

Bulletin

Number 81

April 2007



Field Programme:

Please note: a field fee of £2.00 per head is made on all trips attended

Thursday 29 March - Ibstock Brick Ltd.

A morning visit; starting at the clay quarry at Knutton to be followed by a tour of the factory at Parkhouse.

Meet for 10.00am at SJ829466; travelling from Newcastle on the Keele Road (A525) take Cemetery Road for Knutton at the roundabout and then down to the crossroads with Silverdale Road, straight over into Church Lane (B5368) and turn first left into Brock Way (Royal Mail depot on the corner). The entrance to the quarry is at the bottom on the right; it is not however signed as Ibstock as at Nov. 2006.

Health and Safety - it is a requirement that visitors have high visibility clothing, hard hats and safety boots.

Numbers, only one place left, to book contact Gerald Ford.

Saturday 28 and Sunday 29 April - Lake District.

Leaders, Professor Chris King and Dr. Peter Floyd

Fully Booked

Saturday 19 May - Ercall Quarries, Wellington, Telford, Shropshire

Leader: Chris Rayner

Starting at 10.00am at the Forest Glen Car Park, Grid Ref: **SJ639093**. From Junction 7 of the M54 take the minor road for about 1 mile heading south between the Ercall and the Wrekin, past the reservoir on your left, at the T-junction turn right, car park is 50m or so on the left hand side.

Walking distance, of order of 2 - 3 miles.

The area is of great scientific importance as it exposes the unconformity between the Cambrian and Precambrian rocks. A variety of rock types and structures are exposed, igneous rocks include rhyolite lavas and ash flows, dolerite dykes and the intrusive boss-like Ercall granophyre. The sedimentary rocks include conglomerates, breccio-conglomerates, quartz sandstones and glauconitic sandstones.

If time permits the intention is to go to the nearby Maddock's Hill Quarry in the afternoon that shows a late Ordovician lamprophyre sill intruded into early Ordovician (Tremadoc Series) Shineton Shales. Walking distance, of order of 2 - 3 miles.

For further information contact:

NSGGA Field Secretary **Gerald Ford**, Tel. 01630-673409 or e-mail: g.ford@ukonline.co.uk

Field program for summer 2007 (continued)

Note: a field fee of £2.00 per head is made.

Thursday 7 June - Building Stones of Newcastle under Lyme

Leader: Dr Peter Floyd

Starting at 6.00pm at the War Memorial in the High Street. The walk is to be led by the Peter who compiled the recently published NSGGA trail guide; it is likely to take about 1.5 hours. The best car park is the multi-storey in The Midway, behind the Roebuck Centre.

Sunday 1 July - Calton Hill Quarry, nr Buxton

Leader: Dr Chris Arkwright

Meet at 10.00am at Miller's Dale Station Car Park, Grid Ref: **SK137733** (parking fee payable). To investigate carboniferous igneous intrusions and lavas and their associated limestones in the Buxton area.

Overall length of walks about 5km, limestone succession and interbedded lavas in Miller's Dale Quarry then, driving into Tideswell for a dolerite quarry to examine lithology and thermal effect on surrounding country rocks. Packed lunch at picnic site in the quarry. After lunch drive to Calton Hill, park at SK112710 to examine the structure and lithology of a Visean volcanic complex and dolerite intrusion in the disused quarry.

Saturday 21 July - Sedburgh and the Sedgwick Trail

Leader: Alan Diggles

Starting at 10.30am at the Main Street Car Park in Sedburgh to visit two locations before lunch and the Sedgwick Trail after (a packed lunch will be required). Distance about 3 miles overall. Depending upon location we will see sedimentary rocks of Ordovician, Silurian, Devonian and Carboniferous age plus a little seen igneous variety. The Sedgwick Trail will give us an insight into the structural effects of the Dent fault and also the environment at the time of deposition of some of the local rocks of the area.

A minibus is planned (subject to numbers and a driver!) leaving from the Earth Sciences Car Park at Keele at 7.30am; **please return bookings to Gerald Ford by 10th June.**

Saturday 18 August - Lapworth Museum of Geology, University of Birmingham, Edgbaston

Meet at 10.30am at the museum (**SP047834**). The Curator Jonathon Clatworthy will have available material from the collections of rocks, fossils, minerals, historical maps and documents that are not on general public view. Likely to extend into the afternoon. Directions by car; take the A38 (Bristol Road) out of Birmingham City for 3 miles, at the end of the dual carriageway turn right into Edgbaston Park Road for the University, the South Car Park (free on Saturdays) is on the left. The Lapworth Museum is accessed from Ring Road South, due south of the Clock Tower. **If you need a site plan of the University, have a particular area of interest or specific material that you wish to see from the collections, let the Field Secretary know.**

Sunday 23 September - Monsal Head

Leader: Dr Fred Broadhurst

Meet at 10.00am at the Car Park (charge made) at Monsal Head (**SK184715**). A morning walk of approx 4km on a good path, but with a short scramble up to Hob's House Landslip. Lots of Carboniferous corals, plus lead mineralisation in the Putwell Hill Vein.

Lunch back at Monsal Head (pub/café available).

After lunch we transfer vehicles to Great Longstone (SK200717), then walk a circular route, including Longstone Edge, to see the workings in the complex system of lead veins there, together with a limestone palaeokarst and other limestone features. Distance about 6km, good paths, steep in places.

For further information contact NSGGA Field Secretary **Gerald Ford**, Tel. 01630-673409
or e-mail: g.ford@ukonline.co.uk

Peak Experience

Peak Experience is a guide to the best of the Peak District's natural and cultural heritage. On the website you will find information on places to visit, with great ideas for how you can enjoy the [special landscape](#) of the Peak District. The geology of the Peak District can be explored and shows millions of years of history in beautiful settings. Caves and crags, mountains and valleys, industrial history and SSSIs – the Peak District has it all.

www.peak-experience.org.uk

Joint Meeting between West Midlands Regional Society of the Geological Society and North Staffs Group of the Geologists' Association

Tuesday 24 April 2007 - 7.30 for 8.00pm

Affordable Volcano Monitoring – Dr Hazel Rymer (Open University)

Wolverhampton University, Main Building Room 202, School of Applied Sciences, Wulfruna St, Wolverhampton (next to Civic Hall). Parking available adjacent or in Civic Hall Car Park.

In the last 200 years, over 140,000 people have been killed by volcanic eruptions. Many times this number died due to starvation, disease and economic hardship resulting from volcanic eruptions. Education and planning can help to reduce the number of deaths. I want to contribute to disaster prevention by developing a volcanic eruption early warning system.

Of the 600 or so active volcanoes on Earth, around 100 actually erupt each year, but only a small fraction of these are monitored in any way. A large eruption on one side of the world has profound effects on the other side in terms of humanitarian, economic and environmental consequences as populations increase and the global economy becomes ever more inter-dependant. I plan to develop new instruments to monitor the small changes in gravity, which happen months or even years before an eruption starts. We cannot prevent volcanic eruptions, but with smart monitoring we can predict them. Knowing that an eruption – even a small one – will happen in the next few years allows local governments to develop building and planning regulations to reduce the risk to the local population. Schools, hospitals and homes can be modified so that they are affected as little as possible (by strengthening roofs and windows) and new buildings can be located in lower risk areas. Evacuations can be planned and practiced. Globally the effects of a large eruption can be reduced by adapting strategies used for other natural disasters or even war, by stock piling vital resources and preparing emergency communications.

The new gravity instruments will work a bit like bathroom scales. When you stand on the scales, gravity pulls your mass downwards onto the spring and it compresses. If you stood on the scales for a few minutes, and your scales were about

100,000,000 times more sensitive, you would see that the weight displayed would change with time because the force of gravity actually changes all the time. It changes as the Earth moves relative to the Sun and Moon. It also changes as the mass beneath you moves. This is unusual in a bathroom!, but under a volcano, as huge masses of magma and gas move (more than 10^8 kg before a small eruption), gravity changes are measurable at the surface. The new instruments don't have a spring, and you shouldn't stand on them, but they will have a load fastened onto a springy mat which will detect the change in weight of the load as gravity changes.

Before any eruption happens, magma and gases accumulate deep inside the volcano or begin to migrate upwards. Sometimes the volume of the volcano changes a little as it inflates to accommodate the new magma and this can be measured by GPS. Because of the huge density contrast between magma and gas, I can calculate how much magma and gas have moved and where to if I can measure the mass and volume change. The mass and volume are found by combining the gravity and GPS data. These changes are usually not spotted because of a lack of resources to provide instruments and technicians to analyse the data – many developing countries have more active volcanoes than volcanologists to monitor them. The new gravity meters will be cheaper and smarter than those now available because they will use the latest materials technology and they will be networked. Each network will run automatically. The data from a network of the instruments will be sent wirelessly to be analysed and the change in mass beneath the surface calculated. I will use the calculations to form a picture of what is going on beneath the surface so that the hazard can be evaluated long before there are physical signs at the surface. Whole chains of volcanoes can be monitored in this way.

NSGGA travel arrangements: We plan to meet at Keele at **6 00pm** and travel down together sharing cars as far as is possible to reduce CO2 emission.

If you wish to go please contact Eileen Fraser on 01260 271505 to let her know.

North Pennines AONB

A new programme of events and activities to help visitors and local people discover the delights of the North Pennines Area of Outstanding Natural Beauty (AONB) has been released. Contact the AONB Partnership on 01388 528801 (or visit www.northpennines.org.uk) to get hold of a copy of the programme.

Saturday 14 April, *A Scar on the Landscape* (Rockwalk), Upper Teesdale – start at Bowlees Visitor Centre (2pm-4pm), 2.5 miles (4km)/2hrs/Easy. Join staff from the AONB Partnership Staff Unit for an afternoon walk between Bowlees, Low Force and Holwick Scar. Find out about the tropical seas, molten rock and vast ice sheets that have shaped Upper Teesdale. We'll also see some upland hay meadows and evidence of the area's mining past. No need to book – just turn up!

NSGGA Winter Lectures Diary Dates for 2007-08

11 Oct 2007 - Speaker Tim Harris on geomorphology

22 Nov 2007 - Prof Cope Memorial Lecture – Bi-Centenary celebrations

Speaker Professor Hugh Torrens – Oil, The Potteries and the works of Sir John Cadman

6 Dec 2007 - Christmas Social & buffet with a talk on Volcanoes in Ecuador and the Galapagos Islands by Dr Peter Floyd.

10 Jan 2008 - Dr Bob Roach – follow up lecture on The Volcanic Geology and Bronze Age Minoan Archaeology of Santorini, Cyclades, Greece

7 Feb 2008 - Speaker Dr Derek Siveter on Cambrian soft body fossils of Chengjiang, China and the flowering of early animal life

6 Mar 2008 - AGM and Chairman's Lecture with Elizabeth Hallam

Publications

The Founding of the Geology Department at Keele University:

Memories of the First Five Intakes 1950-1958

compiled and edited by David B. Thompson and Colin S. Exley

Based on the recollections of former staff and students, this enlightening and detailed account of the founding years of geological study at Keele is available via the Keele University web site.

To access the publication go to:

<http://www.esci.keele.ac.uk/about/history.html>

and click on the "Founding of the Geology Dept...." title

Authors David Thompson and Colin Exley add: 'Deepest thanks are offered to Professor John Winchester, Head of Department at Keele, and to David Emley, Senior Technician, for his skilled work in solving many computer problems'.

Bound copies of the booklet (88pp with 20 illustrations) may also be obtained by writing or phoning David Thompson at 3 Ladygates, Betley, near Crewe CW3 9AN 01270 820514, or by contacting John Easom, Head of the Alumni Office, Keele University, Stoke-on-Trent ST5 5BG 01782 621111.

Bound copies will cost £10.00 if sent by post or £9.50 if collected from the University.

Dudley Rock and Fossil Fair

Saturday 22 & Sunday 23 September 2007

Return of the dinosaurs'

Dudley Concert Hall and Dudley Museum & Art Gallery

Exhibitors from the world of geology

including superb fossil and crystal displays, gem cut stones, jewellery

New exhibitors welcome

Opening times

Saturday 10am - 5pm, Sunday 10am - 4pm

For more information contact

Tourism Development on 01384 817611

or visit www.discoverdudley.org.uk/rockandfossil

Members News

Vicky Tunstall, winner of the John Myers Award in 2001, has now started a two year Supporting Stewardship Traineeship at the Potteries Museum & Art Gallery. The objective of the post is to support public access to the geology collections within the West Midlands region and the first year will be mainly devoted to training in and practicing of curatorial techniques. The post is fully funded by the Council for Museums, Libraries and Archives (MLA) and West Midlands Regional Museum Hub (RENAISSANCE West Midlands).

Please note, it's not a typing error, Mike and Carol Fereday have moved from 28 Brookside Close to **24** Brookside Close, Newcastle-under-Lyme ST5 2HX.

NSGGA - Next Committee Meeting

- **Thursday 24th May at 7.00pm**

in the School of Earth Sciences and Geography, Keele University

Staffordshire RIGS Group

For details about the Group and meetings, contact:

SRIGS Secretary: Sue Lawley,

c/o Staffordshire Wildlife Trust, The Wolseley Centre, Wolseley Bridge, Stafford ST17 0WT

☎ 01889 880100 email: slawley@staffswt.cix.co.uk

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Executive Committee (honorary):

Dr. Colin Exley; Terry Jones; David Thompson; Ted Watkin.

Executive Committee (elected):

Lloyd Boardman; Peter Floyd; David Osborn;

Janet Osborn; John Reynolds; John Winchester

Executive Committee (co-opted):

Ellie Hooper (Keele Geol. Soc), Nick Hulley

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