 800 mm in right hand image)

The group returned to the car park and a vote of thanks was given to Lesley for organising and leading a most enjoyable excursion.

Sources include: Lesley Collins' notes and handout, Lower Palaeozoic Rocks of the Craven Inliers (Eric Johnson in Yorkshire Rocks and Landscape, a field guide, ed. Colin Scrutton) and the Settle Memoir (geological sheet 60). Photos, except where indicated otherwise, by PdeIS.



An unusual coral fossil found on the beach near Molfre, Angelsey.

Feedback from John Nudds; I'm pretty sure it's *Actinocyathus floiriformis* (previously *Lonsdaleia floiriformis*). I think it's been rather crushed, but I'm reasonably confident that's what it is. Asbian/Brigantian in age.

OTHER SOCIETY EVENTS

BCGS <http://bcgs.info/pub/>

- 18 September The life and work of Sir Arthur Russell
16 October Conclusion of the Erratics Project
20 November Origins of Starfish and their relatives

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

- 5th October New techniques used in the study of fossils
2nd November Seawater chemistry and mass extinctions

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

- 30th September Alderley Edge: Surface walk AM, down the mine PM.

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

- 21st October Sea defences at Rossall Beach. Fleetwood, Lancs.

Manchester Geological Association

MGA outdoor meetings 2023

Contact: outdoors@mangeolassoc.org.uk

Saturday 30th September. Alderley Edge Copper Mines, underground (Engine Vein) and surface. Joint with GeoLancashire. This trip is fully booked. If there is sufficient demand it will be repeated next year. Limit on numbers, so please contact using the outdoors@ email address.

Indoor Meetings 2023/4

Saturday 14 October. Broadhurst Memorial - Volcanology

Dr Craig Magee (Leeds University), Relating magma intrusion to volcano deformation and potential eruption.

Prof. Hazel Rymer (formerly Open University), What's going on in Iceland?

(This is the University open day but it shouldn't prevent us from having the MGA talks in Williamson G.47. So please note that the campus will be open and busy).

Wednesday 8 November. Zoom meeting

Saturday 9 December. Structural Geology

2024

Wednesday 10 January Zoom meeting

Saturday 17 February 2024 AGM. Presidential address & member presentations

Wednesday 6 March Zoom meeting

Saturday 13 April. Resources