



Manchester Geological Association

President: Dr Margaret Hartley

December 2022

www.mangeolassoc.org.uk

Founded 1925

AGM 25th February 2023

Please note that the date of the next AGM has been changed because it clashed with the Herdman Lectures

Quick Diary

Indoor Meetings

Wednesday 11th January 2203. topic to be announced. Zoom only

Saturday 25th February 2023 at 13:30 - AGM (note change of date) followed by Presidential address

Wednesday 8 March 2023 at 19:00 (Zoom only) - topic to be announced.

Saturday 29th April - topic to be announced

Who's Who in the MGA

Officers

President: Dr Margaret Hartley

Vice-President: Vacant

General Secretary: Sue Plumb BSc

Membership Secretary: Ken Jacobs

Treasurer: Peter del Strother

Indoor Meetings Secretary: Ken Jacobs

Field Excursions Secretary: Peter del Strother

Newsletter Editor: Lyn Relph BSc

Webmaster: Peter Giles MSc

Other elected members of Council

Prof. Cathy Hollis

Prof. Ray Burgess

Nicola Fowler BSc (Hons)

Dr Steve Donovan

Steve Daniels

The Immediate Past President, Manchester Geological Association: Niall Clarke

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

Council Vacancies

Vice President

Indoor Meetings Secretary. Contact possible speakers with an invitation to speak then arrange the date and time of the talk. Ideas for speakers come from Council Members, Members, other societies and the media. Nearer the time finalise details with speakers. Either yourself or ask another Council Member to look after things on the day.

Please contact the Secretary for more information secretary@mangeolassoc.org.uk

Solnhofen in Bavaria April or May 2023

Leader John Nudds

Expression of interest

Following his lecture to the MGA on Archaeopteryx in October 2020, Dr John Nudds has offered to take the MGA on a short field trip to Solnhofen in Bavaria. This would include museum visits to see some of the original specimens of Archaeopteryx plus field collecting opportunities. Highlights of the trip would be a visit to the new Altmühltal Dinosaur Park and Museum near Denkendorf to see the new Archaeopteryx No.12 (<https://dinopark-bayern.de/en/>), plus a visit to the newly refurbished Jura Museum in Eichstaett (<https://snsb.de/en/jura-museum-eichstaett/>). All members who might be interested in such a trip should contact the field trips secretary, Peter del Strother, on outdoors@mangeolassoc.org.uk.

New palaeontology online short course from the Natural History Museum

We have recently developed a new programme of public, six-week short courses which are taught online, on-demand by Museum scientists about some of the cutting-edge research being undertaken behind the scenes in the Museum. You can find out more about the new Masterclass programme here: https://www.nhm.ac.uk/our-science/courses-and-students/NHM_Masterclass.html

One of the first courses to be launched (which begins on 16th January 2023) is Life Through Time – a six-week course that covers recent discoveries in contemporary palaeontological research being undertaken at the Museum, covering the origin of animal through to the rise of mammals. Details of the course can be found here: https://www.nhm.ac.uk/our-science/courses-and-students/NHM_Masterclass/life_through_time.html

Dr Nick Crumpton

Short Course Programme Coordinator

Breedon Limestone Quarry and Cement Works cont'd.

Over an excellent buffet lunch there was a discussion on water usage; the plant uses tens tonnes per hour all of which evaporates. It comes from an onsite borehole and rainwater except for two office blocks that use mains water. Next we moved on to the shale quarry, to the north east of the site (Fig 1 in Sept NL), it is in the Edale Shales Group (Namurian, substage Pendleian). The base of the Edale Shale Group is at the base of the *Cravenocerasleion* Marine Band. Its top is highly diachronous with the base of the Millstone Grit Group and is located at the base of lowest significant feldspathic sandstone (Mam Tor Sandstones in type area). The Edale Shales Group is

exposed at the base of the turbidite succession at Mam Tor. The finely bedded shale is inter-bedded with thin sandstone beds. This area is much wetter as it is below the water table so needs to be continually pumped out. The bulk chemistry is fairly consistent except for one bed which is higher in sulfur. Pulverised fuel ash (PFA) from tips associated with coal fired power stations is also used in the raw material recipe



Fig 1. The shale quarry; an area that has been restored.

Large areas of the shale quarry (Fig 1) have been restored for leisure use and wild life. There is a sailing lake and there are plans to build one with an island for ground nesting birds and fish.

The shale is transported along a conveyor belt (Fig 2) that has a bend in it. It is set up with a reverse camber round the bends to prevent it riding up the rollers and to keep it tight.



Fig 2. The shale conveyor belt, which is covered as it bridges the railway line is seen to the left of the picture.

The main ingredients for making cement are high and low silica limestone, shale and PFA. To turn this into cement requires a tremendous amount of energy, >100 Kw hours of electricity per tonne of cement produced. The fuel for the kilns is coal dust, fridge foam, animal meal, (which is a dry granular material derived from the waste from meat processing), tyres (chipped), paper and plastic. This ground raw material, known as raw meal is finely crushed before being fed to the top of the pre-heater tower. By the time it enters the kiln it is about 800 °C; any ash is incorporated into the cement clinker.

The two kilns are horizontal tubes that are so large that they can be seen on Google Earth (Fig 3 and 4). They are lined with 220 mm thick fire bricks (Fig 5) and turn continuously. The temperature difference between the inside and outside of the furnace is 1,400 °C. The flame is



Fig 3. The two kilns can be seen on Google Earth. Note the railway wagons to the right for scale.

fired into one end at 1,800 °C. The raw meal partially melts and balls up into dark nodules up to about 70mm diameter, known as clinker. The clinker (Fig 6) is cooled and finally ground with a small proportion of gypsum to make the well-known grey powder - cement.

The raw mill is a large rotating drum with iron balls inside, which are between 90 and 21 mm in diameter. They loose 1.5 tonnes of iron per week.



Fig 4. Walking along the service platform between the kilns. It was very warm even with a breeze blowing.



Fig 5. An example of a 220 mm fire brick that line the rotating kilns.



Fig 6. The clinker which is crushed to a fine powder to form the cement.

The finished cement is loaded into the railway wagons and sold in bulk. There was not a bag of cement in sight. To the top right in figure 2 can be seen a train leaving the works; this makes up half a main line train.

What did surprise me was how clean the whole site is, no thick piles of dust in the corners. A large eight wheel truck or an articulated lorry come regularly to vacuum clean the buildings.

Our thanks go to Breedon, for allowing our visit, and to Ed Cavanagh and his team for answering our endless questions. It was a very interesting day. Also to Peter del Strother for organising the trip and checking my report.

OTHER SOCIETY EVENTS

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

14 January – Geoconservation Day: Dudley's Erratic Boulders in the Illey Valley. TBC

16 January – Jurassic Gems of the Yorkshire Coast

14 February – Geoconservation Day: Wren's Nest

20 February – Glacial Boulders at Wightwick Manor, Wolverhampton

4 March – Geoconservation Day: Hay Head Quarry

20 March – AGM followed by: Celebrating the Origins of Animal Life: Building a UNESCO Global Geopark in Charnwood Forest, UK

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

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

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

Jan 6th (ZOOM meeting only) Chris Duffin, Lapis Lazuli

Feb 10th AGM + Peter del Strother, Canary islands

March (? Date TBC) Nigel Price, Thomas Sopwith

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

January 9th 2023 Talk: Critical minerals for the energy transition, Zoom. Dr Karen Hanghoj,
Director BGS

February 4th 2023. North West Branch Annual General Meeting. Members talks/slideshows

Manchester Museum's project to '*Bring Back April*' the *Tenontosaurus*

We hope to raise £10,000 to bring *April* back on display in our new dinosaur exhibit located in the same area as Stan the T-Rex and Percy the Plesiosaur. Previously, *April* was displayed incorrectly and PhD students at the University of Manchester have worked tirelessly over the last 5 years to study the way she would have walked to inform this display. *April* will encourage visitors, including children to think like a paleontologist.

Here is a link to a video <https://www.youtube.com/watch?v=ZEbGj1fsK-M>, where David explains in more detail how important *April* is.

If you wish to contribute to this project please get in touch with Emma
emma.smith@manchester.ac.uk

Members of the MGA Council wish all Members a very
Merry Christmas and a Happy New Year.

Manchester Geological Association

Indoor Meetings 2022

Saturday 25th February 2023 at 13:30 - AGM (note change of date) followed by

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

Wednesday 8 March 2023 at 19:00 (Zoom only) - topic to be announced
An evening event

Saturday 29th April - topic to be announced

Membership fees are due on the 1st of January

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| 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.

Subscriptions for 2024 and beyond will be discussed at the AGM in light of rising printing and postage costs

Gift Aid

The MGA is registered as a charity (Charity No. 500532), so any member who is a taxpayer can add to the funds at no cost to themselves by filling in a Gift Aid form. To do this, please print out the Gift Aid form (Word / PDF), complete fully and return to the address thereon.

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.