

Buckinghamshire Geology Group

Newsletter No. 28 January 2017

Name Change to Buckinghamshire Geology Group (BGG)

The 'Bucks Earth Heritage Group' is now called the 'Buckinghamshire Geology Group'. Members agreed the change at the Special AGM held on 28th June 2016.

The name change suggestion came about at the group's AGM, where it was proposed that the use of 'Geology' in the group's title rather than 'Earth Heritage' should better align with the

Group's aims and provide clarity for others looking to join. The group's constitution and website have been updated to reflect the name change. A subtle logo change has also occurred.

Link to constitution:

http://www.bucksgeology.org.uk/pdf_files/BGG_Constitution_2016_AGM_final.pdf

Rock Picnic Saturday 27th August 2016

On Saturday 27th August a Rock Picnic was held at Coombs Quarry. The event was coordinated between the Buckinghamshire Geology Group and the local Trust volunteers responsible for the upkeep of the site.

Roy Cole and Julia Carey represented the BGG and provided guided tours and explanations about the site's history and geological features. Despite an afternoon thunderstorm this was a very successful event.

Roy Cole, photographed here with some of the attendees, used his new hammer to crack open rocks to reveal bivalves - accompanied by gasps of amazement. The excited children, now more knowledgeable about the Jurassic past, were keen to show off their new discoveries.

Refreshments and cakes were provided by the local Trust attendees and a huge cake tent/gazebo provided welcome refuge during the brief thunderstorm.

Several new members joined the BGG at this event. Our thanks is extended to Roy Cole and Julia Carey for leading this event and ensuring everyone had a safe and enjoyable trip around the quarry.

Further information on Coombs Quarry:

http://www.bucksgeology.org.uk/coombs_quarry.html



Photo above: welcome refreshments at the cake tent.



Photo above: Roy Cole guiding youngsters around the site.

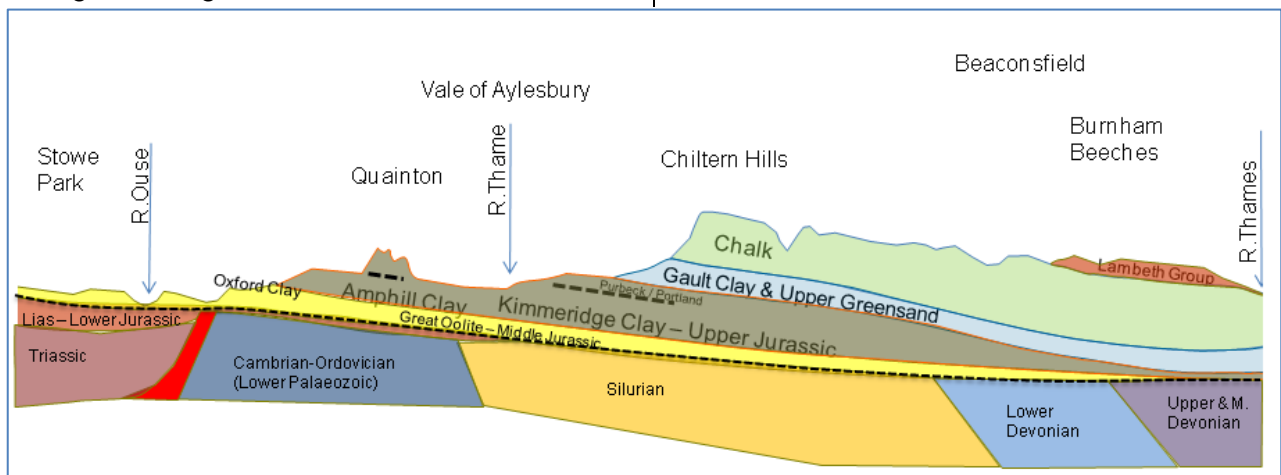
Buckinghamshire's Hidden Geology

Question: Have you ever wondered what lies below the rocks we see at the surface?

Answer: More rocks! We discover about the deeper rocks from various past drilling endeavors. These range from wells drilled for water, to wells drilled exploring for coal and oil & gas. Geophysical measurements such as gravity and magnetics have also been used to map the subsurface together with a small amount of seismic which has been shot in the north and west of the county. This information has been compiled and illustrated in the diagram below which shows a north to south cross-section through Buckinghamshire.

The most striking feature of the hidden geology of Buckinghamshire is the major unconformity (dash black line ---) that separates the lower Mesozoic rocks from the older Palaeozoic rocks. This unconformity represents the tilted remains of the London Platform, a long-lived high block. The Mesozoic rocks can be seen thinning and onlapping, in a SE direction, onto this surface until it was submerged during the Cretaceous. Later tectonic movements have reversed the dip on this surface.

Below the unconformity a general trend can be determined from the borehole data, with the older Palaeozoic rocks in the north of the



County and the younger Palaeozoic (Silurian-Devonian) in the south of the County. The exact relationships are however difficult to determine.

The Palaeozoic rocks are themselves underlain by much older Pre-Cambrian rocks. It is expected that these rocks will be very similar in nature to the Pre-Cambrian exposed at Charnwood, Leicestershire, as they form part of the same microplate called the Midland Microcraton. The total thickness of the crust below Buckinghamshire is estimated to be around 10km.

There is far more 'hidden geology' compared to the rocks exposed at the surface. No doubt if coal or oil had been discovered in Buckinghamshire from the early exploratory drilling more exploration would have occurred and our understanding of the hidden geology would be greater but at the expense of our rural vistas.

(North on left. (length=65km, depth=1km)

In order to display such a long distance, the section has been squeezed and the vertical scale exaggerated.

The rocks exposed at the surface in Buckinghamshire range from the Quaternary glacial deposits (less than 2.6 million years old) to the Upper Lias (Jurassic 190 million years old) in the north of the county. However, this is only part of the story; below the surface much older rocks are present. Boreholes near Tywford in the north of the county have found Palaeozoic rocks (Cambrian-Ordovician) in a structure known as the Charlton Axis. Near Slough Devonian sandstone has been found and near Little Missenden, Silurian limestones and shales have been found.

Several cores have been taken from the boreholes drilled in Buckinghamshire and some are stored at County geology collections at Bucks County Museum Resource Centre in Halton.

Graham Hickman

Quaternary deposits at Buckingham Sand Pit– by Simon Price

During September 2016, the sediments exposed at Buckingham Sand Pit were observed and recorded by Simon Price (University of Cambridge and British Geological Survey), Phil Gibbard (University of Cambridge) and with the kind assistance of Roy Cole (Buckinghamshire Geology Group) who facilitated entry to the site via Aylesbury Vale District Council.

The sections exposed form part of a wider investigation by Simon Price as part of his PhD research on the geology and engineering geology of Quaternary sediments in and around Buckingham.

This article provides a brief summary of activities during the visit. Although heavily vegetated at least four main sections are visible at the site and are accessible with care.

Location 1: to west of the former sand pit. (See Photo A). A unit of weathered, light-brown and reddish-brown sandy, gravelly clay and silt is exposed. It is a matrix-supported diamicton and contains abundant rounded and well-rounded clasts of white and grey chalk, subangular grey flint and other clasts including Jurassic limestone and grey sandstone.

Location 2: The central part of the site is characterised by poorly exposed, light-reddish-brown and light-grey, laminated and thinly-bedded sandy silt and silty sand. The top of this sequence appears to grade upwards into thinly cross-stratified coarse sand and gravel. The gravel is dominated by chalk and flint and is rounded to well-rounded.

Location 3: The eastern side of the site shows evidence of an apparently basal unit of dark- to medium-reddish-brown and brown, very sandy, gravelly, clayey silt. It is a matrix-supported diamicton dominated by rounded and well-rounded gravel of grey flint, quartzite and Jurassic limestone. Chalk is rare. It has a sharp, inclined upper contact that passes upwards into calcareous gravel and brown diamicton. Tracing these units northwards, coarse sand is seen to underlie the reddish-brown, quartzite diamicton. Both of these units are overlain by gravel with cobbles and boulders at its base. The gravel here includes gravel clasts of light-brown silt. The junction is marked by a sharp and inclined



Photo A: *Interbedded sandy, gravelly clay and silt, chalk-rich diamicton and reddish-brown silty sand. 200 mm intervals on measuring staff.*

surface. Further units of sandy gravel are seen and the upper-most layer may in part include made ground. These units pass northwards where they appear to be cut out by erosion. Above the erosion surface is a very gravelly sand with common beds of cobbles and boulders. Again, thin beds of light brown silt occur in the centre of the feature.

Location 4: Further northwest, cross-stratified sands and prominent gravel beds, rich in rounded chalk clasts crop out. Their relationship to the very gravelly sand with cobbles and boulders is poorly exposed but occurs at a higher elevation.

This preliminary work has identified features that require further interpretation. Future work includes plans to investigate the composition and mineralogy of the sediments and a geophysical survey to establish the stratigraphical relationships between the sediments.

Preliminary Interpretation: The presence of a chalk-rich and chalk-poor diamicton, if interpreted as till may suggest evidence of at least two glacial incursions into the area. Alternatively, the reddish-brown diamicton may be a decalcified version of that exposed elsewhere in the site. The deformation structures and incorporation of sandy silt layers into diamicton may indicate ice-marginal glacial deformation and/or ground-freezing during subsequent periglacial events.

For further information about this site visit: http://www.bucksgeology.org.uk/buckingham_sand_pit.html

Hand-axes from Boyn Hill Gravel Terrace - In Bucks County Museum

As part of the recent visit to East Burnham Quarry a request was made to the Bucks County Museum to photograph the Palaeolithic hand axes which are held in the museum collection that were found near Burnham.

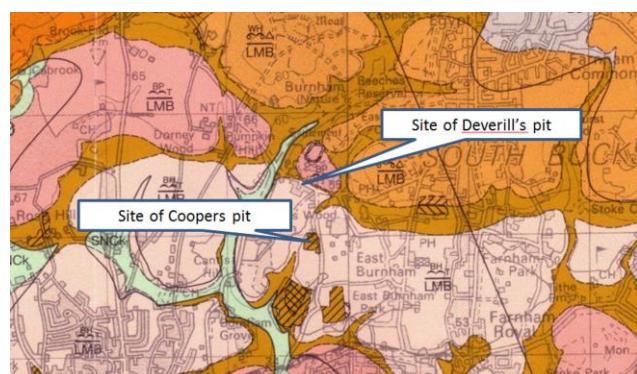
The photo is reproduced here courtesy of Mike Palmer of Bucks County Museum.

The finds were made in the old Deverill's Pits which no longer exist, but within the same Gravel Terrace.



Literature¹ references these finds as follows:

"Prolific collections of Palaeolithic artefacts came out of sites such as Deverill's Pit and Cooper's Pit both near Burnham. Many of these artefacts... are now in the County Museum, Aylesbury while others are in the Pitt Rivers Museum and the British Museum. An important point to note about these finds is that the artefacts recovered were almost all rolled. This suggests that they had been moved some distance from where they had originally been deposited – most probably on the ancient flood plain, and subsequently washed in and re-worked into river gravels. These flint tools are likely to represent a significant human presence on the Thames flood plain beside the river during MIS 11 [Hoxnian Interglacial, roughly 400,000BP]"



The Geological map (above) shows the location of the two historic gravel pits. The light pink colour is the extent of the Boyne Hill Terrace.

Several old photos exist which show the workings at the two pits.



Deverill's pit as seen from a 1934 photo courtesy of BGS (Photo A06371)



Coopers Pit as seen in this 1920s photo.

Unfortunately no further hand axe discoveries were made on our visit to East Burnham Quarry, (next article) but at least we know what to look out for next time.

References:

1. *An Illustrated History of Early Buckinghamshire* (ed Mike Farley) P8-P10.

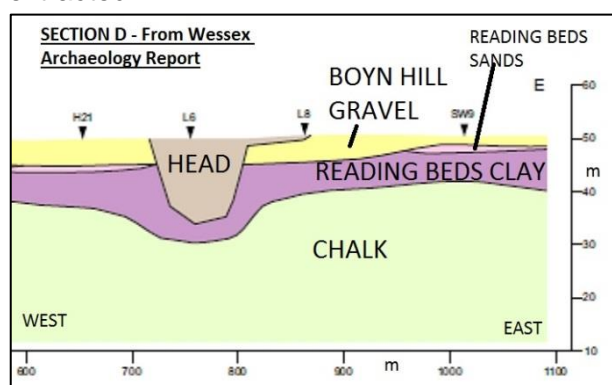
East Burnham Quarry visit – Saturday 30th July 2016

On July 30th 2016 the Buckinghamshire Geology Group had the opportunity to visit a recently opened gravel quarry to the north of Slough, near to Burnham Beeches nature reserve. The quarry operated by Summerleaze Ltd. is exploiting the Quaternary Boyne Hill Gravel Terrace.

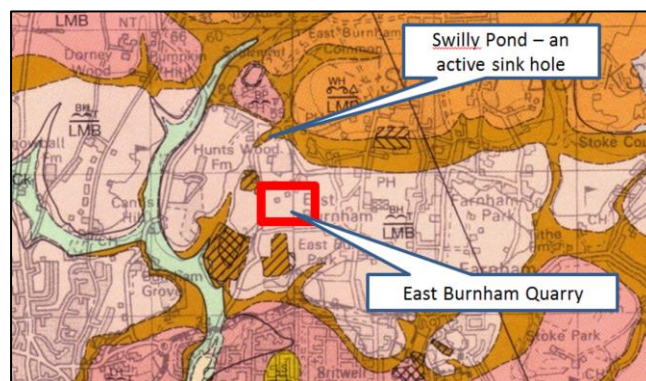


The Boyne Hill Gravel overlays a thin deposit of Lambeth Group - Reading Beds and then Chalk. In nearby gravel workings Palaeolithic stone axes (see previous article) and flakes have been found and there is evidence of palaeo-channels running nearby.

The group were escorted around the quarry by a member of the Summerleaze quarry company who described the different qualities of sand and gravel which were being extracted.



The western side of the quarry had been deeply extracted as this formed a palaeo-channel and can be seen from the cross section above. The geological map shows several palaeo-channels and dry valleys connecting northwards toward Burnham Beeches and south towards Burnham.



A rare opportunity was also had to view the Reading Formation which underlies the Boyne Hill Gravels. Dark patches of brown mudstone and clay were observed as well a large area of clean well sorted sands. From the borehole, drilled prior to extraction, it is interpreted that this sand was the middle sand seen in borehole BB-44.



Photo above: Simon Price examining the dipping infill of a palaeo-sinkhole.

A number of palaeo-sinkholes or 'dolines' were evident and as these were of no economic interest due to their mixed lithologies (Hoggin – clays, silts, sands and gravels) had been left unexcavated. The group were able to view them in 3D relief.

The BGG wishes to thank the Summerleaze company for allowing us access visit to the quarry.

References:

[Link to Wessex archaeology report](http://www.bucksgeology.org.uk/ice_age.html)
http://www.bucksgeology.org.uk/ice_age.html

Festival of Geology – Saturday 5th November 2016

As an affiliated member of the Geologists' Association the BGG took part in the 2016 Festival of Geology. The group took a small exhibit entitled 'Magic Minerals' and our own display boards describing the BGG activities. The Festival of Geology brings together exhibitors, local geology groups, Rockwatch activities for children and talks from TV personalities like Prof Iain Stewart.



One very interesting talk was by Dr Howard Falcon-Lang about Marie Stopes. Today she is well known for her campaigning on women's rights but spent the early part of her career as a

leading Palaeontologist studying fossil plants.



Admission to the event is free and well worth the effort of a day trip to London for a buzz packed geology event, the next one will be take place during November 2017.

Many thanks to the following members for volunteering on the BGG exhibit: Phil Clapham Mike Farley, Kerry Hickman, Mick and Yulia Oates.

Graham Hickman

Membership Update

Just a quick reminder that BGG subscriptions are due for renewal at the end of December. Annual membership runs from 1st January. Individual membership is £7.50 and Family membership is £12 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 2016 by becoming paid up members:

J. Carey
E. Chequers & family
P. Clapham & family
R. Cole
J. Damant
P. Dottridge
J. Eysers
M. Farley
J. Harden
F. Harden

G. Hickman
L. Holmes
M. Howgate
I. Hudson
J. Ibbett
G. Lewis
C. Mills
M. Oates
S. Packer
M. Palmer

D. Parish
K. Philbin
S. Price
J. Radley
R. Shah
J. Stanton
J. Syred
J. Wainwright

2017 Future Programme

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

Thursday 19th January, 6.30 – 8pm. Mammoths in Britain: Lecture by Professor Adrian Lister of the Natural History Museum and author of Mammoths: Giants of the Ice Age. This is a Bucks County Museum event. Tickets £7.50 including refreshments. Please book in advance at the County Museum or call 01296 331441 or visit www.buckscountymuseum.org. For more information contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org [link to poster](#)

Saturday February 11th 2017, 10am - 12noon. 'Hands-on-with-Fossils' leader Dr. Jill Eyers. Come to the Museum Resource Centre to learn about fossils and what they tell us about the ancient environment. Meet at Buckinghamshire County Museum Resource Centre, Rowborough Road, Halton, HP22 5PL. To reserve a space contact Jill Eyers: at (j.eyers@btopenworld.com) or call 01494 881325.

Thursday March 9th 2017 – 7:30pm. Geology of the Jurassic Coast. Talk by Simon Penn. Venue to be confirmed.

Saturday March 25th 2017, 11am - 3pm – Rock and Fossil Day: Explore hands-on geology displays. Bring in your own mystery items for identification. Suitable for all ages. Bucks County Museum, Church Street, Aylesbury. HP20 2QP. Contact Mike Palmer for further details, Tel: 01296 325223 email: mpalmer@buckscountymuseum.org

Saturday & Sunday April 1st & 2nd 2017, – College Lake BBOWT, Geology weekend. This is a Berks, Bucks and Oxon Wildlife Trust event. Some activities will be free of charge while others will require booking. Please see www.bbowt.org.uk/whats-on for further details or contact Kate Sheard on 01442 826774 or katesheard@bbowt.org.uk. The Bucks Geology Group and Bucks County Museum are planning to have stands at this event. For more information on these or to help out on the day please contact Mike Palmer on 01296 325223 or mpalmer@buckscountymuseum.org

Saturday April 15th 2017, 10:30am-3:30pm – Easter Egg Challenge; Family fun event at Coombs Quarry, near Buckingham. Just turn up to enjoy, but if you would like to help Jill set up the trail and hand out the eggs then please contact her at (j.eyers@btopenworld.com) or call 01494 881325.

Sunday April 30th 2017 - Geology of Charnwood Forest. Leader Roy Cole. Details to be confirmed.

Saturday May 20th 2017, time tbd – AGM followed by building stone geological walk and museum. Meet in Olney venue to be confirmed. Contact Mike Palmer for further details, Tel: 01296 325223 email: mpalmer@buckscountymuseum.org

Sunday June 4th 2017, time tbc – Geology and Hydrology of Burnham Beeches. Joint meeting with the Reading Geological Society. To reserve a space contact Graham Hickman Tel 07763363266 or David Ward (RGS) - 01344 483563

Saturday September 23rd 2017, 10:30am- – Walking in the Ivinghoe Hills, geology and landscape at a gentle pace suitable for all. Leaders Phil Clapham and Jill Eyers, options for a short or longer walk will be offered. For Details contact Jill Eyers: at (j.eyers@btopenworld.com) or call 01494 881325.

Saturday November 4th 2017, 10:30am-4:30pm – GA Festival of Geology. University College London, Gower Street, London. WC1E 6BT. Free public event. Family friendly. The Bucks Geology Group is hoping to have an exhibit. www.geologistsassociation.org.uk/festival.html

Saturday November 11th 2017 2:30-3:30pm - The Geology of the Chilterns and the Possible Impact of HS. Talk by Dr Haydon Bailey, Geological Advisor to the Chiltern Society and vice president of the Geologists' Association. Bucks County Museum. This is a joint meeting with the Buckinghamshire Archaeological Society.

Membership

Membership is due on January 1st 2017 please forward on membership fee to Julia.

Annual membership runs from 1st January. Individual membership for the 2017 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/pdf_files/BGGMembershipForm2017.pdf

If you would like to join please complete and send the application form together with payment to:

Membership Secretary, Julia Carey, c/o BMERC. Place Service 9th Floor, County Hall,
Aylesbury. Bucks. HP20 1UY

email: jcarey@buckscc.gov.uk

Alternatively, you can pay your subscription direct to the **Buckinghamshire
Geology Group** account at: Lloyds TSB (White
Hart Street, High Wycombe) **Sort code: 30-94-
28 Account no. 00744003**

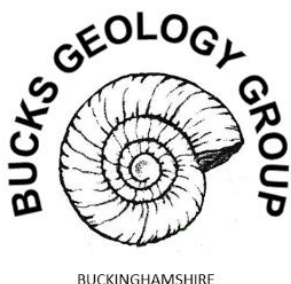
Confirmation of receipt will either be by email or by post. The BGG welcomes all new members.

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

Website: www.bucksgeology.org.uk

For general enquiries please contact:

Mike Palmer, Tel: 01296 325223
email: mpalmer@buckscountymuseum.org
Bucks County Museum Resource Centre,
Tring Road, Halton,
Aylesbury, Bucks HP22 5PN



Affiliated to the Geologists' Association

