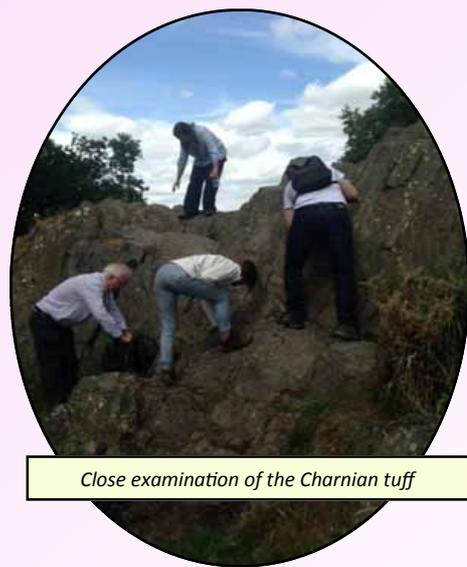


Newsletter

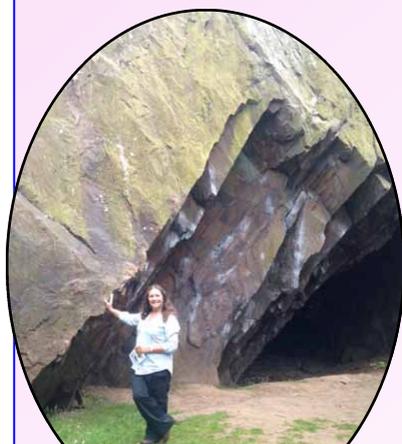
BGG explores Charnwood Forest - a hard rock feast

A field trip outside Bedfordshire provided a chance to get our hands on some 'hard rock' Precambrian geology. Nine eager walkers met at Broombriggs Farm Country Park in Leicestershire to start a six mile geological hike. With all our stops and deviations I think it was more like 10 miles! We were joined by two new recruits. Peter Sheldon, a lecturer from the OU and George Frost, an A-level student. Both contributing refreshing geological perspectives.

Under the leadership of Frances Maynard, our first stop was an impressive igneous outcrop of Charnian tuff. This Pre-Cambrian exposure protruded dramatically through the surrounding Triassic sedimentary sequences. The tuff, a volcanoclastic siltstone from the Bradgate Formation formed around 600 million years ago in the Ediacaran Period when volcanoes erupted around the Bardon and Whitwick area. A fresh face revealed a greenish fine grained rock with small reddish poorly sorted fragments. Peter was on hand to challenge our observations. Was it deposited in water? Possibly, as it appeared to have evidence of bedding but was poorly sorted – lots of discussion here. Beside the outcrop were the remains of Woodhouse Eaves Windmill, a corn mill last used in 1895 which had been burnt down in 1945.



Close examination of the Charnian tuff



Glynda holding up the anticline of Swithland slate

We next passed through the charming village of Woodhouse Eaves – full of enchanting cottages, colourful manicured gardens and dry stone walls of geological interest. Trying not to deface these expertly constructed walls formed of Swithland Slate, we examined their composition and microstructures. I think we got away without drawing too much attention from the locals.

We saw these purple/grey metamorphic slates insitu further down the village at an old quarry site. They were formed approx. 500 mya in the Cambrian Period from sedimentary mudstones. This exposure showed

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BGG needs YOU
Join the committee
See page 9

how huge forces had compressed and folded the slates into a steep anticline. We were looking at the eastern limb of the fold which also exhibited a large fault complete with a brecciation zone where movement had taken place. It was possible to observe bedding features, joints and cleavage planes in the quarry. There was a lot to look at and enjoy in just one exposure.

Our walk continued through fields of waist high wheat; a delightful route over stiles and meadows. We were now on the Triassic clay beds, observable from the deep red soils which also contained fragments of the much older Charnian Precambrian rocks.

We crossed the Great Central Railway track and headed on towards the Swithland reservoir. This was constructed of the intrusive igneous rock granodiorite, from the Mountsorrel Complex of the Ordovician Period, around 450mya. Although we didn't get to Buddon Wood quarry which supplied the rock (apparently one of the largest



working quarries in Europe) there were plenty of examples of granodiorite in surrounding walls. It was easy to see the minerals in this coarse grained plutonic granodiorite even without Peter's hand lens. Quartz, feldspars, biotite and hornblende were all clearly visible.

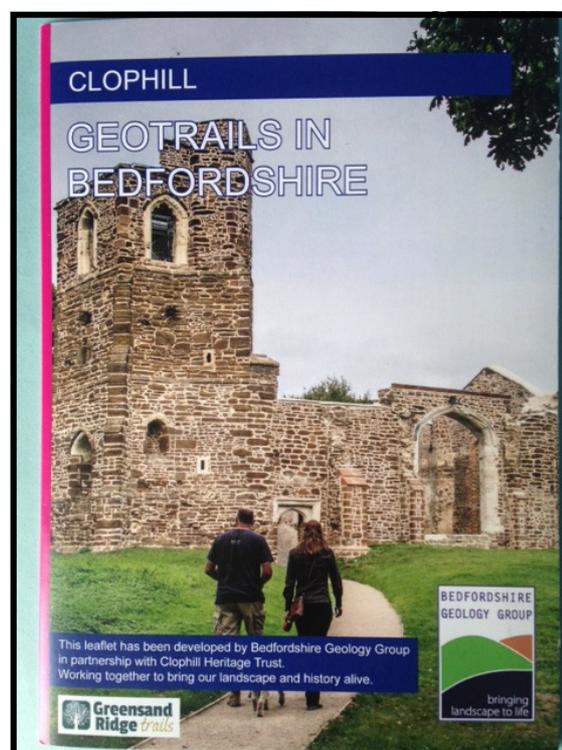
Where had the time gone to? So much to see! We took a short cut back to our carpark and swerved into the Bulls Head for much needed refreshments as it had been a hot sunny day but perfect for our walk.

This area is so rich in geology that another trip must be planned. We didn't even get to see where the famous fossil *Charnia masoni* was discovered – the very first Precambrian fossil.

Thanks for all your organisation, information and maps Frances. We'll be back!

New Clophill Geotrails leaflet published

BGG in partnership with the Clophill Heritage Trust have produced a new leaflet on trails around the village of Clophill on the Greensand Ridge. The trail is a steady walk of about 5 or 6 miles exploring the landscape, geology and land use around the village. It covers geologic time since the Cretaceous Period, including exposures of the Woburn Sands Formation and points out its use as a building stone in the village and of course in the 10th century St Mary's Old Church.



This leaflet will be available from our website very soon. If you are unable to download it or would prefer a more durable copy then please contact Anne Williams.

**Don't forget the AGM on
Sunday October 4th at
Meppershall village Hall
at 3pm**

Dunstable Downs – not just geology.....there's all that history & archaeology!!

An impressive turnout of 16 members (including two children) met at the Chilterns Gateway Centre on Dunstable Downs on the sunny but windy morning of April 18th. Jan Munro, our BGG Chalk expert led a thoroughly enjoyable walk over the Downs with a historical & archaeological twist.

Jan showed us 2 enlarged historical photos of the Downs. The first, taken in the 1930's showed an undulating landscape without any trees or shrubs which clearly exhibited chalk escarpment features. The second photo from the 1950's looked like a classic car convention – there were no restrictions on parking on the Downs in those days and as Jan pointed out many cars just slipped over the edge and ended up at the bottom of the escarpment (handbrakes have improved considerably since then!).



Our walk on such a clear day revealed fantastic views across the clay Vale of Aylesbury, as far as Didcot, Oxfordshire (so Frances observed with her binoculars,) but closer were the villages of Eddlesborough and Eton Bray. The London Gliding Club and its archery range could easily be seen just at the bottom of the escarpment. Jan told us that the retro style club house had housed Italian prisoners of war during WW2 who were employed locally. It was a perfect day for gliding and we watched several gliders being winched up into the sky.

Jan pointed out the strip lynchets visible across the Downs – evidence of medieval agriculture and described how vegetation on the thin chalk soil had changed over the years. She also mentioned the influence of the Ice Age and the effect of both sheep and rabbits on the landscape and drew our attention to micro climates formed in sheltered ditches which harbour unique chalk biodiversities.

A diversion down the escarpment revealed some bramble covered ditches. Jan told us that these had once contained anti-aircraft defences during WW2, including machine guns and spotlights. These were defences to protect the ball bearing factories of Luton from surprise attack over cover of the Downs.



After walking the length of the escarpment, Jan took us to the Five Knolls burial site. These Neolithic /bronze age barrows and cremation sites have revealed many skeletal parts, pottery and arrow heads. Jan talked of the discovery in the 1920's of a woman's skeleton from late Neolithic age, now preserved in Luton museum. There was also evidence of Saxon burials where possible massacre victims were buried with their hands tied behind their backs.

Other civilisations have also left their impression on these Chiltern Hills for us to see today. From the Iron Age hill fort just visible over at Ivinghoe Beacon to the routes of Icknield Way and the Roman road of Watling Street.

So not much talk of the Middle Chalk that forms most of this escarpment or of flints or fossils. No, we talked about the views; the strategic significance of this upland area and how these chalk hills and the geology have influenced people in the past.

Thanks Jan for your observations and for sharing such a wealth of information on the Downs.

Fossil collecting with 'The Belgium Hammer'

Anne Williams led eight BGG members on an interesting walk around Tottenhoe Knolls. We were joined by Frederic Migon, a keen amateur palaeontologist, with an interest in shark's teeth who came all the way from Belgium. He brought with him a basket of hammers- all shapes & sizes, picks and tools but his most impressive implement was a hammer measuring nearly 4 foot!



Goup photo with Frederic holding his basket of hammers

Our walk took us through delightful chalk countryside and showed some excellent chalk cliff exposures, the remnants of past quarrying activities. We were walking over the Lower Chalk formation comprising the Tottenhoe stone, Marl Hardground, Chalk Marl and the Grey Chalk of the Cenomanian. It was noted that no flints are found in these Lower Chalk exposures.

Spoil tips were abundant and gave us the opportunity to get our hammers out for a spot of fossil hunting. Amongst the fallen boulders we found bivalves, a perfect brachiopod with nicely formed umbo and pedicle opening (Tony Britten), corals, possibly the basal spine from an echinoid, evidence of worm burrowing. Our success in finding shark teeth was all down to Frederic who wielded his massive hammer with gusto whilst we all ran for cover. (Does BGG insurance cover demolition activities we asked??).

Clearly he knew what he was looking for judging from this specimen.....



Now that's a big one!

The Secrets of the Sands update

By Bev Fowlston

On July 16th, Anne Williams and I met with Claire Poulton the Programme Manager for this exciting long-term project. I agreed to take the lead on this project as I often travel West to East visiting family along the Greensand Ridge.

The project is designed to preserve, enhance and open the Ridge up to the public. Our part of the project is relatively small: we have been tasked with finding 5 geological sites along the ridge that can be restored and or maintained for future access by the public. Do you have a favourite site?

I will give an update in each newsletter and ask for help as and when needed but, if you want to help out from the beginning on this venture, please contact me at bev.fowlston@gmail.com

To find out more follow the link <http://bedsrcc.org.uk/rural/secrets-of-the-sands/>

BGG at Podington Open Farm Event by Bev Fowlston

A beautiful, sunny but chilly day awaited us when we arrived at Glebe Farm in Podington. The biannual Open Farm event across the country was being held at this farm, which has, as its interest to Bedfordshire Geology Group, the amazing waterfall as its geological feature.

Lindsay Hiles, Anne Williams, Tony Britten and I manned a well-stocked stand to promote Bedfordshire Geology Group. There was a lot of interest throughout the day from everyone who wandered into the barn in which we were stationed.

The children were fascinated by the handling collection of Tony's, with "oohs" and "aahs" coming from the children as they picked up fossils. Many of the children knew their stuff and others were enchanted by the stories of giant worms forming trace fossils and amazing swimming animals found right under their feet, almost 200 million years ago.

The adults who visited the stall were equally enthralled by the tales of Bahamian sands and warm tropical seas.

Anne and I took a walk through the fields and along the small valley to take a look at the amazing waterfall. I hadn't been before and I was interested to see it in all its glory.

As we walked, I suddenly heard the babbling of water falling and the tinkle of splashes on rock. And lo and behold, round the next bush along the valley bottom, right there in front of me was this AMAZING waterfall - very similar in size to the water feature I've just put in my back garden!! Joking aside, I found it very exciting and beautiful – well-worth a visit.

A huge thank you goes out to those who were there on the day and helped to boost the BGG coffers by about £50.



Anne, Tony & Lindsay manning the stand



Anne toe dipping in the waterfall!

Searching for the elusive Fuller's Earth by Bev Fowlston

On June 20th, a small group of members and visitors joined me on a walk at Aspley Heath to search for the elusive Fuller's Earth. As usual there is still none to see!! However, we had a lovely walk through the Parish sandpit where exposure of the Woburn Sands iron cap is revealed above a beautiful sand scree slope.



We walked the ancient Roman trackway that tentatively links the Fuller's Earth excavation area with the Roman road of Watling Street. The bell pit remains of old Victorian excavation works are revealed between the modern plantation of pine trees. This crater-rich area is in complete contrast to the wooded slopes of the modern restoration across the ridge of the mass excavations.



Luckily the weather held off until the end of the walk and I'd like to thank those who turned up on the day: Anne Williams, Ray and Val Piercy, Maryla Carter and her lovely granddaughter and our visitor Graham Hobbs, who asked some very interesting questions.

Church geology & what our building stones tell us.....

Anne Williams takes us round the geology of Stevington Parish....

As more quarries close and we lose sites, we are looking to use churches as prominent representatives of the underlying geology in their building stones. We are hoping to designate as Local Geology Sites both Old St. Mary's Church at Clophill, built from Woburn Sands (Lower Greensand) and St. Mary the Virgin at Stevington (Jurassic limestones).

The use of local building stone gives attractive Ouse valley villages such as Stevington their character as well as the ancient bridges of Harrold and Bromham, and the stone-built windmill at Stevington. In the Middle Jurassic Bedfordshire was located much closer to the Equator, with a warmer climate than today and was covered with a warm shallow tropical sea just like the Bahamas today. The Great Oolite Group is found in a thin strip of land on the valley sides of the Great Ouse upstream of Bedford and The Great Oolite Limestone (Blisworth Limestone), which dominates this group of rocks, is a well-cemented limestone and makes a very good building stone. It is oolitic, containing tiny spheres of calcium carbonate formed in the shallow sea as currents rolled them around, collecting concentric layers around a tiny nucleus of sand or broken shell. Much of it shows cross-bedding indicating current flow direction. The Cornbrash is a thin rubbly limestone containing many broken shells giving it a rough and gritty texture. However, it does make a fertile well-drained soil: corn brash, a soil good for growing corn.



St. Mary the Virgin Church Stevington

A geological curiosity.....

A curiosity which requires further investigation (Bev has samples), is the presence of very light-coloured clay fragments in the soils on the Blisworth limestone and Cornbrash in the area known as Fulling Mill Furlong on old maps. There is also the site of a possible fulling mill on the river. Both suggest the presence in the rocks of a fine clay used for cleaning sheep's wool (fulling). Known Fuller's Earth deposits in Bedfordshire are found further south in the Woburn Sands around the Woburn and Aspley Heaths. The Woburn Sands are Lower Cretaceous in age, so it seems unlikely that there would be deposits of this volcanic ash so much earlier in the Middle Jurassic limestones of North Bedfordshire. However, Fuller's Earth is known in the Middle Jurassic (Bathonian) of South-West England; it is also possible that the Blisworth Clay in our area could have yielded a fine clay suitable for cleaning fleeces.

Stevington church itself is situated on a river cliff high above the alluvial floodplain of the Great Ouse and a number of springs emerge at the foot of the cliff including the Holy Well. There is also an impressive 'Roaring Spring' in one of the fields. It is probable that such springs emerge where the permeable Blisworth Limestone is underlain by the less permeable Rutland Formation.

On the higher ground away from the river the Jurassic rocks are overlain by the clay cap of the Oadby Till, classic 'chalky boulder clay', full of flint and other erratic fragments. And there is an interesting pattern of small faults which displace the solid rocks of the valley sides.

So it is not just the building stones of the church which are of interest, but the geology of the whole parish, which needs further investigation. Try the walk between Bromham and Stevington (BGG leaflet Geotrails in Bedfordshire: Jurassic Limestone Villages) to see more of this landscape.

Forthcoming Events

Event	Date	Time and Place
Promotional stall at Harrold Odell Country Park	Sunday August 23 rd	Harrold Odell Country Park Meet at 11.00 Map ref. TL956567
Potton Scout Hut – Face clearance	Sunday September 20 th	Potton Scout Hut Map ref.: TL 229 494
AGM and visit to Meppershall to examine building stones in former 12 th century chapel dedicated to St Thomas a Becket and linked to Chicksands Priory	Sunday October 4 th 2.00pm AGM at 3.00 pm to finish at 4.30	Sunday 4 October Meet at Chapel Farm, Chapel Road, Meppershall SG17 5NG. The AGM at Meppershall Village Hall Details to follow
Trip to London – Burlington House and Royal Geological Society	November	Mid-week meeting
Christmas Social	Tuesday December 8 th 7.30pm	Location to be confirmed
Sandy Heath Quarry – a visit to the re-stored quarry and possibly the working face	23 January 2016	TBC
Joint field trip with Oxford University Geology Society to explore the quarrying of the Woburn sands formation and the coprolite industry.	Sunday February 21 st	Meet at Potton Scout Hut at 11.00 am Map ref. TL 229 494 Lunch at local pub followed by exploration at Sandy Warren in the grounds of The Lodge, Sandy (RSPB) Park at the Lodge car park (pay and display) at postcode SG19 2DL Map ref.: TL 187 478

Thank you Frances for all your work in arranging these events.

Members Page

- * **Do you have a specimen you want to identify ?**
- * **An interesting photo?**
- * **Tell us what you're involved in. Please share with us.**

Cambridge Research

By Bev Fowlston

During the Spring, Ray Piercy, long-term BGG supporter and 'Holder of the Keys' for the Scout Hut Quarry, Potton, oversaw a group of engineering students under the supervision of two PhD students from Cambridge as they carried out some research on our lovely preserved outcrop.

They did have to clean the face before commencing their studies, so a huge thank you to them for that. It has saved us a job!

Thanks also to Ray for his support in this work.

*A holiday photo....
Don't go here if you don't
have a head for heights. But
where is it?
(See page 9)*



BGG has taken to social media...



**we're on
Facebook!**

Bev Fowlston has created a Facebook page for BGG. A great way to advertise our group to the wider public.

We are described as ' A voluntary organisation aiming to encourage an understanding of the rocks and landforms of the county for the benefit of all.'

Bev will be posting our upcoming events, walks and talks. You can register your interest on each of these, leave a message, upload and share some of your photos or follow some other sites which our page is linked to.

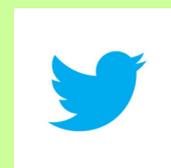
So please take a look and register your interest.

Follow us on Twitter

We now have a Twitter account! Link to the BGG twitter feed:

<https://twitter.com/BedfordshireG>

The more followers we get the more successful the twitter feed will be and the more interesting tweets generated.



Who's who on the BGG Committee

Chairperson	Peter Lally	plally65@gmail.com
Secretary	Glynda Easterbrook	g.easterbrook@open.ac.uk
Treasurer/Membership Sec	VACANT	bgg.membership@btinternet.com
LGS Manager	Anne Williams	annew36@hotmail.com
Events Coordinator	Frances Maynard	fmaynard@btinternet.com
Chalk area rep/BNHS rep	Janet Munro	jan.munro1@ntlworld.com
Newsletter Editor	Henrietta Flynn	henriettaflynn@btinternet.com
Fundraising	VACANT	
Information Officer	Anne Williams	annew36@hotmail.com
Committee Member	Martin Day	francis.day@btinternet.com
Committee Member	Tony Baker	janetbaker20012001@yahoo.co.uk

We are all volunteers and bring together an assortment of skills, interests, experience and geological knowledge (or not, as the case may be!). If you feel we could benefit from your skills and ideas too, we would love to hear from you.

Come and join our committee

Our current Treasurer/Membership Secretary, Lindsay Hiles has decided to step down from this role after many years of excellent work. As a consequence we are looking for new blood to join our committee in the roles of Treasurer, Membership Secretary or Fundraiser.

Interested? Then, please contact Peter or come along to the AGM

As always please look at our website for the latest news, details of events, lectures etc. It is also a great source of educational information and so easy to download our wide range of brochures, flyers and geotrails.

www.bedfordshiregeologygroup.org.uk

Holiday photo from page 8.

Did you guess it was Ronda in Andalusia, Southern Spain?

The photo shows the steep gorge carved out by The Guadalevin river. The buildings perch perilously over the ravine.

Newsletter compiled and edited by
Henrietta Flynn

If you wish to include an article, photo or share your geological interest in the next issue, then please contact me by email at

henriettaflynn@btinternet.com

Hope you enjoy the read!