



**Circular 427
September 2017**

Registered Charity No: 503617

President: Vanessa Banks

www.emgs.org.uk

SUMMER 2017 **FIELD PROGRAMME**

Tuesday, 19th September 2017 – 2.00 pm

Leader: Adam Smith

Major Dinosaur Exhibition

World-class exhibition of a range of dinosaurs from China, including feathered examples and holotypes – which have never before left China. We will have a personal guided tour by the Wollaton Hall Curator, Adam Smith, who has been instrumental in organising the exhibition.

Meeting place at 2pm is: Wollaton Hall main entrance.

NB: Anyone wishing to join this trip and who has not already done so must please contact Tim Colman on 0115 937 4734 or at timcolman@tiscali.co.uk as numbers are strictly limited.

Insurance and Safety

Members are reminded that the Society has only public liability insurance and that personal accident insurance is a matter for individual members to arrange as they consider necessary. Up to date hard hats are obligatory for all field excursions involving quarries or cliff faces and strongly recommended for all trips. High visibility clothing is sometimes required in working quarries. High visibility tabards can be obtained from GA Enterprises, 126 Fleetside, W. Molesey, Surrey KT8 2NQ at £4.70 incl. pp. Members without suitable hard hats may be refused access to certain sites! Hard hats can be obtained from many Builders' Merchants, Wickes, B&Q Warehouse etc. for about £4.

Any non-members attending field excursions will have to pay a temporary membership fee of £2.00 and all participants are reminded that they must comply with any instructions from excursion leaders or, for example, quarry managers or their employees on Health & Safety issues.

AUTUMN/WINTER 2017/2018 **LECTURE PROGRAMME**

Saturday, 14th October 2017 – 6.00 pm

Michael Simms - The Lairg Meteorite

Saturday, 4th November 2017 – 6.00 pm
Colin Summerhayes - The Earth's Climatic Change

Saturday, 11th November 2017 – 6.00 pm
Joint meeting with the EMGS and Yorkshire Geological Society at BGS, Keyworth -
Topic is Geo Forensics.

Saturday, 9th December 2017 – 6.00 pm
Tony Waltham - Control the drainage: the gospel accorded to Sinkholes

Saturday, 13th January 2018 – 6.00 pm
Dave Martill - Dinosaur hunting in Morocco

Saturday, 10th February 2018 – 6.00 pm
Presidential Address

Saturday, 10th March 2018 – 6.00 pm
Haydon Bailey - The real use of microfossils

Saturday, 14th April 2018 – 6.00 pm
Paul Olver - A day in AD79

LECTURE VENUE

Indoor meetings are now held in the School of Geography on the Nottingham University campus which is in the Sir Clive Granger Building. Enter the University by the North Entrance, off the A52, and follow signs to the main Visitor Car Park. As you enter the car park, the Sir Clive Granger building is on your left.

The Society is indebted to the School of Geography at the University, who are sponsoring our lectures, for the use of these facilities.

Saturday, 14th October 2017 – 6.00 pm
Speaker: Dr Michael Simms, National Museums, Northern Ireland
The Lairg Meteorite

The 1.2 billion year old Stoer Group, in the far north-west of Scotland, represents the oldest undeformed sedimentary succession in Britain. Within its hundreds of metres of mainly fluvial sandstones is a relatively thin (5-10 m) unit, the Stac Fada Member, in which green-grey shards of once molten rock are intimately mixed with the predominant red sandstone. For decades this was interpreted as a volcanic mudflow until, in 2009, Oxford geologist Ken Amor discovered shocked quartz grains and geochemical anomalies. These proved that the Stac Fada Member actually had been formed by the impact of a giant meteorite, the first such evidence discovered in the UK.

On my first visit to the outcrop of this remarkable rock in 2011 I discovered previously unrecognised evidence for high-speed ejection of unmelted rock fragments from the impact, and also deduced that the impact deposit had come from the east rather than the west as had been suggested previously. However, any crater of this age that lies to the east will now be concealed by rocks thrust westwards across much of northern Scotland along the Moine Thrust.

But even a buried impact crater can be detected by its gravity signature, with the shattered rock and sediment infill associated with the crater contrasting with the denser target rocks. Consulting the BGS gravity map of the UK revealed a huge gravity anomaly more than 50 km east of the Stac

Fada Member outcrop, centred on the town of Laird. Could this 40 km wide anomaly really be the source crater?

This talk will describe the chance series of events that led to this discovery, and some of the ongoing work that has considerable implications for understanding the geology of Scotland and the nature of giant meteorite impacts.

Saturday, 4th November 2017 – 6.00 pm

Speaker: Colin Summerhayes

The Earth's Climatic Change – a New (Geological) Perspective

The statement that 'the climate is always changing' is only meaningful if we know the drivers of that change, which we can find in the geological record. Moreover, as Scottish geologist James Hutton pointed out in 1795, knowing the past will help us to predict the future if past conditions recur. What we find in the rocks will support or disprove what climate models tell us. Scientists began speculating about climate change late in the 18th century. Subsequent scientific and technological developments have led to formulation of a coherent theory of climate change. We have come a long way from the notion that erratic blocks of rock on British hills were deposited by Noah's flood. The past 30 years have seen dramatic advances in our knowledge of the variability of past climate change and its causes, enabling us to understand what our climate is doing now and may do next. Much of what we know comes from examining cores of marine sediment, along with ice cores, stalactites, tree rings and corals. Over the past one million years our climate has operated within narrow envelopes governed by orbital change and solar change. Over the past 2000 years those natural changes drove us into the Little Ice Age. Present orbital and solar properties are like those of the Little Ice Age, yet temperatures have begun rising. The only driver we can find to explain that divergence, in keeping with what we know of the drivers of past change, is the rise in CO₂ emissions. One is reminded of the saying that "those who ignore the past are doomed to repeat it".

CV: "Colin Summerhayes is a marine geochemist expert in determining past climates by studying marine sediments. An Emeritus Associate at the Scott Polar Research Institute of Cambridge University, he has been Executive Director of the International Council for Science's Scientific Committee on Antarctic Research (SCAR), Director of the Global Ocean Observing System (GOOS) Project Office at UNESCO's Intergovernmental Oceanographic Commission in Paris, Director of the UK's Institute of Oceanographic Sciences Deacon Laboratory (Wormley), and Deputy Director of the Southampton (now National) Oceanography Centre. He has worked in academia, government and industry (BP and EXXON). His books include "Oceanography - an Illustrated Guide", "Antarctic Climate Change and the Environment", and "Earth's Climate Evolution"

Saturday, 9th December 2017 – 6.00 pm

Speaker: Tony Waltham

Control the drainage: the gospel accorded to Sinkholes

Karst is a landscape that is distinguished by underground drainage and is normally formed on limestone or gypsum. Its impact on engineering geology is the distinctive suite of karst geohazards, which are largely related to the holes in the ground of varying size and unpredictable nature. The most widespread and frequent geohazard is the development of new sinkholes within the soil profile over a cavernous limestone; they develop by suffosion, where soil is washed down into cavities in the stable rock. New suffosion sinkholes are nearly all formed by rainstorms, new drainage inputs or water table decline; they are therefore largely avoidable if the gospel of drainage control is obeyed. Rock collapse to develop new sinkholes is hugely less common, though drainage can again be significant where water table decline reduces hydrostatic support. Most sinkholes in soil and most collapses on rock are induced, wholly or partially, by civil engineering

activities, and are therefore largely avoidable. Examples from around the world clearly illustrate these themes, and the relative frequencies of events confirm that drainage control is the golden rule on karst.

This presentation is largely a reprise of the Glossop Lecture given by invitation to the Engineering Group of the Geological Society in London in November 2015; its companion paper is therefore already published at Quarterly Journal of Engineering Geology and Hydrogeology, 2016, v49, p5-19.

2018 Summer Field Trips

If any members have ideas for field trips for next year, they would be gratefully received by Tim Colman, e-mail address: timcolman@tiscali.co.uk

SUBSCRIPTIONS

A reminder that these were due on 1st February

Subscription rates remain unchanged and are as follows:

Ordinary members - £18.00

Joint members - £22.00

Please send your subscriptions to the Treasurer as soon as possible and if you pay by standing order please ensure this is for the correct amount.

We are also trying to ensure that as many of our subscriptions as possible are gift aided. This costs you absolutely nothing but means that the Society will receive much needed extra funds by way of tax rebates, so if you haven't already completed a Gift Aid declaration, please contact the Treasurer and request one.

Transport Help Needed

We have several long standing members of the Society who can no longer attend meetings due to transport difficulties. If anyone would be prepared to offer help with this, please could they let the Secretary have their details.

Society Publications

- (1) **East Midlands Field Guide;**
- (2) **Sandstone Caves of Nottingham** (3rd edition)
- (3) **Leicester Building Stones Guide**

Copies available by contacting the Secretary or at Indoor Meetings.

Mercian Geologist – Back numbers

Do you need any back numbers of the Mercian to fill a gap in your collection?

The scanning of every single issue of the Mercian Geologist that the Society has published is now complete. As soon as they are all accessible through the Society's website the stocks of back numbers that the Secretary currently holds will be disposed of although a complete set of hard copies will of course be kept for archive purposes. So please contact the Secretary Janet Slatter at secretary@emgs.org.uk or on 01509 843297 if you have any gaps that you want to fill

Information for Other Societies

We hold information of lectures and field meetings for other local societies such as the NSSGA, Black Country Geological Society and Leicester Lit & Phil Society. If you would like details of any of these, please contact the Secretary.

EMGS Website

The publications page on the Society website (www.emgs.org.uk) has been tidied up and updated. It now includes links to two archives:

One is the archive of the early Mercian Geologists where the huge task of diligently scanning and preparing copies of all the back issues has now been completed thanks to the hard work of David Bate. These will soon, if they are not already, all be accessible through the Society's website.

The other is the archive of papers and reports in the more recent issues. These will go into the webpage one year after they appear in the paper issues of the Mercian. All papers 2000 to 2014 are already in the online free archive.

Costs of the Circular

To minimise postal costs and photocopying charges which amount to approximately £4.00 each year for every member who still receives their Circular by post, we would very much like to send you your Circular by e-mail. If you have not already done so, please send your e-mail address to the Circular Editor, sue.miles@freeths.co.uk

Please can you also confirm your name and address when sending your e-mail so we can correlate these details with our membership listing.

The next Circular will be published in October 2017.

The next Council Meeting will be held on 11th September 2017.

Secretary: Mrs Janet Slatter, 100 Main Street, Long Whatton, Loughborough, Leicestershire LE12 5DG e-mail: janet.slatter@btinternet.com . tel. no. 01509 843297.

Treasurer: Mr Colin Bagshaw, 150 Scalpcliffe Road, Burton-on-Trent, Staffordshire DE15 9AD, e-mail: Colin.bagshaw@yahoo.co.uk tel. no. 01283 564520