



Bulletin of the North Staffordshire Group of the Geologists' Association Number 115 : January 2016



Winter Lecture Programme 2015/16

Lectures are held in room WS0.06 William Smith Building, Keele University

Thursday 14 January at 7:30pm :

**'Quaternary Rivers and Glaciers in Midland England
- conflicting views and observable evidence'**

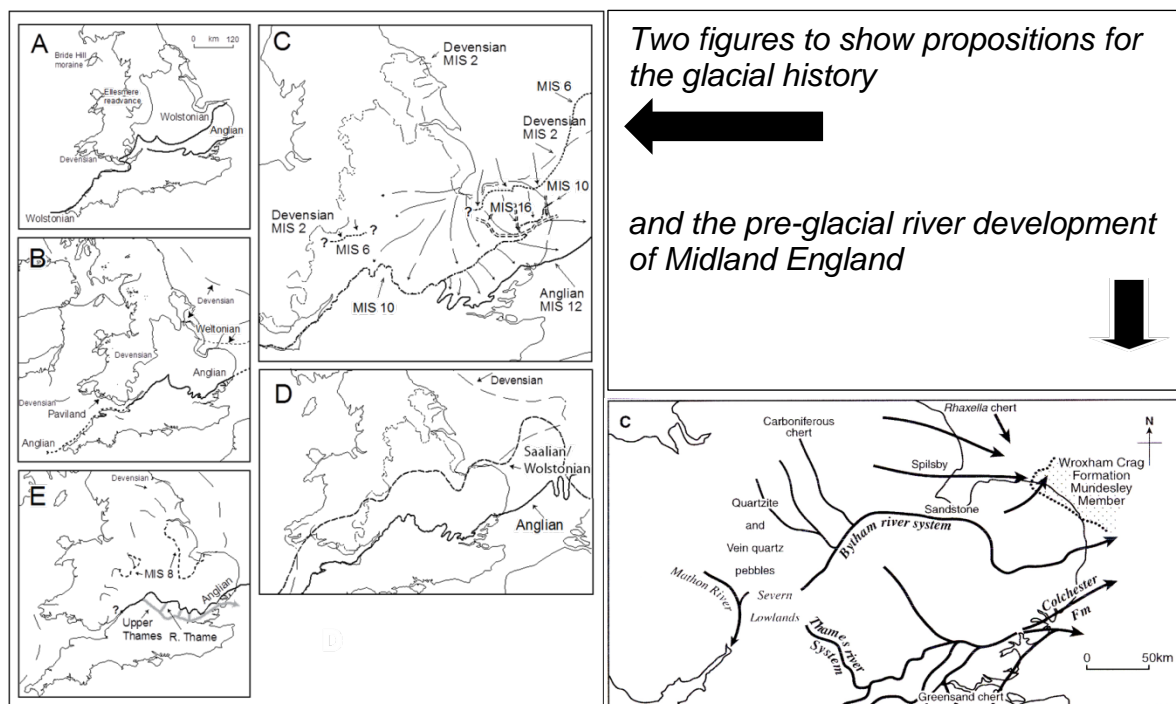
Speaker: Professor Jim Rose (Royal Holloway, University of London)

Studies of the glacial and river history of Midland England have generated numerous models and much controversy. This lecture attempts to outline the 'story' and, most important, present the evidence. The two topics are very closely interlinked because glaciers changed the patterns of the rivers and river terraces hold some evidence of glacial presence. The river 'story' begins with a very simple pattern of large rivers flowing from uplands in the west to the North Sea in the



"Cross-bedded sand unit deposited by the former Bytham River, Leicestershire". Image: Peter Jones

east, as relatively low energy systems, and operating on a timescale over which the upland areas are rising and the North Sea basin is subsiding. The main catchments of this time were the Thames, Bytham and Ancaster. It is proposed that glaciation first reached lowland England in MIS 16 and modified the Ancaster and Bytham, but the main changes in the landscape occurred during MIS 12 (Anglian Glaciation), which totally rearranged the landscape by glacial erosion and sedimentation. The Ancaster and Bytham were eliminated entirely and the Thames was diverted southwards. Following this Midland England was drained by small catchments with a shape determined by Anglian glacial erosion. Subsequently these changed only slightly, the main changes being in the River Trent again due to glacial action. The glacial history following the Anglian is more complex, and a case will be presented for ice reaching Midland England during MIS 10, MIS 8, MIS 6 and the Last Glaciation (MIS 2). An attempt will be made to verify all these proposals by observable evidence, and justify them against alternative views that the Bytham river did not exist and that Midland England has only been glaciated during the Anglian (MIS 12), Wolstonian (whatever that may be) and the Devensian (MIS 2).



Two figures to show propositions for the glacial history and the pre-glacial river development of Midland England

The committee invites you to join them for a meal with the speaker at 6pm in the "The Refectory" (formerly Comus) before this lecture. There is a main course choice of Fish Paupiette of filled with Salmon & Chive Mousse on Dill Butter Sauce or Strudel of Vegetables & Polenta on Tomato & Basil Sauce (both with Fine Beans, Peas Flamande & New Boiled Potatoes - £8.40). Please make your own booking with The Refectory (01782 734121) mentioning that you wish to join the NSGGA group, before 5pm on Tuesday 12 January.

Thursday 11 February at 7:30pm :

"The growth of the Continental Crust over Geological Time: from consensus to controversy"

Speaker: Professor Hugh Rollinson (University of Derby)



Example of a sandstone xenolith in one of the Skye granites suggestive of an origin for the granite of crustal reworking of older sediments. Image: Hugh Rollinson

Recent research into the origin of the continental crust has focussed on the growth of the crust over geological time. Current models, largely based upon U-Pb zircon ages and their Hf-isotope composition, suggest that a significant volume of the continental crust formed very early in Earth history. For example it has been proposed that as much as 70% of the volume of the crust had formed before 3.0 Ga. This deduction, however is at odds with the volume of preserved crust, for about 75% of the preserved crust is younger than 1. Ga. There are two possible solutions

to this apparent paradox. One is that much of the continental crust that was

formed has subsequently been destroyed and returned to the Earth's mantle. In other words it has been recycled back into the deep mantle. This process is likely to have been governed by subduction processes and so implicitly has a bearing on when in Earth history plate tectonics began. An alternative solution is that old continental crust has been 'reworked'. That is it has been reconfigured by partial melting and 'turned into' granitic crust with a younger crystallisation age. Tests of these hypotheses include looking for evidence of continental crust buried deep in the Earth's mantle – maybe in the composition of deeply sourced basalt such as those found in mantle plumes. Alternatively, looking for a record of an earlier history in geologically more recent granitic rocks using both geochemical and field-based evidence. Examples of these approaches will be discussed and applied to ancient and more recent crustal rocks.

The committee invites you to join them for a meal with the speaker at 6pm in the "The Refectory" (formerly Comus) before this lecture. There is a main course choice of Hot Pot of Lamb topped with Potato Galette or Puff Pastry Heart of Lentil & Mushroom Stew (both with Vegetable Ribbons, Broccoli Fondant Potato - £8.40). Please make your own booking with The Refectory (01782 734121) mentioning that you wish to join the NSGGA group, before 5pm on Tuesday 9 February.

Thursday 10 March at 7:00pm :
AGM & 'Tales of Middle Earth'
Speaker: Dr Ian Stimpson (Chair's Address)

The conventional view of plate tectonics has been that the main driving forces are that the rising parts of convection cells within the mantle pull plates apart at spreading ridges and the descending parts of the cells drag plates down subduction zones. This talk will review examine new evidence of mantle structure from seismic tomography, mineral physics and deep earthquakes to attempt to establish just what might be driving plate tectonics.

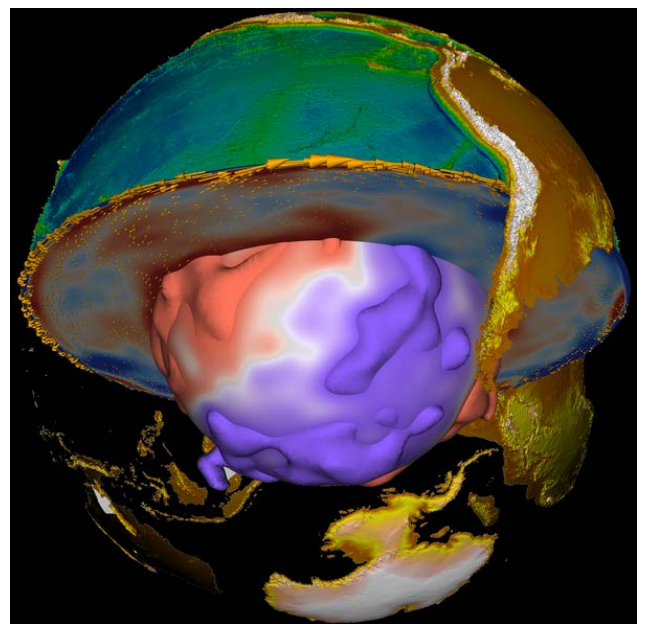


Image: University of Buffalo

Summer Field Programme 2016

Each person attending field meetings does so at their own risk. The NSGGA has public liability insurance through a GA insurance policy that also carries limited personal accident cover for members attending meetings or field trips. Non-members pay £2 to cover temporary membership giving them insurance cover. A field fee of £2 per head is normally charged for members and non-members to cover the leader's expenses.

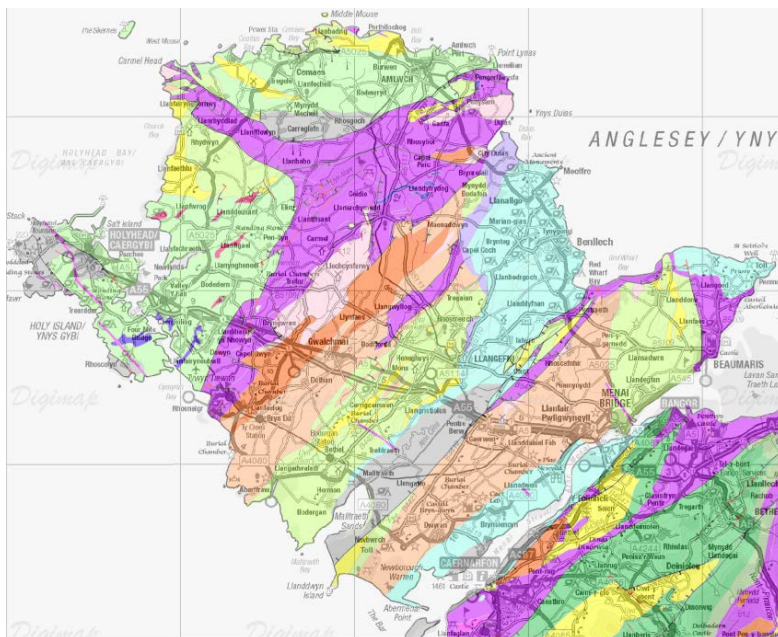
The summer field programme is still under construction but we do have some advanced details for the annual field weekend.

Friday (evening) 13 May to Sunday 15 May 2016 :

Anglesey Field Weekend

Leader: Dr Ian Stimpson (Keele)

Anglesey contains a very wide variety of geological features in a small area and is an internationally recognised geopark "GeoMôn". This field weekend offers just a small taster of some of the highlights. The itinerary is only provisional and subject to change but on Saturday we hope to visit the Gwna Melange at Llanbadrig, the mining legacy at Parys Mountain and the limestones at Red Wharf Bay. Sunday will look at the folding at Rhoscolyn, the pillow lavas at Llanddwyn Island and finish with blueschists at Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogoch.



Anglesey Geology Map. Image: Digimap/BGS

If you are interested in joining us, please contact our field secretary Steve Alcock steves261@aol.com and he will contact you when we have more details including approximate costs.

Join the NSGGA Committee

At the March AGM we shall be electing the committee for 2016/17. We still are in particular need of new blood on the NSGGA committee and if you are interested in standing for any position then please contact the Chair, Ian Stimpson, before the committee meeting on January 21.

In particular we are looking for a new Chair for 2017-2019. To ease you in to the position you would take over the position of Vice-Chair in 2016 so that you can shadow the current Chair.

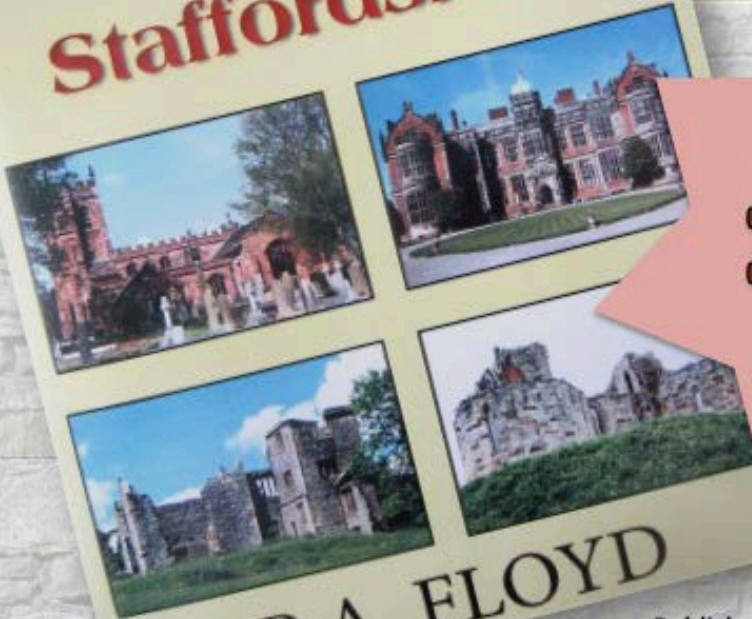
Membership Renewal 2016

If you haven't renewed your 2016 subscription yet, please do so as soon as possible using the form at the end of the bulletin or in person at the January meeting.

As a bonus this year we intend to synchronise our membership subscription period with the academic year rather than the calendar year as this makes far more sense for our student memberships. If approved at the March AGM, this would mean that your 2016 subscription would be valid until October 2017 – a real bargain!

Advertisement

Building Stones & Stone Buildings of Staffordshire



P A FLOYD

Special Offer
NSGGA
members
20% off!

£12

Published by Arthur H Stockwell Ltd
Torrs Park, Ilfracombe, Devon, EX34 8BA
A4 paperback.
ISBN 978-0-7223-4543-6

Book summary:

- (a) Background to natural stone available in UK over the centuries, where it was quarried, its geological environment, together with examples of towns and buildings constructed.
- (b) Outline geology of Staffordshire and the sandstones and limestones utilized for building, together with their physical and chemical properties to aid identification of different Formations.
- (c) An illustrated guide to over 100 listed buildings, together with various villages, civic buildings and monuments - their history, architectural and geological features.

Contact Peter (01270-820538); floyd.pa@virgin.net, to save a copy.
Or collect your copy at any NSGGA lecture meeting.

Other Societies

Geologists' Association

Lectures are held at Geological Society of London, in Burlington House, Piccadilly but the lectures are available to view by members of the GA online via their website.

Friday 5 February @ 18:00 A Virtual World of Palaeontology - Dr Imran Rahman

Friday 11 March @ 18:00 Giant marine reptiles and whales during the Eocene-Oligocene cooling event - Dr Nick Longrich

Friday 1 April @ 18:00 The Biggest Volcano on Earth

More details at www.geologistsassociation.org.uk

Black Country Geological Society

Indoor meetings are held at Abbey Room at the Dudley Archives, Tipton Road, Dudley, DY1 4SQ

Monday 18 January @ 20:00 Gondwanaland, the Southern Supercontinent. - Andy Harrison.

Monday 15 February @ 20:00 The Debitage Dilemma - the Distribution of the Lithologies at Stonehenge - Dr Rob Ixer.

Monday 14 March @ 19:30 AGM followed by The Minerals of North Wales. - Tom Cotterell.

More details at www.bcgs.info

East Midlands Geological Society

Indoor meetings are held at the Geography Department (Sir Clive Granger Building) at the University of Nottingham

Saturday 26 January @ 18:00 The rise of the animals – David Harper (Durham)

Saturday 13 February @ 18:00 Sink holes and the media - Followed by the Society's Annual Dinner – Vanessa Banks

Saturday 21 March @ 18:00 Chalk of the Paris to London fast railway route – Rory Mortimore (Brighton)

More details at www.emgs.org.uk

East Midlands Regional Group of the Geological Society

De La Beche Conference Suite, British Geological Survey, Keyworth, Nottingham

Tuesday 26 January @ 19:00 Mine water responses at Wheal Jane – Isla Small (Coal Authority)

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional Groups/East Midlands](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/East%20Midlands)

Liverpool Geological Society

Indoor meetings are held at Lecture Theatre 137, James Parsons Building, Liverpool JMU, Byrom Street, Liverpool, L3 3AF

Tuesday 26 January @ 19:30 New ideas on the Lewisian Complex, NW Scotland - John Wheeler (Liverpool)

Friday 19 February @ 19:30 Footprints and sedimentology of the Formby coast - Silvia Gonzalez

Thursday 25 February @ 18:30 Formby Oil Field and Bowland Basin - Richard Worden (at Manchester with GSL NWRG)

More details at liverpoolgeologicalsociety.org

Manchester Geological Association

Indoor meetings are held at the Williamson Building, University of Manchester

Wednesday 10 February @ 19:00 AGM & Presidential Address

Wednesday 4 March @ 18:30 Past Eruptions and Future Risks - should we be concerned about Iceland's volcanoes - Fiona Tweed (Staffordshire University)

Saturday 12 March @ All Day The Broadhurst Lectures – New Zealand tectonics.

More Details at www.mangeolassoc.org.uk

North West Regional Group of the Geological Society

Indoor meetings at Manchester University unless otherwise specified

Thursday 21 January @ 18:30 William Smith and the future of Geological Maps – David Schofield (BGS)

Thursday 25 February @ 18:30 Formby Oil Field and Bowland Basin - Richard Worden (Liverpool)

Thursday 17 March @ 18:30 Underlands – Ted Neild (GSL)

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional Groups/North West](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/North%20West)

Shropshire Geological Society

Indoor meetings are held at The Shire Hall, Shrewsbury at 19:30

Wednesday 13 January @ 19:30 William Smith's Legacy – Hugh Torrens (Keele)

Wednesday 10 February @ 19:30 Ordovician Cephalopods – Dave Evans (Natural England)

Wednesday 9 March @ 19:30 Mapping the glacial deposits of North Shropshire - Geoff Thomas (Liverpool)

More details at www.shropshiregeology.org.uk/SGS/SGSintro.html

Warwickshire Geological Conservation Group

Indoor meetings are held at St Francis Church Hall, Warwick Road, Kenilworth CV8 1HL

Wednesday 20 January @ 19:30 Exceptionally preserved Cambrian fossils of the Chengjiang Lagerstatte – David Siveter (Leicester)

Wednesday 17 February @ 19:30 Minerals, Magmas & Man - Paul Olver (Hereford & Worcester EHT)

Wednesday 16 March @ 19:30 Rivers, lakes, swamps and seas: exploring an early Carboniferous environment – Sarah Davies (Leicester)

More details at www.wgcg.co.uk

West Midlands Regional Group of the Geological Society

Indoor Meetings at Lapworth Museum of Geology, Birmingham University

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional Groups/West Midlands](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/West%20Midlands)

Western Institute of Mining and Minerals

Indoor meetings are held at the William Smith Building, Keele University

Monday 1 February @ 19:00

Open-pit metalliferous selective mining -
Laurence Morris (CEO La Cobre Mine, Panama)

Monday 22 February @ 19:00

Signature Minerals – Bernie Rickinson (IMMM)

Monday 7 March @ 19:00

A Geological & Law Enforcement (Police) Search
Strategy for Ground Burials Associated with
Homicide, Terrorism and Organised Crime -
Laurance Donnelly

Monday 18 April @ 19:00

Mining the Sahara – Merlin Thomas

More details at www.iom3.org/wimm

NSGGA - Next Committee Meeting:

Thursday January 21, 2016 @ 19:00

In room WS1.44, the William Smith Building, Keele University

Contacts List: NSGGA Committee 2014-15

Chairman: Dr Ian Stimpson,

Geography, Geology & the Environment, Keele University Tel. 01782 733182

e-mail: i.g.stimpson@keele.ac.uk

Vice-Chairman: Dr Patrick Cossey

22 Heath End Road, Alsager, Cheshire, ST7 2SQ. Tel. 01270 872002

e-mail: patrick.cossey54@gmail.com

General Secretary: Barbara Kleiser,

email: barbara.kleiser@gmail.com

Treasurer: Tony Marks,

4 Scarratt Drive, Forsbrook, Stoke-on-Trent, ST11 9AN

email: welsh_tony@tiscali.co.uk

Membership Secretary: David Osborn,

Stretton, 2 Croyde Place, Meir Park, Stoke-on-Trent, ST3 7XD. Tel 01782 396692

email: david.d.osborn@talktalk.net

Speakers Secretary: Peter Jones,

e-mail: p.f.jones@derby.ac.uk

Field Secretary: Steve Alcock

Longfields, Park Lane, Cheddleton, near Leek ST13 7J

Tel. 01538 360431 or mobile 07711 501028

e-mail: steves261@aol.com

GeoConservation Staffordshire Liaison Officer: Dr Ian Stimpson,

e-mail: i.g.stimpson@keele.ac.uk

Bulletin Secretary: Dr Ian Stimpson,

e-mail: i.g.stimpson@keele.ac.uk

Honorary Life Member: Ann Myatt

Executive Committee (honorary):

Dr. Colin Exley; Terry Jones.

Executive Committee (elected):

Dr Lloyd Boardman; Dr Stuart Egan; Janet Osborn (Minutes Secretary); John Reynolds; Christina Bourne

Executive Committee (co-opted):

Don Steward, Diane Lawrence (John Myers Awards); Amy Elson (Keele GeoSoc).

NSGGA web pages: www.esci.keele.ac.uk/nsgga

NSGGA MEMBERSHIP RENEWAL NOW DUE FOR 2016

Fossils, Rocks & Minerals
 Summer Field-Trips
 Winter Talks
 Site Conservation
 Regular Newsletters

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e-mail address

Would you be willing to receive your Bulletins by e-mail yes no

Ordinary (Full)	£13.00	<input type="checkbox"/>
Family *	£15.00	<input type="checkbox"/>
Retired/Unemployed	£10.00	<input type="checkbox"/>
Student **	£ 3.00	<input type="checkbox"/>

John Myers Award Fund*** contribution of £.....

* For insurance purposes, please list the names of all members of the household to be included:

** Students please name your **full-time** course:

Cheques should be made payable to the: "**NSGGA**" and sent to:
 David Osborn (NSGGA Membership Secretary),
 Stretton, 2 Croyde Place, Meir Park, Stoke-on-Trent, ST3 7XD.
 Tel: 01782 396692. e-mail: david.d.osborn@talktalk.net

For our records, are you currently a member of the national GA ? yes no

*** Two John Myers Awards are presented annually to students at Keele University. John Myers gave a 60-year contribution to the understanding of Geology in North Staffordshire and beyond. From 1927 he taught at Wolstanton Grammar School for 40 years and began evening classes at "Stoke Tech" [now Staffordshire University], encouraging members to join the Geologists' Association of London. Thus was born the NSGGA in 1948. In the 1950s and 60s he helped Keele University Postgraduate Certificate of Education students with a teaching methods course, joining the staff of the Education Department in 1967 on his retirement from teaching. Also in 1967, he was a Founding Father of the Association of Teachers of Geology that had its inaugural meeting at Keele, at which he was elected Treasurer, a post he held for 10 years. His daughter Ann has generously funded the John Myers Awards in his memory.