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Circular 537

YORKSHIRE GEOLOGICAL SOCIETY

President: Martin Whyte Ph.D

ENGINEERING GEOLOGY THROUGH THE CENTURIES

British Gypsum Mine
Newark

JOINT MEETING WITH THE ENGINEERING GROUP OF THE GEOLOGICAL SOCIETY

A GEOLOGICAL SOCIETY OF LONDON BICENTENNIAL LOCAL HEROES MEETING

PROGRAMME: SATURDAY 31ST MARCH 2007
BGS, KEYWORTH, NOTTINGHAM NG12 5GG

SPEAKERS: HELEN REEVES, AL FORSTER, DAVE NORBURY, RON WILLIAMS, TED ROSE, GEORGE REEVES and JOHN CHARMAN

SUNDAY 1ST APRIL 2007
FIELD VISIT TO BRITISH GYPSUM OPENCAST MINE, NEWARK

LEADERS: HELEN REEVES & NOEL WORLEY

NON MEMBERS WELCOME

ENGINEERING GEOLOGY THROUGH THE CENTURIES

SATURDAY 31st MARCH 2007 - BRITISH GEOLOGICAL SURVEY, KEYWORTH, NOTTINGHAM NG12 5GG
Hosting Organisations: YGS & Engineering Group of the Geological Society
Organiser: Dr Helen Reeves

13:00 - 14:00	BGS Shop Open
14.00 - 14.05	**YGS Society Announcements** Martin Whyte, President
14:05 - 14:10	**Engineering Geology through the Centuries** Helen Reeves, BGS and Martin Culshaw, BGS
14:10 - 14:30	**William Smith and the development of engineering geology in England** Alan Forster, Retired BGS
14:30 - 14:50	**Rudolph Glossop and the development of 'Geotechnology'** Dave Norbury, Consultant & Ron Williams, Consultant, Mott MacDonald
14:50 - 15:30	Tea & Coffee (Free)
15:30 - 16:00	**Fred Shotton (1906-1990):** **A 'hero' of military applications of geology during the Second World War** Edward P.F. Rose, University of London
16:00 - 16:20	**"Bill the Second" - Mapping that changed the World of Geology** **Professor William Dearman 1921 to Present:** **The first Professor of Engineering Geology at a British University** George Reeves, University of the Highlands and Islands Millennium Institute
16:20 - 16:50	**Peter Fookes 1933-present** John Charman, Consultant
16.50 - 17.00	Closing Remarks

SUNDAY 1ST APRIL 2007 - FIELD VISIT TO BRITISH GYPSUM OPEN CAST MINE, NEWARK

Dr Helen Reeves and Dr Noel Worley will lead a field trip to the BPB Gypsum mine in Newark.

YGS MEMBERS' DISCOUNTS

The BGS shop will be open at this meeting from 1.00 p.m. until 2.00 p.m. YGS members receive a 25% discount on all BGS publications purchased on the day. Unfortunately the shop will not be open during the meeting tea break, so arrive early if you wish to take advantage of this discount.

ENGINEERING GEOLOGY THROUGH THE CENTURIES

Helen Reeves and Martin Culshaw, BGS

William Smith was many things. As well as producing arguably the World's first modern geological map, he was a mine surveyor and canal engineer. He was also an engineering geologist. Later in the 19th century, engineering geologists published on landslides, tunnelling, cuttings and embankments and in 1862 Rankine published his book: *'A Manual of Civil Engineering'* while in 1880 Penning published *'Engineering Geology'*. Later, in 1897, Woodward produced a memoir and map on the soils and subsoils of London and the country around it in response to enquiries to the Geological Survey about the siting of houses, the location of cemeteries and the identification of water supplies. This was followed, in 1907-8, by Lapworth's series of lectures to the Institution of Civil Engineers on *'The Principles of Engineering Geology'*. The great Karl Terzaghi (1883-1963) was fully aware of the importance of engineering geology. This meeting will celebrate how engineering geology and engineering geologists have shaped and developed the application of geological science to the development of the UK's urban environment and infrastructure (and our security) during the past 200 years.

The meeting will focus on the lives and achievements of five engineering geologists, who have made outstanding contributions to their profession and to science.

Elements of the work of:
William Smith (The father of Engineering Geology);
Rudolph Glossop (1st Chair of the Engineering Group);
Fred Shotton (A 'hero' of military Engineering Geology);
William Dearman (The Engineering Geological Mapper);
Peter Fookes (The conceptual geological model).

This is a joint meeting of the Yorkshire Geological Society and the Engineering Group of the Geological Society held as part of the celebration of the bicentenary of the Geological Society of London and forms part of the Society's "Local Heroes" initiative for the bicentenary

For more information please contact:
Dr Helen Reeves
British Geological Survey,
Kingsley Dunham Centre,
Keyworth, Nottingham, NG12 5GG.
Tel:- +44 (0)115 936 3381
E-mail:- hjre@bgs.ac.uk

WILLIAM SMITH AND THE DEVELOPMENT OF ENGINEERING GEOLOGY IN ENGLAND

Alan Forster, Retired BGS

When hominids chose a particular pebble to make a tool on the basis of its material properties they used geological knowledge. Thus, applied geology has a long history. Geological knowledge increased through mining, initially for flint and later for metals, and through its use in major construction with regard to foundations and building materials. But much of this knowledge was localised and restricted to families or guilds until the invention of printing using moveable type enabled it to be shared cheaply and widely.

Thus William Smith started his career in a world where much was known of geological matters and, with the publication of Hutton's Theory of the Earth, knowledge was being tempered by understanding. His early training as a surveyor gave him the skills of accurate observation and recording together with a geographically wide experience that enabled him to recognise that strata could be ordered, and outcrops correlated, by the fossils that they contained. He first recorded this new concept in 1797 and used it to create the world's first geological map (of the area around Bath) in 1799 and the first geological map of England and Wales in 1815. The national map was not only geologically detailed and accurate but also showed collieries, mines, canals and reclaimed land. Smith's intention was for it to show where to look for (and not look for) minerals.

Thus, his recognition of ordered correlatable strata, his creation of the first geological map, his expertise in draining land, stabilising landslides and planning canal routes amply demonstrates his ability to create, and apply, the 3D geological model that is a prime requisite in modern engineering geological practice. Therefore, he must be recognised as a man of outstanding ability and the first engineering geologist of the modern world. This presentation will demonstrate the validity of this assertion.

RUDOLPH GLOSSOP AND THE DEVELOPMENT OF 'GEOTECHNOLOGY'

Ron Williams (Consultant, Mott MacDonald)
David Norbury (Consultant)

Rudolph Glossop made a unique contribution to the development of geotechnical engineering in the UK. Born in1902, his remarkable long life spanned almost the whole of the twentieth century. Having graduated from the Royal School of Mines in 1924, he worked as a mining engineer in Canada before joining the contractors John Mowlem & Co. in 1930 under Harold (later Sir Harold) Harding. After a further period overseas as a mine engineer in the Gold Coast (Ghana), he rejoined Mowlem and the team formed by Harold Harding to exploit new approaches to ground improvement and groundwater lowering. This enterprise was the core of the first UK geotechnical company, Soil Mechanics Ltd.

The failure of the earth dam being constructed by Mowlems, at Chingford, prompted the establishment of a small site testing laboratory under Glossop. He had entered the emerging field of Soil Mechanics and its leaders at the Building Research Station, Cooling, Golder and Skempton. The long and close friendship between Glossop and Skempton helped foster a strong bond between academics and the construction industry, to their mutual benefit.

Glossop spent the war years constructing airfield pavements and, later, dock-works for the Mulberry Harbour units. The rapid developments in Soil Mechanics during this period were brought together in four remarkable lectures, at the Institution of Civil Engineers, during June 1945. Glossop contributed a comprehensive 'state of the art' in Foundations and Excavations, and introduced the term 'Geotechnology' to cover this new field.

In 1947 Glossop with Hugh Golder, who had joined Mowlems from the BRS, was instrumental in the formation of the Geotechnical Society to publish the journal, Geotechnique. From the first issue, the journal included important papers on engineering geology. In numerous publications during the immediate post-war years, Glossop, inspired by the example of Terzaghi who himself had trained as a geologist. promoted the role of geologists in civil engineering projects. As Peter Fookes has expressed it, Glossop "breathed the life of geology into it (Soil Mechanics Ltd.) so that by the early 1960s the firm was probably without peer in Europe".

In 1964, Glossop helped establish the Engineering Group of the Geological Society and, three years later, its journal, the QJEG. During this period, he wrote two important historical papers: on the history of grouting (1960/61) and the use of compressed air in construction, (1976). Furthermore, he was the first contractor to give the Rankine Lecture (1968).

Rudolph Glossop was firmly committed to the integration of engineering geology, soil mechanics, and foundation engineering. The lecture will discuss his contribution to this endeavour, and concludes with an assessment of his legacy.

FRED SHOTTON (1906-1990): A 'HERO' OF MILITARY APPLICATIONS OF GEOLOGY DURING THE SECOND WORLD WAR

Edward P. F. Rose
Department of Geology, Royal Holloway, University of London, Egham, Surrey TW20 0EX, UK.

F.W. Shotton, FRS, Professor of Geology at the University of Sheffield 1945-49, and at the University of Birmingham 1949-74, is best known for his seminal publications on Pleistocene geology of the English Midlands. However, after training in northern England by the Yorkshireman W.B.R. King, as a temporary Royal Engineers officer during the Second World War he became a distinguished military geologist. From May 1941 to September 1943, based in Egypt, he used hydrogeology to guide development of potable water supplies for British forces operational in the Middle East and North Africa. Recalled to the UK after campaign victory, in October 1943 he succeeded his former mentor Bill King as Staff Officer (Geology) at HQ 21st Army Group to help plan for the Allied liberation of Normandy. Shotton provided terrain evaluation for Normandy primarily through preparation of specialist maps and contribution of technical advice. Beachhead maps at a scale of 1:5000 were prepared to show natural obstacles to cross-beach mobility, and guidance was given on British beaches suitable for preparatory troop training and equipment trials. Airfield suitability maps and advice on soil conditions guided the rapid construction of temporary airfields to ensure Allied air superiority over the battlefield. Water-supply maps guided efficient utilization of surface and groundwater resources for the large number of troops involved in the invasion and subsequent advance. Geological maps and advice guided quarrying of the considerable quantities of aggregate required for road repair and construction. Soil maps were later prepared to guide siting of military depots, and indicate likely effects of terrain on off-road vehicle mobility. Shotton was involved with a similar range of tasks following D-Day, 6 June 1944, as he advanced with 21st Army Group across northern France into Belgium and ultimately Germany. After victory in Europe in May 1945, he was soon demobilized and resumed an academic career. His wartime achievements inspired few of his 150 publications – but influenced his teaching to many undergraduate students.

"BILL THE SECOND" - MAPPING THAT CHANGED THE WORLD OF ENGINEERING GEOLOGY
PROFESSOR WILLIAM DEARMAN: THE FIRST PROFESSOR OF ENGINEERING GEOLOGY AT A BRITISH UNIVERSITY

George Reeves
University of the Highlands and Islands Millennium Institute

A worthy successor to William Smith, William Dearman, (better known as Bill to all his colleagues and many former students) has been the leading protagonist and promoter of engineering geology mapping through the latter part of the 20th Century.

From his early career with Southern Railways (then British Railways), working from the famous Meldon Quarry in Devon to supply ballast for much of the southern British railway system, Bill moved to Kings College, Durham (which later became Newcastle University) in 1956.

Originally appointed as a Lecturer in Economic Geology, to teach applied geology to civil engineers, he developed firstly an undergraduate degree, then an MSc in Engineering Geology in 1972 and then headed the first UK Department in Geotechnical Engineering set up at Newcastle in 1982.

Bill was awarded the Hans Cloos medal of the IAEG in 1990 principally for his UNESCO Engineering Geology mapping publications, and then the William Smith Award of the Geological Society in 1991.

Bill Dearman's contribution to the science of engineering geology mapping, through training students in that art (especially in Yorkshire, Northumberland and Tyne and Wear); through his publications and in his seminal book on the subject (Engineering Geology Mapping, Butterworths - published in 1990), has had as much impact on the recent world of Engineering Geology as William Smith had on the science and understanding of the geology of the UK in general in the 18th Century.

PETER FOOKES 1933-PRESENT

John Charman
Consultant

Peter Fookes' career began in the 1950's, not in geology but chemistry. This soon changed and the world of applied geology has much to be thankful for. When he began there was a loosely coined 'geology for engineers' but no formal career structure in engineering geology. He has played a leading role in the development of engineering geology as an essential component of civil engineering and, less well known, in the development of concrete technology. In addition he has made major contributions to the science, particularly focussing on the development of geological models. He has published some 180 technical papers (46 since what many would consider to be a normal retirement age!), many books and participated in numerous national and international committees. He is a past-Chairman of the Engineering Group and has initiated and chaired many working party reports, often milestones in the advancement of the subject. This presentation summarises his considerable contribution to the science and profession. The presentation will include a few reminiscences from a personal association that goes back some 40 years.

KEYWORTH MEETING FIELD VISIT: APPLICATION OF ENGINEERING GEOLOGY TO SURFACE MINE DESIGN

Leaders Helen Reeves British Geological Survey and Noel Worley British Gypsum Ltd
British Gypsum, Newark Nottinghamshire (10am – 3pm approx)

Gypsum has been commercially exploited in the Newark and Vale of Belvoir Districts of Nottinghamshire and north Leicestershire, since the 16th century when it was being mined to make plaster. However it was not until the middle of the 19th century that the extraction of gypsum commenced on an industrial scale from surface mining operations.

The gypsum, the Newark Evaporite, occurs in the highest strata of the Triassic Age Mercia Mudstone Group Cropwell Bishop Formation. The outcrop of this formation follows the alignment of the Trent valley to the north of Newark and lies beneath a large part of the Vale of Belvoir to the south. The gypsum in these evaporites is often of exceptionally high quality and has been exploited for the manufacture of plasters for industrial uses including pottery, ceramic, dental and surgical applications as well as building plasters.

The trip will include visits to the Kilvington and Bantycock Opencast Mines. The former is reaching the end of its operational life and the latter re-starting following a period of care and maintenance. The purpose of the visit will be to observe how modern engineering geological methods have been used in the sequence of steps involved in the design of the excavation and mining processes through to final restoration. This will include the opportunity to examine dewatering operations, overburden management, mine transport, mineral processing, and restoration methods.

Meet at 10am at the Kilvington Opencast Mine located approximately 22 kms east of Nottingham, SK800430 and can be accessed by road from Nottingham by following the A52 toward Grantham. At Elton on the Hill turn left (north) towards Orston and continue for some 5 kms and the Kilvington Opencast Mine is situated on the western side of the road. Meet in the mine car park. Please note that hard hats, high visibility clothing, and protective footwear are mandatory.

A WORD FROM THE PRESIDENT

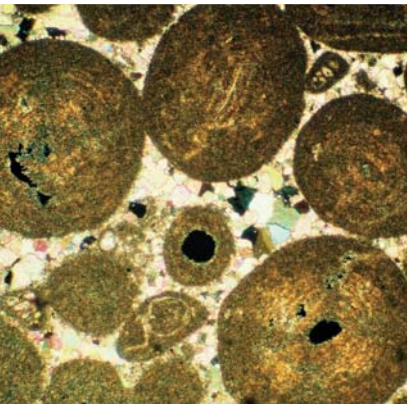

Photo 1: Photomicrograph of one of Sorby's thin sections; an oosparite from the Corallian of Seamer, East Yorkshire. The section is viewed in cross polarised light and the large ooid at the bottom right of the image shows an extinction cross. Field of view is 3.7mm wide.

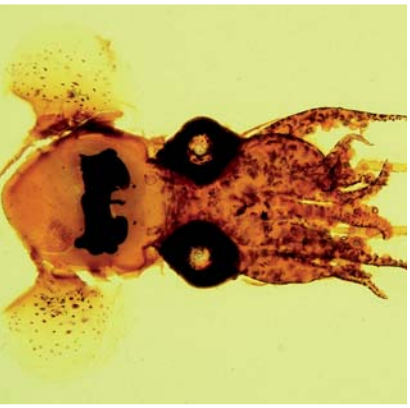

Photo 2: Photograph of one of Sorby's zoological mounts showing a Little Cuttlefish (Sepiola atlantica). The specimen is 5cm long.

In the President's Word in the last Circular, I finished by wishing that I could invite Henry Clifton Sorby to dinner. In the intervening few weeks, as we prepared for the Sheffield Meeting on this great scientific hero, it has sometimes seemed almost as though I was living with him. I have been specially privileged, as I have been able to examine a great many of his thin sections of rocks and have also been able to browse through his zoological preparations. Sorby's thin sections are an incredible testament to his scientific insight and to his technical abilities. It is truly breath taking to look down the microscope at them and to see what he must have seen. It really brings it home to you how he must have been the first person ever to see and to recognise so many features, from the internal structure of chondrules to extinction crosses in ooids. His zoological preparations are also exquisite and unique. It is amazing that to this day no one else has ever mastered his techniques and been able to replicate these mounts. Even more than sharing a meal with him, I would have liked to have been able to stand by a microscope with him, to look at thin sections with him and to discuss the significance of what we could observe in them.

It was rewarding and encouraging that the attendance at the Sheffield Meeting was once again up on previous years. I am very grateful to all our speakers and to everyone else who contributed to the day.

Despite their common 'Local Heroes' strand, the two meetings so far this session have been very different from each other and our third meeting, which is detailed in this Circular, will be different again. In it we will, for instance, be considering the contributions not just of one man but of five different engineering geologists. I will be coming to Keyworth hot-foot from a field class, where we will be exposing students to problems of slope stability and other engineering geology issues, so I am particularly looking forward to hearing from a very interesting line-up of speakers about these engineering geologists and their work. I hope to see many of you there and at the field visit the next day.

At the recent Council Meeting the General Secretary showed a significant bundle of evidence that many members have completed and returned their questionnaires. If you haven't yet done so, please do so soon. Your ticks or crosses and your comments are important to us so that we can keep the Society moving forward. Please let us have your returns by the 28th March.

YORKSHIRE GEOLOGY MONTH [YGM]

The idea behind YGM is a typically, unique and straightforward Yorkshire one, to encourage and support local geology groups and other interested parties and help them to provide events that engage the public and raise the profile of geology in our county.

With the present concerns about climate change and the future of the planet there has never been a more appropriate time to share geology with a wider audience. People want to know what could happen to the planet and they also want to know about their local area, how it developed, why the local landscape looks the way it does, why particular building stones have been used in their town. We all share a 'sense of place' that is built on the foundations of local geology. The industry that made Yorkshire such a power-house in the past was determined by local rocks and local landscapes, the same geology in turn gives each of the 'Ridings' its' own character, from the hard gritstone of the Pennines to the soft chalk of the Wolds.

Photograph shows groups from all over Yorkshire enjoying a field trip on the North Yorkshire Moors after the YGM meeting in June 2006.

Yorkshire has more varied and exciting geology than most other parts of Britain; we should be proud of it and share it with as many people as possible.

North East Yorkshire Geology Trust is taking the lead in YGM; the programme of events now has a dedicated website and holds regular, informal meetings of the groups involved. If you have any events that you will be holding in May and the first week of June, please send the details to NEYGT (mike@neyorksgeologicaltrust.com). The events organised so far have been included in this circular insert. If we want geology to thrive we need to encourage more involvement by local people. Events can be anything that attracts an audience, including guided walks, fossil roadshows, lectures, school visits, master classes, exhibitions, displays or Dinodays.

www.neyorksgeologytrust.com/geomonth/events

NEW DATE FOR MEMBERS DIARIES

Please note there is a new date to add to the Annual Programme 2007. Vice President John Powell has "persuaded" Jon Ford & Simon Price to join him in leading a trip to examine the Jurassic of the Hambleton and Howardian Hills on 16th June 2007. Full details will be published in the Field Meetings circular (538) due out next month.

YGS CALENDAR

After only one year's absence it's back!

Due to a number of requests it has been decided to publish a YGS calendar for 2008. It is intended to make this a smaller household size calendar, rather than the old "industrial" size calendar. As in previous years YGS members have a part to play. Either provide a picture for the calendar, the best 13 on the subject of World Geology will be used (Council's decision is final) or you can simply buy a calendar and save the effort of looking for a picture to send in.

We aim to produce, and more importantly, sell 200 calendars. To reach this target we need to produce the calendar earlier than in previous years, so entries need to be with the circular editor (address on the reverse of this circular) by Monday 4th June 2007. Please remember: profits from the calendar and book sales go towards running the YGS and therefore help keep subscriptions down.

QUESTIONNAIRE

The YGS Council would like to thank all those members who have taken the time and trouble to return the Questionnaire sent out with last month's circular. If you have not returned yours, but intend to do so, please can you ensure it is with the General Secretary Trevor Morse, by Wednesday 28th March 2007.

NEW MEMBERS & DEATH

Ordinary Membership	Mrs R Levell	Guisborough
	Dr E A Pickett	Stanhope
	Ms S Hepburn	Knaresborough
Death	Louise Donovan	19th February 2007

BOOK REVIEWS

From time to time The Society receives various publications for review. Below is a list of the books we currently have for review, if you are interested in reviewing any of the following please let the circular editor know (address on reverse of this circular) and he will gladly mail the book out to you. The publication is yours to keep after review. Books are distributed on a first come first served basis.

Glencoe caldera volcano, BGS classic area of Geology. Book & map

Glacial & pre-glacial deposits at Welton-le-Wold, Lincs, Allan Straw. A5 size book, 42pp

The Building Stones Heritage of Leeds, Francis Dimes & Murray Mitchell. A5 size book, 120pp

Along the Esk (Guide of Mining geology and Industrial Archaeology), Denis Goldring. A5, 166pp

John Milne- the man who mapped the shaking earth, Paul Kabrna (Craven & Pendle G S publication)
A5 120pp. Pre-publication copy pdf, reviewer will receive the book on publication

KDP

MALHAM TARN FIELD CENTRE BIRTHDAY 1947-2007

If you are not travelling "south of the border" to the YGS Keyworth meeting you could well be interested in attending the 60th birthday party of Malham Tarn Field Centre.

Opened in 1947 with Paul Holmes as the warden, sixty years on, the Centre offers a full range of courses for schools and adults -reaching over 5,000 students each year.

The Head of Centre and Staff invite you to **A Birthday Tea on Saturday 31st March 2007** 2pm - 5pm. Light Refreshments. Transport available from/to Settle Station.

A time of sharing memories, meeting friends and a chance to see the Centre as it is now. A series of displays will illustrate the key events through the years and we are keen to add more memories to our archive.

You will need to RSVP if you intend attending to FSC Malham Tarn Field Centre, Settle, N Yorks, BD24 9PU.
Tel: 01729-830331 Fax: 01729-830658. enquiries.mt@.field-studies-council.org
www.field-studies-council.org

HULL GEOLOGICAL SOCIETY PROGRAMME

Our friends at Hull Geological Society are trying to organise a boat trip to view the Chalk Cliffs of Yorkshire. They are wondering if YGS members would be interested in attending? If so, please contact Mike Horne of Hull GS directly (details below) not the usual YGS contacts.

Also on their programme are the following which you more than welcome to attend.

Saturday 15th April	Spring clean Rifle Butts SSSI. Limited parking so share lifts. Bring trowels, brushes, secateurs, buckets and other cleaning tools.
Saturday May 5th	"A Walk on the Woldside", led by Derek Gobbett. A walk on footpaths to look at scenery and geomorphology of a typical Wold area. www.eastriding.gov.uk/events/ (select brochure for 'Countryside 2007')
Saturday 12th May	Rock, Mineral and Fossil Roadshow in the Education Room of the Treasure House in Beverley, open to the public from 11 am to 3pm
Saturday 19th May	"Fossil Fossick" public walk at Hornsea, led by Stuart Jones and Terry Rockett. (Part of Yorkshire Geology Month 2007). Free but booking is required for non-members
Sunday 3rd June	Whitby and the Cleveland Dyke, led by Paul Hildreth. (Part of Yorkshire Geology Month 2007).
Saturday 16th June	The Alum Industry at Ravenscar - led by Chris Blackhurst and Gordon Binns. Starts at 10-30 am and lasts 3 hours (further details to follow). (Part of Yorkshire Geology Month 2007).

Humberside Geologist number 14 has now been published in printed form and CD, for costs please contact Mike at the address below. Please Note: Whilst we are confident that the above publications are of a reasonable standard, YGS members purchase at their own risk.

Hull Geological Society, 28 Salisbury Street, Hull HU5 3HA, Tel 01482 346784
Email : mike@horne28.freeserve.co.uk

CORRESPONDING SOCIETIES

Contact society representatives for the latest information.

CRAVEN & PENDLE GEOLOGICAL SOCIETY

Contact: Paul Kabrna e-mail: paul_kabrna@hotmail.com or www.cpgs.org.uk/
(usual meeting place for indoor lectures: Barden High School, Burnley)

Virtualy Reality Geology of the Suez Rift — **Friday, 23rd March 2007**
Speaker: Paul Wilson Ph.D., Manchester University

CUMBERLAND GEOLOGICAL SOCIETY

Contact: Nigel Courtman, tel. 01229 861 478 or www.cumberland-geol-soc.org.uk

AGM & Presidential Address — **Wednesday, 14th March 2007**
Friends Meeting House, Cockermouth

EAST MIDLANDS GEOLOGICAL SOCIETY

Janet Slatter, tel. 01509-843.297; e-mail: sec@emgs.org.uk or www.emgs.org.uk
(usual meeting place for indoor lectures: Lecture Theatre B3, Biological Sciences Building, University of Nottingham)

Members Evening — **Saturday, 17th March 2007**
Preceded by AGM at 6.00pm

Geology and Disease — **Saturday, 21st April 2007**
Speaker: Professor Gerard Slavin. Start: 6.30pm

HUDDERSFIELD GEOLOGY GROUP

Julie Earnshaw (Secretary). Telephone: 01484 311 662 or e-mail: earniehome@ntlworld.com

Geoconservation in West Yorkshire: Making sure that our best rocks and fossils are protected and understood — **Monday, 5th March 2007**
Speaker: Alison Quaterman

Ground Investigation Techniques — **Monday, 2nd April 2007**
Speaker: Steve Rogers

HULL GEOLOGICAL SOCIETY

Mike Horne. Tel: 01482 346 784 or e-mail: m.j.horne@hull.ac.uk or www.go.to/hullgeolsoc
(Usual meeting place for indoor lectures: Department of Geography, University of Hull, at 7.30 pm. N.B. for security reasons the door is locked at 7.40pm)

AGM and Evening Lecture — Thursday, 15th March 2007
Petra: The influence of geology on Jordan and the Middle East
Speaker: Dr John Powell, BGS

LEEDS GEOLOGICAL ASSOCIATION

Anthea Brigstocke (General Secretary). Tel: 01904 626 013: E-mail: abrigstocke@hotmail.com or www.leedsgeolassoc.freeserve.co.uk (usual meeting place for indoor lectures: Mathematics & Earth Sciences, University of Leeds)

The Orkney Isles in the Middle Devonian and Thereafter — Thursday, 15th March 2007
Speaker: David Leather, LGA — National Science Week

Man-Tor: A Landslip Still on the Move — Thursday, 19th April 2007
Speaker: Dr Christine Arkwright, Earth Sciences, University of Manchester

LEICESTER LITERARY & PHILOSOPHICAL SOCIETY

Chairman: Mark Evans; Tel. 0116 225 4904, e-mail: Mark.Evans@leicester.gov.uk, www.charnia.org.uk/
(usual meeting place for indoor lectures: Department of Geology, University of Leicester)

Pterodactyls - the finger-wing dragons — Wednesday, 14th March 2007
Speaker: Dr David Unwin, University of Leicester

The Palaeontology of Leicester, Leicestershire and Rutland — Wednesday, 28th March 2007
Speaker: Mark Evans, New Walk Museum, Leicester

MANCHESTER GEOLOGICAL ASSOCIATION

Jane Michael. Tel: 0161 366 0595, e-mail: jane.michael1@tesco.net or www.mangeolassoc.org.uk
(usual meeting place for indoor lectures: Williamson Building, Department of Geology, University of Manchester)

Earthquake Hazard Mitigation — Wednesday, 14th March 2007
Joint meeting with Geographical Association
Speaker: Dr Martin Degg, University of Chester. Mansfield Cooper Building, 6.30pm.

NORTH EASTERN GEOLOGICAL SOCIETY

Frank Trowbridge. Tel: 01642 582 786, e-mail: frank.trowbridge@care4free.net or www.northeast-geolsoc.50megs.com

Mountain Building and Monsoons in the formation of Asia — Friday, 16th March 2007
Speaker: Prof. Peter Clift, Aberdeen University

ROTUNDA GEOLOGY GROUP

c/o Wood End Museum, The Crescent, Scarborough YO11 2PW. info@rotundamuseum.org.uk
(Usual meeting place for indoor lectures: Scarborough Campus of the University of Hull, Filey Road, Scarborough)

Mining on the Heritage Coast — **Thursday, 12th April 2007**
Speaker: Mr David Pybus, Cleveland Potash

Scarborough: the last 250 million years — **Thursday, 3rd May 2007**
Speaker: Professor Peter Rawson, University College London and University of Hull

OTHER SOCIETIES OF INTEREST

EAST MIDLANDS REGIONAL GROUP OF THE GEOLOGICAL SOCIETY
Ed Hough e-mail: eh@bgs.ac.uk

SORBY NATURAL HISTORY SOCIETY
Sorby Geological Group Secretary Ken J. Dorning: geology@sorby.org.uk
www.sorby.org.uk/grpgeo.shtml www.sorby.org.uk

YORKSHIRE REGIONAL GROUP OF THE GEOLOGICAL SOCIETY
Isla Smail. Tel: 0113 242 8498 or e-mail: isla.smail@arup.com

SUBMISSION OF PAPERS

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NEXT YGS MEETINGS

The next Field Meeting
1st April 2007 - British Gypsum Mine, Newark

The next Indoor Meeting
29th September 2007 - Geoparks, Durham

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