



# Bulletin of the North Staffordshire Group of the Geologists' Association Number 103 : October 2012



## WINTER LECTURE PROGRAMME 2013

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

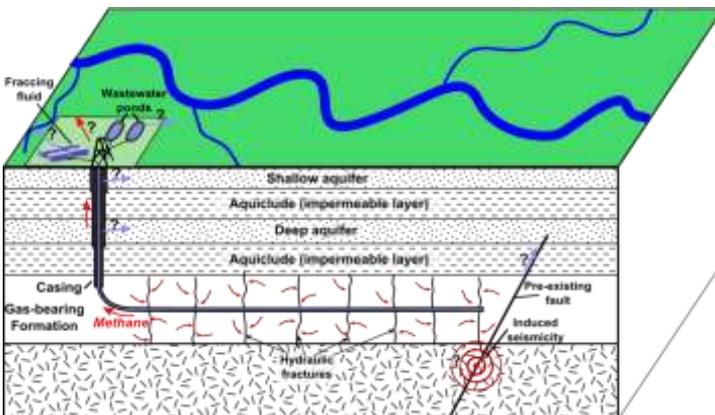
The committee invites you to join them for a meal at 6pm in the COMUS restaurant (01782 734121) to entertain the speaker before each lecture (except the AGM and Christmas Social). Please make your own booking with the restaurant mentioning that you wish to join the NSGGA party. The cost is approximately £9 for a two-course meal not including wine or coffee.

Thursday 11th October 19:30

'How To Find A Diamond Mine'

Speaker: Prof. Chris King (Keele University)

Image: Jason Pineau / Wikimedia Commons



Thursday 15th November 19:30

The Twelfth Wolverson Cope Lecture:  
'Shale Gas'

Speaker: Prof Peter Styles  
(Keele University)

Image: Mike Norton / Wikimedia  
Commons

Thursday 13 December at 19:00

Christmas Social with talk "Geological Travels around  
Europe"

Speaker: David Osborn (Chair NSGGA)

Image: David Osborn

The buffet will be £10.50 per person including wine,  
please book using the booking form on page 13 on  
this Bulletin, enclosing payment, by Friday 16th  
November.



## Coming in 2013:

- Thursday 17th January at 19:30** The forensic use of microfossils  
Speaker: Hayden Bailey (formerly Palaeoservices)
- Thursday 7th February at 19:30** How big is your bang? (Volcanoes)  
Speaker: Dr Dougal Jerram (Dougal Earth)
- Thursday 14th March at 19:00** AGM and Chairman's Address. 'How (or how not) to drill an oil well' by David Osborn

## SUMMER FIELD PROGRAMME 2013

Each person attending field meetings does so on the understanding that they attend 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 leader's expenses.

In the continued absence of a field secretary we are running a number of ad-hoc field trips this summer. If you would like to help the NSGGA by becoming the field secretary please contact the chairman, David Osborn.

### Headstone Cutting & The Monsal Trail

**Saturday 13th April 2013:**  
**Leader: Eileen Fraser**

The re-opening of the tunnels along the route of the old London-Midland railway has revealed some interesting geology especially at Headstone cutting. Known as the Monsal Trail, this well paved route travels high above the Wye valley through the heart of the Peak District from just outside Buxton to Bakewell. Starting at Monsal Head we will be examining the successions within the Carboniferous and walking through the Headstone Tunnel. If weather permits we may also take a look at the fossils at the Hobb's House landslip. Further details and booking form in the next Bulletin



## **Pembrokeshire Weekend 21-23 June 2013**

**Leader: Ian Stimpson**

The NSGGA weekend field trip for 2013 will be the weekend of Friday 21 – Sunday 23 June, 2013. The itinerary is provisional but should include a lecture on the geological evolution of Pembrokeshire on the Friday evening, a day on the spectacular Marloes Sands on the Saturday examining the Silurian volcanics and sediments and Sunday morning on the beach at Broad Haven looking at the Upper Carboniferous sediments and the intense Variscan deformation. We already have nearly 30 people signed up and accommodation at the Silverdale Inn, Johnston is filling fast. Could anyone who wishes to attend the field meeting please complete the flyer at the end of the bulletin.

## **British Geological Survey, Keyworth Tuesday 23 July 14:00**

Details in next bulletin

## **FIELD TRIP REPORTS**

**Nuneaton Inlier - Saturday, 1 September 2012**

**Joint meeting with the Warwickshire Geological Conservation Group (WGCG)**

On a very warm late summer's day in September 6 members of the North Staffs group ventured south into the heart of the English Midlands to visit, along with 16 members of the WGCG, some internationally renowned Precambrian - Lower Cambrian sites in the Nuneaton inlier. The sites are critical to the understanding of the structural and stratigraphic evolution of the Charnwood Terrane of the Midlands Microcraton. They are also well known for the discovery of large numbers of small shelly fossils (SSFs) that have provided important insights into the 'explosive' diversification of life around the Precambrian / Cambrian boundary.

So, we were going back in time, way, way back, beyond the Triassic and Carboniferous with which many of us in North Staffordshire are so familiar, back to a time between 600 and 500 million years ago when the part of the British Isles area we were visiting was in the southern hemisphere, somewhere roundabout the 60° parallel. So as experienced time travellers we knew we were in for a long and possibly difficult journey. However, led in cars by our intrepid Chairman, we arrived at the meeting start point in surprisingly good time. This was all the more remarkable as it seemed that on our journey we had done a fair bit of polar wandering ourselves, the vehicle occupants noticing several road signs to unfamiliar places (in Norfolk as I recall) en route - this attributed to 'aberrations' of the navigational systems being used in the lead vehicle.

The meeting was very kindly convened by Ian Fenwick (WGCG) and expertly led by Dr Alan Cook whose knowledge and understanding of the area is widely acknowledged by all those with an interest in this fascinating region.

The first of our stops, at the now disused Woodlands Quarry (SP325947) provided the group with the opportunity of inspecting a south-west dipping Lower Cambrian section extending from the top of the Hartshill Sandstone Formation (Woodlands Member) through to the overlying Stockingford Shale Formation (Purley Shale Member). A complex lamprophyre sill close to the formation boundary containing large rafts of country rock (xenoliths) generated lively debate about the likely mechanism of igneous intrusion at this locality. Sadly however, access to an important bentonite

horizon in the Purple Shales, which had provided an important zircon radiometric date of 517 Ma, and to several *hyolithes* limestone bands containing small shelly fauna in the Woodlands Member proved impossible as thickets of vegetation including Japanese Knotweed covered parts of the quarry floor and the bentonite horizon had, apparently, become 'invisible' due to recent wet weather! All this was a bit of a surprise since the site was reputed to be one of the oldest and most important Sites of Special Scientific Interest in the country. The quarry was once used for the extraction of manganese ore from the Purley Shales and, more recently, for the extraction of high quality stone used widely in the construction industry.

Following 'lunch on the move' the party rapidly descended into the depths of the enormous hole in the ground known as Boon's Quarry (SP 330946) another disused stone quarry and SSSI. Fortunately access to the critical exposures at this site was much better. Among the spectacular features seen were sections of the Precambrian Caldecote Volcanics Formation, the overlying, and relatively recently recognised, Boon's Quarry Member of the Hartshill Sandstone Formation (reputedly the oldest known part of the British Cambrian sequence). Other features seen included the deeply weathered top (unconformity surface) which separated these two units and a vesicular basalt of contentious origin (lava, dyke or a sill) within the volcanic pile.



**Boon's Quarry. Image: David Osborn.**

Following several votes of thanks, most notably to Alan Cook who for personal reasons had to leave the excursion part way through the afternoon and to Brian Ellis who so competently replaced him, the party dispersed seemingly happier and wiser with their new found knowledge of this intriguing part of the English Midlands. As the party fell exhausted into their cars after a long and progressively hot day our thoughts turned to the journey home and some serious questions were being asked. Where exactly were we, and on which bit of which planet or micro-content were we on? Were we really close to Nuneaton or were we, as some thought, close to Norfolk? What's more, how the heck were we going to get home? Who's for following the Chairman? What an enjoyable day!

*Patrick J Cossey*

## Cheddleton Area - Saturday September 29, 2012

Leader: Joe Crossley

We met Joe on Cheddleton station platform on a lovely September day; a change from the weather we had all experienced during the week.



### Cheddleton station

#### **Location 1**

Joe gave us a map of the area and we set off to look over a wall just opposite the station which adjoined a pig field. We were asked to consider the rocks and exposures near the steam which ran through this field. These exposures had a shallow dip towards the SE and we were told that these rocks were similar to the ones in the

wall. These were coarse-grained with mica, feldspar and quartz so we decided these could be a Millstone Grit and looking on a geological map were probably part of the Carboniferous Cheddleton Sandstone series from the Namurian (using the pre-ICS names). Next we considered the hill to the east behind the field. This had rounded topography and we were told that there was an unconformity between this and the Carboniferous deposits. No evidence could be seen but from the map these were Triassic sandstones of the Hawksmoor Formation which lay unconformably on the Carboniferous sediments – a possible time gap of about 70 Ma.

Moving west along the road to a bridge we could see the above stream running into the River Churnet. About 5m away we crossed another bridge over the Caldon Canal. These two waterways run parallel to each other through this valley until they combine about 3 miles to the south near Consall Forge.

#### **Location 2**

We followed the east bank of the canal north past some cottages where we saw the Carboniferous sandstones in a bank about 10m above the canal. Then we fought our way through the undergrowth to an overgrown quarry about 5m above the canal where we could just make out what may have been the same sandstones dipping about 5° SE.

#### **Location 3**

We walked up into the housing estate above the canal where we entered the Triassic sediments. Here we looked at the soils in the front gardens where we could see quartzite pebbles and evidence of landslips from the terracettes and solifluction behind some of the houses. Descending out of the Estate we found the likely point for the unconformable junction between the Carboniferous and Triassic sediments.

#### **Location 4**

Retracing our steps we ascended the West bank of the canal past the pub and found an interesting outcrop. Unfortunately we were not able to examine this closely but from a few metres away this appeared to be a channel deposit with flow either West or East and it had to be assumed that this was also the Carboniferous sandstone. Moving to the south and uphill we then tried to trace the unconformity in the fields and surmised the junction from the change of slope and the pebbles in the pathway.

## Channel deposits in Carboniferous sandstones

### Location 5

Further uphill we stopped to take in the view across the valley to the East and noted the widening of the valley to the south in a flood plain, and the rounded Triassic hills opposite which at this point reached down to the valley floor with numerous dry valleys. Further on

along the West bank we saw a large bowl in the hillside sloping down towards the river which could have been a nivation hollow dating from the last Ice age.



### View to east across Churnet Valley

#### Location 6

After lunch we caught the Churnet Valley railway south to Froghall. On the way we saw the point where the river and canal combined and we also passed Triassic sediments in the valley sides, dry valleys and the wide Coombes Valley with the misfit Coombes Brook and eventually into the narrow valleys formed by the Carboniferous Coal Measures.

### Triassic sandstones from railway

We also saw evidence of the once prolific industry in the valley. There were numerous forges, mills and mines as the underlying bedrock contains ores of iron, copper, lead as well as coal, limestone and sandstone.

### Location 7

The final location of the day took us north about 2 miles along a dry valley and then across the head of Coombes Valley to the top of the ridge. Here we passed onto the Chatsworth Grits which are higher in the Namurian Carboniferous succession than the Cheddleton Sandstones we saw earlier near the station. Above this we could again see the Triassic sandstones lying unconformably on these sediments. This was probably the most exciting location of the day as the unconformity could be clearly seen in the road cutting with a steep 45° dip to the SE and an erosion surface. There was also some evidence of slicken fibres in the sediments below the unconformity indicating some tectonic movement in the area and the geological map confirmed this as there is a fault running NW-SE just to the northeast.



Many thanks to Joe Crossley for giving us a tantalising glimpse into the geology of this part of Staffordshire.

*Eileen Fraser*

## GeoConservation Staffordshire : Geoconservation Opportunities

Geoconservation Staffordshire has a couple of field site clearance events in the coming months to which members of the NSGGA are more than welcome to attend.

### Grindon Moor Quarries (SK 060559), Staffordshire Moorlands Geoconservation Day - Saturday 10 November 2012



Introduction: The disused quarries on Grindon Moor are located on high ground 1km NE of Onecote in the Staffordshire Moorlands - a short distance (circa 400m) east of the B5053 Onecote - Warslow road, on a minor road leading to Grindon. They once provided stone for local buildings. Two small quarries, each roughly 40x40m in extent, are recognisable either side of an access track no more than 100m from the road. We shall be working in the quarry to the south of this track which is owned by the National Trust. Although the National Trust have made significant improvements to the site quite recently, exposures are still overgrown and much remains to be done before the site is returned to its original condition. The purpose of our visit will improve access and exposure by clearing vegetation from the access track, the quarry floor area and the quarry faces. It is possible that on the day we will be joined by a one or two (come to see what we are about) or other like-minded volunteers from National Trust) so this could present another opportunity to show case our important work in a wider context. Please note that although the quarry is quite overgrown, it is quite sheltered from the wind and generally the quarry walls are less than 2-3m in height. Both GeoConservation Staffordshire and the National Trust are keen to re-expose this section in order to assess its educational potential and hopefully promote its use. If features of sufficient geological interest are revealed (see below), the site may well be considered for inclusion in any revised Hamps and Manifold geotrail - should funds for such become available.

Geodiversity Interest: The site offers one of the finest and (arguably) the best accessible section of the turbiditic Onecote Sandstone - a rare calcareous sandstone of Brigantian (D2) age in the 'Mixon Limestone-Shales Formation' close to the top of the 'Carboniferous Limestone'. This formation is now regarded as part of the Widmerpool Formation and lies within the Craven Group of BGS's new stratigraphical scheme for the Carboniferous. Despite poor exposure, Onecote Sandstone outcrops are known to extend across Grindon Moor as far as Warslow and, in a circular outcrop (Mixon Anticline) between Onecote, Feltysitch and Upper Elkstone. The rocks formed around 327 million years ago in a warm tropical sea when Britain was straddling the equator, and in a narrow but rather deep seaway separating shallow sea areas to the north-east (most of Derbyshire) from those to the south-west (Weaver Hills area). The area was tectonically unstable at this time and these turbidity currents may have been triggered by local earth movements. So, with turbidites about we shall be looking closely to see if we can find any current-oriented sedimentary structures such as cross lamination (migrating ripple marks) or flute casts to see which way those turbidity currents were flowing. Fossil brachiopods are known from this site too. Elsewhere in Staffordshire and in the subsurface, the Onecote Sandstone is said to contain petroleum so it is important that sections of this important local 'reservoir' rock are made available for study at the surface.

Start: Meet in the small lay-by (SK 063557) just east of quarry entrance (SK 061560) at 10.00am. If parking on the grass verge close by, please be careful - be aware of soft ground, ditches and obstructions, and leave enough space for tractors to pass. Note parking space is limited so if possible do team up with others to reduce the likelihood of parking difficulties. For safety sake

please assemble on the roadside verge, keep off the road. The quarry is a short distance (<200m) from the car parking area. Please do not leave valuables in your car.

Bring: Please bring warm, waterproof clothing / overalls, sturdy footwear and any preferred gardening gloves / small hand tools (e.g. secateurs, loppers, hand saws, non-wire brushes, hand trowels and forks etc) if you have them. A few gardening gloves and small hand tools will be available to those without their own on-site. Further guidance on the use of tools and other safety instruction will be given on arrival and before any work begins.

Food & Lunch: A limited supply of light refreshment (biscuits etc) will be available free on site (courtesy of GeoConservation Staffordshire) to keep you going throughout the day. Please bring your own drinks and a packed lunch. Local amenities are available 2-5km away in Onecote, Butterson & Warslow.

Finish: About 4.00 pm          Numbers Limit: 25

Booking: To book your place on this visit please contact Pat Cossey preferably by email (patrick.cossey@yahoo.com) or on 01270 872002 by Friday 18 October

### **Brown End Quarry, Waterhouses. GeoConservation Day : Saturday 23 March 2013**

GeoConservation Staffordshire are hosting a site clearance event at Brown End Quarry near Waterhouses on Saturday 23rd March. There will also be an opportunity to find out more about the mechanics behind geoconservation site condition monitoring and site management.

More details in the January Bulletin.

#### ***Brown End Quarry, Waterhouses***



## Other Societies

### Black Country Geological Society

Indoor meetings are held at Dudley Museum & Art Gallery, St James's Road, Dudley,

**Sunday 14 October @ 10:00**

Charnwood Forest, led by Mike Allen. Meet at the services off the M1 junction 22/A511

**Monday 15 October @ 20:00**

The Geological Photo Archive of the Geologists'

Association by Dr Jonathan Larwood, Natural England

**Saturday 3 November @ 11:00**

Site clearance Springvale Park, Wolverhampton. Meet at 10:30 for 11:00 at Ettingshall Park Farm Lane.

**Monday 12 November @ 20:00**

Next Steps for the Development of the Lapworth Museum of Geology by Jon Clatworthy Director of the Lapworth Museum of Geology

**Saturday 1 December @ 11:00**

Site clearance Barr Beacon. Meet at 10:30 for 11:00 at the entrance on B4154 Beacon Road

**Monday 10 December @ 19:30**

BCGS Members' Evening and Christmas Social

**Monday 21 January @ 20:00**

The Mineralogy of Scotland by Roy Starkey, President of the Russell Society

More details at [www.bcgs.info](http://www.bcgs.info)

### East Midlands Geological Society

**Saturday 17 November @ 18:00**

The Piltdown Forgery - 100 years on by David Bate

**Saturday 8 December @ 18:00**

56 Years of Aircraft Flying into Ash by Colin Small

**Saturday 26 January @ 18:00**

Thermal and structural evolution of the Himalayan and Karakoram continental crust by Mike Searle (Oxford)

More details at [www.emgs.org.uk](http://www.emgs.org.uk)

### East Midlands Regional Group of the Geological Society

More details at [www.geolsoc.org.uk/gsl/groups/regional/emrg](http://www.geolsoc.org.uk/gsl/groups/regional/emrg)

### Liverpool Geological Society

More details at [liverpoolgeologicalsociety.org.uk](http://liverpoolgeologicalsociety.org.uk)

### Manchester Geological Association

Lectures at the Williamson Building, University of Manchester

**Saturday 10 November @13:30**

Some Early North-West Geologists:

Jonathan Otley, Man of Lakeland - Dr Tom Smith, Science

Historian. The Bicentenary of the Manchester Geologist

Edward William Binney (1812-1881) - Dr John Pollard,

University of Manchester John Cunningham & Robert Grant

- the forgotten stars of 1838 - Dr Geoff Tresise, Honorary

Curator Geology, National Museums Liverpool

**Saturday 8 December @ 13:30**

A Tour of the Outer Hebrides - Drs Doug Fettes and John

Mendum, British Geological Survey, Edinburgh

**Saturday 12 January @ 10:30**

The Broadhurst Lectures: The Palaeontology of China (at University Place, University of Manchester)

More Details at [www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

### **North West Regional Group of the Geological Society**

**Saturday 25 October @ 10:30**

The Big Chill: Life, death and destruction - a story from the end of the Ordovician by Keith Nicholls (Geotechnics Ltd) at Beswick Lecture Theatre, Parkgate Campus, University of Chester

More details at [www.geolsoc.org.uk/gsl/groups/regional/nwrg](http://www.geolsoc.org.uk/gsl/groups/regional/nwrg)

### **Shropshire Geological Society**

Lectures in the Shire Hall, Shrewsbury

**Wednesday 14 November @ 19:30**

Some aspects of bentonite significance and correlation by Dr David Ray

**Wednesday 12 December @ 19:00**

AGM followed by reports on the Society's field trips, rock hops and field work projects

**Wednesday 9 January @ 19:30**

The threat of methane hydrate deposits and CO2 sequestration by Dr Chris Rochelle

More details at [www.shropshiregeology.org.uk/SGS/SGSintro.html](http://www.shropshiregeology.org.uk/SGS/SGSintro.html)

### **Warwickshire Geological Conservation Group**

**Wednesday 21 November @ 19:00**

Mineralisation at Alderley Edge, Cheshire by Dr Geoff Warrington (ex-British Geol. Survey)

**Wednesday 19 December @ 19:00**

Christmas Social and members' presentations: Brian Ellis – Tenerife Volcanoes – Poster display on 'Outreach 2012'

**Wednesday 16 January @ 19:00**

Volcanoes around the world by Alan Clewlow (Volcanic Experiences Tours)

More details at [www.wgcg.co.uk](http://www.wgcg.co.uk)

### **West Midlands Regional Group of the Geological Society**

More details at [www.geolsoc.org.uk/gsl/groups/regional/wmrg](http://www.geolsoc.org.uk/gsl/groups/regional/wmrg)

### **Western Institute of Mining and Minerals**

**Monday 5 November @ 19:00**

Industry, Toxic Effects & Occupational Limits by Mr Geoff Buck (Aspen Environmental)

**Monday 3 December @ 19:00**

Artisanal Mining in Sudan by Dr Chris Broadbent (Wardell Armstrong International)

**Monday 21 January @ 19:00**

¿Dónde está el agua? – A comparison of water resources at two mines in Mexico by Ms Lauren Ballarini (Wardell Armstrong International)

More details at [www.iom3.org/wimm](http://www.iom3.org/wimm)

**NSGGA - Next Committee Meeting:  
Thursday 22nd November @ 19:00**

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

**Contacts List: NSGGA Committee 2012-13**

**Chairman: David Osborn**

Stretton, 2 Croyde Place, Meir Park, Stoke-on-Trent, ST3 7XD. Tel 01782 396692  
email: [david.d.osborn@talktalk.net](mailto:david.d.osborn@talktalk.net)

**Vice-Chairman: Dr Patrick Cossey**

Tel. 01270 872002  
e-mail: [patrick.cossey@yahoo.com](mailto:patrick.cossey@yahoo.com)

**General Secretary: Eileen Fraser,**

47 Longdown Road, Congleton, Cheshire CW12 4QH Tel. 01260 271505  
email: [fraser@fraserco.co.uk](mailto:fraser@fraserco.co.uk)

**Treasurer: Brenda Kay,**

9 Copthorne Drive, Audlem, Crewe, Cheshire, CW3 0EQ Tel. 01270 811650  
email: [r.peter.k@gmail.com](mailto:r.peter.k@gmail.com)

**Membership Sec.: Gerald Ford,**

Woodville, Tower Road, Ashley Heath, Market Drayton, Shropshire TF9 4PU Tel. 01630 673409  
e-mail: [gford@btinternet.com](mailto:gford@btinternet.com)

**Speakers Sec: Diane Lawrence,**

9 Brickfield Close, Hixon, Stafford, ST18 0NY Tel. 01889 207195  
e-mail: [diane.lawrence1@gmail.com](mailto:diane.lawrence1@gmail.com)

**Field Sec.: Vacant**

**GeoConservation Staffordshire Liaison Officer: Dr Ian Stimpson,**

Tel. 07779 083243  
e-mail; [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk)

**Bulletin Sec.: Dr Ian Stimpson,**

Tel. 07779 083243  
e-mail; [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk)

**Executive Committee** (honorary):

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

**Honorary Life Member:** Ann Myatt

**Executive Committee** (elected):

Dr Lloyd Boardman; Dr Stuart Egan; Dr Peter Floyd; Janet Osborn (Minutes Secretary); Vicky Tunstall (John Myers Awards);

**Executive Committee** (co-opted):

Don Steward, John Reynolds; Michael Kelly (Keele GeoSoc).

**NSGGA web pages:** [www.esci.keele.ac.uk/nsgga](http://www.esci.keele.ac.uk/nsgga)

## NSGGA weekend in Pembrokeshire Saturday 22nd - Sunday 23rd June 2013

Leader: Dr Ian Stimpson

This weekend field excursion will explore the geology in the spectacular Pembrokeshire coastline. The first day will focus on the Silurian rocks exposed at Marloes Sands. The second day will look at the sedimentology and Variscan deformation of the Carboniferous at Broad Haven. There may also be an opportunity to visit the Triassic wadis at Ogmore for those travelling down early on the Friday and a look at the interaction between Caledonian and Variscan structures at Druidston Haven for those staying over on Sunday night.

Accommodation has been reserved for the group at The Silverdale Inn, Johnston, Haverfordwest, Pembrokeshire, SA623NZ. Tel: 01437 890943. Note that Johnston has a train station with a direct line from Crewe through mid-Wales (c 5 hours).

The double/twin rooms are £45 per room per night. The 3-course Dinner and Breakfast package is £30 p.p.per night. Packed lunches are £7 p.p per day. If anyone wishes to stay an extra night on the Sunday this will be at the same rates but please indicate this on the booking form. Note that the single rooms have all been taken.

To book, a cheque for £30 per person is required. (£20 hotel deposit + £10 field fee)  
Enquiries and booking forms to Brenda Kay Tel: 01270 811650 r.peter.k@gmail.com  
Please return the form and cheque by 11th January 2013 at the latest.

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### Complete and enclose with a cheque payable to NSGGA for £30 per person return to: -

Brenda Kay, 9 Copthorne Drive, Audlem, Crewe, Cheshire. CW3 0EQ

I/We wish to book \_\_\_\_\_ place/s for the Field Trip for Friday 21st and Saturday 22nd June 2013 at: The Silverdale Hotel, Johnston, Pembrokeshire  
and enclose a cheque made payable to NSGGA for £ \_\_\_\_\_

NAME (S) \_\_\_\_\_

ADDRESS \_\_\_\_\_  
\_\_\_\_\_

PHONE \_\_\_\_\_ E-MAIL \_\_\_\_\_

Double/twin room at £45 (per room per night).....YES/NO

Sole occupancy of twin room at £45 (per room per night).....YES/NO

Are you willing to share a room..... YES/NO

Do you wish to stay the Sunday night..... YES/NO

Do you wish packed lunches (you can choose filling each night and there is fruit, cake, pork pies, mousse etc - very good!)..... YES/NO

Please indicate whether you have any special dietary requirements.

Emergency Contact number while away.....

## Christmas Social Booking Form

This year the Christmas Social for Members and their friends is being held at Keele University on:

### Thursday, 13th December 2012

A buffet meal is provided and David Osborn will be giving a talk on 'The Geology of Spain'.

The buffet will start at **7.00pm** in the William Smith Building, Earth Sciences & Geography, Keele University and will cost **£10.50** per person including wine.



If you would like to attend, please return the booking form below **with payment** (which needs to arrive before **Friday 16th November**)

to:

Brenda Kay,  
9 Copthorne Drive, Audlem, Crewe, Cheshire, CW3 0EQ  
Tel. 01270 811650

### Early booking is essential, as numbers have to be pre-booked with the caterer

To book a meal, please enclose a cheque (payable to NSGGA) for the full amount

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I/We would like to book        places for the Christmas Social on Thursday, 13th December, 2012

I/We enclose a cheque for £        payable to NSGGA

Name/s

Address

Telephone

**Join NSGGA now get up to three months membership free**  
(Join in October-December 2012 and membership will be valid until December 2013)

**NSGGA Membership Form 2012/2013**



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

**Name**.....

**Address**.....

.....  
.....

**Postcode**..... **Telephone**.....

**e-mail address** .....

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

- Ordinary (Full) £13.00
- Family \* £15.00
- Retired/Unemployed £10.00
- Student \*\* £ 3.00

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:  
Gerald Ford, NSGGA Membership Secretary,  
Woodville, Tower Road, Ashley Heath, Market Drayton, Shropshire TF9 4PU  
**Telephone** 01630-673409 **e-mail** gford@btinternet.com

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

\*\*\* Two John Myers Awards (together with runners up) are presented annually to students at Keele University who produce the best piece of coursework in the view of the independent NSGGA awards committee.