



Buckinghamshire Earth Heritage Group Newsletter No. 12 December 2010

Event: Four Decades of Earth and Planetary Sciences at the OU. Saturday 9th October 2010

A number of members from the BEHG attended the Open University family Day in Milton Keynes. The event celebrated their 40th anniversary and featured a programme of geological lectures, lab tours, exhibits and family activities.

The keynote speaker was Professor Iain Stewart (**Photo right**) who is known to many from his popular TV series entitled 'How Earth Made Us'. Iain's lecture focused on the geologist James Hutton (1726-1797) who reasoned that there must be a constructive phase to the earth as well as the erosive phase he saw around him - in order to make a "habitable world". Iain emphasised the fact that humans are interfering with the planet like never before and that geologists have been at the forefront of its mineral wealth exploitation. But now, geologists can see the unparalleled effects humans are making on the natural earth system. Geologists may be more aware



of the warning signs than other disciplines. His closing comments were to challenge if our roles as geologist would change as we try to "*balance the economic demands with the integral functioning of the planet, to the normative value, in guarding the human continuity into the future*"?

Event: Festival of Geology at University College London Saturday 6th November 2010

The BEHG took part in the '2010 Festival of Geology' event. Tom Hose (photo below) and Graham Hickman manned the BEHG stand.



The event was very popular this year attracting approximately 400 people. Many local geological societies and geo-conservation groups were represented. The BEHG stand

was well visited with many people expressing an interest in our activities. At intervals throughout the day lectures were given on interesting topics which included; Mining the Ocean, Challenged by Carbon, Exploring Mars and Whale-eating Sharks from Egypt.

A whole room was staffed by [Rockwatch](#), which is the nationwide club for young geologists run by the Geologists' Association. Activities for the young included fossil plaster-casting, trilobite racing and making a Jurassic Diorama.

A photographic competition was also held as part of the festival. Up to three photographs taken during the year could be entered. It was against steep competition that Graham Hickman was delighted to discover that his mud-crack photo entitled "Geological Jigsaw" won the 3rd place prize of £25. The photo is reproduced in this newsletter under the members' questions section.

Field Trip: Totternhoe Stone Quarry
Sunday September 26th 2010

The Totternhoe Stone is a gritty Chalk at the base of the *Holaster subglobosus* Zone (an echinoid) within the Grey Chalk. It occurs as a 1m thick bed along the base of the Chilterns scarp, except at Totternhoe, where it attains a thickness of 7m, in an east-west oriented channel. The stone is relatively free from fractures and although soft enough to cut when fresh, it develops a hard cortex after exposure. Historically the Totternhoe Stone was much in demand for carving and dressing. It can be found in churches and other medieval structures throughout the area and beyond, including many of the highest status, such as Woburn Abbey, Windsor Castle and Westminster Abbey. The current small scale operations were reopened about 30 years ago after being closed for 50 years.

phosphatic nodules and is generally regarded as waste stone. Individual shark teeth were found within these beds and although the root lobes were often broken the teeth showed well preserved points and blade serrations.



Several fault planes were observed in the quarry (**Photo above left**). Although very few faults are mapped within the Chilterns Chalk outcrop, this is probably due to the difficulty in detecting the offsets due to the similarities in Chalk lithologies, rather than absence of faulting.

Of archaeological interest were the remains of an old mine adit (**Photo above right**) exposed in the quarry face. This probably dates from medieval times. Clear pick marks were visible on the roof. It demonstrates the historical value placed on the stone as the recorded surveys have shown such mines to be up to 300m long.



Photo above: Dr. Oates points out the top of the more massive bedded Totternhoe Stone.



Photo above: The group examining cut blocks of the Totternhoe stone, showing bioturbation.



Photo above: Shark tooth & phosphatic nodules.

The basal Totternhoe Stone contains abundant

Our thanks go to Dr Michael Oates for leading the trip, The Wildlife Trust for allowing access and Angus Clarke, the quarry operator, who accompanied us on the day.

Members Questions



Answer: Shrinkage cracks are caused by desiccation. During dry periods, dehydration of the clay causes initial cracking at and/or beneath the surface (probably near the base of the subsoil layer). Cracks propagate vertically, perpendicular to iso-humidity planes (in the same way basalt cracks perpendicular to the isotherms as it cools). Normally, shrinkage cracks are polygonal (photo below) but in this case, compaction along the line of the footpath, has changed the moisture content and tensile strength of the subsoil causing a wider crack to follow preferentially a series of similarly-oriented linked planes in the polygonal pattern. Similar linear cracks have been observed between rows of corn.

Dr Michael Oates

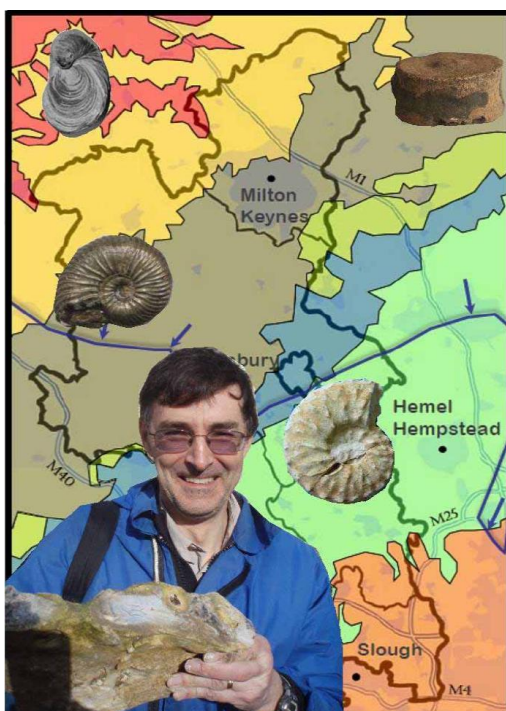


Question: The photo above was taken in August 2010, near Aspley Manor Farm, Stoke Mandeville. I believe the footpath is over the Gault Clay Formation. Why should a shrinkage crack develop along the footpath?
Graham Hickman

Photo right: 'Geological Jigsaw'- 3rd place prize at the 2010 festival of geology 😊

Talk: Messages in Stone – Buckinghamshire's Geological Past

Saturday November 20th 2010



Approximately 50 people turned up to listen to Graham Hickman give his talk on 'Messages in Stone' at the Aylesbury Museum. Beginning with an enticing slide of Jurassic Britain, that bore a striking resemblance to present day Bahamas, Graham walked us through the geology of Buckinghamshire with engaging anecdotes and a very informative visual presentation.

One of the most interesting points of the talk was when we were taken into the subsurface geology of the county via a series of boreholes that dated back as far as 1870 and stretched from the north of the county in Calvert, and Bicester, to the south in Slough. The borehole in Little Missenden being of particular interest to many in the audience as the knowledge of its existence was not generally known.

The questions at the end of the talk demonstrated that not only had the audience been attentive throughout, but it had also piqued their interest; many left wanting more. A follow-up talk would certainly be well received.

Meet the BEHG Committee



Mike Palmer. Chair

Mike is Keeper of Natural History at the Buckinghamshire County Museum. Mike has a degree in Environmental Science from the University of London's Westfield College. Mike worked initially in nature conservation before taking up a position at Liverpool Museum. He has been in his current post for the last ten years. Mike's personal interests largely reflect his work with a particular focus on geology, fungi, lichens and trees. He also devotes quite a bit of effort to tracking down stone circles, burial chambers and other ancient monuments across the British Isles.



Dr Jill Eyers. Treasurer

Jill is a consultant geologist engaged in lecturing, research and field work. Jill has a geology degree and PhD from the OU for her work on the Lower Cretaceous in England. Jill spent part of her childhood in Australia later returning to live in Buckinghamshire. Her first interest in geology, at age 3, was captured on her uncle's cine film, where she is seen at Brighton Beach picking up pebbles and cramming them in her pockets. Recently Jill has appeared in a BBC documentary. Jill is author of the Rocks Afoot guides.



Graham Hickman. Vice-Chair

Graham is a professional geologist currently engaged in oil exploration for BP in Angola. He has a BSc in Geology and Geophysics from Leicester University. Graham has travelled extensively with BP and has always taken a keen interest in his local geology. He has lived in Bucks for the past 8 years, but has also lived in Texas, Egypt and the Oman. His interest in geology started when his father took him to collect fossils at the Wren's Nest in Dudley as a small boy.



Lindsay Hiles. Membership Secretary.

Lindsay took up her interest in geology fairly late in life by enrolling in Open University Science courses. It took her 12 years to get a degree while bringing up a family. Through joining the Group she is able to continue with her interest and discover more about the local geology. Lindsay currently works full-time in a Lower School in Leighton Buzzard as an Office Manager where she displays her fossils and enjoys chatting to the children at school about all things geological.



Dr Mick Oates. Geological Advisor.

Mick is a professional geologist most recently working in Kazakhstan engaged in oil and gas development. He has been Vice-President of the Geologists' Association and is a Fellow of the Geological Society. Mick has held a lifelong interest in all things geological. He has single-mindedly pursued it as a vocation since schooldays in Aylesbury in the 1960s, with a BSc and PhD from University College, London. Locally, he has published on Kimmeridge Clay stratigraphy.



Dr Tom Hose. GeoConservationUK.

Tom, until recently a Principal Lecturer at a local university, is a geotourism and environmental education consultant. He has a BSc in earth sciences (London University), a PGCE (Liverpool University), an MA in museum management (City Museum), and a PhD (University of Birmingham) on 'geotourism' - a world first! His research has taken him to the USA, Australia and Europe. Tom has worked in schools and museums as a geologist, geographer and natural historian. Tom is on the Executive Committee of GeoConservationUK and edits its newsletter.



Julia Carey. Buckinghamshire Countryside Officer

Julia works for Bucks County Council, as part of a small team, she manages 46 countryside sites. Julia has a very varied role; days can be spent glued to a computer, wrestling a sheep out of the brambles or organising scrub clearance and species conservation works. In her late teens she spent 5 months surveying a cloud forest reserve in Ecuador an amazing experience! Julia's interest in geology started at around age two, when her parents took her to look at the ammonites at East Quantoxhead, Somerset, she's been hooked ever since.

Membership Update

Just a quick reminder that BEHG subscriptions are due for renewal at the end of December. Annual membership runs from 1st January. Individual membership is £5 and Family membership is £8 per annum. Membership is open to beginners and experts alike.

With funding becoming harder to secure, we are ever more reliant on membership subscriptions to cover our basic costs such as Public Liability Insurance and website hosting costs.

We wanted to thank everybody on the list below who have supported us through 2010 by becoming paid up members:

Jill Eyers,
Russell Hartwell,
Karen Gresswell,
Roger Lerry,
Elizabeth Lerry,
David Parish,
Joseph Ibbett,
Graham Hickman,
David Chalkley,
Andrew Still,
Phillip Clapham,
Lindsay Hiles,
Peter Banham,
John Stidworthy,
Sue Stidworthy,
Patricia Carter,
Stephen Packer,
Bryan Moseley,
Colin Mills,
Margaret Keeton,
Susan Baker,

David Graddol,
Alice Graddol,
Katherine Graddol,
Clare Graddol,
Trevor Hussey,
William Mcleod,
Mike Farley,
Rosemary Blasdale,
Steve Blasdale,
Anne Eustace,
Rodney Sims,
Mike Palmer,
Tony Britten,
George Lewis,
Jenny Syred,
Julia Carey,
Robert Jones,
Jan Jones,
Elizabeth Jones,
Alan Robertson,
Mavis Robertson,

Julie Hopton,
Hilary Phillips,
Michael Oates,
Ronald Lewin,
Tom Hose,
Paul Dottridge,
John Southgate,
Katie Southgate,
Roy Valentine,
Caroline Yeo,
Laurence Hartley-Ayers,
Karen Abbey,
Cameron Abbey,
Lara Abbey,
Mary Stewart-Hunter,
Clive Rodgers,
Annette Connors,
Joel Connors,
John Connors,
Nathan Connors,
Joy Blake.

Membership

A copy of the membership form is available on our website: www.bucksgeology.org.uk
If you would like to join please complete and send the application form together with payment to: Membership Secretary, Lindsay Hiles 4 Phoenix Close, Leighton Buzzard Beds LU7 3YW email: behg.membership@btinternet.com

The Buckinghamshire Earth Heritage Group aims to record, conserve and promote the geology of Buckinghamshire and Milton Keynes.

For general enquiries please contact:

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