# Buckinghamshire Earth Heritage Group

# Newsletter No. 20 October 2012

## *Event: Bugle Pit – Conservation work and clean-up work underway*

**Wednesday August 1st 2012.**

Bugle Pit is a geological SSSI (Site of Special Scientific Interest) for Portland and Purbeck aged strata and fossils. The site at Hartwell, Buckinghamshire, was once a much larger quarry that was in-filled many years ago. In 1984 a small pit was re-excavated by English Nature (now Natural England) as it was realised this had been the only place to see this rock in Buckinghamshire. The site was maintained for a few years with the help of the Open University Geological Society. However, after a while access was not easy and it became unsafe and neglected.

**Photo above**: Bugle Pit before work began.

Earlier this year the Bucks Earth Heritage Group realised the potential importance of re-opening this site to allowing fresh research and training. It had also been brought to our attention that the surrounding fence was about to collapse, leaving horses in the surrounding fields vulnerable and the possibility that the pit would be permanently backfilled. Using a combination of "Rocks and You" lottery funding, a £1000 grant from the Curry Fund of the Geologists' Association and an offer of continued assistance from Natural England, BEHG members began clearing the site.

What a mammoth job this has proved to be! Large trees were felled by professionals and ground vegetation removed and burned. New fencing (a double line) was put in place to secure the site from inquisitive horses and a very robust set of steps went in to allow access, via the vertical faces.

**Photo above**: Cleared with new fence & steps

We are currently in the process of making up gabions to add stability to one face, which also acts as a seating area and finally clearing masses of spoil which have accumulated as scree. A hefty job but Tony Britten, Phil Clapham, Nicky Muizelaar and Jill Eyers have worked exceptionally hard to get this far. Two new Open University recruits have joined us to assist logging and writing a paper. Stephen Packer of Millennia SC Ltd., (one of our members) is also looking at the microfossils in the sequence. We will feedback information when we have some results.

**Photo above**: re-exposing the section.

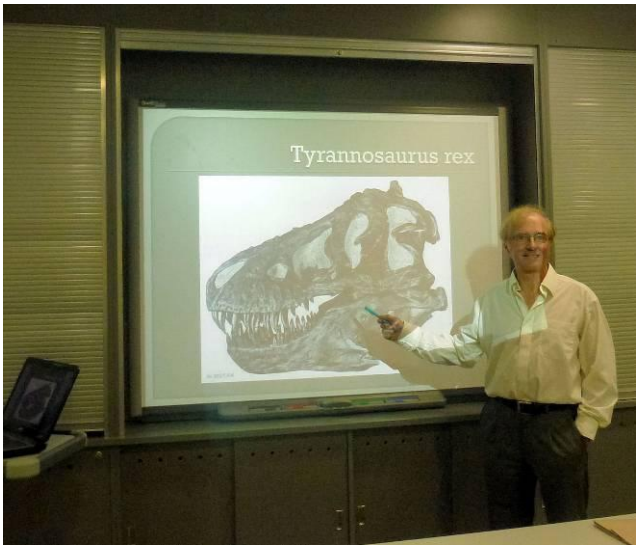
The next work day will be to measure and describe the section, followed by wet sieving the sediment to find microfossils. All volunteers are welcome to join us.

Jill Eyers

## *Rocks and You – Talk on Dinosaurs by Dr Clive Rodgers*

**Wednesday August 8th 2012.**

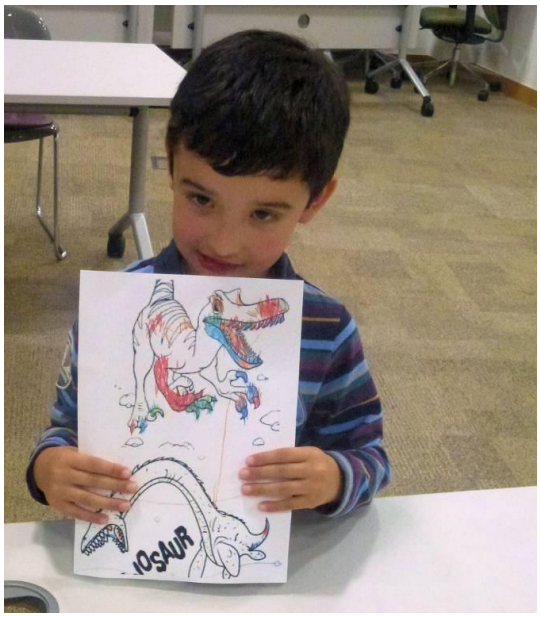
One of the main objectives of the **"Rocks and You"** programme is to raise the public awareness of geology and what better subject to engage with than that of Dinosaurs. These extinct monsters have attracted the publics' attention since William Buckland first described Megalosaurus, the giant lizard from Oxfordshire in 1824.




Dr Clive Rodgers (**photo above**) gave the talk on Dinosaurs to a group of around 20, including quite a few children. The well equipped venue at High Wycombe Library and the plentiful seating arrangements allowed for follow on activities which were a great success and enjoyed by all.

Clive made the talk very hands-on with a vertebrae specimen and 'Dino food' to discuss and examine (**photo above**). Ferns and horsetails are believed to be related to similar plants that the dinosaurs would have eaten.

Following the PowerPoint presentation which included dinosaur cartoons - several of which Clive had developed himself – a hidden talent!




Additionally, Children were given the opportunity to colour in dinosaur pictures and since nobody knows what colour dinosaurs were, imaginations were only limited by the available crayon colours. Thanks to Clive's inspiring talk a number of families enquired about joining the BEHG and participating in future events. Parental permission was also given to use the photos of the children in our Newsletter. Thanks, and well done to Clive for delivering an excellent talk.

Graham Hickman

## *Joint BEHG and National Trust event: Geology Week at Stowe*

**August 11th to August 17th 2012.**

Held amongst the beautiful landscaped gardens of Capability Brown and the historic architecture, Geology Week at Stowe was a truly memorable event. During the week-long event more than 1,000 visitors passed through the displays. At times the exhibition area was inundated by excited children wanting to look down microscopes; handle rocks and fossils; discover the magic minerals or to assemble the 'bag of bones' to make a dinosaur.

The main geological displays and activities took place in the Bennett Room (**Photo above**) which is located in the new visitor centre at the New Inn, Stowe. This was an excellent venue.

Quotes of the week:

- "Wow, I feel like a real scientist now!" said one young man aged about 9 years as he gazed intently down a microscope.
- A reluctant teenager became engaged as he wandered around, to conclude his visit with… "Cool, that was fun!"
- One keen 8 year old asked his mum, "Can I stay here all week please?"
- Whilst one mum exclaimed, "Blow the kids, that's the best fun I have had for ages!"

**Photo:** Jill describes and identifies the fossils found.

**Photo:** Fossil hunting at Home Farm Pit, Stowe.

Susan Evans the National Trust education officer and two other National Trust volunteers helped with the event. Many thanks also must go to the team of BEHG volunteers who help at the event; Nicky Muizelaar, Tony Britten, Jill Eyers, Linda Holmes, Sarah Payne, Madge Williamson and Phil Clapham.

There were lots of other really positive comments from members of the public who attended. But the over-riding feedback was that the opportunity to handle the rocks, minerals and fossils was very special. Not surprisingly the event was so well received that we have been invited back next year.

Jill Eyers

## *Event: Ammonite Art at the Amersham Museum*

**August x$^{th}$ 2012.**

This event proved to be a very popular summer afternoon activity for the smaller children. The art workshop took place outside in the courtyard of Amersham Museum. Which was just as well as the little ones tend to be very liberal with the glue and glitter! At the end of the afternoon some wonderful works of art had been created.

Artistic activities included colouring fossil template, using potato prints and a variety of media including poster paints. For the ammonite art, glitter was added to represent the lustrous aragonite shells or the crystals in-filled body chambers. We even had some crochet ammonites!

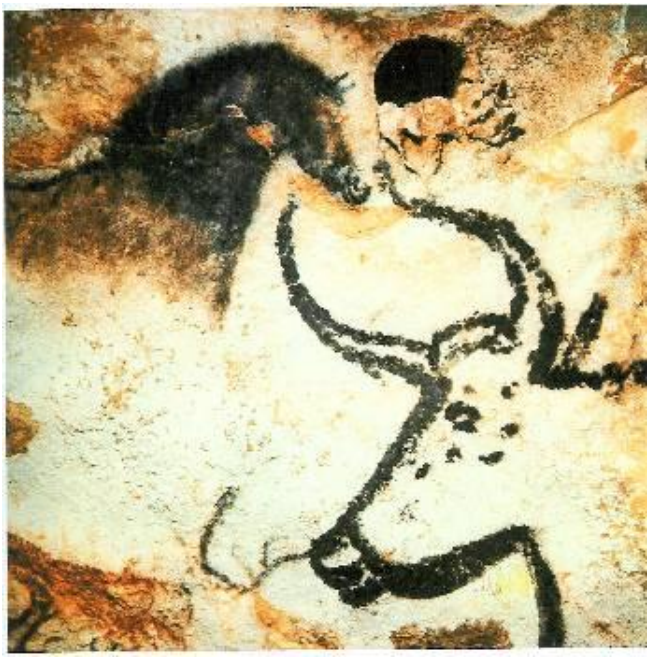
Jill Eyers

## *Event: Rock Art at the Buckinghamshire Sand pit*

**August x$^{th}$ 2012.**

Art and geology was further explored at the Buckingham Sand Pit Open Day this summer. Nicky Muizelaar and Jill Eyers explored the use of a variety of natural pigments, iron oxides, chalk and charcoal (**photo below**) to create some lovely images of the type found on Prehistoric caves. Images of the cave paintings found in the Lascaux caves in south western France (**photo right)** were used for inspiration.

Photo above from http://familycrafts.about.com



People really liked getting to grips with literal 'rock art'. Afterwards at the Buckinghamshire Museum an additional item called 'Rock Pets' was offered for the younger children, although in reality absolutely everyone loved them. Find yourself a suitable rounded pebble, get some acrylic paint and have a go. It is surprisingly easy to create something very attractive.

Jill Eyers

## *Weekend fieldtrip: Bucks Earth Heritage Group goes to Norfolk*

**May 18th to 20th 2012**

Thirteen members from the BEHG attended the May weekend field trip to Norfolk to investigate the Ice Age sediments and structures. The group stayed at the Royal Hotel in Mundesley.

After arriving on the Friday night the group met to discuss the geology of the area and to talk about the plans for the weekend.

On the Saturday the group went into the field and visited a number of sites starting with **Overstrand** for some excellent glaciotectonics in the form of thrusted Chalk blocks and a well displayed subglacial channel. **West Runton** showed some spectacular paramoudra flints on the foreshore – some of which were arranged in a circle (**Photo right**). Theories as to their origin abounded, but no one really knows what or why. The rest of the West Runton is easier to interpret as the Wroxham Crag is overlain by the Cromer Forest Beds and till from the Wolstonian ice. Blakeney Esker showed an impressive tunnel under the Wolstonian ice (an esker) with a mass of broom, smelling of coconut. This was followed by a visit **Morston Quay** where we took a boat out from the salt marsh to the sand spit to see the seals.

On Sunday our visit to **Happisburgh** was excellent. For the first time in many years the strata beneath the Happisburgh till had been exhumed by strong tides. This revealed a whole pine forest full of tree trunks and pine cones (which open as you collect them). On top of this we also found examples of the most ancient stone tools in the UK – thought to be c. 900,000 years old, these give a new date for the first humans in Britain (currently being researched by the Quaternary Research Group and others). The famous thrusted sections **(photo and diagram to the right)** show a complex series of stacked thrust sheets which are believed to have been caused by highly localised, repeated oscillations at the ice sheet margins by a process called glaciotectonism.

For those interested in learning more, reference can be made to the "Rocks afoot field guide: Geology of Northeast Norfolk: Hunstanton to Happisburgh". Although this is now out of print, Jill has written a complete update which will be published shortly as an e-book.

Jill Eyers

**Photo above**: examining the paramoudra flints

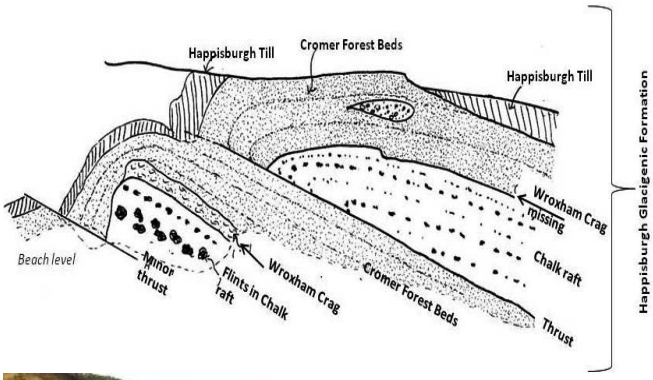



**Photo above**: the thrust at Overstrand.

# Members Questions

## Question:

I am looking at our collection of marine reptiles here at Halton and I am struck by the large number of Ichthyosaur and Plesiosaur fossils in the Oxford and Kimmeridge Clay drawers but the near absence of reptile fossils in the Gault and Chalk drawers. The Palaeontological Association's books for Gault and Chalk talk about the groups being well represented but that finds tend to be isolated or as fragmentary teeth, vertebrae etc. Just wondering why there is such a difference between the Mesozoic and the Cretaceous deposits here in Buckinghamshire. Is it numbers of animals present in the respective seas? Is it something to do with the fossilisation process? Is it something to do with likelihood of exposing such fossils?

**Mike Palmer**

## Answer:

In fact, only selected intervals from the Oxford and Kimmeridge Clay host abundant vertebrate fossils. The upper parts of both formations are almost devoid of bones. This evidence points to it being largely a preservation effect. In both formations, there are organic-rich bituminous clays, which would have presented themselves as oxygen-deprived seafloors, in which little bottom fauna could thrive, least of all those creatures that digest bodies that have sunk to the bottom. At Watermead near Aylesbury, for example, the abundant bones all came from the Holmans Bridge shale, exactly the type of bituminous shale one might expect to be so productive. No bone fossils were found above or below this member, despite a varied and abundant marine mollusc fossil fauna. The conditions were ideal for a corpse to lie, largely undisturbed by major predators, and to be covered by later mud and sealed in forever. In the Gault and Chalk seas, surely these creatures also existed but again, for most of the time, the sea floor was oxygenated, heavily bioturbated (churned by sediment dwellers and feeders) and predated. Not only that, I have only seen significant bone material (apart from shark teeth which are ubiquitous) in the phosphate-rich zones. For example, the Totternhoe Stone has yielded Plesiosaur bones **(see photo top right)**, turtle, pterosaur, large shark vertebrae and the like. Similarly the phosphate-rich Varicosum Nodule Bed at about the top of the Lower Gault Clay and the Cambridge Greensand, at the top of the Gault Clay, also yield lots of bony material. (Both have been dug locally as so-called "Coprolite" Beds for superphosphate production). Phosphate abundance may be the result of re-

precipitated, dissolved vertebrate bone-derived material, which was particularly abundant at the time. To some extent, the preservation of bony material is more noticeable as these beds are naturally condensed, and a lot more hard objects, like bone, are concentrated together. In the Chalk seas the habitat of the reptiles might have been closer to shore, so there could be an element of original scarcity anyway.

It is interesting to note that although in the (Lower) Oxford Clay one finds both Ichthyosaur, crocodile and Plesiosaur remains largely articulated, in the Kimmeridge Clay around Aylesbury, only Plesiosaur (mainly Pliosaur) bones are found associated/articulated. The Ichthyosaur bones are confined to rather poorly preserved individual bones, mainly vertebral centra, with a porous and corroded texture. This may be attributed to the geographical spread of these beasts, maybe the Pliosaurs lived nearer the land and the Ichthyosaurs were living farther offshore, where neither competed for the same food source. The few Ichthyosaur bones had somehow been transported towards the shore of the sea body in which they lived. I used to tie this idea in with the notion that Plesiosaurs laid eggs on shore, unlike the viviparous Ichthyosaurs. But the recent discovery of a viviparous Plesiosaur fossil may disprove this theory. However, there still could be some substance to the idea. Maybe if we studied the individual parts of the Oxford Clay closely, the same preponderance of either Ichthyosaur or Plesiosaur would separate out to individual layers as well.

As for the apparent difference between the Jurassic and Cretaceous occurrences being something real - I doubt it. In other parts of the Cretaceous world, as long as the preservation potential is there, bones are found. In the USA and Holland, for example, there are many particularly long-necked Plesiosaurs, as well as Mosasaurs in the latest Cretaceous.

**Dr Michael Oates**

# 2012 Future Programme –

Further trips and talks will be scheduled as the year progresses. Please check the BEHG website or email the organisers before any event, for the latest update.

**Sunday September 30th 2012, time 10am: Geology training day 1 at Dry Sandford Pit, Oxfordshire.** Learn how to log geological sections, how to keep a good geology notebook and how to interpret what you see. 10 am to c. 4 pm Packed lunch or pub if wet. It's on whatever the weather. Jurassic sequence. To book contact Jill Eyers at (j.eyers@btopenworld.com) or call 01494 881325

**Sunday October 21st 2012. 10am-12:30am. Clean up day at Coombs Quarry, near Buckingham.** A little light housework cleaning the faces, sweeping the walkways and trimming back the brambles and hawthorn seedlings. If this is the first time you have seen the quarry then you will be told all about the wonderful Jurassic story of 175 million years ago. A message will go out on how to find it and what to bring, just turn up on the day when it is confirmed. Heavy rain will call it off. For more information contact Jill Eyers at (j.eyers@btopenworld.com) or call 01494 881325

**Saturday October 27th 2012. 10am-3:00pm. Geology training day 2 at Hitchcopse pit (a BBOWT site).** For more information contact Jill Eyers at (j.eyers@btopenworld.com) or call 01494 881325

**Saturday November 10th 2012, 10am to 3.30pm. Visit to Bugle Pit, Hartwell. Buckinghamshire.** This pit has just been re-opened and is available to view the small section of Portland limestone to Purbeck for the first time in many years. Full story given on site by the BEHG 'clean up team'. Full details on where to park and where it find it will follow by e-mail message. Pub lunch to follow in the Bugle Horn next door (lovely menu!). To Book contact Jill Eyers at(j.eyers@btopenworld.com) or call 01494 881325

**Saturday November 24th 2012, 10am to 3.30pm. Rocks and Soils Workshop. Leaders: Alison Richards and Jill Eyers.** A day workshop covering: Rock and mineral identification, how to use geological maps, all about soils and how all relate to the landscape of Bucks. Venue: The Village Hall, Hambleden. To Book contact Jill Eyers at (j.eyers@btopenworld.com) or call 01494 881325

**Nature surveys - On-going through the year.** Each of our sites needs to have an on-going nature survey as different species come out at different times. I hope that some of you may have an interest in one or more aspects e.g. butterflies, birds, fungus, trees, flowers, or many others. We need to put out 'sand traps' to see who visits our sites at night - footprints are very useful! Stowe now has a camera to film night visitors. Please let Jill know if you want to survey any of the sites - I have a list of sites and it need only be a very simple survey, nothing fancy, not even Latin names! Contact Jill for more information at (j.eyers@btopenworld.com) or call 01494 881325

# Membership

Annual membership runs from 1st January. Individual membership for the calendar year is **£7.50** and family membership is **£12**.

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

Confirmation of receipt will either be by email or by post. The BEHG welcomes all new members.

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

***Website: www.bucksgeology.org.uk***

For general enquiries please contact:
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