

# Bulletin

## Number 64

### January 2003



## NSGGA programme for 2003

- **Thursday 16 January**  
**Timeless Order: William Smith (1769-1839) and the search for raw materials**  
 Speaker: Professor Hugh Torrens (Keele University)  
 7.30pm at the School of Earth Sciences and Geography, Keele University  
 The legacy of William Smith's method for unravelling relative geological time and space was one of the most significant of the nineteenth century. See [preview](#) in this Bulletin.
- **Thursday 13 February**  
**Comparative Planetology: Geology or Guesswork**  
 Speaker: Dr. George Tuckwell (Keele University)  
 7.30pm at the School of Earth Sciences and Geography, Keele University  
 An introduction to the investigation of extraterrestrial geology. See [preview](#) in this Bulletin.
- **Thursday 13 March**  
**AGM and Chairman's Address - The Earliest Skull**  
 Speaker: Bill Fone (NSGGA Retiring Chairman)  
 7.30pm at the School of Earth Sciences and Geography, Keele University  
 The business of the AGM will be followed by what is bound to be an entertaining and informative insight into the search for fossils. [AGM agenda](#)
- **7 - 16 March - National Science Week**  
**Alien Worlds**  
 at The Potteries Museum & Art Gallery, Hanley, Stoke-on-Trent  
 NSGGA prepared exhibition and events. See [preview](#) in this Bulletin.
- **Sunday 6 April**      **Field meeting - Telford and the Wrekin**  
 See [further details](#) in this Bulletin.

### Subscription reminder

Your annual subscription is due on 1<sup>st</sup> January 2003. For a renewal slip [click here](#); please send to Mike Brown as soon as possible.

### Preview - William Smith (1769-1839) and the search for raw materials

#### 16 January, Hugh Torrens

Smith first described himself as 'land surveyor and drainer' in his 1801 *Prospectus* but then as 'engineer and mineralogist' in his first book of 1806. His several careers are discussed with an attempt to shed new light on his pioneering career as 'mineral surveyor' (a term invented by his pupil, John Farey, in 1808). The trials for coal with which he was involved can be divided into two: those in which he used his new stratigraphic knowledge in positive searches for new coal deposits; and those where his stratigraphic science could often negatively demonstrate that many such searches were doomed to failure. These latter attempts were being made in, and misled by, repetitious clay lithologies, which resembled, but were not, Coal Measures. Smith was the first to show how unfortunate it was for such coal hunters that the British stratigraphic column abounded in repetitious clay lithologies.

It was also unfortunate for Smith that many of the founding fathers of the Geological Society were unconvinced of the reality or the utility of Smith's discoveries. Its leaders at first did not believe he had uncovered anything of significance and then simply stole much of it. The development of Smith's stratigraphic science in the world of practical geology remains poorly understood, but the legacy of his method for unravelling relative geological time and space was one of the most significant of the nineteenth century.

## Preview - Comparative Planetology: Geology or Guesswork

13 February, George Tuckwell

Comparative planetology is the name given to an approach to studying the planets. This approach is based on the idea that the individual planets can be better understood by comparing the physical processes of all the planets. These comparisons yield important information and useful insights. There are, for example, many similarities between the terrestrial planets, Mercury, Venus, Earth, and Mars, and likewise many similarities among the Jovian planets Jupiter, Saturn, Uranus and Neptune. The basic physical ideas in our physical models for one planet must hold true in general for the other planets. Geology and geophysics form important parts of this comparative process, and Earth analogues have been used extensively to improve our understanding of other planets.

While a great deal has been learned, and some has even been agreed upon, there are significant issues in planetary geology in particular that are poorly understood or contentious. The talk will introduce the principal tools of the comparative planetologist who wishes to investigate extraterrestrial geology. Problems of analysis and interpretation will be highlighted by examples of two issues upon which there is not only no agreement, but also active debate:

- the nature and formation of the highland areas of Venus, and
- the thickness of the ice crust on Jupiter's moon Europa

## Preview - Alien Worlds

7 - 16 March at The Potteries Museum & Art Gallery, Hanley, Stoke-on-Trent

NSGGA, as a contribution to **National Science Week 2003**, is putting on an exhibition that aims to explain about the geology of the planets and moons within our solar system. Comparisons will be made between features seen on the surfaces of planets and those - like volcanoes, mountains, deserts etc. - found on Earth. The display can be seen, for free, during normal Museum opening times.

Geowatch are also involved with associated events at the Museum: on **Saturday 8 March** there will be the opportunity to make Planet mobiles, and on **Saturday 15 March** you can make a Space Shuttle. On both days there will be other activities, including steering a remote controlled *Martian Rover*, and there will be a charge of £1.00 to cover the cost of materials used in the activities.

For those of you who can get to the Museum on **Tuesday 11 March**, NSGGA Member and renowned Space enthusiast Phill Parker will be giving a talk entitled **Out of Space** from 1.30pm to 3.00pm. There will be a charge of £1.00.

## Geodiversity Officer for Staffordshire

Staffordshire Wildlife Trust and the Staffs. RIGS group have successfully applied to the Aggregates Fund to fund a Staffs. Geodiversity Officer for the county until March 2004.

Laura Cox was appointed to the post in November 2002 and has already surveyed some SSSI and RIGS sites as part of her work to develop a county Geodiversity Action Plan. A steering committee has been set up to advise and monitor progress and includes Alastair Fleming and John Reynolds along with representatives from industry and academia.

If you have any information about local geological sites or would like to help in any way, please contact Laura at the SWT HQ at Sandon ☎ 01889 508534 or email: lcox@staffswt.cix.co.uk

## Geowatch

Carol and I were very busy during 2002. In addition to the three meetings at the Potteries Museum we were asked to help out with Staffs Wildlife Trust on many occasions. We also visited two schools to do geology for children and already have been asked to two other schools during 2003. We would like to thank all who helped us on the different occasions.

We are at the planning stage for the activities that will be held at the Potteries Museum; the dates and themes have already been agreed (see below).

We are keen to enlist the help of anyone who may have the expertise, ideas or exhibits. If you know of any expert(s) who we can call on for assistance on the day(s) please contact us on 01782 713227 or e-mail on carol@burnett40.freeseve.co.uk

### 8 and 15 March 2003 National Science Week Potteries Museum 10am to 4pm

During National Science Week the NSGGA is organising activities on the theme **Alien Worlds**. The Geowatch contribution for children will be to help them make their own Planets Mobile (8 March) and a Space Shuttle (15 March). They can try their hand with a remote controlled "Martian Rover".

### 5 April 2003 Eccleshall Library 9 00am to 12 00 noon

Make your own Planets Mobile. Try your hand with a remote controlled "Martian Rover".

### 9 August 2003 Potteries Museum, Hanley 10am to 4pm

A "Dinosaur Day". There will be lots of activities, the details have yet to be finalised.

### 11 October 2003 Potteries Museum, Hanley 10am to 4pm

A "Magic of Minerals Day" including all sorts of experiments for the children to do and exhibits for them to handle.

Mike and Carol Fereday

## Field trip programme for 2003

**Each person attending field meetings does so on the understanding that they attend at their own risk. The NSGGA has Public Liability Insurance Cover for field and indoor meetings, but Personal Accident Cover remains the responsibility of participants.**

#### **6 April: Telford and the Wrekin**

Joint meeting with WMOUGS. ½ day of lectures in Telford and ½ day visit to the Wrekin area. For further details contact Janet or Carol.

#### **27 April: The Volcanics of Snowdonia** Leader: Peter Floyd

We will be studying the stratigraphy and lithology of selected Caradocian volcanics and the nature of the processes involved in their formation. We will also be looking at the effects of the glaciation on the adjacent landscape. Meet at 11 15 am at Ogwen Cottage National Trust car park on the A5 (Grid ref: 649604) – at the western end of Llyn Ogwen. If there are sufficient numbers interested we will run a minibus at a cost of £10 per person, plus the normal field fee. Please book and pay for the minibus by 31<sup>st</sup> March 2003 at the latest, using the [reply slip](#).

#### **17/18 May: Weekend trip - Black Mountains** Leader: Geraint Owen (Univ. of Swansea)

Joint meeting with Essex Group based at the Maes-y-Gwernen Hotel Abercraf A4067 (Brecon to Swansea road)

**Please note: there are only 3 (three) rooms left**

#### **15 June: Earl Sterndale** Leader: Joe Jennings OUGS

A chance to study the geological processes, mineralisation, geochemistry and geophysics of the area. Palaeontologists please note: you will be in heaven.

#### **13 July: Clitheroe** Leader: Chris Arkwright OUGS

Meet at 10 00 am at Salthill Quarry trail for a walk through the Carboniferous in the Ribble Valley and Pendle Area followed by a visit to Clitheroe Castle and the Castle Museum.

See April Bulletin for further details

#### **13/14 September: Weekend trip - Dorset (Jurassic Coast)** Leader: George Raggett OUGS

Further details will be sent out in the April Bulletin.

**Please note: A field fee of £ 2.00 is charged for members and £ 4.00 for non members.**

**For more information about the field trips please contact either**

**Janet Fairclough ( 01782 641812 Email: [jfair1sc@ntlworld.com](mailto:jfair1sc@ntlworld.com) or**

**Carol Fereday ( 01782 713227 Email: [carol@burnett40.freeserve.co.uk](mailto:carol@burnett40.freeserve.co.uk)**

### **Review - Field report for the Malverns trip on Saturday 5 October 2002**

Saturday 5 October saw the completion of our 2002 field programme with a hugely successfully visit to the Malverns. We left Keele with a full minibus of 17 people and arrived slightly behind schedule at Tollgate Quarry where 4 more members were waiting for us.

**Tollgate Quarry:** The quarry is in two parts. The butress which divides the two car parks is a very altered pyroxenite representing a scarce ultramafic component in the Malvernian intrusion. In the SW corner of the quarry overgrown paths give access to weakly foliated, pale pink Malverian granite, which is the dominant rock in this part of the complex.

**Warren House Group:** A short drive took us to British Camp and Hereford Beacon area.

A brisk walk of 1 kilometre took us to Clutters Cave in the Warren House Group which comprises a bimodal suite of rhyolitic ignimbrites and pillowed metabasalts. This type of bimodal volcanism is typical of back arc extension on continental basement.

Our next stop was Gullet's Quarry following a "hair raising" drive on which our driver, who shall remain nameless, but who is very fond of rallying, proceeded to ignore the Road Closed signs and manoeuvred the minibus around a series of potholes which would have done justice to Gaping Gill. Our arrival at Gullet's was a relief on two counts, a; we were safe, and b; it was dinnertime. Always a very popular activity.

**Gullet's Quarry:** Gullet's Quarry, is one of the best Malvernian exposures with altered melanocratic diorite, sheared and veined by late stage granitoid pegmatite. In the NW corner of the quarry, the Malvernian is overlain by the fossiliferous C5 Llandoverly Wyche Beds, an exposure well worth making the somewhat physically taxing "climb" to see.

Another short drive brought us to Hollybush Road Cut.

**Hollybush Road Cut:** Here we saw Cambrian sediments which lie just west of the Malvern ridge. Lower Cambrian Hollybush Sandstone is intruded by black basalts/fine dolerites, which also intrude the Ordovician rocks further north. The basalts are tholeiitic and probably relate to either back-arc extension during the Ordovician or to the separation of Avalonia from Gondwana. This magmatism is much later than, and unrelated to the Malvernian or Warren House Group.

Yet another short drive brought us to Gurney's Quarry.

**Gurney's Quarry:** The access to Gurney's Quarry was via a path which we were warned in advance was "muddy and the floor of the quarry is extensively covered by nettles, brambles, briars and other unfriendly plants –be warned". We were not warned to bring machetes and the fact that the trek to Machu Pichu would be a Sunday school treat in comparison. But it was well worth it if only to see the smiles light up the faces of the palaeontologists among us. Gurney's Quarry is a SSSI site where fossiliferous and nodular Wenlock Limestone is exposed. No hammering is allowed but there were many fossils to be found in the scree lying at the

base of the exposure.

**Barton Court:** Our penultimate visit was to a road cutting near Barton Court. Here the road is sunken, with road cuts exposing fossiliferous Upper Silurian Bringewood and Leintwardine Beds along the crest of the Chance's Pitch Anticline. Again this was a delight to the fossil collectors amongst us, as fossils, mostly brachiopods, were both abundant and freely available.

Our ultimate stop proved to be ad hoc, and the only reference to Geology was rock cake.

**Whistling Kettle:** The addition of a warm drink and fresh cream cakes to our itinerary proved both welcome, entirely civilised and a very fitting end to our day on the Malverns. From the terraces of this pleasant little café on the flanks of the Malvern ridge, we could watch the start of a beautiful sunset in the west before we started for home.

I would like to say thank you to all those people who helped to make this such a successful trip, the members themselves, the "nameless" driver who took such good care of us, but especially to Professor John Winchester, Keele University, our leader, who took such a lot of trouble to precision plan, document and execute the trip so faultlessly.

Janet Fairclough, NSGGA Field Secretary

## Staffordshire Rhinoceros

The skeletal remains of woolly rhinoceroses have been discovered during archaeological excavations near Lichfield. Believed to be about 40,000 years old, the remains of these rhinos are some of the best to have been found in central England. The field archaeology team from Birmingham University was carrying out investigative work when the unexpected finds were made. The material has been transferred to the Natural History Museum in London for specialist conservation work to be undertaken to preserve the remains.

## Extractive Industries

Plans by Lafarge Aggregates to use Walley's Quarry, Cemetery Road, Silverdale as a commercial and non-hazardous waste landfill site over a 20-year period have worried local residents; some worries have been expressed regarding increased traffic congestion. Geologically, the brickworks clay quarry displays some good features associated with the Etruria Formation but whether they can be retained by geo-positive landscaping remains to be seen.

## Bill Sarjeant

It is sad to report that Professor William Antony Swithin Sarjeant, Professor of Geology at the University of Saskatchewan in Saskatoon, died on 8 July 2002 at the age of 67. He was born in Sheffield and spent many years collecting in the Peak District. His collection of c.1000 mineral specimens from that area is housed at the Potteries Museum & Art Gallery. Bill was at the University College of North Staffordshire (later Keele University) for a brief period around 1960

## Mineral collecting and conservation – hammering out a future?

**Harold Riley Suite, University of Salford, Wednesday 16 April 2003, 10:00 to 16:30**

This one-day conference aims to discuss the different aspects of mineral collecting and the best way of conserving the available mineral resource for future use by all interest groups. Collecting is fundamental to mineralogical research, and for educational, commercial and aesthetic purposes, but indiscriminate activity can deplete or destroy a mineralogical site. The meeting will be co-convened by English Nature, the Geological Society's Geoconservation Commission and the Russell Society. Registration is £25 and this fee includes car parking (the venue is also a short walk for Salford Crescent Station), tea/coffee, lunch, a conference pack and the conference proceedings. Numbers may be limited, so please register early.

For further information contact: Jennifer Yau, Environmental Impacts Team, English Nature, Northminster House, Peterborough, UK PE11UA (01733 455504).

## Geology and Scenery on the Island of Mallorca: a field study course

**18 - 25 March 2003, course director - Tony Benfield**

The spectacular mountain and coastal scenery of the west of Mallorca, where this week-long field study course will be based, is in marked contrast to the low-lying south and east of the island to which most visitors go. The course will allow participants to understand the geological reasons for this difference, trace the island's 240 million-year history of changing environments and see the effects of the powerful earth movements that it has experienced.

The course fee will be approximately £610.00 and a deposit of £140.00 is required no later than 1 November 2002. The course is limited to 16 students.

For further details contact: Tony Benfield, Geocourses, 24 Gascoigne Avenue, Barwick-in-Elmet, Leeds LS15 4LW ☎ 01132 812906 (any time).

## North Staffs Field Club

As a result of the sad demise of the North Staffordshire Field Club, the contents of their Daltry Library has been dispersed as deemed appropriate. Ted Watkin (NSGGA Honorary Member and NSFC trustee) has managed to secure for the NSGGA library the following books that are relevant to the local geology:

- Gibson, W. 1905 The geology of the North Staffordshire coalfields  
*Memoir of the Geological Survey of England and Wales*
- Ward, J. 1890 The geological features of the North Staffordshire Coal-fields  
*G.T. Bagguley : Newcastle-under-Lyme*
- Whitehead, T.H. & Eastwood, T. 1927 The geology of the southern part of the South Staffs. coalfield

*Memoir of the Geological Survey of England and Wales*

The Potteries Museum & Art Gallery received a fairly complete set of *Palaeontographical Society Monographs* which are standard reference works in the identification of fossils and several other important geological and biological books.

Both the NSGGA Library, which is currently held at the Museum, and the geological literature at the Potteries Museum are available for reference by prior appointment.

**Apology**

I must apologise to all those Members who, on receiving their October Bulletin by post, were asked to pay a surcharge of 94p by the Post Office. I judged the envelope to be within the 19p postage band, but just one A4 page brought the weight up to 33p. I should have had it weighed. I can only say I am sorry about this and promise to see that it does not happen again.

Carol Fereday, Hon Treasurer

**Manchester Geological Association meetings 2003**

Saturday 25 January - *Layered Igneous Intrusions* - Afternoon seminar starting 2.00pm

Wednesday 19 February - *AGM and Presidential Address* - 7.00pm start

Saturday 15 March - *Mountain Building* - Afternoon seminar starting 2.00pm

Wednesday 16 April - *Mount Etna* - 7.00pm start

Most meetings are held in the Dept. of Earth Sciences, Williamson Building, Univ. of Manchester, Oxford Road, Manchester

Further information from Norma Rothwell, MGA Hon. Sec. ☎ 01616 530 862

**Shropshire Geological Society meetings 2003**

Wednesday 15 January - *The Heartland of India - A glimpse of Gondwanaland*

Wednesday 12 February - *Fossils and sediments of the Grinshill Sandstones*

talk given by NSGGA Member, David Thompson

Wednesday 12 March - *Geology of Bottled Water*

Sunday 16 March - *Annual Extravaganza - Rock Around Shrewsbury* -10.00am to 4.00pm

At the Shropshire Wildlife Trust, Abbey Foregate, Shrewsbury

Wednesday meetings are held at the Shirehall, Shrewsbury and start at 7.30pm

Further information from SGA Secretary, Karen Whitaker ☎ 01952 463516

**University of Derby - Research Seminar**

Wednesday 7 May - *Fossil oysters show their age - a sclerochronological study* - 1.15pm start

Takes place in room T115 (Kedleston Road site), School of Environmental and Applied Sciences, Univ. of Derby

Further information from Dr. Andy Johnson ☎ 01332 591 721; email: [A.L.A.Johnson@derby.ac.uk](mailto:A.L.A.Johnson@derby.ac.uk)

**Newcastle Countryside Project - Pete's Perambulations**

Sunday 27 April - *Edge of the Glacier* - Meet 2.00pm at Maer Village Hall

A 5 mile walk to study and admire the geology and scenery of the Maer Hills area. Charge of **£1.50** for adults. One of a series of walks offered by the NCP, Apedale Valley, Loomer Road, Chesterton, Newcastle-under-Lyme, Staffs ST5 7RR.

Further information from Pete Wells ☎ 01782 566 331; email: [keith.morris@staffordshire.gov.uk](mailto:keith.morris@staffordshire.gov.uk)

**Articles**

Cossey, P.J. 2002 \*\*

Staffordshire University - Department of Geology Research and Consultancy

*GA magazine of the Geologists' Association* 1 issue 4, p.14

NSGGA Member Patrick Cossey reviews some of the excellent geological work done at Staffs. University

Mountney, N.P. & Thompson, D.B. 2002 \*\* NL

Stratigraphic evolution and preservation of aeolian dune and damp/wet interdune strata: an example from the Triassic

Helsby Sandstone Formation, Cheshire Basin, UK

*Sedimentology* 49, pp.805-833

\*\*Copies available for reference by prior appointment at The Potteries Museum & Art Gallery - 01782 232323

NL - reprint donated by author to the NSGGA Library

**NSGGA - Next Committee Meeting**

\* **Thursday 23 January 2003 at 7.00pm**

in room CBA1.077, Chancellor's Building, Education Department, Keele University

**Staffordshire RIGS Group**

\* **AGM on Tuesday, 17 June 2003 at 7.30pm**

at the new Staffs. Wildlife Trust offices, Wolseley Centre, near Rugeley

Contact Sue Lawley at the SWT for details ☎ 01889 508534 or contact SRIGS Chairman, Ken Rout ☎ 01785 662291

**Contacts List: NSGGA Committee 2002-03**

**Chairman: Bill Fone,**

23 Mill Farm Drive, Randlay, Telford TF3 2NA ☎ 01782 294284 (work) ☎ 01952 596656 (home)  
email: [w.fone@staffs.ac.uk](mailto:w.fone@staffs.ac.uk)

**Vice-chairman: Peter Floyd,**

Craddocks Moss Cottage, Heighley Lane, Betley, Crewe Cheshire, CW3 9AZ ☎ 01270 820334  
email: [floyd.pa@virgin.net](mailto:floyd.pa@virgin.net)

**Secretary: Dorothy Wright,**

24 Elm Tree Lane, Bignall End, Stoke-on-Trent ST7 8NG ☎ 01782 721576

**Treasurer: Carol Fereday,**

28 Brookside Close, Newcastle-under-Lyme ST5 2HX ☎ 01782 713227  
email: [carol@burnett40.freemove.co.uk](mailto:carol@burnett40.freemove.co.uk)

**Membership Sec.: Mike Brown,**

6 Spring Close, Rode Heath, Stoke-on-Trent ST7 3TQ ☎ 01270 878130  
email: [michael.a.brown@lineone.net](mailto:michael.a.brown@lineone.net)

**Field Sec.: Janet Fairclough**

140 Mayne Street, Hanford, Stoke-on-Trent ST4 4QY ☎ 01782 641812  
email: [jfair1sc@btinternet.com](mailto:jfair1sc@btinternet.com)

**Conservation Sec.: Keith Harrison,**

21 Grove Avenue, Heron Cross, Stoke-on-Trent ST4 3BA ☎ 01782 331699

**Bulletin Sec.: Don Steward,**

Natural History, The Potteries Museum & Art Gallery, Hanley, Stoke-on-Trent ST1 3DW  
☎ 01782 232323 email: [don.steward@stoke.gov.uk](mailto:don.steward@stoke.gov.uk)

**Executive Committee** (honorary):

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

**Executive Committee** (elected):

**Mike Fereday; Alastair Fleming; Elizabeth Hallam; Phil Pye; John Reynolds;  
John Winchester.**

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

**Ken Rout;** in addition a representative from the Staffs. University Geol. Soc. and the Keele Geol. Soc. is invited to attend committee