Manchester Geological Association

President: Dr Margaret Hartley

September 2022

www.mangeolassoc.org.uk

Founded 1925

Jennifer Rhodes

Sadly Jennifer, our treasurer and long-standing member of the MGA Council, died suddenly at home on 26th of August.

Quick Diary

Indoor Meetings

Saturday 8 October 2022 - joint with the British Cave Research Association

Saturday 19 November 2022 at 13:30 - The Broadhurst Memorial Lectures - Spectacular British Fossils

Saturday 10 December 2022 at 13:30 - Geology in Industry

Wednesday 11 January 2023 at 19:00 (Zoom only) - topic to be announced

Saturday 11 February 2023 at 13:30 - AGM followed by

Who's Who in the MGA

Officers

President: Dr Margaret Hartley

Vice-President: Vacant

General Secretary: Sue Plumb BSc

Membership Secretary: Ken Jacobs

Treasurer: Vacant

Indoor Meetings Secretary: Vacant

Field Excursions Secretary: Peter del Strother

Newsletter Editor: Lyn Relph BSc

Webmaster: Peter Giles MSc

Other elected members of Council
Prof. Ray Burgess
Nicola Fowler BSc (Hons)
Dr Steve Donovan
Steve Daniels

Ex officio members of Council
The Immediate Past President, Manchester Geological Association: Niall Clarke MSc

RIGS Representative: Dr Chris Arkwright

The Association's representative on the North West Geologist's editorial team: Peter del Strother

President of the Student Geological Societies of the University of Manchester
MGA Archivist: Dr 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

GCSE Geology Prize

After 26 years I'll be retiring from AGSB at the end of August. You'll be glad to hear that we have appointed a successor who, I'm sure, will want to continue with the MGA GCSE Geology Prize. His name is Mike Parker. I'd just like to thank you again for all your support over the years. The boys have always been proud to have their names associated with the MGA.

As you know MGA lends its name to a GCSE Geology Prize which is awarded annually by the school to the pupil who obtains the best mark in GCSE Geology. The prize has still been awarded during Covid times when exam grades were based on assessments by the school.

The MGA does not give any financial support for this prize, but in recent years has offered the winner a year's free membership, which has usually been taken up.

Dr Kevin Stephen

Geology department at Altrincham Grammar School for Boys

Free to a good home book on Gem Stones

Our General Secretary recently received this email from Frances Raftery, who gives various talks as a hobby. One of her talks is about gemstones and she obtained and used this book as part of her research.

“I find I have in my possession the book 'A Key to Precious Stones' by L.J. Spencer. Dr Spencer was the Keeper of Minerals at the British Museum from 1927 to 1935. This small hard-back volume (237 pages) was first published in 1936 (Blackie & Son Ltd) and this copy is a 1947 reprint. (It says inside that the book production conforms to 'War Economy Standards'!) The book is obviously out of print and somewhat of a collector's item, in view of the author.

Is there one of your members who might like this book? I will donate the book free of charge and post it to whoever can use it.”

If anyone would like this book, please email secretary@mangeolassog.org.uk.

A vacancy for Treasurer has arisen on the MGA Council

The post does not require a great deal of time and the sums of money are relatively small. If you think that you could be of service please contact our Secretary: secretary@mangeolassoc.org.uk

Breeden Limestone Quarry and Cement Works

Hope in Derbyshire

By Lyn Relph

A cement works and quarry might not sound very promising for a good day out, but it turned out to be just the opposite! The site is huge as can be seen from Google Earth (Fig 1). To the south west is the limestone quarry with the crusher at the entrance. The cement manufacturing works are the large complex to the north east of the quarry. Farther to the north east is the shale quarry. Around the main buildings are areas of green vegetation which are areas the have either been reclaimed by nature or landscaped. The underlying theme for the day and the daily routine was safety, as you would expect, but also consideration for the environment. This is not so surprising when considering that the whole operation is conducted within a National Park! Quite an achievement.

The limestone quarry is in the Monsal Dale Lst. (substage Brigantian) and the upper part of the Bee Low Lst. (substage Asbian).

The Monsal Dale Limestones are thinly bedded cycles of bioclastic packstones and wackestones, which are dark grey colour. These grade into thickly bedded peloidal to bioclastic grainstones and packstones and are pale to medium grey in colour. They are interpreted as having been deposited below wave base. Nodular chert is common in the upper part of the formation.

The Bee Low Limestone is divided into two Members, The Chee Tor Rock Member and Miller's Dale Limestone Formation (MDLF). The two Formations are separated by the Miller's Dale Lava which forms the base of the quarry and is also the at the top of the local water table. The (MDLF) fauna indicate shallow marine shelf deposit which consists of over 30 recognised palaeoksrstic surfaces, calcrete and volcanic ash in shallowing up cycles 10m thick.

Fig 1. The quarry as seen on Google Earth

The quarry spans eight million years of deposition with the youngest rocks 329 Ma and the oldest 337 Ma old. They were deposited in calm, warm rather shallow seas just south of the equator.

Two million tonnes of limestone are quarried each year with 1.8 million tonnes going into cement production plus the 200,000 tonnes of waste, this is used for the haul roads and landscaping (Fig 2 and 3) because they do not have an extraction and sale licence to sell it as hardcore. The edges of the haul roads are protected by bunds (Fig. 4) which are linier piles of aggregate that run along the outer and inner edges of the haul roads.

Fig 2. View from the quarry entrance. There are 13 levels, the top one in the far distance is about a mile from where this photo was taken.

Fig 3. Some of the upper levels have been landscaped.

Fig 4. The face bund is lower than the haul road edge bund.

To allow the quarry to expand the public road surrounding the quarry has needed to be moved several times.

Extracting the limestone for cement making is not a case of working along each bench because the silica content varies from <2% to 20% at higher levels before dropping to 8 to 10% at the top. The Company have created a three dimension block diagram (Fig 5) of SiO_2 content. The higher and lower silica limestones are mixed together to give the correct chemical balance in the cement. Block models are used to simulate works stone consumption, over a period of a decade or more, in order to plan quarry development so that quality requirements are always met and the reserves are used in the most economic way.

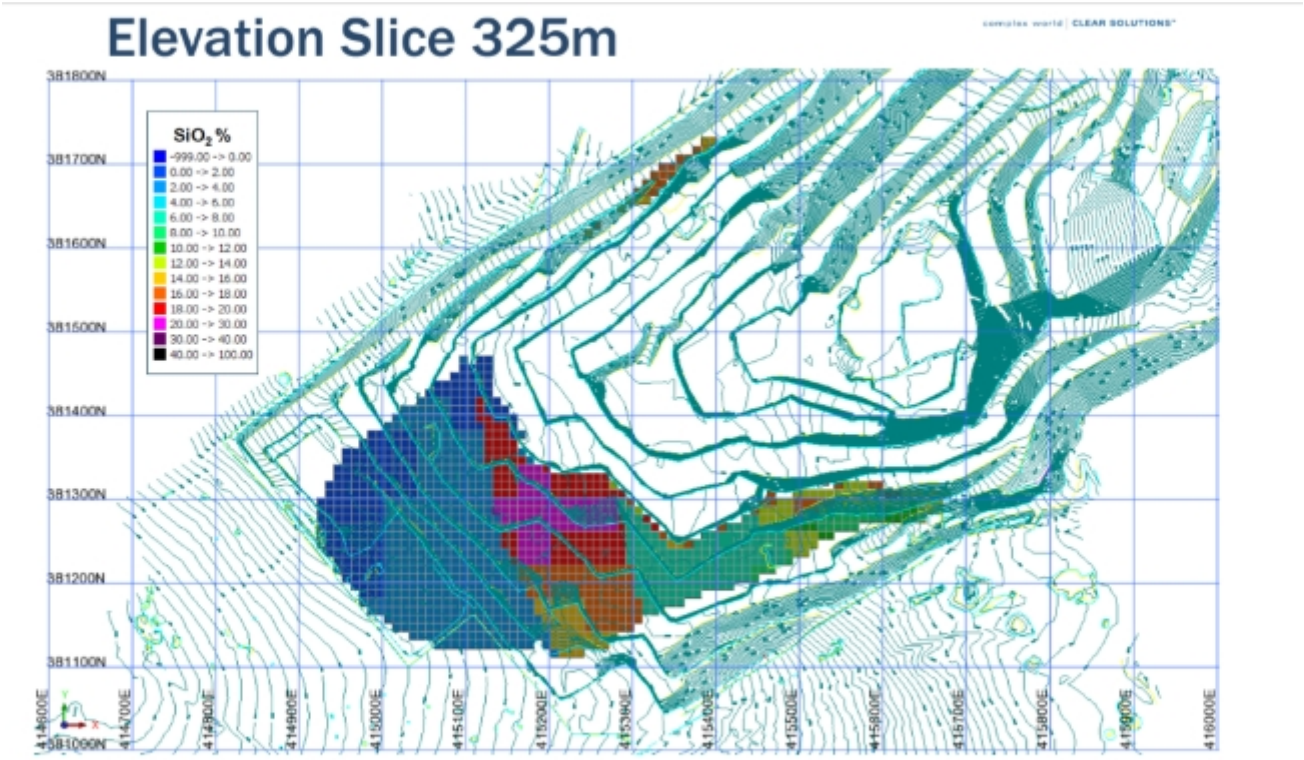


Fig 5

An example of a block model of reserves. In this example % SiO_2 is plotted for the quarry bench at 325m. A representative chemical analysis of each block for all relevant elements, CaO, K_2O etc., is computed.

The source of the SiO_2 is bio-genic probably from sponge spicules. It is very mobile and can replace limestone; it is soluble in alkaline conditions and precipitates in acid conditions.

Fig 6. Sparkly Crinoids.

Disarticulated crinoids form a large percentage of some beds in the limestone. These have changed to calcium carbonate crystals which are more resistant to weathering and produces a very attractive sparkly rock (Fig 6).

There is a very localised area of iron staining (Fig 7). This could be from a small area of volcanic ash or from sub-aerial exposure. To the left in Fig 7 is an abandoned face that has been left to stabilise naturally and will be left for nesting birds. A kestrel was seen hunting pigeons over the main quarry.

Part two of this report will follow in the December Newsletter.

Fig 7. Iron stain flowing down the rock face and to the left is an abandond quarry face.

Geology of the Manchester Area (3rd edition): progress

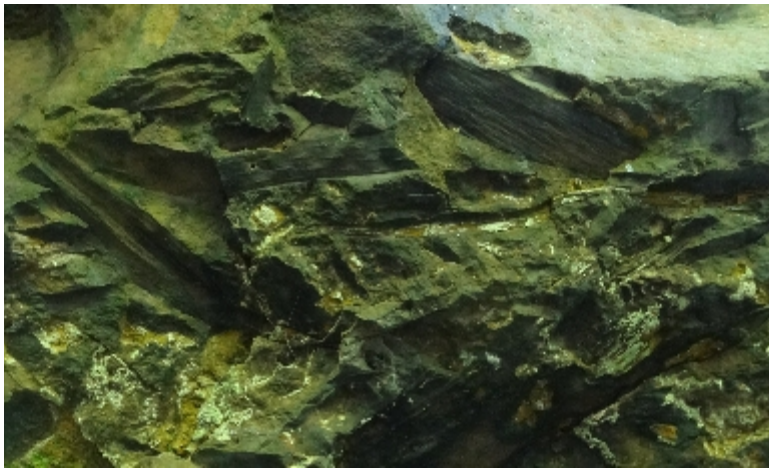
Stephen K. Donovan and Margaret Hartley

There has been progress, a bit uneven, but progress nonetheless. See below. Peter del Strother (1) has now submitted two drafts of his article, which is well written and highly readable. Donovan & Hartley (2) is short – nobody buys a book to read a long preface. This will evolve as does the content. Two guides by Donovan include one new (3) and one recycled from *Geology Today* (4).

The time is rapidly approaching when promises need to be turned into submissions So, this letter is Steve and Margaret rattling the bars of the cages of our (potential) contributors. By this time most contributors will have had well over a year to produce their finished itineraries. Please submit your contribution(s) to either of us on or by **Monday, 3rd April, 2023**. Assuming that the response is as enthusiastic as we hope, we will endeavour to pursue publication within 12 months, hopefully less.

	Author, Title and Status	
1	Peter del Strother	The Lower Palaeozoic 'Craven Inlier' and the Lower Carboniferous limestones in Crummuck Dale Second draft read and commented upon by SKD
2	Donovan & Hartley	Preface (draft) This will evolve as does the *Guide*; it is easier to edit a draft than write it afresh
3	Donovan	Itinerary: Pendleton Parish Church to Peel Park, Salford . In hand MH for review
4	Donovan	Itinerary: Culcheth, In hand MH for review

Bolton area field trip.



A variety of plant fossils in river sediments

Intricately bedded sandstones

Lepidodendron type tree fossil

OTHER SOCIETY EVENTS and LINKS

BCGS http://bcgs.info/pub/

19 September	Celebrating the Origins of Animal Life: Building a UNESCO Global Geopark in Charnwood Forest, UK
26 September	BCGS visit to the Dingle Peninsula, Ireland
8 October	Geoconservation Day at the Wren's Nest
17 October	Geology of Iceland and the Fagradalsfjall eruption 2021
6 November	Geoconservation Day at Saltwells Local Nature Reserve

Yorkshire Geological Society http://www.yorksgeolsoc.org.uk/

24/25 September	Lincolnshire Limestone, Lincoln Stone and Lincoln Cathedral
29 September	Muddy bottoms: response of Jurassic seafloors to palaeoenvironmental change

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

7-9 October	LGA Residential field trip, Duns (Berwickshire)

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

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

20 November	Stones of the Trafford Centre

Liverpool Geological Society https://liverpoolgeologicalsociety.org/

Manchester Geological Association

BCRA
British Cave Research Association

BCRA Cave Science Symposium 2022
hosted jointly with the Manchester Geological Association

Symposium - Saturday 8th October, 2022
Field-trip - Sunday 9th October, 2022

Department of Earth and Environmental Science, University of Manchester
SECOND CIRCULAR

The British Cave Research Association and Manchester Geological Association are pleased to announce details of the 33rd Annual Cave Science Symposium and associated field-trip. The Symposium will be hosted by Prof. Cathy Hollis at the School of Earth and Environment, University of Manchester, on Saturday 8th October, 2022. A programme of presentations will be available soon that will be of interest to anyone wishing to know more about the underground environment. Please arrive from 9am for a 9.45pm start. We will finish at 5pm.

Symposium

This year's symposium will include oral and poster presentations covering BCRA's principal areas of interest. Following the symposium, an informal evening meal will be arranged for those who are interested. We intend to go to the Navarro Lounge https://thelounges.co.uk/navarro/ which is very near the Symposium venue, immediately following the symposium. There are also places to get a beer afterwards if people want to stay longer. Please sign up on the Google form below.

This will be a live event, but we hope to stream it on Zoom as well, please visit https://bcra.org.uk/sym/index.html for details of how to join.

BCRA's AGM will take place during the Symposium at 12:00 to 12:50.

Registration

Registration will take place on the day, entry is free of charge, however donations towards the cost of room hire and refreshments are welcomed. Donations can be made online at https://bcra.org.uk/bookshop/donate.html
All are welcome, and we look forward to seeing you at the symposium.

To register your attendance at the symposium (in person or online), meal or field meeting please fill in the Google form: https://forms.gle/baVp2KJEcPVjJPWD8

Location

The Williamson Building is located in the centre of the University of Manchester campus, on Oxford Road, directly opposite the Manchester Museum (currently closed). It is about 20 minutes walk from Manchester Piccadilly and about 10 minutes walk from Manchester Oxford Road railway station. It is served by several buses. Detailed information on travel to campus is provided here:https://www.manchester.ac.uk/discover/maps/

Parking is available at the Aquatics Centre and behind the Humanities Building, both less than 5 minutes' walk from the Williamson Building (car parks B & D on the campus map)
A detailed **campus map** is available here: https://documents.manchester.ac.uk/display.aspx?DocID=6507

Refreshments

Tea, coffee and biscuits will be served during the morning and afternoon coffee breaks. For hot drinks at other times, and for lunch, the following outlets are on campus, a short walk from the Williamson Building:
Café Nero (in Blackwells Bookshop): 11am to 5pm
Navarro Lounge (food, coffee/tea/food): 9am to 12am https://thelounges.co.uk/navarro/
BrewDog: 11am – 12am, Co-op supermarket: 6am – 11pm

Field-Trips

The fieldtrip to Alderley Edge Mines will take place on Sunday 9th October

Symposium Organisers
Please contact Prof Cathy Hollis (cathy.hollis@manchester.ac.uk) for details of the venue and local facilities in Manchester as well as details of the programme and for enquiries concerning oral or poster presentations. For details regarding the field trip, please contact Jo White at: j.white@bcra.org.uk

Manchester Geological Association

Indoor Meetings 2022

Saturday 8 October 2022 - joint with the British Cave Research Association

A full day event.
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Saturday 19 November 2022 at 13:30 - The Broadhurst Memorial Lectures - Spectacular British Fossils

Natalia Jagielska, TBC,
Phil Manning, On the exquisite pterosaur material from the Scottish Hebrides /or/ why pterosaurs generally suck
Dean Lomax, Unearthing the 'Rutland Sea Dragon' – A Jurassic Giant in the UK

Saturday 10 December 2022 at 13:30 - Geology in Industry

Katherine Morris, The UK's nuclear legacy – opportunities and challenges

Wednesday 11 January 2023 at 19:00 (Zoom only) - topic to be announced

Saturday 11 February 2023 at 13:30 - AGM followed by

Margaret Hartley, Presidential Address, TBC
Stephen Donovan, Holiday Geology, Gotland - at last! Waiting 42 years to see some of the best Silurian TBC, Holiday Geology, TBC

Bring Your Own Reusable Mugs

Would Members please bring a cup to use for tea/coffee when attending lectures, where refreshments are provided. It would be much appreciated. The MGA will be using biodegradable cups when our supply of polystyrene ones runs out, but these do cost more.