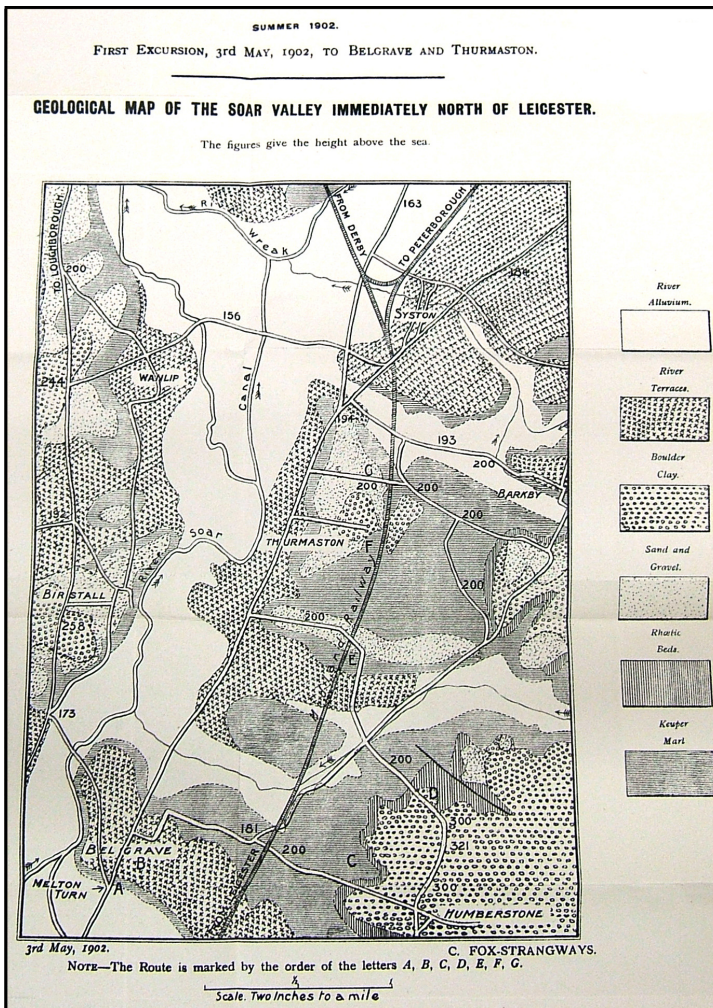


CHARNIA



from: Transactions of the Leicester Literary & Philosophical Society for 1902

**The newsletter of the Geology Section (C) of the
Leicester Literary & Philosophical Society
www.charnia.org.uk**

January 2008

Editorial January 2008

Christmas and the New Year are a great time for socials, seeing friends and relations, but in many ways its an odd time. At almost no other time of the year, unless you are retired and at home the year round, do you enjoy an extended spell with your nearest and dearest, but are not actually away on holiday. This sometimes promotes a strange frame of mind, when thoughts take on a philosophical and reflective aspect, and perhaps we assess where we stand in our lives with a sort of end of year self-assessment. Not only that, but 'what ifs', and 'if only I could win the lottery' type thoughts can invade our normality. For me, the unusual thought processes result in flights of the imagination, and this year it took the form of what periods of earth history I would revisit in a time machine, and what I would like to have witnessed. The one that is always first into my mind is the great K-T extinction. Wouldn't it be wonderful to be there (in your impregnable safety bubble of course) to watch it all unravel and then travel back and tell the warring factions that this is how it REALLY happened. Opinions have become so entrenched, yet it occurs to me that none of the sides have provided acceptable theories backed up by irrefutable evidence, and it is relatively easy to undermine all of the arguments with a bit of research, as many professional and media presentations have proved. Another favourite interval of mine is the end-Permian event, a far more spectacular extinction than even the famous K-T, and so far the evidence of a comet/meteor/asteroid impact is almost non-existent, so where do we look here for our cause? If you watched the Power of the Planet series on TV recently you will have seen an answer given with a fair degree of certainty, thus providing a perfect example of how that programme fell into the very modern 'easy listening' trap of presenting a pre-digested, easily absorbed theory as truth. The truth is that there is no generally accepted cause of that catastrophic event, and when and if it is ever established you can bet it will be far more fantastic than anything our imagination can come up with.

My wish-list for time travel would also certainly include a trip back to Charnwood around, say, 560 my ago. Right on our doorstep is one of the greatest stories of all time, the development of an ecosystem in a sea ravaged by violent volcanic activity, resulting in a range of life of the most baffling complexity, which somehow was fossilised to an unbelievably detailed degree in what might be imagined to be the most unsuitable surroundings. Think about that one when you've a spare several hours! Oh, and what colour were dinosaurs!? Perhaps the upcoming Saturday Seminar on March 15th (miss it at your peril!) will tell us.



Bradgate Park and its rugged terrain

For the final item on my time-travelling itinerary, I think it would be the south east of Britain around 1,000,000 - 750,000 years ago. Why? To witness the first humans arriving in the area now called Britain. Were they *Homo sapiens*, or perhaps *H. neanderthalensis*? Or both? Did they come when it was freezing, trailing ever diminishing food resources, or when it was warmer, on a journey of discovery? The answer to that one I believe we will never know.

Let me know your geological flights of fancy!

Before closing I must express my own and the Section's deep sadness at the news of the death of Pauline Dawn at the end of September. Pauline was a stalwart of the Stamford group and her contribution to the functioning and efficiency of that society cannot be overestimated, yet she still found time for the Geology Section, and her and husband Alan were familiar faces at our meetings. We will miss her, as we do the other members who have regrettably passed away over the last two years or so.

Andrew Swift

TICKETS NOW ON SALE FOR THE SATURDAY SEMINAR 2008

Dynamic dinosaurs – cutting edge approaches to ecology and behaviour

Saturday March 15th 2008

9.00 – 5.00pm

Confirmed speakers are Professor Bill Sellers, Dr's Phil Manning, Angela Milner, David Unwin, Paul Upchurch and John Hutchinson

**Ticket prices are £18 with lunch and £12 without lunch
Available at all evening meetings or from the Treasurer (address inside back page)**

Winter Programme 2008

**Except where stated, all meetings will be held at 7.30pm in Lecture Theatre 3, Ken Edwards Building, University of Leicester campus.
Details: Chairman Dr. Joanne E. Norris, 0116 2833127, j.e.norris@ntlworld.com**

Monday January 7th

Parent Body Lecture, New Walk Museum, Leicester

Professor Cynthia Burek (Department of Biological Sciences, University of Chester): **Where are the women in geology?**

Wednesday January 16th

Dr Ian Candy (Department of Geography, Royal Holloway, University of London): **Finding their way into the East Midlands; the earliest Britons, their landscapes and climates.**

Wednesday January 30th

Dr Cheryl Jones (Department of Applied Sciences, Geography & Archaeology, University of Worcester): **The Abberley and Malvern Hills Geopark.**

Wednesday February 13th

Members Evening, New Walk Museum, Leicester.

Wednesday February 27th

The Palaeontological Association Baldwin Lecture.

Professor Nigel Trewin (Department of Geology, University of Aberdeen):

The Early Devonian ecosystem preserved in the Rhynie Chert of Aberdeenshire, NE Scotland.

Wednesday March 12th

Dr Tony Waltham (Geophotos, Nottingham). **Into the Danakil; some geology in the Afar Triangle.**

Saturday March 15th

Annual Saturday Seminar, University of Leicester, 9.30 am – 5.00 pm

Theme: **Dynamic dinosaurs! Cutting edge approaches to ecology and behaviour.**

Wednesday March 26th

Annual General Meeting, and Chairman's Address

Dr Joanne Norris (Halcrow Group Ltd., Peterborough). **An introduction to soil bio-engineering for slope stabilisation.**

Abstracts for the Winter Programme lectures

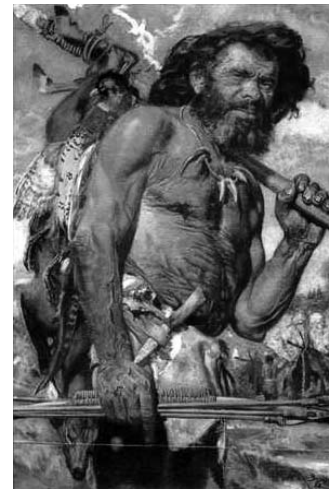
January 16th

Finding their way into the East Midlands; the earliest Britons, their landscapes and climates

Dr Ian Candy, Department of Geography, Royal Holloway, University of London, Egham, Surrey, TW20 0EX

Sediments from Central and Eastern England contain evidence for the earliest Humans in Northern Europe. Crucial to the arrival of these humans in Britain were the river systems of that time period that not only acted as routes of migration across the country but also provided the sediments within which the evidence for their existence is buried. In archaeological terms one of the most important rivers was the Bytham river. The Bytham system, now absent from the British landscape due to its destruction by an extreme glaciation, flowed from the Welsh borders, across the west and east Midlands and East Anglia, exiting what is now the British land mass in the region of Lowestoft. Numerous archaeological sites occur along the extinct course of this river all

of which contain abundant faunal and floral remains that allow us to reconstruct the climate of each occupation event. From this research it is possible to say that although the earliest occupation event in Britain occurred under a Mediterranean style environment, early humans were clearly highly adaptable living under a range of climatic regimes. The geology of East Anglia and the Midlands is, therefore, essential for understanding the evolution, migration and activity of early humans.



H. sapiens and H. neanderthalensis, early remains of both are recorded from Britain (first reconstruction origin unknown, second from Am. Mus. Nat. Hist.)

January 30th

The Abberley and Malvern Hills Geopark

Dr Cheryl Jones, Department of Applied Sciences, Geography & Archaeology, University of Worcester

February 27th

The Early Devonian ecosystem preserved in the Rhynie and Windyfield cherts, NE Scotland

Professor Nigel H. Trewin, Department of Geology, University of Aberdeen

The Early Devonian hot spring system in the Rhynie area was responsible for the silicification and preservation of a remarkable biota that inhabited the

area. The biota comprises a flora of spore-bearing plants, bacteria, algae, fungi, and a fauna dominated by arthropods. The ecosystem can be divided into terrestrial and freshwater end members, with marshy gradations between these end members. Terrestrial plants bore stomata for gas exchange and the larger terrestrial arthropods had trachea or book lungs to extract oxygen from the air. In freshwater pools shrimp-like crustaceans were associated with bacterial mats and charophyte algae. The biota has a remarkably modern aspect with harvestman spiders, centipedes, springtails and nematode worms. Fungi included parasitic and mycorrhizal forms, and also acted as decomposers of plant material in a primitive soil. Clearly there had been a long period of terrestrial ecosystem evolution prior to the Devonian, probably extending back to the early Ordovician.

March 12th

Into the Danakil: some geology in the Afar Triangle

Dr Tony Waltham, Geophotos, Nottingham

Where the African Rift Valley meets the Red Sea, a triple junction of divergent plate boundaries has constructed the Afar Triangle, now occupied by parts of Ethiopia and Djibouti. The barren desert terrain displays some fine features of divergence tectonics and volcanism. Active rift valleys enclose the Lake Assal depression, the Ardoukoba volcano and the Lake Abhe basin with its myriad tufa towers. The Danakil depression is floored by salt lakes far below sea level, around the basaltic Erte Ale volcano. This contains a small active lava lake, whose continued existence is related to dyke intrusion in the zone of divergence; a journey to it is a minor epic.

March 26th Chairman's Address

An introduction to soil bio-engineering for slope stabilisation

Dr Joanne E Norris, Halcrow Group Ltd., Peterborough

Soil bio-engineering or using vegetation in civil engineering structures is now an established practice in many parts of the world and is favoured to some of our more traditional methods of soil stabilisation, e.g soil nailing and geosynthetic reinforcement. The use of bio-engineering techniques promotes and sustains the life of indigenous vegetation species, reduces costs and employs the local labour force. In the U.K., until recently, relatively little information, of relevance to the engineer, was known about the below ground

functions and properties of all types of vegetation. This was mainly due to the difficulties in extracting whole root systems, and the problems of testing plant roots both *in situ* and in the laboratory for their strength and other mechanical properties. The lack of precise information on plant root properties has possibly discouraged the use of soil bio-engineering practices.



Even thick vegetation couldn't prevent this slide near Lyme Regis

This presentation will introduce the concept of soil bio-engineering, and review the methods by which vegetation can be measured for its engineering properties and how it can be incorporated into engineering design.

Annual General Meeting, March 26th 2008

The time for our annual meeting for the election of officers and the processing of essential business is rapidly approaching again. While the primary purpose of this meeting is to secure the continuation and efficient running of the Section for another year, it is also the forum where ideas and, maybe, grievances, can be aired. And while none of the officers and committee are in post for reasons of personal ego, and seek no congratulations for their efforts, it is always reassuring to us to know that the membership is happy with our efforts, and again, this meeting is where your feelings one way or the other can be expressed. All posts from Chairman



The BGS party in the Core Store on October 13th



Harold's doomed army prepares to abandon Senlac Hill, aka The Nuneaton Ridge

down are up for election, whether or not the post-holder has served the full term permitted by our rules, so if you fancy helping to run the Section and can raise a proposer and seconder, or have a nominee you would like to propose, please return the enclosed nomination paper to the secretary at least two weeks before the meeting.

Most years the business part of the meeting is concluded fairly rapidly, so for those of you who are allergic to AGM's, please remember that the Chairman's Address follows, and forms a conventional lecture in the same mould as those in the rest of the programme.

Provisional Summer Programme 2008

Saturday April 12th – Birchover and Cromford areas, Millstone Grit, etc, led by Dr Ian Chisholm

May 10th or 11th – Chatsworth House mineral collection and possibly House, led by Mick Cooper

June – Weekend field trip, venue to be decided

Sunday July 13th – Castleton, Speedwell, Cavedale, Dirlow Rake, led by Gerry Slavin

August – Ketton or Blockley

September – Quest Pit, Bedfordshire, led by Chris Andrew

October – Lapworth Museum, Birmingham University. To be confirmed.

As can be seen, the programme is still in the formative stage, although some dates are confirmed. Please note that the first excursion this year is on the early date of April 12th. For further information, please contact the Field Secretary Helen Jones.

Field Excursion Reports, 2007

The Nuneaton Ridge, September 15th 2007

Everyone of a geological turn of mind must be aware that we are in the midst of a couple of memorable celebrations, one of which is the 200th anniversary of the foundation of the Geological Society of London, the country's leading geological society. Many of the country's other geological societies were invited to arrange events to mark this momentous occasion, and our neighbours, the Warwickshire Geological Conservation Group, offered to host a field excursion to one of their county's best localities, the Nuneaton Ridge. The Geology Section was invited in its turn by the WGCG to join in,

which we were very pleased to do. Despite its closeness to Leicester, the Ridge is not a familiar stamping ground for the Section. The Ridge is a small, but fascinating, narrow strip of relatively high country bounded by faults and enclosing a sequence of mainly Cambrian sedimentary rocks, intruded by Ordovician age sills and dykes. These harder intrusions have long been exploited for building and, mainly, road metalling, and on September 15th we saw two of the quarries opened to extract this material, which perforce also expose the Cambrian country rock. We also walked the Moorwood Trail, which runs through the Hartshill Hayes Country Park, a trail designed to show off the scenic aspects of the ridge, and the various natural and artificial rock exposures.



The party enters the disused quarry at Mancetter

We were not the only other group invited to join the WGCG, and it is to their credit that they broadened the net to include civic groups and other non-geological organisations. It is always constructive to fly the geological flag in the wider world. Even the weather chipped in and helped us, and stayed fine throughout. With all the extra folks I lost count at 50 when trying to assess the size of the throng that milled around at our first stop, a large disused

quarry near Mancetter. Martyn Bradley and Maurice Rogers attempted to explain the logistics of the day and impress on us the importance of observing health and safety requirements, but that was never easy with so many. Alan Cooke took over to lead us into the quarry, and gave us the benefit of many decades of study in that place. The main draw for the majority of the party, apart from a bracing walk in the countryside with friends, was the opportunity to search for trilobites in the Cambrian shales, with many species and fine specimens recorded. Sadly, we were largely disappointed, they were hiding and only a few scraps were collected. But the interest inherent in the nature and field relationships of shales and intrusions more than compensated for most of us.



One of the numerous small quarries on the Nuneaton Ridge, showing a sill (below) intruding Cambrian shales (above)

Across the road from the disused quarry is its working counterpart, and despite not being able to enter the facility, we were taken to a good viewpoint from where we could overlook operations in the quarry. From there some of us chose to walk to the afternoon locality of the nearby Moorwood Trail in the Hartshill Hayes Country Park, whilst others returned to the cars at the

disused quarry to consume lunch and discuss the morning's activities. This group then drove to the Park and rejoined the walkers. Many people left us at lunchtime, but the remaining group of enthusiasts enjoyed an excellent perambulation around the Nuneaton Ridge under the guidance of Martyn Bradley, making a special study of the many excavations opened to exploit the intrusions. We also had a glimpse of the contact between Westphalian measures and a sill. Unfortunately we had to return to the cars via the same route we took on the outward leg, and without the stimulation of scenes of new interest, we were quite weary as we regained the car park. However, nothing could detract from an excellent day, for which we must give full credit to our Warwickshire comrades.

Andrew Swift

British Geological Survey, Keyworth, 13th October 2007

The final event of the 2007 Field Programme took place on a balmy day in October when 26 members attended a day at the British Geological Survey hosted by Chief Curator Dr Mike Howe.

The day commenced with refreshments and an introductory talk by Mike at 10.30, when we heard of how the BGS and its collections came into being. The Geological Survey opened its first museum in 1841, in London, moving again in 1851 and 1935 before the main facility was moved to Keyworth in 1985. The current premises, the Kingsley Dunham Centre, were formerly occupied by a group of nuns who specialised in the training of teachers. The building still retains a peaceful, contemplative air, especially on a Saturday.

After Mike's interesting introduction we moved on to see the 3D facility. One of the aims of this arm of the BGS is to create a facility for virtual mapping, so that at any given grid reference a virtual borehole can be sunk and the underlying sequence observed. We were shown a 3D image of the British Isles that could be manipulated to reveal the underlying Moho, fault lines, earthquake epicentres and the geological sequence. With the aid of our 3D glasses the quality of the visual imagery was demonstrated via the medium of a short natural history film. So intense were the images that we felt part of the film, and found ourselves reaching out to touch a fish as it swam towards us, and beating off a marauding wasp!

Our packed lunches were consumed in the cafeteria before we moved on to the Fossil Museum. For the palaeontologists amongst us this was a sweet shop, and the many fine specimens put out especially for us were closely scrutinised. Some of us even indulged in attempted reclassifications! Mark Evans contributed to the day by introducing us to certain marine reptile

specimens. The museum contains both fossil and cast examples and they provide, like the rest of the collection, an invaluable research resource. From the relatively small scale of the palaeontology area, we were taken to experience the complete contrast of the cavernous Core Store, which contains a vast depository of cores stored in metre length boxes and accessed by hydraulic machinery. This facility offers an invaluable resource for mining companies, research organisations and geologists, and the BGS are always keen to make the resource available to bona fide researchers. We were able to examine a selection of cores that included ones from Cropwell Bishop and Blockley, and we also saw Mercia Mudstone and Sliding Stones Formation from Bradgate. These provided a fascinating snapshot through millions of years of geology. We were also able to view thin sections of various local igneous rocks under polarised light, and these offered an insight into the chemical makeup of the rocks that constitute our local road surfaces!



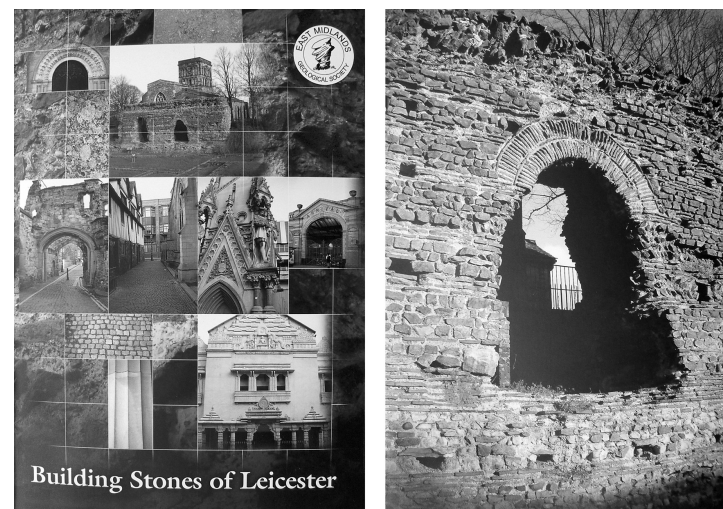
The BGS party in the core study area

The day was rounded off by a vote of thanks from the Field Secretary and the group dispersed at approximately 3.15pm.

Helen Jones and Andrew Swift

Building Stones of Leicester book

This glossy coloured booklet is an updated edition of the original written many years ago by Section C stalwart Dr J. H. McD. Whittaker. It is published by the East Midlands Geological Society and is a collaborative effort by many contributors, including Section C members Diana Sutherland and Albert Horton. It has been selling steadily and we are beginning to see the end of our stock, so if you want a copy, it would be a good idea to move quickly. Copies are normally available at Section events or they can be purchased from either myself or Chair Joanne Norris at a special discounted price, only available to Section members, of £4.00.



Front and back of the Leicester Building Stones book

Successful Joint Meeting with the Parent Body, Monday January 7th 2008

Our long-standing annual 'Parent Body' meeting took place recently in early January. In many ways it wasn't the best slot on the programme, coming so soon after the Christmas and New Year celebrations, and the attendance was slightly down on recent years. However, there was still a fairly healthy throng to hear Professor Cynthia Burek from the Department of Biological Sciences at the University of Chester, lecture on 'Where are the women in Geology?'. Despite the pitfalls inherent on a talk that considers the attitude to

women in the professions, or indeed the wider world, Professor Burek successfully negotiated any political correctness issues to deliver a stimulating address. Professor Burek is an old student from the Geology Department at the University, and it was pleasing to see her PhD supervisor from that time, Trevor Ford, in attendance at the small pre-talk reception with other officers from the parent body, together with our own Chairman Dr Joanne Norris.

One very useful item to come out of the meal beforehand, which was attended by the Chairman, Vice-Chairman and Editor, was an offer by Professor Burek to organise and lead the 2009 weekend field excursion, to the area around Llangollen. The offer will no doubt be discussed in committee.



Chairman Joanne Norris with Professor Burek before the meeting

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Scenes from the Christmas Meeting at New Walk Museum, December 12th 2007

